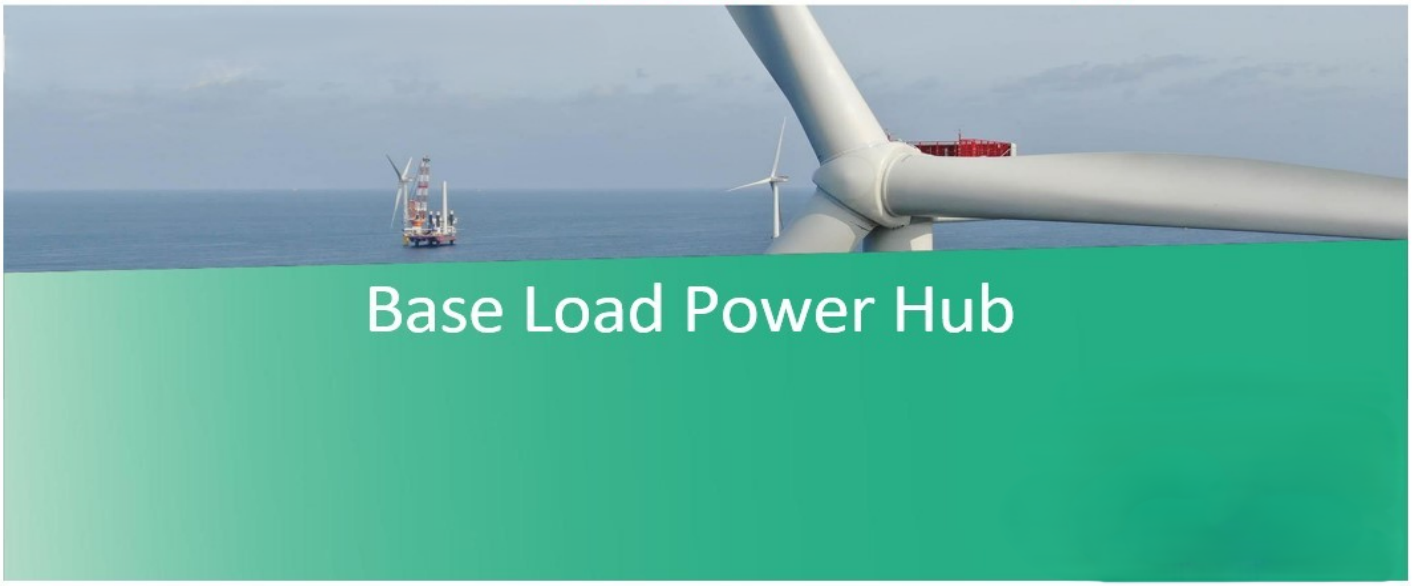
CROSSWIND

ROSETTI MARINO

PROVERLIS

**PROJECT** **123A90 - HOLLANDSE KUST NOORD WIND PARK**
**BLPH Project**




# MECHANICAL COMPLETION DOSSIER (ONSHORE)

| | |
|---|---|
| SYSTEM | 70<br>Safety and Facility Systems |
| SUBSYSTEM | 70-16<br>F&G Devices FZ-05 (Bess Area) |

| CROSSWIND | 123A90 - HOLLANDSE KUST NOORD WIND PARK<br>BLPH Project<br><br>MECHANICAL COMPLETION DOSSIER INDEX | ROSETTI MARINO |
|---|---|---|

| Sub System N°: | 70-16 | Tick as appropriate | ONSHORE | O |
|---|---|---|---|---|
| Description: | F&G Devices FZ-05 (Bess Area) | | OFFSHORE | NA |

| | | |
|---|---|---|
| 1. | ***READY FOR COMMISSIONING CERTIFICATE***<br>*Ready For Commissioning Certificate (RFC)* | O |
| 2. | ***CONSOLIDATED PUNCH LISTS***<br>*Cleared and Residual Items* | O |
| 3. | ***SYSTEM/SUB-SYSTEM LIMIT DRAWINGS***<br>*Mark-up drawings showing the limits of the relevant System/Sub-System* | O |
| 4. | ***MECHANICAL COMPLETION STATUS INDEX – BUILDING DISCIPLINE***<br>*Building Sub-System Status Index (Print out) and Check/Test sheets* | NA |
| 5. | ***MECHANICAL COMPLETION STATUS INDEX – ELECTRICAL DISCIPLINE***<br>*Electrical Sub-System Status Index (Print out) and Check/Test Sheets*<br>*Hazardous Area Equipment Detailed Inspection* | NA |
| 6. | ***MECHANICAL COMPLETION STATUS INDEX - INSTRUMENTAL DISCIPLINE***<br>*Instrumental Sub-System Status Index (Print out) and Check/Test Sheets* | O |
| 7. | ***MECHANICAL COMPLETION STATUS INDEX - MECHANICAL DISCIPLINE***<br>*Mechanical SubSystem Status Index (Print out) and Check/Test Sheets* | NA |
| 8. | ***MECHANICAL COMPLETION STATUS INDEX - TELECOMMUNICATION DISCIPLINE***<br>*Telecommunication Sub-System Status Index (Print out) and Check/Test Sheets* | NA |
| 9. | ***MECHANICAL COMPLETION STATUS INDEX - HVAC DISCIPLINE***<br>*HVAC Sub-System Status Index (Print out) and Check/Test Sheets* | NA |
| 10. | ***MECHANICAL COMPLETION STATUS INDEX - PIPING DISCIPLINE***<br>*Piping Sub-System Status Index and Check/Test Sheets* | NA |
| 11. | ***MECHANICAL COMPLETION INDEX - SAFETY DISCIPLINE***<br>*Safety Sub-System Status Index (Print out) and Check/Test Sheets* | NA |
| 12. | ***FAT / VENDOR REPORTS***<br>*Fat reports issued by vendors and/or vendor reports* | NA |
| 13. | ***MECHANICAL COMPLETION CHANGES / MARK-UPS***<br>*A copy of the changes initiated during the Mechanical Completion process pertaining to the relevant Sub-System will be incorporated in this section* | NA |

Note: Under the generic terminology “Building” are also covered the following disciplines: **Structural, Painting**

Under the generic terminology “Instrumental” is also covered the following discipline: **Fire & Gas**

ROSETTI MARINO

**123A90 - HOLLANDSE KUST NOORD WIND PARK**
**BLPH Project**

CROSSWIND

# Ready For Commissioning (RFC) Certificate

| COMPLETE | ● | PARTIAL | |
|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Revision: | 2 | | Issued on: | 2025-01-15 | |
| System: | 70 | / | Safety and Facility Systems | | |
| SubSystem: | 70-16 | / | F&G Devices FZ-05 (Bess Area) | | |

| | |
|---|---|
| 1 | COMPANY has, at its option and if required, reviewed the mechanical completion associated with the above-named system/sub-system of the SCOPE and observed that such functional sub-system has been brought into readiness for commencement of the associated pre-commissioning and commissioning activities, but for the outstanding punch list items, if any, attached and referred in this Certificate. |
| 2 | Issuance of this Certificate shall not release CONTRACTOR from any of his obligations, responsibilities or liabilities under the CONTRACT. |
| 3 | Mechanical Completion Status Index attached (per Discipline)<br>Punch List report attached (Outstanding and Cleared) |

| PUNCH LIST | PENDING POINTS | |
|---|---|---|
| **Note: All Category "A" Items must be cleared prior to issue a Ready For Commissioning (RFC) Certificate** | A | B |
| | '0 | 49 |

**REMARKS:**

| | **CONTRACTOR** Construction Manager | **CONTRACTOR** Commissioning Manager | **COMPANY** Construction Lead (if required) | **COMPANY** Commissioning Lead (if required) |
|---|---|---|---|---|
| Name | Sofia Marchetti | Anthony Iveson | CPY NOT PRESENT | CPY NOT PRESENT |
| Date | 2025-01-15 | 2025-01-15 | 2025-01-15 | 2025-01-15 |
| Signature | Digitaly signed by Sofia Marchetti 2025-01-15T16:11:58.819Z | Digitaly signed by Anthony Iveson 2025-01-15T17:34:42.703Z | Digitaly signed by CPY NOT PRESEN 2025-01-15T17:38:30.401Z | Digitaly signed by CPY NOT PRESEN 2025-01-15T17:38:38.259Z |

CROSSWIND

ROSETTI MARINO

# Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 70-16 & process: MC

| Instrumental | 70-16 F&G Devices FZ-05 (Bess Area) |
|---|---|

| ITEM | | TASK | | | | | |
|---|---|---|---|---|---|---|---|
| Code | Description | Location | Code | Form | Progress | Date | Certificate |
| 950-FDZ-05101 | Flame Detector - FZ-05 BESS Area | ONSHORE | C10000985 | CJX43 | 100 | 2024-12-10 | RFC 1 |
| 950-FDZ-05102 | Flame Detector - FZ-05 BESS Area | ONSHORE | C10000986 | CJX43 | 100 | 2024-11-30 | RFC 1 |
| 950-FDZ-05103 | Flame Detector - FZ-05 BESS Area | ONSHORE | C10000987 | CJX43 | 100 | 2024-12-11 | RFC 1 |
| 950-FDZ-05104 | Flame Detector - FZ-05 BESS Area | ONSHORE | C10000988 | CJX43 | 100 | 2024-12-10 | RFC 1 |
| 950-GDZ-05101 | H2 GD FZ-05 BESS Area | ONSHORE | C10001040 | CJX42 | 100 | 2024-12-11 | RFC 2 |
| 950-GDZ-05102 | H2 GD FZ-05 BESS Area | ONSHORE | C10001041 | CJX42 | 100 | 2024-12-11 | RFC 1 |
| 950-GDZ-05103 | H2 GD FZ-05 BESS Area | ONSHORE | C10001042 | CJX42 | 100 | 2024-12-11 | RFC 1 |
| 950-GDZ-05104 | H2 GD FZ-05 BESS Area | ONSHORE | C10001043 | CJX42 | 100 | 2024-12-11 | RFC 1 |
| 950-GDZ-05105 | H2 GD FZ-05 BESS Area | ONSHORE | C10001044 | CJX42 | 100 | 2024-12-11 | RFC 1 |
| 950-GDZ-05106 | H2 GD FZ-05 BESS Area | ONSHORE | C10001045 | CJX42 | 100 | 2024-12-12 | RFC 1 |
| 950-MFA-05101 | FZ-05 MFA Activation | ONSHORE | C10001065 | CJX00 | 100 | 2024-12-05 | RFC 2 |
| 950-MFA-05102 | FZ-05 MFA Activation | ONSHORE | C10001066 | CJX00 | 100 | 2025-01-13 | RFC 2 |
| 950-MFA-05103 | FZ-05 MFA Activation | ONSHORE | C10001067 | CJX00 | 100 | 2024-12-12 | RFC 1 |
| 950-MFA-05104 | FZ-05 MFA Activation | ONSHORE | C10001068 | CJX00 | 100 | 2024-12-05 | RFC 1 |
| 950-MFA-05201 | FZ-05 Manual fire alarm (MFA) water treat. pkg | ONSHORE | C10001475 | CJX00 | 100 | 2024-12-12 | RFC 1 |
| 950-XZ-05101 | FZ-05 Sounder Activation | ONSHORE | C10001138 | CJX00 | 100 | 2024-12-06 | RFC 1 |
| 950-XZ-05102 | FZ-05 Sounder Activation | ONSHORE | C10001139 | CJX00 | 100 | 2025-01-13 | RFC 2 |
| 950-XZ-05103 | FZ-05 Sounder Activation | ONSHORE | C10001140 | CJX00 | 100 | 2024-12-12 | RFC 1 |
| 950-XZ-05104 | FZ-05 Sounder Activation | ONSHORE | C10001141 | CJX00 | 100 | 2024-12-12 | RFC 1 |
| C-950-FDZ-05101/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | ONSHORE | C10000237 | CJX10 | 100 | 2024-12-10 | RFC 1 |
| C-950-FDZ-05102/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | ONSHORE | C10000238 | CJX10 | 100 | 2024-11-30 | RFC 1 |
| C-950-FDZ-05103/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | ONSHORE | C10000239 | CJX10 | 100 | 2024-12-11 | RFC 1 |
| C-950-FDZ-05104/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | ONSHORE | C10000240 | CJX10 | 100 | 2024-12-10 | RFC 1 |
| C-950-GDZ-05101/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | ONSHORE | C10000241 | CJX10 | 100 | 2024-12-11 | RFC 1 |
| C-950-GDZ-05102/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | ONSHORE | C10000242 | CJX10 | 100 | 2024-12-11 | RFC 1 |
| C-950-GDZ-05103/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | ONSHORE | C10000243 | CJX10 | 100 | 2024-12-11 | RFC 1 |
| C-950-GDZ-05104/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | ONSHORE | C10001461 | CJX10 | 100 | 2024-12-11 | RFC 1 |
| C-950-GDZ-05105/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | ONSHORE | C10001462 | CJX10 | 100 | 2024-12-11 | RFC 1 |
| C-950-GDZ-05106/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | ONSHORE | C10001463 | CJX10 | 100 | 2024-12-12 | RFC 1 |

# Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 70-16 & process: MC

| Instrumental | 70-16 F&G Devices FZ-05 (Bess Area) |
|---|---|

| ITEM | | TASK | | | | | |
|---|---|---|---|---|---|---|---|
| Code | Description | Location | Code | Form | Progress | Date | Certificate |
| C-950-MFA-05101/950-JE-05102 | MANUAL FIRE ALARM / MARSHALLING PCS | ONSHORE | C10000303 | CJX10 | 100 | 2025-01-14 | RFC 2 |
| C-950-MFA-05102/950-JE-05102 | MANUAL FIRE ALARM / MARSHALLING PCS | ONSHORE | C10000304 | CJX10 | 100 | 2025-01-13 | RFC 2 |
| C-950-MFA-05103/950-JE-05102 | MANUAL FIRE ALARM / MARSHALLING PCS | ONSHORE | C10000305 | CJX10 | 100 | 2024-12-10 | RFC 1 |
| C-950-MFA-05104/950-JE-05102 | MANUAL FIRE ALARM / MARSHALLING PCS | ONSHORE | C10000306 | CJX10 | 100 | 2024-12-05 | RFC 1 |
| C-950-MFA-05201/B400-FGS-003 | MANUAL FIRE ALARM / MARSHALLING PCS | ONSHORE | C10000401 | CJX10 | 100 | 2024-11-28 | RFC 1 |
| C-950-XZ-05101/950-JE-05103 | SOUNDER / MARSHALLING PCS | ONSHORE | C10000339 | CJX10 | 100 | 2025-01-13 | RFC 2 |
| C-950-XZ-05102/950-JE-05103 | SOUNDER / MARSHALLING PCS | ONSHORE | C10000340 | CJX10 | 100 | 2025-01-13 | RFC 2 |
| C-950-XZ-05103/950-JE-05103 | SOUNDER / MARSHALLING PCS | ONSHORE | C10000341 | CJX10 | 100 | 2024-12-12 | RFC 1 |
| C-950-XZ-05104/950-JE-05103 | SOUNDER / MARSHALLING PCS | ONSHORE | C10000342 | CJX10 | 100 | 2024-12-12 | RFC 1 |

CROSSWIND

ROSETTI MARINO

# Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems

SUBSYSTEM 70-16 F&G Devices FZ-05 (Bess Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30001001 | A | 950-MFA-05201 C10001475 | Missing earthing cable on the instrument (950-MFA-05201). | . | | Gtangianu 2024-11-28 | 2024-12-12 | Ecarotenuto 2024-12-12 | 2024-12-12 |
| C30000950 | B | C-950-MFA-05201/B400-FGS-003 | Missing cable tag all along the route. | . | | Gtangianu 2024-11-26 | | | |
| C30000951 | B | C-950-MFA-05201/B400-FGS-003 | Identification tag wires missing both side the C-950-MFA-05201/B400-FGS-003 connection. | . | | Gtangianu 2024-11-26 | | | |
| C30000952 | B | C-950-MFA-05201/B400-FGS-003 | -Bending radius is not within the specified limits. (stress on the input cable instrument MFA-05201). | . | | Gtangianu 2024-11-26 | | | |
| C30001000 | B | 950-MFA-05201 C10001475 | Missing tag plate on the instrument. | . | | Gtangianu 2024-11-28 | | | |
| C30001002 | B | 950-MFA-05201 C10001475 | The emergency glass is broken .. need too be change. (950-MFA-05201). | . | | Gtangianu 2024-11-28 | 2024-12-12 | Ecarotenuto 2024-12-12 | 2024-12-12 |
| C30001089 | B | 950-FDZ-05102 C10000986 | Missing the cross-ferruling ( Cores ) .inside instrument . (see document 123A90-DDL-IN-DG-40016 sh.3) | . | | APolo 2024-11-30 | | | |
| C30001092 | B | 950-FDZ-05102 C10000986 | The tag tie is made of plastic. To be replaced in AISI | . | | APolo 2024-11-30 | | | |
| C30001093 | B | 950-FDZ-05102 C10000986 | Missing the separation system between different materials. (between steel and carbon steel). side 950-FDZ-05102 | x. | | APolo 2024-11-30 | | | |

# Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-16 F&G Devices FZ-05 (Bess Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30001094 | B | C-950-FDZ-05102/950-JE-05101 | the philosophy of cross-ferruling are wrong J.B. side 950-JE-05101 . (see document 123A90-DDL-IN-DG-40016 sh.3) | . | | APolo 2024-11-30 | | | |
| C30001095 | B | C-950-FDZ-05102/950-JE-05101 | Missing cable tag SS , SIDE 950-JE-05101 | . | | APolo 2024-11-30 | | | |
| C30001367 | B | 950-MFA-05104 C10001068 | Missing the separation system between different materials. ( between steel "support" and carbon steel "structure). | . | | APolo 2024-12-05 | | | |
| C30001368 | B | 950-MFA-05104 C10001068 | the support is not well secured against vibration. another bracket needs to be added. | . | | APolo 2024-12-05 | | | |
| C30001369 | B | 950-XZ-05101 C10001138 | the support is not well secured against vibration. another bracket needs to be added. | . | | APolo 2024-12-05 | | | |
| C30001370 | B | 950-XZ-05101 C10001138 | Missing the separation system between different materials. ( between steel "support" and carbon steel "structure). | . | | APolo 2024-12-05 | | | |
| C30001371 | B | 950-MFA-05101 C10001065 | Missing the separation system between different materials. ( between steel "support" and carbon steel "structure). | . | | APolo 2024-12-05 | | | |
| C30001372 | B | 950-MFA-05101 C10001065 | the support is not well secured against vibration. another bracket needs to be added. | . | | APolo 2024-12-05 | | | |
| C30001374 | B | 950-MFA-05101 C10001065 | installation is not conforms to instrument installation details. ( see 123A90-DDL-IN-DD-40017_ sh. 27) . | . | | APolo 2024-12-05 | 2024-12-27 | Ecarotenuto 2024-12-27 | 2024-12-27 |

# Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-16 F&G Devices FZ-05 (Bess Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30001376 | B | 950-MFA-05104 C10001068 | installation is not conforms to instrument installation details. ( see 123A90-DDL-IN-DD-40017_ sh. 27) . | . | | APolo 2024-12-05 | 2024-12-27 | Ecarotenuto 2024-12-27 | 2024-12-27 |
| C30001614 | B | C-950-FDZ-051 01/950-JE-0510 1 | Identification tag wire missing side (950-FDZ-05101)connection. | . | | Gtangianu 2024-12-10 | | | |
| C30001615 | B | C-950-FDZ-051 01/950-JE-0510 1 | Missing cable tag side the (950-JE-05101). | . | | Gtangianu 2024-12-10 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |
| C30001616 | B | C-950-FDZ-051 04/950-JE-0510 1 | Identification tag wire missing side (950-FDZ-05104)connection.See attached photo. | . | | Gtangianu 2024-12-10 | | | |
| C30001617 | B | C-950-FDZ-051 04/950-JE-0510 1 | Missing cable tag side the (950-JE-05101).See attached photo. | . | | Gtangianu 2024-12-10 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |
| C30001680 | B | C-950-GDZ-051 03/950-JE-0510 1 | The cable need to be fix. See attached photo. | . | | Gtangianu 2024-12-11 | | | |
| C30001681 | B | C-950-GDZ-051 03/950-JE-0510 1 | The cabletray are not properly support near the instrument (950-GDZ-05103). See attached photo. | . | | Gtangianu 2024-12-11 | | | |
| C30001682 | B | C-950-GDZ-051 03/950-JE-0510 1 | Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05103).See attached photo. | . | | Gtangianu 2024-12-11 | | | |
| C30001683 | B | C-950-GDZ-051 03/950-JE-0510 1 | Missing cable tag side the (950-JE-05101). | . | | Gtangianu 2024-12-11 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |

# Project CROSSWIND

PUNCH LIST REPORT



SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-16 F&G Devices FZ-05 (Bess Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30001684 | B | 950-GDZ-05103 C10001042 | DETAIL EARTHING THREADED STUD IS WRONG IN ASSEMBLY ( see doc 123A90-FDL-EL-DD-20090 typical E-11). See | . | | Gtangianu 2024-12-11 | | | |
| C30001685 | B | C-950-FDZ-05103/950-JE-05101 | Missing cable tag side the (950-JE-05103). | . | | Gtangianu 2024-12-11 | | | |
| C30001686 | B | C-950-FDZ-05103/950-JE-05101 | Missing grafoplast and tag wire on the shield, inside the instrument (-950-FDZ-05103). | . | | Gtangianu 2024-12-11 | | | |
| C30001687 | B | 950-GDZ-05101 C10001040 | DETAIL EARTHING THREADED STUD IS WRONG IN ASSEMBLY ( see doc 123A90-FDL-EL-DD-20090 typical E-11). See | . | | Gtangianu 2024-12-11 | | | |
| C30001688 | B | C-950-GDZ-05101/950-JE-05101 | The cable need to be fix.See attached photo. | . | | Gtangianu 2024-12-11 | | | |
| C30001689 | B | C-950-GDZ-05101/950-JE-05101 | Missing plug on the unistrut . Below the instrument. See attached photo. | . | | Gtangianu 2024-12-11 | | | |
| C30001690 | B | C-950-GDZ-05101/950-JE-05101 | The cabletray are not properly fix . the support is not tight near the instrument (950-GDZ-05101). See attached photo. | . | | Gtangianu 2024-12-11 | | | |
| C30001691 | B | 950-GDZ-05102 C10001041 | earthing cable need to be fix. See attached photo. | . | | Gtangianu 2024-12-11 | | | |
| C30001692 | B | C-950-GDZ-05102/950-JE-05101 | Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05102).See attached photo. | . | | Gtangianu 2024-12-11 | | | |

# Project CROSSWIND

PUNCH LIST REPORT



SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-16 F&G Devices FZ-05 (Bess Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30001693 | B | C-950-GDZ-05102/950-JE-05101 | Missing cable tag side the (950-JE-05101). | . | | Gtangianu 2024-12-11 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |
| C30001694 | B | 950-GDZ-05104 C10001043 | earthing cable need to be fix. See attached photo. | . | | Gtangianu 2024-12-11 | | | |
| C30001695 | B | 950-GDZ-05104 C10001043 | DETAIL EARTHING THREADED STUD IS WRONG IN ASSEMBLY ( see doc 123A90-FDL-EL-DD-20090 typical E-11). See | . | | Gtangianu 2024-12-11 | | | |
| C30001696 | B | C-950-GDZ-05104/950-JE-05101 | Missing cable tag side the (950-JE-05101). | . | | Gtangianu 2024-12-11 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |
| C30001698 | B | C-950-GDZ-05104/950-JE-05101 | Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05104). | . | | Gtangianu 2024-12-11 | | | |
| C30001700 | B | C-950-GDZ-05105/950-JE-05101 | The cabletray are not properly support near the instrument (950-GDZ-05105). | . | | Gtangianu 2024-12-11 | | | |
| C30001701 | B | C-950-GDZ-05105/950-JE-05101 | Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05105). | . | | Gtangianu 2024-12-11 | | | |
| C30001702 | B | C-950-GDZ-05105/950-JE-05101 | Missing cable tag side the (950-JE-05101). | . | | Gtangianu 2024-12-11 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |
| C30001703 | B | 950-GDZ-05105 C10001044 | DETAIL EARTHING THREADED STUD IS WRONG IN ASSEMBLY ( see doc 123A90-FDL-EL-DD-20090 typical E-11). See | . | | Gtangianu 2024-12-11 | | | |

# Project CROSSWIND

PUNCH LIST REPORT



SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-16 F&G Devices FZ-05 (Bess Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30001704 | B | 950-GDZ-05105 C10001044 | earthing cable need to be fix. See attached photo. | . | | Gtangianu 2024-12-11 | | | |
| C30001705 | B | 950-GDZ-05106 C10001045 | Earthing cable need to be fix. See attached photo. | . | | Gtangianu 2024-12-12 | | | |
| C30001706 | B | C-950-GDZ-05106/950-JE-05101 | Missing cable tag side the (950-JE-05101). | . | | Gtangianu 2024-12-12 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |
| C30001707 | B | C-950-GDZ-05106/950-JE-05101 | Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05106). | . | | Gtangianu 2024-12-12 | | | |
| C30001725 | B | C-950-XZ-05103 /950-JE-05103 C10000341 | The installation cabletray as not completed below the (950-JE-05103).See attached photo. | . | | Gtangianu 2024-12-12 | | | |
| C30001727 | B | 950-MFA-05103 C10001067 | The support is not well secured against vibration. another support needs to be added. | . | | Gtangianu 2024-12-12 | | | |
| C30001729 | B | 950-XZ-05104 C10001141 | The support is not well secured against vibration. another support needs to be added. | . | | Gtangianu 2024-12-12 | | | |
| C30001731 | B | C-950-XZ-05104 /950-JE-05103 C10000342 | The installation cabletray as not completed below the (950-JE-05103).See attached photo. | . | | Gtangianu 2024-12-12 | | | |
| C30001733 | B | 950-XZ-05103 C10001140 | The support is not well secured against vibration. another support needs to be added. | . | | Gtangianu 2024-12-12 | | | |

# Project CROSSWIND

PUNCH LIST REPORT



| | | |
|---|---|---|
| SYSTEM | 70 | Safety and Facility Systems |
| SUBSYSTEM | 70-16 | F&G Devices FZ-05 (Bess Area) |

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30002735 | B | C-950-MFA-05102/950-JE-05102 | Missing cable tag SS , near the JB 950-JE-05102. | . | | APolo 2025-01-13 | | | |
| C30002736 | B | 950-MFA-05102 C10001066 | Missing n°1 fixing bolt | . | | APolo 2025-01-13 | | | |
| C30002737 | B | 950-MFA-05102 C10001066 | The support is not well secured against vibration. another bracket needs to be added. | . | | APolo 2025-01-13 | | | |
| C30002738 | B | C-950-XZ-05101 /950-JE-05103 C10000339 | Missing cable tag SS , near the JB 950-JE-05103. | . | | APolo 2025-01-13 | | | |
| C30002739 | B | C-950-XZ-05102 /950-JE-05103 C10000340 | Missing cable tag SS , near the JB 950-JE-05103. | . | | APolo 2025-01-13 | | | |
| C30002768 | B | C-950-MFA-05101/950-JE-05102 | Missing identification tag side the 950-JE-05102. See attached photo. | . | | Gtangianu 2025-01-14 | | | |

# Section 2 CONSOLIDATED PUNCH LISTS

CROSSWIND

ROSETTI MARINO

# Project CROSSWIND

PUNCH LIST REPORT

| | | |
|---|---|---|
| SYSTEM | 70 | Safety and Facility Systems |
| SUBSYSTEM | 70-16 | F&G Devices FZ-05 (Bess Area) |

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30001001 | A | 950-MFA-05201 C10001475 | Missing earthing cable on the instrument (950-MFA-05201). | . | | Gtangianu 2024-11-28 | 2024-12-12 | Ecarotenuto 2024-12-12 | 2024-12-12 |
| C30000950 | B | C-950-MFA-052 01/B400-FGS-0 03 | Missing cable tag all along the route. | . | | Gtangianu 2024-11-26 | 2025-02-26 | Pschintu 2025-02-26 | 2025-02-26 |
| C30000951 | B | C-950-MFA-052 01/B400-FGS-0 03 | Identification tag wires missing both side the C-950-MFA-05201/B400-FGS-003 connection. | . | | Gtangianu 2024-11-26 | 2025-03-03 | Gtangianu 2025-03-03 | 2025-03-03 |
| C30000952 | B | C-950-MFA-052 01/B400-FGS-0 03 | -Bending radius is not within the specified limits. (stress on the input cable instrument MFA-05201). | . | | Gtangianu 2024-11-26 | 2025-02-04 | Gtangianu 2025-02-04 | 2025-02-04 |
| C30001000 | B | 950-MFA-05201 C10001475 | Missing tag plate on the instrument. | . | | Gtangianu 2024-11-28 | 2025-01-22 | Ecarotenuto 2025-01-22 | 2025-01-22 |
| C30001002 | B | 950-MFA-05201 C10001475 | The emergency glass is broken .. need too be change. (950-MFA-05201). | . | | Gtangianu 2024-11-28 | 2024-12-12 | Ecarotenuto 2024-12-12 | 2024-12-12 |
| C30001089 | B | 950-FDZ-05102 C10000986 | Missing the cross-ferruling ( Cores ) .inside instrument . (see document 123A90-DDL-IN-DG-40016 sh.3) | . | | APolo 2024-11-30 | 2025-02-24 | JKrizanic 2025-02-24 | 2025-02-24 |
| C30001092 | B | 950-FDZ-05102 C10000986 | The tag tie is made of plastic. To be replaced in AISI | . | | APolo 2024-11-30 | 2025-02-25 | AAndreani 2025-02-25 | 2025-02-25 |
| C30001093 | B | 950-FDZ-05102 C10000986 | Missing the separation system between different materials. (between steel and carbon steel). side 950-FDZ-05102 | x. | | APolo 2024-11-30 | 2025-01-21 | AAndreani 2025-01-21 | 2025-01-21 |

# Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems

SUBSYSTEM 70-16 F&G Devices FZ-05 (Bess Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30001094 | B | C-950-FDZ-05102/950-JE-05101 | the philosophy of cross-ferruling are wrong J.B. side 950-JE-05101 . (see document 123A90-DDL-IN-DG-40016 sh.3) | . | | APolo 2024-11-30 | 2025-02-20 | JKrizanic 2025-02-20 | 2025-02-20 |
| C30001095 | B | C-950-FDZ-05102/950-JE-05101 | Missing cable tag SS , SIDE 950-JE-05101 | . | | APolo 2024-11-30 | 2025-02-04 | APolo 2025-02-04 | 2025-02-04 |
| C30001367 | B | 950-MFA-05104 C10001068 | Missing the separation system between different materials. ( between steel "support" and carbon steel "structure). | . | | APolo 2024-12-05 | 2025-01-21 | AAndreani 2025-01-21 | 2025-01-21 |
| C30001368 | B | 950-MFA-05104 C10001068 | the support is not well secured against vibration. another bracket needs to be added. | . | | APolo 2024-12-05 | 2025-03-07 | Gtangianu 2025-03-07 | 2025-03-07 |
| C30001369 | B | 950-XZ-05101 C10001138 | the support is not well secured against vibration. another bracket needs to be added. | . | | APolo 2024-12-05 | 2025-03-07 | Gtangianu 2025-03-07 | 2025-03-07 |
| C30001370 | B | 950-XZ-05101 C10001138 | Missing the separation system between different materials. ( between steel "support" and carbon steel "structure). | . | | APolo 2024-12-05 | 2025-01-21 | AAndreani 2025-01-21 | 2025-01-21 |
| C30001371 | B | 950-MFA-05101 C10001065 | Missing the separation system between different materials. ( between steel "support" and carbon steel "structure). | . | | APolo 2024-12-05 | 2025-01-21 | AAndreani 2025-01-21 | 2025-01-21 |
| C30001372 | B | 950-MFA-05101 C10001065 | the support is not well secured against vibration. another bracket needs to be added. | . | | APolo 2024-12-05 | 2025-03-07 | Gtangianu 2025-03-07 | 2025-03-07 |
| C30001374 | B | 950-MFA-05101 C10001065 | installation is not conforms to instrument installation details. ( see 123A90-DDL-IN-DD-40017_ sh. 27) . | . | | APolo 2024-12-05 | 2024-12-27 | Ecarotenuto 2024-12-27 | 2024-12-27 |

# Project CROSSWIND

PUNCH LIST REPORT



SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-16 F&G Devices FZ-05 (Bess Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30001376 | B | 950-MFA-05104 C10001068 | installation is not conforms to instrument installation details. ( see 123A90-DDL-IN-DD-40017_ sh. 27) . | . | | APolo 2024-12-05 | 2024-12-27 | Ecarotenuto 2024-12-27 | 2024-12-27 |
| C30001614 | B | C-950-FDZ-051 01/950-JE-0510 1 | Identification tag wire missing side (950-FDZ-05101)connection. | . | | Gtangianu 2024-12-10 | 2025-04-08 | Gtangianu 2025-04-08 | 2025-04-08 |
| C30001615 | B | C-950-FDZ-051 01/950-JE-0510 1 | Missing cable tag side the (950-JE-05101). | . | | Gtangianu 2024-12-10 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |
| C30001616 | B | C-950-FDZ-051 04/950-JE-0510 1 | Identification tag wire missing side (950-FDZ-05104)connection.See attached photo. | . | | Gtangianu 2024-12-10 | 2025-02-24 | JKrizanic 2025-02-24 | 2025-02-24 |
| C30001617 | B | C-950-FDZ-051 04/950-JE-0510 1 | Missing cable tag side the (950-JE-05101).See attached photo. | . | | Gtangianu 2024-12-10 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |
| C30001680 | B | C-950-GDZ-051 03/950-JE-0510 1 | The cable need to be fix. See attached photo. | . | | Gtangianu 2024-12-11 | 2025-01-23 | Gtangianu 2025-01-23 | 2025-01-23 |
| C30001681 | B | C-950-GDZ-051 03/950-JE-0510 1 | The cabletray are not properly support near the instrument (950-GDZ-05103). See attached photo. | . | | Gtangianu 2024-12-11 | 2025-02-13 | AAndreani 2025-02-13 | 2025-02-13 |
| C30001682 | B | C-950-GDZ-051 03/950-JE-0510 1 | Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05103).See attached photo. | . | | Gtangianu 2024-12-11 | 2025-02-26 | JKrizanic 2025-02-26 | 2025-02-26 |
| C30001683 | B | C-950-GDZ-051 03/950-JE-0510 1 | Missing cable tag side the (950-JE-05101). | . | | Gtangianu 2024-12-11 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |

# Project CROSSWIND

PUNCH LIST REPORT



SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-16 F&G Devices FZ-05 (Bess Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30001684 | B | 950-GDZ-05103 C10001042 | DETAIL EARTHING THREADED STUD IS WRONG IN ASSEMBLY ( see doc 123A90-FDL-EL-DD-20090 typical E-11). See | . | | Gtangianu 2024-12-11 | 2025-01-22 | Ecarotenuto 2025-01-22 | 2025-01-22 |
| C30001685 | B | C-950-FDZ-05103/950-JE-05101 | Missing cable tag side the (950-JE-05103). | . | | Gtangianu 2024-12-11 | 2025-01-29 | APolo 2025-01-29 | 2025-01-29 |
| C30001686 | B | C-950-FDZ-05103/950-JE-05101 | Missing grafoplast and tag wire on the shield, inside the instrument (-950-FDZ-05103). | . | | Gtangianu 2024-12-11 | 2025-04-08 | Gtangianu 2025-04-08 | 2025-04-08 |
| C30001687 | B | 950-GDZ-05101 C10001040 | DETAIL EARTHING THREADED STUD IS WRONG IN ASSEMBLY ( see doc 123A90-FDL-EL-DD-20090 typical E-11). See | . | | Gtangianu 2024-12-11 | 2025-01-22 | Ecarotenuto 2025-01-22 | 2025-01-22 |
| C30001688 | B | C-950-GDZ-05101/950-JE-05101 | The cable need to be fix.See attached photo. | . | | Gtangianu 2024-12-11 | 2025-01-23 | Gtangianu 2025-01-23 | 2025-01-23 |
| C30001689 | B | C-950-GDZ-05101/950-JE-05101 | Missing plug on the unistrut . Below the instrument. See attached photo. | . | | Gtangianu 2024-12-11 | 2025-01-23 | Gtangianu 2025-01-23 | 2025-01-23 |
| C30001690 | B | C-950-GDZ-05101/950-JE-05101 | The cabletray are not properly fix . the support is not tight near the instrument (950-GDZ-05101). See attached photo. | . | | Gtangianu 2024-12-11 | 2025-01-23 | Gtangianu 2025-01-23 | 2025-01-23 |
| C30001691 | B | 950-GDZ-05102 C10001041 | earthing cable need to be fix. See attached photo. | . | | Gtangianu 2024-12-11 | 2025-02-03 | APolo 2025-02-03 | 2025-02-03 |
| C30001692 | B | C-950-GDZ-05102/950-JE-05101 | Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05102).See attached photo. | . | | Gtangianu 2024-12-11 | 2025-02-26 | JKrizanic 2025-02-26 | 2025-02-26 |

# Project CROSSWIND

PUNCH LIST REPORT



SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-16 F&G Devices FZ-05 (Bess Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30001693 | B | C-950-GDZ-05102/950-JE-05101 | Missing cable tag side the (950-JE-05101). | . | | Gtangianu 2024-12-11 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |
| C30001694 | B | 950-GDZ-05104 C10001043 | earthing cable need to be fix. See attached photo. | . | | Gtangianu 2024-12-11 | 2025-02-03 | APolo 2025-02-03 | 2025-02-03 |
| C30001695 | B | 950-GDZ-05104 C10001043 | DETAIL EARTHING THREADED STUD IS WRONG IN ASSEMBLY ( see doc 123A90-FDL-EL-DD-20090 typical E-11). See | . | | Gtangianu 2024-12-11 | 2025-01-23 | Gtangianu 2025-01-23 | 2025-01-23 |
| C30001696 | B | C-950-GDZ-05104/950-JE-05101 | Missing cable tag side the (950-JE-05101). | . | | Gtangianu 2024-12-11 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |
| C30001698 | B | C-950-GDZ-05104/950-JE-05101 | Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05104). | . | | Gtangianu 2024-12-11 | 2025-04-08 | Gtangianu 2025-04-08 | 2025-04-08 |
| C30001700 | B | C-950-GDZ-05105/950-JE-05101 | The cabletray are not properly support near the instrument (950-GDZ-05105). | . | | Gtangianu 2024-12-11 | 2025-02-13 | AAndreani 2025-02-13 | 2025-02-13 |
| C30001701 | B | C-950-GDZ-05105/950-JE-05101 | Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05105). | . | | Gtangianu 2024-12-11 | 2025-02-26 | JKrizanic 2025-02-26 | 2025-02-26 |
| C30001702 | B | C-950-GDZ-05105/950-JE-05101 | Missing cable tag side the (950-JE-05101). | . | | Gtangianu 2024-12-11 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |
| C30001703 | B | 950-GDZ-05105 C10001044 | DETAIL EARTHING THREADED STUD IS WRONG IN ASSEMBLY ( see doc 123A90-FDL-EL-DD-20090 typical E-11). See | . | | Gtangianu 2024-12-11 | 2025-01-23 | Gtangianu 2025-01-23 | 2025-01-23 |

# Project CROSSWIND

PUNCH LIST REPORT



SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-16 F&G Devices FZ-05 (Bess Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30001704 | B | 950-GDZ-05105 C10001044 | earthing cable need to be fix. See attached photo. | . | | Gtangianu 2024-12-11 | 2025-02-03 | APolo 2025-02-03 | 2025-02-03 |
| C30001705 | B | 950-GDZ-05106 C10001045 | Earthing cable need to be fix. See attached photo. | . | | Gtangianu 2024-12-12 | 2025-02-03 | APolo 2025-02-03 | 2025-02-03 |
| C30001706 | B | C-950-GDZ-051 06/950-JE-0510 1 | Missing cable tag side the (950-JE-05101). | . | | Gtangianu 2024-12-12 | 2025-01-02 | Ecarotenuto 2025-01-02 | 2025-01-02 |
| C30001707 | B | C-950-GDZ-051 06/950-JE-0510 1 | Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05106). | . | | Gtangianu 2024-12-12 | 2025-02-26 | JKrizanic 2025-02-26 | 2025-02-26 |
| C30001725 | B | C-950-XZ-05103 /950-JE-05103 C10000341 | The installation cabletray as not completed below the (950-JE-05103).See attached photo. | . | | Gtangianu 2024-12-12 | 2025-01-29 | APolo 2025-01-29 | 2025-01-29 |
| C30001727 | B | 950-MFA-05103 C10001067 | The support is not well secured against vibration. another support needs to be added. | . | | Gtangianu 2024-12-12 | 2025-03-07 | Gtangianu 2025-03-07 | 2025-03-07 |
| C30001729 | B | 950-XZ-05104 C10001141 | The support is not well secured against vibration. another support needs to be added. | . | | Gtangianu 2024-12-12 | 2025-03-07 | Gtangianu 2025-03-07 | 2025-03-07 |
| C30001731 | B | C-950-XZ-05104 /950-JE-05103 C10000342 | The installation cabletray as not completed below the (950-JE-05103).See attached photo. | . | | Gtangianu 2024-12-12 | 2025-01-29 | APolo 2025-01-29 | 2025-01-29 |
| C30001733 | B | 950-XZ-05103 C10001140 | The support is not well secured against vibration. another support needs to be added. | . | | Gtangianu 2024-12-12 | 2025-03-07 | Gtangianu 2025-03-07 | 2025-03-07 |

# Project CROSSWIND

PUNCH LIST REPORT



SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-16 F&G Devices FZ-05 (Bess Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30002735 | B | C-950-MFA-05102/950-JE-05102 | Missing cable tag SS , near the JB 950-JE-05102. | . | | APolo 2025-01-13 | 2025-02-21 | JKrizanic 2025-02-21 | 2025-02-21 |
| C30002736 | B | 950-MFA-05102 C10001066 | Missing n°1 fixing bolt | . | | APolo 2025-01-13 | 2025-02-04 | APolo 2025-02-04 | 2025-02-04 |
| C30002737 | B | 950-MFA-05102 C10001066 | The support is not well secured against vibration. another bracket needs to be added. | . | | APolo 2025-01-13 | 2025-03-07 | Gtangianu 2025-03-07 | 2025-03-07 |
| C30002738 | B | C-950-XZ-05101/950-JE-05103 C10000339 | Missing cable tag SS , near the JB 950-JE-05103. | . | | APolo 2025-01-13 | 2025-02-21 | APolo 2025-02-21 | 2025-02-21 |
| C30002739 | B | C-950-XZ-05102/950-JE-05103 C10000340 | Missing cable tag SS , near the JB 950-JE-05103. | . | | APolo 2025-01-13 | 2025-02-21 | APolo 2025-02-21 | 2025-02-21 |
| C30002768 | B | C-950-MFA-05101/950-JE-05102 | Missing identification tag side the 950-JE-05102. See attached photo. | . | | Gtangianu 2025-01-14 | 2025-03-07 | JKrizanic 2025-03-07 | 2025-03-07 |

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001731

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000342 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-XZ-05104/950-JE-05103 | SOUNDER / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

The installation cabletray as not completed below the (950-JE-05103).See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-12

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-12 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-01-29

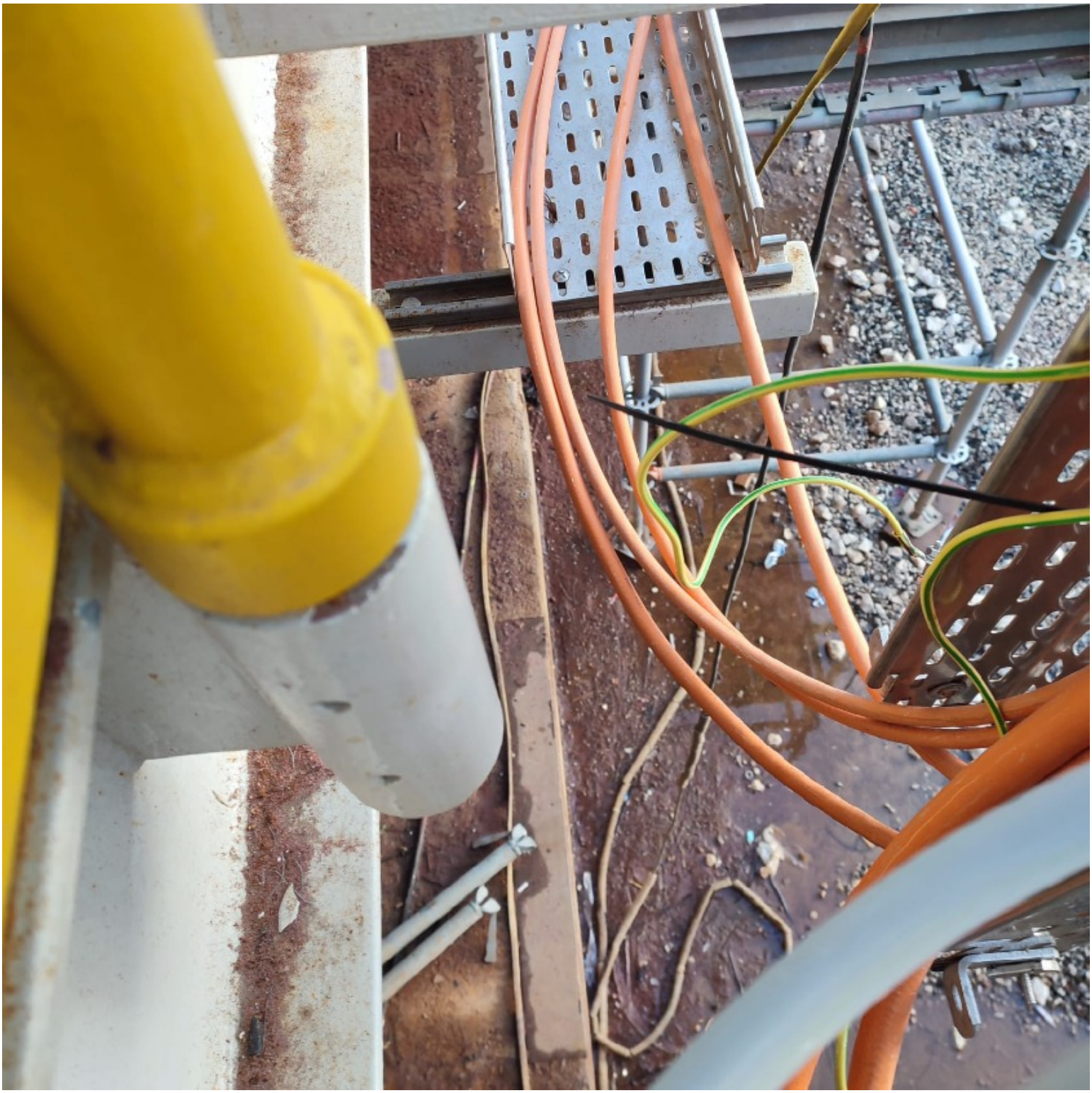
Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001733

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001140 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-XZ-05103 | FZ-05 Sounder Activation | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

The support is not well secured against vibration. another support needs to be added.

Name: Giovanni Tangianu

Date: 2024-12-12

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-12 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30002735

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000304 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-MFA-05102/950-JE-05102 | MANUAL FIRE ALARM / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing cable tag SS , near the JB 950-JE-05102.

Name: Alessio Polo

Date: 2025-01-13

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2025-01-13 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-21

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30002736

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001066 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-MFA-05102 | FZ-05 MFA Activation | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing n°1 fixing bolt

Name: Alessio Polo

Date: 2025-01-13

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2025-01-13 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-04

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30002737

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001066 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-MFA-05102 | FZ-05 MFA Activation | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

The support is not well secured against vibration. another bracket needs to be added.

Name: Alessio Polo

Date: 2025-01-13

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2025-01-13 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30002738

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000339 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-XZ-05101/950-JE-05103 | SOUNDER / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing cable tag SS , near the JB 950-JE-05103.

Name: Alessio Polo

Date: 2025-01-13

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2025-01-13 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-21

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30002739

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000340 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-XZ-05102/950-JE-05103 | SOUNDER / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing cable tag SS , near the JB 950-JE-05103.

Name: Alessio Polo

Date: 2025-01-13

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2025-01-13 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-21

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30002768

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000303 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-MFA-05101/950-JE-05102 | MANUAL FIRE ALARM / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing identification tag side the 950-JE-05102.

See attached photo.

Name: Giovanni Tangianu

Date: 2025-01-14

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2025-01-14 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-07

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


C-950-MFA-05103/950-JE-05102

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001000

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001475 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-MFA-05201 | FZ-05 Manual fire alarm (MFA) water treat. pkg | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing tag plate on the instrument.

Name: Giovanni Tangianu
Date: 2024-11-28
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-11-28 |
| 3.5 Action by | VND Vendor | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

## 5 - CLEARANCE CHECK

DUPLICATE POINT, REFER TO PL N° C30001221

Name: Eleonora Carotenuto
Date: 2025-01-22
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001001

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001475 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-MFA-05201 | FZ-05 Manual fire alarm (MFA) water treat. pkg | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing earthing cable on the instrument (950-MFA-05201).

Name: Giovanni Tangianu

Date: 2024-11-28

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | A PL A | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-11-28 |
| 3.5 Action by | VND Vendor | Signature | |

## 4 - PERFORMED ACTION

.

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name:

Date:

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001002

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001475 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-MFA-05201 | FZ-05 Manual fire alarm (MFA) water treat. pkg | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

The emergency glass is broken .. need too be change. (950-MFA-05201).

Name: Giovanni Tangianu
Date: 2024-11-28
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-11-28 |
| 3.5 Action by | VND Vendor | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

## 5 - CLEARANCE CHECK

changed

Name: Eleonora Carotenuto
Date: 2024-12-12
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001089

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000986 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-FDZ-05102 | Flame Detector - FZ-05 BESS Area | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing the cross-ferruling ( Cores ) .inside instrument . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo
Date: 2024-11-30
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-11-30 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

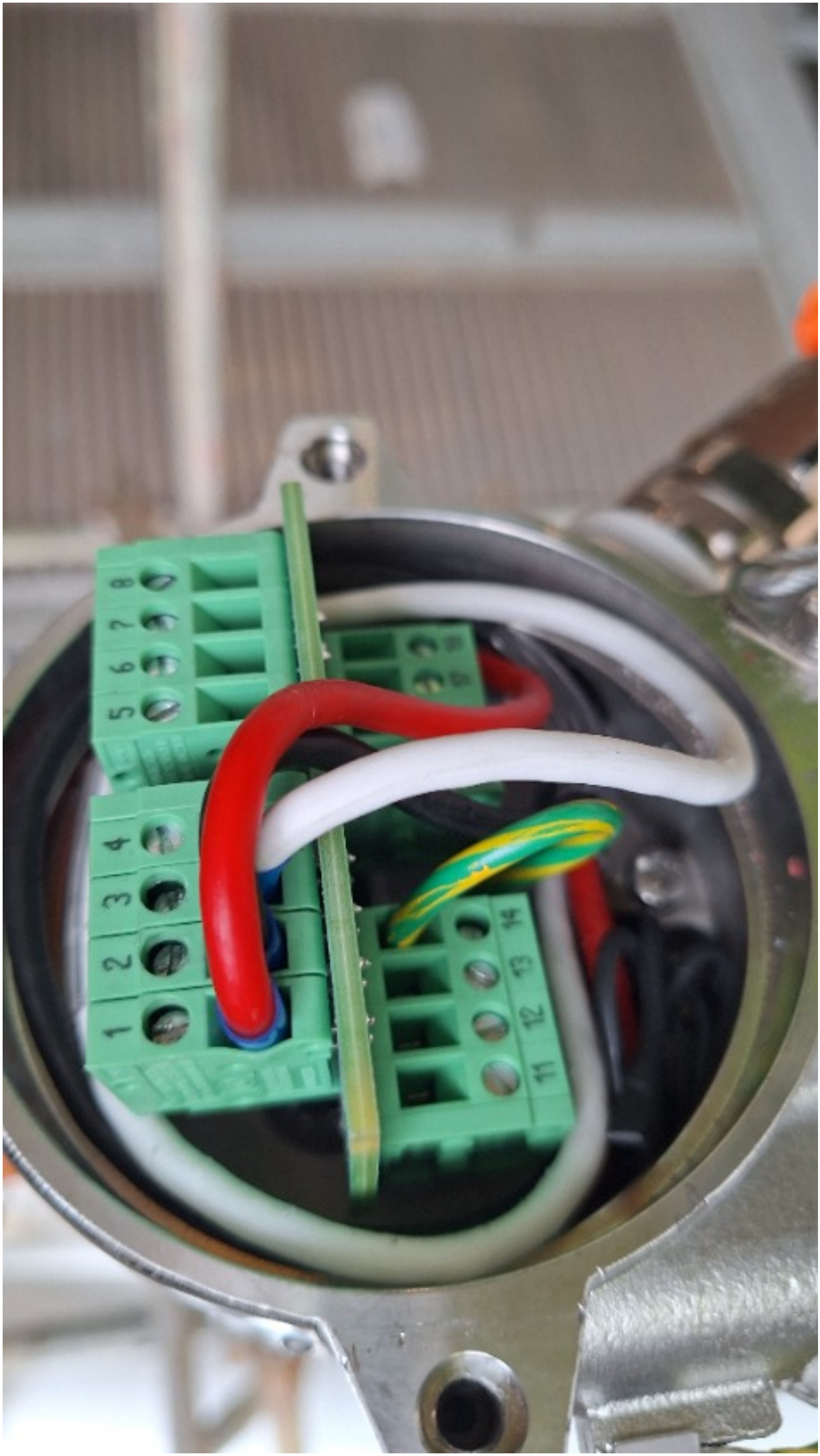
## 5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic
Date: 2025-02-24
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:


8
7
6
5
4
3
2
1
14
13
12
11

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001092

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000986 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-FDZ-05102 | Flame Detector - FZ-05 BESS Area | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

The tag tie is made of plastic. To be replaced in AISI

Name: Alessio Polo

Date: 2024-11-30

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-11-30 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-25

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


950-FDZ-05102

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001093

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000986 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-FDZ-05102 | Flame Detector - FZ-05 BESS Area | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing the separation system between different materials. (between steel and carbon steel). side 950-FDZ-05102

Name: Alessio Polo
Date: 2024-11-30
Signature:

## 3 - DEFECT ASSESSMENT

x.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-11-30 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani
Date: 2025-01-21
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:


UV-IR Detector
FlameSpec-UV-IR

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001094

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000238 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-FDZ-05102/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

the philosophy of cross-ferruling are wrong J.B. side 950-JE-05101 . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo
Date: 2024-11-30
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-11-30 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic
Date: 2025-02-20
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001095

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000238 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-FDZ-05102/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing cable tag SS , SIDE 950-JE-05101

Name: Alessio Polo

Date: 2024-11-30

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-11-30 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-04

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001367

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001068 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-MFA-05104 | FZ-05 MFA Activation | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing the separation system between different materials. ( between steel "support" and carbon steel "structure).

Name: Alessio Polo
Date: 2024-12-05
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-05 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

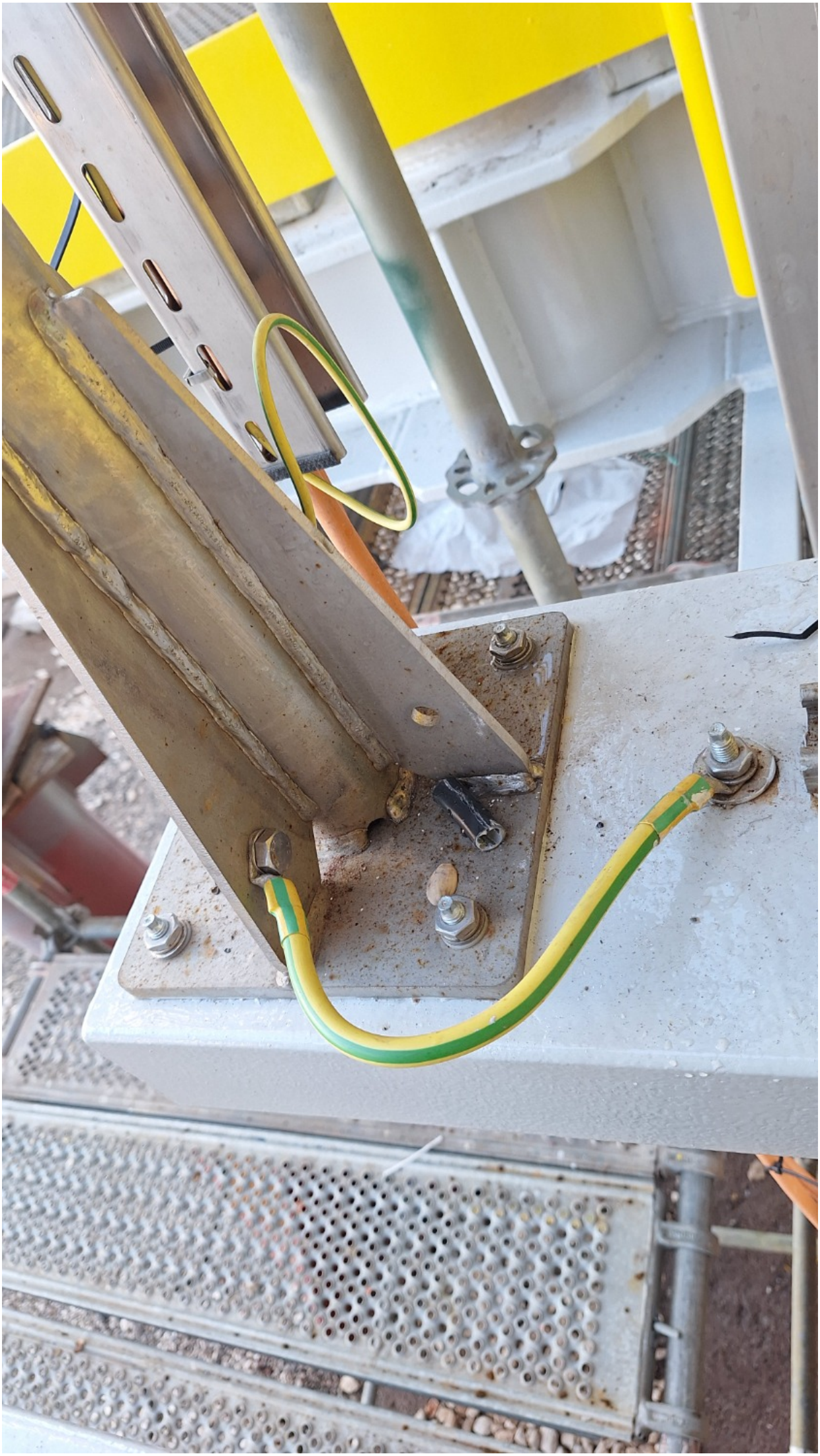
## 5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani
Date: 2025-01-21
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001368

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001068 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-MFA-05104 | FZ-05 MFA Activation | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

the support is not well secured against vibration. another bracket needs to be added.

Name: Alessio Polo

Date: 2024-12-05

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-05 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


PASSED
INSPECTION

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001369

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001138 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-XZ-05101 | FZ-05 Sounder Activation | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

the support is not well secured against vibration. another bracket needs to be added.

Name: Alessio Polo

Date: 2024-12-05

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-05 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


PASSED
INSPECTION

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001370

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001138 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-XZ-05101 | FZ-05 Sounder Activation | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing the separation system between different materials. ( between steel "support" and carbon steel "structure).

Name: Alessio Polo
Date: 2024-12-05
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-05 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

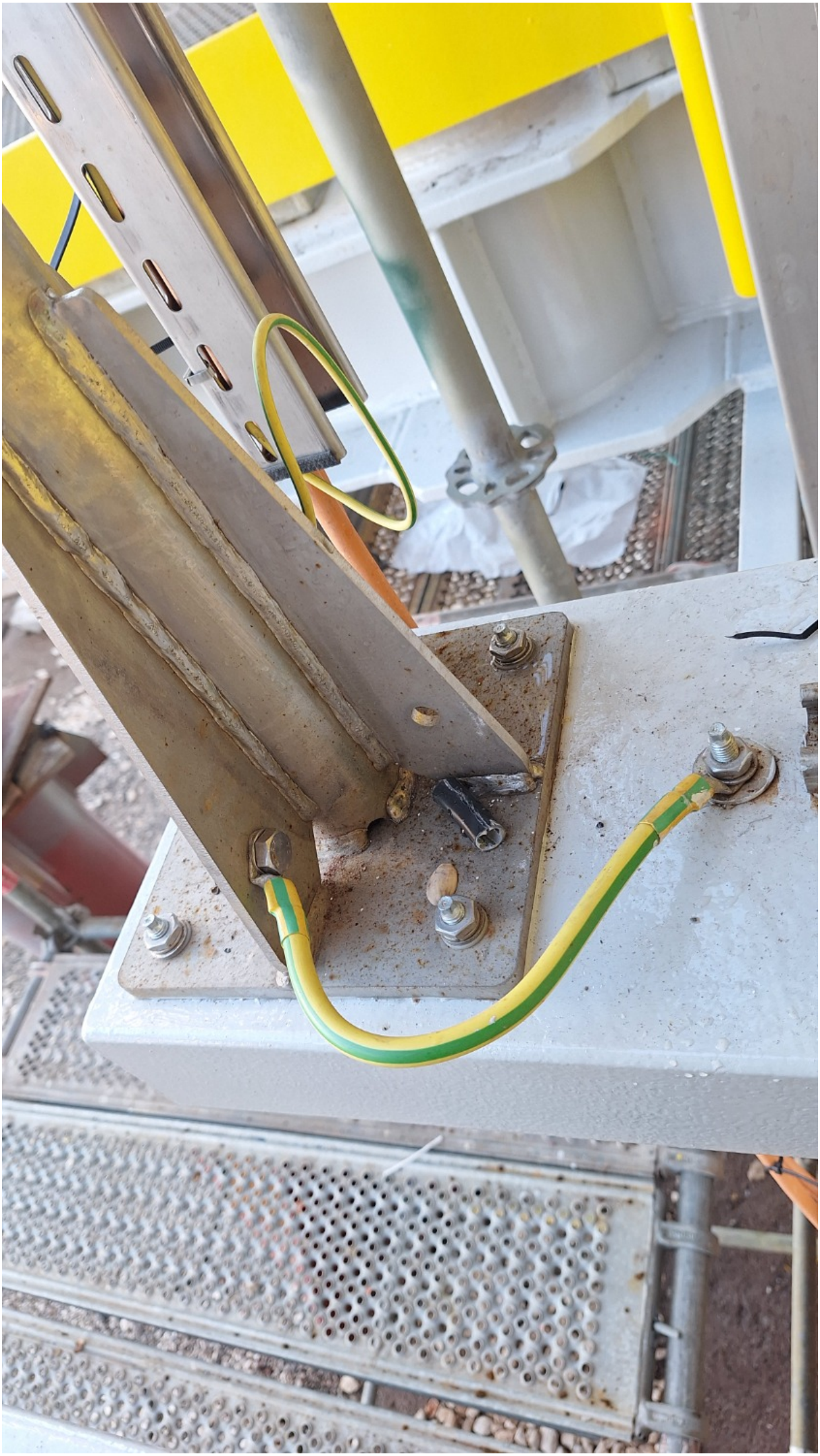
## 5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani
Date: 2025-01-21
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001371

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001065 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-MFA-05101 | FZ-05 MFA Activation | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing the separation system between different materials. ( between steel "support" and carbon steel "structure).

Name: Alessio Polo

Date: 2024-12-05

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-05 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-21

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001372

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001065 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-MFA-05101 | FZ-05 MFA Activation | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

the support is not well secured against vibration. another bracket needs to be added.

Name: Alessio Polo

Date: 2024-12-05

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-05 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


PASSED
INSPECTION

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001374

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001065 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-MFA-05101 | FZ-05 MFA Activation | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

installation is not conforms to instrument installation details. ( see 123A90-DDL-IN-DD-40017_ sh. 27) .

Name: Alessio Polo
Date: 2024-12-05
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-05 |
| 3.5 Action by | ENG Engineering | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

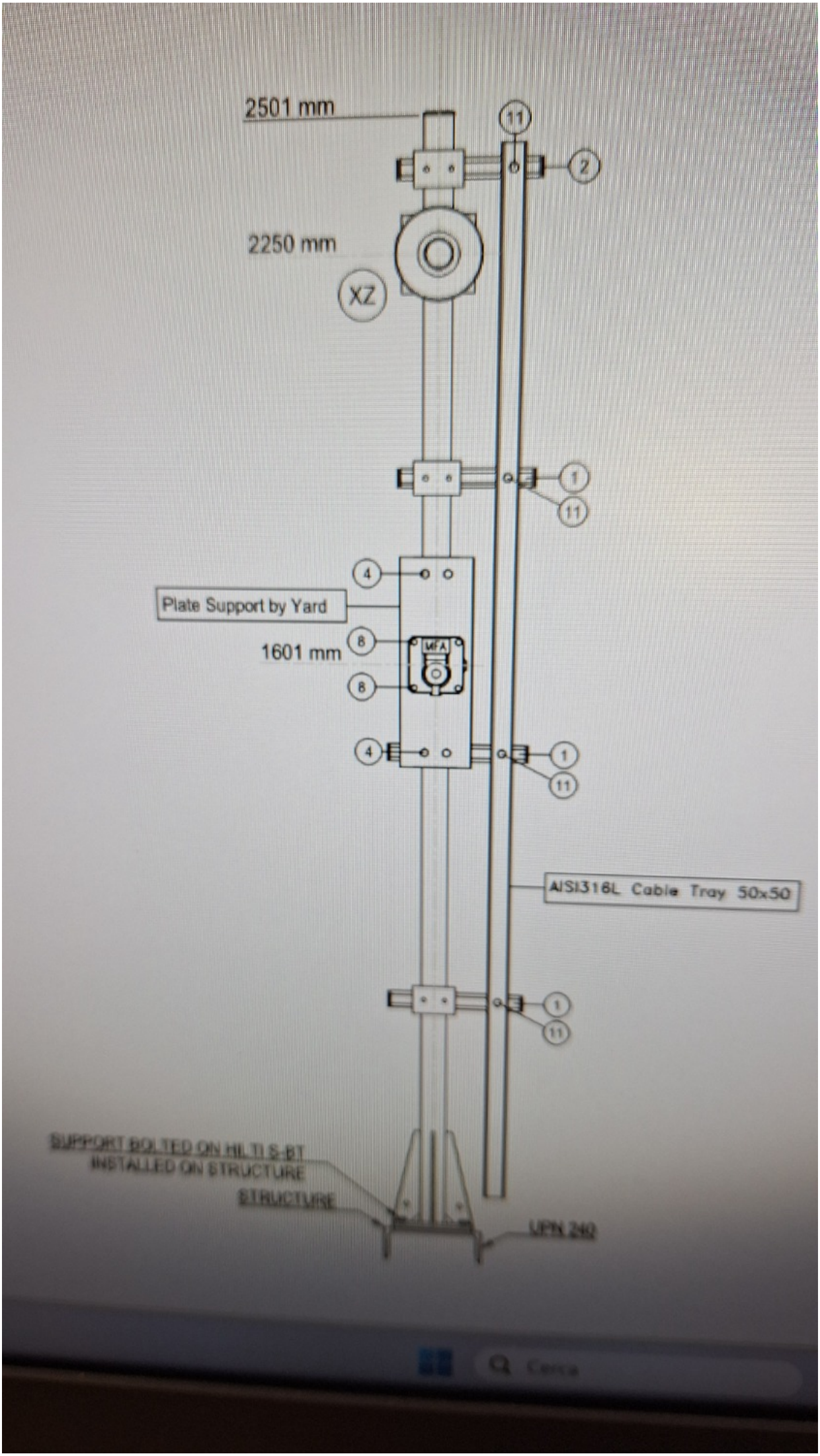
## 5 - CLEARANCE CHECK

RLMU DONE

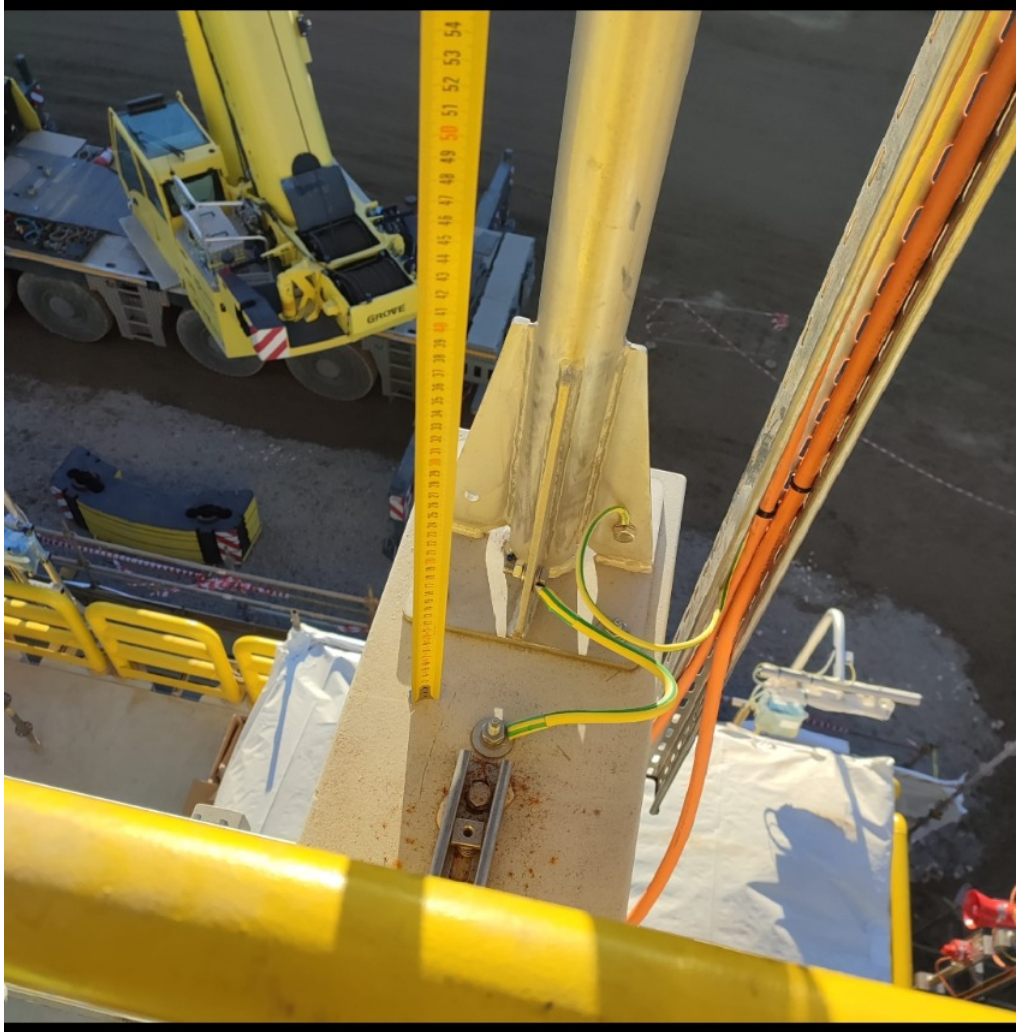
Name: Eleonora Carotenuto
Date: 2024-12-27
Signature:

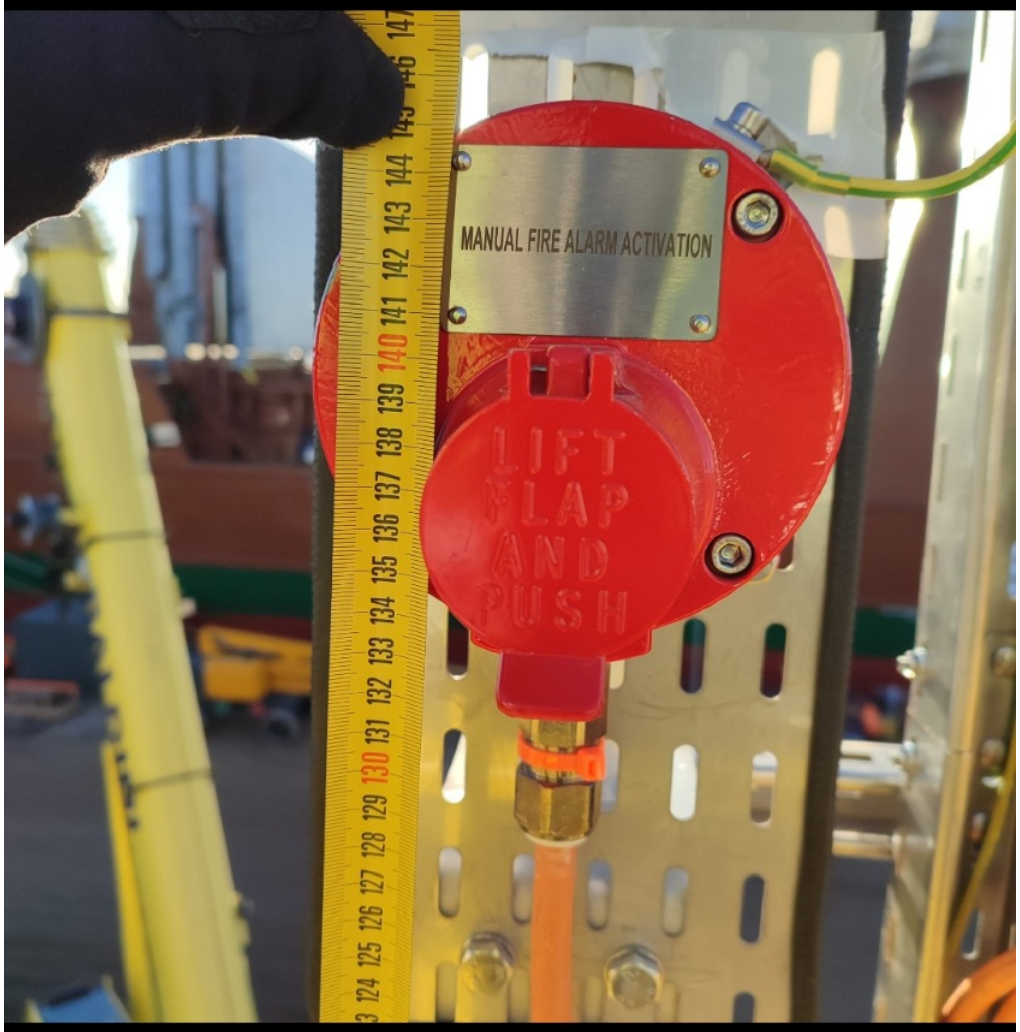
## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:


2501 mm
11
2
2250 mm
XZ
1
11
4
Plate Support by Yard
8
1601 mm
MFA
8
4
1
11
AISI316L Cable Tray 50x50
1
11
SUPPORT BOLTED ON HILTI S-BT
INSTALLED ON STRUCTURE
STRUCTURE
UPN 240




GROVE


MANUAL FIRE ALARM ACTIVATION
LIFT FLAP AND PUSH

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001376

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001068 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-MFA-05104 | FZ-05 MFA Activation | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

installation is not conforms to instrument installation details. ( see 123A90-DDL-IN-DD-40017_ sh. 27) .

Name: Alessio Polo
Date: 2024-12-05
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-05 |
| 3.5 Action by | ENG Engineering | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

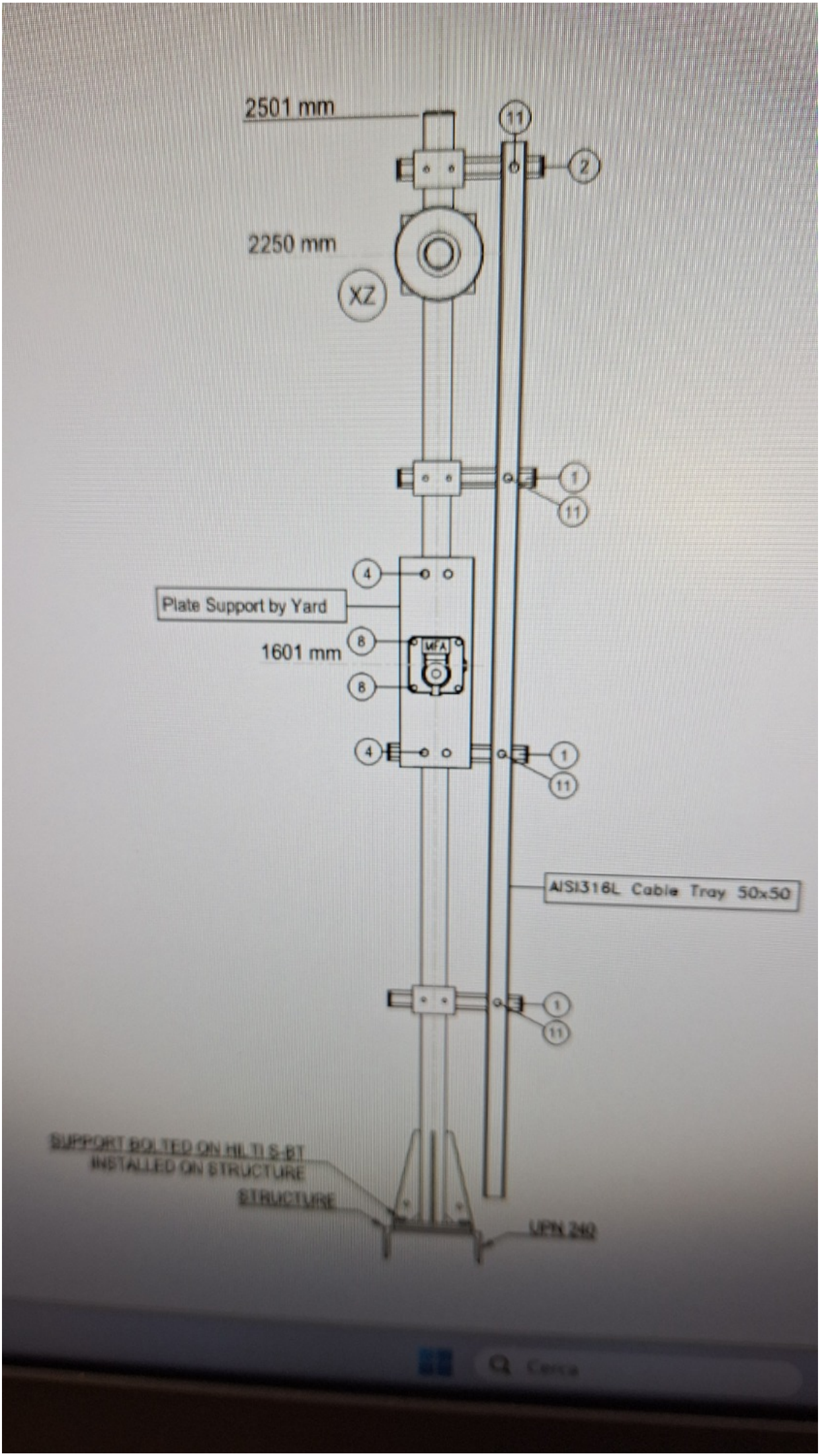
## 5 - CLEARANCE CHECK

RLMU DONE

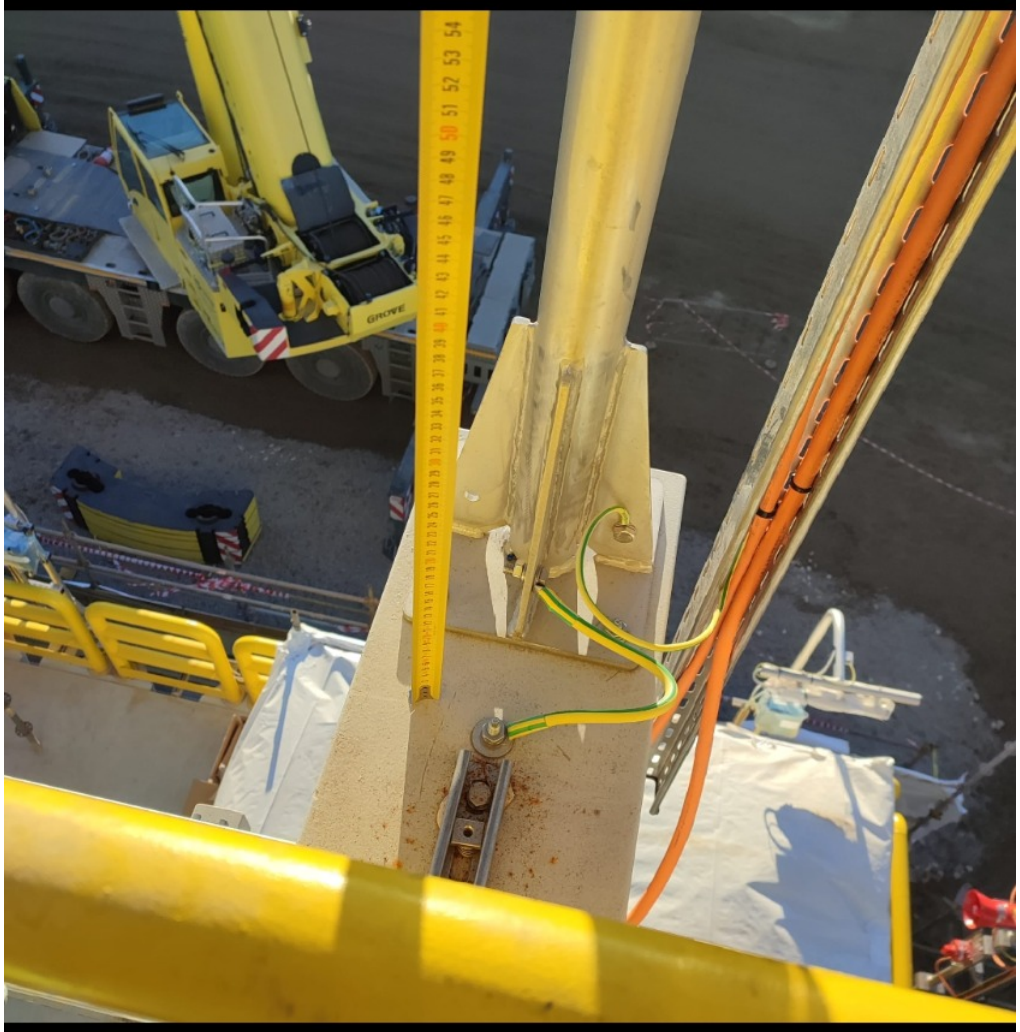
Name: Eleonora Carotenuto
Date: 2024-12-27
Signature:

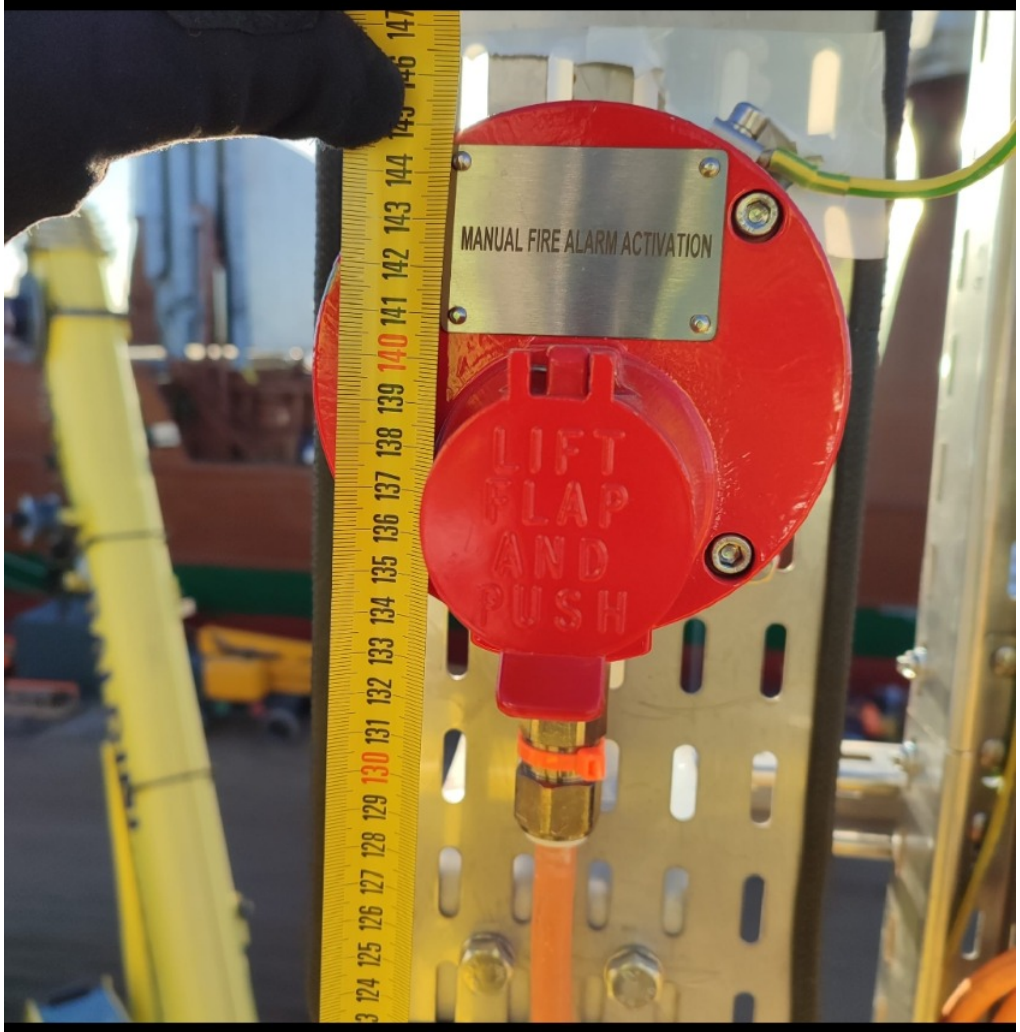
## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:


2501 mm
11
2
2250 mm
XZ
1
11
4
Plate Support by Yard
8
1601 mm
MFA
8
4
1
11
AISI316L Cable Tray 50x50
1
11
SUPPORT BOLTED ON HILTI S-BT
INSTALLED ON STRUCTURE
STRUCTURE
UPN 240




GROVE


MANUAL FIRE ALARM ACTIVATION
LIFT FLAP AND PUSH

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001614

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000237 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-FDZ-05101/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Identification tag wire missing side (950-FDZ-05101)connection.

Name: Giovanni Tangianu

Date: 2024-12-10

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-10 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-04-08

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001615

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000237 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-FDZ-05101/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing cable tag side the (950-JE-05101).

Name: Giovanni Tangianu

Date: 2024-12-10

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-10 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-01-02

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001616

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000240 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-FDZ-05104/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Identification tag wire missing side (950-FDZ-05104)connection.See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-10

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-10 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-24

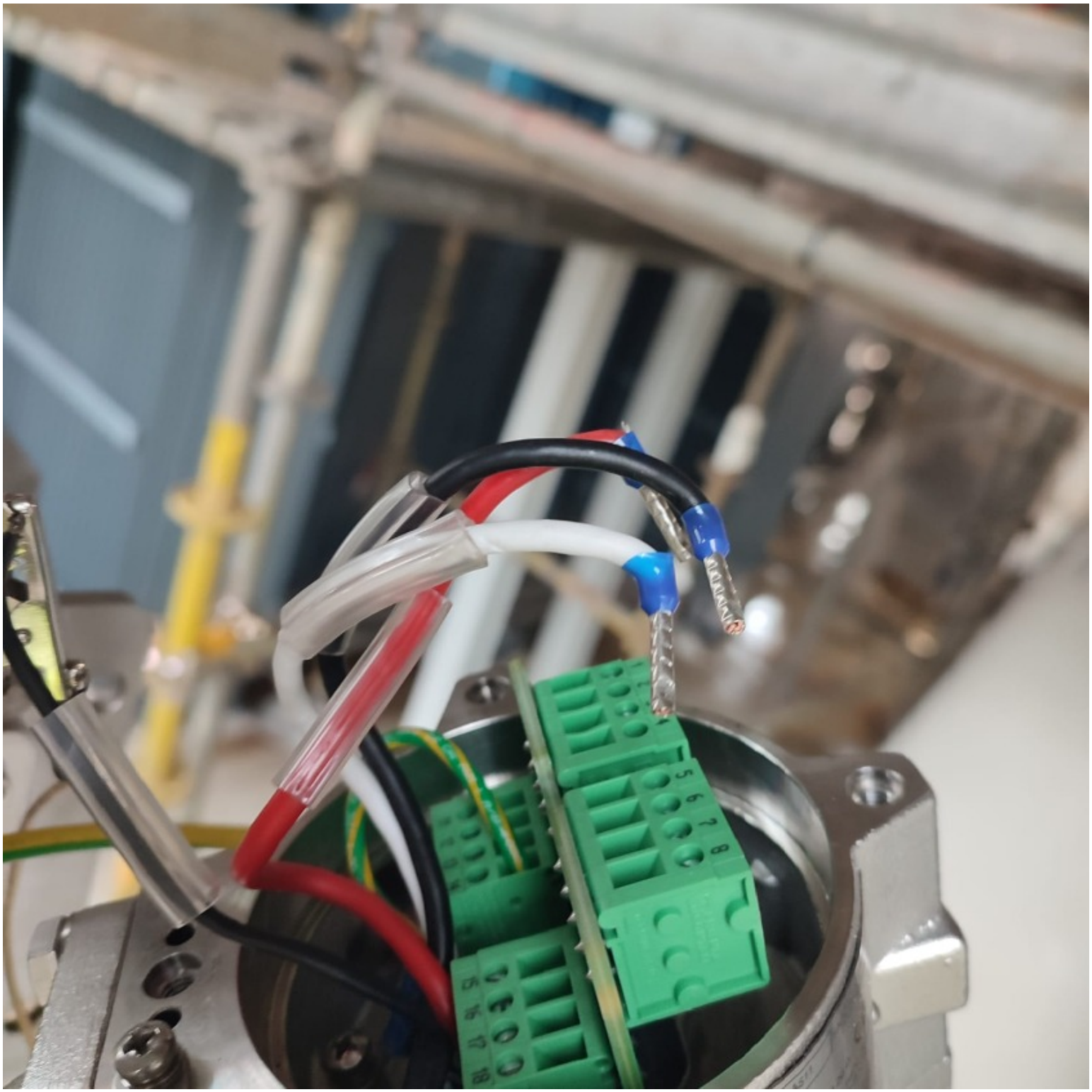
Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001617

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000240 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-FDZ-05104/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing cable tag side the (950-JE-05101).See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-10

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-10 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-01-02

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001680

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000243 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05103/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

The cable need to be fix. See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

The cable is fix.

Name: Giovanni Tangianu

Date: 2025-01-23

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001681

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000243 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05103/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

The cabletray are not properly support near the instrument (950-GDZ-05103). See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-13

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001682

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000243 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05103/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05103).See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-26

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001683

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000243 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05103/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing cable tag side the (950-JE-05101).

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-01-02

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001684

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001042 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-GDZ-05103 | H2 GD FZ-05 BESS Area | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

DETAIL EARTHING THREADED STUD IS WRONG IN ASSEMBLY ( see doc 123A90-FDL-EL-DD-20090 typical E-11).
See attached photo.

Name: Giovanni Tangianu
Date: 2024-12-11
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

## 5 - CLEARANCE CHECK

Done

Name: Eleonora Carotenuto
Date: 2025-01-22
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001685

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000239 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-FDZ-05103/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing cable tag side the (950-JE-05103).

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-01-29

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001686

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000239 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-FDZ-05103/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing grafoplast and tag wire on the shield, inside the instrument (-950-FDZ-05103).

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-04-08

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001687

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001040 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-GDZ-05101 | H2 GD FZ-05 BESS Area | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

DETAIL EARTHING THREADED STUD IS WRONG IN ASSEMBLY ( see doc 123A90-FDL-EL-DD-20090 typical E-11).
See attached photo.

Name: Giovanni Tangianu
Date: 2024-12-11
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto
Date: 2025-01-22
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001688

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000241 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05101/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

The cable need to be fix.See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu

Date: 2025-01-23

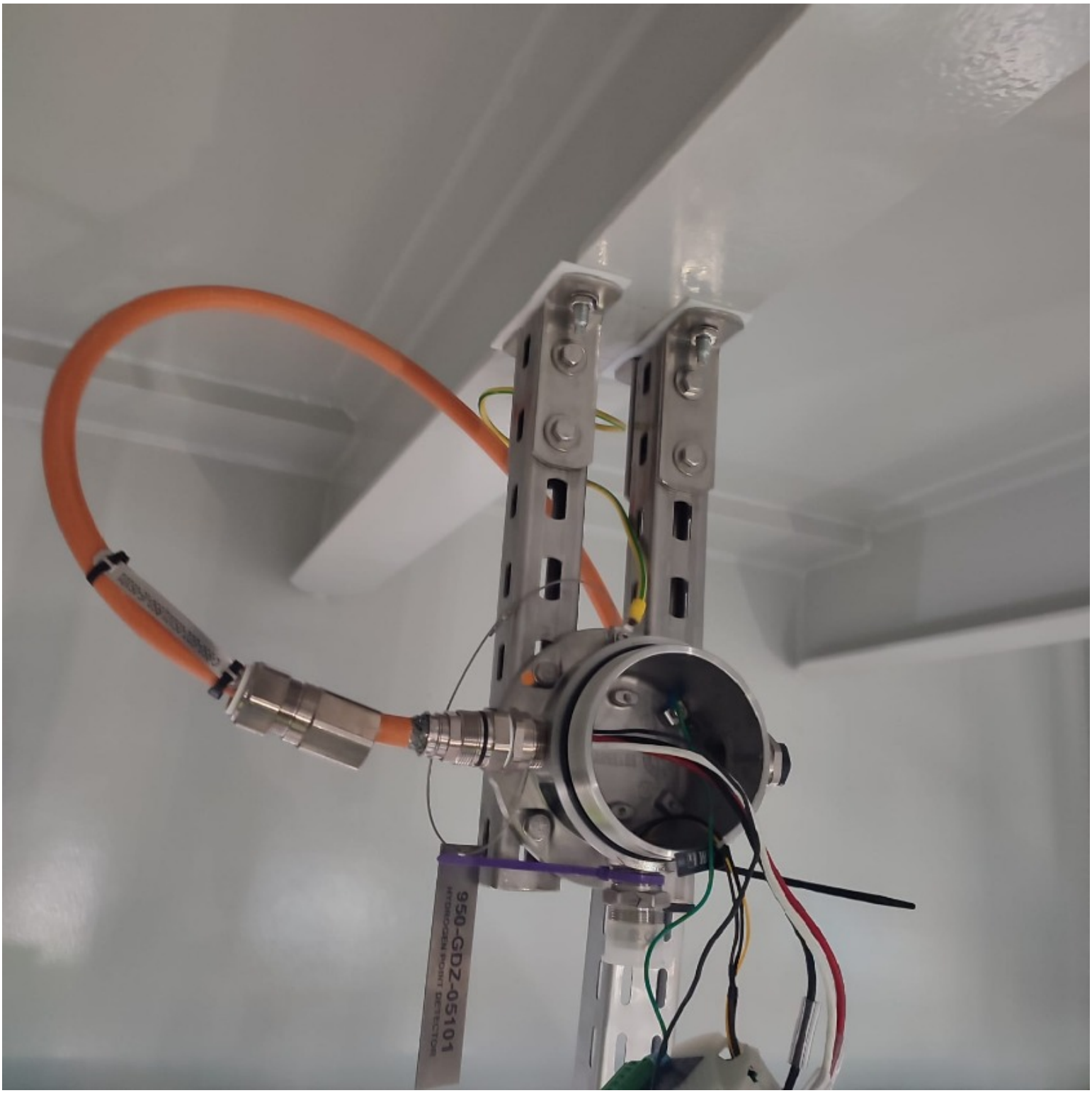
Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


950-GDZ-05101

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001689

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000241 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05101/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing plug on the unistrut . Below the instrument. See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-01-23

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001690

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000241 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05101/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

The cabletray are not properly  fix . the support is not tight near the instrument (950-GDZ-05101). See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED  ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

FIXED.

Name: Giovanni Tangianu

Date: 2025-01-23

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001691

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001041 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-GDZ-05102 | H2 GD FZ-05 BESS Area | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

earthing cable need to be fix. See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-03

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


5
5Iq2

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001692

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000242 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05102/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05102).See attached photo.

Name: Giovanni Tangianu
Date: 2024-12-11
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

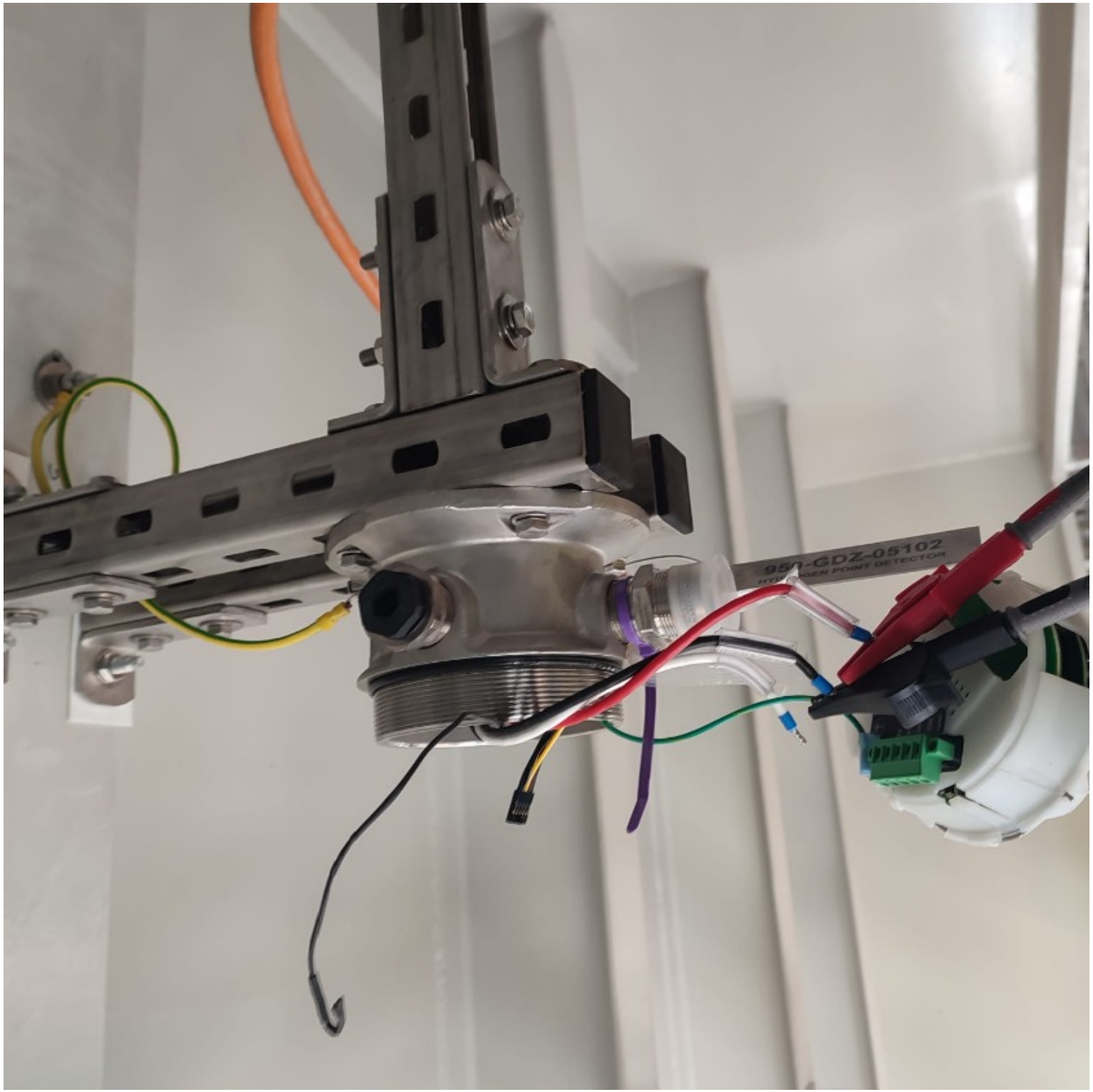
## 5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic
Date: 2025-02-26
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:


950-GDZ-05102

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001693

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000242 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05102/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing cable tag side the (950-JE-05101).

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-01-02

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001694

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001043 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-GDZ-05104 | H2 GD FZ-05 BESS Area | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

earthing cable need to be fix. See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-03

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


5
5Iq2

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001695

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001043 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-GDZ-05104 | H2 GD FZ-05 BESS Area | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

DETAIL EARTHING THREADED STUD IS WRONG IN ASSEMBLY ( see doc 123A90-FDL-EL-DD-20090 typical E-11).
See attached photo.

Name: Giovanni Tangianu
Date: 2024-12-11
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

## 5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu
Date: 2025-01-23
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001696

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001461 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05104/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing cable tag side the (950-JE-05101).

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-01-02

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001698

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001461 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05104/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05104).

Name: Giovanni Tangianu
Date: 2024-12-11
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

## 5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu
Date: 2025-04-08
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001700

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001462 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05105/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

The cabletray are not properly support near the instrument (950-GDZ-05105).

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-13

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001701

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001462 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05105/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05105).

Name: Giovanni Tangianu
Date: 2024-12-11
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic
Date: 2025-02-26
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001702

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001462 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05105/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing cable tag side the (950-JE-05101).

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-01-02

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001703

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001044 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-GDZ-05105 | H2 GD FZ-05 BESS Area | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

DETAIL EARTHING THREADED STUD IS WRONG IN ASSEMBLY ( see doc 123A90-FDL-EL-DD-20090 typical E-11).
See attached photo.

Name: Giovanni Tangianu
Date: 2024-12-11
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

## 5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu
Date: 2025-01-23
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001704

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001044 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-GDZ-05105 | H2 GD FZ-05 BESS Area | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

earthing cable need to be fix. See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-11

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-11 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-03

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


5
5Iq2

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001705

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001045 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-GDZ-05106 | H2 GD FZ-05 BESS Area | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Earthing cable need to be fix. See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-12

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-12 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-03

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


5
5Iq2

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30000950

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000401 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-MFA-05201/B400-FGS-003 | MANUAL FIRE ALARM / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing cable tag all along the route.

Name: Giovanni Tangianu

Date: 2024-11-26

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-11-26 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-26

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30000951

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000401 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-MFA-05201/B400-FGS-003 | MANUAL FIRE ALARM / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Identification tag wires missing both side the C-950-MFA-05201/B400-FGS-003 connection.

Name: Giovanni Tangianu

Date: 2024-11-26

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-11-26 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-03-03

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30000952

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000401 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-MFA-05201/B400-FGS-003 | MANUAL FIRE ALARM / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

-Bending radius is not within the specified limits. (stress on the input cable  instrument MFA-05201).

Name: Giovanni Tangianu

Date: 2024-11-26

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-11-26 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED  ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Bending radius is properly fix.

Name: Giovanni Tangianu

Date: 2025-02-04

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001706

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001463 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05106/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing cable tag side the (950-JE-05101).

Name: Giovanni Tangianu

Date: 2024-12-12

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-12 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-01-02

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001707

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001463 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-GDZ-05106/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

Missing grafoplast and tag wire on the shield, inside the instrument (-950-GDZ-05106).

Name: Giovanni Tangianu
Date: 2024-12-12
Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-12 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:
Date:
Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic
Date: 2025-02-26
Signature:

## 6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001725

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000341 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-XZ-05103/950-JE-05103 | SOUNDER / MARSHALLING PCS | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

The installation cabletray as not completed below the (950-JE-05103).See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-12

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-12 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-01-29

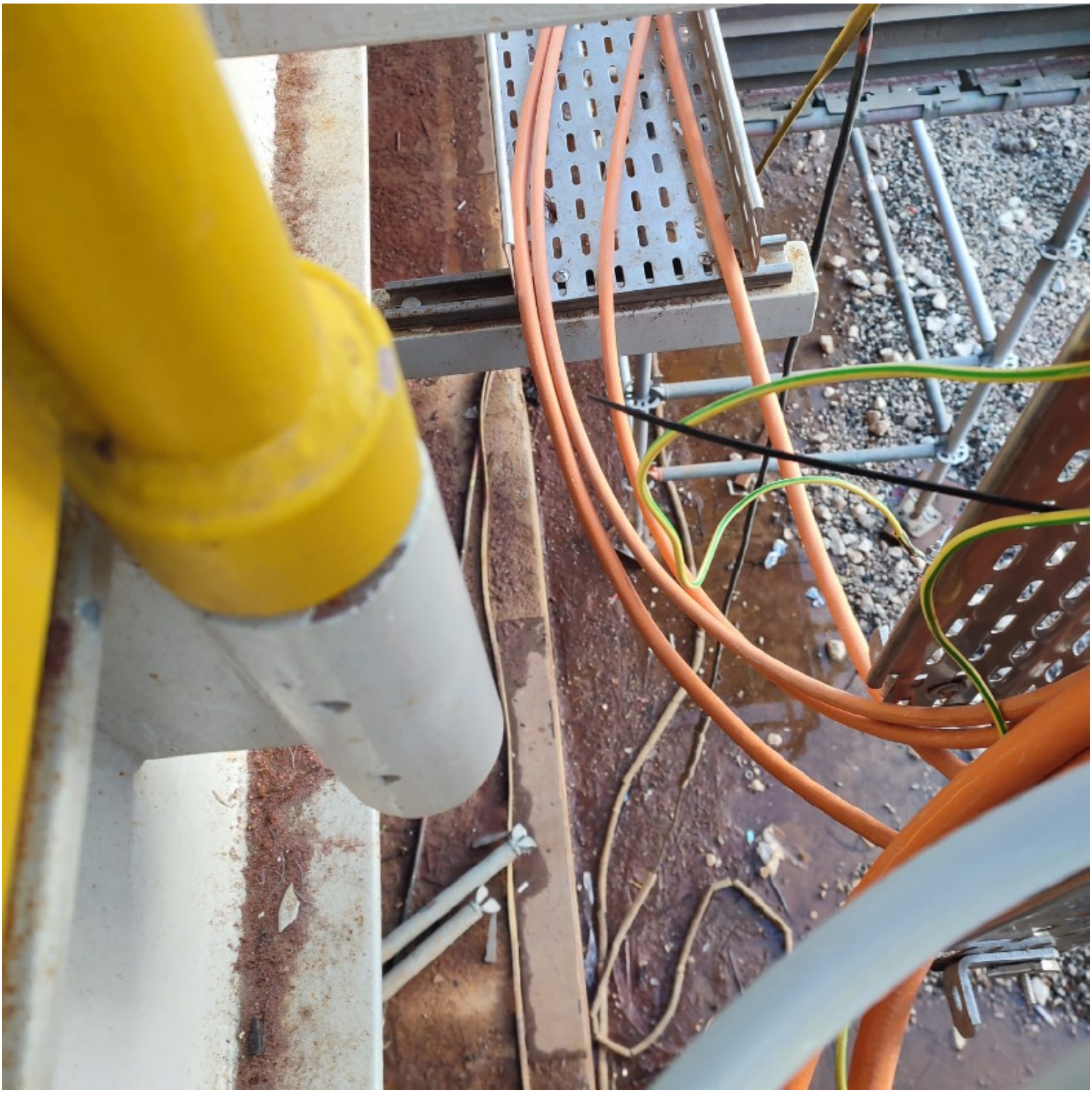
Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001727

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001067 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-MFA-05103 | FZ-05 MFA Activation | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

The support is not well secured against vibration. another support needs to be added.

Name: Giovanni Tangianu

Date: 2024-12-12

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-12 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30001729

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001141 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-XZ-05104 | FZ-05 Sounder Activation | |
| 1.3 Subsystem | 70-16 | F&G Devices FZ-05 (Bess Area) | |

## 2 - OBSERVATION

The support is not well secured against vibration. another support needs to be added.

Name: Giovanni Tangianu

Date: 2024-12-12

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | B PL B | Name | Giovanni Tangianu |
| 3.4 Activity code | MC Mechanical Completion | Date | 2024-12-12 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

## 6- CLEARANCE APPROVAL

Name:

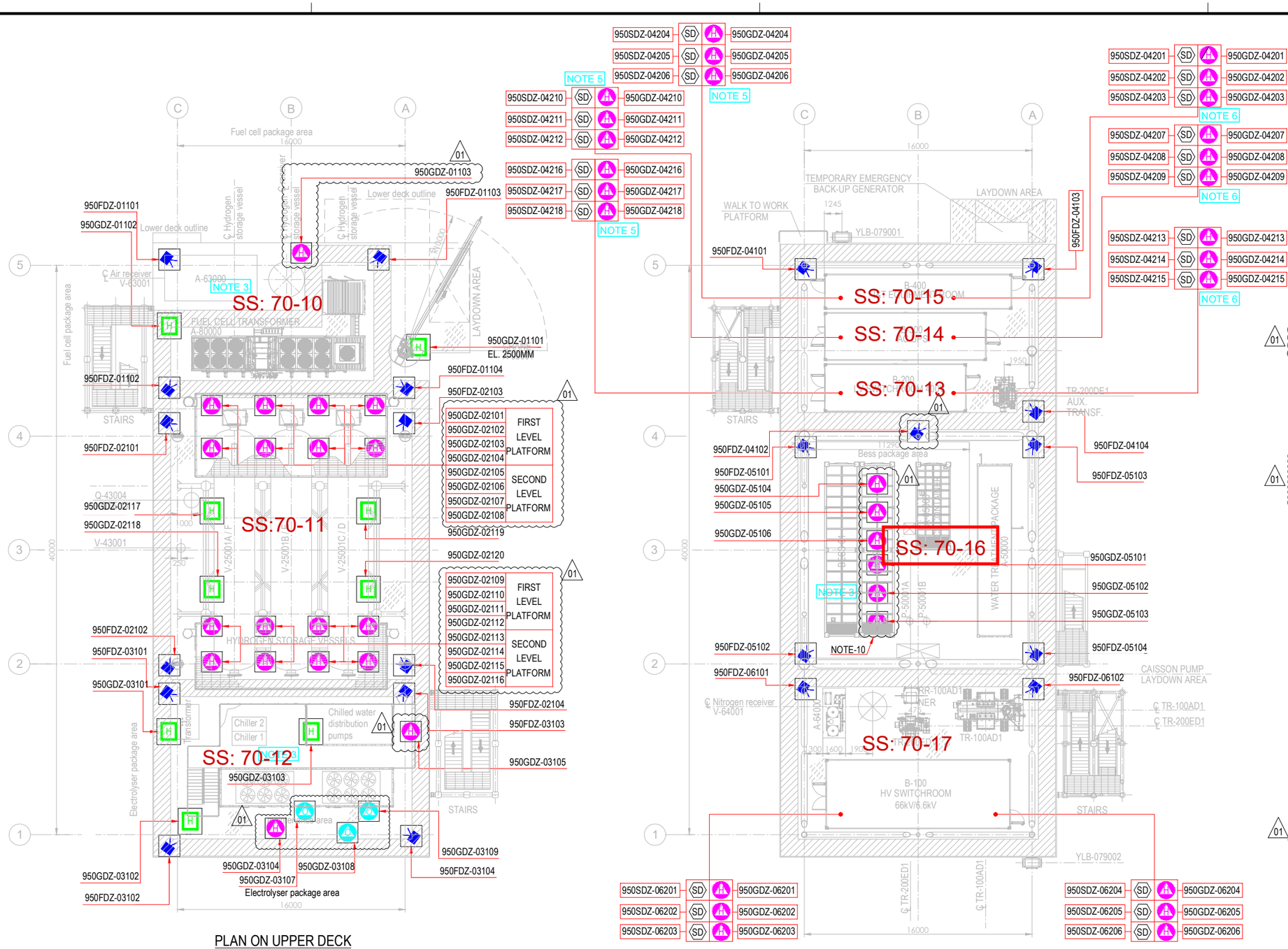
Date:

Signature:

# Section 3 SYSTEM,SUB-SYSTEM LIMIT DRAWINGS

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 00



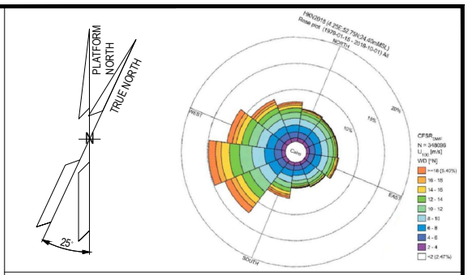

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS.
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS

ELEVATION

FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 10/07/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 01 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.01

# Section 4 MECHANICAL COMPLETION STATUS INDEX - BUILDING DISCIPLINE

# NOT APPLICABLE

# Section 5 MECHANICAL COMPLETION STATUS INDEX - ELECTRICAL DISCIPLINE

# NOT APPLICABLE

# Section 6 MECHANICAL COMPLETION STATUS INDEX - INSTRUMENTAL DISCIPLINE

CROSSWIND

ROSETTI MARINO

# Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 70-16 & process: MC & discipline : I

| Instrumental | 70-16 F&G Devices FZ-05 (Bess Area) |
|---|---|

| ITEM | | TASK | | | | | |
|---|---|---|---|---|---|---|---|
| Code | Description | Location | Code | Form | Progress | Date | Certificate |
| 950-FDZ-05101 | Flame Detector - FZ-05 BESS Area | ONSHORE | C10000985 | CJX43 | 100 | 2024-12-10 | RFC 1 |
| 950-FDZ-05102 | Flame Detector - FZ-05 BESS Area | ONSHORE | C10000986 | CJX43 | 100 | 2024-11-30 | RFC 1 |
| 950-FDZ-05103 | Flame Detector - FZ-05 BESS Area | ONSHORE | C10000987 | CJX43 | 100 | 2024-12-11 | RFC 1 |
| 950-FDZ-05104 | Flame Detector - FZ-05 BESS Area | ONSHORE | C10000988 | CJX43 | 100 | 2024-12-10 | RFC 1 |
| 950-GDZ-05101 | H2 GD FZ-05 BESS Area | ONSHORE | C10001040 | CJX42 | 100 | 2024-12-11 | RFC 2 |
| 950-GDZ-05102 | H2 GD FZ-05 BESS Area | ONSHORE | C10001041 | CJX42 | 100 | 2024-12-11 | RFC 1 |
| 950-GDZ-05103 | H2 GD FZ-05 BESS Area | ONSHORE | C10001042 | CJX42 | 100 | 2024-12-11 | RFC 1 |
| 950-GDZ-05104 | H2 GD FZ-05 BESS Area | ONSHORE | C10001043 | CJX42 | 100 | 2024-12-11 | RFC 1 |
| 950-GDZ-05105 | H2 GD FZ-05 BESS Area | ONSHORE | C10001044 | CJX42 | 100 | 2024-12-11 | RFC 1 |
| 950-GDZ-05106 | H2 GD FZ-05 BESS Area | ONSHORE | C10001045 | CJX42 | 100 | 2024-12-12 | RFC 1 |
| 950-MFA-05101 | FZ-05 MFA Activation | ONSHORE | C10001065 | CJX00 | 100 | 2024-12-05 | RFC 2 |
| 950-MFA-05102 | FZ-05 MFA Activation | ONSHORE | C10001066 | CJX00 | 100 | 2025-01-13 | RFC 2 |
| 950-MFA-05103 | FZ-05 MFA Activation | ONSHORE | C10001067 | CJX00 | 100 | 2024-12-12 | RFC 1 |
| 950-MFA-05104 | FZ-05 MFA Activation | ONSHORE | C10001068 | CJX00 | 100 | 2024-12-05 | RFC 1 |
| 950-MFA-05201 | FZ-05 Manual fire alarm (MFA) water treat. pkg | ONSHORE | C10001475 | CJX00 | 100 | 2024-12-12 | RFC 1 |
| 950-XZ-05101 | FZ-05 Sounder Activation | ONSHORE | C10001138 | CJX00 | 100 | 2024-12-06 | RFC 1 |
| 950-XZ-05102 | FZ-05 Sounder Activation | ONSHORE | C10001139 | CJX00 | 100 | 2025-01-13 | RFC 2 |
| 950-XZ-05103 | FZ-05 Sounder Activation | ONSHORE | C10001140 | CJX00 | 100 | 2024-12-12 | RFC 1 |
| 950-XZ-05104 | FZ-05 Sounder Activation | ONSHORE | C10001141 | CJX00 | 100 | 2024-12-12 | RFC 1 |
| C-950-FDZ-05101/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | ONSHORE | C10000237 | CJX10 | 100 | 2024-12-10 | RFC 1 |
| C-950-FDZ-05102/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | ONSHORE | C10000238 | CJX10 | 100 | 2024-11-30 | RFC 1 |
| C-950-FDZ-05103/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | ONSHORE | C10000239 | CJX10 | 100 | 2024-12-11 | RFC 1 |
| C-950-FDZ-05104/950-JE-05101 | FLAME DETECTOR / MARSHALLING PCS | ONSHORE | C10000240 | CJX10 | 100 | 2024-12-10 | RFC 1 |
| C-950-GDZ-05101/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | ONSHORE | C10000241 | CJX10 | 100 | 2024-12-11 | RFC 1 |
| C-950-GDZ-05102/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | ONSHORE | C10000242 | CJX10 | 100 | 2024-12-11 | RFC 1 |
| C-950-GDZ-05103/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | ONSHORE | C10000243 | CJX10 | 100 | 2024-12-11 | RFC 1 |
| C-950-GDZ-05104/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | ONSHORE | C10001461 | CJX10 | 100 | 2024-12-11 | RFC 1 |
| C-950-GDZ-05105/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | ONSHORE | C10001462 | CJX10 | 100 | 2024-12-11 | RFC 1 |
| C-950-GDZ-05106/950-JE-05101 | GAS DETECTOR / MARSHALLING PCS | ONSHORE | C10001463 | CJX10 | 100 | 2024-12-12 | RFC 1 |

CROSSWIND

ROSETTI MARINO

# Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 70-16 & process: MC & discipline : I

| Instrumental | 70-16 F&G Devices FZ-05 (Bess Area) |
|---|---|

| ITEM | | TASK | | | | | |
|---|---|---|---|---|---|---|---|
| Code | Description | Location | Code | Form | Progress | Date | Certificate |
| C-950-MFA-05101/950-JE-05102 | MANUAL FIRE ALARM / MARSHALLING PCS | ONSHORE | C10000303 | CJX10 | 100 | 2025-01-14 | RFC 2 |
| C-950-MFA-05102/950-JE-05102 | MANUAL FIRE ALARM / MARSHALLING PCS | ONSHORE | C10000304 | CJX10 | 100 | 2025-01-13 | RFC 2 |
| C-950-MFA-05103/950-JE-05102 | MANUAL FIRE ALARM / MARSHALLING PCS | ONSHORE | C10000305 | CJX10 | 100 | 2024-12-10 | RFC 1 |
| C-950-MFA-05104/950-JE-05102 | MANUAL FIRE ALARM / MARSHALLING PCS | ONSHORE | C10000306 | CJX10 | 100 | 2024-12-05 | RFC 1 |
| C-950-MFA-05201/B400-FGS-003 | MANUAL FIRE ALARM / MARSHALLING PCS | ONSHORE | C10000401 | CJX10 | 100 | 2024-11-28 | RFC 1 |
| C-950-XZ-05101/950-JE-05103 | SOUNDER / MARSHALLING PCS | ONSHORE | C10000339 | CJX10 | 100 | 2025-01-13 | RFC 2 |
| C-950-XZ-05102/950-JE-05103 | SOUNDER / MARSHALLING PCS | ONSHORE | C10000340 | CJX10 | 100 | 2025-01-13 | RFC 2 |
| C-950-XZ-05103/950-JE-05103 | SOUNDER / MARSHALLING PCS | ONSHORE | C10000341 | CJX10 | 100 | 2024-12-12 | RFC 1 |
| C-950-XZ-05104/950-JE-05103 | SOUNDER / MARSHALLING PCS | ONSHORE | C10000342 | CJX10 | 100 | 2024-12-12 | RFC 1 |

ROSETTI MARINO | CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-FDZ-05101/950-JE-05101 | : FLAME DETECTOR / MARSHALLING PCS | | Dwg | 123A90-DDL-IN-LIS-40091 | |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | Module | LD/LD_B-100_Ext | |
| **TASK** | code | C10000237 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | MC | Activity CCK | Discipline Instrumental | Form | CJX10 | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 1X3X2,5 mm2 | Color | ORANGE |
| From | 950-FDZ-05101 | | To | 950-JE-05101 | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | PL |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | | |
|---|---|---|---|---|
| INSULATION | CORE to EARTH | | >999 | MΩ |
| | CORE to CORE | | >999 | MΩ |
| | CORE to SCREEN | | >999 | MΩ |
| | CORE to ARMr | | >999 | MΩ |
| | SCREEN to EARTH | | >999 | MΩ |
| | SCREEN to ARMr | | >999 | MΩ |
| CONTINUITY | CORES | | 0,5 | Ω |
| | SCREEN | | 0,5 | Ω |
| | EARTH | | NA | Ω |
| | ARMr | | 0,5 | Ω |
| | TEST VOLTS | | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

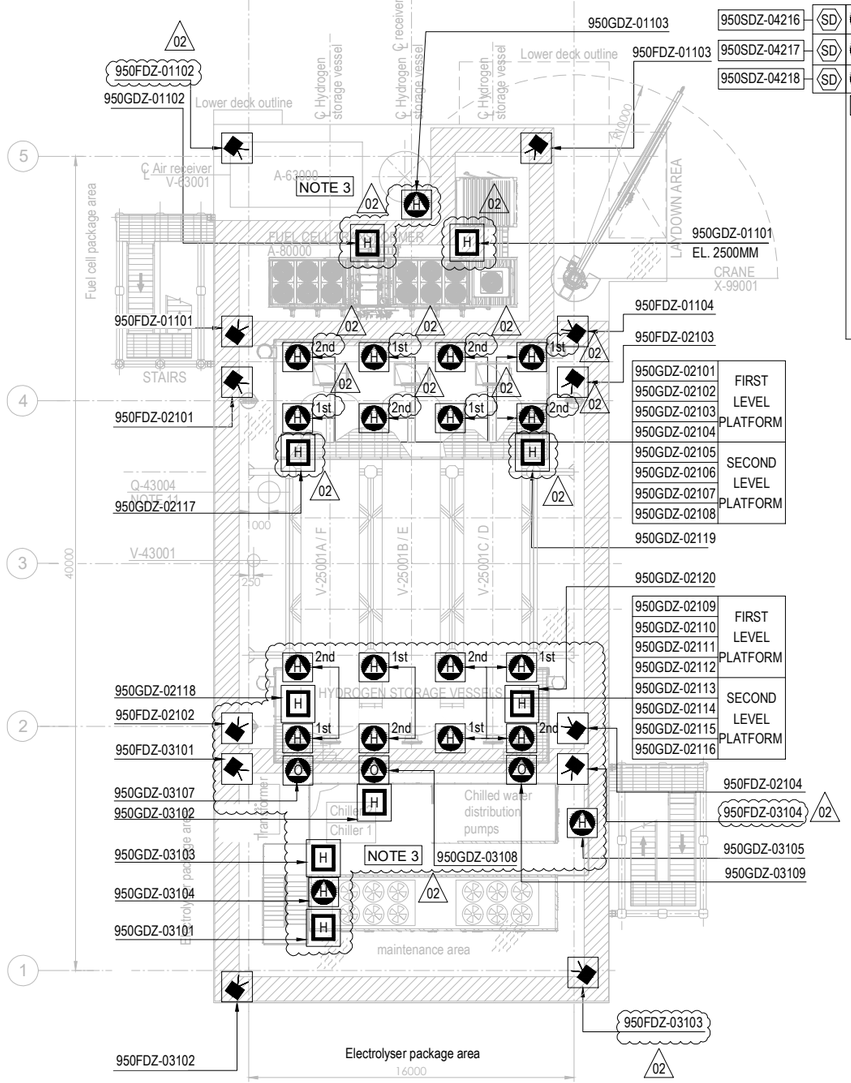
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

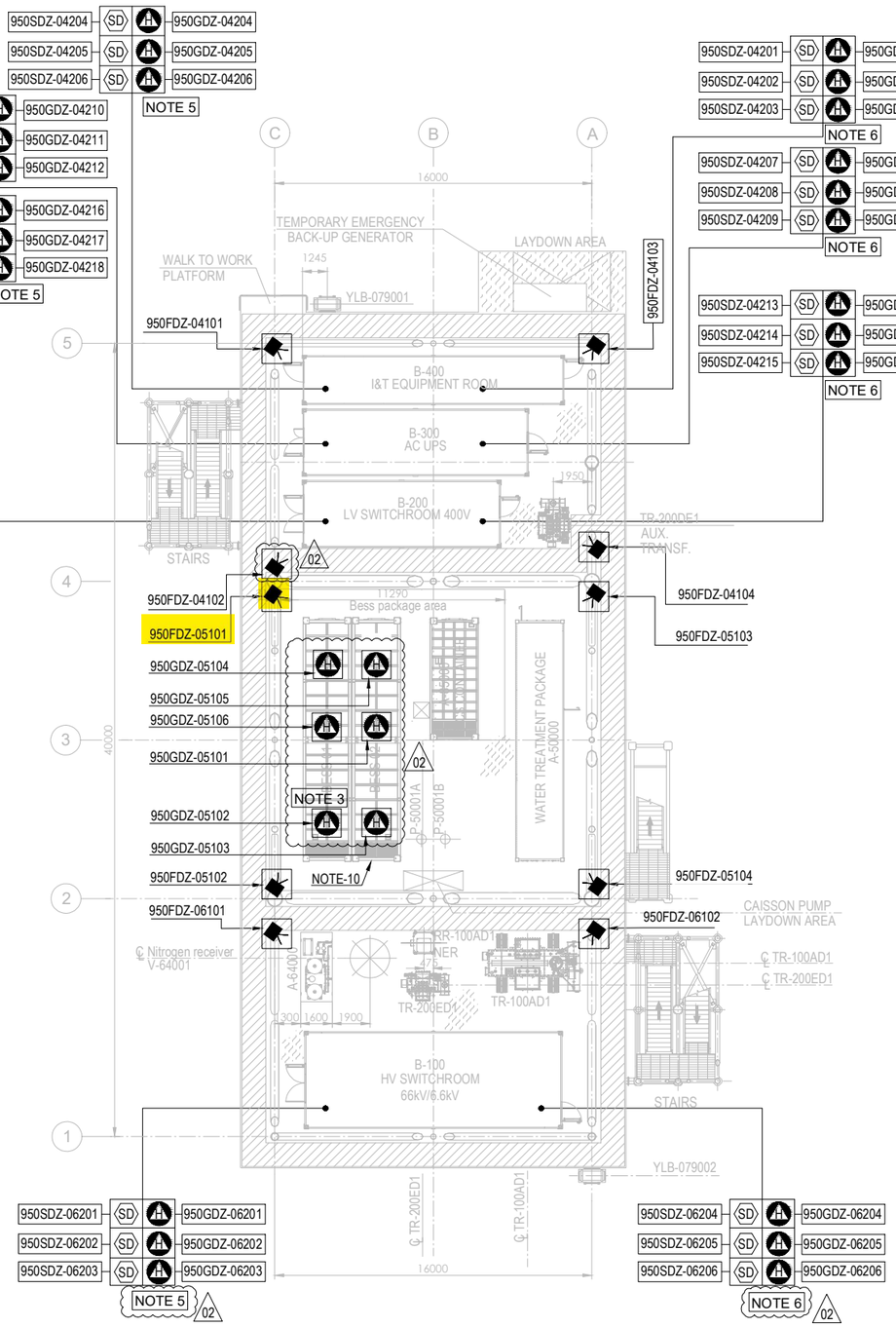
| **Page 1/1** | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-07 | 2024-12-10 | |
| **Signature** | Digitaly signed by Francesco Zucca 2024-12-07T07:48:33.595Z | Digitaly signed by Giovanni Tangianu 2024-12-10T16:54:12.152Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.

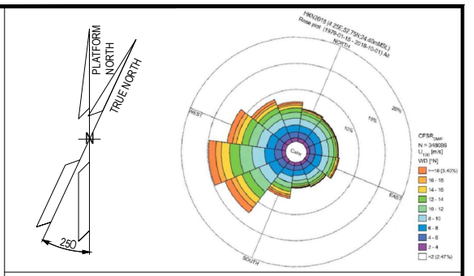



PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

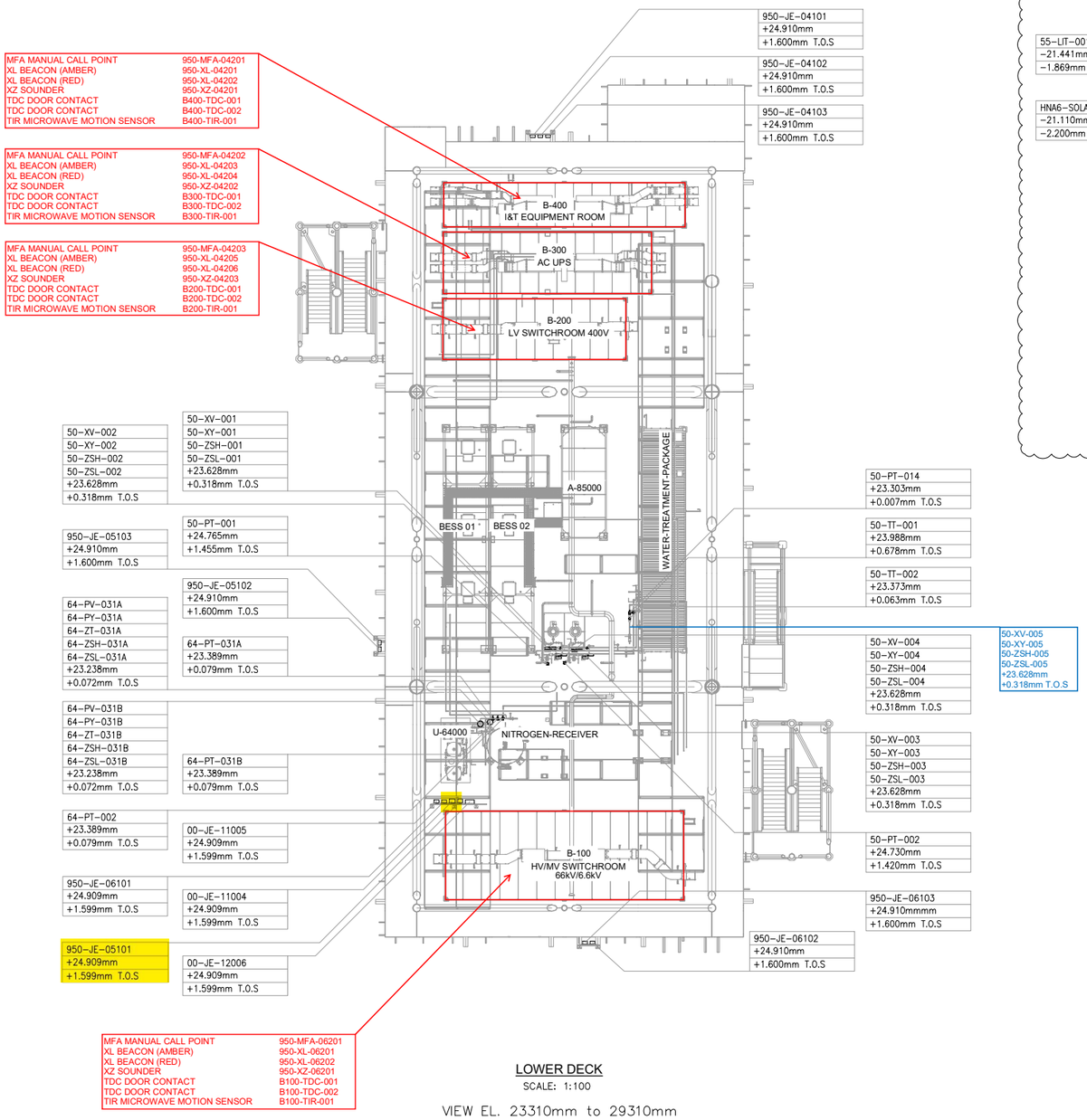
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

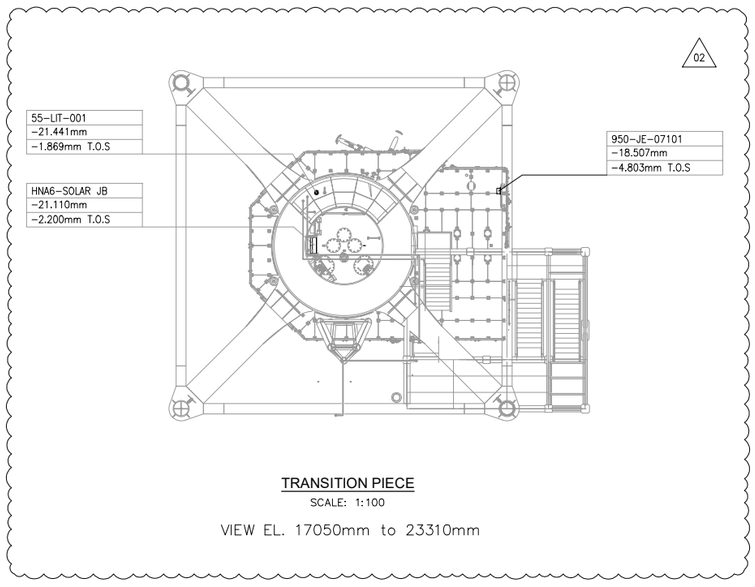
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

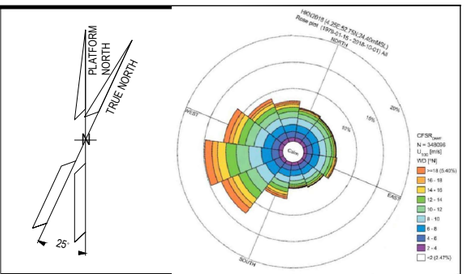
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

| INSTRUMENTS | | JUNCTION BOX 950-JE-05101 | MULTICABLE No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |
|---|---|---|---|---|
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05101 (1, 3, 2) RD, WH, BK | C-950-FDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 950-JE-05101/B400-FGS-003 ~~950-JE-05101/B400-FGS-002~~ 12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS | TB-950-JE-05101 |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05102 (1, 3, 2) RD, WH, BK | C-950-FDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05103 (1, 3, 2) RD, WH, BK | C-950-FDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05104 (1, 3, 2) RD, WH, BK | C-950-FDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | |
| | 950-GDZ-05101 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | |
| | 950-GDZ-05102 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | |
| | 950-GDZ-05103 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | |
| | 950-GDZ-05104 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | |
| | 950-GDZ-05105 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05105/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | |
| | 950-GDZ-05106 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05106/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | |

NOTE-2

TB-1

| JUNCTION BOX 950-JE-05101 | | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |
|---|---|---|
| 1 | TR1 RD | TB-950-JE-05101 |
| 2 | TR1 WH | 950-FDZ-05101 |
| 3 | TR1 BK | |
| SH | | Shield Bar |
| 4 | TR2 RD | |
| 5 | TR2 WH | 950-FDZ-05102 |
| 6 | TR2 BK | |
| SH | | Shield Bar |
| 7 | TR3 RD | |
| 8 | TR3 WH | 950-FDZ-05103 |
| 9 | TR3 BK | |
| SH | | Shield Bar |
| 10 | TR4 RD | |
| 11 | TR4 WH | 950-FDZ-05104 |
| 12 | TR4 BK | |
| SH | | Shield Bar |
| 13 | TR5 RD | |
| 14 | TR5 WH | 950-GDZ-05101 |
| 15 | TR5 BK | |
| SH | | Shield Bar |
| 16 | TR6 RD | |
| 17 | TR6 WH | 950-GDZ-05102 |
| 18 | TR6 BK | |
| SH | | Shield Bar |
| 19 | TR7 RD | |
| 20 | TR7 WH | 950-GDZ-05103 |
| 21 | TR7 BK | |
| SH | | Shield Bar |
| 22 | TR8 RD | |
| 23 | TR8 WH | 950-GDZ-05104 |
| 24 | TR8 BK | |
| SH | | Shield Bar |
| 25 | TR9 RD | |
| 26 | TR9 WH | 950-GDZ-05105 |
| 27 | TR9 BK | |
| SH | | Shield Bar |
| 28 | TR10 RD | |
| 29 | TR10 WH | 950-GDZ-05106 |
| 30 | TR10 BK | <01> |
| SH | | Shield Bar |
| 31 | TR11 RD | |
| SPARE 32 | TR11 WH | SPARE |
| 33 | TR11 BK | |
| SH | | Shield Bar |
| 34 | TR12 RD | |
| SPARE 35 | TR12 WH | SPARE |
| 36 | TR12 BK | |
| SH | | Shield Bar |
| OS | | I.E. |

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40016 | SHEET 045 | REV. 01 |

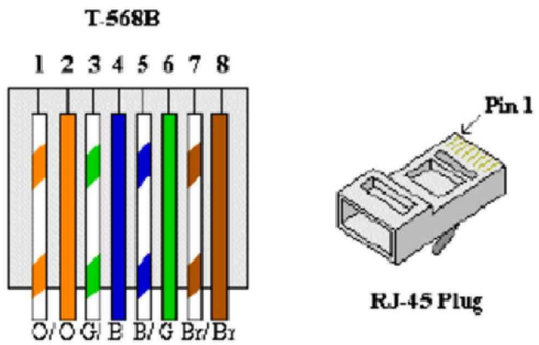
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



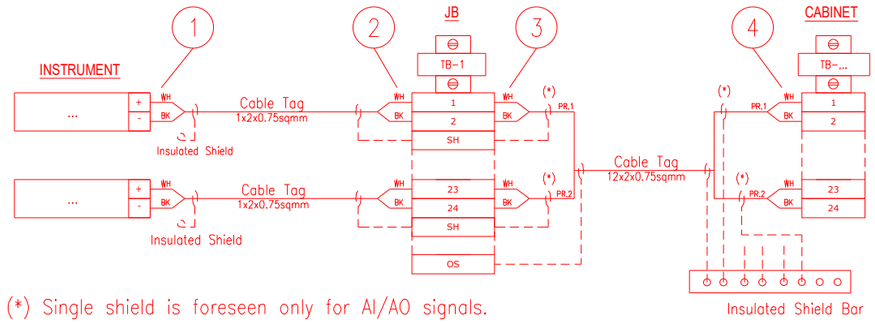

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

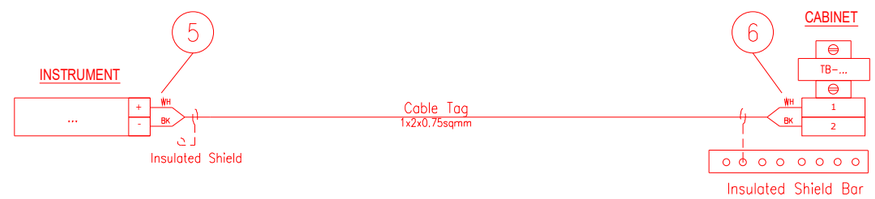
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

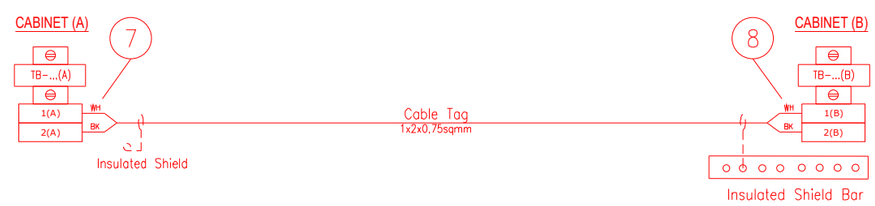
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

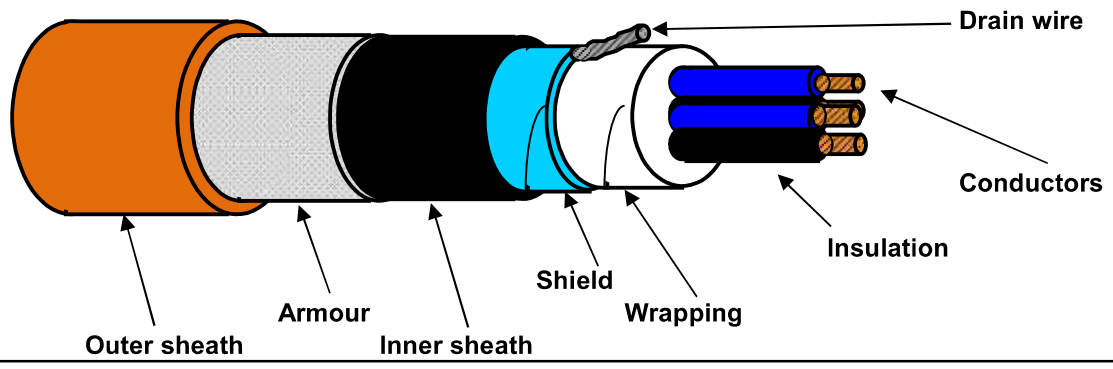
| | | | |
|---|---|---|---|
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40015 | SHEET 003 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplir | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-FDZ-05101/950-JE-05101 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-FDZ-05101 | Flame Detector | Lower Deck | 950-JE-05101 | AI JB to FGS | Lower Deck (B-100) Ext. | SMICV14-1X3X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange | T2_M20_Double | M25 | RED_M25Mx M20F | T2_M20_Dou ble | | | | L-SEC-1E / L-SEC-1F / L-SEC-1G / L-SEC-1H / L-SEC-1I / L-SEC-1J / L-SEC-1L / L-SEC-1M / L-SEC-16 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| **Cores colour code :** | **Red - White - Black** | |
| **Triad Assembling :** | Not required | |
| **Triad Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Triad Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 7/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (10,9 ± 10%) mm | |
| **Over armour diameter :** | (12,1 ± 10%) mm | |
| **Outer diameter :** | (14,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 7,86 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 60 μH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

The data provided herein are meant for the transmission will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-FDZ-05102/950-JE-05101 : FLAME DETECTOR / MARSHALLING PCS | | | Dwg | 123A90-DDL-IN-LIS-40091 | |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | Module | LD/LD_B-100_Ext | |
| **TASK** | code | C10000238 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | MC | Activity | CCK | Discipline | Instrumental | Form | CJX10 | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 1X3X2,5 mm2 | Color | ORANGE |
| From | 950-FDZ-05102 | To | 950-JE-05101 | | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | OK |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | PL |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | |
|---|---|---|---|
| INSULATION | CORE to EARTH | >999 | MΩ |
| | CORE to CORE | >999 | MΩ |
| | CORE to SCREEN | >999 | MΩ |
| | CORE to ARMr | >999 | MΩ |
| | SCREEN to EARTH | >999 | MΩ |
| | SCREEN to ARMr | >999 | MΩ |
| CONTINUITY | CORES | 0,3 | Ω |
| | SCREEN | 0,3 | Ω |
| | EARTH | NA | Ω |
| | ARMr | 0,3 | Ω |
| | TEST VOLTS | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

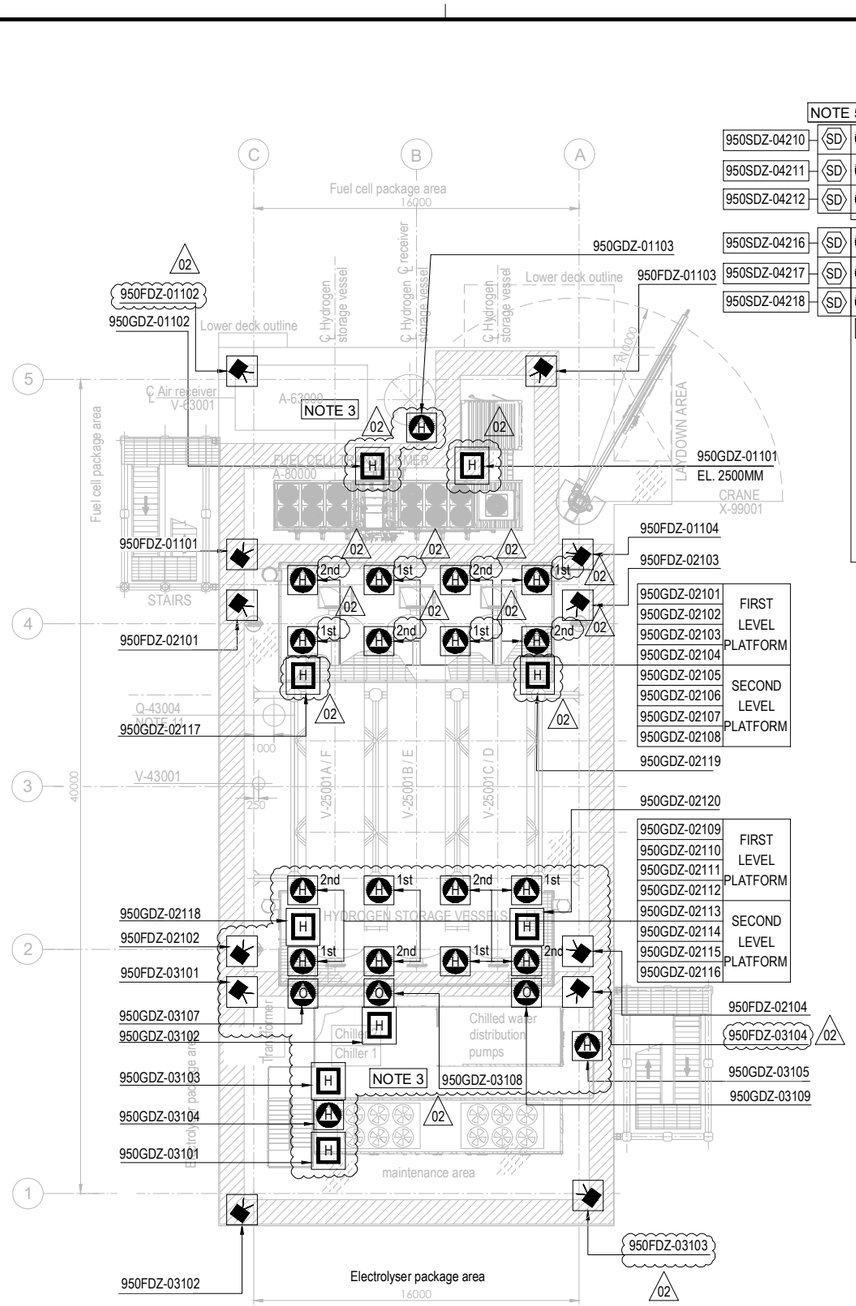
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

| **Page 1/1** | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Alessio Polo | |
| **Date** | 2024-11-27 | 2024-11-30 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-11-27T14:16:02.240Z | PROVERLIS Digitaly signed by Alessio Polo 2024-11-30T10:32:38.100Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



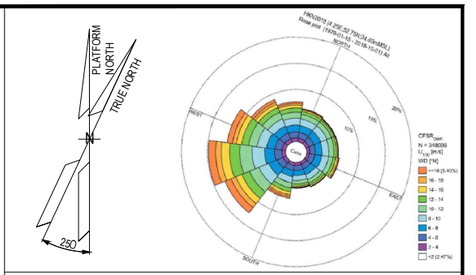

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

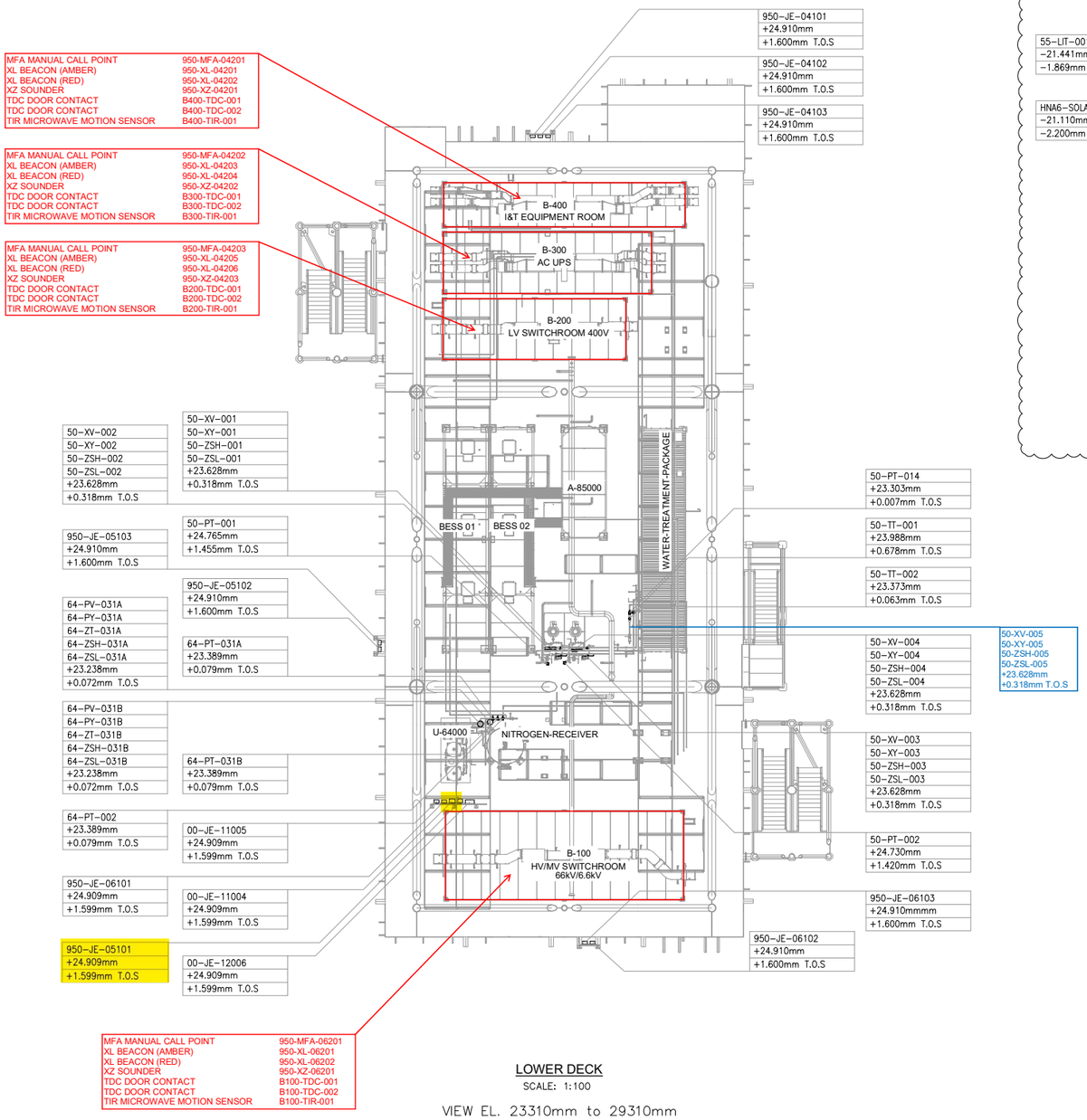
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

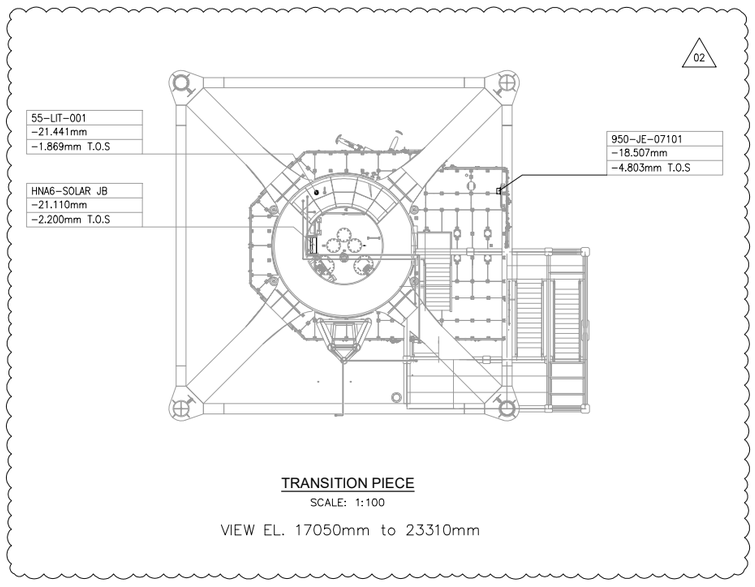
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

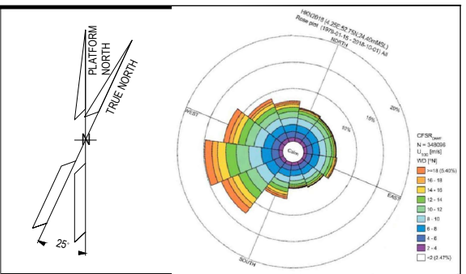
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-05101 (1 RD, 3 WH, 2 BK) — NOTE-2

C-950-FDZ-05101/950-JE-05101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1: 1 RD, 2 WH, 3 BK, SH — TR1

950-FDZ-05102 (1 RD, 3 WH, 2 BK) — NOTE-2

C-950-FDZ-05102/950-JE-05101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

4 RD, 5 WH, 6 BK, SH — TR2

950-FDZ-05103 (1 RD, 3 WH, 2 BK) — NOTE-2

C-950-FDZ-05103/950-JE-05101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

7 RD, 8 WH, 9 BK, SH — TR3

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-05104 (1 RD, 3 WH, 2 BK) — NOTE-2

C-950-FDZ-05104/950-JE-05101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

10 RD, 11 WH, 12 BK, SH — TR4

950-GDZ-05101 (PWR+ RD, 4-20mA WH, PWR- BK) — NOTE-2

C-950-GDZ-05101/950-JE-05101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

13 RD, 14 WH, 15 BK, SH — TR5

950-GDZ-05102 (PWR+ RD, 4-20mA WH, PWR- BK) — NOTE-2

C-950-GDZ-05102/950-JE-05101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

16 RD, 17 WH, 18 BK, SH — TR6

950-GDZ-05103 (PWR+ RD, 4-20mA WH, PWR- BK) — NOTE-2

C-950-GDZ-05103/950-JE-05101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

19 RD, 20 WH, 21 BK, SH — TR7

950-GDZ-05104 (PWR+ RD, 4-20mA WH, PWR- BK) — NOTE-2

C-950-GDZ-05104/950-JE-05101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

22 RD, 23 WH, 24 BK, SH — TR8

950-GDZ-05105 (PWR+ RD, 4-20mA WH, PWR- BK) — NOTE-2

C-950-GDZ-05105/950-JE-05101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

25 RD, 26 WH, 27 BK, SH — TR9

950-GDZ-05106 (PWR+ RD, 4-20mA WH, PWR- BK) — NOTE-2

C-950-GDZ-05106/950-JE-05101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

28 RD, 29 WH, 30 BK, SH — TR10

31 SPARE, 32 RD, 33 WH, SH — TR11

34 SPARE, 35 RD, 36 WH, SH — TR12

OS

950-JE-05101/B400-FGS-003

~~950-JE-05101/B400-FGS-002~~

12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05101

TR1 — Shield Bar — 1 RD, 2 WH, 3 BK — 950-FDZ-05101

TR2 — Shield Bar — 4 RD, 5 WH, 6 BK — 950-FDZ-05102

TR3 — Shield Bar — 7 RD, 8 WH, 9 BK — 950-FDZ-05103

TR4 — Shield Bar — 10 RD, 11 WH, 12 BK — 950-FDZ-05104

TR5 — Shield Bar — 13 RD, 14 WH, 15 BK — 950-GDZ-05101

TR6 — Shield Bar — 16 RD, 17 WH, 18 BK — 950-GDZ-05102

TR7 — Shield Bar — 19 RD, 20 WH, 21 BK — 950-GDZ-05103

TR8 — Shield Bar — 22 RD, 23 WH, 24 BK — 950-GDZ-05104

TR9 — Shield Bar — 25 RD, 26 WH, 27 BK — 950-GDZ-05105

TR10 — Shield Bar — 28 RD, 29 WH, 30 BK — 950-GDZ-05106 <01>

TR11 — Shield Bar — 31 RD, 32 WH, 33 BK — SPARE

TR12 — Shield Bar — 34 RD, 35 WH, 36 BK — SPARE

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_L | 26/11/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |
| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 045 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40016

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. CONNECTION TERMINAL BLOCK SHALL BE DEFINED DURING CONSTRUCTION PHASE.

<01>

## LEGENDS & SYMBOLS:

LEGEND:

| | |
|---|---|
| I.E. | - GREEN ——— INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN/YELLOW —— P.E. EARTH/BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM <01> |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM <01> |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS <01> |

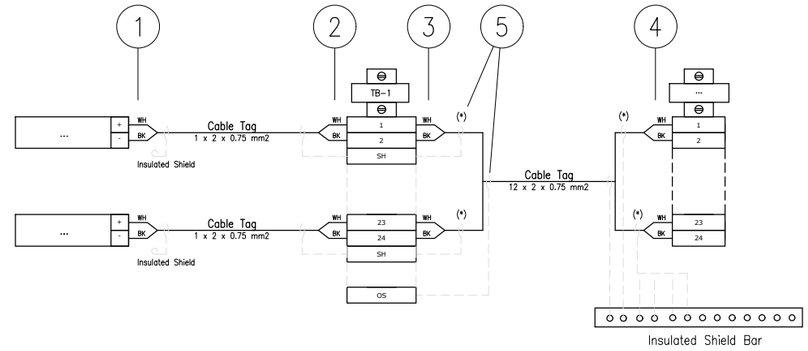
**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_L | 26/11/24 | G.Randi |

**ROSETTI MARINO SpA**

## TYPICAL WIRE CROSS-FERRULING:

### PHILOSOPHY OF CROSS-FERRULING: <01>




(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

### REFERENCE DRAWINGS

| | |
|---|---|
| PIPING AND INSTRUMENT DIAGRAM | 123A90-DDL-PR-PID-80009 |
| INSTRUMENT INDEX | 123A90-DDL-IN-LIS-40088 Rev.01 |
| F&G DETECTORS LAYOUT | 123A90-DDL-SAF-DL-30027 |

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – SAFETY SYSTEM WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

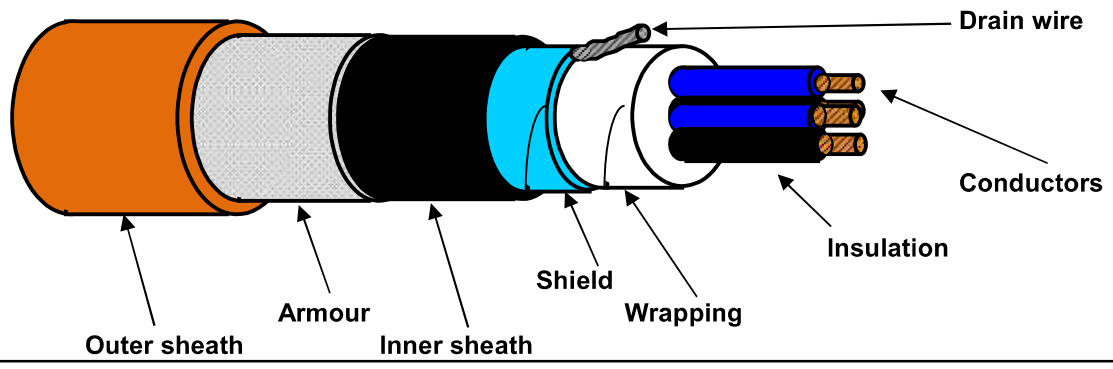
| | | | |
|---|---|---|---|
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40016 | SHEET 003 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40016_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-FDZ-05102/950-JE-05101 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-FDZ-05102 | Flame Detector | Lower Deck | 950-JE-05101 | AI JB to FGS | Lower Deck (B-100) Ext. | SMICV14-1X3X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange | T2_M20_Double | M25 | RED_M25Mx M20F | T2_M20_Dou ble | | | | L-SEC-1I / L-SEC-1J / L-SEC-1L / L-SEC-1M / L-SEC-16 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| **Cores colour code :** | **Red - White - Black** | |
| **Triad Assembling :** | Not required | |
| **Triad Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Triad Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 7/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (10,9 ± 10%) mm | |
| **Over armour diameter :** | (12,1 ± 10%) mm | |
| **Outer diameter :** | (14,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 7,86 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 60 μH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

The data provided herein are meant for the transmission will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

ROSETTI MARINO | PROVERLIS | CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-FDZ-05103/950-JE-05101 : FLAME DETECTOR / MARSHALLING PCS | | | | Dwg | 123A90-DDL-IN-LIS-40091 |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | | Module | LD/LD_B-100_Ext |
| **TASK** | code | C10000239 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX10 | | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 1X3X2,5 mm2 | Color | ORANGE |
| From | 950-FDZ-05103 | To | 950-JE-05101 | | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | OK |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | | |
|---|---|---|---|---|
| INSULATION | CORE to EARTH | | >999 | MΩ |
| | CORE to CORE | | >999 | MΩ |
| | CORE to SCREEN | | >999 | MΩ |
| | CORE to ARMr | | >999 | MΩ |
| | SCREEN to EARTH | | >999 | MΩ |
| | SCREEN to ARMr | | >999 | MΩ |
| CONTINUITY | CORES | | 0,6 | Ω |
| | SCREEN | | 0,6 | Ω |
| | EARTH | | NA | Ω |
| | ARMr | | 0,6 | Ω |
| | TEST VOLTS | | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

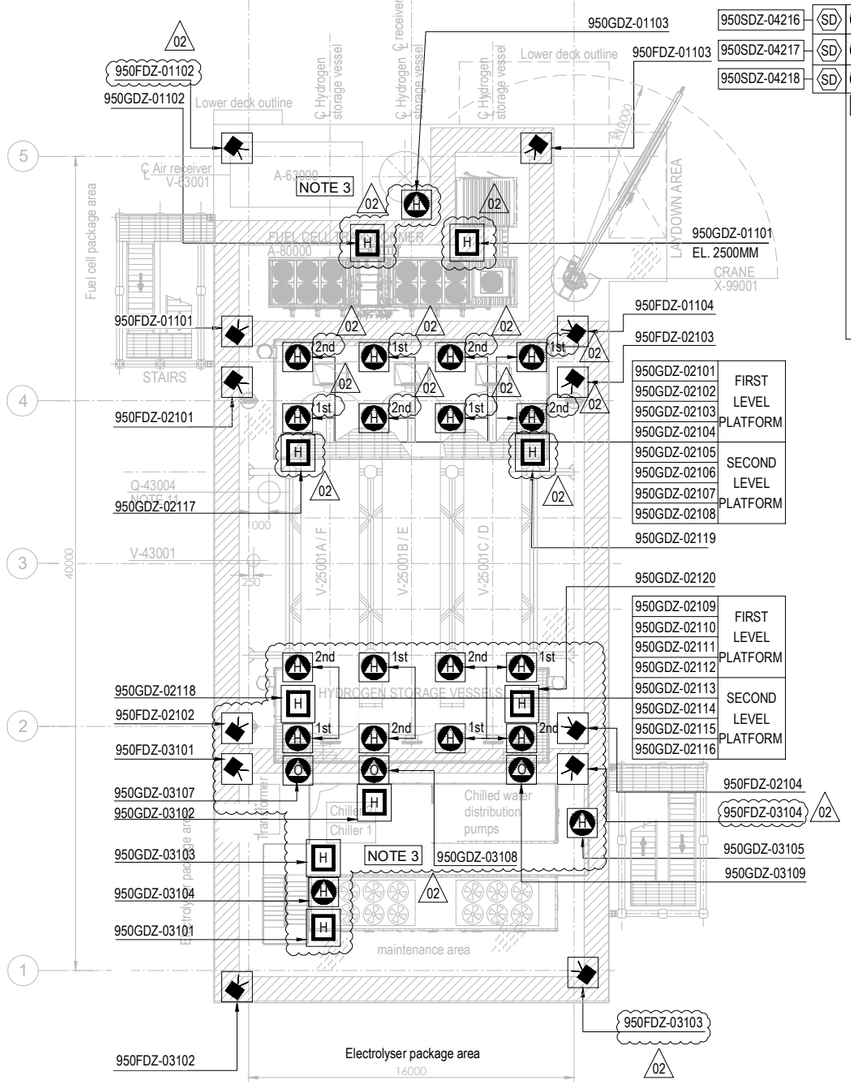
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

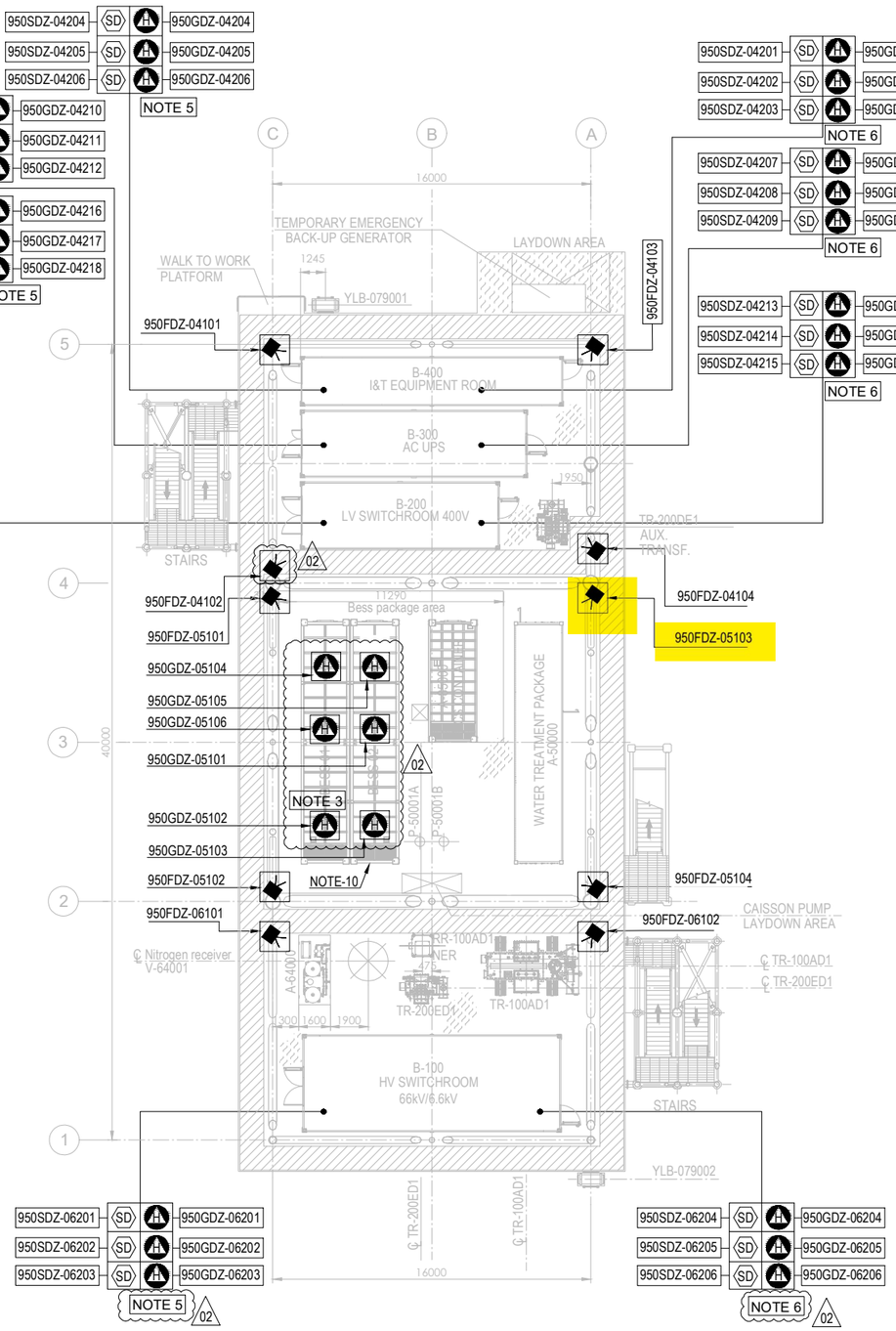
| **Page 1/1** | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-07 | 2024-12-11 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:48:44.316Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-11T17:09:40.393Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

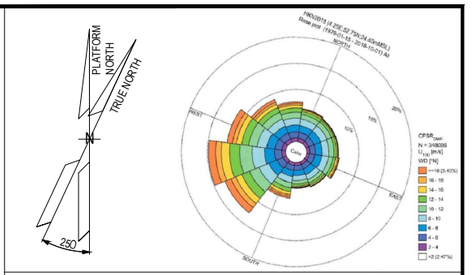
REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.




PLAN ON LOWER DECK
EL+23.310 T.O.S.




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| H | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

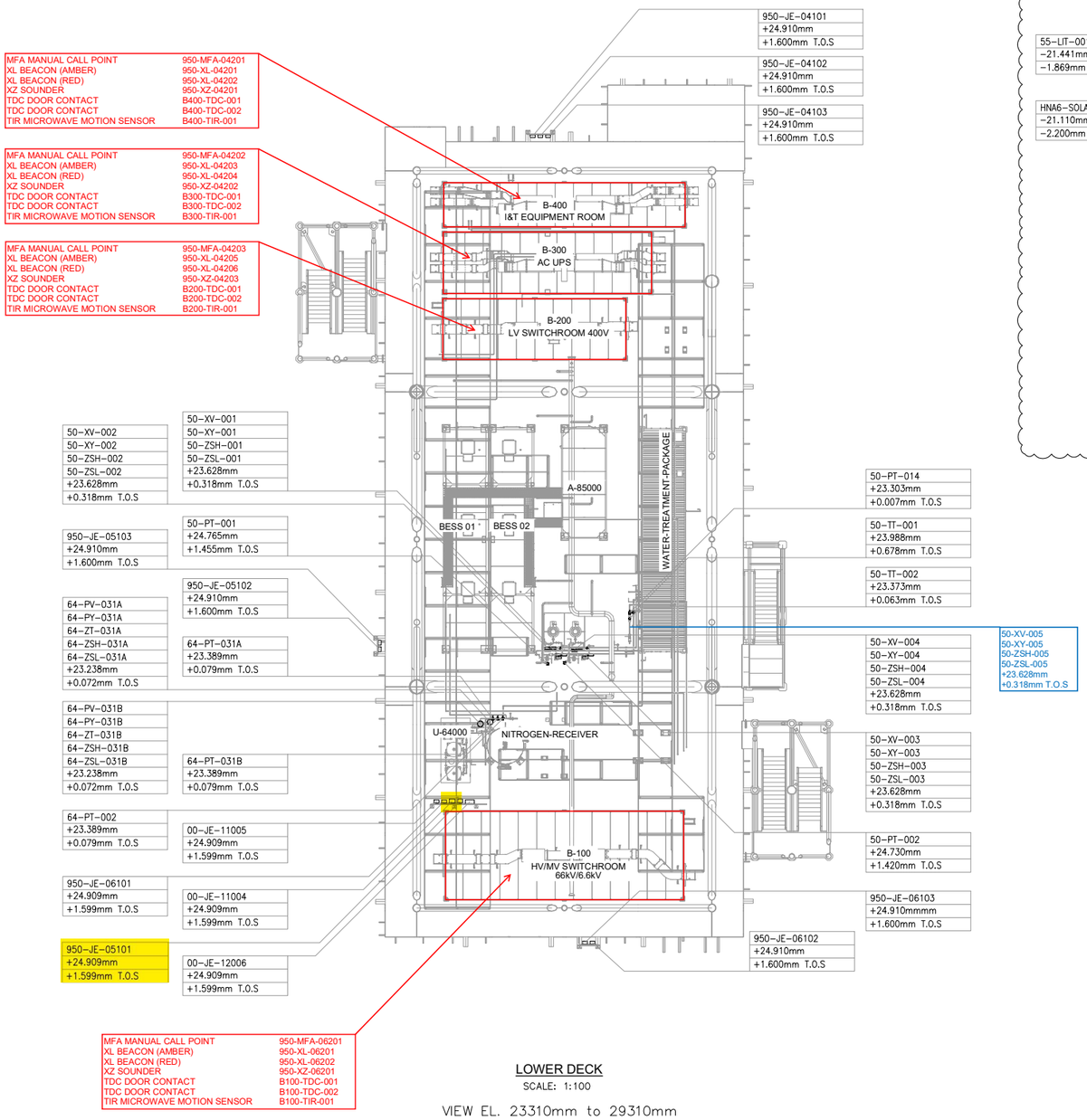
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

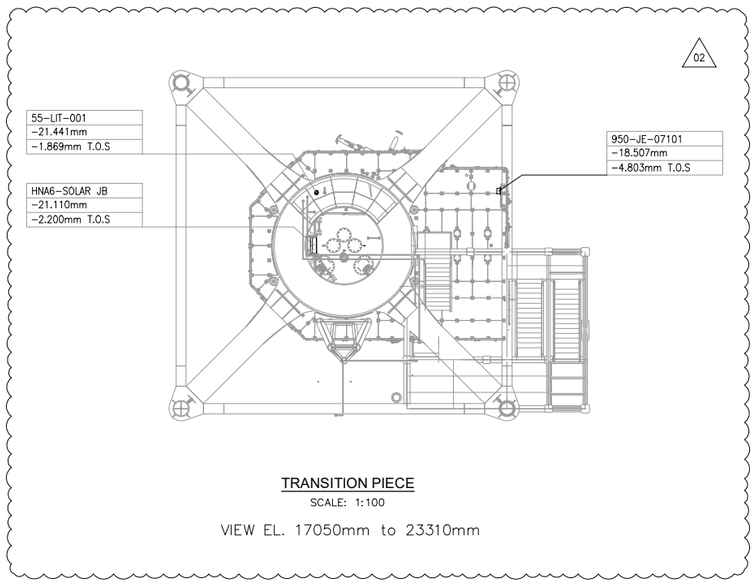
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

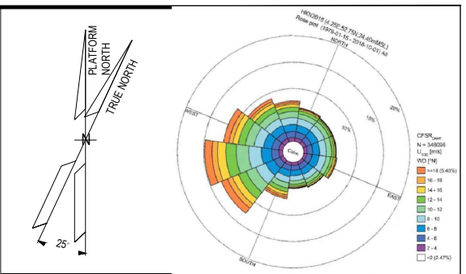
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

| INSTRUMENTS | | JUNCTION BOX 950-JE-05101 | MULTICABLE No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |
|---|---|---|---|---|
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05101 (1, 3, 2) RD, WH, BK | C-950-FDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | 950-JE-05101/B400-FGS-003 ~~950-JE-05101/B400-FGS-002~~ 12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS | TB-950-JE-05101 |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05102 (1, 3, 2) RD, WH, BK | C-950-FDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05103 (1, 3, 2) RD, WH, BK | C-950-FDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05104 (1, 3, 2) RD, WH, BK | C-950-FDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05101 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05102 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05103 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05104 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05105 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05105/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05106 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05106/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |

TB-1

| | | |
|---|---|---|
| 1 | RD | |
| 2 | WH | TR1 |
| 3 | BK | |
| SH | | |
| 4 | RD | |
| 5 | WH | TR2 |
| 6 | BK | |
| SH | | |
| 7 | RD | |
| 8 | WH | TR3 |
| 9 | BK | |
| SH | | |
| 10 | RD | |
| 11 | WH | TR4 |
| 12 | BK | |
| SH | | |
| 13 | RD | |
| 14 | WH | TR5 |
| 15 | BK | |
| SH | | |
| 16 | RD | |
| 17 | WH | TR6 |
| 18 | BK | |
| SH | | |
| 19 | RD | |
| 20 | WH | TR7 |
| 21 | BK | |
| SH | | |
| 22 | RD | |
| 23 | WH | TR8 |
| 24 | BK | |
| SH | | |
| 25 | RD | |
| 26 | WH | TR9 |
| 27 | BK | |
| SH | | |
| 28 | RD | |
| 29 | WH | TR10 |
| 30 | BK | |
| SH | | |
| 31 | RD | |
| SPARE 32 | WH | TR11 |
| 33 | BK | |
| SH | | |
| 34 | RD | |
| SPARE 35 | WH | TR12 |
| 36 | BK | |
| SH | | |
| OS | | |

TB-950-JE-05101

| | | |
|---|---|---|
| TR1 | 1 RD | |
| Shield Bar | 2 WH | 950-FDZ-05101 |
| | 3 BK | |
| TR2 | 4 RD | |
| Shield Bar | 5 WH | 950-FDZ-05102 |
| | 6 BK | |
| TR3 | 7 RD | |
| Shield Bar | 8 WH | 950-FDZ-05103 |
| | 9 BK | |
| TR4 | 10 RD | |
| Shield Bar | 11 WH | 950-FDZ-05104 |
| | 12 BK | |
| TR5 | 13 RD | |
| Shield Bar | 14 WH | 950-GDZ-05101 |
| | 15 BK | |
| TR6 | 16 RD | |
| Shield Bar | 17 WH | 950-GDZ-05102 |
| | 18 BK | |
| TR7 | 19 RD | |
| Shield Bar | 20 WH | 950-GDZ-05103 |
| | 21 BK | |
| TR8 | 22 RD | |
| Shield Bar | 23 WH | 950-GDZ-05104 |
| | 24 BK | |
| TR9 | 25 RD | |
| Shield Bar | 26 WH | 950-GDZ-05105 |
| | 27 BK | |
| TR10 | 28 RD | |
| Shield Bar | 29 WH | 950-GDZ-05106 <01> |
| | 30 BK | |
| TR11 | 31 RD | |
| Shield Bar | 32 WH | SPARE |
| | 33 BK | |
| TR12 | 34 RD | |
| | 35 WH | SPARE |
| | 36 BK | |

Shield Bar I.E.

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40016 | SHEET 045 | REV. 01 |

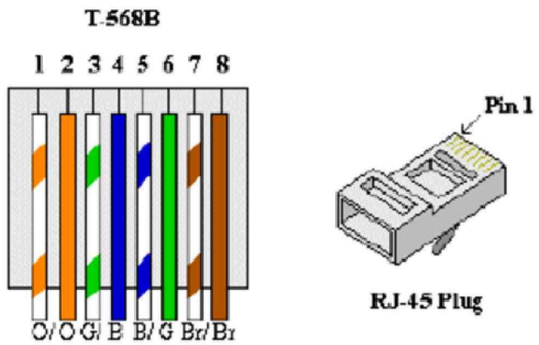
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



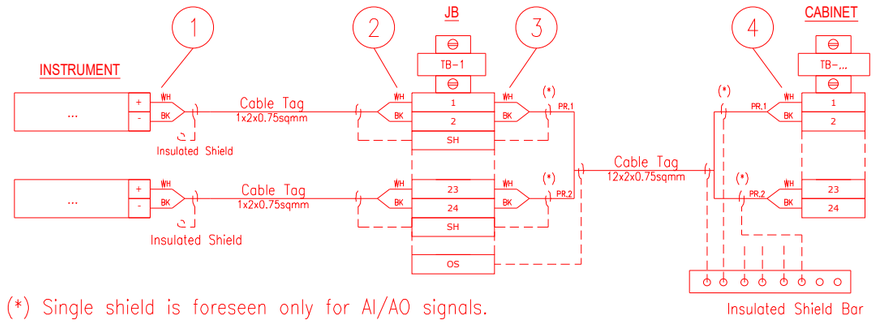

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

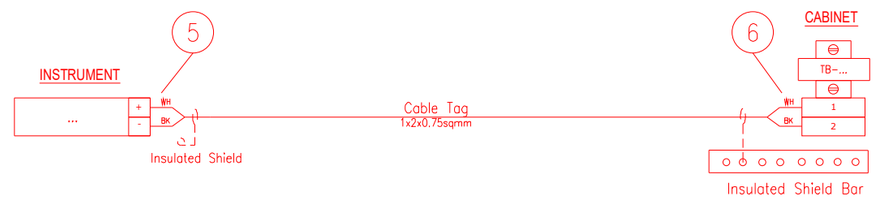
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

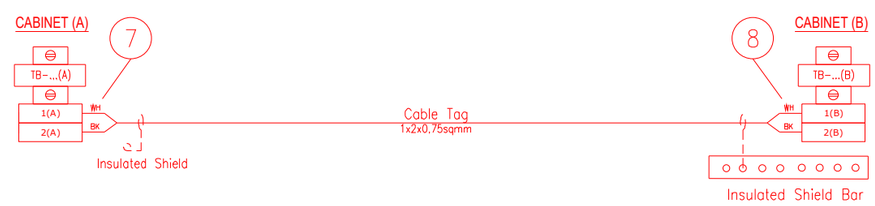
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

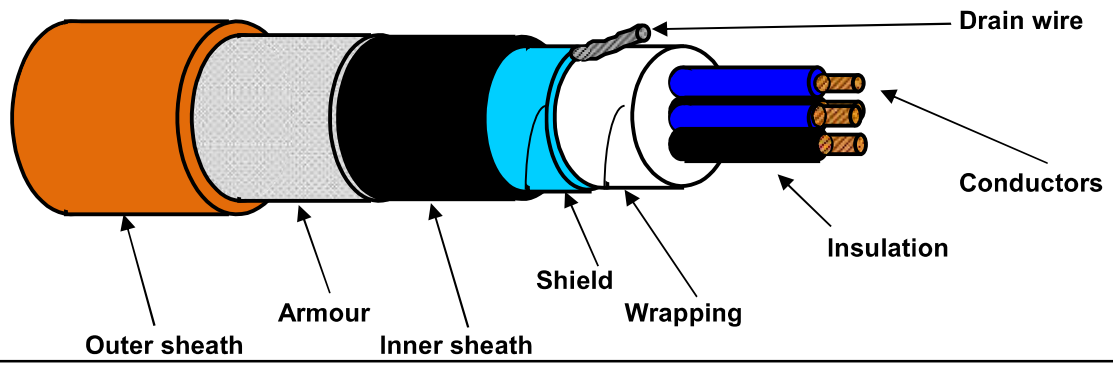
| | | | |
|---|---|---|---|
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40015 | SHEET 003 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-FDZ-05103/950-JE-05101 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-FDZ-05103 | Flame Detector | Lower Deck | 950-JE-05101 | AI JB to FGS | Lower Deck (B-100) Ext. | SMICV14-1X3X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange | T2_M20_Double | M25 | RED_M25Mx M20F | T2_M20_Dou ble | | | | L-SEC-18C / L-SEC-18D / L-SEC-1E / L-SEC-13 / L-SEC-1M / L-SEC-1L / L-SEC-16 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| **Cores colour code :** | **Red - White - Black** | |
| **Triad Assembling :** | Not required | |
| **Triad Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Triad Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 7/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (10,9 ± 10%) mm | |
| **Over armour diameter :** | (12,1 ± 10%) mm | |
| **Outer diameter :** | (14,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 7,86 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 60 μH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

The data provided herein are meant for the transmission will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

ROSETTI MARINO — CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-FDZ-05104/950-JE-05101 : FLAME DETECTOR / MARSHALLING PCS | | | Dwg | 123A90-DDL-IN-LIS-40091 | |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | Module | LD/LD_B-100_Ext | |
| **TASK** | code | C10000240 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | MC | Activity | CCK | Discipline | Instrumental | Form | CJX10 | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 1X3X2,5 mm2 | Color | ORANGE |
| From | 950-FDZ-05104 | To | 950-JE-05101 | | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | PL |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | | |
|---|---|---|---|---|
| INSULATION | CORE to EARTH | | >999 | MΩ |
| | CORE to CORE | | >999 | MΩ |
| | CORE to SCREEN | | >999 | MΩ |
| | CORE to ARMr | | >999 | MΩ |
| | SCREEN to EARTH | | >999 | MΩ |
| | SCREEN to ARMr | | >999 | MΩ |
| CONTINUITY | CORES | | 0,6 | Ω |
| | SCREEN | | 0,6 | Ω |
| | EARTH | | NA | Ω |
| | ARMr | | 0,6 | Ω |
| | TEST VOLTS | | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

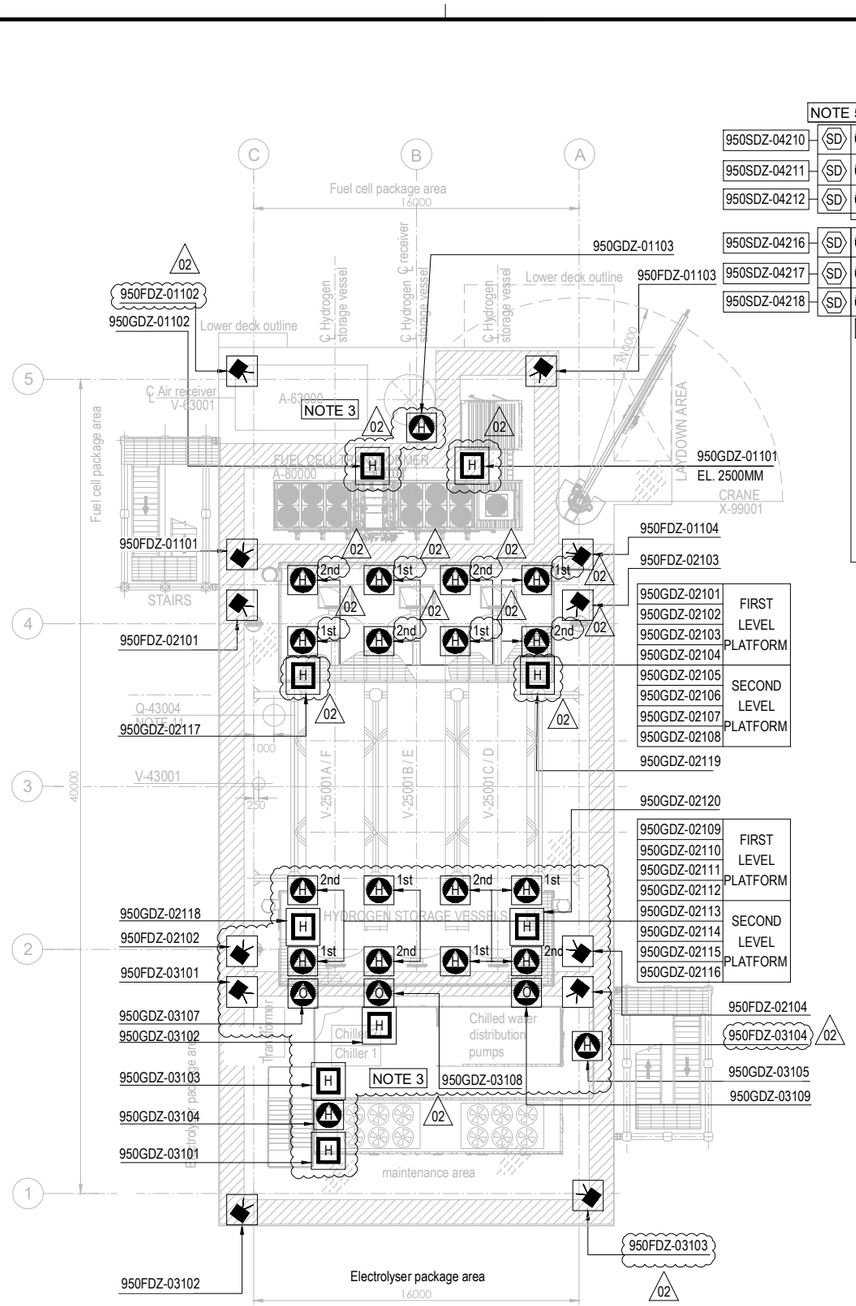
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

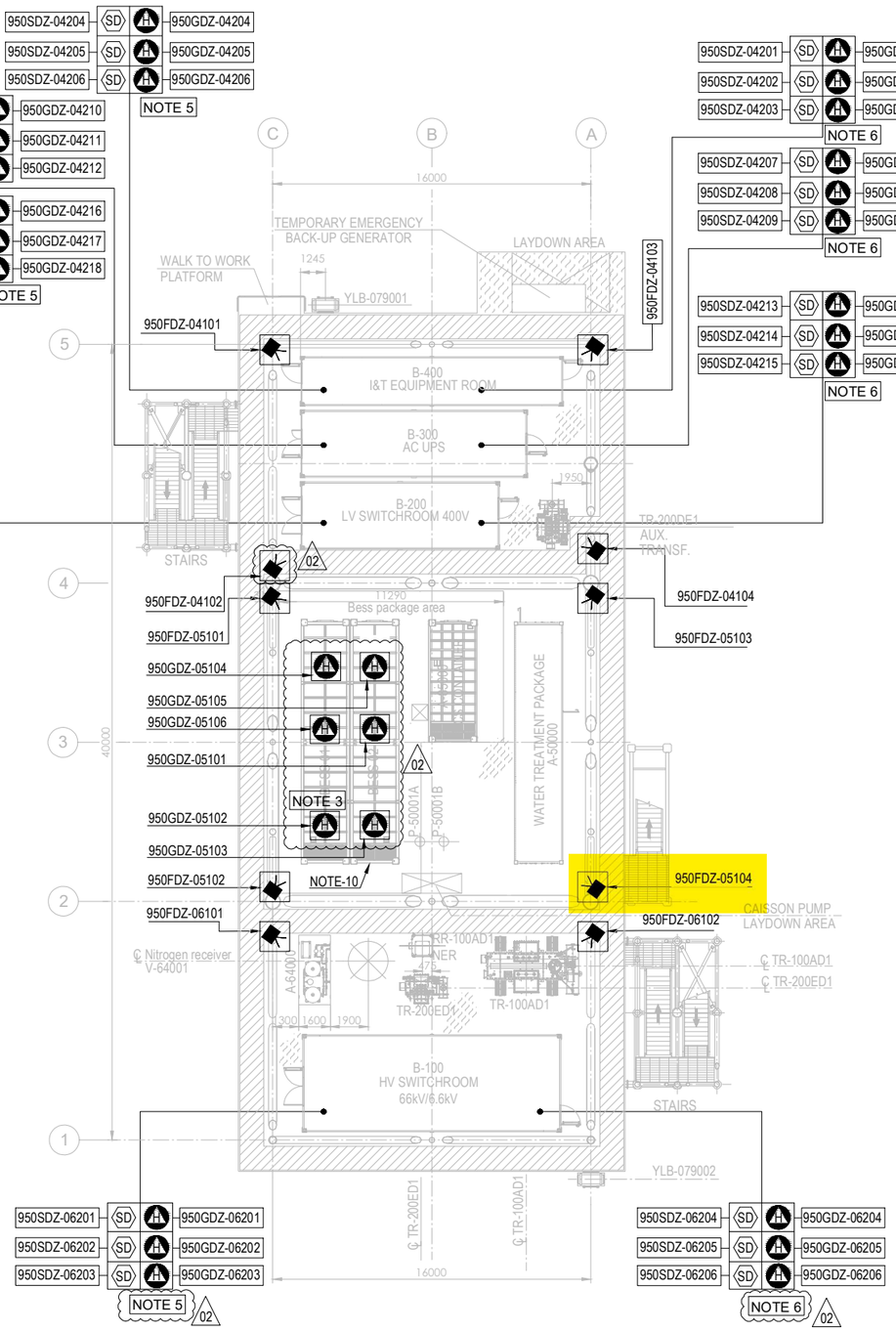
| **Page 1/1** | Performed by | ☉ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-07 | 2024-12-10 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:48:55.350Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-10T17:01:36.263Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02




## PLAN ON UPPER DECK
## EL+30.310 T.O.S.

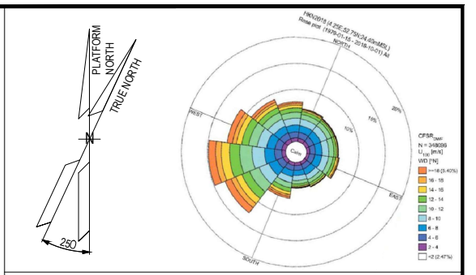



## PLAN ON LOWER DECK
## EL+23.310 T.O.S.

### EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

### HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: 123A90-FDL-SAF-DL-30027

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

ROSETTI MARINO SpA

### REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

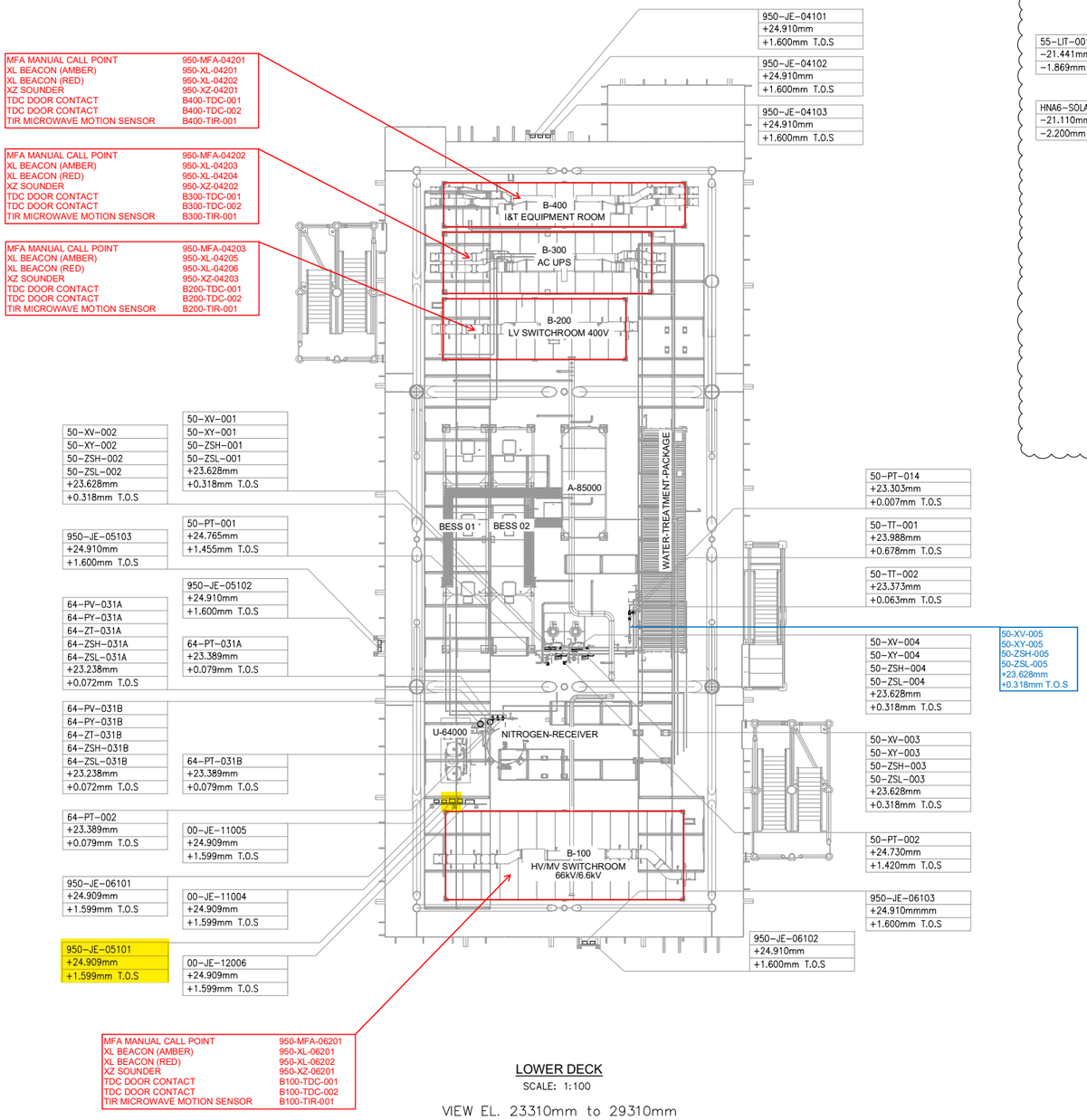
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

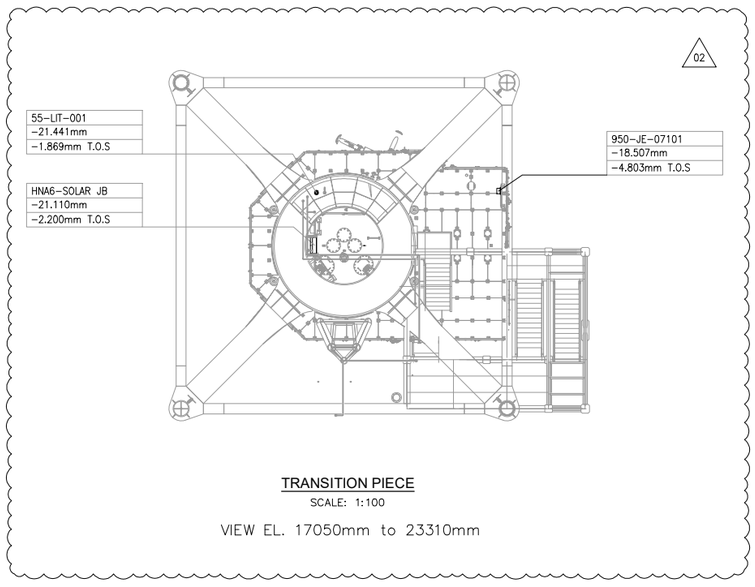
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

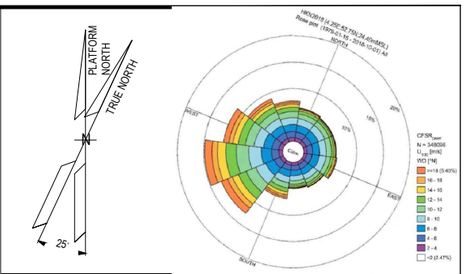
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

## FIELD

### INSTRUMENTS

<01>

| Instrument | Terminals | Cable | Junction Box Terminal |
|---|---|---|---|
| 950-FDZ-05101 | 1 RD, 3 WH, 2 BK | C-950-FDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 1 RD, 2 WH, 3 BK, SH |
| 950-FDZ-05102 | 1 RD, 3 WH, 2 BK | C-950-FDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 4 RD, 5 WH, 6 BK, SH |
| 950-FDZ-05103 | 1 RD, 3 WH, 2 BK | C-950-FDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 7 RD, 8 WH, 9 BK, SH |
| 950-FDZ-05104 | 1 RD, 3 WH, 2 BK | C-950-FDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 10 RD, 11 WH, 12 BK, SH |
| 950-GDZ-05101 | PWR+ RD, 4-20mA WH, PWR- BK | C-950-GDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 13 RD, 14 WH, 15 BK, SH |
| 950-GDZ-05102 | PWR+ RD, 4-20mA WH, PWR- BK | C-950-GDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 16 RD, 17 WH, 18 BK, SH |
| 950-GDZ-05103 | PWR+ RD, 4-20mA WH, PWR- BK | C-950-GDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 19 RD, 20 WH, 21 BK, SH |
| 950-GDZ-05104 | PWR+ RD, 4-20mA WH, PWR- BK | C-950-GDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 22 RD, 23 WH, 24 BK, SH |
| 950-GDZ-05105 | PWR+ RD, 4-20mA WH, PWR- BK | C-950-GDZ-05105/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 25 RD, 26 WH, 27 BK, SH |
| 950-GDZ-05106 | PWR+ RD, 4-20mA WH, PWR- BK | C-950-GDZ-05106/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 28 RD, 29 WH, 30 BK, SH |

Note: link between terminals 3, 4 and 12 to be wired on site — NOTE-2

### JUNCTION BOX

950-JE-05101

TB-1

| | | |
|---|---|---|
| 1 RD, 2 WH, 3 BK | SH | TR1 |
| 4 RD, 5 WH, 6 BK | SH | TR2 |
| 7 RD, 8 WH, 9 BK | SH | TR3 |
| 10 RD, 11 WH, 12 BK | SH | TR4 |
| 13 RD, 14 WH, 15 BK | SH | TR5 |
| 16 RD, 17 WH, 18 BK | SH | TR6 |
| 19 RD, 20 WH, 21 BK | SH | TR7 |
| 22 RD, 23 WH, 24 BK | SH | TR8 |
| 25 RD, 26 WH, 27 BK | SH | TR9 |
| 28 RD, 29 WH, 30 BK | SH | TR10 |
| SPARE 31 RD, 32 WH, 33 BK | SH | TR11 |
| SPARE 34 RD, 35 WH, 36 BK | SH | TR12 |
| | OS | |

## MULTICABLE No.

950-JE-05101/B400-FGS-003

~~950-JE-05101/B400-FGS-002~~

12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

## I&T EQUIPMENT ROOM (ITER)

### MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

TB-950-JE-05101

| | | |
|---|---|---|
| TR1 | 1 RD, 2 WH, 3 BK | 950-FDZ-05101 |
| TR2 | 4 RD, 5 WH, 6 BK | 950-FDZ-05102 |
| TR3 | 7 RD, 8 WH, 9 BK | 950-FDZ-05103 |
| TR4 | 10 RD, 11 WH, 12 BK | 950-FDZ-05104 |
| TR5 | 13 RD, 14 WH, 15 BK | 950-GDZ-05101 |
| TR6 | 16 RD, 17 WH, 18 BK | 950-GDZ-05102 |
| TR7 | 19 RD, 20 WH, 21 BK | 950-GDZ-05103 |
| TR8 | 22 RD, 23 WH, 24 BK | 950-GDZ-05104 |
| TR9 | 25 RD, 26 WH, 27 BK | 950-GDZ-05105 |
| TR10 | 28 RD, 29 WH, 30 BK | 950-GDZ-05106 <01> |
| TR11 | 31 RD, 32 WH, 33 BK | SPARE |
| TR12 | 34 RD, 35 WH, 36 BK | SPARE |

Shield Bar, I.E.

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT-FGS WIRING DIAGRAMS
950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DG-40016 | 045 | 01 |

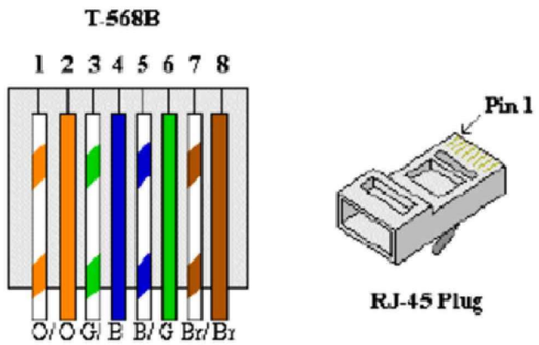
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



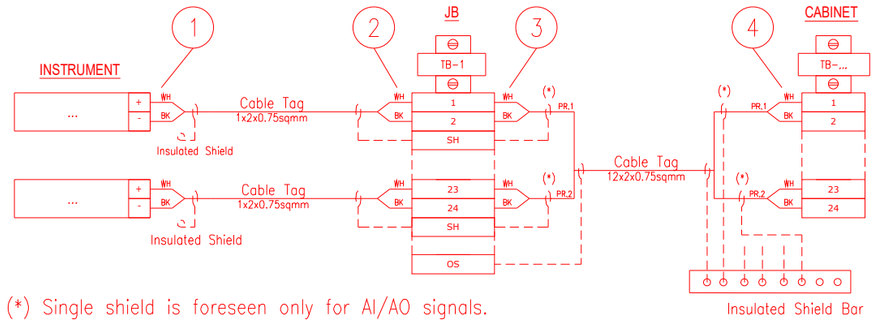

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

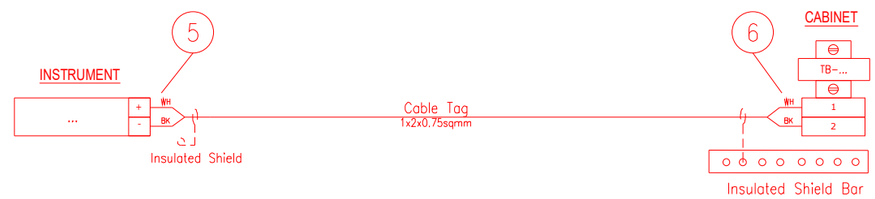
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

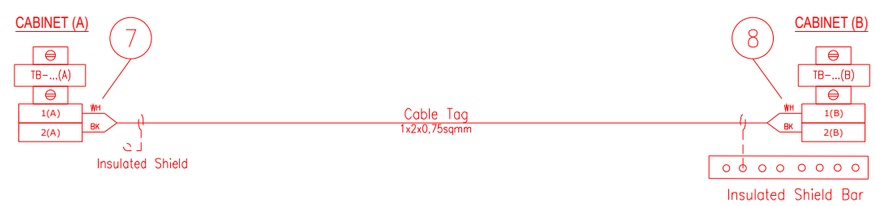
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

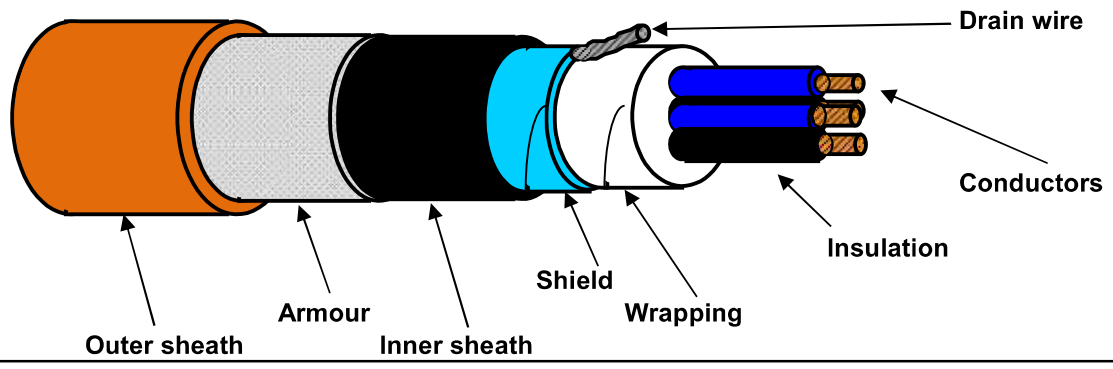
| | | | |
|---|---|---|---|
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40015 | SHEET 003 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-FDZ-05104/950-JE-05101 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-FDZ-05104 | Flame Detector | Lower Deck | 950-JE-05101 | AI JB to FGS | Lower Deck (B-100) Ext. | SMICV14-1X3X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange | T2_M20_Double | M25 | RED_M25Mx M20F | T2_M20_Dou ble | | | | L-SEC-13 / L-SEC-1M / L-SEC-1L / L-SEC-16 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| **Cores colour code :** | **Red - White - Black** | |
| **Triad Assembling :** | Not required | |
| **Triad Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Triad Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 7/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (10,9 ± 10%) mm | |
| **Over armour diameter :** | (12,1 ± 10%) mm | |
| **Outer diameter :** | (14,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 7,86 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 60 μH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

The data provided herein are meant for the transmission will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

ROSETTI MARINO — CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-GDZ-05101/950-JE-05101 : GAS DETECTOR / MARSHALLING PCS | | | Dwg | 123A90-DDL-IN-LIS-40091 | |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | Module | LD/LD_B-100_Ext | |
| **TASK** | code | C10000241 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | MC | Activity | CCK | Discipline | Instrumental | Form | CJX10 | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 1X3X2,5 mm2 | Color | ORANGE |
| From | 950-GDZ-05101 | To | 950-JE-05101 | | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | PL |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | OK |
| 9 | Check cable labelling is in accordance with specification. | OK |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | PL |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | |
|---|---|---|---|
| INSULATION | CORE to EARTH | >999 | MΩ |
| | CORE to CORE | >999 | MΩ |
| | CORE to SCREEN | >999 | MΩ |
| | CORE to ARMr | >999 | MΩ |
| | SCREEN to EARTH | >999 | MΩ |
| | SCREEN to ARMr | >999 | MΩ |
| CONTINUITY | CORES | 0,5 | Ω |
| | SCREEN | 0,5 | Ω |
| | EARTH | NA | Ω |
| | ARMr | 0,5 | Ω |
| | TEST VOLTS | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

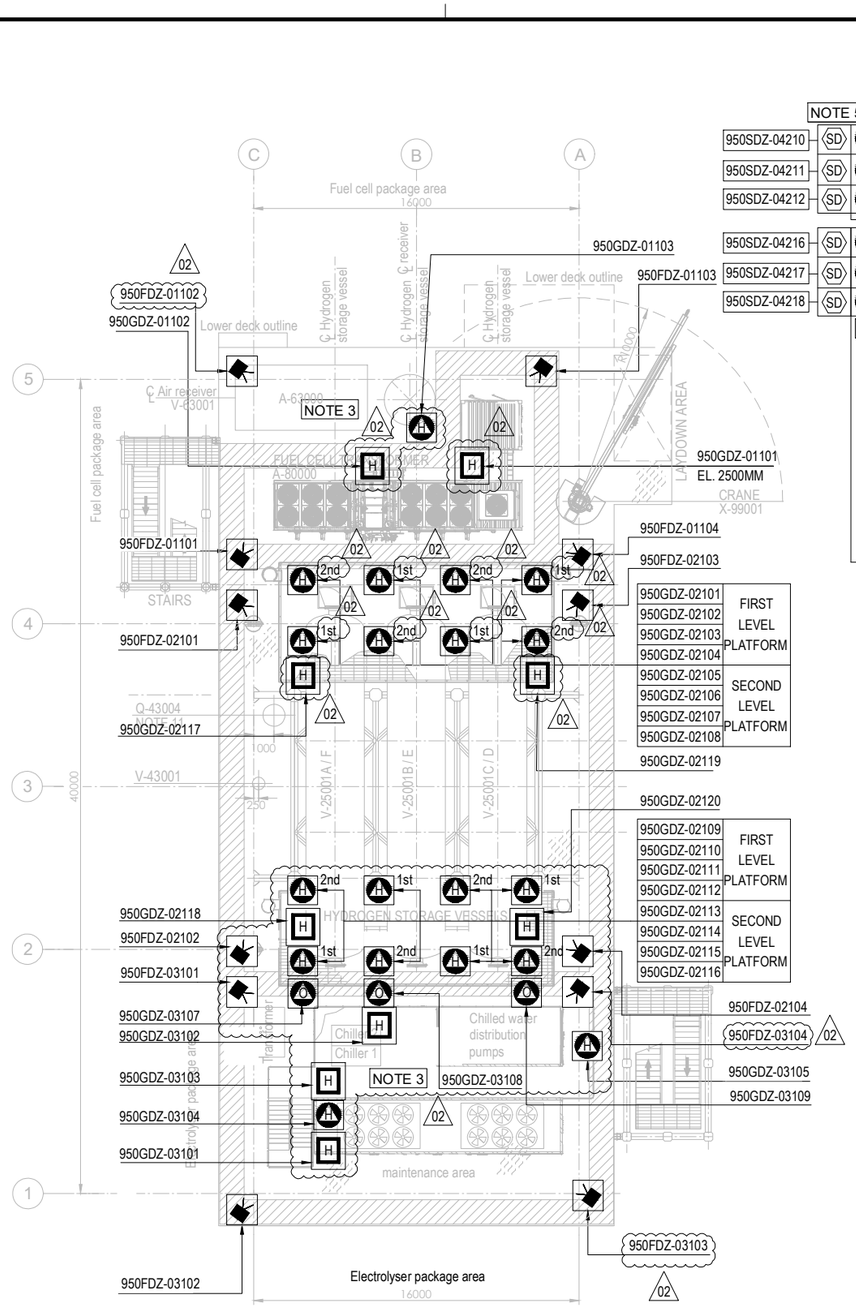
TYPE / SERIAL N°: Note 5: refer to PL C30000680 Calibration date: N°7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

| Page 1/1 | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Francesco Zucca | Giovanni Tangianu | |
| Date | 2024-12-07 | 2024-12-11 | |
| Signature | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:49:07.998Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-11T17:33:07.048Z | |

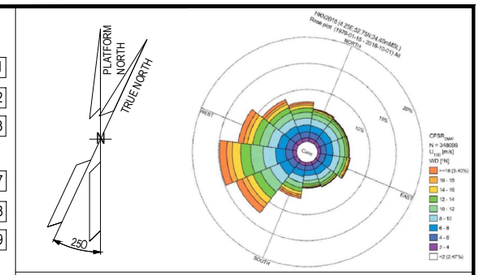
DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

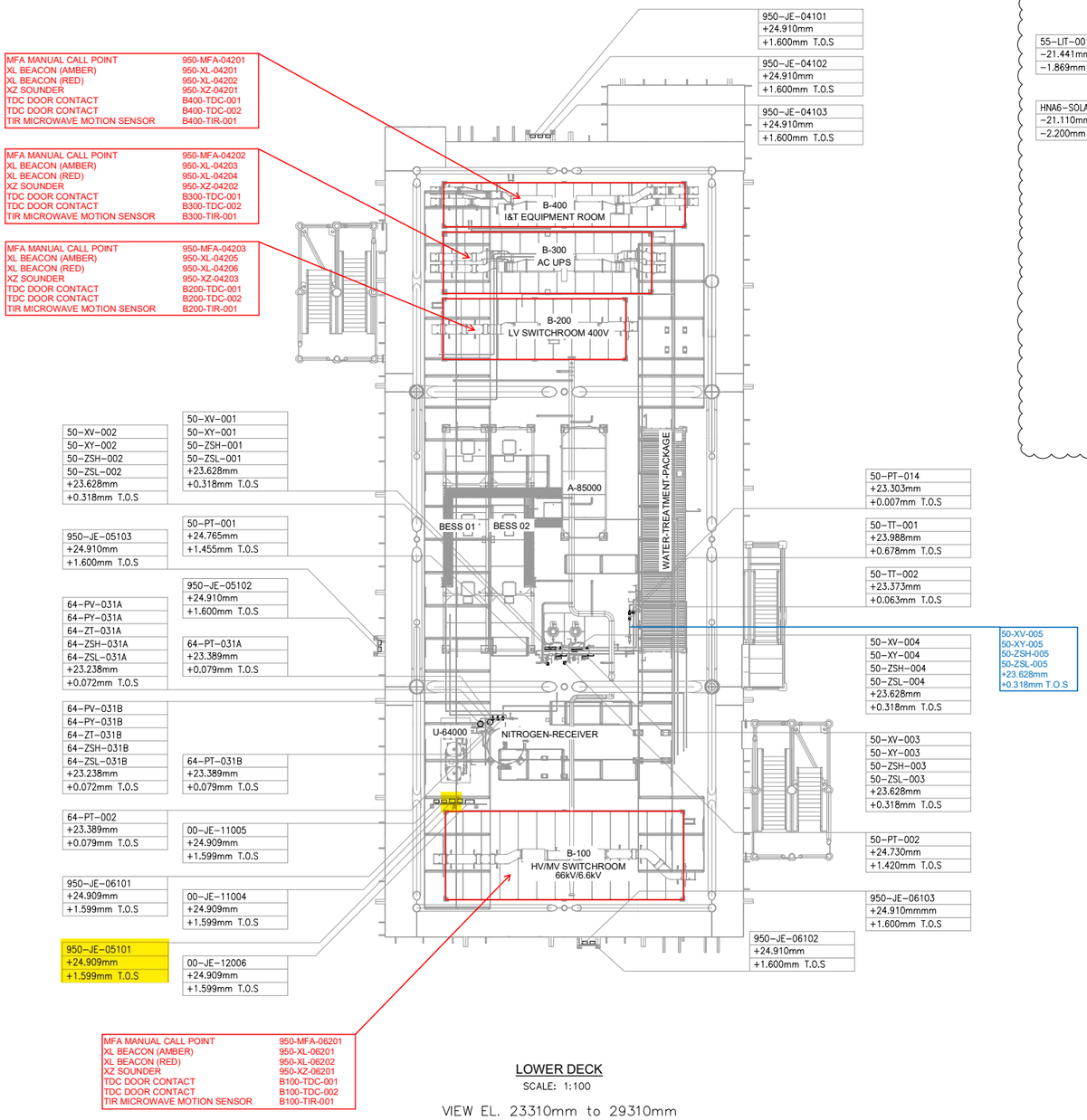
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

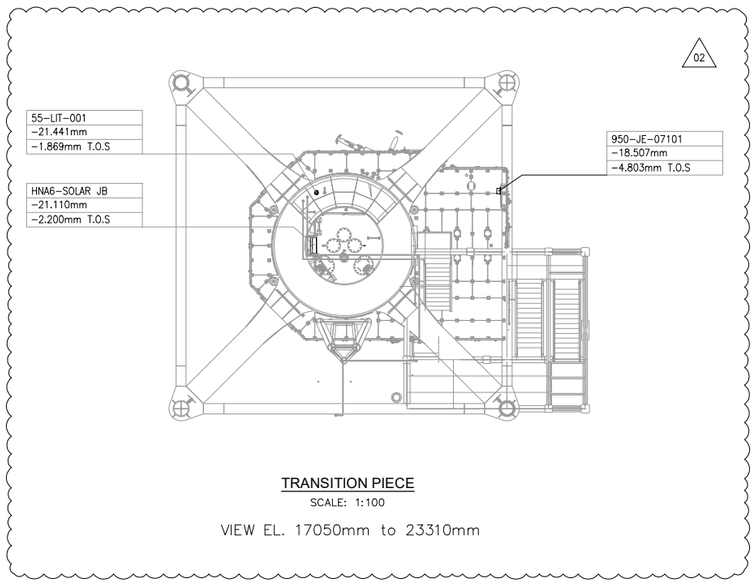
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

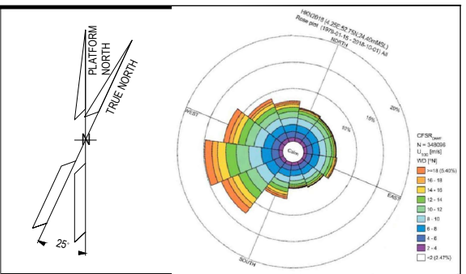
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

## FIELD

### INSTRUMENTS

<01>

| Instrument | Terminals | Cable | Junction Box Terminals |
|---|---|---|---|
| 950-FDZ-05101 | 1 RD, 3 WH, 2 BK | C-950-FDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 1 RD, 2 WH, 3 BK, SH |
| 950-FDZ-05102 | 1 RD, 3 WH, 2 BK | C-950-FDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 4 RD, 5 WH, 6 BK, SH |
| 950-FDZ-05103 | 1 RD, 3 WH, 2 BK | C-950-FDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 7 RD, 8 WH, 9 BK, SH |
| 950-FDZ-05104 | 1 RD, 3 WH, 2 BK | C-950-FDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 10 RD, 11 WH, 12 BK, SH |
| 950-GDZ-05101 | PWR+ RD, 4-20mA WH, PWR- BK | C-950-GDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 13 RD, 14 WH, 15 BK, SH |
| 950-GDZ-05102 | PWR+ RD, 4-20mA WH, PWR- BK | C-950-GDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 16 RD, 17 WH, 18 BK, SH |
| 950-GDZ-05103 | PWR+ RD, 4-20mA WH, PWR- BK | C-950-GDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 19 RD, 20 WH, 21 BK, SH |
| 950-GDZ-05104 | PWR+ RD, 4-20mA WH, PWR- BK | C-950-GDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 22 RD, 23 WH, 24 BK, SH |
| 950-GDZ-05105 | PWR+ RD, 4-20mA WH, PWR- BK | C-950-GDZ-05105/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 25 RD, 26 WH, 27 BK, SH |
| 950-GDZ-05106 | PWR+ RD, 4-20mA WH, PWR- BK | C-950-GDZ-05106/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 28 RD, 29 WH, 30 BK, SH |

Note: link between terminals 3, 4 and 12 to be wired on site — NOTE-2

### JUNCTION BOX

950-JE-05101

TB-1

| Terminals | | |
|---|---|---|
| 1 RD, 2 WH, 3 BK | SH | TR1 |
| 4 RD, 5 WH, 6 BK | SH | TR2 |
| 7 RD, 8 WH, 9 BK | SH | TR3 |
| 10 RD, 11 WH, 12 BK | SH | TR4 |
| 13 RD, 14 WH, 15 BK | SH | TR5 |
| 16 RD, 17 WH, 18 BK | SH | TR6 |
| 19 RD, 20 WH, 21 BK | SH | TR7 |
| 22 RD, 23 WH, 24 BK | SH | TR8 |
| 25 RD, 26 WH, 27 BK | SH | TR9 |
| 28 RD, 29 WH, 30 BK | SH | TR10 |
| SPARE 31 RD, 32 WH, 33 BK | SH | TR11 |
| SPARE 34 RD, 35 WH, 36 BK | SH | TR12 |
| | OS | |

### MULTICABLE No.

950-JE-05101/B400-FGS-003

~~950-JE-05101/B400-FGS-002~~

12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

## I&T EQUIPMENT ROOM (ITER)

### MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

TB-950-JE-05101

| | | |
|---|---|---|
| TR1 | 1 RD, 2 WH, 3 BK | 950-FDZ-05101 |
| TR2 | 4 RD, 5 WH, 6 BK | 950-FDZ-05102 |
| TR3 | 7 RD, 8 WH, 9 BK | 950-FDZ-05103 |
| TR4 | 10 RD, 11 WH, 12 BK | 950-FDZ-05104 |
| TR5 | 13 RD, 14 WH, 15 BK | 950-GDZ-05101 |
| TR6 | 16 RD, 17 WH, 18 BK | 950-GDZ-05102 |
| TR7 | 19 RD, 20 WH, 21 BK | 950-GDZ-05103 |
| TR8 | 22 RD, 23 WH, 24 BK | 950-GDZ-05104 |
| TR9 | 25 RD, 26 WH, 27 BK | 950-GDZ-05105 |
| TR10 | 28 RD, 29 WH, 30 BK | 950-GDZ-05106 <01> |
| TR11 | 31 RD, 32 WH, 33 BK | SPARE |
| TR12 | 34 RD, 35 WH, 36 BK | SPARE |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT-FGS WIRING DIAGRAMS
950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DG-40016 | 045 | 01 |

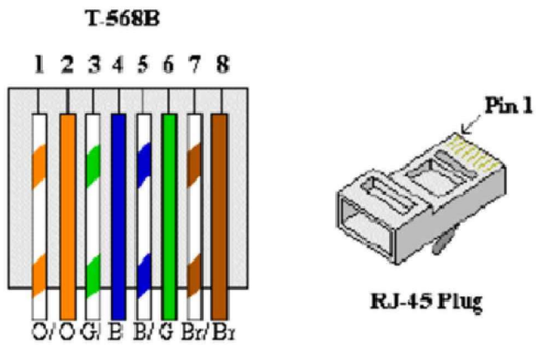
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



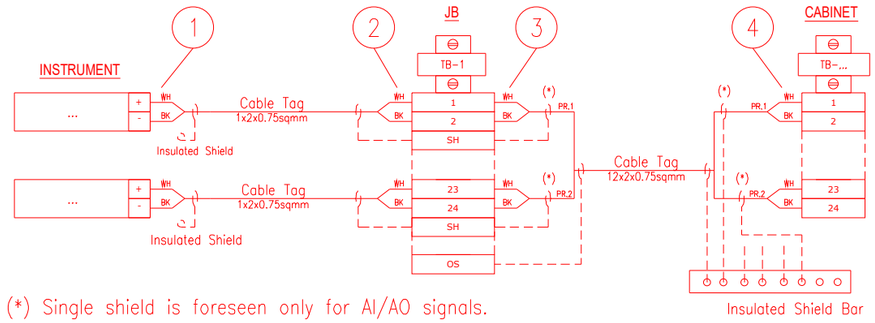

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

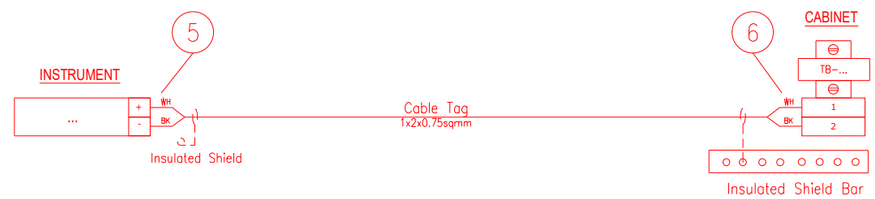
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

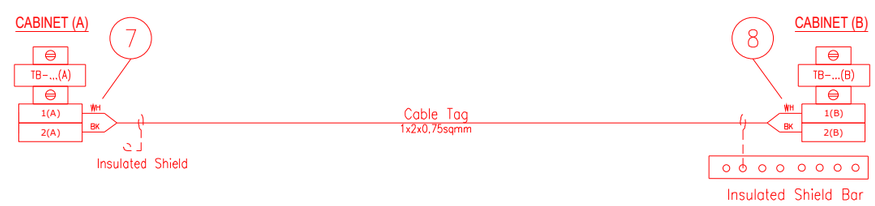
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

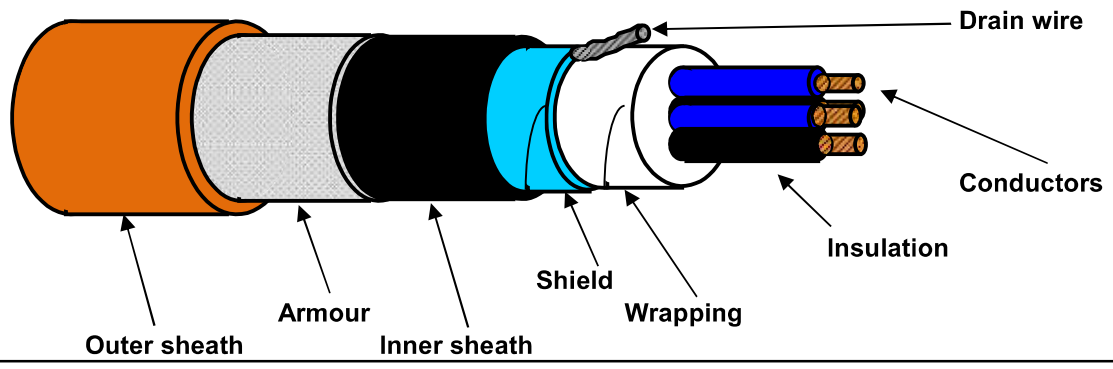
| | | | |
|---|---|---|---|
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40015 | SHEET 003 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-GDZ-05101/950-JE-05101 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-GDZ-05101 | Gas Detector | Lower Deck | 950-JE-05101 | AI JB to FGS | Lower Deck (B-100) Ext. | SMICV14-1X3X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange | T2_M20_Double | | | T2_M20_Dou ble | | | | L-SEC-1E / L-SEC-1F / L-SEC-1G / L-SEC-1H / L-SEC-1I / L-SEC-1J / L-SEC-1L / L-SEC-1M / L-SEC-16 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| **Cores colour code :** | **Red - White - Black** | |
| **Triad Assembling :** | Not required | |
| **Triad Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Triad Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 7/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (10,9 ± 10%) mm | |
| **Over armour diameter :** | (12,1 ± 10%) mm | |
| **Outer diameter :** | (14,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 7,86 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 60 μH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

The data provided herein are meant for the transmission will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

ROSETTI MARINO | PROVERLIS | CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-GDZ-05102/950-JE-05101 : GAS DETECTOR / MARSHALLING PCS | | | | Dwg | 123A90-DDL-IN-LIS-40091 |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | | Module | LD/LD_B-100_Ext |
| **TASK** | code | C10000242 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX10 | | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 1X3X2,5 mm2 | Color | ORANGE |
| From | 950-GDZ-05102 | | To | 950-JE-05101 | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | PL |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | |
|---|---|---|---|
| INSULATION | CORE to EARTH | >999 | MΩ |
| | CORE to CORE | >999 | MΩ |
| | CORE to SCREEN | >999 | MΩ |
| | CORE to ARMr | >999 | MΩ |
| | SCREEN to EARTH | >999 | MΩ |
| | SCREEN to ARMr | >999 | MΩ |
| CONTINUITY | CORES | 0,5 | Ω |
| | SCREEN | 0,5 | Ω |
| | EARTH | NA | Ω |
| | ARMr | 0,5 | Ω |
| | TEST VOLTS | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

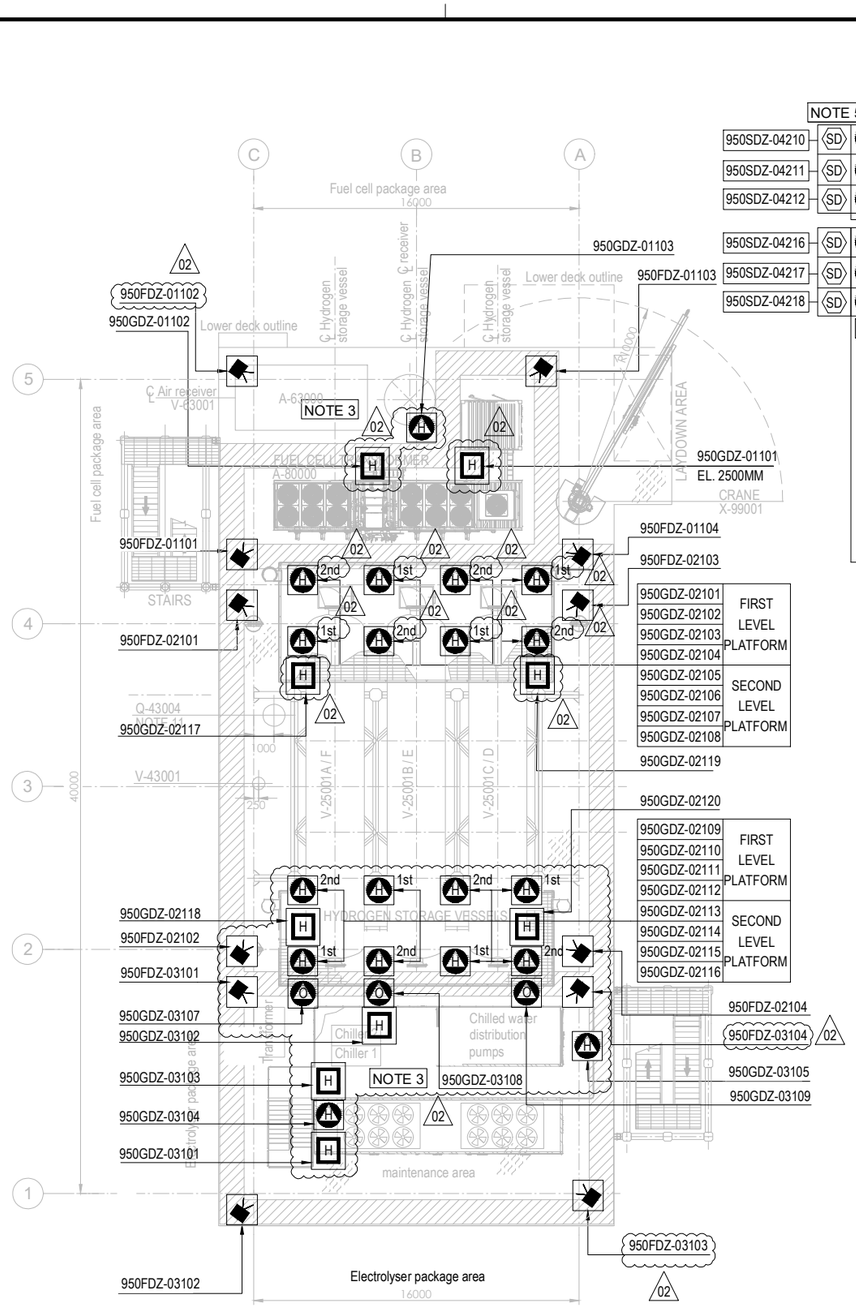
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

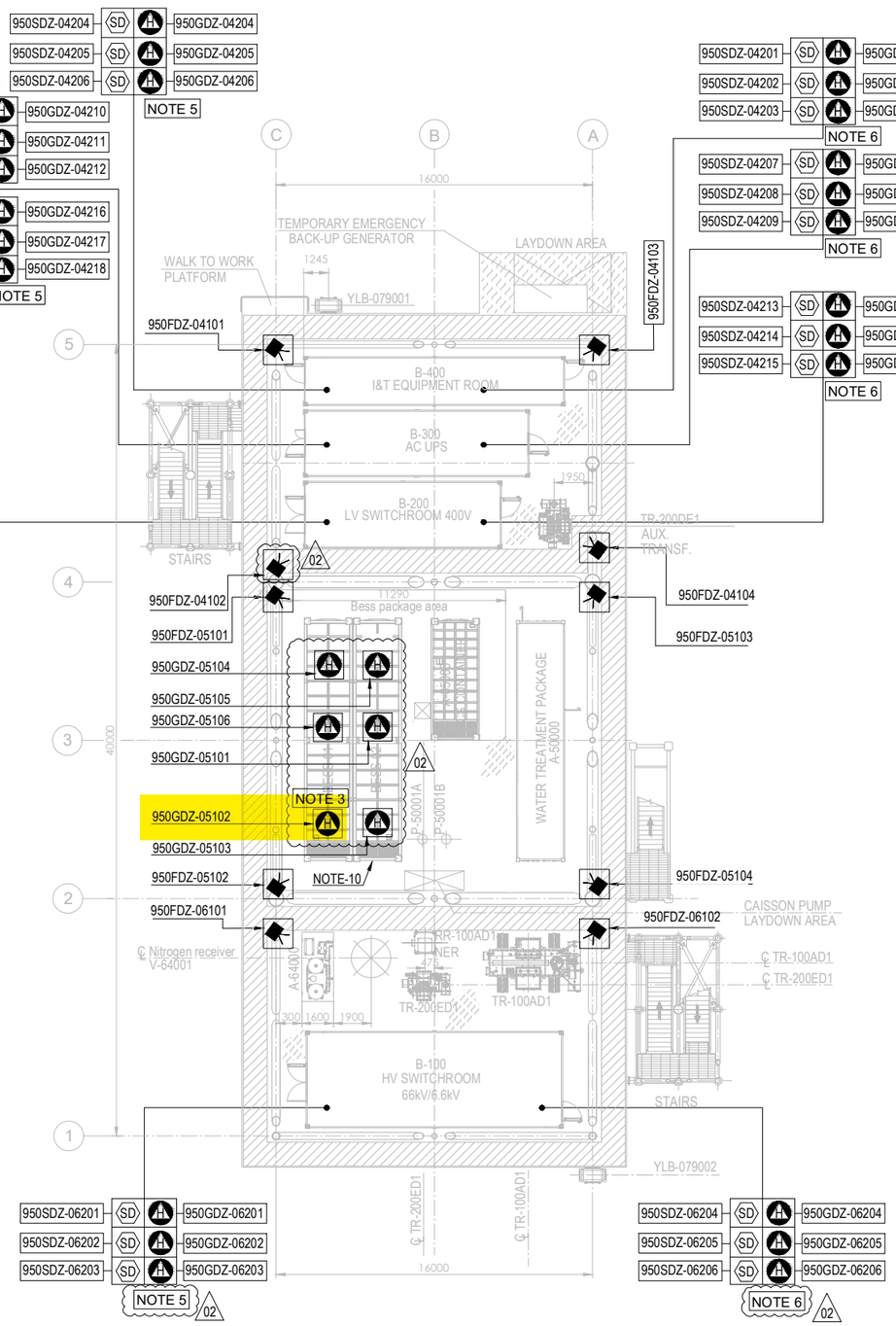
| Page 1/1 | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Francesco Zucca | Giovanni Tangianu | |
| Date | 2024-12-07 | 2024-12-11 | |
| Signature | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:49:20.658Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-11T17:46:08.786Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.

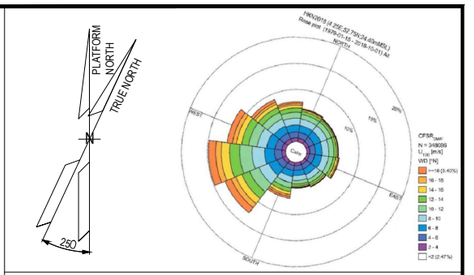



PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

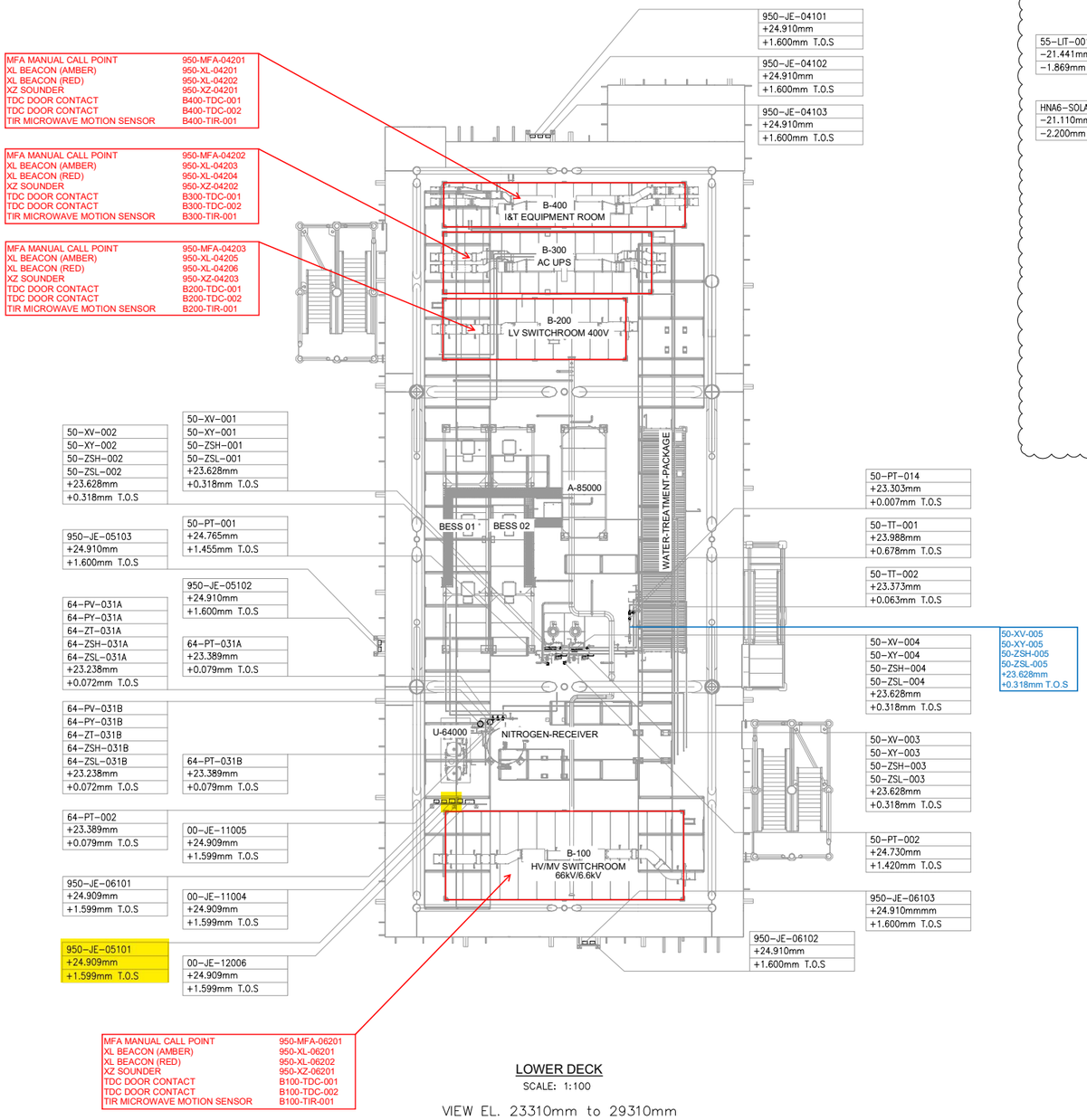
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

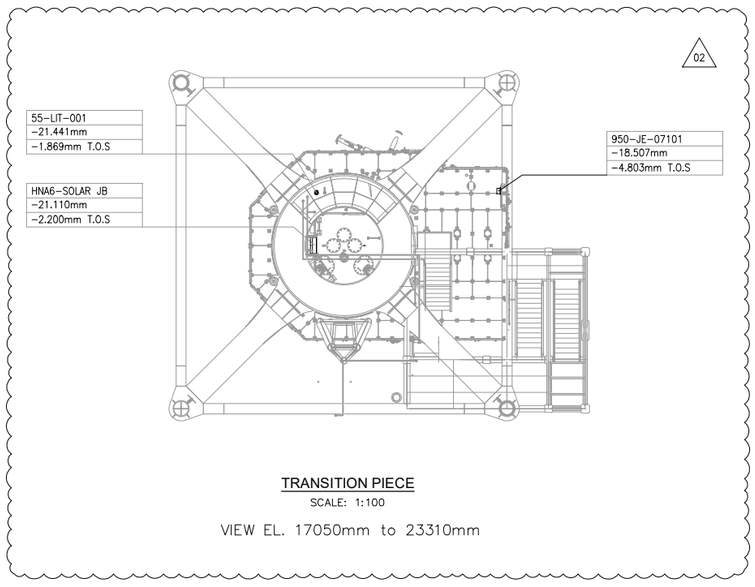
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

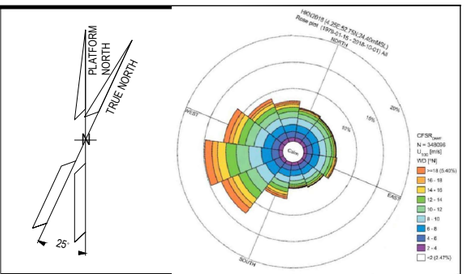
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016 REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-05101 — C-950-FDZ-05101/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05102 — C-950-FDZ-05102/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05103 — C-950-FDZ-05103/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05104 — C-950-FDZ-05104/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05101 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05101/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05102 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05102/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05103 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05103/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05104 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05104/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05105 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05105/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05106 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05106/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

TB-1

| | | |
|---|---|---|
| 1 | TR1 | RD, WH, BK |
| 2 | | |
| 3 | | |
| SH | | |
| 4 | TR2 | RD, WH, BK |
| 5 | | |
| 6 | | |
| SH | | |
| 7 | TR3 | RD, WH, BK |
| 8 | | |
| 9 | | |
| SH | | |
| 10 | TR4 | RD, WH, BK |
| 11 | | |
| 12 | | |
| SH | | |
| 13 | TR5 | RD, WH, BK |
| 14 | | |
| 15 | | |
| SH | | |
| 16 | TR6 | RD, WH, BK |
| 17 | | |
| 18 | | |
| SH | | |
| 19 | TR7 | RD, WH, BK |
| 20 | | |
| 21 | | |
| SH | | |
| 22 | TR8 | RD, WH, BK |
| 23 | | |
| 24 | | |
| SH | | |
| 25 | TR9 | RD, WH, BK |
| 26 | | |
| 27 | | |
| SH | | |
| 28 | TR10 | RD, WH, BK |
| 29 | | |
| 30 | | |
| SH | | |
| 31 | TR11 | RD, WH, BK |
| SPARE | | |
| 32 | | |
| 33 | | |
| SH | | |
| 34 | TR12 | RD, WH, BK |
| SPARE | | |
| 35 | | |
| 36 | | |
| SH | | |
| OS | | |

950-JE-05101/B400-FGS-003

~~950-JE-05101/B400-FGS-002~~

12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05101

| | | |
|---|---|---|
| TR1 | 1, 2, 3 | 950-FDZ-05101 |
| TR2 | 4, 5, 6 | 950-FDZ-05102 |
| TR3 | 7, 8, 9 | 950-FDZ-05103 |
| TR4 | 10, 11, 12 | 950-FDZ-05104 |
| TR5 | 13, 14, 15 | 950-GDZ-05101 |
| TR6 | 16, 17, 18 | 950-GDZ-05102 |
| TR7 | 19, 20, 21 | 950-GDZ-05103 |
| TR8 | 22, 23, 24 | 950-GDZ-05104 |
| TR9 | 25, 26, 27 | 950-GDZ-05105 |
| TR10 | 28, 29, 30 | 950-GDZ-05106 <01> |
| TR11 | 31, 32, 33 | SPARE |
| TR12 | 34, 35, 36 | SPARE |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DG-40016 | 045 | 01 |

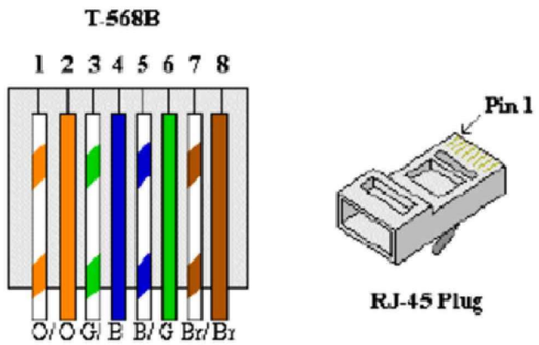
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



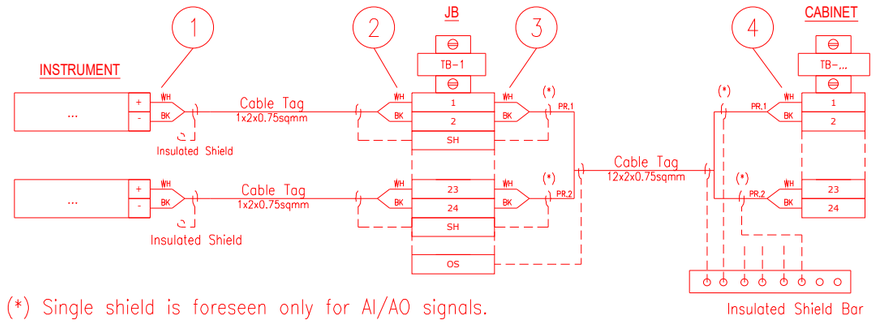

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

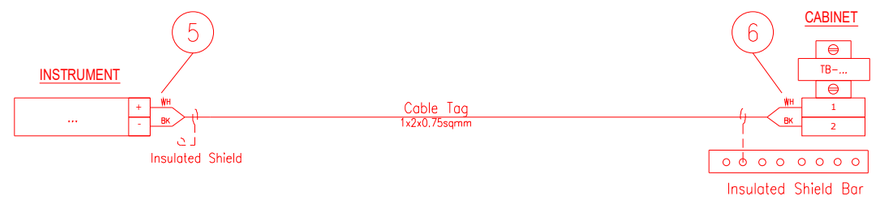
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

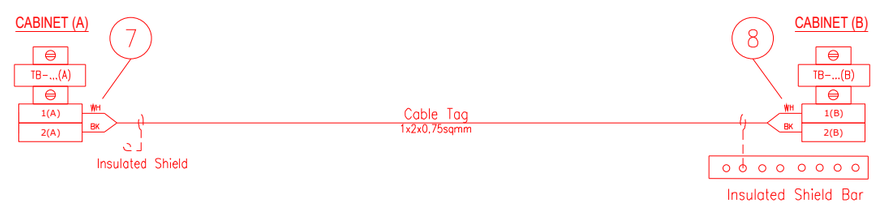
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

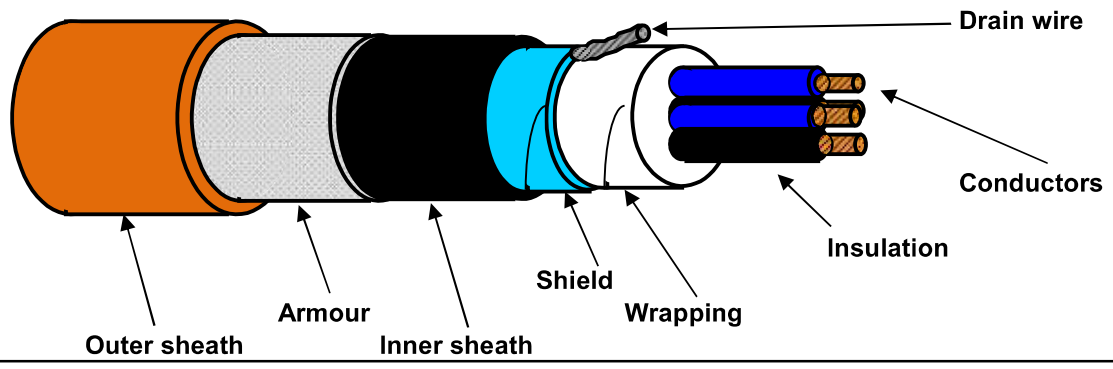
| | | | |
|---|---|---|---|
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40015 | SHEET 003 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-GDZ-05102/950-JE-05101 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-GDZ-05102 | Gas Detector | Lower Deck | 950-JE-05101 | AI JB to FGS | Lower Deck (B-100) Ext. | SMICV14-1X3X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange | T2_M20_Double | | | T2_M20_Dou ble | | | | L-SEC-1F / L-SEC-1G / L-SEC-1H / L-SEC-1I / L-SEC-1J / L-SEC-1L / L-SEC-1M / L-SEC-16 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| **Cores colour code :** | **Red - White - Black** | |
| **Triad Assembling :** | Not required | |
| **Triad Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Triad Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 7/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (10,9 ± 10%) mm | |
| **Over armour diameter :** | (12,1 ± 10%) mm | |
| **Outer diameter :** | (14,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 7,86 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 60 μH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

The data provided herein are meant for the transmission will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-GDZ-05103/950-JE-05101 : GAS DETECTOR / MARSHALLING PCS | | | | Dwg | 123A90-DDL-IN-LIS-40091 |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | | Module | LD/LD_B-100_Ext |
| **TASK** | code | C10000243 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX10 | | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

Type: Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm²: 1X3X2,5 mm2 | Color: ORANGE

From: 950-GDZ-05103 | To: 950-JE-05101

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | PL |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | PL |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | |
|---|---|---|---|
| INSULATION | CORE to EARTH | >999 | MΩ |
| | CORE to CORE | >999 | MΩ |
| | CORE to SCREEN | >999 | MΩ |
| | CORE to ARMr | >999 | MΩ |
| | SCREEN to EARTH | >999 | MΩ |
| | SCREEN to ARMr | >999 | MΩ |
| CONTINUITY | CORES | 0,5 | Ω |
| | SCREEN | 0,5 | Ω |
| | EARTH | NA | Ω |
| | ARMr | 0,5 | Ω |
| | TEST VOLTS | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

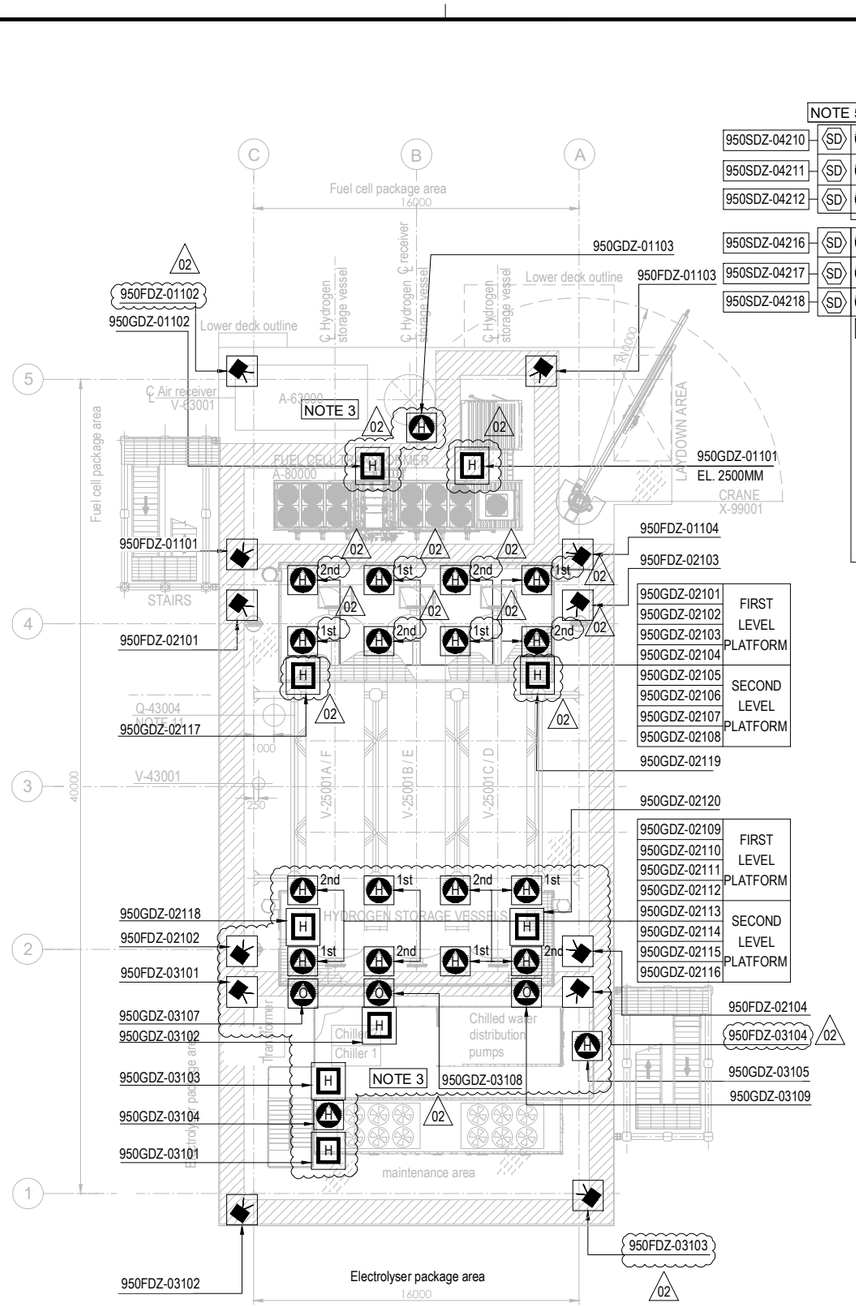
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 | Calibration date: N°7722/24 10/07/2024

Comments: Note 5: refer to PL C30000680

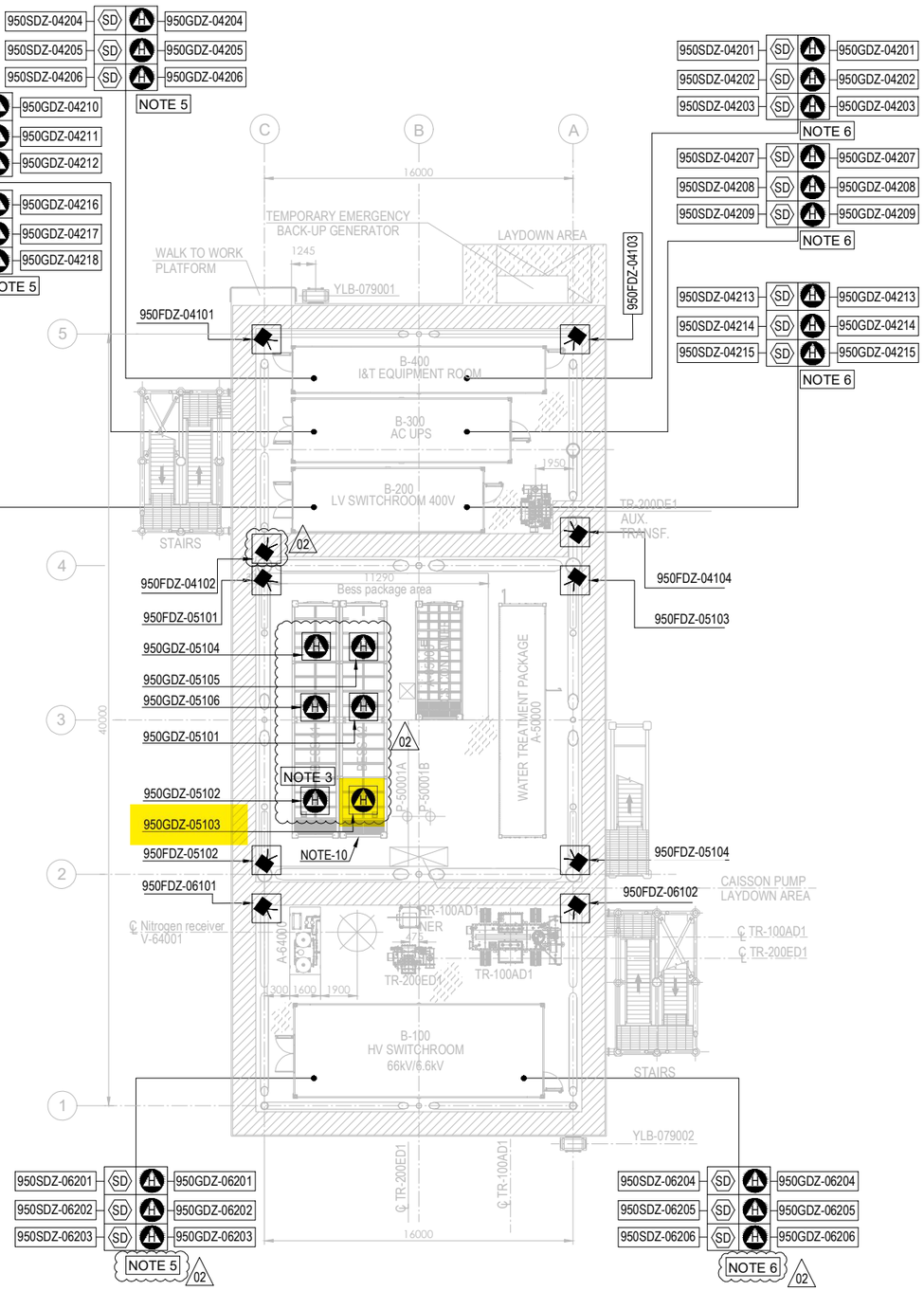
| Page 1/1 | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Francesco Zucca | Giovanni Tangianu | |
| Date | 2024-12-07 | 2024-12-11 | |
| Signature | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:49:33.171Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-11T16:54:45.387Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

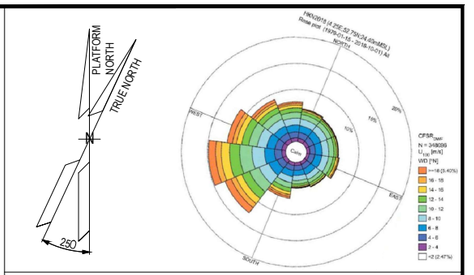
REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.




PLAN ON LOWER DECK
EL+23.310 T.O.S.




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

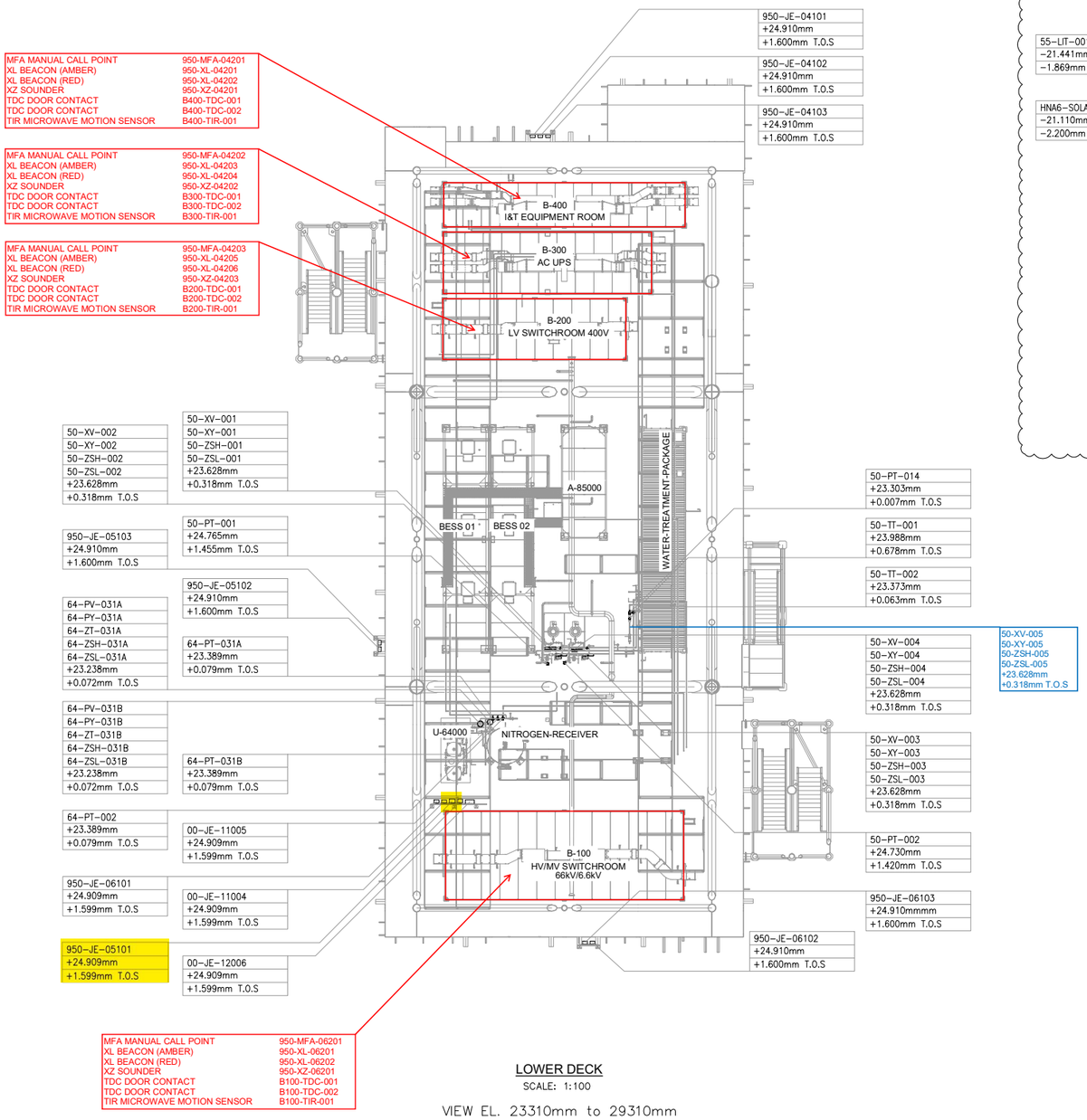
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

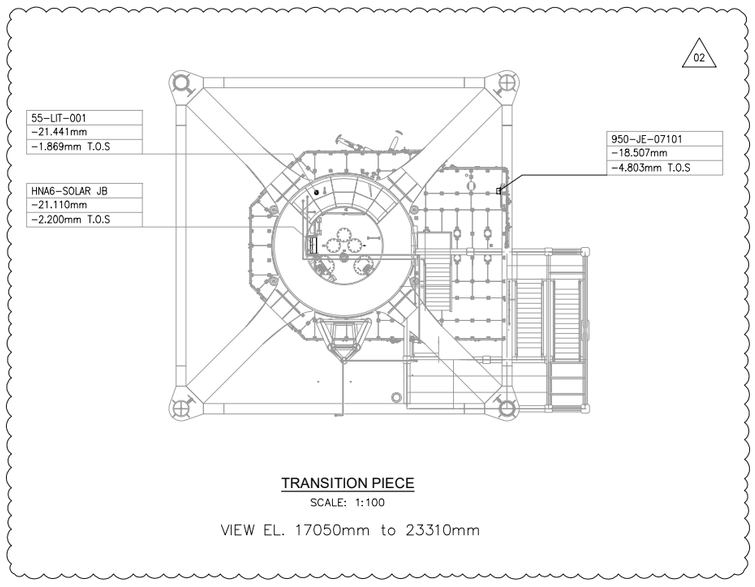
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

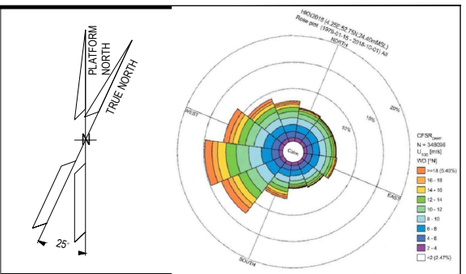
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016 REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-05101 — C-950-FDZ-05101/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05102 — C-950-FDZ-05102/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05103 — C-950-FDZ-05103/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05104 — C-950-FDZ-05104/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05101 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05101/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05102 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05102/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05103 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05103/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05104 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05104/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05105 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05105/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05106 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05106/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

TB-1

| | | |
|---|---|---|
| 1 | TR1 | RD, WH, BK |
| 2 | | |
| 3 | | |
| SH | | |
| 4 | TR2 | RD, WH, BK |
| 5 | | |
| 6 | | |
| SH | | |
| 7 | TR3 | RD, WH, BK |
| 8 | | |
| 9 | | |
| SH | | |
| 10 | TR4 | RD, WH, BK |
| 11 | | |
| 12 | | |
| SH | | |
| 13 | TR5 | RD, WH, BK |
| 14 | | |
| 15 | | |
| SH | | |
| 16 | TR6 | RD, WH, BK |
| 17 | | |
| 18 | | |
| SH | | |
| 19 | TR7 | RD, WH, BK |
| 20 | | |
| 21 | | |
| SH | | |
| 22 | TR8 | RD, WH, BK |
| 23 | | |
| 24 | | |
| SH | | |
| 25 | TR9 | RD, WH, BK |
| 26 | | |
| 27 | | |
| SH | | |
| 28 | TR10 | RD, WH, BK |
| 29 | | |
| 30 | | |
| SH | | |
| 31 | TR11 | RD, WH, BK |
| SPARE 32 | | |
| 33 | | |
| SH | | |
| 34 | TR12 | RD, WH, BK |
| SPARE 35 | | |
| 36 | | |
| SH | | |
| OS | | |

950-JE-05101/B400-FGS-003

~~950-JE-05101/B400-FGS-002~~

12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05101

| | | |
|---|---|---|
| TR1 | 1, 2, 3 | 950-FDZ-05101 |
| TR2 | 4, 5, 6 | 950-FDZ-05102 |
| TR3 | 7, 8, 9 | 950-FDZ-05103 |
| TR4 | 10, 11, 12 | 950-FDZ-05104 |
| TR5 | 13, 14, 15 | 950-GDZ-05101 |
| TR6 | 16, 17, 18 | 950-GDZ-05102 |
| TR7 | 19, 20, 21 | 950-GDZ-05103 |
| TR8 | 22, 23, 24 | 950-GDZ-05104 |
| TR9 | 25, 26, 27 | 950-GDZ-05105 |
| TR10 | 28, 29, 30 | 950-GDZ-05106 <01> |
| TR11 | 31, 32, 33 | SPARE |
| TR12 | 34, 35, 36 | SPARE |

Shield Bar — I.E. — Shield Bar

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DG-40016 | 045 | 01 |

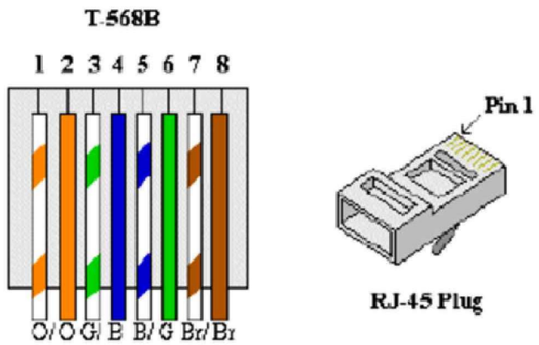
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



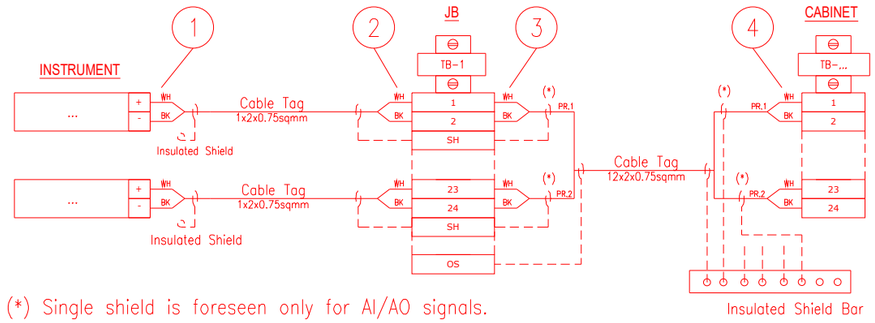

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

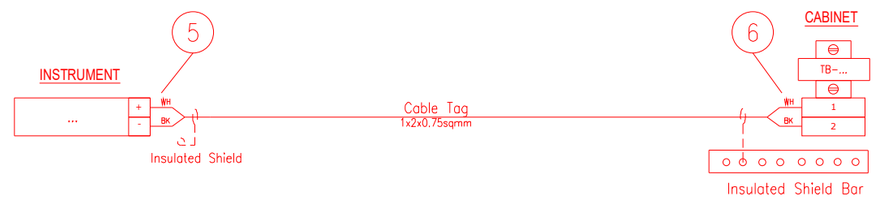
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

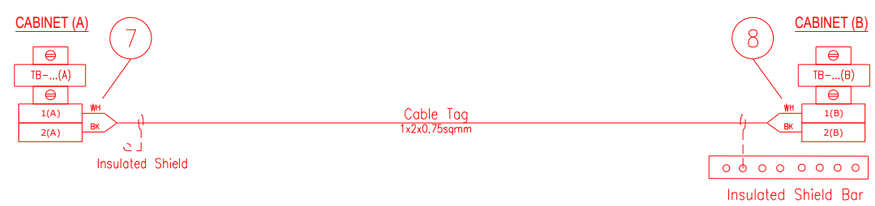
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

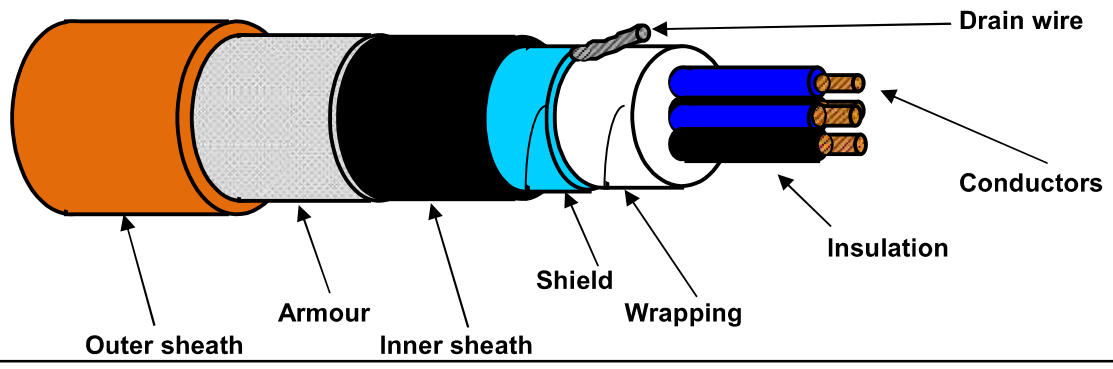
| | | | |
|---|---|---|---|
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40015 | SHEET 003 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-GDZ-05103/950-JE-05101 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-GDZ-05103 | Gas Detector | Lower Deck | 950-JE-05101 | AI JB to FGS | Lower Deck (B-100) Ext. | SMICV14-1X3X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange | T2_M20_Double | | | T2_M20_Dou ble | | | | L-SEC-1H / L-SEC-1I / L-SEC-1J / L-SEC-1L / L-SEC-1M / L-SEC-16 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| **Cores colour code :** | **Red - White - Black** | |
| **Triad Assembling :** | Not required | |
| **Triad Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Triad Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 7/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (10,9 ± 10%) mm | |
| **Over armour diameter :** | (12,1 ± 10%) mm | |
| **Outer diameter :** | (14,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 7,86 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 60 μH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

The data provided herein are meant for the transmission will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

ROSETTI MARINO — CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-MFA-05101/950-JE-05102 : MANUAL FIRE ALARM / MARSHALLING PCS | | | Dwg | 123A90-DDL-IN-LIS-40091 | |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | Module | LD | |
| **TASK** | code | C10000303 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | MC | Activity | CCK | Discipline | Instrumental | Form | CJX10 | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 1X2X0,75 mm2 | Color | ORANGE |
| From | 950-MFA-05101 | To | 950-JE-05102 | | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | OK |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | | |
|---|---|---|---|---|
| INSULATION | CORE to EARTH | | >999 | MΩ |
| | CORE to CORE | | >999 | MΩ |
| | CORE to SCREEN | | >999 | MΩ |
| | CORE to ARMr | | >999 | MΩ |
| | SCREEN to EARTH | | >999 | MΩ |
| | SCREEN to ARMr | | >999 | MΩ |
| CONTINUITY | CORES | | 3,16 | Ω |
| | SCREEN | | 3,16 | Ω |
| | EARTH | | NA | Ω |
| | ARMr | | 3,16 | Ω |
| | TEST VOLTS | | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

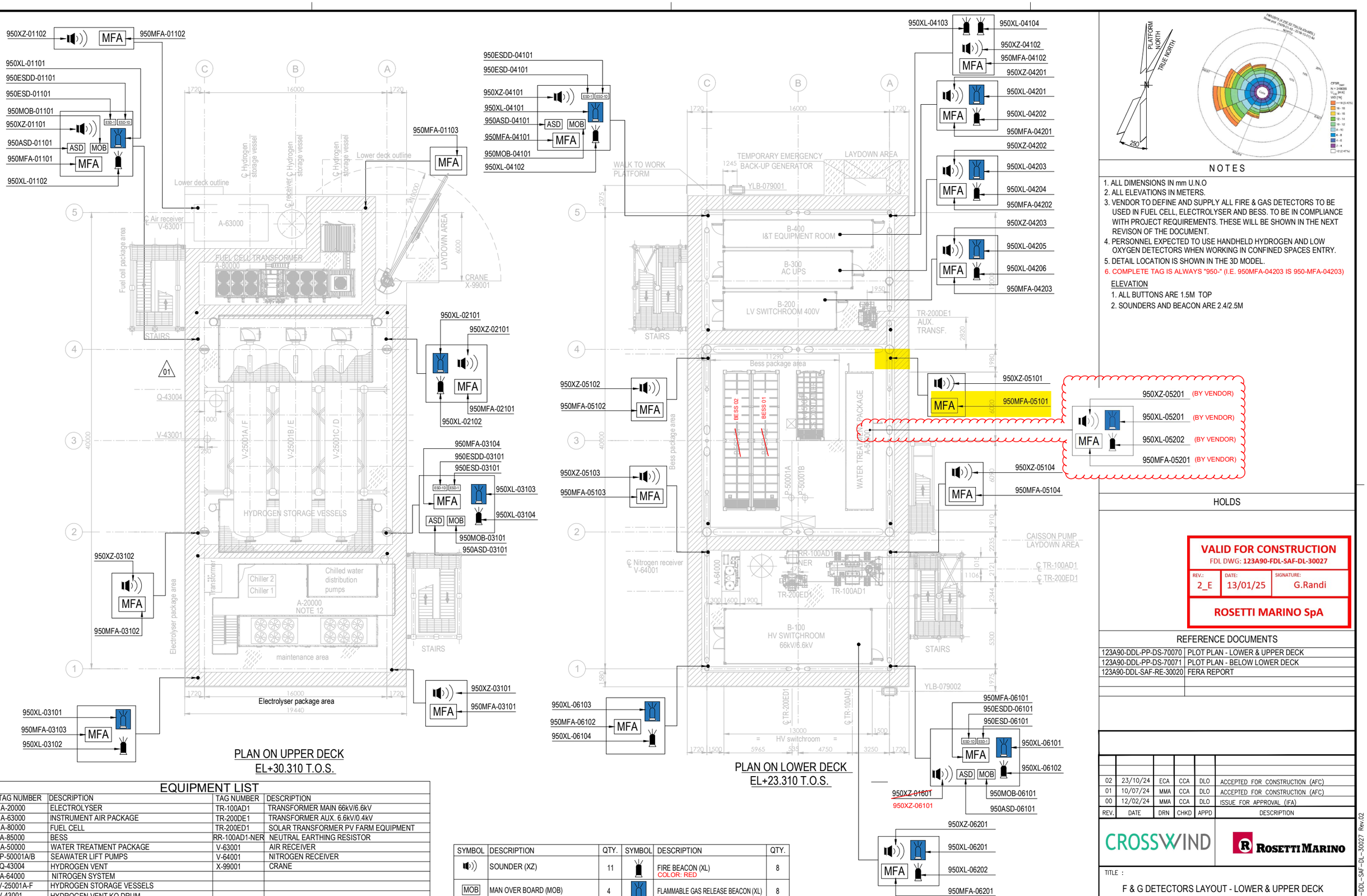
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

| **Page 1/1** | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Michele Tartaglia | Giovanni Tangianu | |
| **Date** | 2025-01-13 | 2025-01-14 | |
| **Signature** | PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-13T08:57:44.679Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2025-01-14T15:41:32.193Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |



## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.
6. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 13/01/25 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

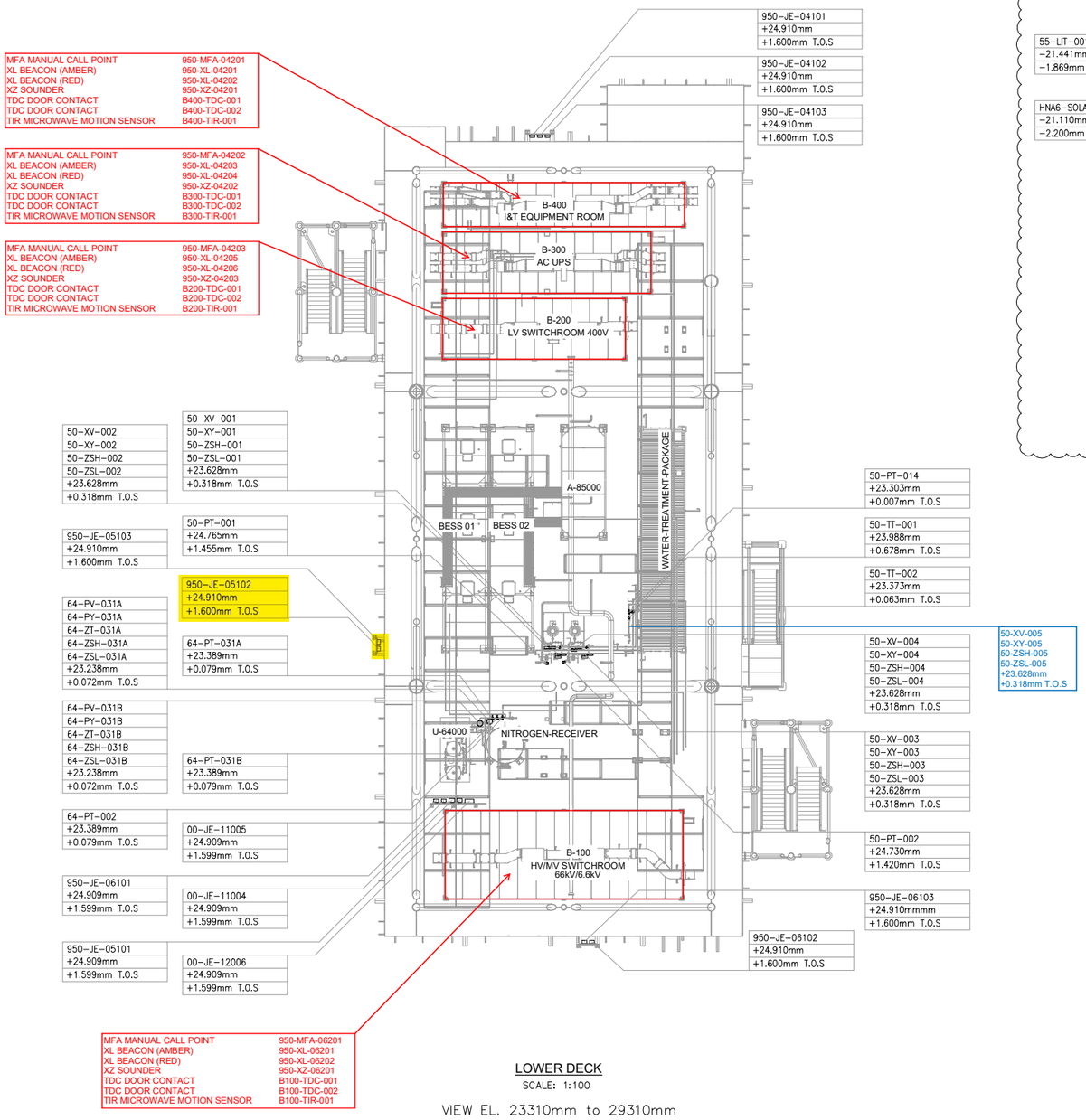
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | | SCALE 1:150 |
|---|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | | SHEET 002 | REV. 02 |

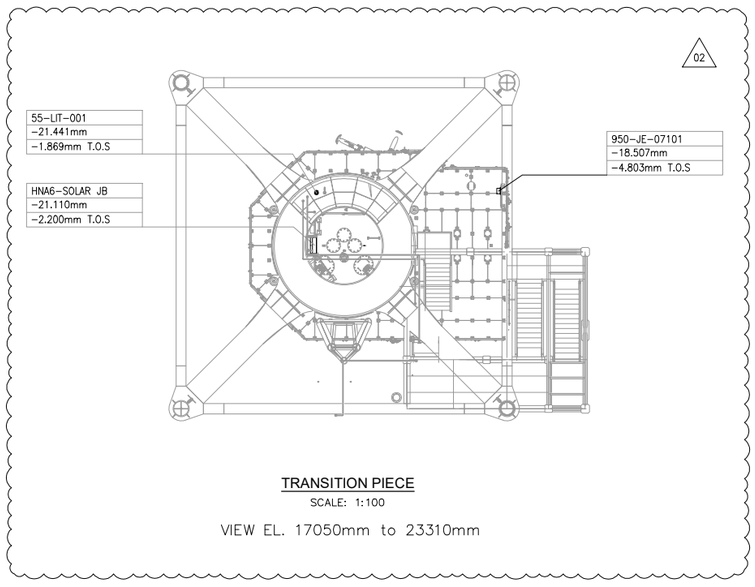
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

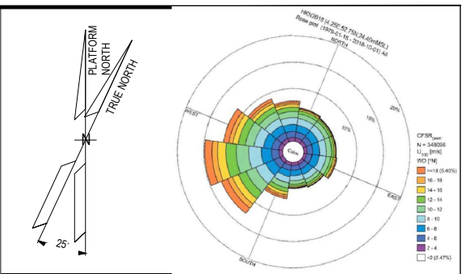
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05102 | No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |

<01>

950-MFA-05101 (1 / 8) WH, BK — NOTE-2 — C-950-MFA-05101/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05102 (1 / 8) WH, BK — NOTE-2 — C-950-MFA-05102/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05103 (1 / 8) WH, BK — NOTE-2 — C-950-MFA-05103/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05104 (1 / 8) WH, BK — NOTE-2 — C-950-MFA-05104/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

| | | |
|---|---|---|
| WH / BK | 1 | PR1 |
| | 2 | |
| | SH | |
| WH / BK | 3 | PR2 |
| | 4 | |
| | SH | |
| WH / BK | 5 | PR3 |
| | 6 | |
| | SH | |
| WH / BK | 7 | PR4 |
| | 8 | |
| | SH | |
| SPARE | 9 | PR5 |
| | 10 | |
| | SH | |
| SPARE | 11 | PR6 |
| | 12 | |
| | SH | |
| | OS | |

950-JE-05102/B400-FGS-003
~~950-JE-05102/B400-FGS-002~~
6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05102

| | | |
|---|---|---|
| PR1 / Shield Bar | 1 | 950-MFA-05101 |
| | 2 | |
| PR2 / Shield Bar | 3 | 950-MFA-05102 |
| | 4 | |
| PR3 / Shield Bar | 5 | 950-MFA-05103 |
| | 6 | |
| PR4 / Shield Bar | 7 | 950-MFA-05104 |
| | 8 | |
| PR5 / Shield Bar | 9 | SPARE |
| | 10 | |
| PR6 / Shield Bar | 11 | SPARE |
| | 12 | |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_O | 08/01/25 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05102

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 046 | REV. 01 |
|---|---|---|---|

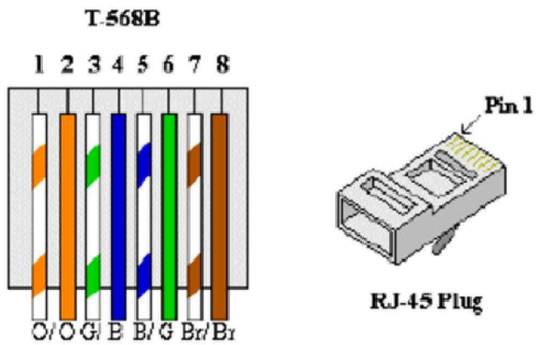
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



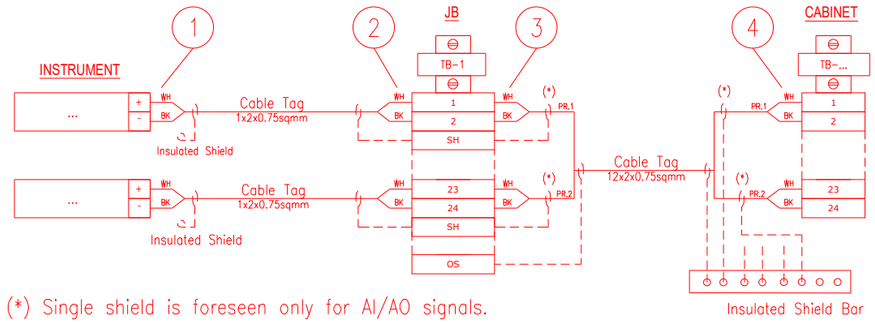

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

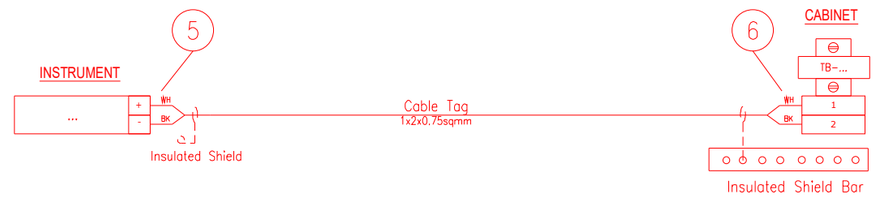
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

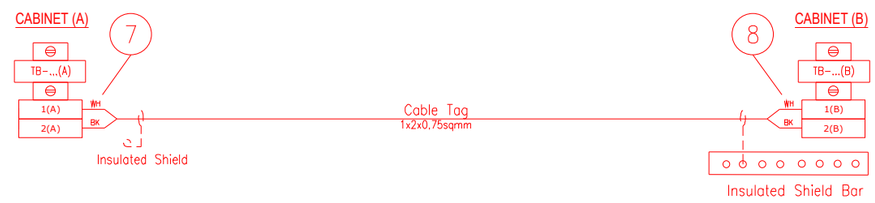
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_O | 08/01/25 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

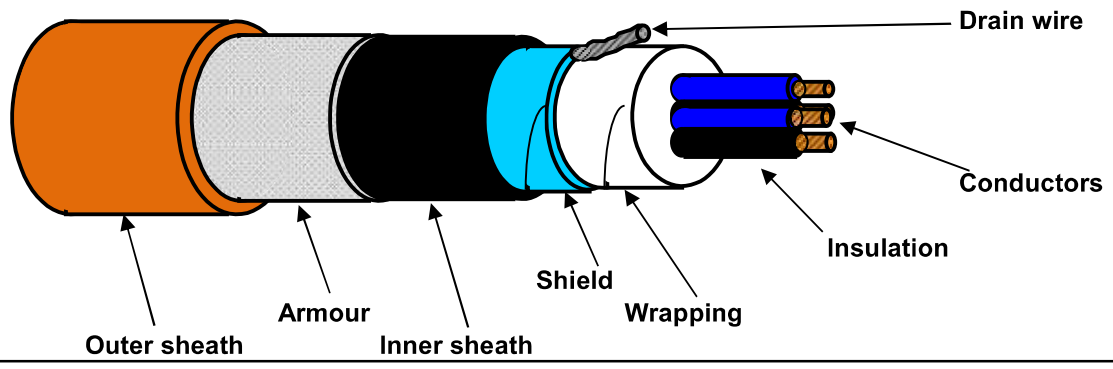
| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DG-40015 | 003 | 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-MFA-05101/950-JE-05102 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-MFA-05101 | Manual Fire Alarm | Lower Deck | 950-JE-05102 | DI JB to FGS | Lower Deck | SMICV08-1X2X0,75 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x2x0,75mm² - Orange | T2_M20S_Double | | | T2_M20S_Double | | | | L-SEC-35 / L-SEC-34 / L-SEC-33 / L-SEC-32 / L-SEC-31 / L-SEC-30 / L-SEC-29 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X2X0,75 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,5 mm | |
| **Cores colour code :** | **White - Black** | |
| **Pair Assembling :** | Not required | |
| **Pair Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Pair Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 10/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 0,5 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, Average Thickness 1,2 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X2X0,75 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (8,5 ± 10%) mm | |
| **Over armour diameter :** | (9,3 ± 10%) mm | |
| **Outer diameter :** | (11,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 26 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 25 µH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679, also by such subjects in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.
All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ROSETTI MARINO — CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-MFA-05102/950-JE-05102 : MANUAL FIRE ALARM / MARSHALLING PCS | | | Dwg | 123A90-DDL-IN-LIS-40091 | |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | Module | LD | |
| **TASK** | code | C10000304 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | MC | Activity | CCK | Discipline | Instrumental | Form | CJX10 | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 1X2X0,75 mm2 | Color | ORANGE |
| From | 950-MFA-05102 | To | 950-JE-05102 | | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | OK |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | |
|---|---|---|---|
| INSULATION | CORE to EARTH | >999 | MΩ |
| | CORE to CORE | >999 | MΩ |
| | CORE to SCREEN | >999 | MΩ |
| | CORE to ARMr | >999 | MΩ |
| | SCREEN to EARTH | >999 | MΩ |
| | SCREEN to ARMr | >999 | MΩ |
| CONTINUITY | CORES | 0,5 | Ω |
| | SCREEN | 0,5 | Ω |
| | EARTH | NA | Ω |
| | ARMr | 0,5 | Ω |
| | TEST VOLTS | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

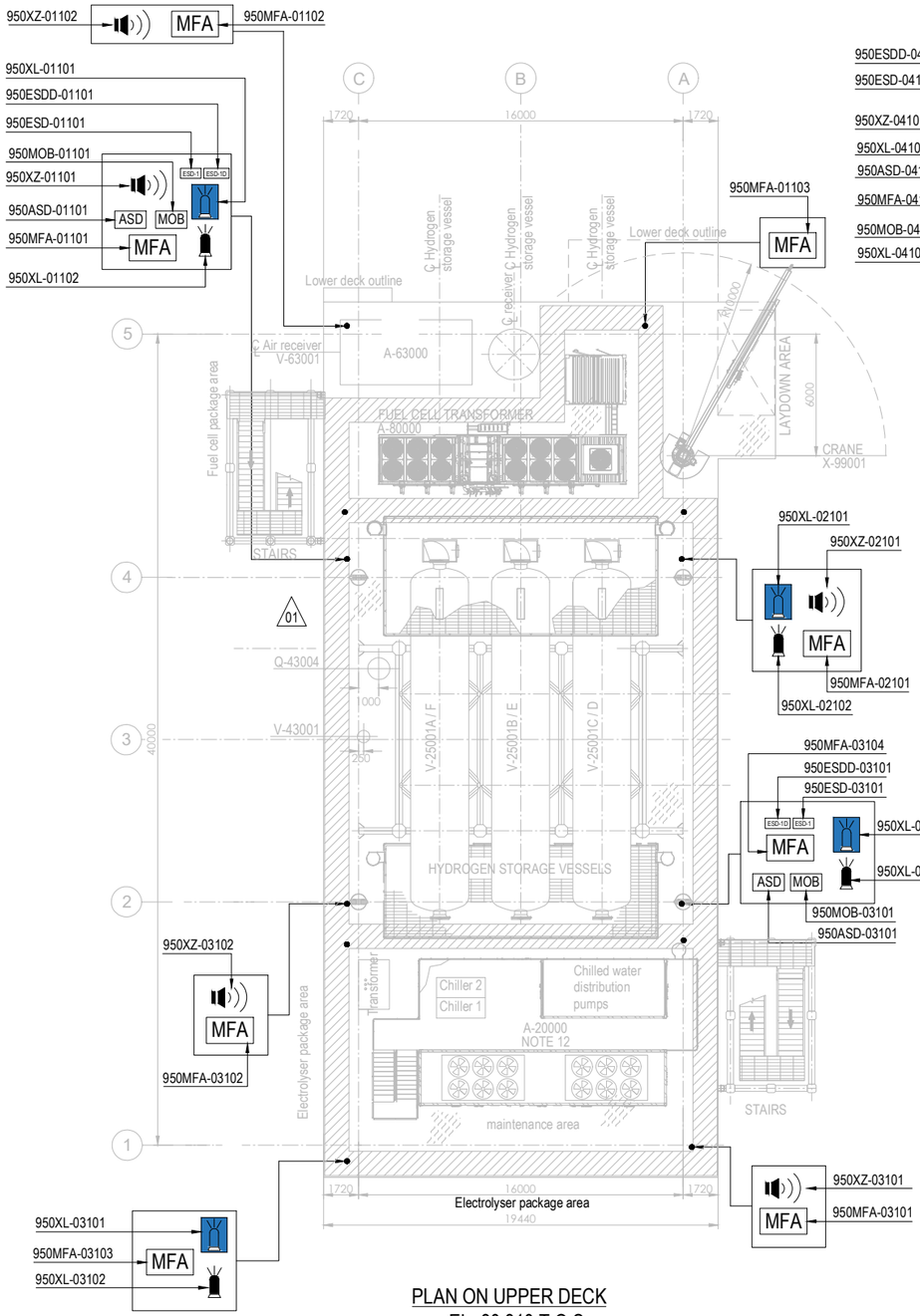
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

| Page 1/1 | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Michele Tartaglia | Alessio Polo | |
| Date | 2025-01-13 | 2025-01-13 | |
| Signature | PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-13T08:58:00.342Z | PROVERLIS Digitaly signed by Alessio Polo 2025-01-13T16:22:45.414Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



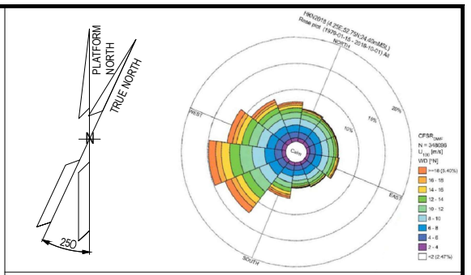

## PLAN ON UPPER DECK
## EL+30.310 T.O.S.

## PLAN ON LOWER DECK
## EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

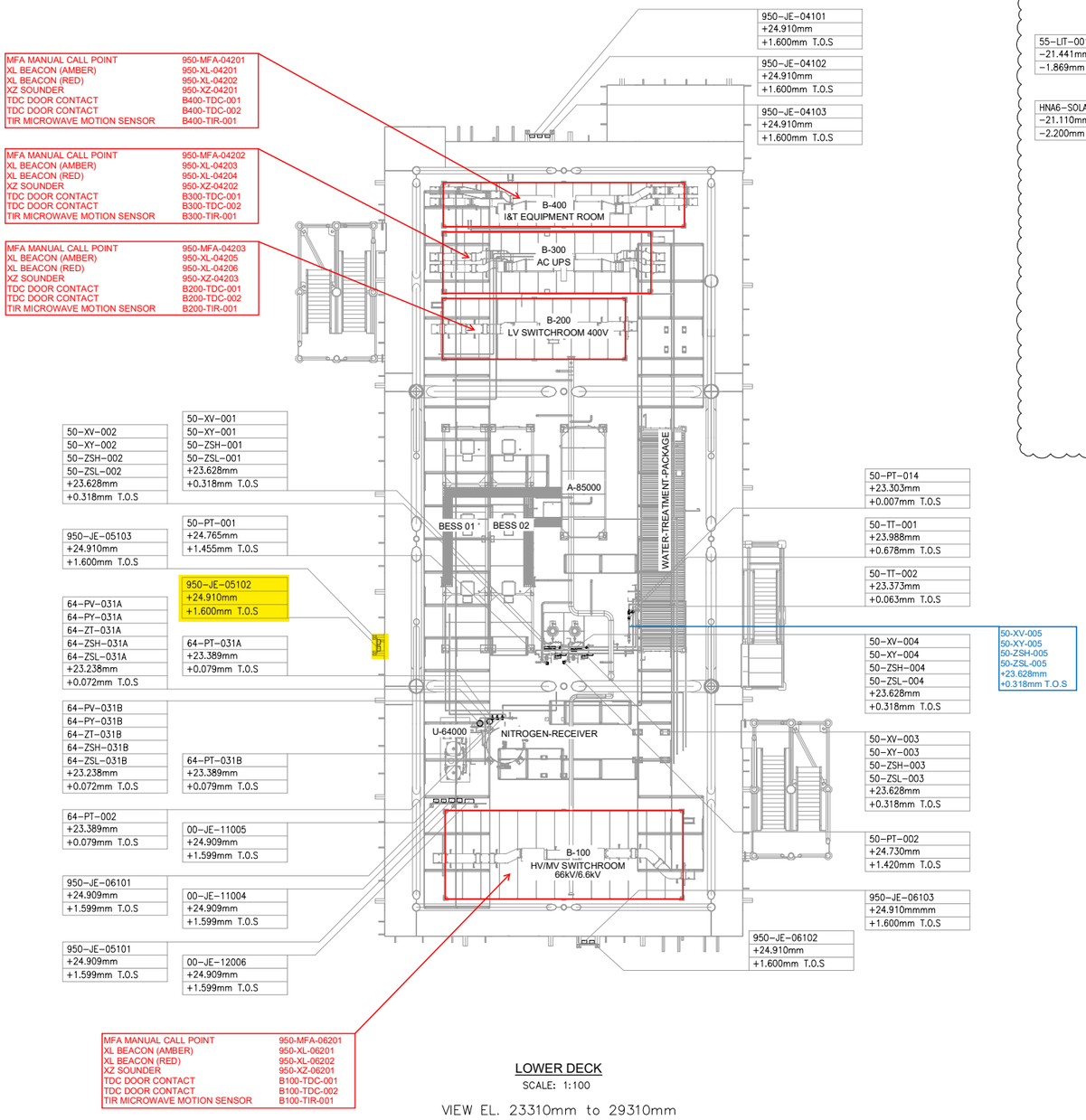
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

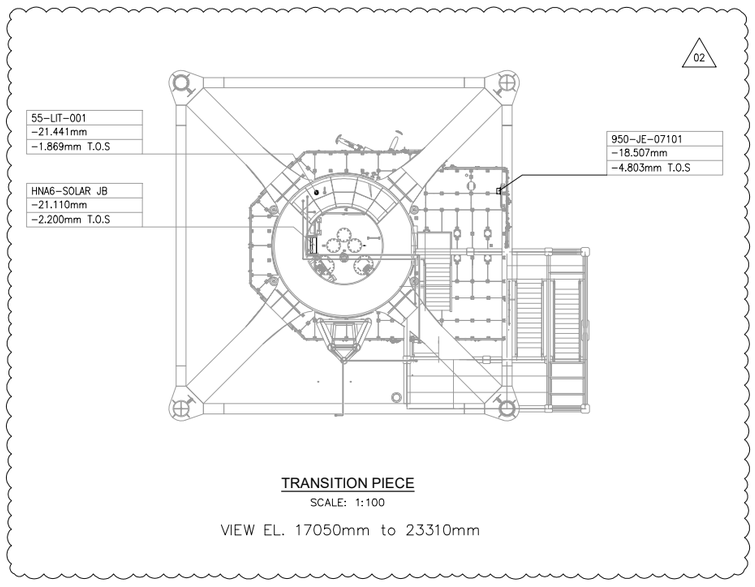
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

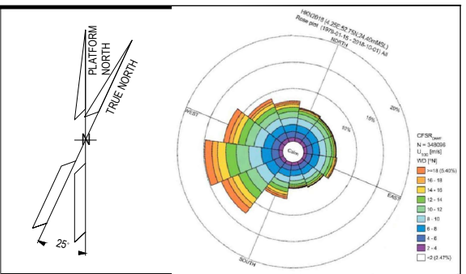
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05102 | No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |

<01>

950-MFA-05101 (1/8) WH/BK — NOTE-2 — C-950-MFA-05101/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05102 (1/8) WH/BK — NOTE-2 — C-950-MFA-05102/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05103 (1/8) WH/BK — NOTE-2 — C-950-MFA-05103/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05104 (1/8) WH/BK — NOTE-2 — C-950-MFA-05104/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

| | | |
|---|---|---|
| WH/BK | 1 | PR1 |
| | 2 | |
| | SH | |
| WH/BK | 3 | PR2 |
| | 4 | |
| | SH | |
| WH/BK | 5 | PR3 |
| | 6 | |
| | SH | |
| WH/BK | 7 | PR4 |
| | 8 | |
| | SH | |
| SPARE | 9 | PR5 |
| | 10 | |
| | SH | |
| SPARE | 11 | PR6 |
| | 12 | |
| | SH | |
| | OS | |

950-JE-05102/B400-FGS-003
~~950-JE-05102/B400-FGS-002~~
6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05102

| | | |
|---|---|---|
| PR1 — Shield Bar | 1 | 950-MFA-05101 |
| | 2 | |
| PR2 — Shield Bar | 3 | 950-MFA-05102 |
| | 4 | |
| PR3 — Shield Bar | 5 | 950-MFA-05103 |
| | 6 | |
| PR4 — Shield Bar | 7 | 950-MFA-05104 |
| | 8 | |
| PR5 — Shield Bar | 9 | SPARE |
| | 10 | |
| PR6 — Shield Bar | 11 | SPARE |
| | 12 | |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05102

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 046 | REV. 01 |
|---|---|---|---|

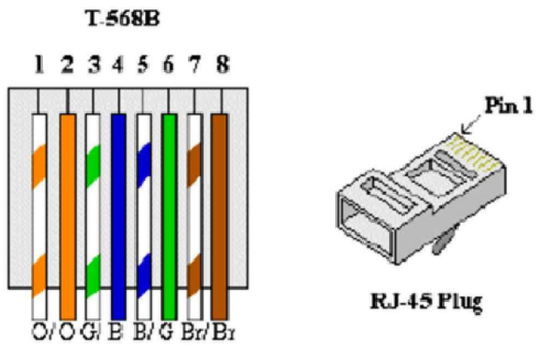
File Name : 123A90–DDL–IN–DG–40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



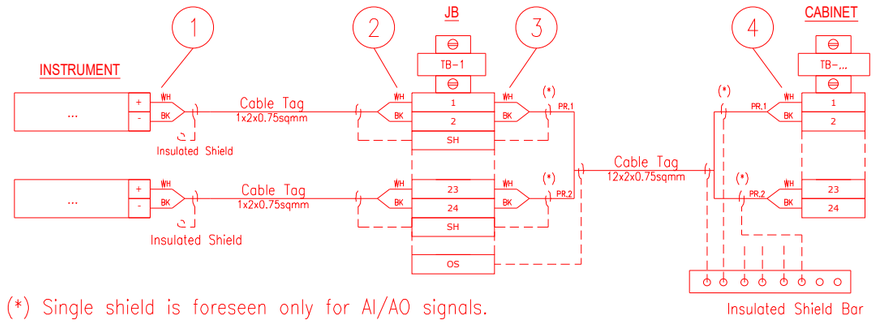

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

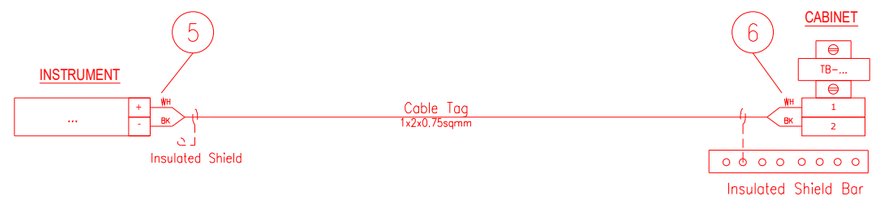
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

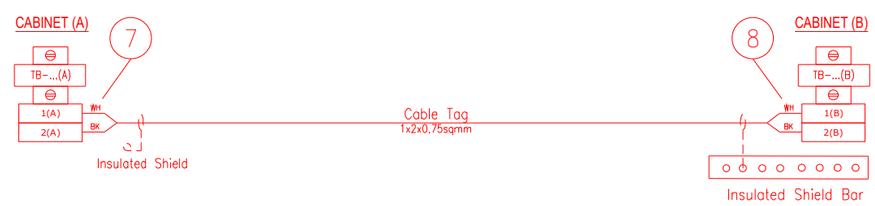
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

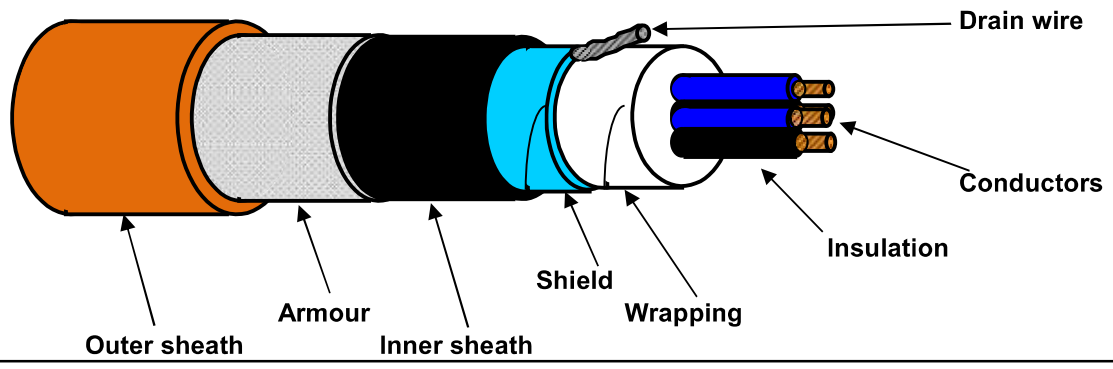
| | | | |
|---|---|---|---|
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40015 | SHEET 003 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-MFA-05102/950-JE-05102 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-MFA-05102 | Manual Fire Alarm | Lower Deck | 950-JE-05102 | DI JB to FGS | Lower Deck | SMICV08-1X2X0,75 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x2x0,75mm² - Orange | T2_M20S_Double | | | T2_M20S_Double | | | | L-SEC-29 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X2X0,75 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,5 mm | |
| **Cores colour code :** | **White - Black** | |
| **Pair Assembling :** | Not required | |
| **Pair Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Pair Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 10/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 0,5 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, Average Thickness 1,2 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X2X0,75 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (8,5 ± 10%) mm | |
| **Over armour diameter :** | (9,3 ± 10%) mm | |
| **Outer diameter :** | (11,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 26 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 25 µH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679, also by such subjects in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.
All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ROSETTI MARINO — CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-MFA-05103/950-JE-05102 : MANUAL FIRE ALARM / MARSHALLING PCS | | | Dwg | 123A90-DDL-IN-LIS-40091 | |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | Module | LD | |
| **TASK** | code | C10000305 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | MC | Activity | CCK | Discipline | Instrumental | Form | CJX10 | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 1X2X0,75 mm2 | Color | ORANGE |
| From | 950-MFA-05103 | To | 950-JE-05102 | | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | OK |
| 9 | Check cable labelling is in accordance with specification. | OK |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | OK |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | | |
|---|---|---|---|---|
| INSULATION | CORE to EARTH | | >999 | MΩ |
| | CORE to CORE | | >999 | MΩ |
| | CORE to SCREEN | | >999 | MΩ |
| | CORE to ARMr | | >999 | MΩ |
| | SCREEN to EARTH | | >999 | MΩ |
| | SCREEN to ARMr | | >999 | MΩ |
| CONTINUITY | CORES | | 0,6 | Ω |
| | SCREEN | | 0,6 | Ω |
| | EARTH | | NA | Ω |
| | ARMr | | 0,6 | Ω |
| | TEST VOLTS | | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

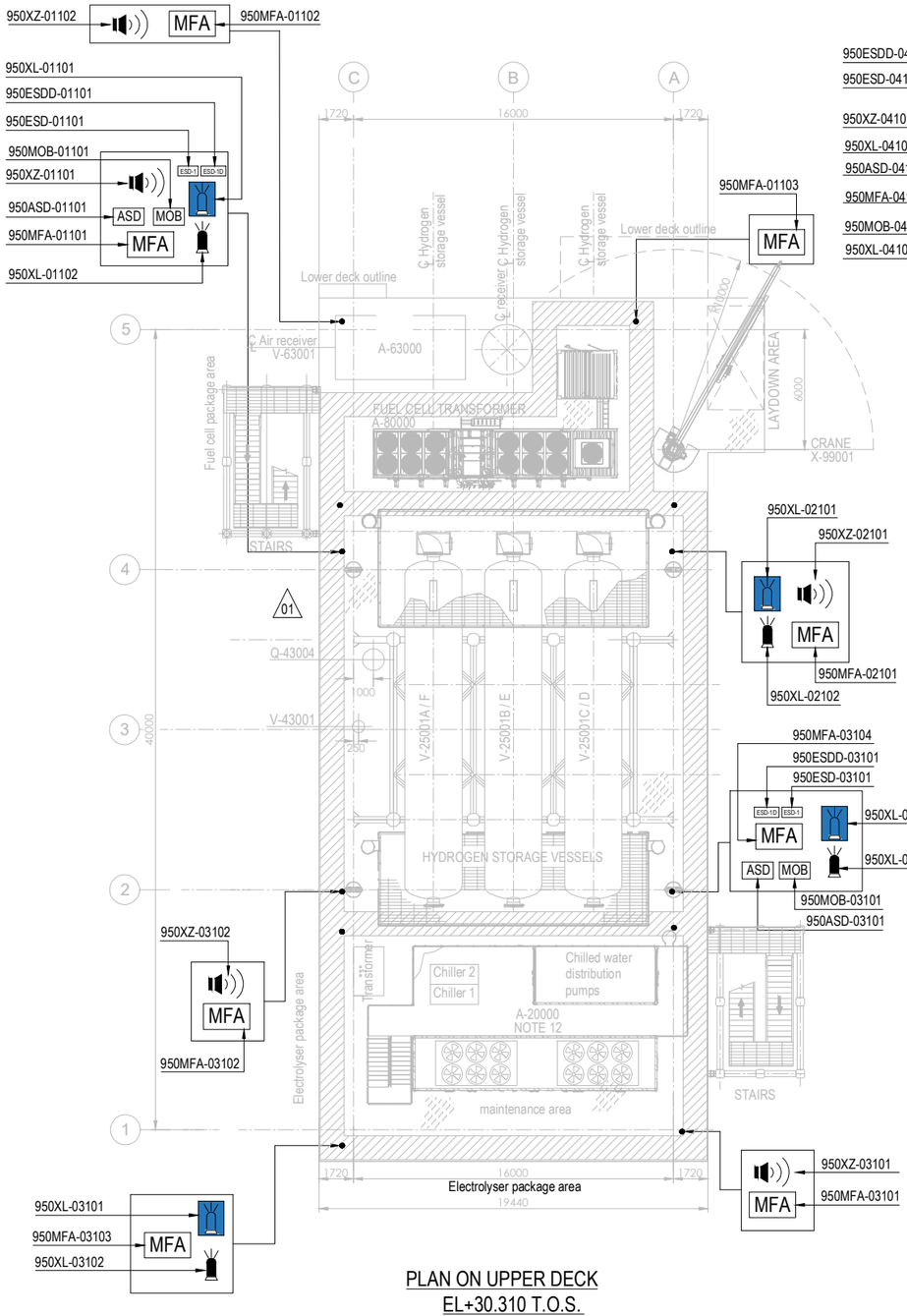
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: 10/07/2024

Comments Nota 5: refer to PL C30000680

| **Page 1/1** | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Paolo Schintu | |
| **Date** | 2024-12-07 | 2024-12-10 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:49:45.754Z | PROVERLIS Digitaly signed by Paolo Schintu 2024-12-10T18:37:17.463Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



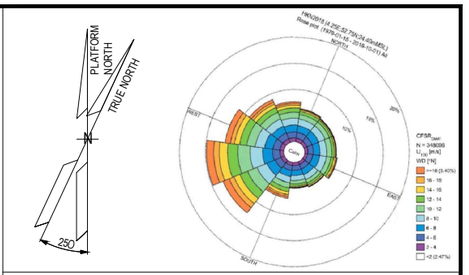

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION
1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

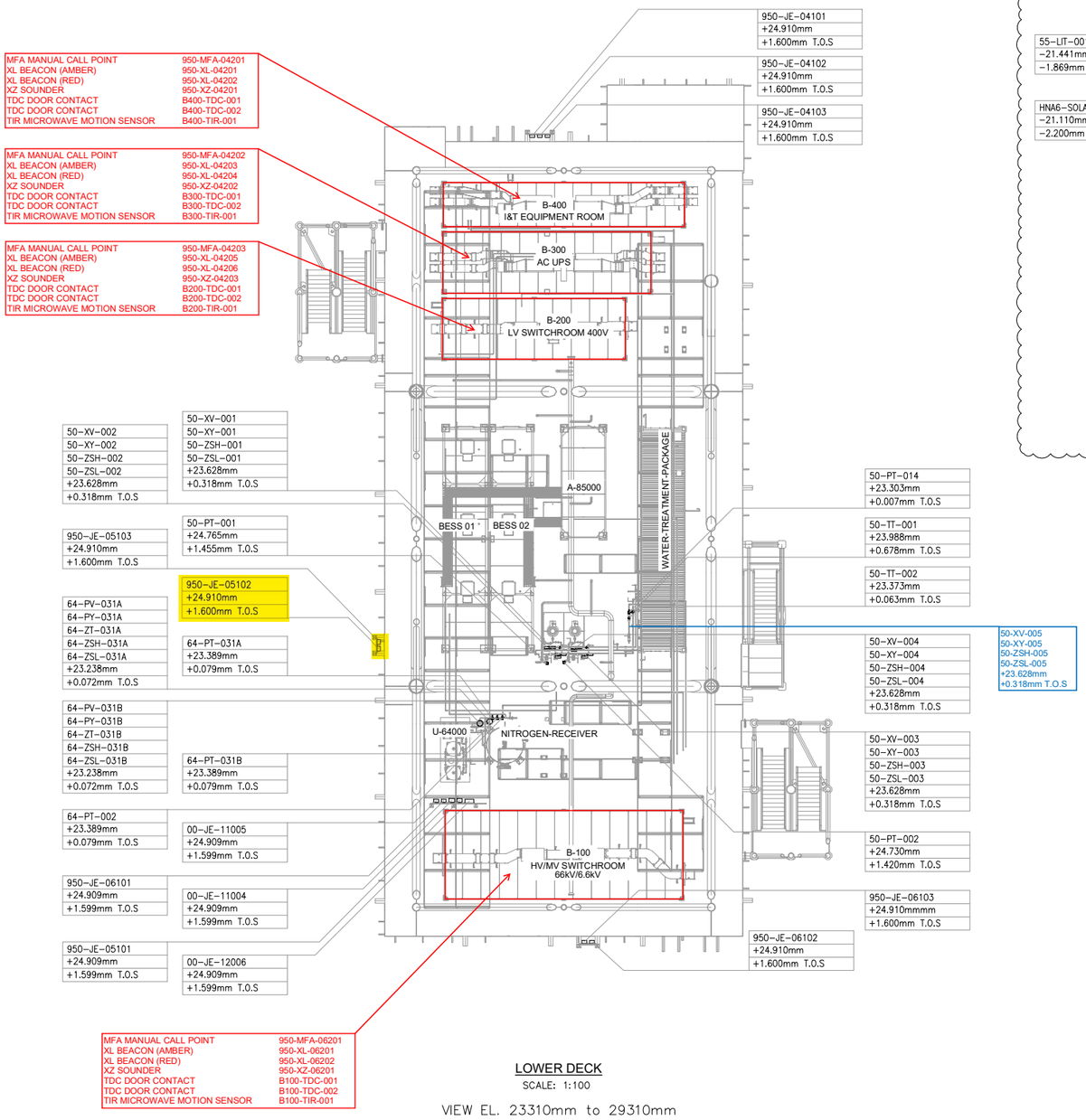
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

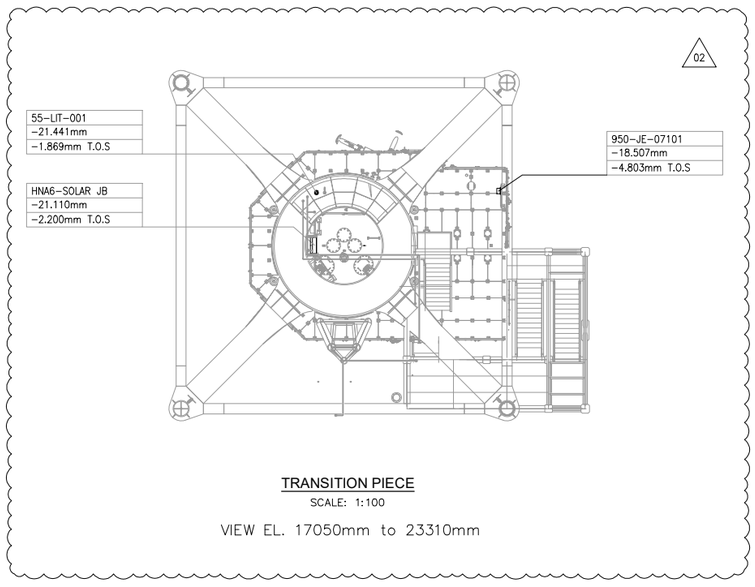
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

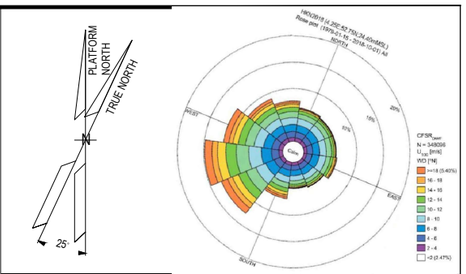
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05102 | No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |

<01>

950-MFA-05101 (1 / 8) WH BK — NOTE-2 — C-950-MFA-05101/950-JE-05102
1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05102 (1 / 8) WH BK — NOTE-2 — C-950-MFA-05102/950-JE-05102
1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05103 (1 / 8) WH BK — NOTE-2 — C-950-MFA-05103/950-JE-05102
1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05104 (1 / 8) WH BK — NOTE-2 — C-950-MFA-05104/950-JE-05102
1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

| | | |
|---|---|---|
| WH / BK | 1 | PR1 |
| | 2 | |
| | SH | |
| WH / BK | 3 | PR2 |
| | 4 | |
| | SH | |
| WH / BK | 5 | PR3 |
| | 6 | |
| | SH | |
| WH / BK | 7 | PR4 |
| | 8 | |
| | SH | |
| SPARE | 9 | PR5 |
| | 10 | |
| | SH | |
| SPARE | 11 | PR6 |
| | 12 | |
| | SH | |
| | OS | |

950-JE-05102/B400-FGS-003
~~950-JE-05102/B400-FGS-002~~
6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05102

| | | |
|---|---|---|
| PR1 — Shield Bar | 1 | 950-MFA-05101 |
| | 2 | |
| PR2 — Shield Bar | 3 | 950-MFA-05102 |
| | 4 | |
| PR3 — Shield Bar | 5 | 950-MFA-05103 |
| | 6 | |
| PR4 — Shield Bar | 7 | 950-MFA-05104 |
| | 8 | |
| PR5 — Shield Bar | 9 | SPARE |
| | 10 | |
| PR6 — Shield Bar | 11 | SPARE |
| | 12 | |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05102

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 046 | REV. 01 |
|---|---|---|---|

File Name : 123A90–DDL–IN–DG–40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40016

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. CONNECTION TERMINAL BLOCK SHALL BE DEFINED DURING CONSTRUCTION PHASE.

<01>

6. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

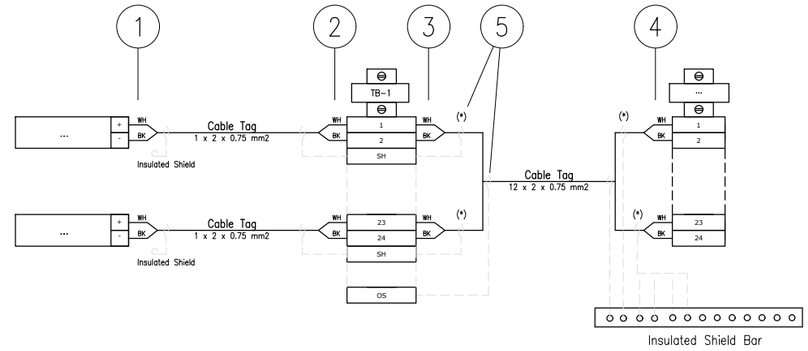
## LEGENDS & SYMBOLS:

LEGEND:

| | |
|---|---|
| I.E. | - GREEN ——— INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN/YELLOW —— P.E. EARTH/BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM <01> |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM <01> |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS <01> |

## TYPICAL WIRE CROSS-FERRULING:

### PHILOSOPHY OF CROSS-FERRULING: <01>




(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

### REFERENCE DRAWINGS

| | |
|---|---|
| PIPING AND INSTRUMENT DIAGRAM | 123A90-DDL-PR-PID-80009 |
| INSTRUMENT INDEX | 123A90-DDL-IN-LIS-40088 Rev.01 |
| F&G DETECTORS LAYOUT | 123A90-DDL-SAF-DL-30027 |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_M | 02/12/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – SAFETY SYSTEM WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

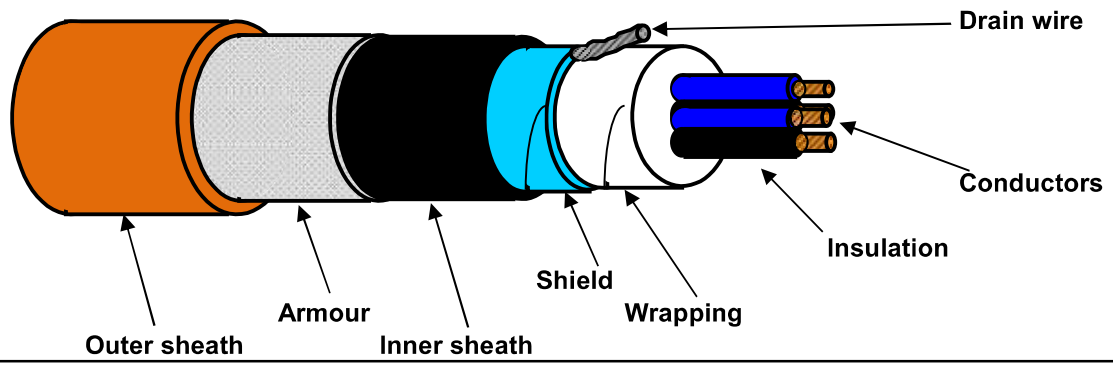
| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DG-40016 | 003 | 01 |

File Name : 123A90-DDL-IN-DG-40016_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-MFA-05103/950-JE-05102 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-MFA-05103 | Manual Fire Alarm | Lower Deck | 950-JE-05102 | DI JB to FGS | Lower Deck | SMICV08-1X2X0,75 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x2x0,75mm² - Orange | T2_M20S_Double | | | T2_M20S_Double | | | | L-SEC-28 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X2X0,75 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,5 mm | |
| **Cores colour code :** | **White - Black** | |
| **Pair Assembling :** | Not required | |
| **Pair Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Pair Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 10/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 0,5 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, Average Thickness 1,2 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X2X0,75 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (8,5 ± 10%) mm | |
| **Over armour diameter :** | (9,3 ± 10%) mm | |
| **Outer diameter :** | (11,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 26 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 25 µH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679, also by such subjects in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.
All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ROSETTI MARINO — CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-MFA-05104/950-JE-05102 : MANUAL FIRE ALARM / MARSHALLING PCS | | | Dwg | 123A90-DDL-IN-LIS-40091 | |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | Module | LD | |
| **TASK** | code | C10000306 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | MC | Activity | CCK | Discipline | Instrumental | Form | CJX10 | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 1X2X0,75 mm2 | Color | ORANGE |
| From | 950-MFA-05104 | To | 950-JE-05102 | | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | OK |
| 9 | Check cable labelling is in accordance with specification. | OK |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | |
|---|---|---|---|
| INSULATION | CORE to EARTH | >999 | MΩ |
| | CORE to CORE | >999 | MΩ |
| | CORE to SCREEN | >999 | MΩ |
| | CORE to ARMr | >999 | MΩ |
| | SCREEN to EARTH | >999 | MΩ |
| | SCREEN to ARMr | >999 | MΩ |
| CONTINUITY | CORES | 1,3 | Ω |
| | SCREEN | 1,3 | Ω |
| | EARTH | NA | Ω |
| | ARMr | 1,3 | Ω |
| | TEST VOLTS | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

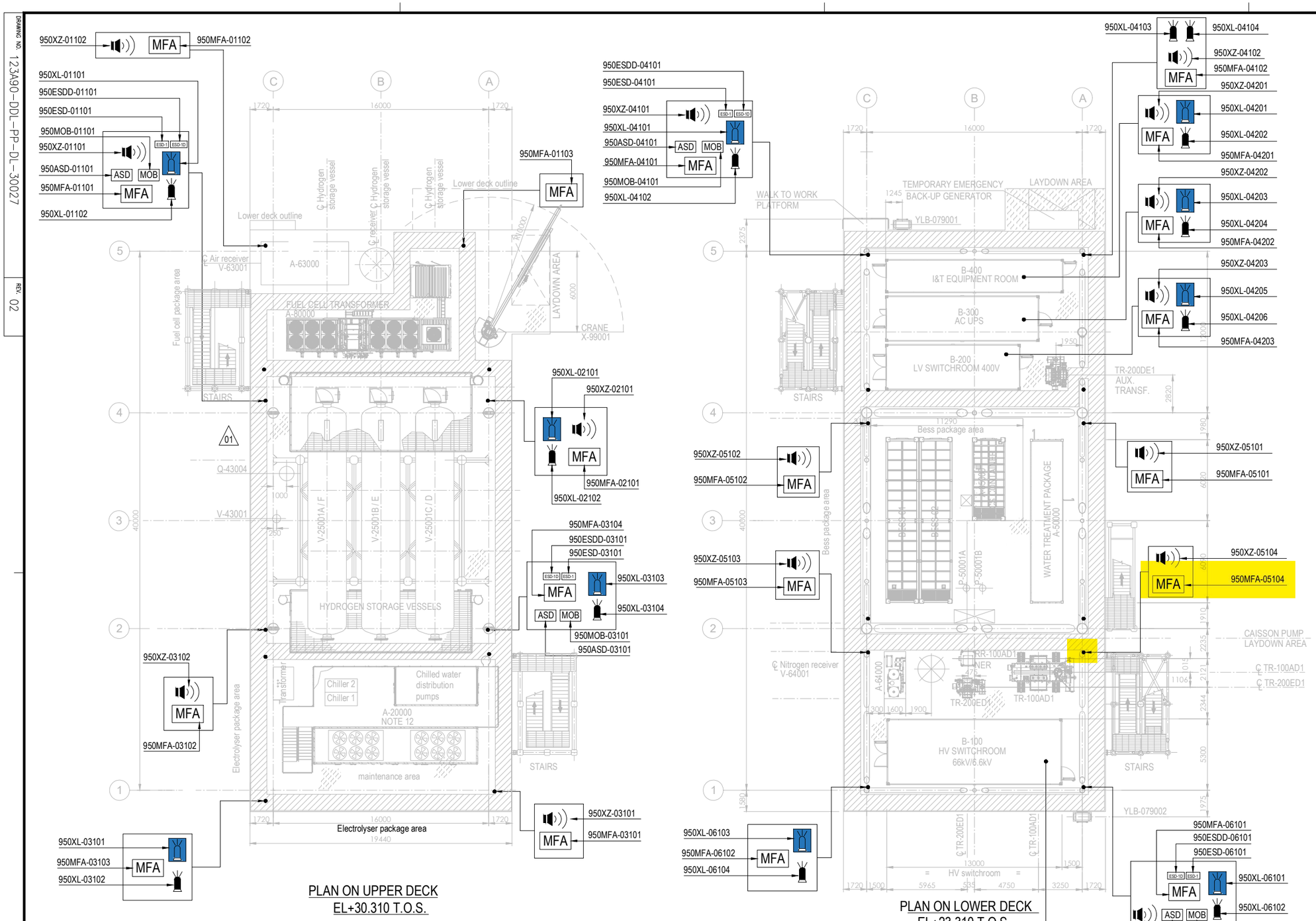
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

| **Page 1/1** | Performed by | ☉ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Alessio Polo | |
| **Date** | 2024-12-03 | 2024-12-05 | |
| **Signature** | Digitaly signed by Francesco Zucca 2024-12-03T17:02:12.525Z | Digitaly signed by Alessio Polo 2024-12-05T13:19:17.421Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



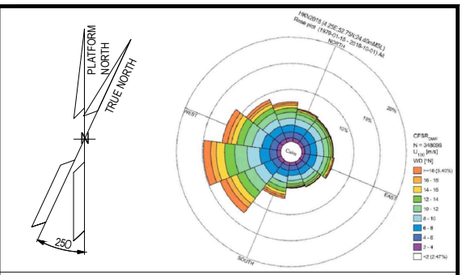

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION
1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

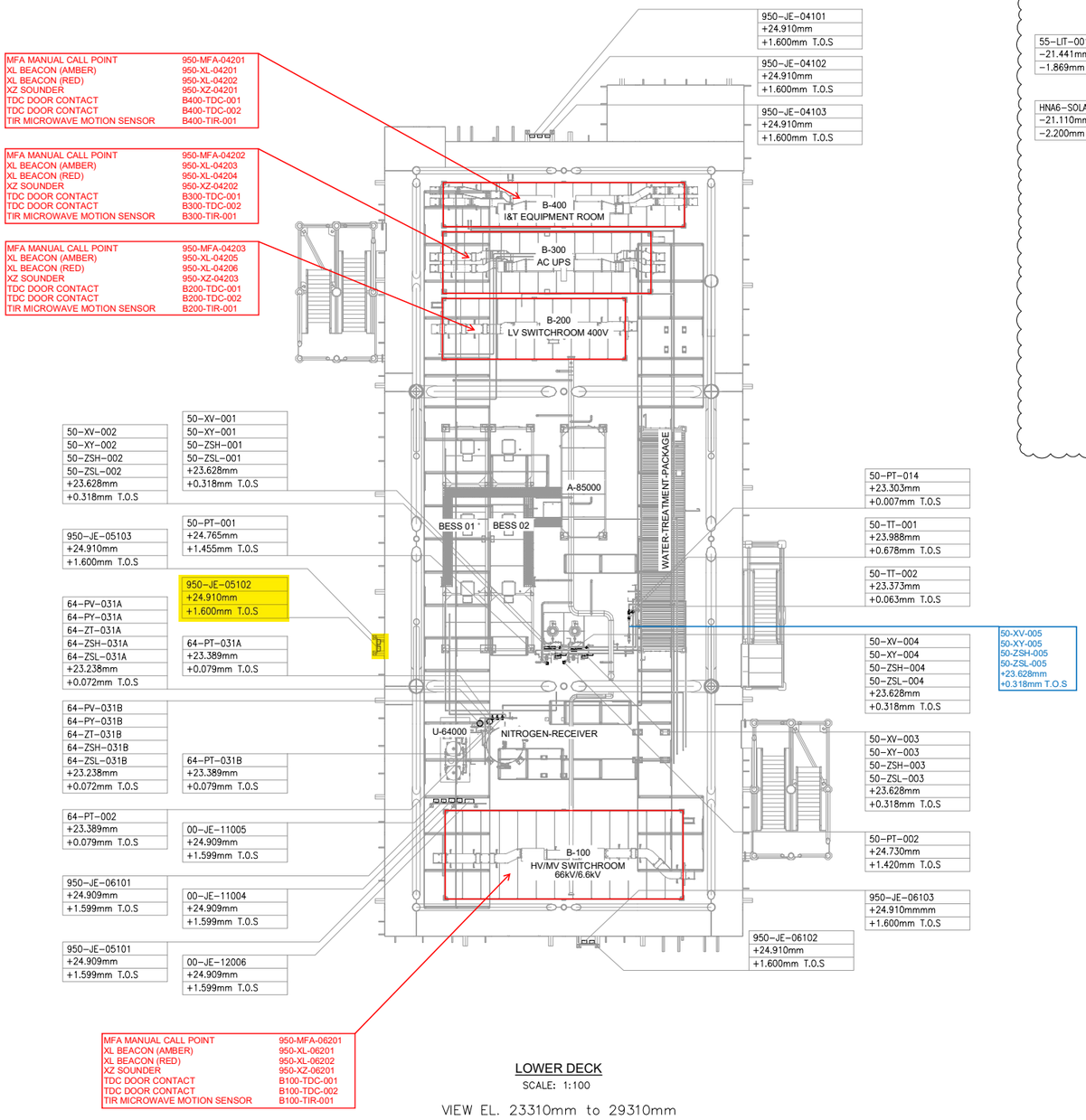
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

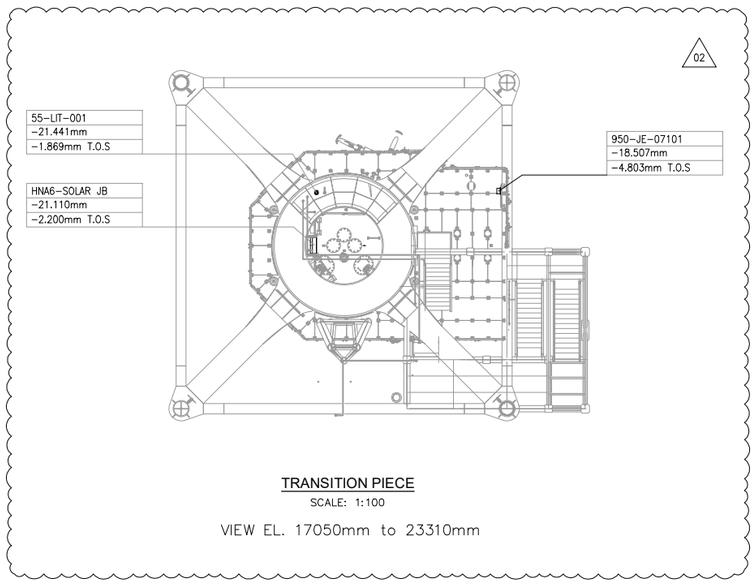
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

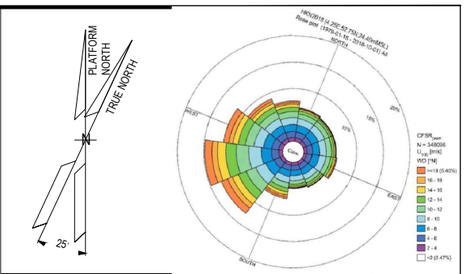
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05102 | No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |

<01>

950-MFA-05101 (1 / 8) WH BK — NOTE-2 — C-950-MFA-05101/950-JE-05102 — 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05102 (1 / 8) WH BK — NOTE-2 — C-950-MFA-05102/950-JE-05102 — 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05103 (1 / 8) WH BK — NOTE-2 — C-950-MFA-05103/950-JE-05102 — 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05104 (1 / 8) WH BK — NOTE-2 — C-950-MFA-05104/950-JE-05102 — 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

| | | |
|---|---|---|
| WH / BK | 1 | PR1 |
| | 2 | |
| | SH | |
| WH / BK | 3 | PR2 |
| | 4 | |
| | SH | |
| WH / BK | 5 | PR3 |
| | 6 | |
| | SH | |
| WH / BK | 7 | PR4 |
| | 8 | |
| | SH | |
| SPARE | 9 | PR5 |
| | 10 | |
| | SH | |
| SPARE | 11 | PR6 |
| | 12 | |
| | SH | |
| | OS | |

950-JE-05102/B400-FGS-003
~~950-JE-05102/B400-FGS-002~~
6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05102

| | | |
|---|---|---|
| PR1 / Shield Bar | 1 | 950-MFA-05101 |
| | 2 | |
| PR2 / Shield Bar | 3 | 950-MFA-05102 |
| | 4 | |
| PR3 / Shield Bar | 5 | 950-MFA-05103 |
| | 6 | |
| PR4 / Shield Bar | 7 | 950-MFA-05104 |
| | 8 | |
| PR5 / Shield Bar | 9 | SPARE |
| | 10 | |
| PR6 / Shield Bar | 11 | SPARE |
| | 12 | |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_M | 02/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05102

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90–DDL–IN–DG–40016 | 046 | 01 |

File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40016

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. CONNECTION TERMINAL BLOCK SHALL BE DEFINED DURING CONSTRUCTION PHASE.

<01>

6. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

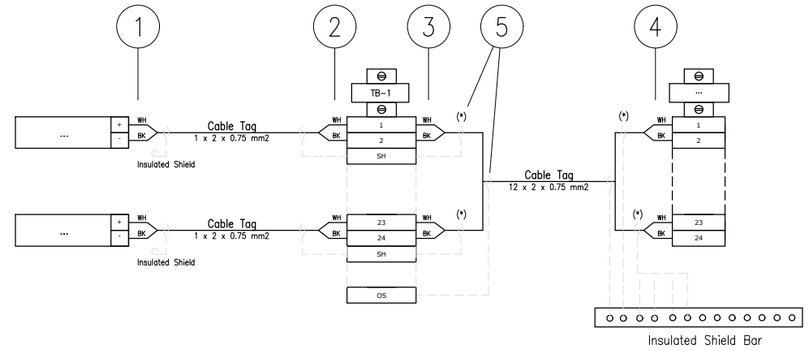
## LEGENDS & SYMBOLS:

LEGEND:

| | |
|---|---|
| I.E. | - GREEN ——— INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN/YELLOW —— P.E. EARTH/BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM <01> |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM <01> |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS <01> |

## TYPICAL WIRE CROSS-FERRULING:

### PHILOSOPHY OF CROSS-FERRULING: <01>




(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

### REFERENCE DRAWINGS

| | |
|---|---|
| PIPING AND INSTRUMENT DIAGRAM | 123A90-DDL-PR-PID-80009 |
| INSTRUMENT INDEX | 123A90-DDL-IN-LIS-40088 Rev.01 |
| F&G DETECTORS LAYOUT | 123A90-DDL-SAF-DL-30027 |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_M | 02/12/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – SAFETY SYSTEM WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

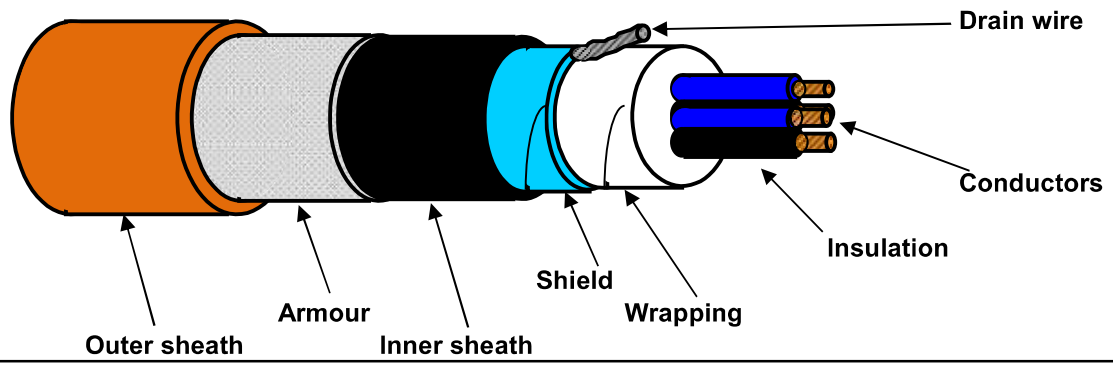
| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DG-40016 | 003 | 01 |

File Name : 123A90-DDL-IN-DG-40016_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-MFA-05104/950-JE-05102 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-MFA-05104 | Manual Fire Alarm | Lower Deck | 950-JE-05102 | DI JB to FGS | Lower Deck | SMICV08-1X2X0,75 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x2x0,75mm² - Orange | T2_M20S_Double | | | T2_M20S_Double | | | | L-SEC-23 / L-SEC-24 / L-SEC-25 / L-SEC-26 / L-SEC-27 / L-SEC-28 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X2X0,75 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,5 mm | |
| **Cores colour code :** | **White - Black** | |
| **Pair Assembling :** | Not required | |
| **Pair Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Pair Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 10/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 0,5 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, Average Thickness 1,2 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X2X0,75 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (8,5 ± 10%) mm | |
| **Over armour diameter :** | (9,3 ± 10%) mm | |
| **Outer diameter :** | (11,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 26 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 25 µH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679, also by such subjects in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.
All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-XZ-05101/950-JE-05103 : SOUNDER / MARSHALLING PCS | | | Dwg | 123A90-DDL-IN-LIS-40091 | |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | Module | LD | |
| **TASK** | code | C10000339 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | MC | Activity | CCK | Discipline | Instrumental | Form | CJX10 | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 2X2,5 mm2 | Color | ORANGE |
| From | 950-XZ-05101 | To | 950-JE-05103 | | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | OK |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | | |
|---|---|---|---|---|
| INSULATION | CORE to EARTH | | >999 | MΩ |
| | CORE to CORE | | >999 | MΩ |
| | CORE to SCREEN | | >999 | MΩ |
| | CORE to ARMr | | >999 | MΩ |
| | SCREEN to EARTH | | >999 | MΩ |
| | SCREEN to ARMr | | >999 | MΩ |
| CONTINUITY | CORES | | 0,5 | Ω |
| | SCREEN | | 0,5 | Ω |
| | EARTH | | NA | Ω |
| | ARMr | | 0,5 | Ω |
| | TEST VOLTS | | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

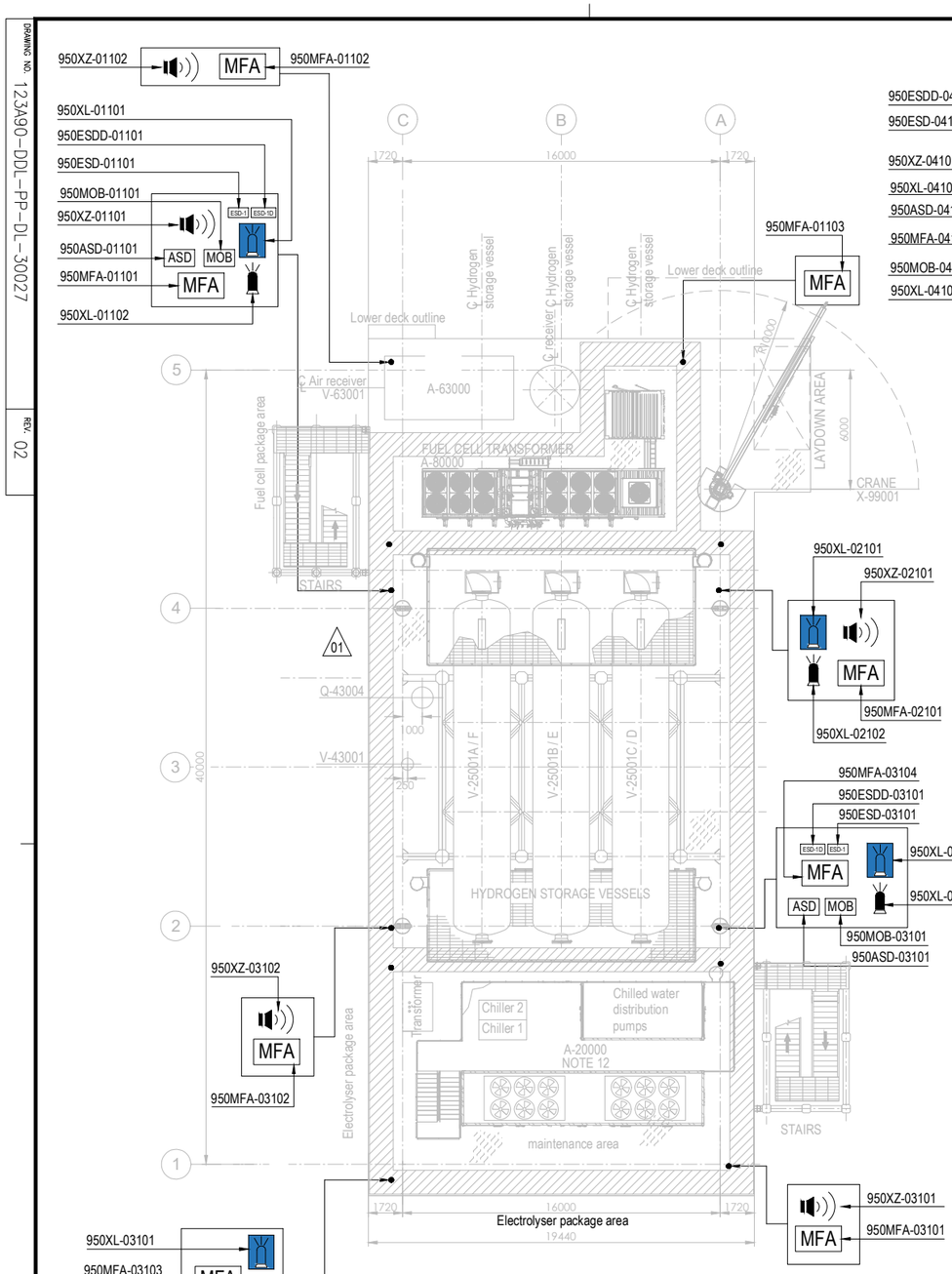
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

| **Page 1/1** | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Michele Tartaglia | Alessio Polo | |
| **Date** | 2025-01-13 | 2025-01-13 | |
| **Signature** | PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-13T08:58:10.969Z | PROVERLIS Digitaly signed by Alessio Polo 2025-01-13T16:31:55.793Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



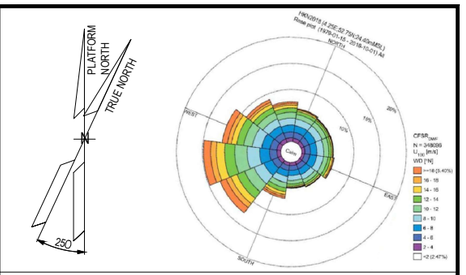

## PLAN ON UPPER DECK
## EL+30.310 T.O.S.

## PLAN ON LOWER DECK
## EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

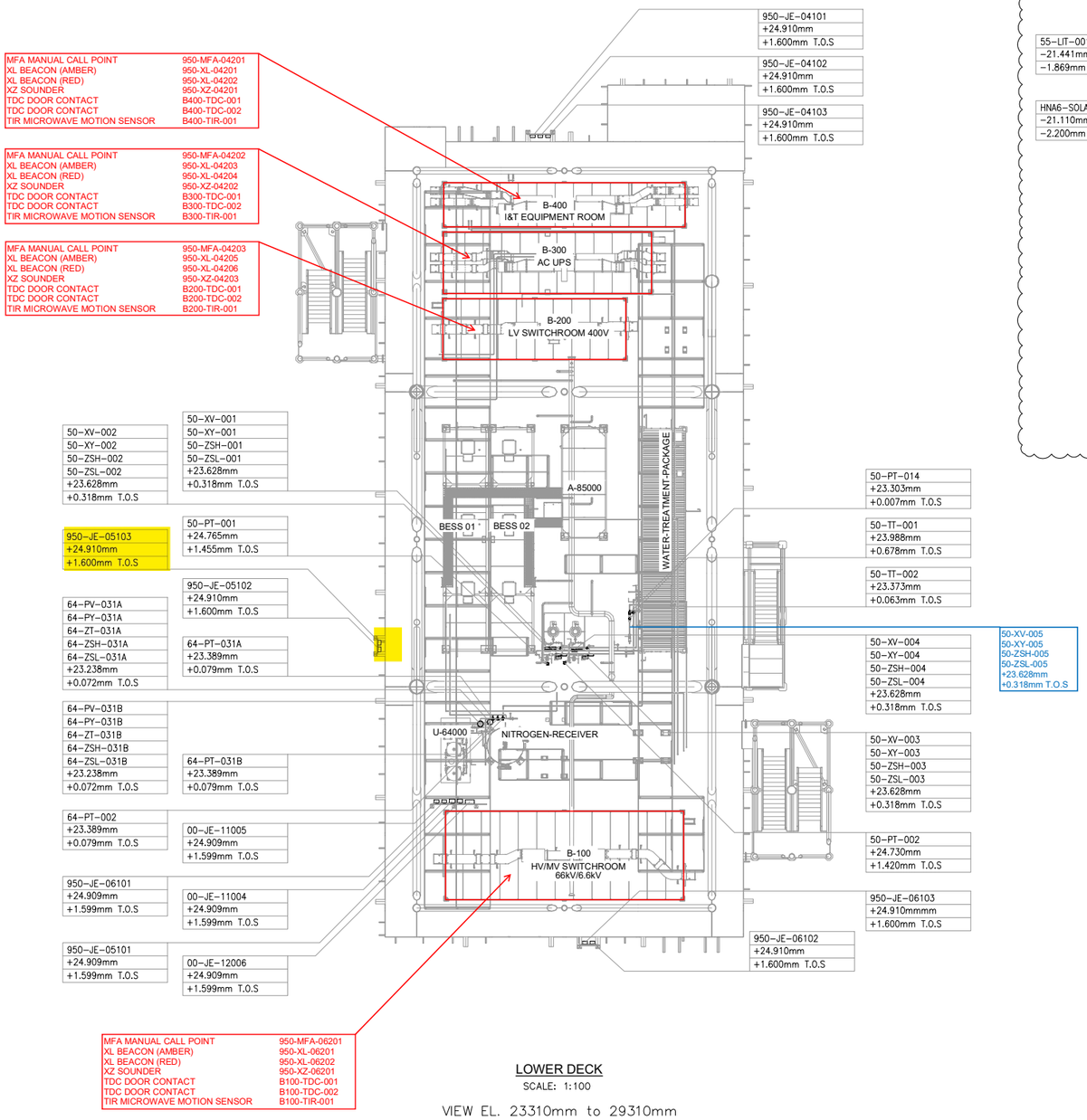
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

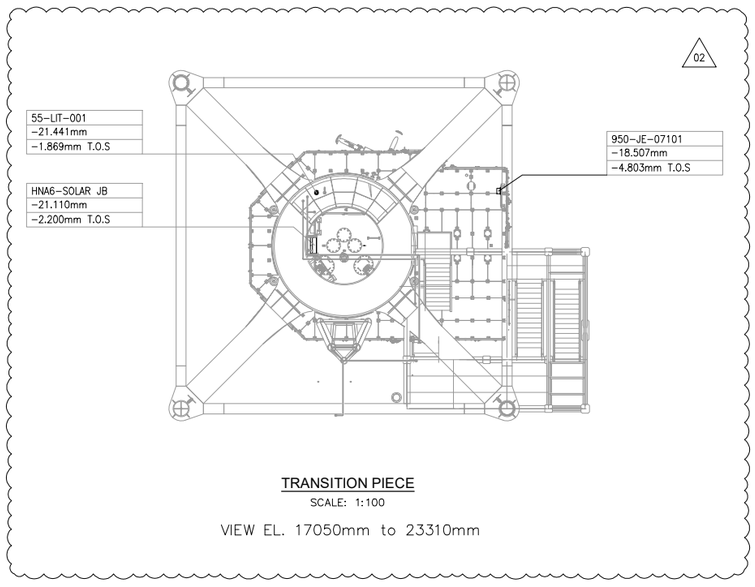
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

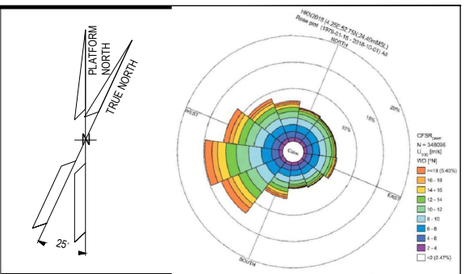
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

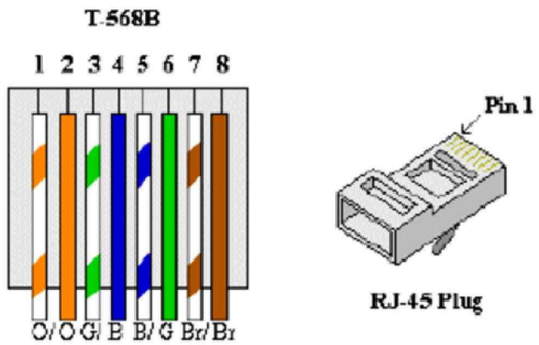
File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



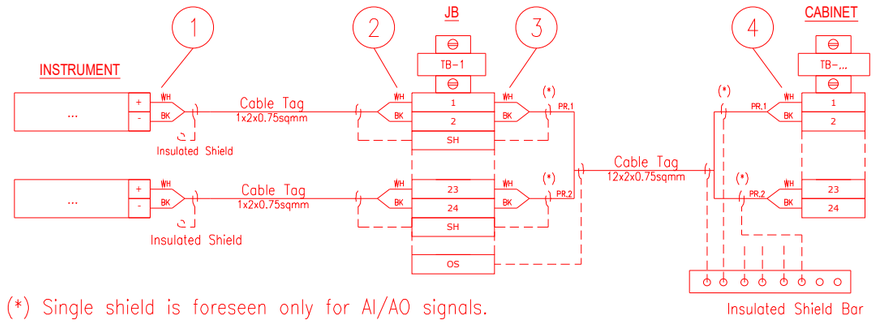

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

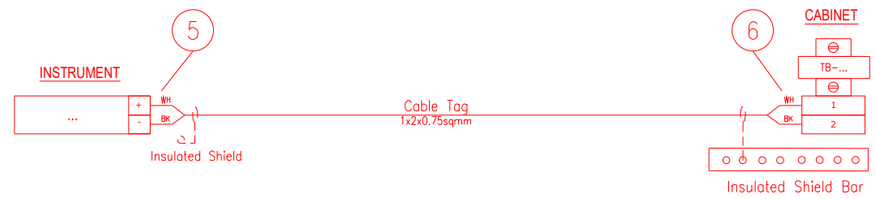
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

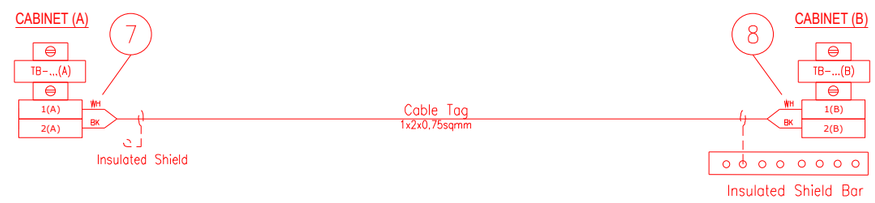
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_O | 08/01/25 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DG-40015 | 003 | 01 |

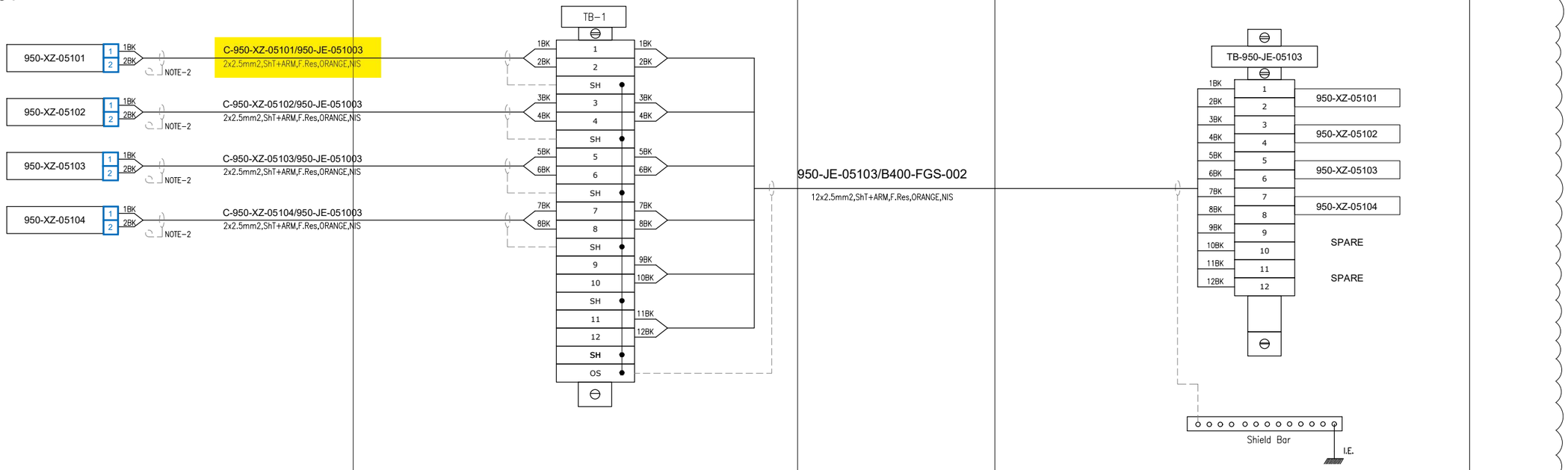
File Name : 123A90-DDL-IN-DG-40015_Rev.01

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05103 | No. | MARSHALLING CABINET B400-FGS-002 |

<01>




**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_O | 08/01/25 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05103

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

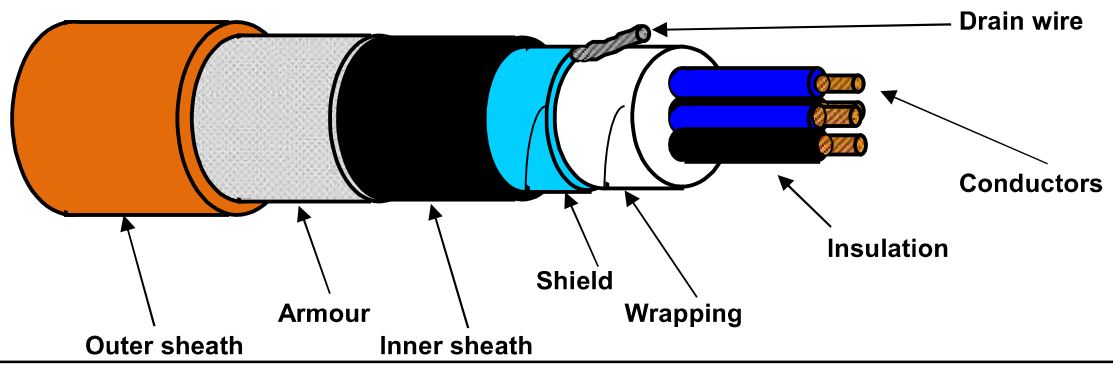
| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 070 | REV. 01 |
|---|---|---|---|

File Name : 123A90-DDL-IN-DG-40016_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-XZ-05101/950-JE-05103 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-XZ-05101 | Sounder | Lower Deck | 950-JE-05103 | DO JB to FGS | Lower Deck | SMICV12-2X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 2x2,5mm² - Orange | T2_M20_Double | | | T2_M20_Dou ble | | | | L-SEC-35 / L-SEC-34 / L-SEC-33 / L-SEC-32 / L-SEC-31 / L-SEC-30 / L-SEC-29 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 2X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| Conductors : | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| Insulation : | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| Cores colour code : | **Black NUMBERED (from 1 to 2)** | |
| Pair Assembling : | Not required | |
| Pair Wrapping: | Not required | |
| Drain wire : | Not required | |
| Pair Shield : | Not required | |
| Shield Insulation : | Not required | |
| Total Assembling : | 8/1mt | |
| Overall Wrapping: | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| Drain wire : | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| Overall Shield : | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| Inner sheath : | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| Inner sheath color code: | **Black** | |
| Armour : | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| Outer sheath : | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| Outer sheath color code: | **Orange** | |
| Outer printing (INKJET) : | **FLEI - 2X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| (every 1000 mm) | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| Under armour diameter : | (10,3 ± 10%) mm | |
| Over armour diameter : | (11,5 ± 10%) mm | |
| Outer diameter : | (14,1 ± 10%) mm | |
| Bending radius : | cable outer diameter x 10 (in fixed installation) | |
| Voltage Test : | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| Conductors DC Resistance : | ≤ 7,86 Ω/km (@ 20°C) | |
| Insulation Resistance : | ≥ 1000 MΩ x Km (@ 20°C) | |
| Applicable Standards | | |
| Design Guidelines : | **IEC 60092.376** | |
| ON COMPLETE CABLE | | |
| Fire Resistant test : | **IEC 60331.21** | |
| Flame Retardant test : | IEC 60332.1.2 - IEC 60332.3.22 | |
| Acid Gas generation : | IEC 60754.1/2 | |
| Smoke density/Light Transmittance : | IEC 61034.2 (LT ≥ 60%) | |
| Hazardous Areas : | IEC 60079.14 par.9.3.2a | |
| Temperature Range : | | |
| ON INSULATION | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| ON COMPLETE CABLE | | |
| During Operation : | (-20°C up to +90°C) (in fixed installation) | |
| During installation : | (- 5°C up to +50°C) | |
| Note : | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| Drawn by : | 04/04/2024 | Messa | | | |
| Checked : | 04/04/2024 | Spaccasassi | | | |
| Approved : | 04/04/2024 | Cucinotta | | | |

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ROSETTI MARINO — CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-XZ-05102/950-JE-05103 : SOUNDER / MARSHALLING PCS | | | Dwg | 123A90-DDL-IN-LIS-40091 | |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | Module | LD | |
| **TASK** | code | C10000340 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | MC | Activity | CCK | Discipline | Instrumental | Form | CJX10 | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 2X2,5 mm2 | Color | ORANGE |
| From | 950-XZ-05102 | To | 950-JE-05103 | | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | OK |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | | |
|---|---|---|---|---|
| INSULATION | CORE to EARTH | | >999 | MΩ |
| | CORE to CORE | | >999 | MΩ |
| | CORE to SCREEN | | >999 | MΩ |
| | CORE to ARMr | | >999 | MΩ |
| | SCREEN to EARTH | | >999 | MΩ |
| | SCREEN to ARMr | | >999 | MΩ |
| CONTINUITY | CORES | | 0,2 | Ω |
| | SCREEN | | 0,2 | Ω |
| | EARTH | | NA | Ω |
| | ARMr | | 0,2 | Ω |
| | TEST VOLTS | | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

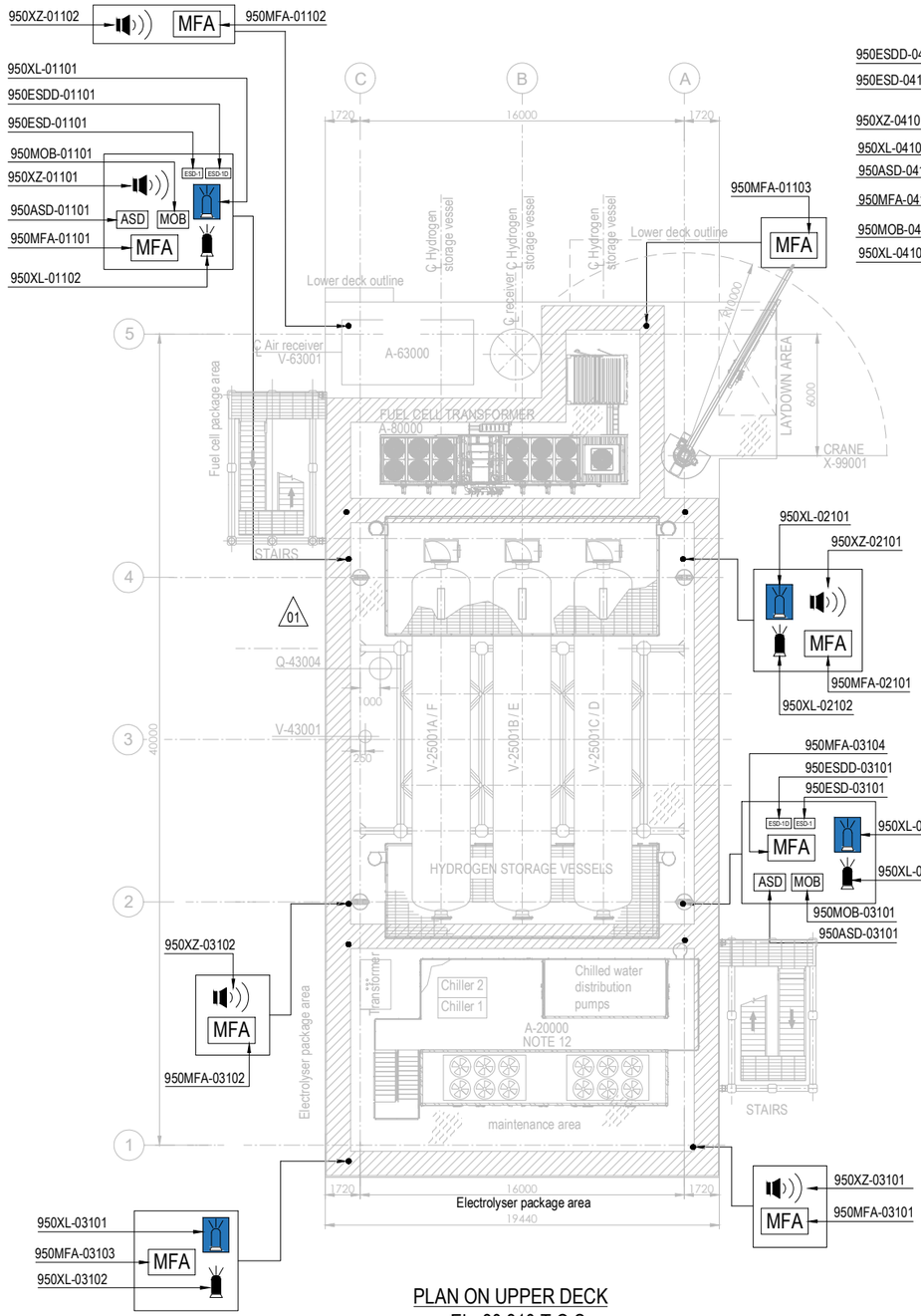
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

| **Page 1/1** | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Michele Tartaglia | Alessio Polo | |
| **Date** | 2025-01-13 | 2025-01-13 | |
| **Signature** | PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-13T08:58:25.890Z | PROVERLIS Digitaly signed by Alessio Polo 2025-01-13T16:36:29.113Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



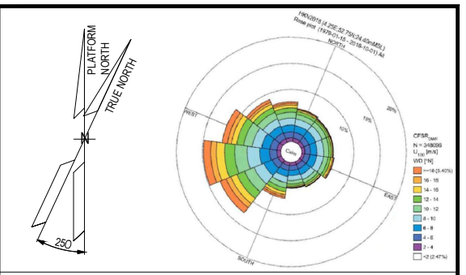

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION
1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

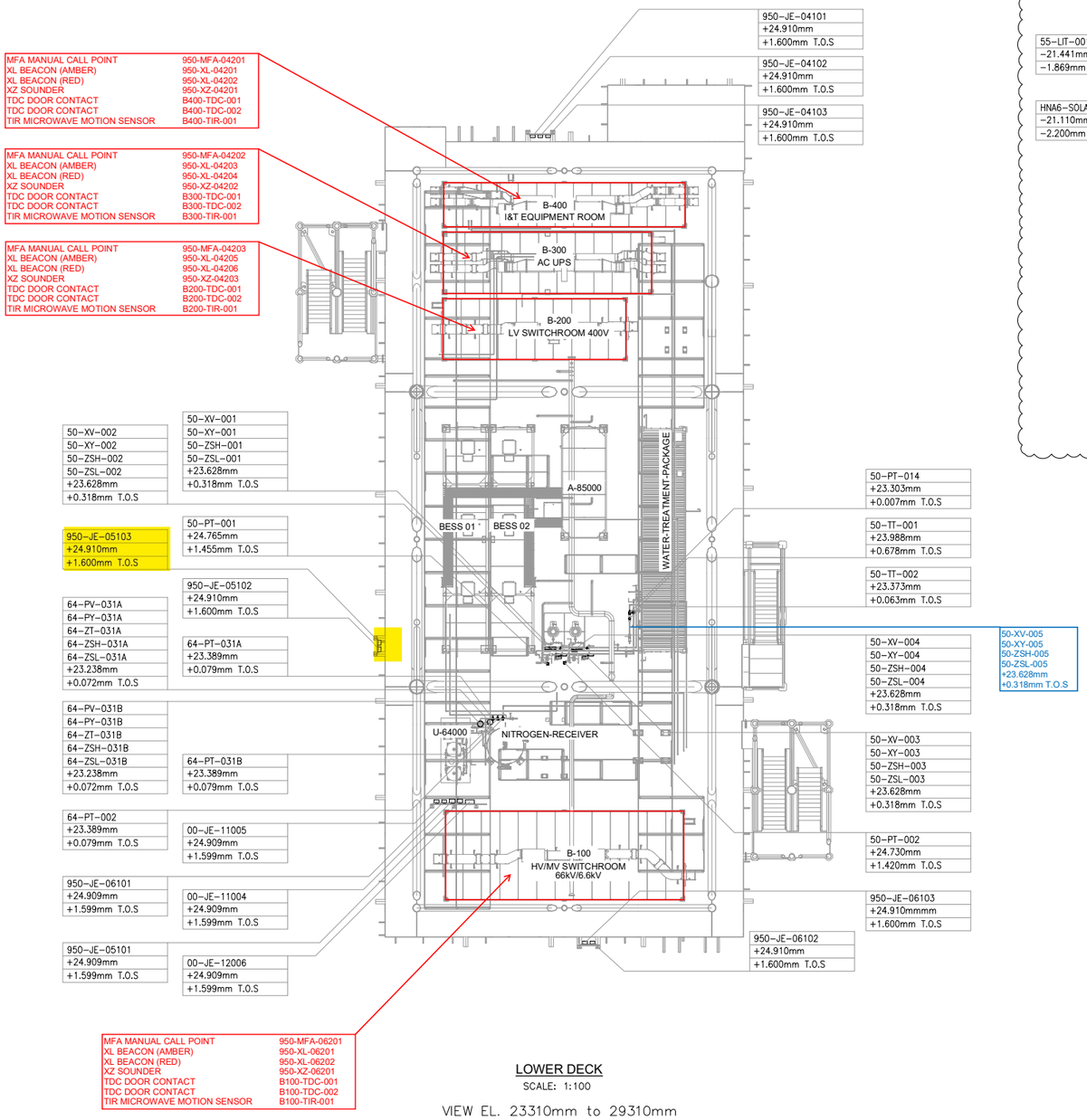
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

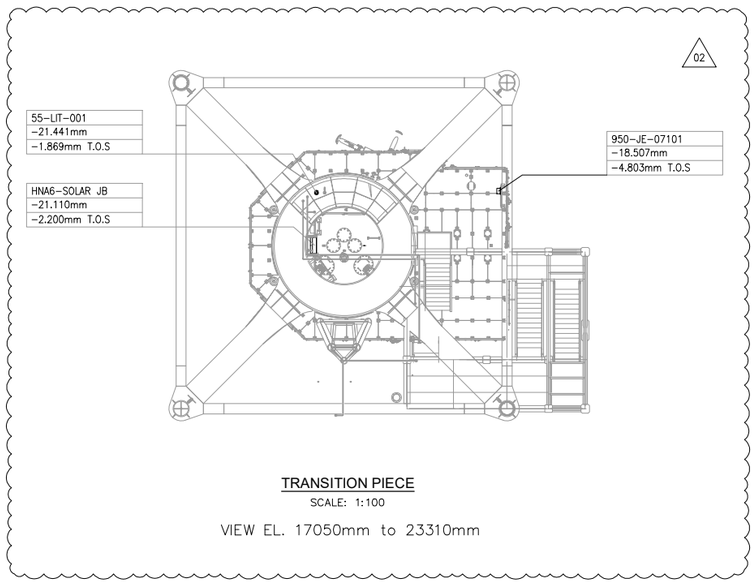
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

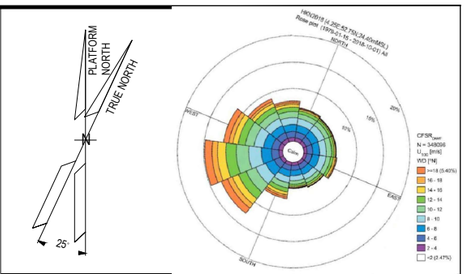
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

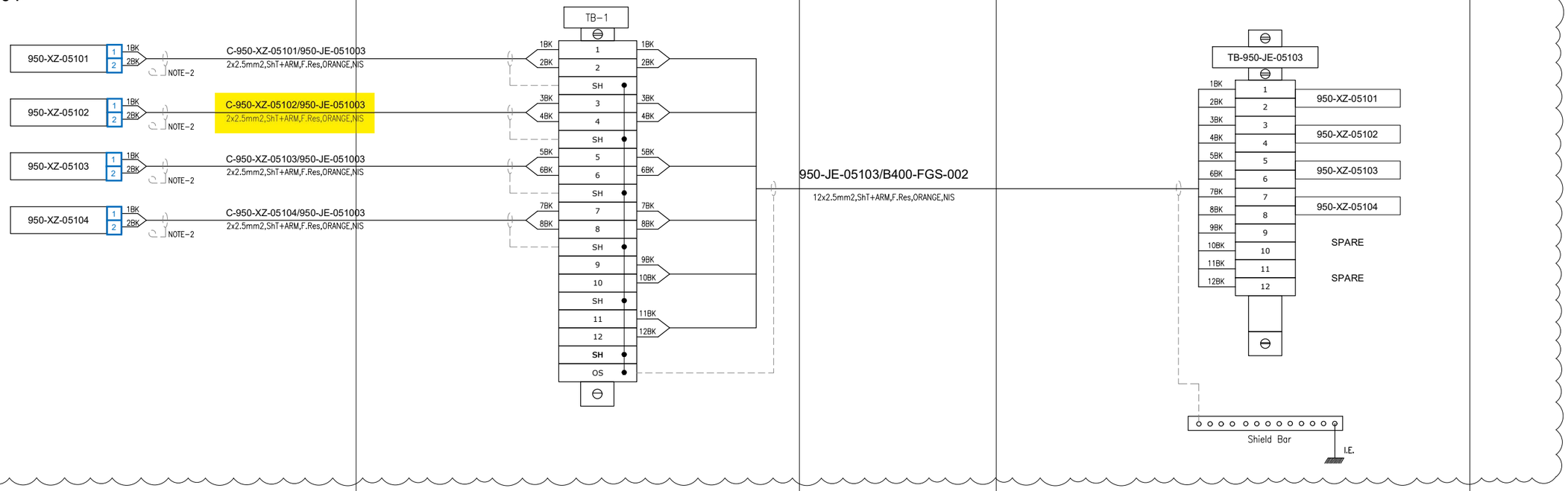
File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05103 | No. | MARSHALLING CABINET B400-FGS-002 |

<01>




**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_O | 08/01/25 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05103

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 070 | REV. 01 |
|---|---|---|---|

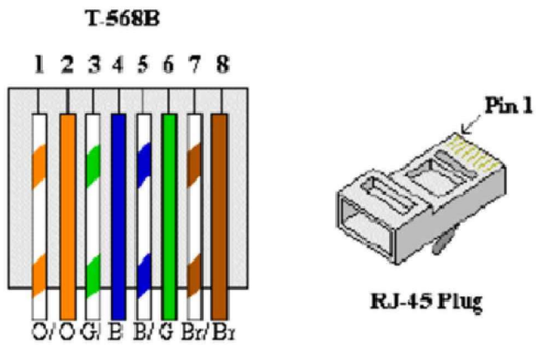
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



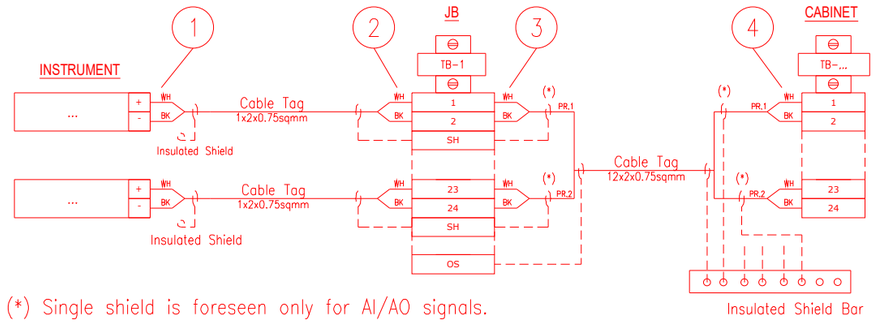

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

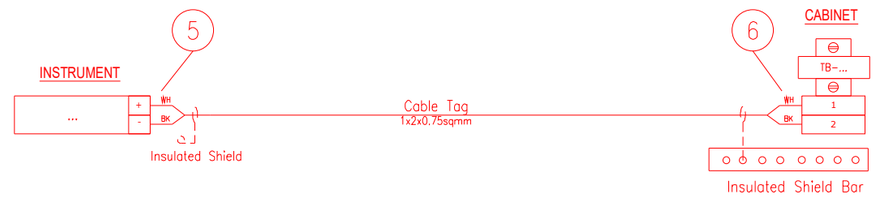
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

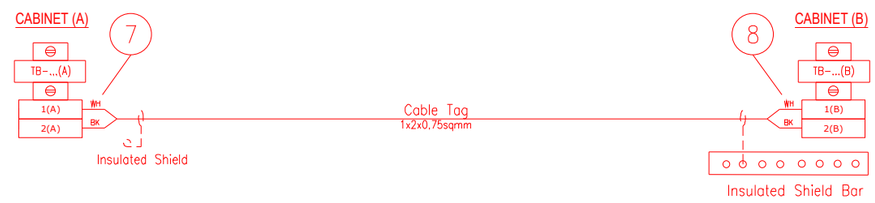
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_O | 08/01/25 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

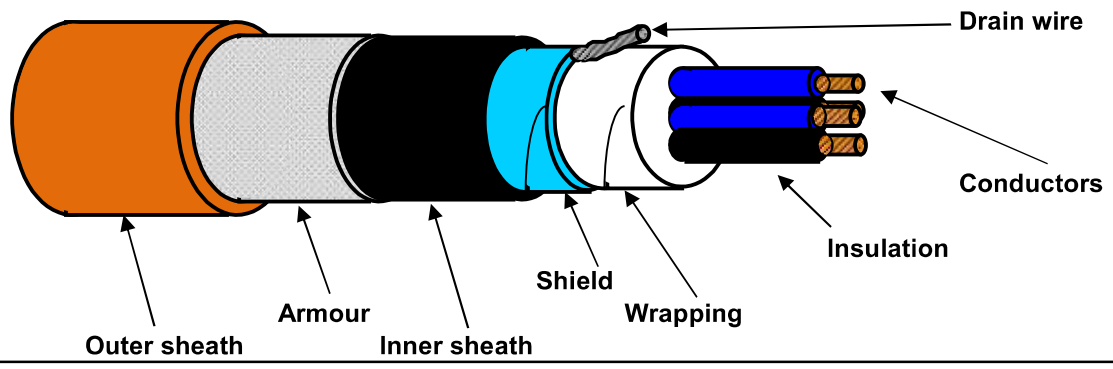
| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DG-40015 | 003 | 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-XZ-05102/950-JE-05103 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-XZ-05102 | Sounder | Lower Deck | 950-JE-05103 | DO JB to FGS | Lower Deck | SMICV12-2X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 2x2,5mm² - Orange | T2_M20_Double | | | T2_M20_Dou ble | | | | L-SEC-29 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 2X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| Conductors : | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| Insulation : | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| Cores colour code : | **Black NUMBERED (from 1 to 2)** | |
| Pair Assembling : | Not required | |
| Pair Wrapping: | Not required | |
| Drain wire : | Not required | |
| Pair Shield : | Not required | |
| Shield Insulation : | Not required | |
| Total Assembling : | 8/1mt | |
| Overall Wrapping: | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| Drain wire : | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| Overall Shield : | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| Inner sheath : | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| Inner sheath color code: | **Black** | |
| Armour : | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| Outer sheath : | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| Outer sheath color code: | **Orange** | |
| Outer printing (INKJET) : | **FLEI - 2X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| (every 1000 mm) | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| Under armour diameter : | (10,3 ± 10%) mm | |
| Over armour diameter : | (11,5 ± 10%) mm | |
| Outer diameter : | (14,1 ± 10%) mm | |
| Bending radius : | cable outer diameter x 10 (in fixed installation) | |
| Voltage Test : | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| Conductors DC Resistance : | ≤ 7,86 Ω/km (@ 20°C) | |
| Insulation Resistance : | ≥ 1000 MΩ x Km (@ 20°C) | |
| Applicable Standards | | |
| Design Guidelines : | **IEC 60092.376** | |
| ON COMPLETE CABLE | | |
| Fire Resistant test : | **IEC 60331.21** | |
| Flame Retardant test : | IEC 60332.1.2 - IEC 60332.3.22 | |
| Acid Gas generation : | IEC 60754.1/2 | |
| Smoke density/Light Transmittance : | IEC 61034.2 (LT ≥ 60%) | |
| Hazardous Areas : | IEC 60079.14 par.9.3.2a | |
| Temperature Range : | | |
| ON INSULATION | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| ON COMPLETE CABLE | | |
| During Operation : | (-20°C up to +90°C) (in fixed installation) | |
| During installation : | (- 5°C up to +50°C) | |
| Note : | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| Drawn by : | 04/04/2024 | Messa | | | |
| Checked : | 04/04/2024 | Spaccasassi | | | |
| Approved : | 04/04/2024 | Cucinotta | | | |

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-XZ-05103/950-JE-05103 : SOUNDER / MARSHALLING PCS | | | | Dwg | 123A90-DDL-IN-LIS-40091 |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | | Module | LD |
| **TASK** | code | C10000341 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental | Form | CJX10 Multi/Single-Core Instrument Control Cable |

## CABLE DATA

Type: Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm²: 2X2,5 mm2 | Color: ORANGE

From: 950-XZ-05103 | To: 950-JE-05103

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | OK |
| 9 | Check cable labelling is in accordance with specification. | OK |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | OK |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | |
|---|---|---|---|
| INSULATION | CORE to EARTH | >999 | MΩ |
| | CORE to CORE | >999 | MΩ |
| | CORE to SCREEN | >999 | MΩ |
| | CORE to ARMr | >999 | MΩ |
| | SCREEN to EARTH | >999 | MΩ |
| | SCREEN to ARMr | >999 | MΩ |
| CONTINUITY | CORES | 0,1 | Ω |
| | SCREEN | 0,1 | Ω |
| | EARTH | NA | Ω |
| | ARMr | 0,1 | Ω |
| | TEST VOLTS | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

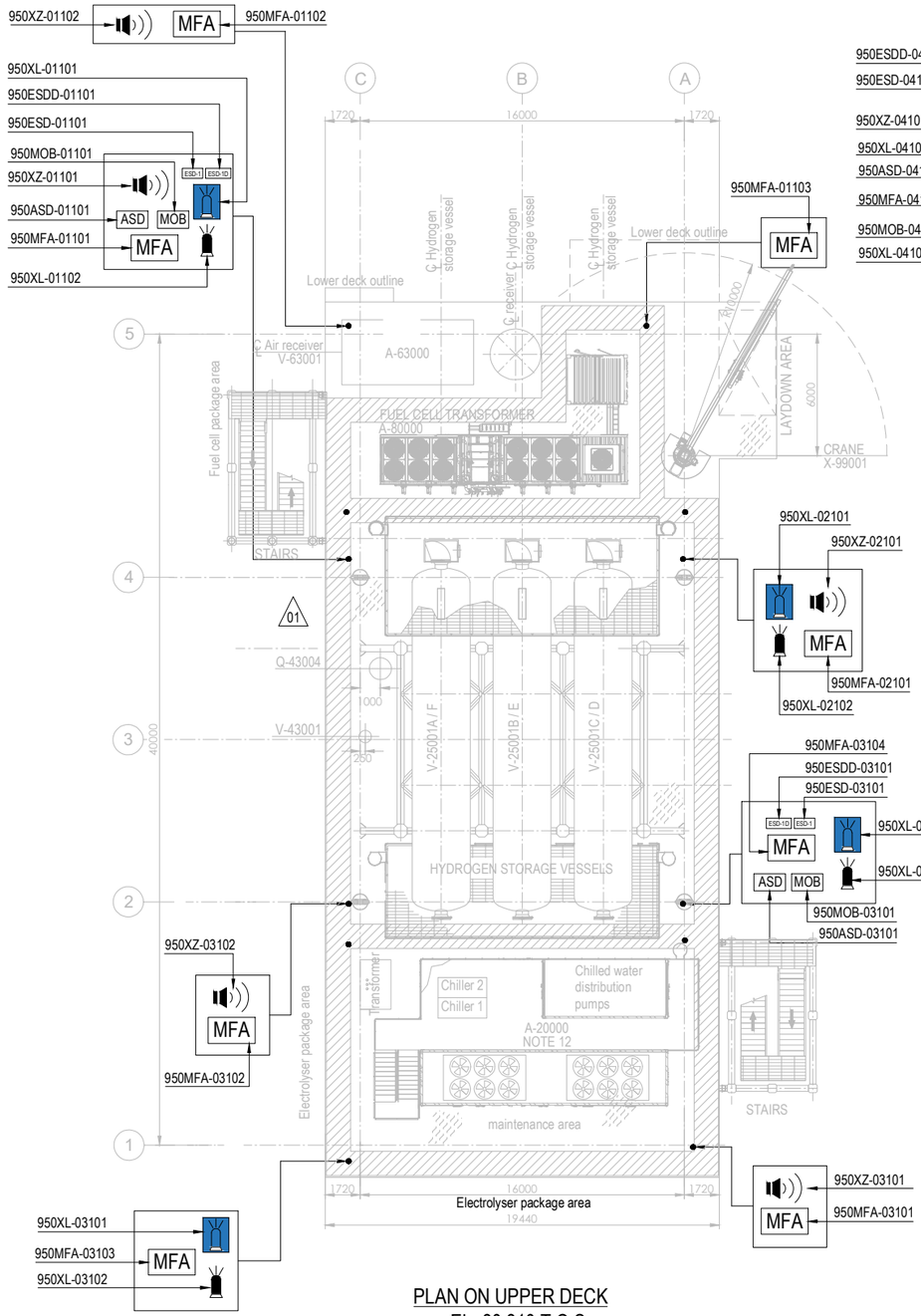
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 | Calibration date: N°7722/24 10/07/2024

Comments: Nota 5: refer to PL C30000680

| Page 1/1 | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Francesco Zucca | Giovanni Tangianu | |
| Date | 2024-12-07 | 2024-12-12 | |
| Signature | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:51:45.383Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-12T13:31:38.457Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



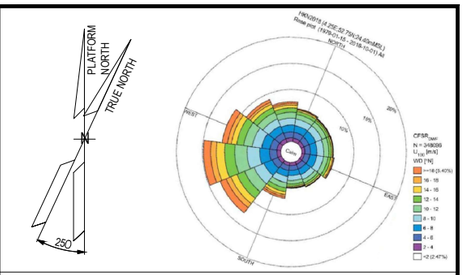

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

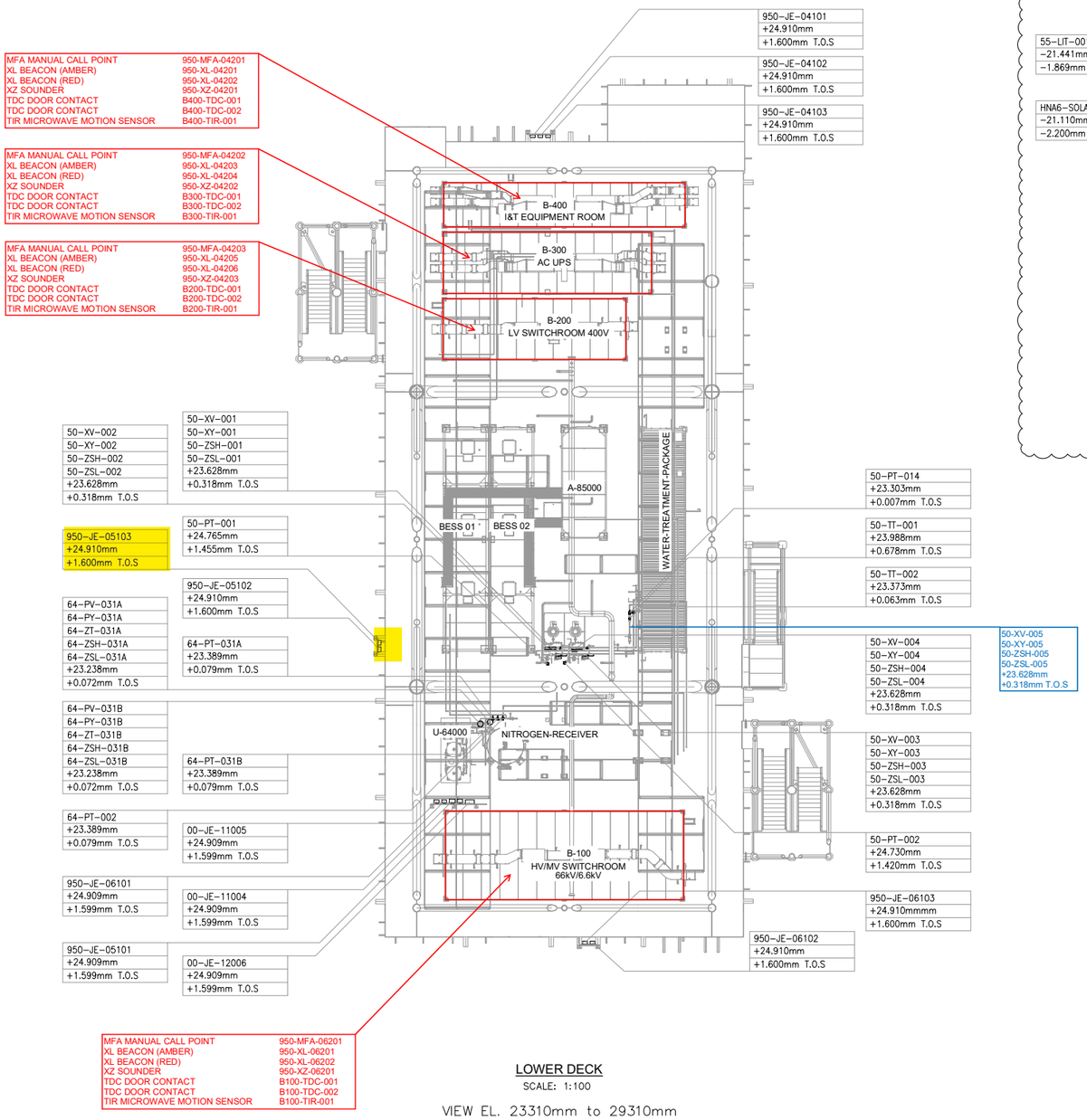
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

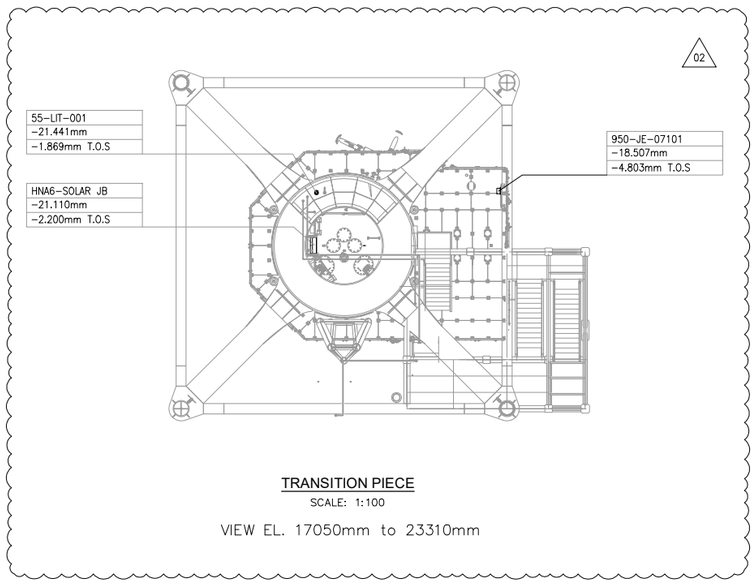
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

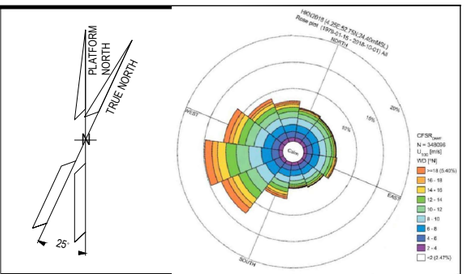
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05103 | No. | MARSHALLING CABINET B400-FGS-002 |

<01>

950-XZ-05101 — 1BK / 2BK — NOTE-2 — C-950-XZ-05101/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-05102 — 1BK / 2BK — NOTE-2 — C-950-XZ-05102/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-05103 — 1BK / 2BK — NOTE-2 — C-950-XZ-05103/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-05104 — 1BK / 2BK — NOTE-2 — C-950-XZ-05104/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

| | | |
|---|---|---|
| 1BK | 1 | 1BK |
| 2BK | 2 | 2BK |
| | SH | |
| 3BK | 3 | 3BK |
| 4BK | 4 | 4BK |
| | SH | |
| 5BK | 5 | 5BK |
| 6BK | 6 | 6BK |
| | SH | |
| 7BK | 7 | 7BK |
| 8BK | 8 | 8BK |
| | SH | |
| | 9 | 9BK |
| | 10 | 10BK |
| | SH | |
| | 11 | 11BK |
| | 12 | 12BK |
| | SH | |
| | OS | |

950-JE-05103/B400-FGS-002

12x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05103

| | | |
|---|---|---|
| 1BK | 1 | 950-XZ-05101 |
| 2BK | 2 | |
| 3BK | 3 | 950-XZ-05102 |
| 4BK | 4 | |
| 5BK | 5 | 950-XZ-05103 |
| 6BK | 6 | |
| 7BK | 7 | 950-XZ-05104 |
| 8BK | 8 | |
| 9BK | 9 | SPARE |
| 10BK | 10 | |
| 11BK | 11 | SPARE |
| 12BK | 12 | |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–05103

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 070 | REV. 01 |
|---|---|---|---|

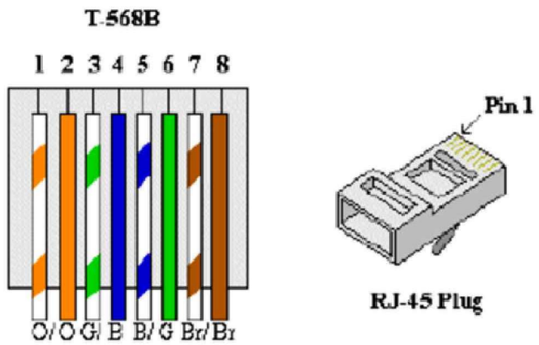
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



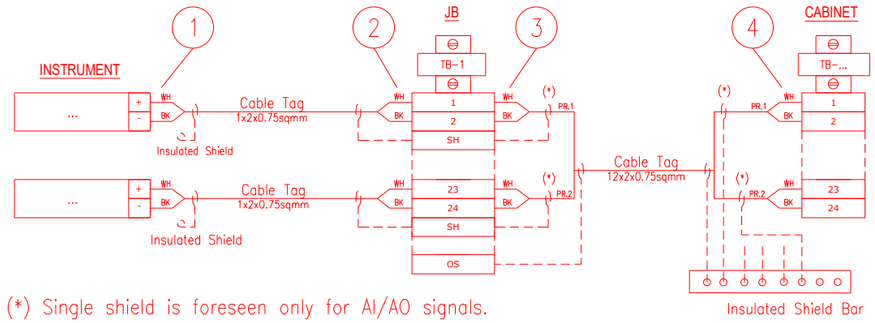

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

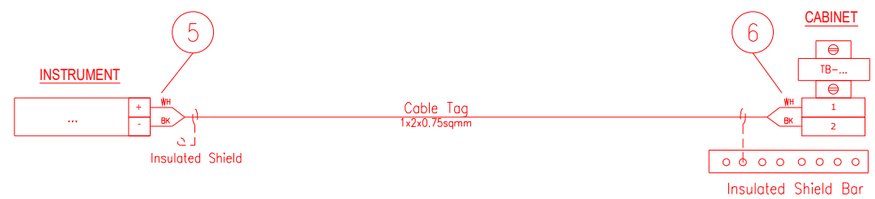
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

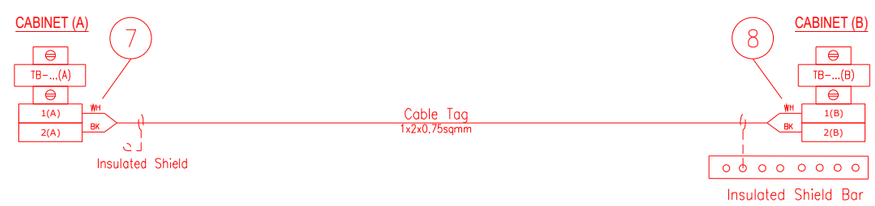
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

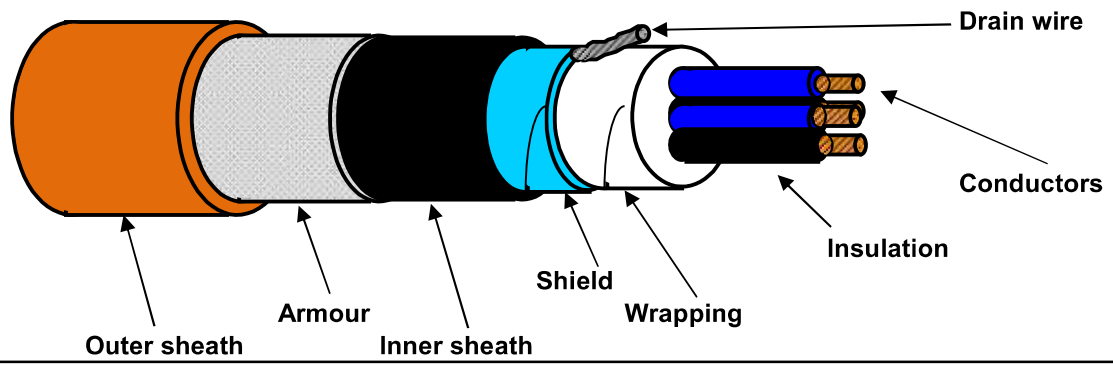
| | | | |
|---|---|---|---|
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40015 | SHEET 003 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-XZ-05103/950-JE-05103 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-XZ-05103 | Sounder | Lower Deck | 950-JE-05103 | DO JB to FGS | Lower Deck | SMICV12-2X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 2x2,5mm² - Orange | T2_M20_Double | | | T2_M20_Double | | | | L-SEC-28 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 2X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| Conductors : | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| Insulation : | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| Cores colour code : | **Black NUMBERED (from 1 to 2)** | |
| Pair Assembling : | Not required | |
| Pair Wrapping: | Not required | |
| Drain wire : | Not required | |
| Pair Shield : | Not required | |
| Shield Insulation : | Not required | |
| Total Assembling : | 8/1mt | |
| Overall Wrapping: | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| Drain wire : | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| Overall Shield : | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| Inner sheath : | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| Inner sheath color code: | **Black** | |
| Armour : | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| Outer sheath : | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| Outer sheath color code: | **Orange** | |
| Outer printing (INKJET) : | **FLEI - 2X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| (every 1000 mm) | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| Under armour diameter : | (10,3 ± 10%) mm | |
| Over armour diameter : | (11,5 ± 10%) mm | |
| Outer diameter : | (14,1 ± 10%) mm | |
| Bending radius : | cable outer diameter x 10 (in fixed installation) | |
| Voltage Test : | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| Conductors DC Resistance : | ≤ 7,86 Ω/km (@ 20°C) | |
| Insulation Resistance : | ≥ 1000 MΩ x Km (@ 20°C) | |
| Applicable Standards | | |
| Design Guidelines : | **IEC 60092.376** | |
| ON COMPLETE CABLE | | |
| Fire Resistant test : | **IEC 60331.21** | |
| Flame Retardant test : | IEC 60332.1.2 - IEC 60332.3.22 | |
| Acid Gas generation : | IEC 60754.1/2 | |
| Smoke density/Light Transmittance : | IEC 61034.2 (LT ≥ 60%) | |
| Hazardous Areas : | IEC 60079.14 par.9.3.2a | |
| Temperature Range : | | |
| ON INSULATION | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| ON COMPLETE CABLE | | |
| During Operation : | (-20°C up to +90°C) (in fixed installation) | |
| During installation : | (- 5°C up to +50°C) | |
| Note : | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| Drawn by : | 04/04/2024 | Messa | | | |
| Checked : | 04/04/2024 | Spaccasassi | | | |
| Approved : | 04/04/2024 | Cucinotta | | | |

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ROSETTI MARINO — CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-XZ-05104/950-JE-05103 : SOUNDER / MARSHALLING PCS | | | Dwg | 123A90-DDL-IN-LIS-40091 | |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | Module | LD | |
| **TASK** | code | C10000342 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | MC | Activity | CCK | Discipline | Instrumental | Form | CJX10 | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 2X2,5 mm2 | Color | ORANGE |
| From | 950-XZ-05104 | To | 950-JE-05103 | | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | PL |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | OK |
| 9 | Check cable labelling is in accordance with specification. | OK |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | OK |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | |
|---|---|---|---|
| INSULATION | CORE to EARTH | >999 | MΩ |
| | CORE to CORE | >999 | MΩ |
| | CORE to SCREEN | >999 | MΩ |
| | CORE to ARMr | >999 | MΩ |
| | SCREEN to EARTH | >999 | MΩ |
| | SCREEN to ARMr | >999 | MΩ |
| CONTINUITY | CORES | 0,75 | Ω |
| | SCREEN | 0,75 | Ω |
| | EARTH | NA | Ω |
| | ARMr | 0,75 | Ω |
| | TEST VOLTS | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

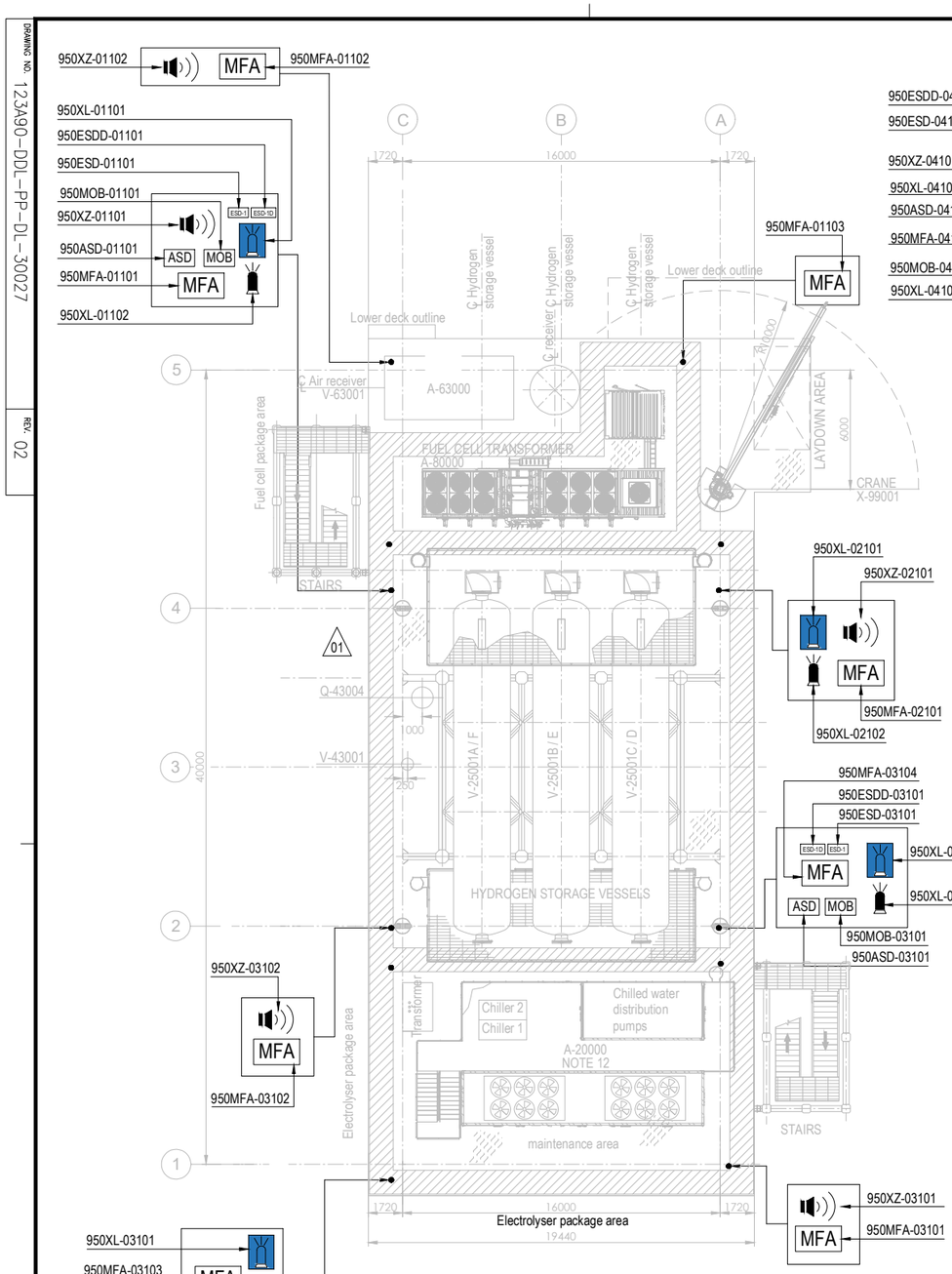
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

| Page 1/1 | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Francesco Zucca | Giovanni Tangianu | |
| Date | 2024-12-07 | 2024-12-12 | |
| Signature | Digitaly signed by Francesco Zucca 2024-12-07T07:51:57.979Z | Digitaly signed by Giovanni Tangianu 2024-12-12T13:40:22.922Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



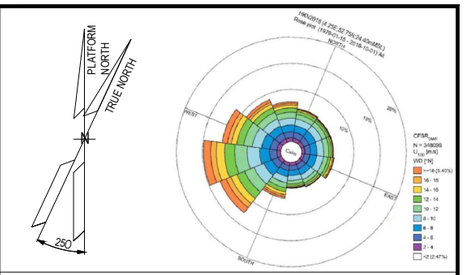

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION
1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

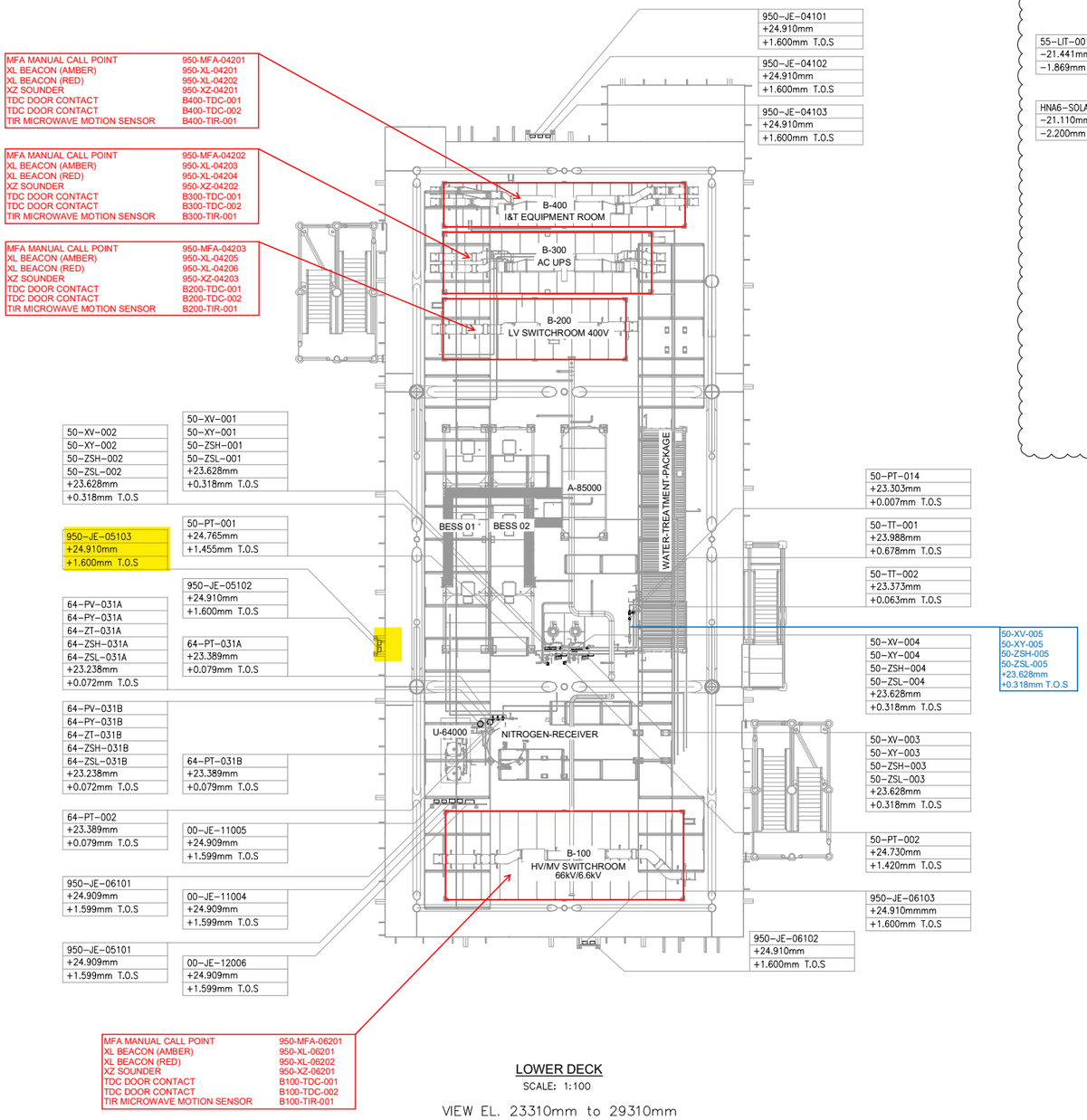
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

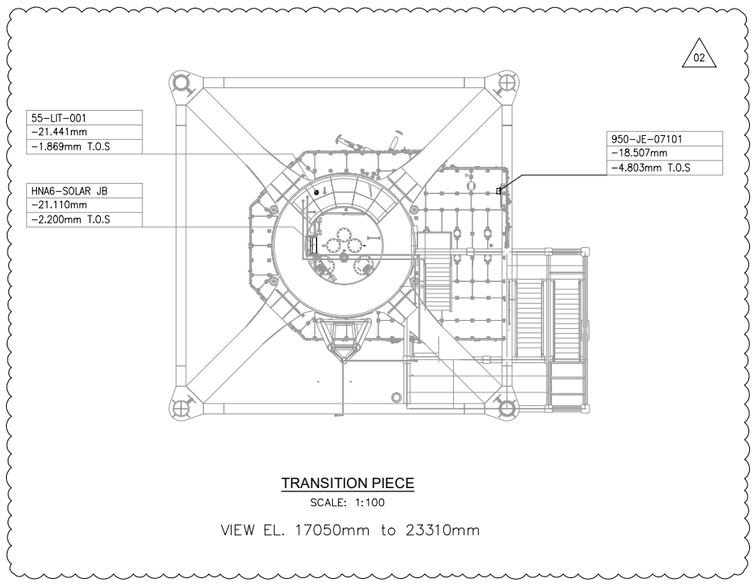
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

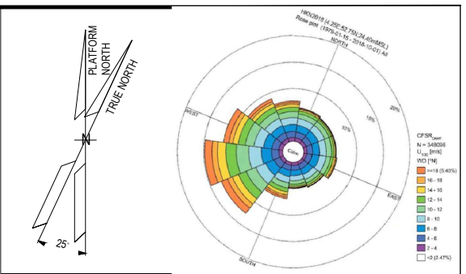
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

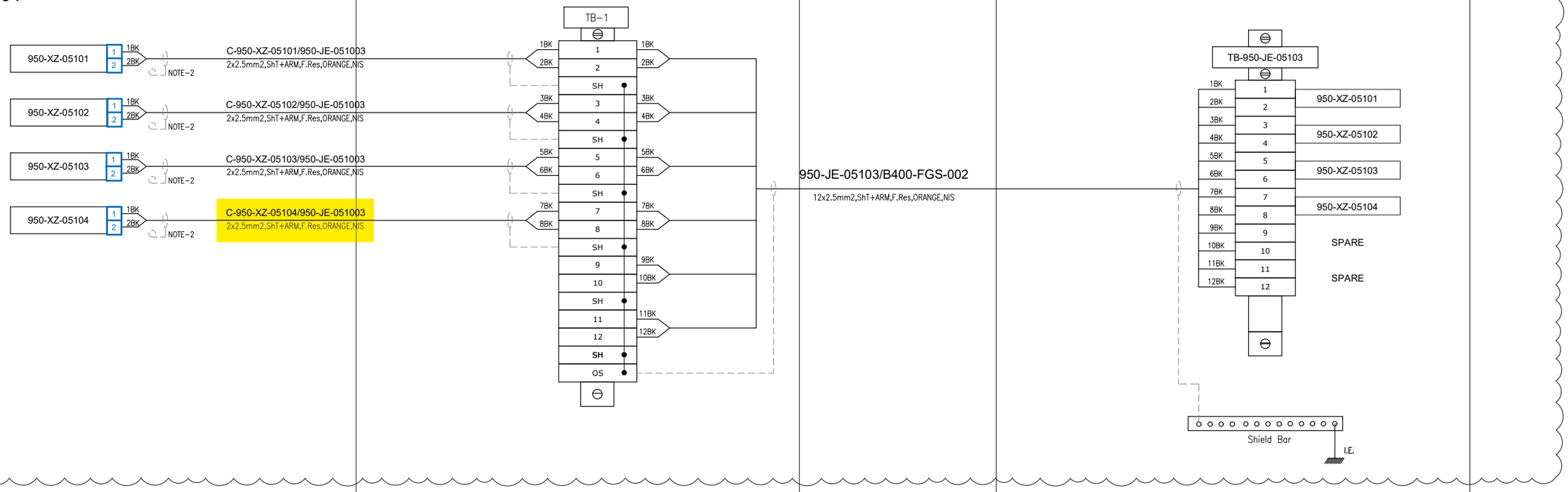
File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05103 | No. | MARSHALLING CABINET B400-FGS-002 |

<01>




**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05103

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90–DDL–IN–DG–40016 | 070 | 01 |

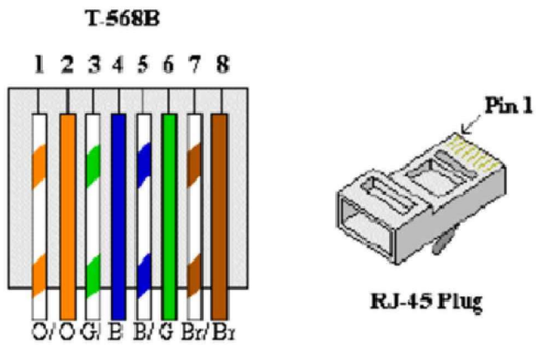
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



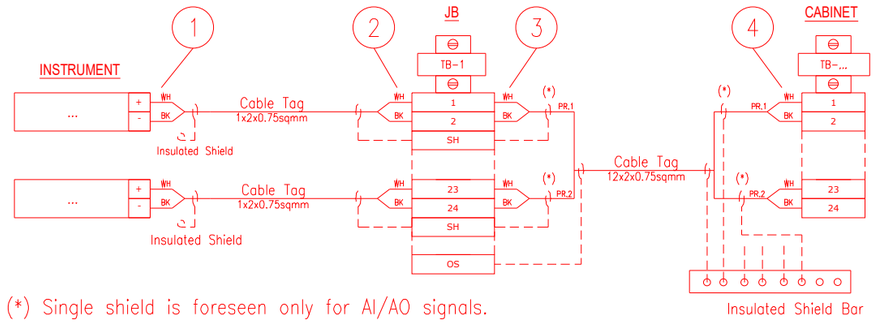

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

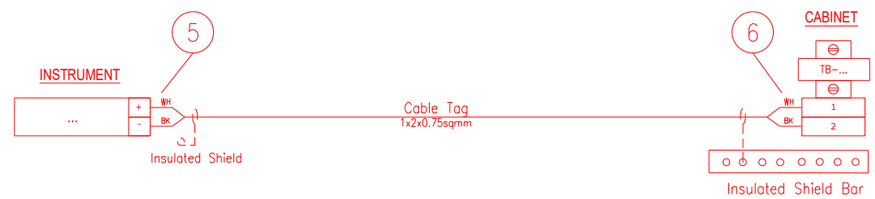
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

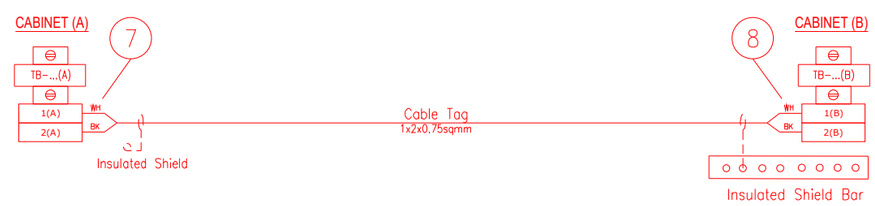
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

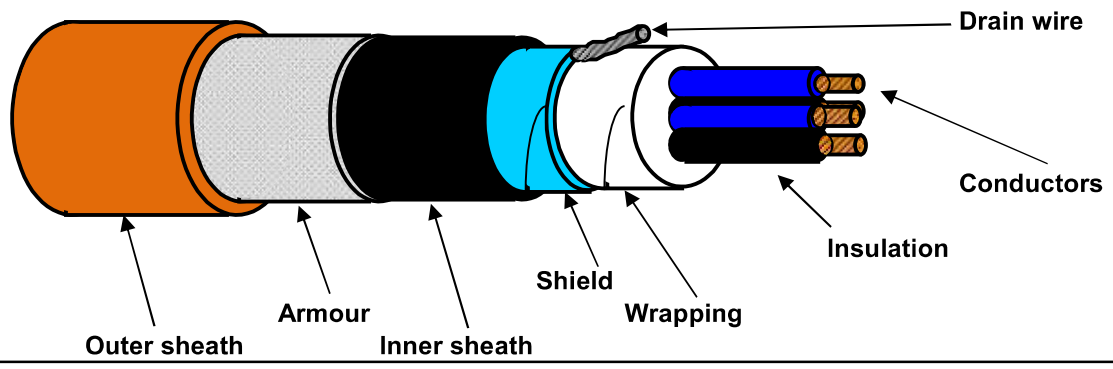
| | | | |
|---|---|---|---|
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40015 | SHEET 003 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-XZ-05104/950-JE-05103 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-XZ-05104 | Sounder | Lower Deck | 950-JE-05103 | DO JB to FGS | Lower Deck | SMICV12-2X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 2x2,5mm² - Orange | T2_M20_Double | | | T2_M20_Dou ble | | | | L-SEC-23 / L-SEC-24 / L-SEC-25 / L-SEC-26 / L-SEC-27 / L-SEC-28 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 2X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| Conductors : | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| Insulation : | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| Cores colour code : | **Black NUMBERED (from 1 to 2)** | |
| Pair Assembling : | Not required | |
| Pair Wrapping: | Not required | |
| Drain wire : | Not required | |
| Pair Shield : | Not required | |
| Shield Insulation : | Not required | |
| Total Assembling : | 8/1mt | |
| Overall Wrapping: | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| Drain wire : | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| Overall Shield : | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| Inner sheath : | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| Inner sheath color code: | **Black** | |
| Armour : | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| Outer sheath : | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| Outer sheath color code: | **Orange** | |
| Outer printing (INKJET) : | **FLEI - 2X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| (every 1000 mm) | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| Under armour diameter : | (10,3 ± 10%) mm | |
| Over armour diameter : | (11,5 ± 10%) mm | |
| Outer diameter : | (14,1 ± 10%) mm | |
| Bending radius : | cable outer diameter x 10 (in fixed installation) | |
| Voltage Test : | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| Conductors DC Resistance : | ≤ 7,86 Ω/km (@ 20°C) | |
| Insulation Resistance : | ≥ 1000 MΩ x Km (@ 20°C) | |
| Applicable Standards | | |
| Design Guidelines : | **IEC 60092.376** | |
| ON COMPLETE CABLE | | |
| Fire Resistant test : | **IEC 60331.21** | |
| Flame Retardant test : | IEC 60332.1.2 - IEC 60332.3.22 | |
| Acid Gas generation : | IEC 60754.1/2 | |
| Smoke density/Light Transmittance : | IEC 61034.2 (LT ≥ 60%) | |
| Hazardous Areas : | IEC 60079.14 par.9.3.2a | |
| Temperature Range : | | |
| ON INSULATION | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| ON COMPLETE CABLE | | |
| During Operation : | (-20°C up to +90°C) (in fixed installation) | |
| During installation : | (- 5°C up to +50°C) | |
| Note : | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| Drawn by : | 04/04/2024 | Messa | | | |
| Checked : | 04/04/2024 | Spaccasassi | | | |
| Approved : | 04/04/2024 | Cucinotta | | | |

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ROSETTI MARINO — CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-MFA-05201/B400-FGS-003 : MANUAL FIRE ALARM / MARSHALLING PCS | | | Dwg | 123A90-DDL-IN-LIS-40091 | |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | Module | LD_B-400 | |
| **TASK** | code | C10000401 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | MC | Activity | CCK | Discipline | Instrumental | Form | CJX10 | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 1X2X0,75 mm2 | Color | ORANGE |
| From | 950-MFA-05201 | To | B400-FGS-003 | | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | PL |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | PL |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | | |
|---|---|---|---|---|
| INSULATION | CORE to EARTH | | >999 | MΩ |
| | CORE to CORE | | >999 | MΩ |
| | CORE to SCREEN | | >999 | MΩ |
| | CORE to ARMr | | >999 | MΩ |
| | SCREEN to EARTH | | >999 | MΩ |
| | SCREEN to ARMr | | >999 | MΩ |
| CONTINUITY | CORES | | 1,6 | Ω |
| | SCREEN | | 1,6 | Ω |
| | EARTH | | NA | Ω |
| | ARMr | | 1,6 | Ω |
| | TEST VOLTS | | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

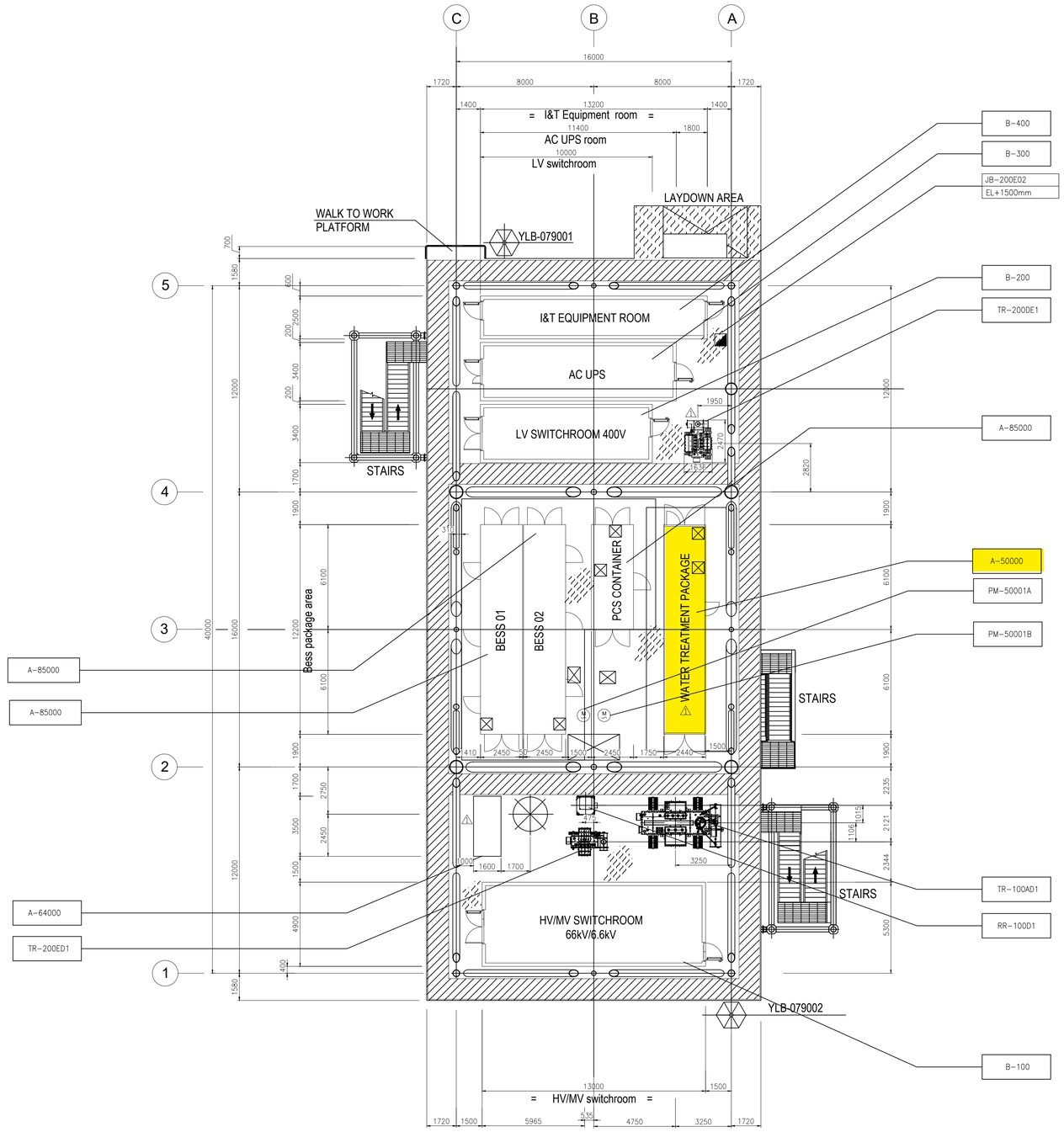
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

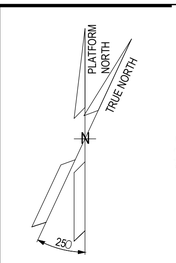
| **Page 1/1** | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-11-25 | 2024-11-28 | |
| **Signature** | Digitaly signed by Francesco Zucca 2024-11-25T16:32:21.315Z | Digitaly signed by Giovanni Tangianu 2024-11-28T12:59:57.470Z | |

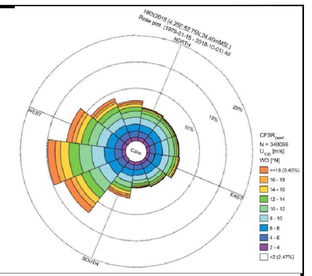
DRAWING NO. 123A90-DDL-EL-DL-20101

REV. 01




PLAN ON LOWER DECK
EL+23.310 T.O.S.




## NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S.
4. FOR ELECTRICAL EQUIPMENT LAYOUT OF CONTAINERS B-100, B-200, B-300, B-400 REFER TO THE RESPECTIVE LAYOUTS.

## LEGEND

| | |
|---|---|
| (M) | ELECTRIC MOTOR – LOW VOLTAGE |
| ⊠ | INTERFACE PANEL |
| ◪ | JUNCTION BOX |
| JB-200E2 / EL+500mm | TAG ITEM / REFERED ELEVATION TO T.O.S. (TOP OF STEEL) |

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-EL-DL-20106 | ELECTRICAL EQUIPMENT LAYOUT UPSs & BATTERIES SWITCHROOM |
| 123A90-DDL-IN-DL-40012 | ITER EQUIPMENT LAYOUT |
| 123A90-DDL-EL-DL-20104 | ELECTRICAL EQUIPMENT LAYOUT HV & MV SWITCHROOM |
| 123A90-DDL-EL-DL-20105 | LV SWITCHGEAR ROOM EQUIPMENT LAYOUT |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-EL-DL-20101**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_A | 08/08/24 | G.Randi |

**ROSETTI MARINO SpA**

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 06/05/24 | SAM | FMA/AMA | FPA/DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 04/03/24 | SAM | FMA/AMA | FPA/DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

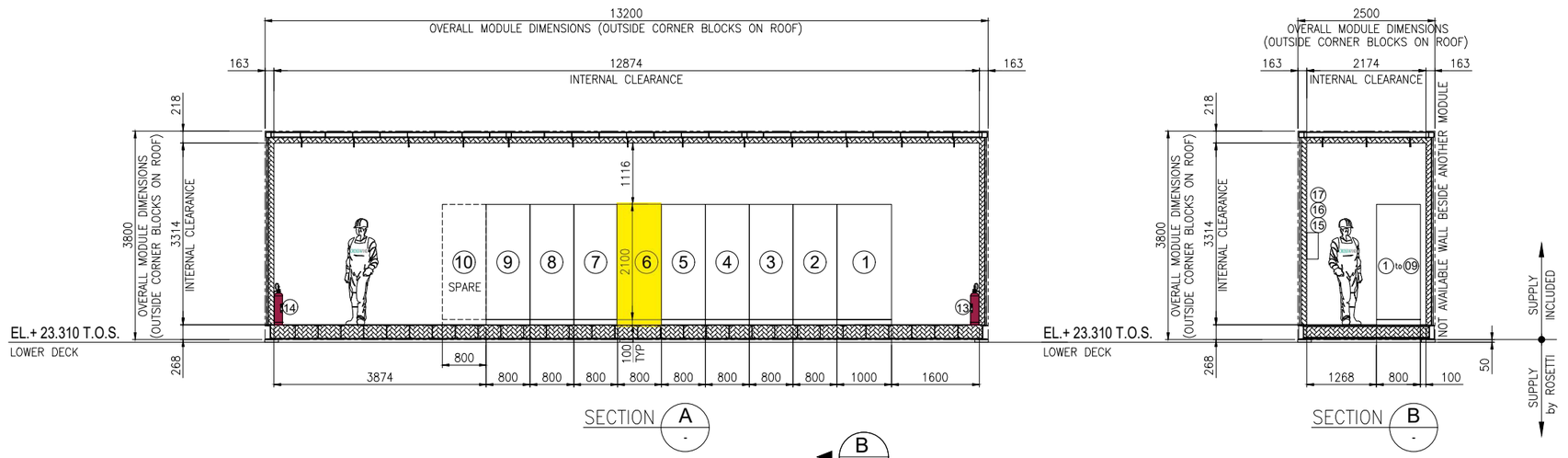
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LOWER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN SAM | CHECKED FMA/AMA | APPROVED FPA/DLO | DATE 04/03/24 |
| A1 | DRAWING NO. 123A90-DDL-EL-DL-20101 | SHEET 001 | REV. 01 |

File Name : 123A90-DDL-EL-DL-20101-Electrical Equipment Layout – Lower Deck

DRAWING NO. 123A90-DDL-IN-DL-40012

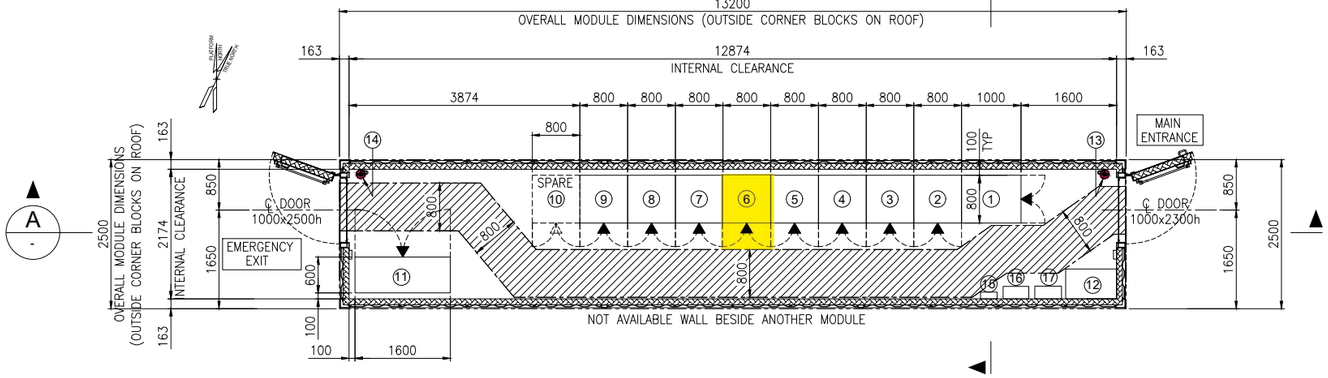
REV. 03




SECTION A -



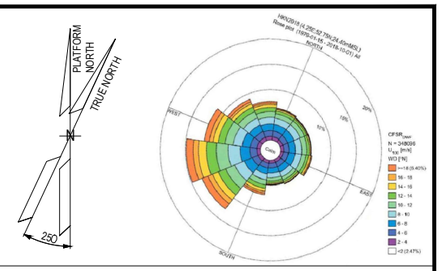

SECTION B -




EQUIPMENT LAYOUT
"B-400" I&T EQUIPMENT ROOM
BOTTOM PLAN

## EQUIPMENT LIST

| REF. | TAG No. | DESCRIPTION | LENGTH (mm) | WIDTH (mm) | HEIGHT (mm) | NOTE |
|---|---|---|---|---|---|---|
| 1 | B400-SRV-001 | SERVER CABINET | 1000 | 800 | 2100 | |
| 2 | B400-NET-001 | NETWORK CABINET | 800 | 800 | 2100 | |
| 3 | B400-EMCS-001 | EMCS SYSTEM CABINET | 800 | 800 | 2100 | |
| 4 | B400-PCS-002 | PCS MARSHALLING CABINET | 800 | 800 | 2100 | |
| 5 | B400-PCS-001 | PCS SYSTEM CABINET (03) | 800 | 800 | 2100 | |
| 6 | B400-FGS-003 | FGS MARSHALLING CABINET 2 | 800 | 800 | 2100 | |
| 7 | B400-FGS-002 | FGS MARSHALLING CABINET 1 | 800 | 800 | 2100 | |
| 8 | B400-FGS-001 | FGS SYSTEM CABINET | 800 | 800 | 2100 | |
| 9 | B400-SIS-001 | SIS SYSTEM/MARSHALLING CABINET | 800 | 800 | 2100 | |
| 10 | - | SPARE | | | | |
| 11 | B400-HSB-001 | DISTRIBUTION & HVAC PANEL - I&T ROOM | 1600 | 600 | 2300 | |
| 12 | - | TABLE | 850 | 500 | 750 | |
| 13 | - | PORTABLE EXTINGUISHER (CO2) 5 Kg. | 150 | 150 | 750 | |
| 14 | - | PORTABLE EXTINGUISHER (CO2) 5 Kg. | 150 | 150 | 750 | |
| 15 | - | FIRST AID KIT | 280 | 115 | 200 | |
| 16 | - | RESUSCITATION UNIT | 430 | 210 | 480 | |
| 17 | - | CABINET INCLUDED N.10 ESCAPE MASK | 448 | 213 | 422 | |




## NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DOCUMENT VALID ONLY FOR INSTRUMENT COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.

## LEGEND

U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR – WIDTH 800mm.
_____ EQUIPMENT ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

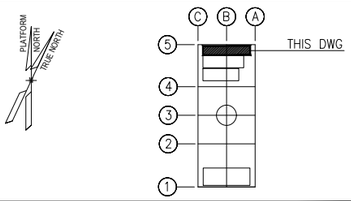
## HOLDS

.

## REFERENCE

| DOCUMENT TITLE | DOCUMENT NUMBER |
|---|---|
| Control System Architecture Detailed Drawings | 123A90-DDL-IN-DD-40096 |
| Data Network Architecture Drawings | 123A90-DDL-IN-DD-40019 |
| Earthing layouts drawings (CCR, ITER) | 123A90-DDL-IN-DL-40013 |
| Instrument and Telecom MCT Layout – Lower Deck | 123A90-DDL-IN-DL-40086 |
| "B-400" I&T Equipment Room – Architectural Layout | 123A90-DDL-AR-DL-10015 |
| "B-400" ARCHITECTURAL GENERAL LAYOUT PLAN, WIEW, SECTIONS & TYP. DETAILS | 123A90-DDL-AR-DL-10015 |
| "B-400" GENERAL ARRANGEMENT DRAWING | 1724000049-AR-DA-00017 |
| "B-400" GENERAL ARRANGEMENT DRAWING | 1724000049-AR-DD-00021 |
| "B-400" HVAC SYSTEM G.A. and DETAILS | 1724000049-HV-DA-00067 |

## KEY PLAN




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 03 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 02 | 27/05/24 | MGA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 22/01/24 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |
| 00 | 07/11/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40012**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 3_A | 07/10/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
OFF-SHORE ITER
EQUIPMENT LAYOUT

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:33,3 |
| DRAWN MGA | CHECKED LCA | APPROVED DLO | DATE 27/05/24 |
| A1 | DRAWING NO. 123A90-DDL-IN-DL-40012 | SHEET 001 | REV. 03 |

File Name : 123A90-DDL-IN-DL-40012 Rev.03.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|
| INSTRUMENTS | CABLE NO | MARSHALLING CABINET<br>~~B400-FGS-002~~<br>B400-FGS-003 |

<01>




**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_K | 18/11/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# MANUAL FIRE ALARM(MFA)–DIRECT CABLES

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 051 | REV. 01 |
|---|---|---|---|

File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40016

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. CONNECTION TERMINAL BLOCK SHALL BE DEFINED DURING CONSTRUCTION PHASE.

<01>

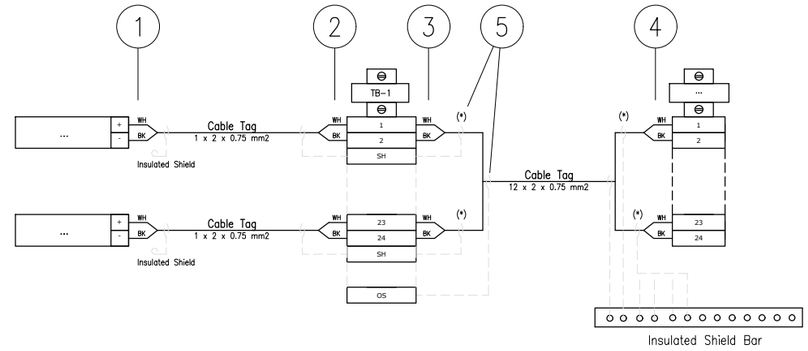
## LEGENDS & SYMBOLS:

LEGEND:

| | |
|---|---|
| I.E. | - GREEN ——— INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN/YELLOW —— P.E. EARTH/BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM <01> |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM <01> |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS <01> |

## TYPICAL WIRE CROSS-FERRULING:

### PHILOSOPHY OF CROSS-FERRULING: <01>




(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

### REFERENCE DRAWINGS

| | |
|---|---|
| PIPING AND INSTRUMENT DIAGRAM | 123A90-DDL-PR-PID-80009 |
| INSTRUMENT INDEX | 123A90-DDL-IN-LIS-40088 Rev.01 |
| F&G DETECTORS LAYOUT | 123A90-DDL-SAF-DL-30027 |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_K | 18/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – SAFETY SYSTEM WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

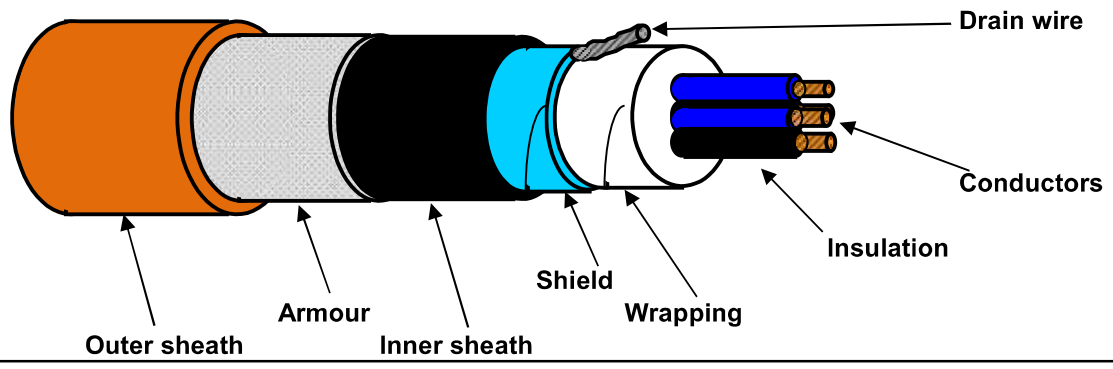
| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DG-40016 | 003 | 01 |

File Name : 123A90-DDL-IN-DG-40016_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-MFA-05201/B400-FGS-002 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-MFA-05201 | Manual Fire Alarm | Lower Deck (B-400) | B400-FGS-002 | Marshalling FGS | Lower Deck (B-400) | SMICV08-1X2X0,75 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x2x0,75mm² - Orange | T2_M20S_Double | | | n.a. | | | | L-SEC-21 / L-SEC-18C / L-SEC-18B / L-SEC-18A / B-400-SEC-2A / B-400-SEC-2B / B-400-SEC-2C / B-400-SEC-2E / B-400-SEC-2F / I-MCT-403 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X2X0,75 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,5 mm | |
| **Cores colour code :** | **White - Black** | |
| **Pair Assembling :** | Not required | |
| **Pair Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Pair Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 10/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 0,5 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, Average Thickness 1,2 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X2X0,75 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (8,5 ± 10%) mm | |
| **Over armour diameter :** | (9,3 ± 10%) mm | |
| **Outer diameter :** | (11,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 26 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 25 µH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679, also by such subjects in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.
All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-FDZ-05101 | : Flame Detector - FZ-05 BESS Area | | Dwg | 123A90-DDL-SAF-DL-30027 | |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | Module | LD | |
| **TASK** | code | C10000985 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX43 | | Fire Detector |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to F&G detection layout drawings. | OK |
| 4 | Check test facility is installed. | OK |
| 5 | Check sensor activation lamp is visible. | NA |
| 6 | Check remote annunciator is installed (where required). | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | OK |
| 9 | Check accessibility conforms to specifications, with platforming where necessary. | OK |
| 10 | Check calibration certificate (where applicable). | NA |
| 11 | Check electrical connections. | OK |
| 12 | Check earthing connections. | OK |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

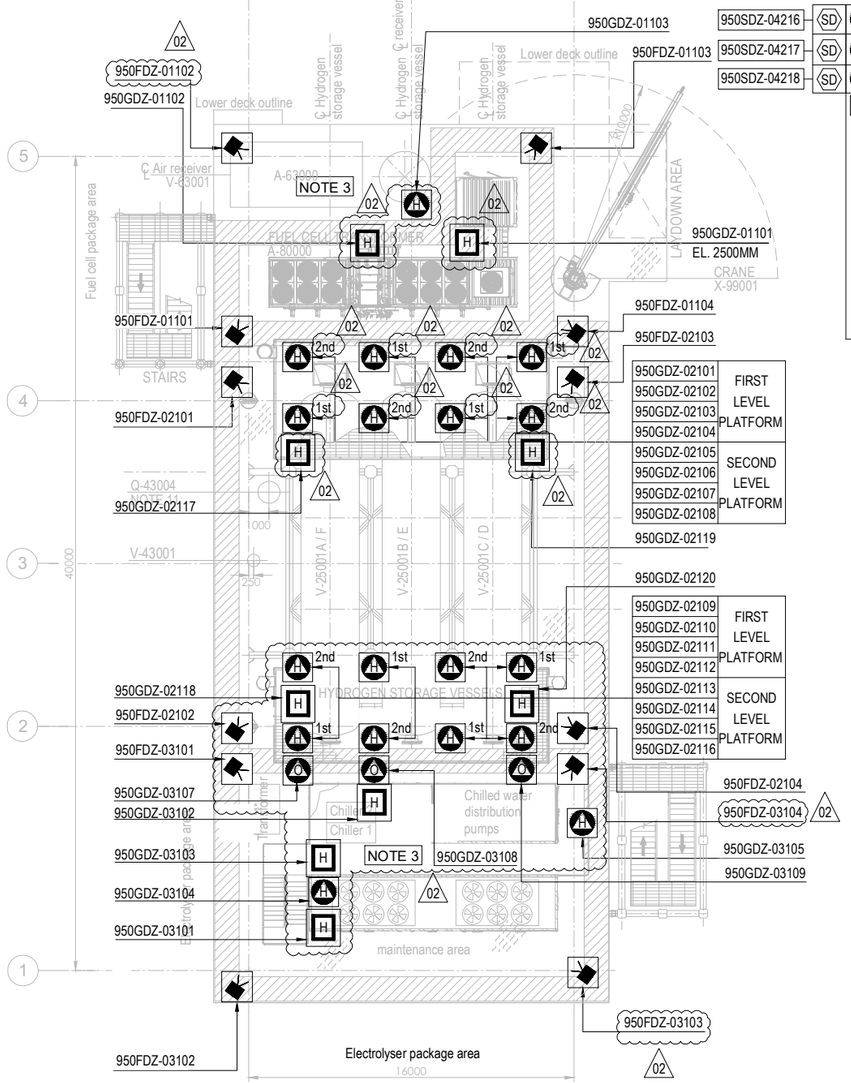
Comments



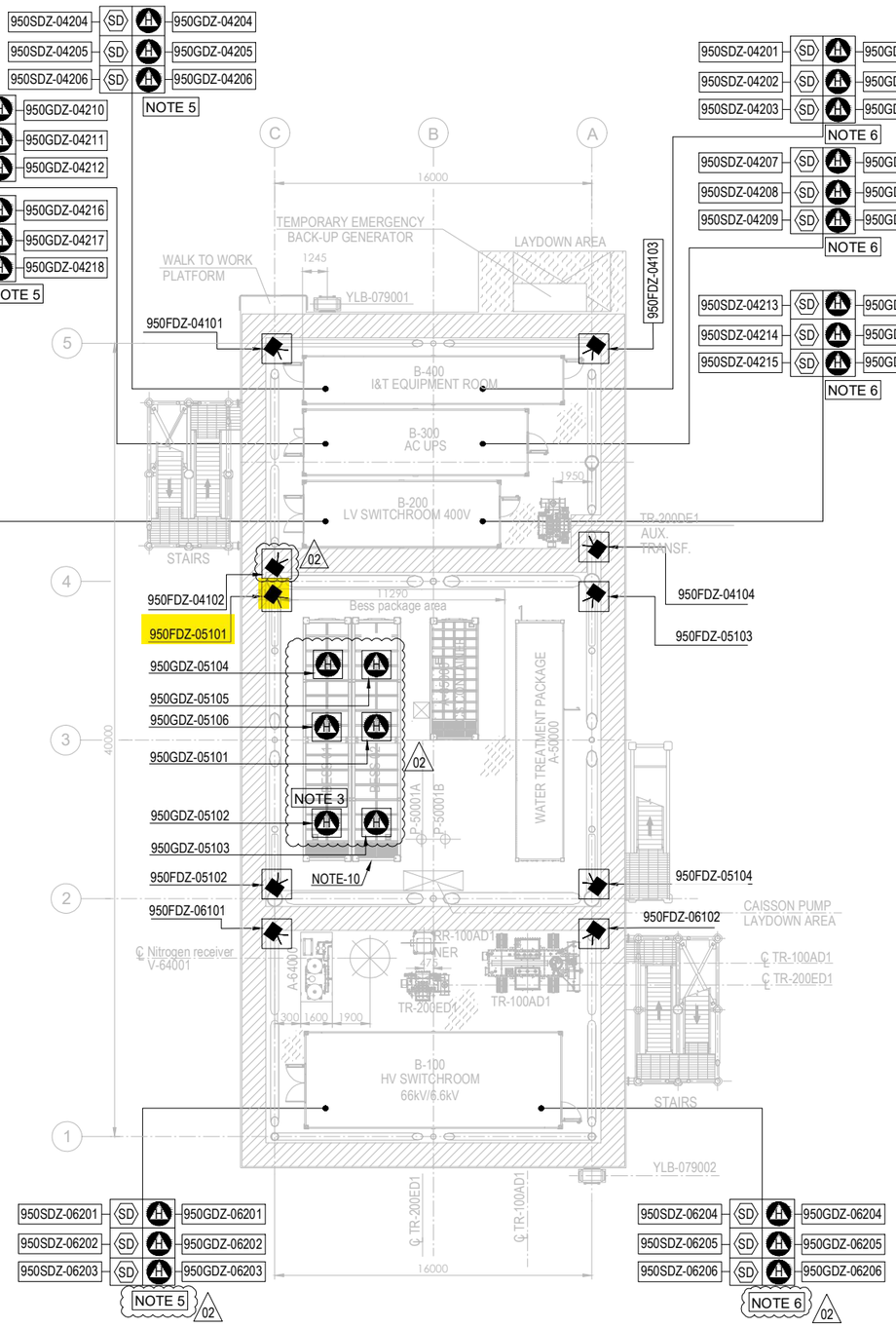
| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-07 | 2024-12-10 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:55:10.141Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-10T16:50:38.694Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.

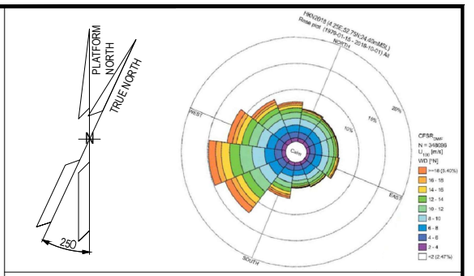



PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

| INSTRUMENTS | | JUNCTION BOX 950-JE-05101 | MULTICABLE No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |
|---|---|---|---|---|
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05101 (1, 3, 2) RD, WH, BK | C-950-FDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | TB-1<br>RD 1, WH 2, BK 3<br>SH | 950-JE-05101/B400-FGS-003<br>~~950-JE-05101/B400-FGS-002~~<br>12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS | TB-950-JE-05101<br>TR1 RD 1, WH 2, BK 3<br>Shield Bar<br>950-FDZ-05101 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05102 (1, 3, 2) RD, WH, BK | C-950-FDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | RD 4, WH 5, BK 6<br>SH | | TR2 RD 4, WH 5, BK 6<br>Shield Bar<br>950-FDZ-05102 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05103 (1, 3, 2) RD, WH, BK | C-950-FDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | RD 7, WH 8, BK 9<br>SH | | TR3 RD 7, WH 8, BK 9<br>Shield Bar<br>950-FDZ-05103 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05104 (1, 3, 2) RD, WH, BK | C-950-FDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | RD 10, WH 11, BK 12<br>SH | | TR4 RD 10, WH 11, BK 12<br>Shield Bar<br>950-FDZ-05104 |
| 950-GDZ-05101 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | RD 13, WH 14, BK 15<br>SH | | TR5 RD 13, WH 14, BK 15<br>Shield Bar<br>950-GDZ-05101 |
| 950-GDZ-05102 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | RD 16, WH 17, BK 18<br>SH | | TR6 RD 16, WH 17, BK 18<br>Shield Bar<br>950-GDZ-05102 |
| 950-GDZ-05103 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | RD 19, WH 20, BK 21<br>SH | | TR7 RD 19, WH 20, BK 21<br>Shield Bar<br>950-GDZ-05103 |
| 950-GDZ-05104 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | RD 22, WH 23, BK 24<br>SH | | TR8 RD 22, WH 23, BK 24<br>Shield Bar<br>950-GDZ-05104 |
| 950-GDZ-05105 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05105/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | RD 25, WH 26, BK 27<br>SH | | TR9 RD 25, WH 26, BK 27<br>Shield Bar<br>950-GDZ-05105 |
| 950-GDZ-05106 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05106/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | RD 28, WH 29, BK 30<br>SH | | TR10 RD 28, WH 29, BK 30<br>Shield Bar<br>950-GDZ-05106<br><01> |
| | | SPARE 31, 32, 33<br>SH | | TR11 RD 31, WH 32, BK 33<br>Shield Bar<br>SPARE |
| | | SPARE 34, 35, 36<br>SH | | TR12 RD 34, WH 35, BK 36<br>Shield Bar<br>SPARE |
| | | OS | | I.E. |

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40016 | SHEET 045 | REV. 01 |

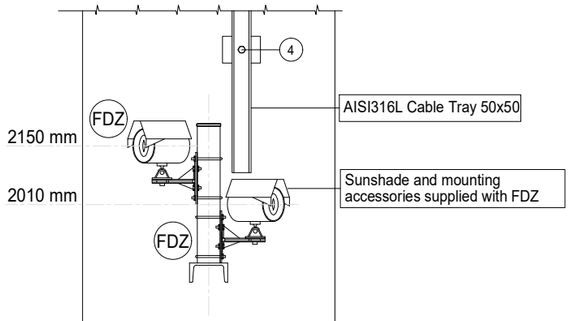
File Name : 123A90-DDL-IN-DG-40016_Rev.01

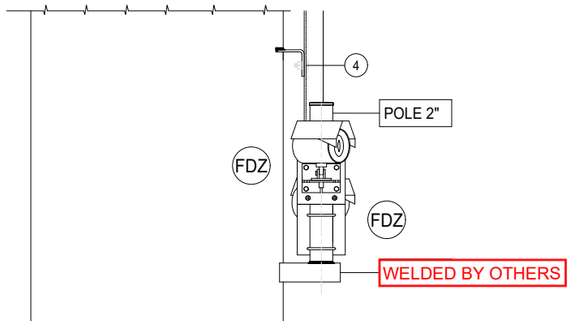
123A90-DDL-IN-DD-40017

REV. 00

# FGS-16

| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 4 |




| CLN | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | FDZ | FLAME DETECTOR | 950-FDZ-04102 |
| | FDZ | FLAME DETECTOR | 950-FDZ-05101 |
| 2 | FDZ | FLAME DETECTOR | 950-FDZ-05102 |
| | FDZ | FLAME DETECTOR | 950-FDZ-06101 |
| 3 | FDZ | FLAME DETECTOR | 950-FDZ-04104 |
| | FDZ | FLAME DETECTOR | 950-FDZ-05103 |
| 4 | FDZ | FLAME DETECTOR | 950-FDZ-05104 |
| | FDZ | FLAME DETECTOR | ~~950-FDZ-06103~~ 950-FDZ-06102 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON STRUCTURE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

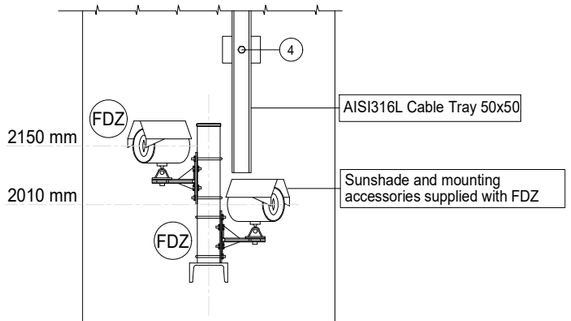
| A3 | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| | 123A90-DDL-IN-DD-40017 | 035 | 01 |

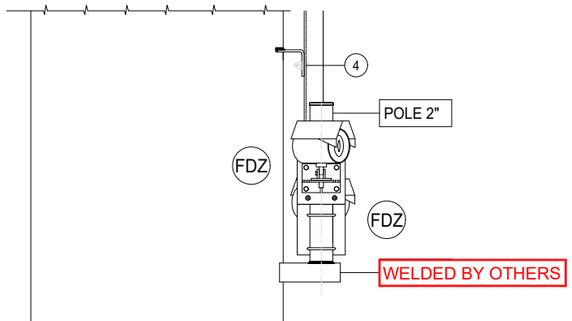
123A90-DDL-IN-DD-40017

REV. 00

# FGS-16

| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 4 |




| CLN | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | FDZ | FLAME DETECTOR | 950-FDZ-04102 |
| | FDZ | FLAME DETECTOR | 950-FDZ-05101 |
| 2 | FDZ | FLAME DETECTOR | 950-FDZ-05102 |
| | FDZ | FLAME DETECTOR | 950-FDZ-06101 |
| 3 | FDZ | FLAME DETECTOR | 950-FDZ-04104 |
| | FDZ | FLAME DETECTOR | 950-FDZ-05103 |
| 4 | FDZ | FLAME DETECTOR | 950-FDZ-05104 |
| | FDZ | FLAME DETECTOR | ~~950-FDZ-06103~~ 950-FDZ-06102 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON STRUCTURE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

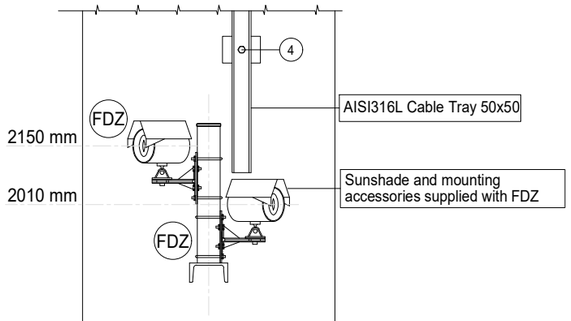
| A3 | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| | 123A90-DDL-IN-DD-40017 | 035 | 01 |

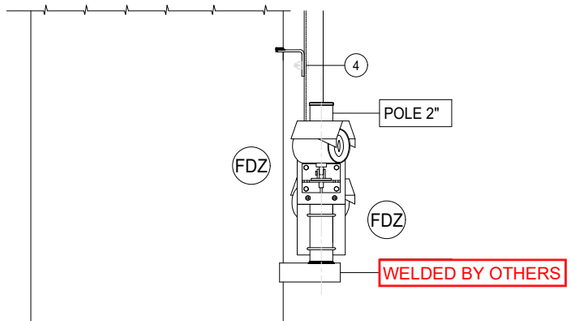
123A90-DDL-IN-DD-40017

REV. 00

# FGS-16

| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 4 |




| CLN | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | FDZ | FLAME DETECTOR | 950-FDZ-04102 |
| | FDZ | FLAME DETECTOR | 950-FDZ-05101 |
| 2 | FDZ | FLAME DETECTOR | 950-FDZ-05102 |
| | FDZ | FLAME DETECTOR | 950-FDZ-06101 |
| 3 | FDZ | FLAME DETECTOR | 950-FDZ-04104 |
| | FDZ | FLAME DETECTOR | 950-FDZ-05103 |
| 4 | FDZ | FLAME DETECTOR | 950-FDZ-05104 |
| | FDZ | FLAME DETECTOR | ~~950-FDZ-06103~~ 950-FDZ-06102 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

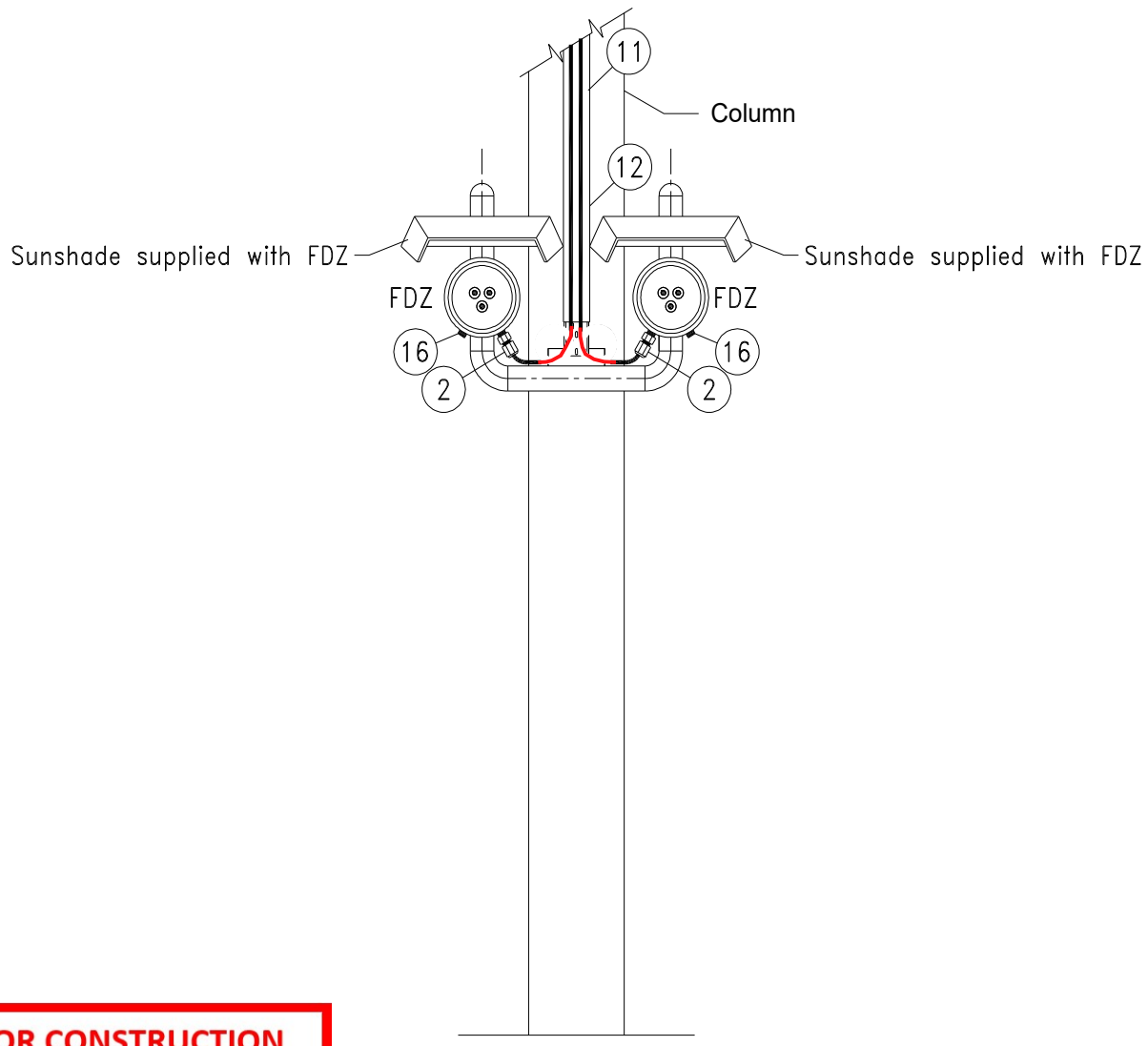
TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON STRUCTURE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| | 123A90-DDL-IN-DD-40017 | 035 | 01 |

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES




| INSTRUMENT TAG | |
|---|---|
| 1 | 950-FDZ-04102 |
| | 950-FDZ-05101 |
| 2 | 950-FDZ-05102 |
| | 950-FDZ-06101 |
| 3 | 950-FDZ-04104 |
| | 950-FDZ-05103 |
| 4 | 950-FDZ-05104 |
| | 950-FDZ-06103 |
| 5 | 950-FDZ-04101 |
| 6 | 950-FDZ-04103 |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 12 | | Cover for cable tray, FRP, Grey Color | 50 W x 10 H x 5 THK | 3 mt |
| 11 | | Perforated cable tray, FRP, Grey Color | 50 W x 50 H x 5 THK | 3 mt |
| 16 | | Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1 | M25 | 2 |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 2 |



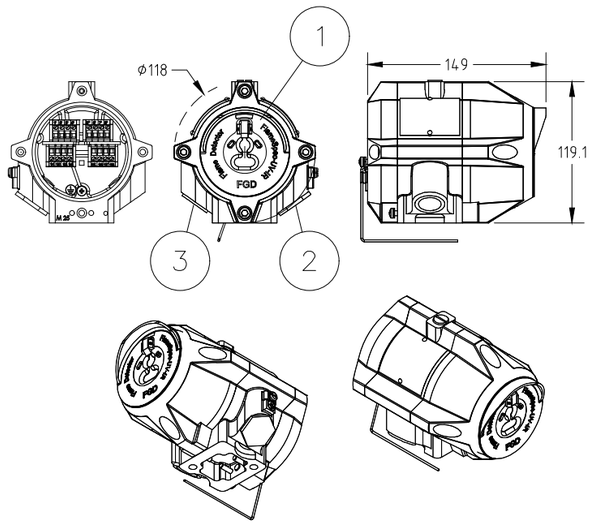
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

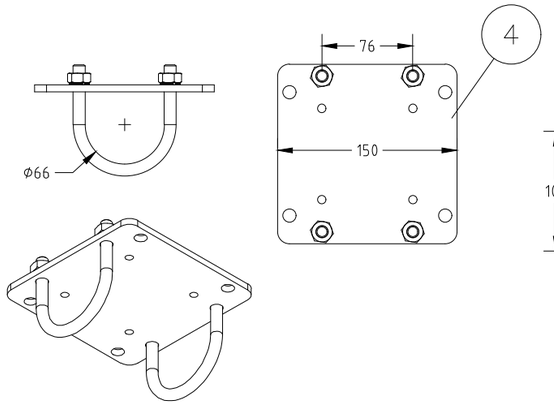
# FLAME DETECTOR / 2" PIPE MOUNTING

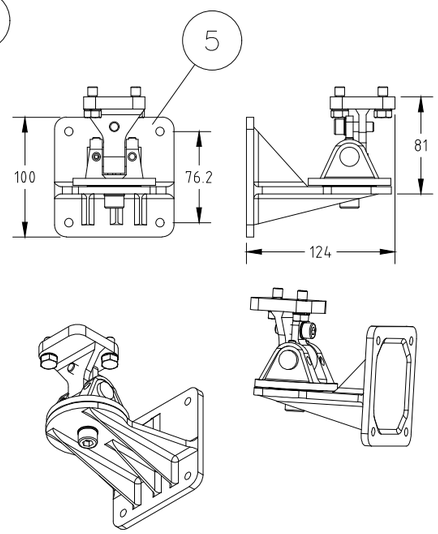
| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Flame Detector, FGD FlameSpec FLS-UV-IR-AS11 | 1 |
| 2 | Reducer M25 - M20 Ex d AISI 316 | 1 |
| 3 | Stop Plug M25 Ex d AISI 316 | 1 |
| 4 | 2 inch Mounting Kit, FGD F107X0050.00 | 1 |
| 5 | Tilt Assy, FGD F110X0090.00 | 1 |
| 6 | Weather Shield, FGD F107X0240.00 | 1 |
| 7 | Stainless Steel Name Plate | |
| 8 | | |
| 9 | | |
| 10 | | |

INSTALLATION QUANTITY

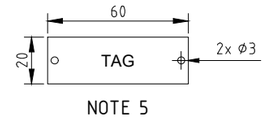
22



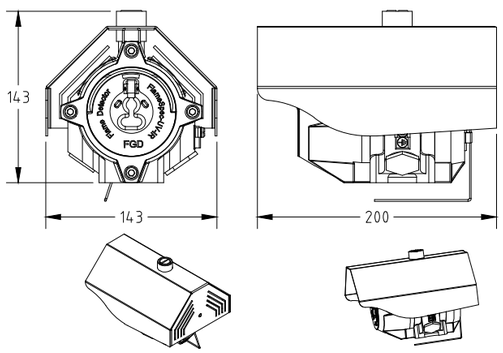



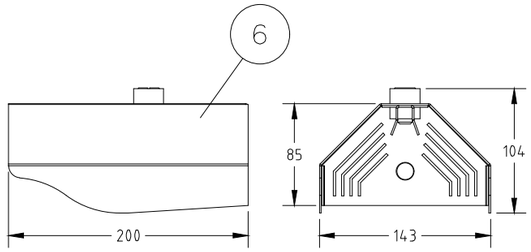

7 STAINLESS STEEL NAME PLATE DETAILS

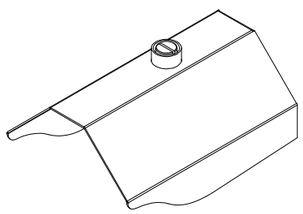



NOTE 5

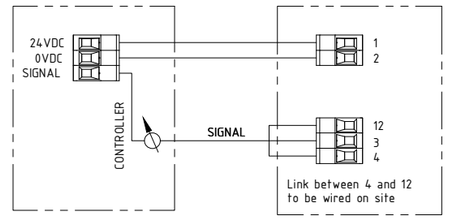
GA WEATHER SHIELD AND DETECTOR



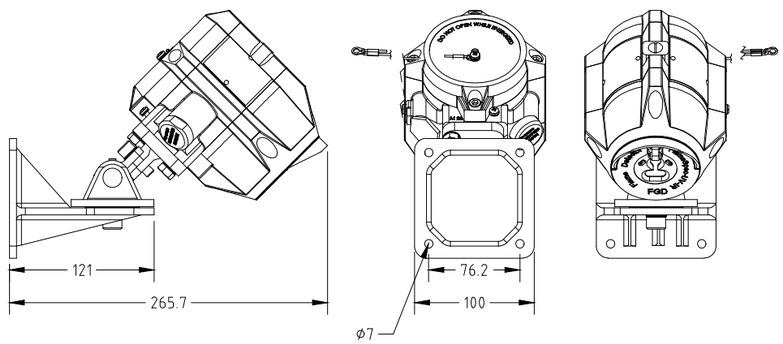



CONTROL CABINET — DETECTOR




INSTALLATION SCHEME




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 013

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# FLAME DETECTOR / 2" PIPE MOUNTING – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-FDZ-01101 |
| 2 | 950-FDZ-01102 |
| 3 | 950-FDZ-01103 |
| 4 | 950-FDZ-01104 |
| 5 | 950-FDZ-02101 |
| 6 | 950-FDZ-02102 |
| 7 | 950-FDZ-02103 |
| 8 | 950-FDZ-02104 |
| 9 | 950-FDZ-03101 |
| 10 | 950-FDZ-03102 |
| 11 | 950-FDZ-03103 |
| 12 | 950-FDZ-03104 |
| 13 | 950-FDZ-04101 |
| 14 | 950-FDZ-04102 |
| 15 | 950-FDZ-04103 |
| 16 | 950-FDZ-04104 |
| 17 | 950-FDZ-05101 |
| 18 | 950-FDZ-05102 |
| 19 | 950-FDZ-05103 |
| 20 | 950-FDZ-05104 |
| 21 | 950-FDZ-06101 |
| 22 | 950-FDZ-06103 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

| A3 | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| | 1724000821-IN-DA-00003 | 014 | 02 |

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## FLAME DETECTOR

| POS. | TAG NUMBER | SERVICE |
|---|---|---|
| 1 | 950-FDZ-01101 | FZ-01 FUEL CELL PK AREA |
| 2 | 950-FDZ-01102 | FZ-01 FUEL CELL PK AREA |
| 3 | 950-FDZ-01103 | FZ-01 FUEL CELL PK AREA |
| 4 | 950-FDZ-01104 | FZ-01 FUEL CELL PK AREA |
| 5 | 950-FDZ-02101 | FZ-02 H2 STORAGE VESSELS AREA |
| 6 | 950-FDZ-02102 | FZ-02 H2 STORAGE VESSELS AREA |
| 7 | 950-FDZ-02103 | FZ-02 H2 STORAGE VESSELS AREA |
| 8 | 950-FDZ-02104 | FZ-02 H2 STORAGE VESSELS AREA |
| 9 | 950-FDZ-03101 | FZ-03 ELECTROLYZER PK AREA |
| 10 | 950-FDZ-03102 | FZ-03 ELECTROLYZER PK AREA |
| 11 | 950-FDZ-03103 | FZ-03 ELECTROLYZER PK AREA |
| 12 | 950-FDZ-03104 | FZ-03 ELECTROLYZER PK AREA |
| 13 | 950-FDZ-04101 | FZ-04 B-400/B-300/B-200 AREA |
| 14 | 950-FDZ-04102 | FZ-04 B-400/B-300/B-200 AREA |
| 15 | 950-FDZ-04103 | FZ-04 B-400/B-300/B-200 AREA |
| 16 | 950-FDZ-04104 | FZ-04 B-400/B-300/B-200 AREA |
| 17 | 950-FDZ-05101 | FZ-05 BESS AREA |
| 18 | 950-FDZ-05102 | FZ-05 BESS AREA |
| 19 | 950-FDZ-05103 | FZ-05 BESS AREA |
| 20 | 950-FDZ-05104 | FZ-05 BESS AREA |
| 21 | 950-FDZ-06101 | FZ-06 B-100 AREA |
| 22 | 950-FDZ-06103 | FZ-06 B-100 AREA |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# FlameSpec
# UV-IR
## UV-IR Flame Detector




The FlameSpec UV-IR will detect fires and explosions extremely quickly, thereby allowing mitigation steps to be initiated more rapidly to limit event escalation.

## Introduction

The FlameSpec-UV-IR flame detector provides ultra-fast response, high performance and reliable detection of a large variety of fires including hydrocarbon fires (visible and non-visible), as well as hydrogen and methane/hydrogen mixed fires. The detector addresses slow growing fires as well as fast eruptions of fire using improved UV-IR technology. The detector operates in all weather and light conditions.

## Key Benefits

- High immunity to false alarm
- High sensitivity – up to 100 ft. (30m) for a 1 $ft^2$ (0.1$m^2$) n-heptane pan fire.
- Hydrocarbon and non-hydrocarbon flame detection.
- Ultra-fast detection mode detection within 5 milliseconds for fireballs or explosions
- High speed (<0.5s) model [X5] available for compliance with NFPA 33.
- Four sensitivity levels.
- Universal outputs, 3 and 4 wire, 4-20 mA sink / source, Fire, Auxiliary and Fault Relays. RS485 port using Modbus RTU.
- Event logger – alarms, faults and other relevant events are logged to non-volatile memory
- Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and overall detector operation.
- Dirty optics warning for preventive maintenance needs.
- HART® 7, for configuration & maintenance - option available.
- Window heater to avoid condensation and icing.
- Stainless steel tilt mount with horizontal and vertical adjustment.
- Functional safety - SIL 2 capable - option available.
- Detect high UV (sparks and arcs) or IR levels via auxiliary relay and 4-20mA.


**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave. Anaheim, CA 92807 USA
Tel: (+1) 714-671-8500 | support@fg-detection.com
Version: F110V0010.08 • May 2023

# FlameSpec UV-IR

## UV-IR Flame Detector

Model: FLS-UV-IR

## Response Characteristics

| Fuel | Size | Sensitivity | Distance ft. (m) | Avrg Resp.Time (s) |
|---|---|---|---|---|
| N-Heptane | 1 x 1 ft. | Extreme | 98 (30) | 2.0 |
| N-Heptane | 1 x 1 ft. | High | 75 (23) | 1.7 |
| N-Heptane | 1 x 1 ft. | Medium | 49 (15) | 1.0 |
| N-Heptane | 1 x 1 ft. | Low | 16 (5) | 1.0 |
| Gasoline | 2 x 2 ft. | Extreme | 197 (60) | 3.3 |
| Gasoline | 1 x 1 ft. | Extreme | 98 (30) | 1.8 |
| Gasoline | 1 x 1 ft. | Medium | 49 (15) | 1.3 |
| Methane | 32-in Plume | Extreme | 59 (18) | 1.4 |
| Methane | 32-in Plume | Medium | 30 (9) | 0.9 |
| LPG | 32-in Plume | Extreme | 75 (23) | 1.2 |
| LPG | 32-in Plume | High | 56 (17) | 1.6 |
| LPG | 32-in Plume | Medium | 33 (10) | 1.2 |
| LPG | 32-in Plume | Low | 13 (4) | 1.2 |
| Diesel | 1 x 1 ft. | Extreme | 75 (23) | 2.6 |
| Diesel | 1 x 1 ft. | Medium | 36 (11) | 1.2 |
| JP5 | 1 x 1 ft. | Extreme | 75 (23) | 3.3 |
| JP5 | 1 x 1 ft. | High | 56 (17) | 1.8 |
| JP5 | 1 x 1 ft. | Medium | 36 (11) | 1.2 |
| JP5 | 1 x 1 ft. | Low | 16 (5) | 1.2 |
| Kerosene | 1 x 1 ft. | Extreme | 75 (23) | 1.8 |
| Kerosene | 1 x 1 ft. | Medium | 36 (11) | 0.9 |
| Methanol | 1 x 1 ft. | Extreme | 52 (16) | 0.8 |
| Methanol | 1 x 1 ft. | High | 43 (13) | 3.2 |
| Methanol | 1 x 1 ft. | Medium | 30 (9) | 1.3 |
| Methanol | 1 x 1 ft. | Low | 10 (3) | 2.7 |
| Ethanol | 1 x 1 ft. | Extreme | 62 (19) | 4.1 |
| Ethanol | 1 x 1 ft. | Medium | 31 (9.5) | 2.9 |
| Isopropanol | 1 x 1 ft. | Extreme | 75 (23) | 2.2 |
| Isopropanol | 1 x 1 ft. | Medium | 36 (11) | 0.8 |
| Polypropylene | 1 x 1 ft. | Extreme | 49 (15) | 1.4 |
| Polypropylene | 1 x 1 ft. | Medium | 23 (7) | 0.9 |
| Hydrogen | 32-in Plume | Extreme | 66 (20) | 6.4 |
| Hydrogen | 32-in Plume | Medium | 33 (10) | 1.0 |
| Syngas (30%$CH_4$:70%$H_2$) | 32-in Plume | Extreme | 59 (18) | 3.2 |
| Syngas (30%$CH_4$:70%$H_2$) | 32-in Plume | Medium | 33 (10) | 1.2 |

# FlameSpec UV-IR

## UV-IR Flame Detector

Model: FLS-UV-IR

## Immunity to False Alarm

| False Alarm Source | Modulated | | Unmodulated | |
|---|---|---|---|---|
| | Distance ft. (m) | Response | Distance ft. (m) | Response |
| Sunlight, Direct, Reflected | | No Alarm | | No Alarm |
| Incandescent frosted glass light, 300W | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Fluorescent, 70W (3x23.3W) | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Electric arc | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Arc welding | 10.0 (3.0) | No Alarm | 10.0 (3.0) | No Alarm |
| Radiation heater, 2000W | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Halogen lamp (500W) non-shielded | 7.0 (2.0) | No Alarm | 7.0 (2.0) | No Alarm |
| Halogen lamp (1000W) | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Mercury vapor lamp 160Wx3 | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Exhausts | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Projector led | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Solenoid bell | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| soldering iron | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Electric Drill | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |

# FlameSpec UV-IR

## UV-IR Flame Detector

Model: FLS-UV-IR

| | | |
|---|---|---|
| FIRE DETECTION | **Detection time and distance** | 5ms for fast burst of explosion<br>1s for 1 ft² (0.1m²) n-heptane pan fire at 0–50 ft. (0–15m)<br>< 2s for 1 ft² (0.1m²) n-heptane pan fire at 50–100 ft. (15–30m) |
| | **Sensitivity Range** | 4 sensitivity ranges: Extreme, High, Medium, Low |
| | **Field of view (IR detection)** | 90° Horizontal, 80° Vertical |
| | **Time Delay** | 0-30 seconds |
| | **Built in Test** | Automatic and Manual |
| ELECTRICAL SPECIFICATIONS | **Operating Voltage** | 24 VDC nominal (18-32 VDC) |
| | **Current Consumption** | Standby: 120mA<br>180mA all systems in operation (including window heater) |
| | **Electrical Entries** | 2x cable and conduit entries 3/4" NPT(F) or M25x1.5 |
| | **Wiring** | 14-17 AWG (2.5–1.0 mm²) |
| OUTPUTS | **Relays** | SPST volt-free contacts rated 2A at 30 VDC<br>3 relays: Alarm & Auxiliary – normally open; Fault – normally closed |
| | **0-20mA (stepped) current output** | 3 wire and 4 wire (isolated) configurations (sink and source)<br>HART® rev 7.0 (option available) |
| | **Indication** | Tri-color LED (Green, Yellow, Red) |
| | **Modbus** | RTU compatible on RS-485 |
| MECHANICAL SPECIFICATIONS | **Size** | 5.51 x 3.54 × 3.54" (140×90×90mm) |
| | **Weight** | Detector (Stainless Steel 316): 6.6 lbs. (3.0 kg)<br>Tilt mount (Stainless Steel 316): 3.3 lbs. (1.5 kg) |
| ENVIRONMENTAL SPECIFICATIONS | **Temperature Range** | Operating: -67°F to +185°F (-55°C to +85°C)<br>Storage: -67°F to +185°F (-55°C to +85°C) |
| | **Humidity** | Up to 99% (RH), non-condensing |
| | **Ingress Protection** | IP66 & 68 (2m, 24hr); NEMA 4X & 6P |
| APPROVALS | **ATEX** | ATEX: II 2 G D<br>Ex db IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db -55°C<Ta<75°C<br>Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db -55°C<Ta<85°C |
| | **IECEx, INMETRO & PESO** | Ex db IIC T5 Gb -50°C≤Ta≤75°C<br>Ex db IIC T4 Gb -50°C≤Ta≤85°C |
| | **FMus & FMc** | Class I, Div. 1, Groups B, C & D; T4<br>Class I, Zone 1, AEx/Ex db IIC T4 Gb<br>T4 -50°C≤Ta≤85°C<br>T5 -50°C≤Ta≤75°C |
| | **EAC CU TR** | 1Ex d IIC T5 Gb or 1Ex de IIC T5 Gb and Ex tb IIIC T95°C Db -55°C≤Ta≤75°C<br>1Ex d IIC T4 Gb or 1Ex de IIC T4 Gb and Ex tb IIIC T105°C Db -55°C≤Ta≤85°C |
| | **Performance** | ANSI FM 3260<br>EN 54-10 |
| | **Functional safety** | Certified SIL2 capable, per IEC 61508:2010 High & Low demand (option available) |

| | | |
|---|---|---|
| ACCESSORIES | **Tilt mount, model FLS-TMO-S01** | **High vibration mounting bracket, model FLS-MIL-S01** |
| | **Weather cover, model FLS-WCO-S01** | **Flame simulator, model FLS-FSIM-UV-IR-KIT** |
| | **2" & 3" pole mount adapter, model FLS-PMA-S23** | **Airshield, model FLS-ASD-S01** |
| | **Duct mount with window, model FLS-DMW-S01** | **Duct mount for airshield, model FLS-DMX-S01** |
| WARRANTY | **5 years** | |

FIRE & GAS DETECTION TECHNOLOGIES INC.

**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave. Anaheim, CA 92807 USA
Tel: (+1) 714-671-8500 | support@fg-detection.com
Specifications subject to change without notice.

FlameSpec

# FLS-FSIM

Flame Simulator Family



## The FlameSpec Flame Simulator range provides fast and convenient detector verification in the field.

## Introduction

Flame simulators are often used by industry to perform detector testing during commissioning and periodic system testing. FlameSpec simulators differ from many competing products because they test the active sensors and detection algorithms of the devices without using “bypass” techniques to trick the detector into responding.

The FSIM range is lightweight, simple to use and has a modern ergonomic design. Suitable for use in hazardous areas, the FSIM-IR3 has an extended trigger distance of up to 30 feet (10 meters) from the detector.

Three FSIM models are available, depending on the FlameSpec Detector to be tested, IR3, IR3-H2 and UV-IR.

## Key Benefits

- Tests the active sensors and detection algorithms, without using “bypass” techniques.
  - No tricks, detector performance assured.
- Works from distance up to 30 feet (10 meters).
  - Reduces the need for scaffolding.
- Hazardous area use approved.
  - Hot work permits not needed required.
- Lightweight and simple to use.
  - More than 1,000 activations between charges.
- Includes carrying strap, protective storage case, battery charger and operating instructions.
- Easy to transport & supplied with everything needed.
- Complementary to FlameSpec Detector inbuilt test features.
  - Enables full end to end (loop) system test.

FIRE & GAS DETECTION TECHNOLOGIES INC.

**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave., Anaheim, CA 92807
Tel: (+1) 714-671-8500 | support@fg-detection.com

Version: F300V0010.04 • Oct 2023

# FlameSpec-FLS-FSIM

## Flame Simulator Family

| | | | | |
|---|---|---|---|---|
| | **Simulator Kits Part Nos** | FLS-FSIM-IR3-KIT | FLS-FSIM-IR3-H2-KIT | FLS-FSIM-UV-IR-KIT |
| | **Detector type** | FLS-IR3[1]<br>FLS-IR3-HD[1] | FLS-IR3-H2<br>FLS-IR3-H2-HD | FLS-UV-IR<br>FLS-UV-IR-HD |
| OPERATION DISTANCES | **Detector Sensitivity** | ft. m | ft. m | ft. m |
| | Extreme | 30 9.0 | 30 9.0 | 42.5 13.0 |
| | High | 20 6.0 | 20 6.0 | 26 8.0 |
| | Medium | 10 3.0 | 10 3.0 | 20 6.0 |
| | Low | 3.3[2] 1.0[2] | 3.3[2] 1.0[2] | 6.6 2.0 |
| ELECTRICAL SPECIFICATIONS | **Operating Voltage nominal, V** | 3.7 | 3.7 | 3.7 |
| | **Number of activations between charging** | ~1000 | ~1000 | ~50 |
| | **Battery Capacity, mAh** | >3000 | >3000 | >3000 |
| | **Charging time, hours** | up to 3 | up to 3 | up to 3 |
| | **Indication** | 3 Color LED (Green, Yellow, Red) | | |
| | **All Simulator Models** | | | |
| MECHANICAL SPECIFICATIONS | **Size** | 3.9 x 3.9 x 7.8" (100 x 100 x 200mm) | | |
| | **Weight** | 3.96 lbs. (1.8 kg) | | |
| | **Simulator Enclosure Material** | Painted Aluminum LM25 | | |
| ENVIRONMENTAL SPECIFICATIONS | **Ingress Protection** | IP65 (NEMA 4X) | | |
| | **Humidity** | up to 99% (RH), non-condensing | | |
| | **Operating temperature** | Min: −4°F (−20°C)<br>Max: +122°F (+50°C) | | |
| APPROVALS | **Explosion proof** | ATEX<br>Ex II 2 G Ex db ib op is IIC T6 Gb<br>Ex II 2 D Ex tb ib op is IIIC T85°C Db<br>-20°C<Ta<+50°C | | |
| ACCESSORIES included in kits | **Carrying Case** | FLS-FSIM-CASE | | |
| | **Carrying Strap** | FLS-FSIM-STRAP | | |
| | **Cover Tool** | FLS-FSIM-TOOL | | |
| | **Allen Key** | FLS-FSIM-ALLEN | | |
| | **Battery Charger** | FLS-FSIM-CHRGR | | |
| WARRANTY | **3 Years** | | | |

[1]not CO2L variant
[2]with collimator removed

FIRE & GAS DETECTION TECHNOLOGIES INC.

**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave., Anaheim, CA 92807
Tel: (+1) 714-671-8500 | support@fg-detection.com

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-FDZ-05102 | : Flame Detector - FZ-05 BESS Area | | Dwg | 123A90-DDL-SAF-DL-30027 | |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | Module | LD | |
| **TASK** | code | C10000986 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX43 | | Fire Detector |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | PL |
| 3 | Check installation conforms to F&G detection layout drawings. | OK |
| 4 | Check test facility is installed. | NA |
| 5 | Check sensor activation lamp is visible. | NA |
| 6 | Check remote annunciator is installed (where required). | OK |
| 7 | Check identification (tag number, tag plates). | PL |
| 8 | Check supporting and protection against vibrations. | OK |
| 9 | Check accessibility conforms to specifications, with platforming where necessary. | OK |
| 10 | Check calibration certificate (where applicable). | NA |
| 11 | Check electrical connections. | OK |
| 12 | Check earthing connections. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

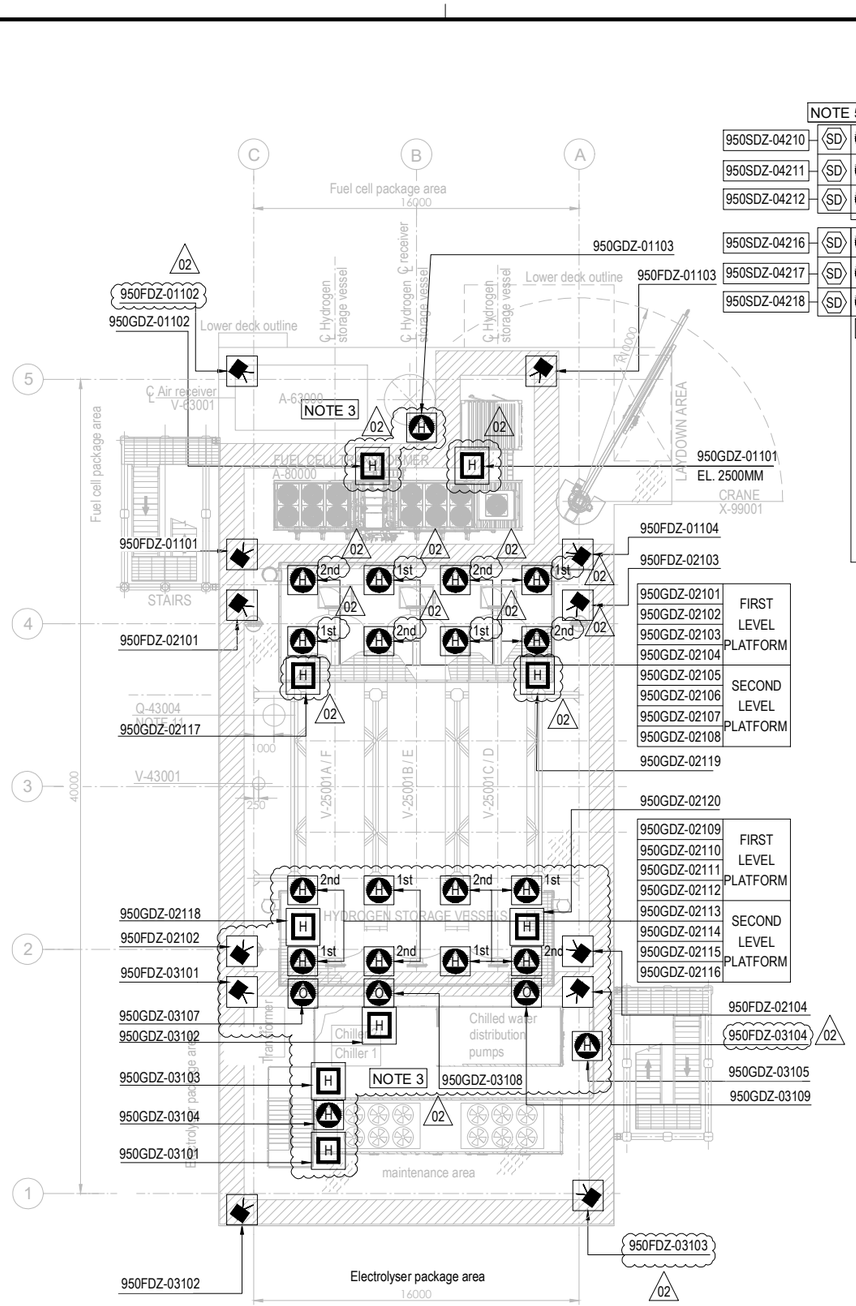
Comments



| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Alessio Polo | |
| **Date** | 2024-11-27 | 2024-11-30 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-11-27T14:22:45.039Z | PROVERLIS Digitaly signed by Alessio Polo 2024-11-30T10:27:36.383Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



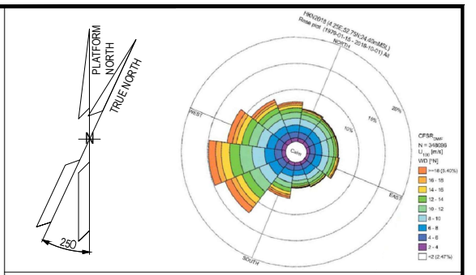

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

| INSTRUMENTS | | JUNCTION BOX 950-JE-05101 | MULTICABLE No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |
|---|---|---|---|---|
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05101 (1, 3, 2) RD, WH, BK | C-950-FDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | 950-JE-05101/B400-FGS-003 ~~950-JE-05101/B400-FGS-002~~ 12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS | TB-950-JE-05101 |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05102 (1, 3, 2) RD, WH, BK | C-950-FDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05103 (1, 3, 2) RD, WH, BK | C-950-FDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05104 (1, 3, 2) RD, WH, BK | C-950-FDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05101 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05102 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05103 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05104 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05105 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05105/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05106 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05106/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |

TB-1

| | | |
|---|---|---|
| 1 | RD | |
| 2 | WH | TR1 |
| 3 | BK | |
| SH | | |
| 4 | RD | |
| 5 | WH | TR2 |
| 6 | BK | |
| SH | | |
| 7 | RD | |
| 8 | WH | TR3 |
| 9 | BK | |
| SH | | |
| 10 | RD | |
| 11 | WH | TR4 |
| 12 | BK | |
| SH | | |
| 13 | RD | |
| 14 | WH | TR5 |
| 15 | BK | |
| SH | | |
| 16 | RD | |
| 17 | WH | TR6 |
| 18 | BK | |
| SH | | |
| 19 | RD | |
| 20 | WH | TR7 |
| 21 | BK | |
| SH | | |
| 22 | RD | |
| 23 | WH | TR8 |
| 24 | BK | |
| SH | | |
| 25 | RD | |
| 26 | WH | TR9 |
| 27 | BK | |
| SH | | |
| 28 | RD | |
| 29 | WH | TR10 |
| 30 | BK | |
| SH | | |
| 31 | RD | |
| SPARE | WH | TR11 |
| 33 | BK | |
| SH | | |
| 34 | RD | |
| SPARE | WH | TR12 |
| 36 | BK | |
| SH | | |
| OS | | |

TB-950-JE-05101

| | | |
|---|---|---|
| 1 | RD | |
| 2 | WH | TR1 |
| 3 | BK | Shield Bar |
| 4 | RD | |
| 5 | WH | TR2 |
| 6 | BK | Shield Bar |
| 7 | RD | |
| 8 | WH | TR3 |
| 9 | BK | Shield Bar |
| 10 | RD | |
| 11 | WH | TR4 |
| 12 | BK | Shield Bar |
| 13 | RD | |
| 14 | WH | TR5 |
| 15 | BK | Shield Bar |
| 16 | RD | |
| 17 | WH | TR6 |
| 18 | BK | Shield Bar |
| 19 | RD | |
| 20 | WH | TR7 |
| 21 | BK | Shield Bar |
| 22 | RD | |
| 23 | WH | TR8 |
| 24 | BK | Shield Bar |
| 25 | RD | |
| 26 | WH | TR9 |
| 27 | BK | Shield Bar |
| 28 | RD | |
| 29 | WH | TR10 |
| 30 | BK | Shield Bar |
| 31 | RD | |
| 32 | WH | TR11 |
| 33 | BK | Shield Bar |
| 34 | RD | |
| 35 | WH | TR12 |
| 36 | BK | Shield Bar |

950-FDZ-05101

950-FDZ-05102

950-FDZ-05103

950-FDZ-05104

950-GDZ-05101

950-GDZ-05102

950-GDZ-05103

950-GDZ-05104

950-GDZ-05105

950-GDZ-05106 <01>

SPARE

SPARE

I.E.

Shield Bar

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_L | 26/11/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DG-40016 | 045 | 01 |

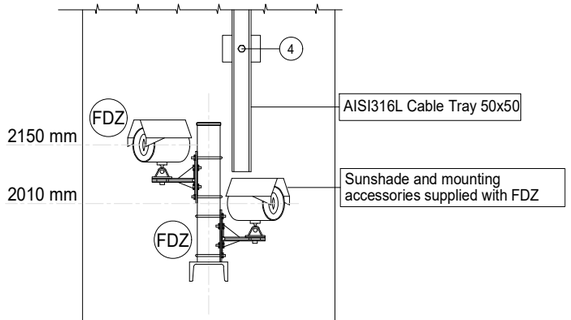
File Name : 123A90-DDL-IN-DG-40016_Rev.01

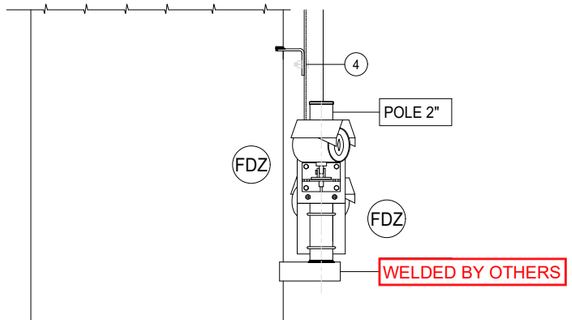
123A90-DDL-IN-DD-40017

REV. 00

# FGS-16

| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 4 |




| CLN | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | FDZ | FLAME DETECTOR | 950-FDZ-04102 |
| | FDZ | FLAME DETECTOR | 950-FDZ-05101 |
| 2 | FDZ | FLAME DETECTOR | 950-FDZ-05102 |
| | FDZ | FLAME DETECTOR | 950-FDZ-06101 |
| 3 | FDZ | FLAME DETECTOR | 950-FDZ-04104 |
| | FDZ | FLAME DETECTOR | 950-FDZ-05103 |
| 4 | FDZ | FLAME DETECTOR | 950-FDZ-05104 |
| | FDZ | FLAME DETECTOR | ~~950-FDZ-06103~~ 950-FDZ-06102 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_E | 13/11/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

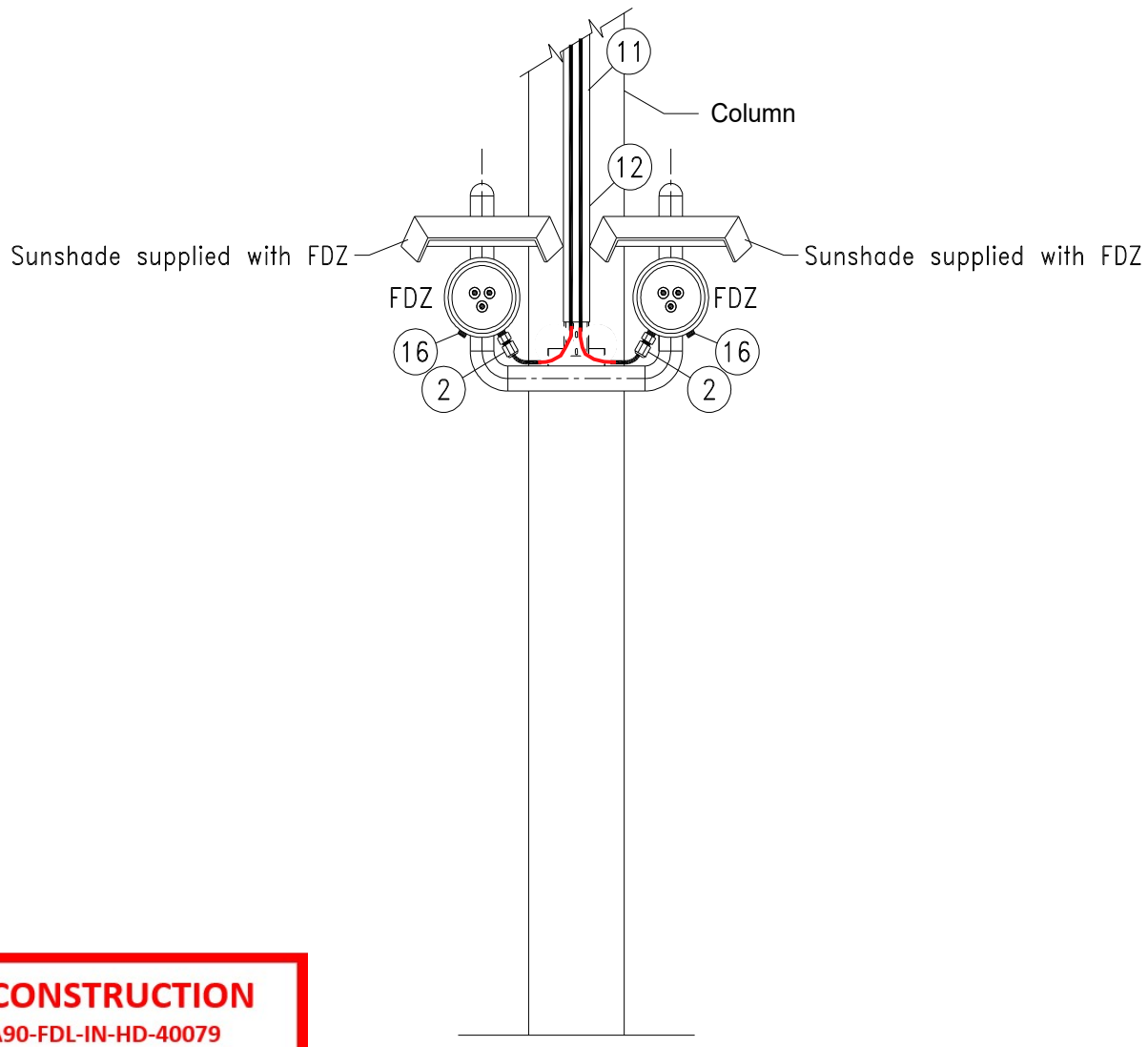
TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON STRUCTURE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| | 123A90-DDL-IN-DD-40017 | 035 | 01 |

| CROSSWIND | HOLLANDSE KUST NOORD WIND PARK Project<br>Contract No. CW-I-WP4-2023-05 | ROSETTI MARINO |
|---|---|---|
| Document Title: | Instrument Electrical Hook-Ups | Sh. 26 of 37<br>Date: 27/09/2024<br>Rev. 02 |

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES




| INSTRUMENT TAG | |
|---|---|
| 1 | 950-FDZ-04102 |
| | 950-FDZ-05101 |
| 2 | 950-FDZ-05102 |
| | 950-FDZ-06101 |
| 3 | 950-FDZ-04104 |
| | 950-FDZ-05103 |
| 4 | 950-FDZ-05104 |
| | 950-FDZ-06103 |
| 5 | 950-FDZ-04101 |
| 6 | 950-FDZ-04103 |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_D | 13/11/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details,
doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 12 | | Cover for cable tray, FRP, Grey Color | 50 W x 10 H x 5 THK | 3 mt |
| 11 | | Perforated cable tray, FRP, Grey Color | 50 W x 50 H x 5 THK | 3 mt |
| 16 | | Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1 | M25 | 2 |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 2 |

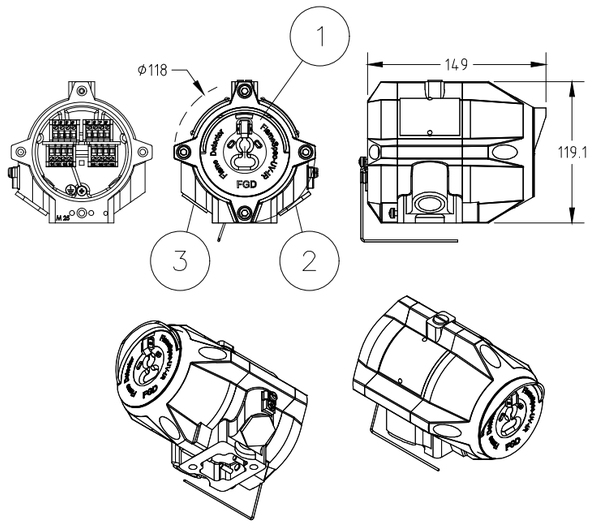

This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

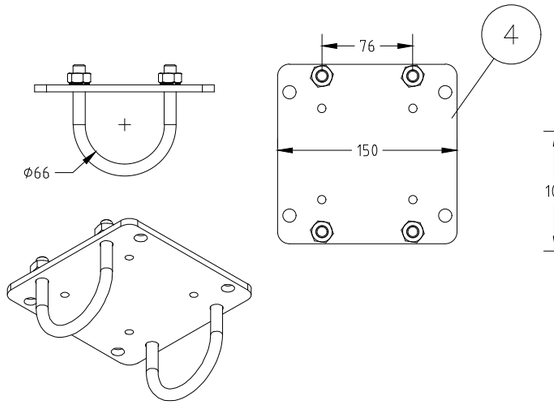
# FLAME DETECTOR / 2" PIPE MOUNTING

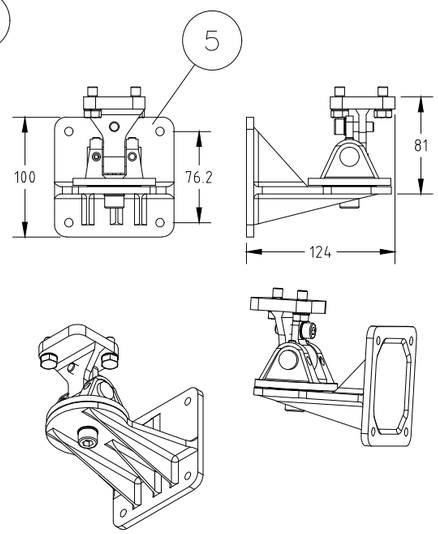
| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Flame Detector, FGD FlameSpec FLS-UV-IR-AS11 | 1 |
| 2 | Reducer M25 - M20 Ex d AISI 316 | 1 |
| 3 | Stop Plug M25 Ex d AISI 316 | 1 |
| 4 | 2 inch Mounting Kit, FGD F107X0050.00 | 1 |
| 5 | Tilt Assy, FGD F110X0090.00 | 1 |
| 6 | Weather Shield, FGD F107X0240.00 | 1 |
| 7 | Stainless Steel Name Plate | |
| 8 | | |
| 9 | | |
| 10 | | |

INSTALLATION QUANTITY

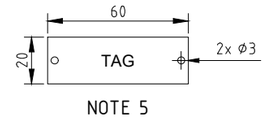
22



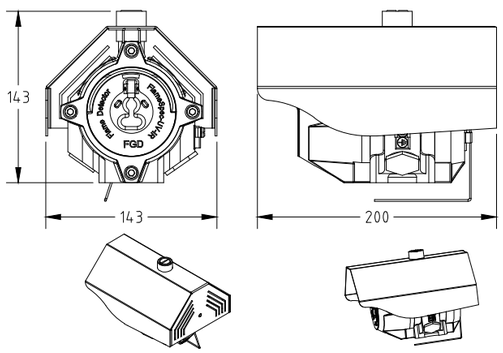



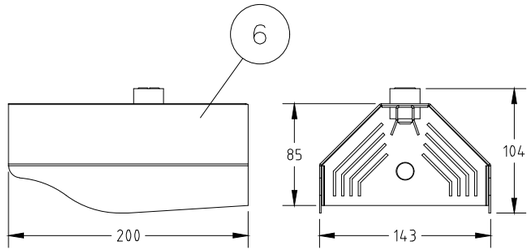

7 STAINLESS STEEL NAME PLATE DETAILS

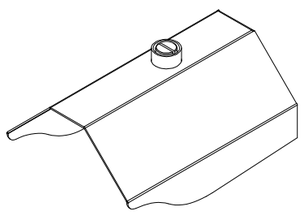



NOTE 5

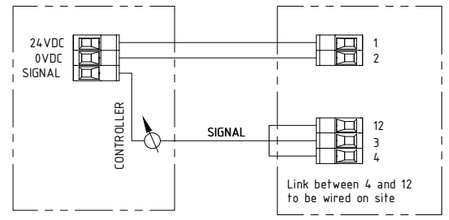
GA WEATHER SHIELD AND DETECTOR



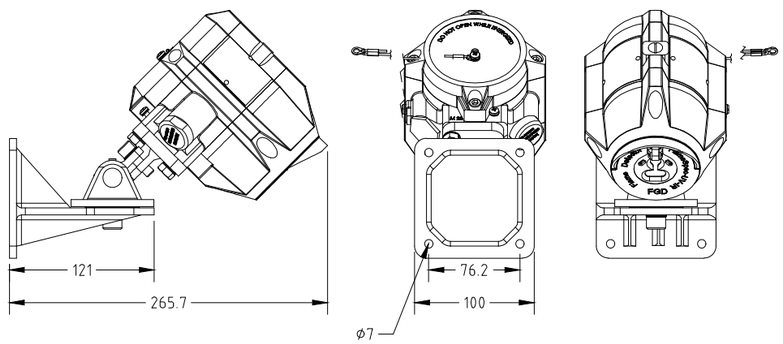



CONTROL CABINET — DETECTOR




INSTALLATION SCHEME




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 013

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# FLAME DETECTOR / 2" PIPE MOUNTING – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-FDZ-01101 |
| 2 | 950-FDZ-01102 |
| 3 | 950-FDZ-01103 |
| 4 | 950-FDZ-01104 |
| 5 | 950-FDZ-02101 |
| 6 | 950-FDZ-02102 |
| 7 | 950-FDZ-02103 |
| 8 | 950-FDZ-02104 |
| 9 | 950-FDZ-03101 |
| 10 | 950-FDZ-03102 |
| 11 | 950-FDZ-03103 |
| 12 | 950-FDZ-03104 |
| 13 | 950-FDZ-04101 |
| 14 | 950-FDZ-04102 |
| 15 | 950-FDZ-04103 |
| 16 | 950-FDZ-04104 |
| 17 | 950-FDZ-05101 |
| 18 | 950-FDZ-05102 |
| 19 | 950-FDZ-05103 |
| 20 | 950-FDZ-05104 |
| 21 | 950-FDZ-06101 |
| 22 | 950-FDZ-06103 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 014 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## FLAME DETECTOR

| POS. | TAG NUMBER | SERVICE |
|---|---|---|
| 1 | 950-FDZ-01101 | FZ-01 FUEL CELL PK AREA |
| 2 | 950-FDZ-01102 | FZ-01 FUEL CELL PK AREA |
| 3 | 950-FDZ-01103 | FZ-01 FUEL CELL PK AREA |
| 4 | 950-FDZ-01104 | FZ-01 FUEL CELL PK AREA |
| 5 | 950-FDZ-02101 | FZ-02 H2 STORAGE VESSELS AREA |
| 6 | 950-FDZ-02102 | FZ-02 H2 STORAGE VESSELS AREA |
| 7 | 950-FDZ-02103 | FZ-02 H2 STORAGE VESSELS AREA |
| 8 | 950-FDZ-02104 | FZ-02 H2 STORAGE VESSELS AREA |
| 9 | 950-FDZ-03101 | FZ-03 ELECTROLYZER PK AREA |
| 10 | 950-FDZ-03102 | FZ-03 ELECTROLYZER PK AREA |
| 11 | 950-FDZ-03103 | FZ-03 ELECTROLYZER PK AREA |
| 12 | 950-FDZ-03104 | FZ-03 ELECTROLYZER PK AREA |
| 13 | 950-FDZ-04101 | FZ-04 B-400/B-300/B-200 AREA |
| 14 | 950-FDZ-04102 | FZ-04 B-400/B-300/B-200 AREA |
| 15 | 950-FDZ-04103 | FZ-04 B-400/B-300/B-200 AREA |
| 16 | 950-FDZ-04104 | FZ-04 B-400/B-300/B-200 AREA |
| 17 | 950-FDZ-05101 | FZ-05 BESS AREA |
| 18 | 950-FDZ-05102 | FZ-05 BESS AREA |
| 19 | 950-FDZ-05103 | FZ-05 BESS AREA |
| 20 | 950-FDZ-05104 | FZ-05 BESS AREA |
| 21 | 950-FDZ-06101 | FZ-06 B-100 AREA |
| 22 | 950-FDZ-06103 | FZ-06 B-100 AREA |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# FlameSpec
# UV-IR
## UV-IR Flame Detector




The FlameSpec UV-IR will detect fires and explosions extremely quickly, thereby allowing mitigation steps to be initiated more rapidly to limit event escalation.

## Introduction

The FlameSpec-UV-IR flame detector provides ultra-fast response, high performance and reliable detection of a large variety of fires including hydrocarbon fires (visible and non-visible), as well as hydrogen and methane/hydrogen mixed fires. The detector addresses slow growing fires as well as fast eruptions of fire using improved UV-IR technology. The detector operates in all weather and light conditions.

## Key Benefits

- High immunity to false alarm
- High sensitivity – up to 100 ft. (30m) for a 1 $ft^2$ (0.1$m^2$) n-heptane pan fire.
- Hydrocarbon and non-hydrocarbon flame detection.
- Ultra-fast detection mode detection within 5 milliseconds for fireballs or explosions
- High speed (<0.5s) model [X5] available for compliance with NFPA 33.
- Four sensitivity levels.
- Universal outputs, 3 and 4 wire, 4-20 mA sink / source, Fire, Auxiliary and Fault Relays. RS485 port using Modbus RTU.
- Event logger – alarms, faults and other relevant events are logged to non-volatile memory
- Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and overall detector operation.
- Dirty optics warning for preventive maintenance needs.
- HART® 7, for configuration & maintenance - option available.
- Window heater to avoid condensation and icing.
- Stainless steel tilt mount with horizontal and vertical adjustment.
- Functional safety - SIL 2 capable - option available.
- Detect high UV (sparks and arcs) or IR levels via auxiliary relay and 4-20mA.


**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave. Anaheim, CA 92807 USA
Tel: (+1) 714-671-8500 | support@fg-detection.com
Version: F110V0010.08 • May 2023

# FlameSpec UV-IR

## UV-IR Flame Detector

Model: FLS-UV-IR

## Response Characteristics

| Fuel | Size | Sensitivity | Distance ft. (m) | Avrg Resp.Time (s) |
|---|---|---|---|---|
| N-Heptane | 1 x 1 ft. | Extreme | 98 (30) | 2.0 |
| N-Heptane | 1 x 1 ft. | High | 75 (23) | 1.7 |
| N-Heptane | 1 x 1 ft. | Medium | 49 (15) | 1.0 |
| N-Heptane | 1 x 1 ft. | Low | 16 (5) | 1.0 |
| Gasoline | 2 x 2 ft. | Extreme | 197 (60) | 3.3 |
| Gasoline | 1 x 1 ft. | Extreme | 98 (30) | 1.8 |
| Gasoline | 1 x 1 ft. | Medium | 49 (15) | 1.3 |
| Methane | 32-in Plume | Extreme | 59 (18) | 1.4 |
| Methane | 32-in Plume | Medium | 30 (9) | 0.9 |
| LPG | 32-in Plume | Extreme | 75 (23) | 1.2 |
| LPG | 32-in Plume | High | 56 (17) | 1.6 |
| LPG | 32-in Plume | Medium | 33 (10) | 1.2 |
| LPG | 32-in Plume | Low | 13 (4) | 1.2 |
| Diesel | 1 x 1 ft. | Extreme | 75 (23) | 2.6 |
| Diesel | 1 x 1 ft. | Medium | 36 (11) | 1.2 |
| JP5 | 1 x 1 ft. | Extreme | 75 (23) | 3.3 |
| JP5 | 1 x 1 ft. | High | 56 (17) | 1.8 |
| JP5 | 1 x 1 ft. | Medium | 36 (11) | 1.2 |
| JP5 | 1 x 1 ft. | Low | 16 (5) | 1.2 |
| Kerosene | 1 x 1 ft. | Extreme | 75 (23) | 1.8 |
| Kerosene | 1 x 1 ft. | Medium | 36 (11) | 0.9 |
| Methanol | 1 x 1 ft. | Extreme | 52 (16) | 0.8 |
| Methanol | 1 x 1 ft. | High | 43 (13) | 3.2 |
| Methanol | 1 x 1 ft. | Medium | 30 (9) | 1.3 |
| Methanol | 1 x 1 ft. | Low | 10 (3) | 2.7 |
| Ethanol | 1 x 1 ft. | Extreme | 62 (19) | 4.1 |
| Ethanol | 1 x 1 ft. | Medium | 31 (9.5) | 2.9 |
| Isopropanol | 1 x 1 ft. | Extreme | 75 (23) | 2.2 |
| Isopropanol | 1 x 1 ft. | Medium | 36 (11) | 0.8 |
| Polypropylene | 1 x 1 ft. | Extreme | 49 (15) | 1.4 |
| Polypropylene | 1 x 1 ft. | Medium | 23 (7) | 0.9 |
| Hydrogen | 32-in Plume | Extreme | 66 (20) | 6.4 |
| Hydrogen | 32-in Plume | Medium | 33 (10) | 1.0 |
| Syngas (30%$CH_4$:70%$H_2$) | 32-in Plume | Extreme | 59 (18) | 3.2 |
| Syngas (30%$CH_4$:70%$H_2$) | 32-in Plume | Medium | 33 (10) | 1.2 |

# FlameSpec UV-IR

## UV-IR Flame Detector

Model: FLS-UV-IR

## Immunity to False Alarm

| False Alarm Source | Modulated | | Unmodulated | |
|---|---|---|---|---|
| | Distance ft. (m) | Response | Distance ft. (m) | Response |
| Sunlight, Direct, Reflected | | No Alarm | | No Alarm |
| Incandescent frosted glass light, 300W | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Fluorescent, 70W (3x23.3W) | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Electric arc | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Arc welding | 10.0 (3.0) | No Alarm | 10.0 (3.0) | No Alarm |
| Radiation heater, 2000W | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Halogen lamp (500W) non-shielded | 7.0 (2.0) | No Alarm | 7.0 (2.0) | No Alarm |
| Halogen lamp (1000W) | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Mercury vapor lamp 160Wx3 | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Exhausts | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Projector led | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Solenoid bell | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| soldering iron | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Electric Drill | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |

# FlameSpec UV-IR

## UV-IR Flame Detector

Model: FLS-UV-IR

| | | |
|---|---|---|
| FIRE DETECTION | **Detection time and distance** | 5ms for fast burst of explosion<br>1s for 1 ft² (0.1m²) n-heptane pan fire at 0–50 ft. (0–15m)<br>< 2s for 1 ft² (0.1m²) n-heptane pan fire at 50–100 ft. (15–30m) |
| | **Sensitivity Range** | 4 sensitivity ranges: Extreme, High, Medium, Low |
| | **Field of view (IR detection)** | 90° Horizontal, 80° Vertical |
| | **Time Delay** | 0-30 seconds |
| | **Built in Test** | Automatic and Manual |
| ELECTRICAL SPECIFICATIONS | **Operating Voltage** | 24 VDC nominal (18-32 VDC) |
| | **Current Consumption** | Standby: 120mA<br>180mA all systems in operation (including window heater) |
| | **Electrical Entries** | 2x cable and conduit entries 3/4" NPT(F) or M25x1.5 |
| | **Wiring** | 14-17 AWG (2.5–1.0 mm²) |
| OUTPUTS | **Relays** | SPST volt-free contacts rated 2A at 30 VDC<br>3 relays: Alarm & Auxiliary – normally open; Fault – normally closed |
| | **0-20mA (stepped) current output** | 3 wire and 4 wire (isolated) configurations (sink and source)<br>HART® rev 7.0 (option available) |
| | **Indication** | Tri-color LED (Green, Yellow, Red) |
| | **Modbus** | RTU compatible on RS-485 |
| MECHANICAL SPECIFICATIONS | **Size** | 5.51 x 3.54 × 3.54" (140×90×90mm) |
| | **Weight** | Detector (Stainless Steel 316): 6.6 lbs. (3.0 kg)<br>Tilt mount (Stainless Steel 316): 3.3 lbs. (1.5 kg) |
| ENVIRONMENTAL SPECIFICATIONS | **Temperature Range** | Operating: -67°F to +185°F (-55°C to +85°C)<br>Storage: -67°F to +185°F (-55°C to +85°C) |
| | **Humidity** | Up to 99% (RH), non-condensing |
| | **Ingress Protection** | IP66 & 68 (2m, 24hr); NEMA 4X & 6P |
| APPROVALS | **ATEX** | ATEX: II 2 G D<br>Ex db IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db -55°C<Ta<75°C<br>Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db -55°C<Ta<85°C |
| | **IECEx, INMETRO & PESO** | Ex db IIC T5 Gb -50°C≤Ta≤75°C<br>Ex db IIC T4 Gb -50°C≤Ta≤85°C |
| | **FMus & FMc** | Class I, Div. 1, Groups B, C & D; T4<br>Class I, Zone 1, AEx/Ex db IIC T4 Gb<br>T4 -50°C≤Ta≤85°C<br>T5 -50°C≤Ta≤75°C |
| | **EAC CU TR** | 1Ex d IIC T5 Gb or 1Ex de IIC T5 Gb and Ex tb IIIC T95°C Db -55°C≤Ta≤75°C<br>1Ex d IIC T4 Gb or 1Ex de IIC T4 Gb and Ex tb IIIC T105°C Db -55°C≤Ta≤85°C |
| | **Performance** | ANSI FM 3260<br>EN 54-10 |
| | **Functional safety** | Certified SIL2 capable, per IEC 61508:2010 High & Low demand (option available) |

| | | |
|---|---|---|
| ACCESSORIES | **Tilt mount, model FLS-TMO-S01** | **High vibration mounting bracket, model FLS-MIL-S01** |
| | **Weather cover, model FLS-WCO-S01** | **Flame simulator, model FLS-FSIM-UV-IR-KIT** |
| | **2" & 3" pole mount adapter, model FLS-PMA-S23** | **Airshield, model FLS-ASD-S01** |
| | **Duct mount with window, model FLS-DMW-S01** | **Duct mount for airshield, model FLS-DMX-S01** |
| WARRANTY | **5 years** | |

FIRE & GAS DETECTION TECHNOLOGIES INC.

**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave. Anaheim, CA 92807 USA
Tel: (+1) 714-671-8500 | support@fg-detection.com
Specifications subject to change without notice.

FlameSpec

# FLS-FSIM

Flame Simulator Family



## The FlameSpec Flame Simulator range provides fast and convenient detector verification in the field.

## Introduction

Flame simulators are often used by industry to perform detector testing during commissioning and periodic system testing. FlameSpec simulators differ from many competing products because they test the active sensors and detection algorithms of the devices without using “bypass” techniques to trick the detector into responding.

The FSIM range is lightweight, simple to use and has a modern ergonomic design. Suitable for use in hazardous areas, the FSIM-IR3 has an extended trigger distance of up to 30 feet (10 meters) from the detector.

Three FSIM models are available, depending on the FlameSpec Detector to be tested, IR3, IR3-H2 and UV-IR.

## Key Benefits

- Tests the active sensors and detection algorithms, without using “bypass” techniques.
  - No tricks, detector performance assured.
- Works from distance up to 30 feet (10 meters).
  - Reduces the need for scaffolding.
- Hazardous area use approved.
  - Hot work permits not needed required.
- Lightweight and simple to use.
  - More than 1,000 activations between charges.
- Includes carrying strap, protective storage case, battery charger and operating instructions.
- Easy to transport & supplied with everything needed.
- Complementary to FlameSpec Detector inbuilt test features.
  - Enables full end to end (loop) system test.

FIRE & GAS DETECTION TECHNOLOGIES INC.

**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave., Anaheim, CA 92807
Tel: (+1) 714-671-8500 | support@fg-detection.com

Version: F300V0010.04 • Oct 2023

# FlameSpec-FLS-FSIM

## Flame Simulator Family

| | | | | |
|---|---|---|---|---|
| | **Simulator Kits Part Nos** | FLS-FSIM-IR3-KIT | FLS-FSIM-IR3-H2-KIT | FLS-FSIM-UV-IR-KIT |
| | **Detector type** | FLS-IR3[1]<br>FLS-IR3-HD[1] | FLS-IR3-H2<br>FLS-IR3-H2-HD | FLS-UV-IR<br>FLS-UV-IR-HD |
| OPERATION DISTANCES | **Detector Sensitivity** | ft. m | ft. m | ft. m |
| | Extreme | 30 9.0 | 30 9.0 | 42.5 13.0 |
| | High | 20 6.0 | 20 6.0 | 26 8.0 |
| | Medium | 10 3.0 | 10 3.0 | 20 6.0 |
| | Low | 3.3[2] 1.0[2] | 3.3[2] 1.0[2] | 6.6 2.0 |
| ELECTRICAL SPECIFICATIONS | **Operating Voltage nominal, V** | 3.7 | 3.7 | 3.7 |
| | **Number of activations between charging** | ~1000 | ~1000 | ~50 |
| | **Battery Capacity, mAh** | >3000 | >3000 | >3000 |
| | **Charging time, hours** | up to 3 | up to 3 | up to 3 |
| | **Indication** | 3 Color LED (Green, Yellow, Red) | | |
| | **All Simulator Models** | | | |
| MECHANICAL SPECIFICATIONS | **Size** | 3.9 x 3.9 x 7.8" (100 x 100 x 200mm) | | |
| | **Weight** | 3.96 lbs. (1.8 kg) | | |
| | **Simulator Enclosure Material** | Painted Aluminum LM25 | | |
| ENVIRONMENTAL SPECIFICATIONS | **Ingress Protection** | IP65 (NEMA 4X) | | |
| | **Humidity** | up to 99% (RH), non-condensing | | |
| | **Operating temperature** | Min: −4°F (−20°C)<br>Max: +122°F (+50°C) | | |
| APPROVALS | **Explosion proof** | ATEX<br>Ex II 2 G Ex db ib op is IIC T6 Gb<br>Ex II 2 D Ex tb ib op is IIIC T85°C Db<br>-20°C<Ta<+50°C | | |
| ACCESSORIES included in kits | **Carrying Case** | FLS-FSIM-CASE | | |
| | **Carrying Strap** | FLS-FSIM-STRAP | | |
| | **Cover Tool** | FLS-FSIM-TOOL | | |
| | **Allen Key** | FLS-FSIM-ALLEN | | |
| | **Battery Charger** | FLS-FSIM-CHRGR | | |
| WARRANTY | **3 Years** | | | |

[1]not CO2L variant
[2]with collimator removed

FIRE & GAS DETECTION TECHNOLOGIES INC.

**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave., Anaheim, CA 92807
Tel: (+1) 714-671-8500 | support@fg-detection.com

ROSETTI MARINO | PROVERLIS | CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-FDZ-05103 | : Flame Detector - FZ-05 BESS Area | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10000987 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX43 | | Fire Detector |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to F&G detection layout drawings. | OK |
| 4 | Check test facility is installed. | NA |
| 5 | Check sensor activation lamp is visible. | NA |
| 6 | Check remote annunciator is installed (where required). | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | OK |
| 9 | Check accessibility conforms to specifications, with platforming where necessary. | OK |
| 10 | Check calibration certificate (where applicable). | NA |
| 11 | Check electrical connections. | OK |
| 12 | Check earthing connections. | OK |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

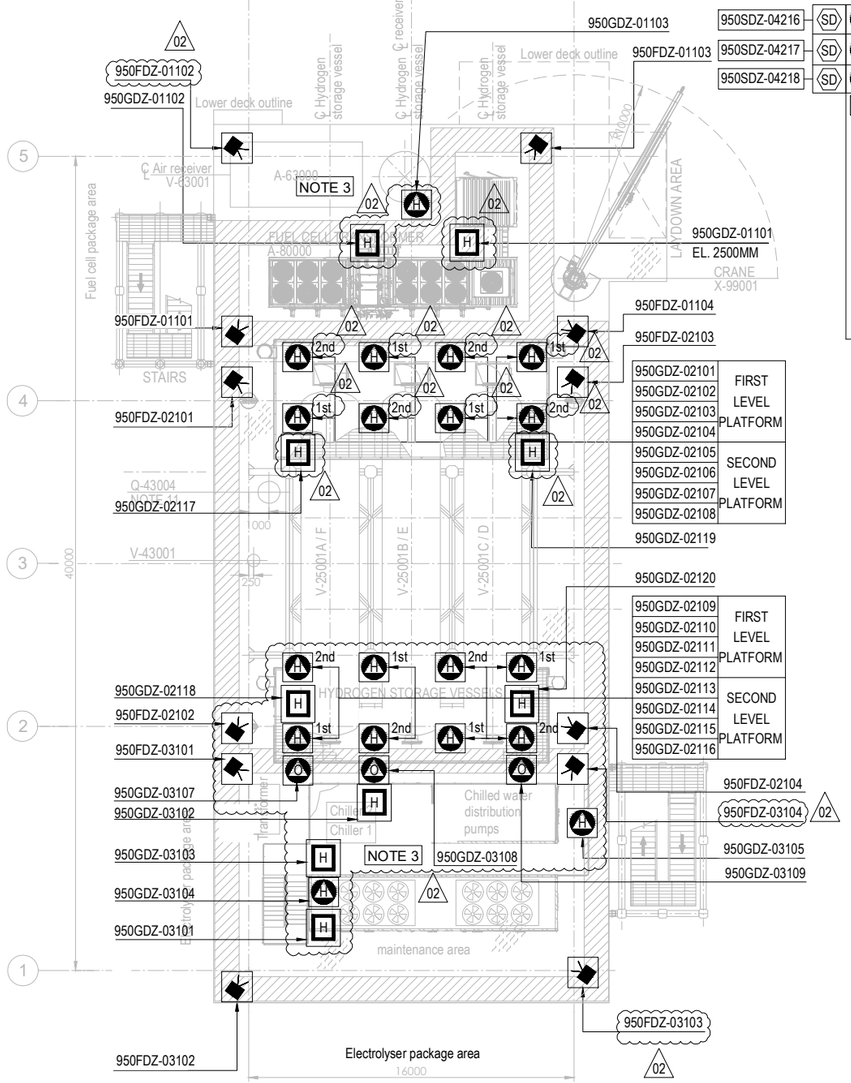
Comments



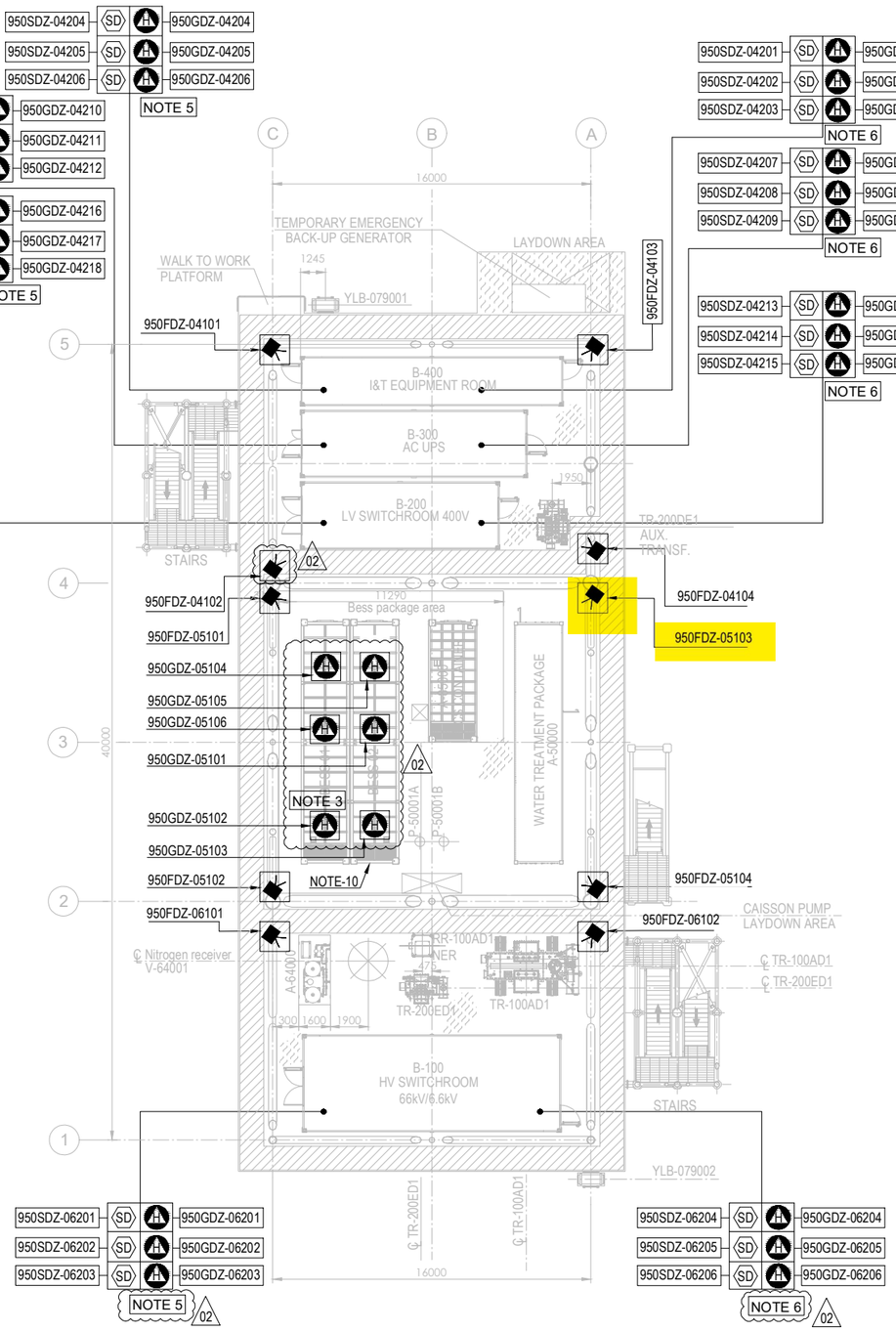
| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Francesco Zucca | Giovanni Tangianu | |
| Date | 2024-12-07 | 2024-12-11 | |
| Signature | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:55:20.097Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-11T17:13:41.826Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

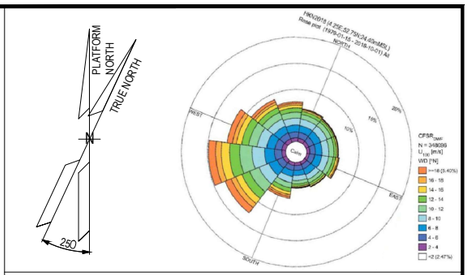
REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.




PLAN ON LOWER DECK
EL+23.310 T.O.S.




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| H | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

| INSTRUMENTS | | JUNCTION BOX 950-JE-05101 | MULTICABLE No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |
|---|---|---|---|---|
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05101 (1, 3, 2) RD, WH, BK | C-950-FDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | 950-JE-05101/B400-FGS-003 ~~950-JE-05101/B400-FGS-002~~ 12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS | TB-950-JE-05101 |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05102 (1, 3, 2) RD, WH, BK | C-950-FDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05103 (1, 3, 2) RD, WH, BK | C-950-FDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05104 (1, 3, 2) RD, WH, BK | C-950-FDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05101 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05102 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05103 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05104 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05105 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05105/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05106 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05106/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |

TB-1

| | | |
|---|---|---|
| 1 | | |
| 2 | TR1 | |
| 3 | | |
| SH | | |
| 4 | | |
| 5 | TR2 | |
| 6 | | |
| SH | | |
| 7 | | |
| 8 | TR3 | |
| 9 | | |
| SH | | |
| 10 | | |
| 11 | TR4 | |
| 12 | | |
| SH | | |
| 13 | | |
| 14 | TR5 | |
| 15 | | |
| SH | | |
| 16 | | |
| 17 | TR6 | |
| 18 | | |
| SH | | |
| 19 | | |
| 20 | TR7 | |
| 21 | | |
| SH | | |
| 22 | | |
| 23 | TR8 | |
| 24 | | |
| SH | | |
| 25 | | |
| 26 | TR9 | |
| 27 | | |
| SH | | |
| 28 | | |
| 29 | TR10 | |
| 30 | | |
| SH | | |
| SPARE 31 | | |
| 32 | TR11 | |
| 33 | | |
| SH | | |
| SPARE 34 | | |
| 35 | TR12 | |
| 36 | | |
| SH | | |
| OS | | |

TB-950-JE-05101

| | | |
|---|---|---|
| 1 | | |
| 2 | TR1 | 950-FDZ-05101 |
| 3 | | |
| 4 | | |
| 5 | TR2 | 950-FDZ-05102 |
| 6 | | |
| 7 | | |
| 8 | TR3 | 950-FDZ-05103 |
| 9 | | |
| 10 | | |
| 11 | TR4 | 950-FDZ-05104 |
| 12 | | |
| 13 | | |
| 14 | TR5 | 950-GDZ-05101 |
| 15 | | |
| 16 | | |
| 17 | TR6 | 950-GDZ-05102 |
| 18 | | |
| 19 | | |
| 20 | TR7 | 950-GDZ-05103 |
| 21 | | |
| 22 | | |
| 23 | TR8 | 950-GDZ-05104 |
| 24 | | |
| 25 | | |
| 26 | TR9 | 950-GDZ-05105 |
| 27 | | |
| 28 | | |
| 29 | TR10 | 950-GDZ-05106 <01> |
| 30 | | |
| 31 | | |
| 32 | TR11 | SPARE |
| 33 | | |
| 34 | | |
| 35 | TR12 | SPARE |
| 36 | | |

Shield Bar

I.E.

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DG-40016 | 045 | 01 |

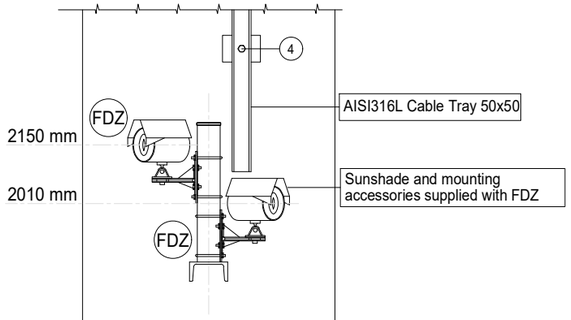
File Name : 123A90-DDL-IN-DG-40016_Rev.01

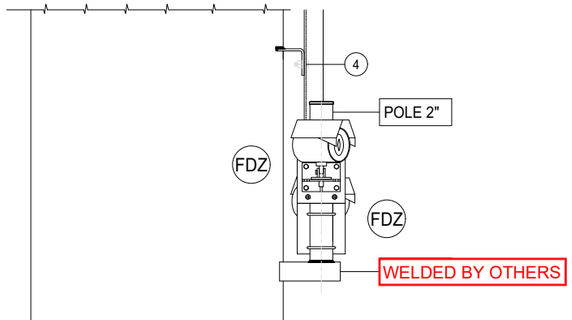
123A90-DDL-IN-DD-40017

REV. 00

# FGS-16

| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 4 |




| CLN | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | FDZ | FLAME DETECTOR | 950-FDZ-04102 |
| | FDZ | FLAME DETECTOR | 950-FDZ-05101 |
| 2 | FDZ | FLAME DETECTOR | 950-FDZ-05102 |
| | FDZ | FLAME DETECTOR | 950-FDZ-06101 |
| 3 | FDZ | FLAME DETECTOR | 950-FDZ-04104 |
| | FDZ | FLAME DETECTOR | 950-FDZ-05103 |
| 4 | FDZ | FLAME DETECTOR | 950-FDZ-05104 |
| | FDZ | FLAME DETECTOR | ~~950-FDZ-06103~~ 950-FDZ-06102 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

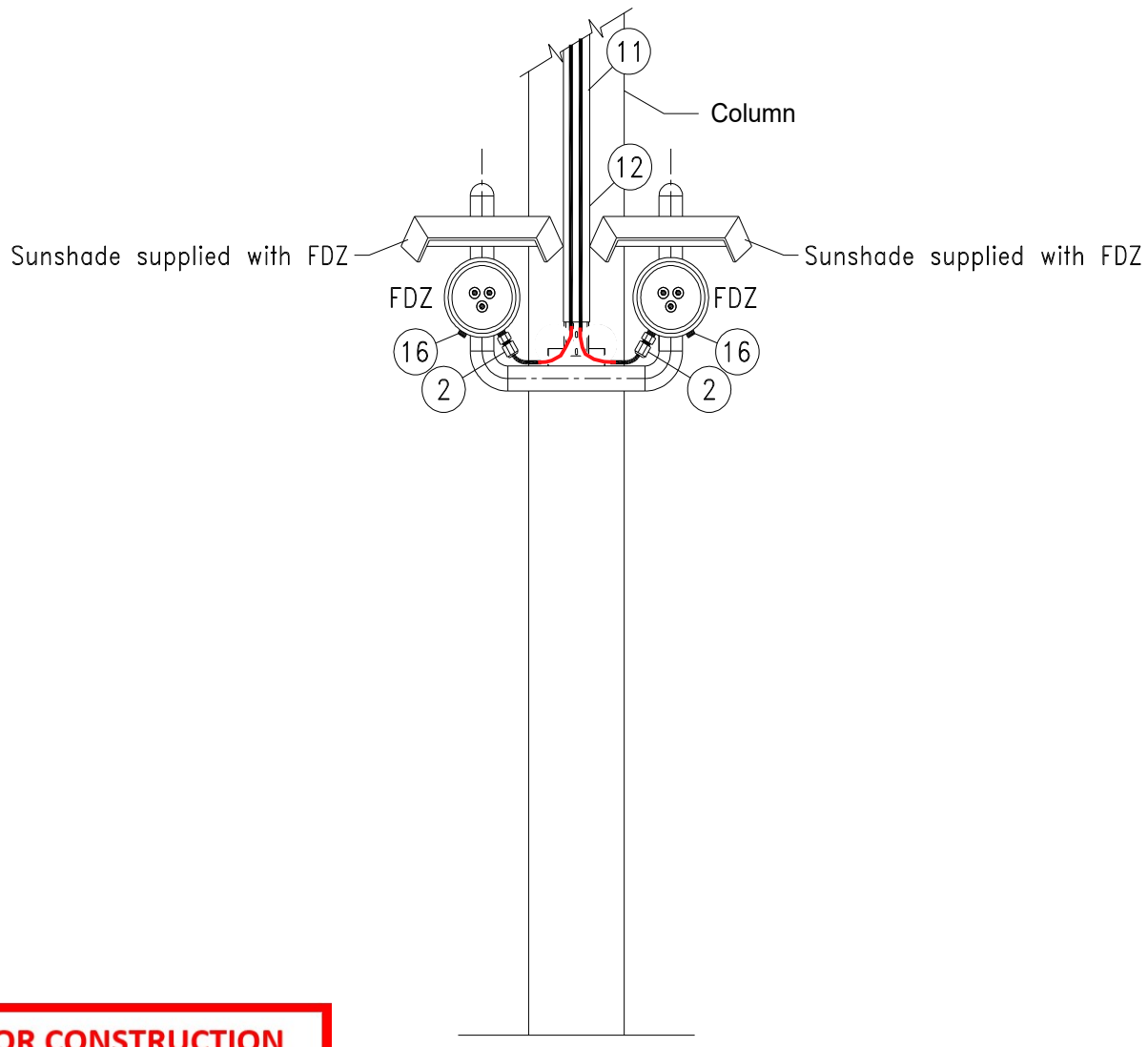
BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON STRUCTURE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| | 123A90-DDL-IN-DD-40017 | 035 | 01 |

| CROSSWIND | HOLLANDSE KUST NOORD WIND PARK Project<br>Contract No. CW-I-WP4-2023-05 | ROSETTI MARINO |
|---|---|---|
| Document Title: | Instrument Electrical Hook-Ups | Sh. 26 of 37<br>Date: 27/09/2024<br>Rev. 02 |

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES




| INSTRUMENT TAG | |
|---|---|
| 1 | 950-FDZ-04102 |
| | 950-FDZ-05101 |
| 2 | 950-FDZ-05102 |
| | 950-FDZ-06101 |
| 3 | 950-FDZ-04104 |
| | 950-FDZ-05103 |
| 4 | 950-FDZ-05104 |
| | 950-FDZ-06103 |
| 5 | 950-FDZ-04101 |
| 6 | 950-FDZ-04103 |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 12 | | Cover for cable tray, FRP, Grey Color | 50 W x 10 H x 5 THK | 3 mt |
| 11 | | Perforated cable tray, FRP, Grey Color | 50 W x 50 H x 5 THK | 3 mt |
| 16 | | Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1 | M25 | 2 |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 2 |

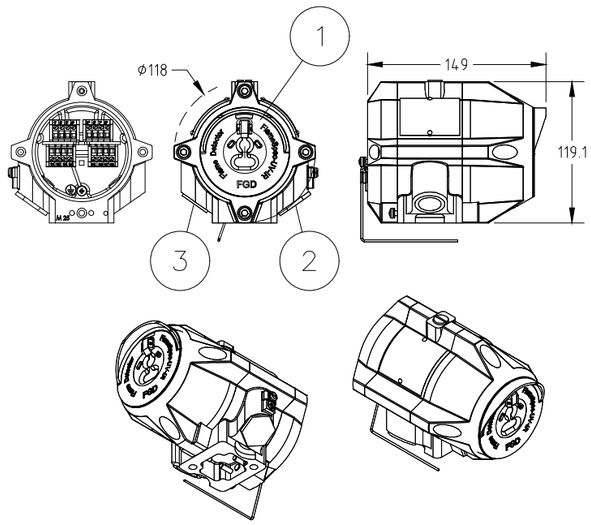

This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

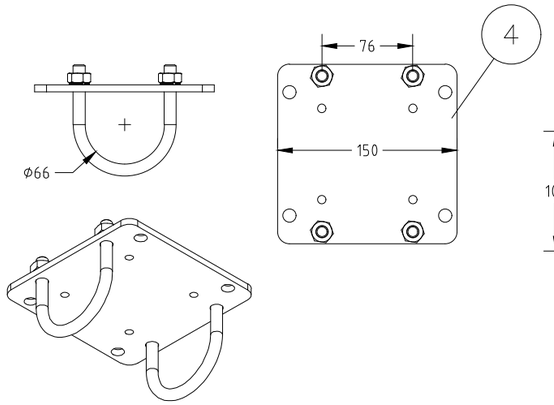
# FLAME DETECTOR / 2" PIPE MOUNTING

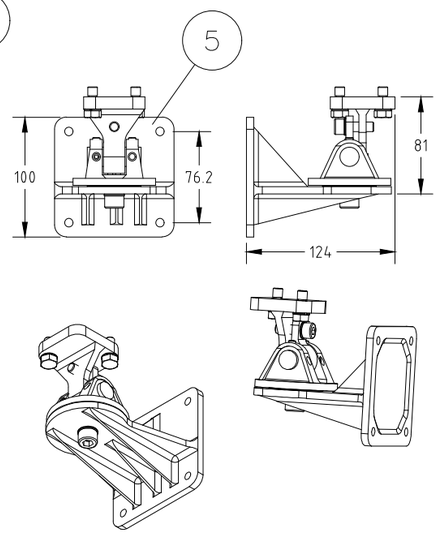
| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Flame Detector, FGD FlameSpec FLS-UV-IR-AS11 | 1 |
| 2 | Reducer M25 - M20 Ex d AISI 316 | 1 |
| 3 | Stop Plug M25 Ex d AISI 316 | 1 |
| 4 | 2 inch Mounting Kit, FGD F107X0050.00 | 1 |
| 5 | Tilt Assy, FGD F110X0090.00 | 1 |
| 6 | Weather Shield, FGD F107X0240.00 | 1 |
| 7 | Stainless Steel Name Plate | |
| 8 | | |
| 9 | | |
| 10 | | |

INSTALLATION QUANTITY

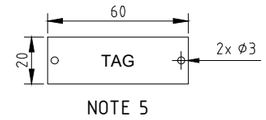
22



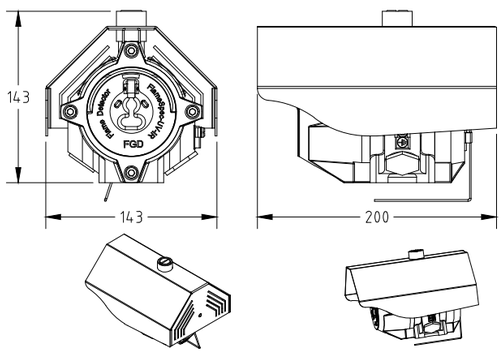



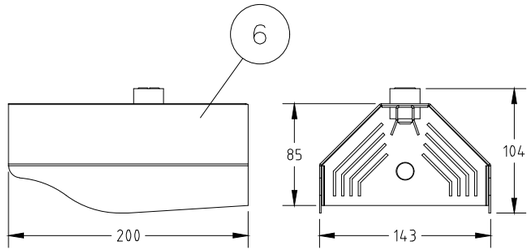

7 STAINLESS STEEL NAME PLATE DETAILS

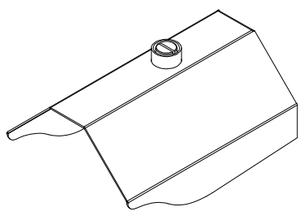



NOTE 5

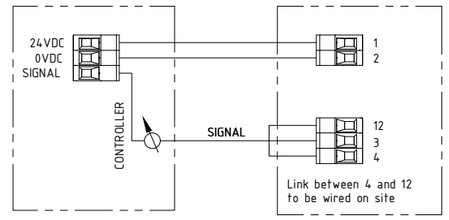
GA WEATHER SHIELD AND DETECTOR



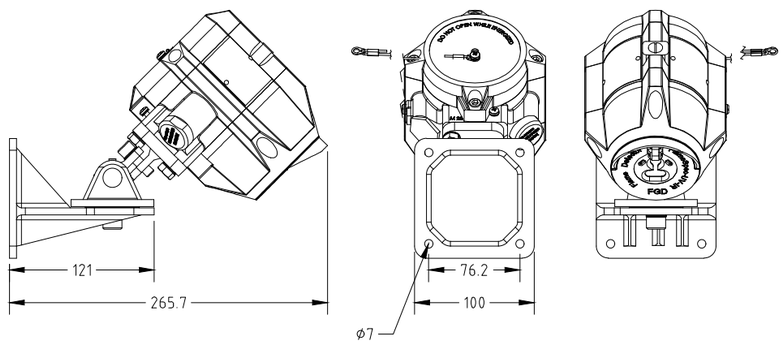



CONTROL CABINET — DETECTOR




INSTALLATION SCHEME




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 013

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# FLAME DETECTOR / 2" PIPE MOUNTING – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-FDZ-01101 |
| 2 | 950-FDZ-01102 |
| 3 | 950-FDZ-01103 |
| 4 | 950-FDZ-01104 |
| 5 | 950-FDZ-02101 |
| 6 | 950-FDZ-02102 |
| 7 | 950-FDZ-02103 |
| 8 | 950-FDZ-02104 |
| 9 | 950-FDZ-03101 |
| 10 | 950-FDZ-03102 |
| 11 | 950-FDZ-03103 |
| 12 | 950-FDZ-03104 |
| 13 | 950-FDZ-04101 |
| 14 | 950-FDZ-04102 |
| 15 | 950-FDZ-04103 |
| 16 | 950-FDZ-04104 |
| 17 | 950-FDZ-05101 |
| 18 | 950-FDZ-05102 |
| 19 | 950-FDZ-05103 |
| 20 | 950-FDZ-05104 |
| 21 | 950-FDZ-06101 |
| 22 | 950-FDZ-06103 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 014 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## FLAME DETECTOR

| POS. | TAG NUMBER | SERVICE |
|---|---|---|
| 1 | 950-FDZ-01101 | FZ-01 FUEL CELL PK AREA |
| 2 | 950-FDZ-01102 | FZ-01 FUEL CELL PK AREA |
| 3 | 950-FDZ-01103 | FZ-01 FUEL CELL PK AREA |
| 4 | 950-FDZ-01104 | FZ-01 FUEL CELL PK AREA |
| 5 | 950-FDZ-02101 | FZ-02 H2 STORAGE VESSELS AREA |
| 6 | 950-FDZ-02102 | FZ-02 H2 STORAGE VESSELS AREA |
| 7 | 950-FDZ-02103 | FZ-02 H2 STORAGE VESSELS AREA |
| 8 | 950-FDZ-02104 | FZ-02 H2 STORAGE VESSELS AREA |
| 9 | 950-FDZ-03101 | FZ-03 ELECTROLYZER PK AREA |
| 10 | 950-FDZ-03102 | FZ-03 ELECTROLYZER PK AREA |
| 11 | 950-FDZ-03103 | FZ-03 ELECTROLYZER PK AREA |
| 12 | 950-FDZ-03104 | FZ-03 ELECTROLYZER PK AREA |
| 13 | 950-FDZ-04101 | FZ-04 B-400/B-300/B-200 AREA |
| 14 | 950-FDZ-04102 | FZ-04 B-400/B-300/B-200 AREA |
| 15 | 950-FDZ-04103 | FZ-04 B-400/B-300/B-200 AREA |
| 16 | 950-FDZ-04104 | FZ-04 B-400/B-300/B-200 AREA |
| 17 | 950-FDZ-05101 | FZ-05 BESS AREA |
| 18 | 950-FDZ-05102 | FZ-05 BESS AREA |
| 19 | 950-FDZ-05103 | FZ-05 BESS AREA |
| 20 | 950-FDZ-05104 | FZ-05 BESS AREA |
| 21 | 950-FDZ-06101 | FZ-06 B-100 AREA |
| 22 | 950-FDZ-06103 | FZ-06 B-100 AREA |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# FlameSpec
# UV-IR
## UV-IR Flame Detector




The FlameSpec UV-IR will detect fires and explosions extremely quickly, thereby allowing mitigation steps to be initiated more rapidly to limit event escalation.

## Introduction

The FlameSpec-UV-IR flame detector provides ultra-fast response, high performance and reliable detection of a large variety of fires including hydrocarbon fires (visible and non-visible), as well as hydrogen and methane/hydrogen mixed fires. The detector addresses slow growing fires as well as fast eruptions of fire using improved UV-IR technology. The detector operates in all weather and light conditions.

## Key Benefits

- High immunity to false alarm
- High sensitivity – up to 100 ft. (30m) for a 1 $ft^2$ (0.1$m^2$) n-heptane pan fire.
- Hydrocarbon and non-hydrocarbon flame detection.
- Ultra-fast detection mode detection within 5 milliseconds for fireballs or explosions
- High speed (<0.5s) model [X5] available for compliance with NFPA 33.
- Four sensitivity levels.
- Universal outputs, 3 and 4 wire, 4-20 mA sink / source, Fire, Auxiliary and Fault Relays. RS485 port using Modbus RTU.
- Event logger – alarms, faults and other relevant events are logged to non-volatile memory
- Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and overall detector operation.
- Dirty optics warning for preventive maintenance needs.
- HART® 7, for configuration & maintenance - option available.
- Window heater to avoid condensation and icing.
- Stainless steel tilt mount with horizontal and vertical adjustment.
- Functional safety - SIL 2 capable - option available.
- Detect high UV (sparks and arcs) or IR levels via auxiliary relay and 4-20mA.


**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave. Anaheim, CA 92807 USA
Tel: (+1) 714-671-8500 | support@fg-detection.com
Version: F110V0010.08 • May 2023

# FlameSpec UV-IR

## UV-IR Flame Detector

Model: FLS-UV-IR

## Response Characteristics

| Fuel | Size | Sensitivity | Distance ft. (m) | Avrg Resp.Time (s) |
|---|---|---|---|---|
| N-Heptane | 1 x 1 ft. | Extreme | 98 (30) | 2.0 |
| N-Heptane | 1 x 1 ft. | High | 75 (23) | 1.7 |
| N-Heptane | 1 x 1 ft. | Medium | 49 (15) | 1.0 |
| N-Heptane | 1 x 1 ft. | Low | 16 (5) | 1.0 |
| Gasoline | 2 x 2 ft. | Extreme | 197 (60) | 3.3 |
| Gasoline | 1 x 1 ft. | Extreme | 98 (30) | 1.8 |
| Gasoline | 1 x 1 ft. | Medium | 49 (15) | 1.3 |
| Methane | 32-in Plume | Extreme | 59 (18) | 1.4 |
| Methane | 32-in Plume | Medium | 30 (9) | 0.9 |
| LPG | 32-in Plume | Extreme | 75 (23) | 1.2 |
| LPG | 32-in Plume | High | 56 (17) | 1.6 |
| LPG | 32-in Plume | Medium | 33 (10) | 1.2 |
| LPG | 32-in Plume | Low | 13 (4) | 1.2 |
| Diesel | 1 x 1 ft. | Extreme | 75 (23) | 2.6 |
| Diesel | 1 x 1 ft. | Medium | 36 (11) | 1.2 |
| JP5 | 1 x 1 ft. | Extreme | 75 (23) | 3.3 |
| JP5 | 1 x 1 ft. | High | 56 (17) | 1.8 |
| JP5 | 1 x 1 ft. | Medium | 36 (11) | 1.2 |
| JP5 | 1 x 1 ft. | Low | 16 (5) | 1.2 |
| Kerosene | 1 x 1 ft. | Extreme | 75 (23) | 1.8 |
| Kerosene | 1 x 1 ft. | Medium | 36 (11) | 0.9 |
| Methanol | 1 x 1 ft. | Extreme | 52 (16) | 0.8 |
| Methanol | 1 x 1 ft. | High | 43 (13) | 3.2 |
| Methanol | 1 x 1 ft. | Medium | 30 (9) | 1.3 |
| Methanol | 1 x 1 ft. | Low | 10 (3) | 2.7 |
| Ethanol | 1 x 1 ft. | Extreme | 62 (19) | 4.1 |
| Ethanol | 1 x 1 ft. | Medium | 31 (9.5) | 2.9 |
| Isopropanol | 1 x 1 ft. | Extreme | 75 (23) | 2.2 |
| Isopropanol | 1 x 1 ft. | Medium | 36 (11) | 0.8 |
| Polypropylene | 1 x 1 ft. | Extreme | 49 (15) | 1.4 |
| Polypropylene | 1 x 1 ft. | Medium | 23 (7) | 0.9 |
| Hydrogen | 32-in Plume | Extreme | 66 (20) | 6.4 |
| Hydrogen | 32-in Plume | Medium | 33 (10) | 1.0 |
| Syngas (30%$CH_4$:70%$H_2$) | 32-in Plume | Extreme | 59 (18) | 3.2 |
| Syngas (30%$CH_4$:70%$H_2$) | 32-in Plume | Medium | 33 (10) | 1.2 |

# FlameSpec UV-IR

## UV-IR Flame Detector

Model: FLS-UV-IR

## Immunity to False Alarm

| False Alarm Source | Modulated | | Unmodulated | |
|---|---|---|---|---|
| | Distance ft. (m) | Response | Distance ft. (m) | Response |
| Sunlight, Direct, Reflected | | No Alarm | | No Alarm |
| Incandescent frosted glass light, 300W | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Fluorescent, 70W (3x23.3W) | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Electric arc | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Arc welding | 10.0 (3.0) | No Alarm | 10.0 (3.0) | No Alarm |
| Radiation heater, 2000W | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Halogen lamp (500W) non-shielded | 7.0 (2.0) | No Alarm | 7.0 (2.0) | No Alarm |
| Halogen lamp (1000W) | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Mercury vapor lamp 160Wx3 | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Exhausts | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Projector led | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Solenoid bell | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| soldering iron | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Electric Drill | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |

# FlameSpec UV-IR

## UV-IR Flame Detector

Model: FLS-UV-IR

| | | |
|---|---|---|
| FIRE DETECTION | **Detection time and distance** | 5ms for fast burst of explosion<br>1s for 1 ft² (0.1m²) n-heptane pan fire at 0–50 ft. (0–15m)<br>< 2s for 1 ft² (0.1m²) n-heptane pan fire at 50–100 ft. (15–30m) |
| | **Sensitivity Range** | 4 sensitivity ranges: Extreme, High, Medium, Low |
| | **Field of view (IR detection)** | 90° Horizontal, 80° Vertical |
| | **Time Delay** | 0-30 seconds |
| | **Built in Test** | Automatic and Manual |
| ELECTRICAL SPECIFICATIONS | **Operating Voltage** | 24 VDC nominal (18-32 VDC) |
| | **Current Consumption** | Standby: 120mA<br>180mA all systems in operation (including window heater) |
| | **Electrical Entries** | 2x cable and conduit entries 3/4" NPT(F) or M25x1.5 |
| | **Wiring** | 14-17 AWG (2.5–1.0 mm²) |
| OUTPUTS | **Relays** | SPST volt-free contacts rated 2A at 30 VDC<br>3 relays: Alarm & Auxiliary – normally open; Fault – normally closed |
| | **0-20mA (stepped) current output** | 3 wire and 4 wire (isolated) configurations (sink and source)<br>HART® rev 7.0 (option available) |
| | **Indication** | Tri-color LED (Green, Yellow, Red) |
| | **Modbus** | RTU compatible on RS-485 |
| MECHANICAL SPECIFICATIONS | **Size** | 5.51 x 3.54 × 3.54" (140×90×90mm) |
| | **Weight** | Detector (Stainless Steel 316): 6.6 lbs. (3.0 kg)<br>Tilt mount (Stainless Steel 316): 3.3 lbs. (1.5 kg) |
| ENVIRONMENTAL SPECIFICATIONS | **Temperature Range** | Operating: -67°F to +185°F (-55°C to +85°C)<br>Storage: -67°F to +185°F (-55°C to +85°C) |
| | **Humidity** | Up to 99% (RH), non-condensing |
| | **Ingress Protection** | IP66 & 68 (2m, 24hr); NEMA 4X & 6P |
| APPROVALS | **ATEX** | ATEX: II 2 G D<br>Ex db IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db -55°C<Ta<75°C<br>Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db -55°C<Ta<85°C |
| | **IECEx, INMETRO & PESO** | Ex db IIC T5 Gb -50°C≤Ta≤75°C<br>Ex db IIC T4 Gb -50°C≤Ta≤85°C |
| | **FMus & FMc** | Class I, Div. 1, Groups B, C & D; T4<br>Class I, Zone 1, AEx/Ex db IIC T4 Gb<br>T4 -50°C≤Ta≤85°C<br>T5 -50°C≤Ta≤75°C |
| | **EAC CU TR** | 1Ex d IIC T5 Gb or 1Ex de IIC T5 Gb and Ex tb IIIC T95°C Db -55°C≤Ta≤75°C<br>1Ex d IIC T4 Gb or 1Ex de IIC T4 Gb and Ex tb IIIC T105°C Db -55°C≤Ta≤85°C |
| | **Performance** | ANSI FM 3260<br>EN 54-10 |
| | **Functional safety** | Certified SIL2 capable, per IEC 61508:2010 High & Low demand (option available) |

| | | |
|---|---|---|
| ACCESSORIES | **Tilt mount, model FLS-TMO-S01** | **High vibration mounting bracket, model FLS-MIL-S01** |
| | **Weather cover, model FLS-WCO-S01** | **Flame simulator, model FLS-FSIM-UV-IR-KIT** |
| | **2" & 3" pole mount adapter, model FLS-PMA-S23** | **Airshield, model FLS-ASD-S01** |
| | **Duct mount with window, model FLS-DMW-S01** | **Duct mount for airshield, model FLS-DMX-S01** |
| WARRANTY | **5 years** | |

FIRE & GAS DETECTION TECHNOLOGIES INC.

**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave. Anaheim, CA 92807 USA
Tel: (+1) 714-671-8500 | support@fg-detection.com
Specifications subject to change without notice.

FlameSpec

# FLS-FSIM

Flame Simulator Family



## The FlameSpec Flame Simulator range provides fast and convenient detector verification in the field.

## Introduction

Flame simulators are often used by industry to perform detector testing during commissioning and periodic system testing. FlameSpec simulators differ from many competing products because they test the active sensors and detection algorithms of the devices without using “bypass” techniques to trick the detector into responding.

The FSIM range is lightweight, simple to use and has a modern ergonomic design. Suitable for use in hazardous areas, the FSIM-IR3 has an extended trigger distance of up to 30 feet (10 meters) from the detector.

Three FSIM models are available, depending on the FlameSpec Detector to be tested, IR3, IR3-H2 and UV-IR.

## Key Benefits

- Tests the active sensors and detection algorithms, without using “bypass” techniques.
  - No tricks, detector performance assured.
- Works from distance up to 30 feet (10 meters).
  - Reduces the need for scaffolding.
- Hazardous area use approved.
  - Hot work permits not needed required.
- Lightweight and simple to use.
  - More than 1,000 activations between charges.
- Includes carrying strap, protective storage case, battery charger and operating instructions.
- Easy to transport & supplied with everything needed.
- Complementary to FlameSpec Detector inbuilt test features.
  - Enables full end to end (loop) system test.

FIRE & GAS DETECTION TECHNOLOGIES INC.

**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave., Anaheim, CA 92807
Tel: (+1) 714-671-8500 | support@fg-detection.com

Version: F300V0010.04 • Oct 2023

# FlameSpec-FLS-FSIM

## Flame Simulator Family

| | | | | |
|---|---|---|---|---|
| | **Simulator Kits Part Nos** | FLS-FSIM-IR3-KIT | FLS-FSIM-IR3-H2-KIT | FLS-FSIM-UV-IR-KIT |
| | **Detector type** | FLS-IR3[1]<br>FLS-IR3-HD[1] | FLS-IR3-H2<br>FLS-IR3-H2-HD | FLS-UV-IR<br>FLS-UV-IR-HD |
| OPERATION DISTANCES | **Detector Sensitivity** | ft. m | ft. m | ft. m |
| | Extreme | 30 9.0 | 30 9.0 | 42.5 13.0 |
| | High | 20 6.0 | 20 6.0 | 26 8.0 |
| | Medium | 10 3.0 | 10 3.0 | 20 6.0 |
| | Low | 3.3[2] 1.0[2] | 3.3[2] 1.0[2] | 6.6 2.0 |
| ELECTRICAL SPECIFICATIONS | **Operating Voltage nominal, V** | 3.7 | 3.7 | 3.7 |
| | **Number of activations between charging** | ~1000 | ~1000 | ~50 |
| | **Battery Capacity, mAh** | >3000 | >3000 | >3000 |
| | **Charging time, hours** | up to 3 | up to 3 | up to 3 |
| | **Indication** | 3 Color LED (Green, Yellow, Red) | | |
| | **All Simulator Models** | | | |
| MECHANICAL SPECIFICATIONS | **Size** | 3.9 x 3.9 x 7.8" (100 x 100 x 200mm) | | |
| | **Weight** | 3.96 lbs. (1.8 kg) | | |
| | **Simulator Enclosure Material** | Painted Aluminum LM25 | | |
| ENVIRONMENTAL SPECIFICATIONS | **Ingress Protection** | IP65 (NEMA 4X) | | |
| | **Humidity** | up to 99% (RH), non-condensing | | |
| | **Operating temperature** | Min: −4°F (−20°C)<br>Max: +122°F (+50°C) | | |
| APPROVALS | **Explosion proof** | ATEX<br>Ex II 2 G Ex db ib op is IIC T6 Gb<br>Ex II 2 D Ex tb ib op is IIIC T85°C Db<br>-20°C<Ta<+50°C | | |
| ACCESSORIES included in kits | **Carrying Case** | FLS-FSIM-CASE | | |
| | **Carrying Strap** | FLS-FSIM-STRAP | | |
| | **Cover Tool** | FLS-FSIM-TOOL | | |
| | **Allen Key** | FLS-FSIM-ALLEN | | |
| | **Battery Charger** | FLS-FSIM-CHRGR | | |
| WARRANTY | **3 Years** | | | |

[1]not CO2L variant
[2]with collimator removed

FIRE & GAS DETECTION TECHNOLOGIES INC.

**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave., Anaheim, CA 92807
Tel: (+1) 714-671-8500 | support@fg-detection.com

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-FDZ-05104 | : Flame Detector - FZ-05 BESS Area | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10000988 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX43 | | Fire Detector |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to F&G detection layout drawings. | OK |
| 4 | Check test facility is installed. | OK |
| 5 | Check sensor activation lamp is visible. | OK |
| 6 | Check remote annunciator is installed (where required). | NA |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | OK |
| 9 | Check accessibility conforms to specifications, with platforming where necessary. | OK |
| 10 | Check calibration certificate (where applicable). | NA |
| 11 | Check electrical connections. | OK |
| 12 | Check earthing connections. | OK |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

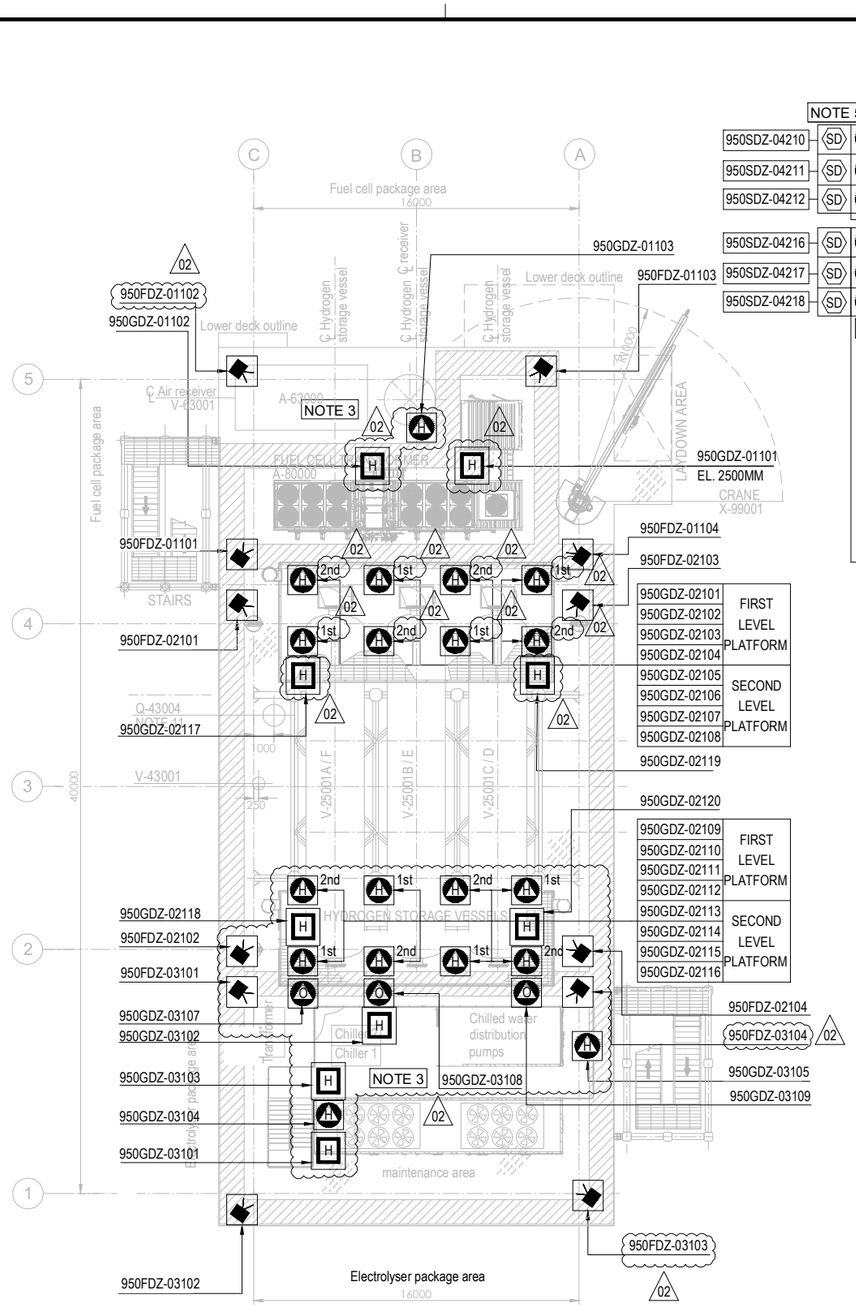
Comments



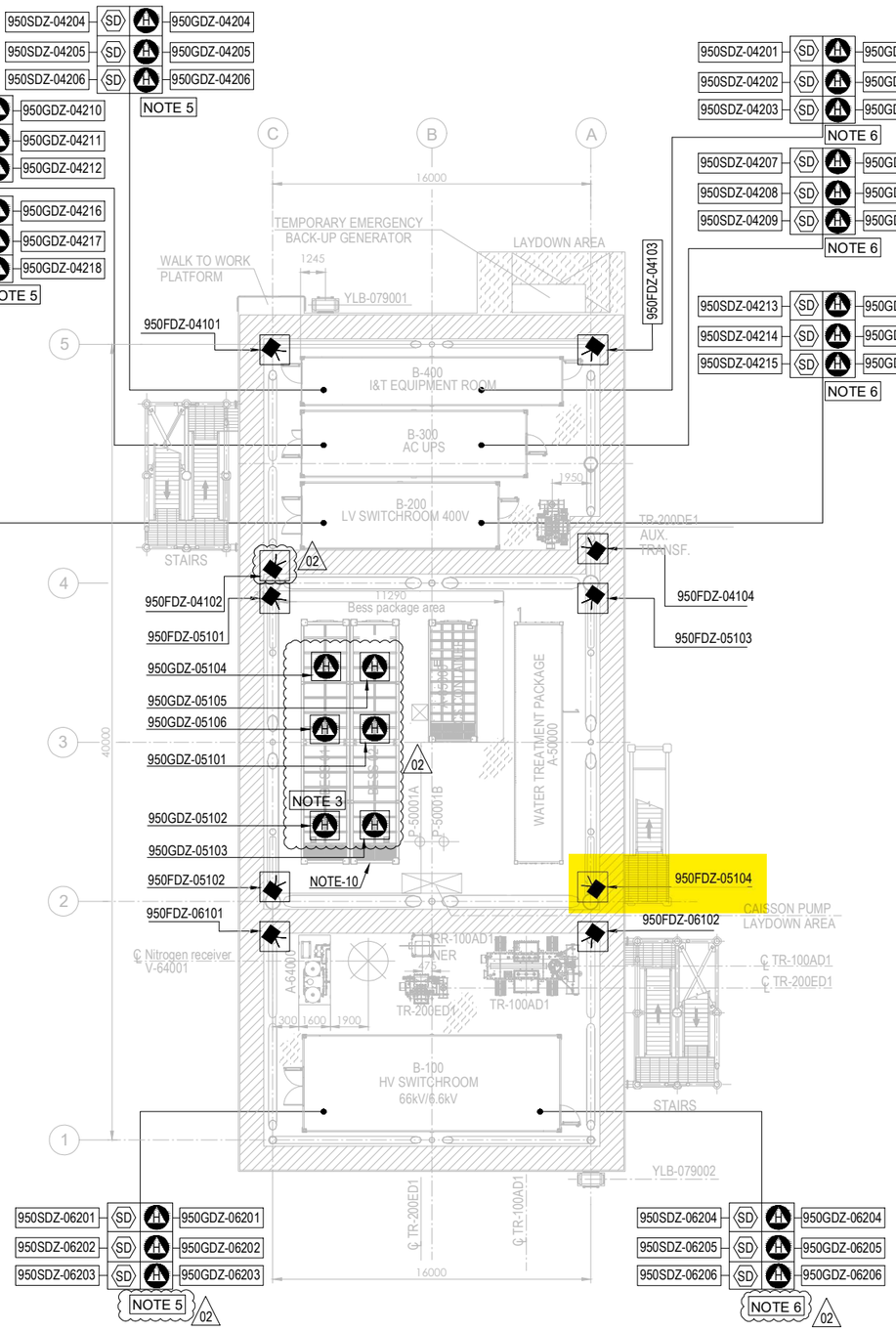
| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-07 | 2024-12-10 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:55:30.475Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-10T16:55:28.927Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02




## PLAN ON UPPER DECK
## EL+30.310 T.O.S.

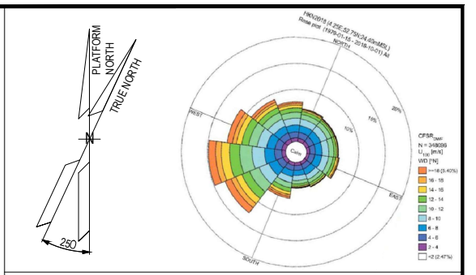



## PLAN ON LOWER DECK
## EL+23.310 T.O.S.

### EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

### HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: 123A90-FDL-SAF-DL-30027

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

ROSETTI MARINO SpA

### REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

| INSTRUMENTS | | JUNCTION BOX 950-JE-05101 | MULTICABLE No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |
|---|---|---|---|---|
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05101 (1, 3, 2) RD, WH, BK | C-950-FDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | TB-1<br>RD 1, WH 2, BK 3 | 950-JE-05101/B400-FGS-003<br>~~950-JE-05101/B400-FGS-002~~<br>12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS | TB-950-JE-05101<br>TR1 RD 1, WH 2, BK 3, Shield Bar<br>950-FDZ-05101 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05102 (1, 3, 2) RD, WH, BK | C-950-FDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 4, WH 5, BK 6 | | TR2 RD 4, WH 5, BK 6, Shield Bar<br>950-FDZ-05102 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05103 (1, 3, 2) RD, WH, BK | C-950-FDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 7, WH 8, BK 9 | | TR3 RD 7, WH 8, BK 9, Shield Bar<br>950-FDZ-05103 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05104 (1, 3, 2) RD, WH, BK | C-950-FDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 10, WH 11, BK 12 | | TR4 RD 10, WH 11, BK 12, Shield Bar<br>950-FDZ-05104 |
| 950-GDZ-05101 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 13, WH 14, BK 15 | | TR5 RD 13, WH 14, BK 15, Shield Bar<br>950-GDZ-05101 |
| 950-GDZ-05102 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 16, WH 17, BK 18 | | TR6 RD 16, WH 17, BK 18, Shield Bar<br>950-GDZ-05102 |
| 950-GDZ-05103 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 19, WH 20, BK 21 | | TR7 RD 19, WH 20, BK 21, Shield Bar<br>950-GDZ-05103 |
| 950-GDZ-05104 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 22, WH 23, BK 24 | | TR8 RD 22, WH 23, BK 24, Shield Bar<br>950-GDZ-05104 |
| 950-GDZ-05105 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05105/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 25, WH 26, BK 27 | | TR9 RD 25, WH 26, BK 27, Shield Bar<br>950-GDZ-05105 |
| 950-GDZ-05106 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05106/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 28, WH 29, BK 30 | | TR10 RD 28, WH 29, BK 30, Shield Bar<br>950-GDZ-05106 <01> |
| | | SH<br>SPARE 31 | | TR11 RD 31, WH 32, BK 33, Shield Bar<br>SPARE |
| | | SH<br>SPARE 34 | | TR12 RD 34, WH 35, BK 36, Shield Bar<br>SPARE |
| | | SH<br>OS | | I.E. Shield Bar |

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40016 | SHEET 045 | REV. 01 |

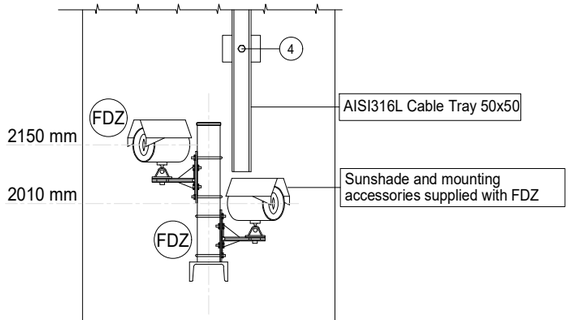
File Name : 123A90-DDL-IN-DG-40016_Rev.01

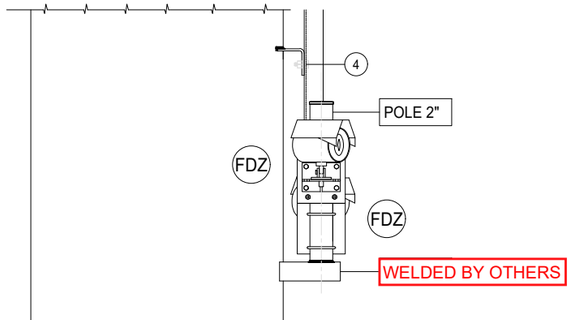
123A90-DDL-IN-DD-40017

REV. 00

# FGS-16

| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 4 |




| CLN | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | FDZ | FLAME DETECTOR | 950-FDZ-04102 |
| | FDZ | FLAME DETECTOR | 950-FDZ-05101 |
| 2 | FDZ | FLAME DETECTOR | 950-FDZ-05102 |
| | FDZ | FLAME DETECTOR | 950-FDZ-06101 |
| 3 | FDZ | FLAME DETECTOR | 950-FDZ-04104 |
| | FDZ | FLAME DETECTOR | 950-FDZ-05103 |
| 4 | FDZ | FLAME DETECTOR | 950-FDZ-05104 |
| | FDZ | FLAME DETECTOR | ~~950-FDZ-06103~~ 950-FDZ-06102 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

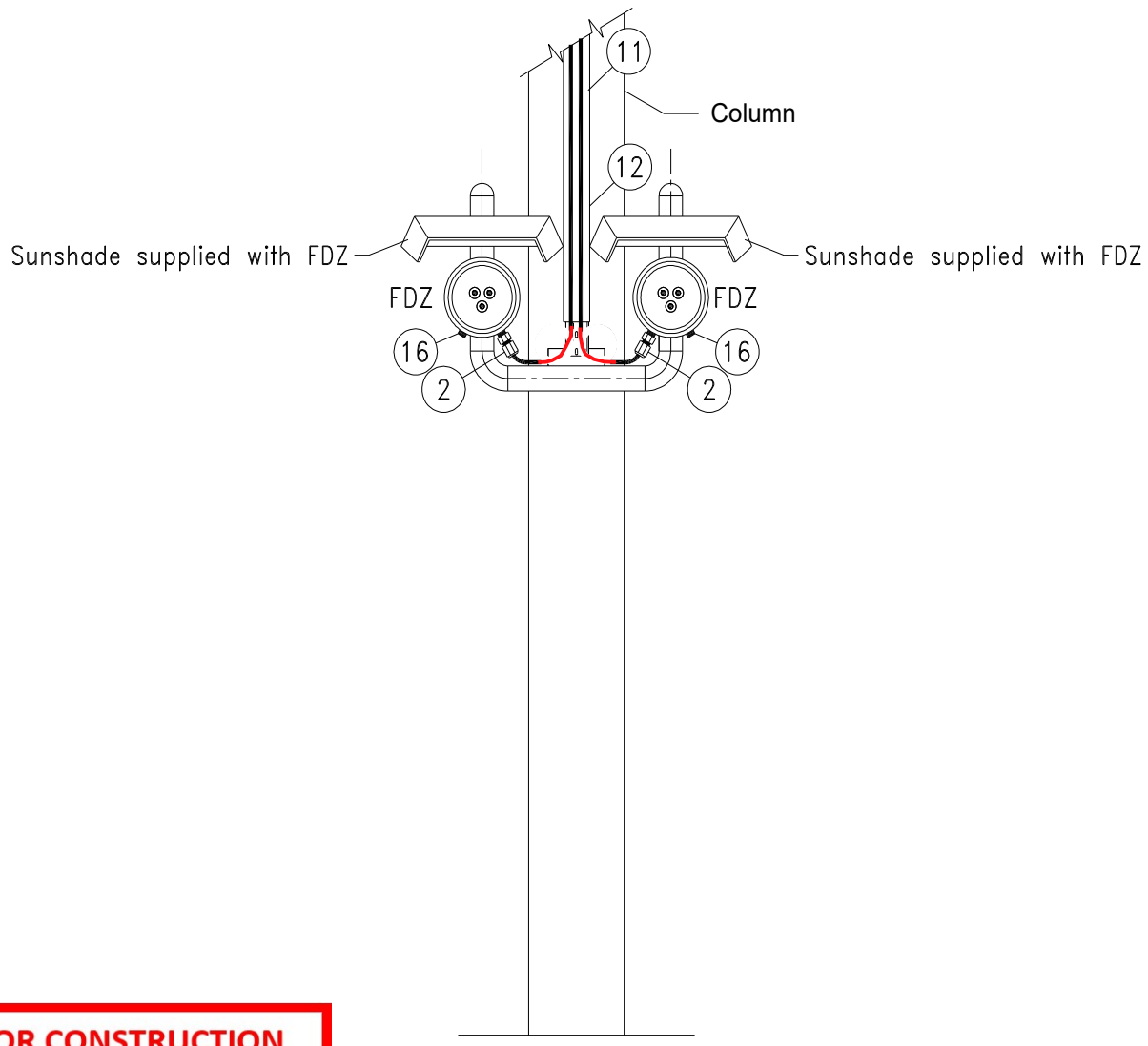
TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON STRUCTURE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| | 123A90-DDL-IN-DD-40017 | 035 | 01 |

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES




| INSTRUMENT TAG | |
|---|---|
| 1 | 950-FDZ-04102 |
| | 950-FDZ-05101 |
| 2 | 950-FDZ-05102 |
| | 950-FDZ-06101 |
| 3 | 950-FDZ-04104 |
| | 950-FDZ-05103 |
| 4 | 950-FDZ-05104 |
| | 950-FDZ-06103 |
| 5 | 950-FDZ-04101 |
| 6 | 950-FDZ-04103 |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 12 | | Cover for cable tray, FRP, Grey Color | 50 W x 10 H x 5 THK | 3 mt |
| 11 | | Perforated cable tray, FRP, Grey Color | 50 W x 50 H x 5 THK | 3 mt |
| 16 | | Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1 | M25 | 2 |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 2 |

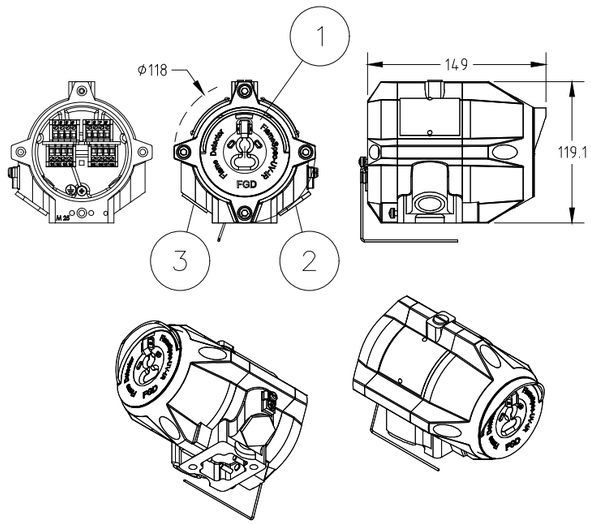

This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

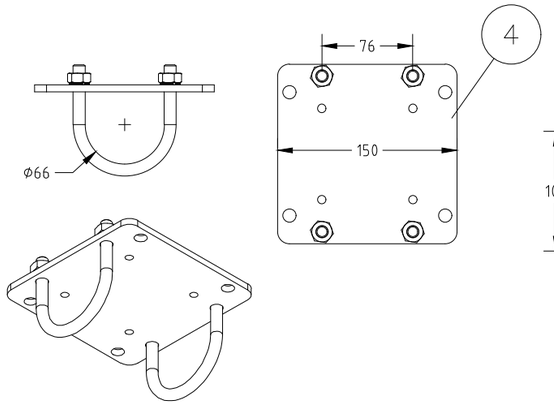
# FLAME DETECTOR / 2" PIPE MOUNTING

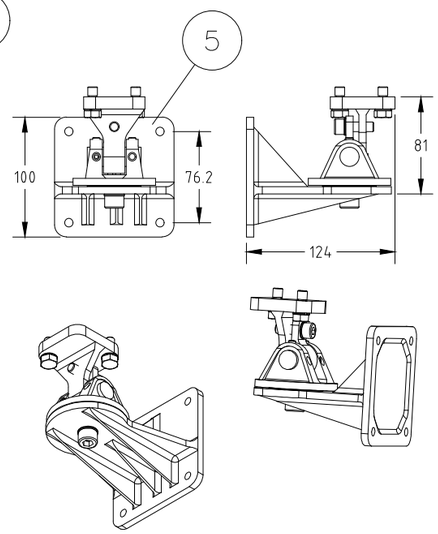
| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Flame Detector, FGD FlameSpec FLS-UV-IR-AS11 | 1 |
| 2 | Reducer M25 - M20 Ex d AISI 316 | 1 |
| 3 | Stop Plug M25 Ex d AISI 316 | 1 |
| 4 | 2 inch Mounting Kit, FGD F107X0050.00 | 1 |
| 5 | Tilt Assy, FGD F110X0090.00 | 1 |
| 6 | Weather Shield, FGD F107X0240.00 | 1 |
| 7 | Stainless Steel Name Plate | |
| 8 | | |
| 9 | | |
| 10 | | |

INSTALLATION QUANTITY

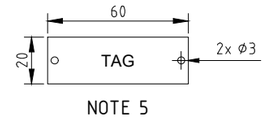
22



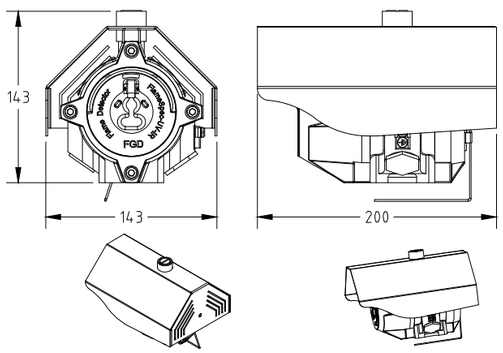



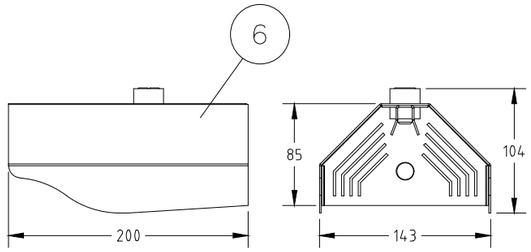

7 STAINLESS STEEL NAME PLATE DETAILS

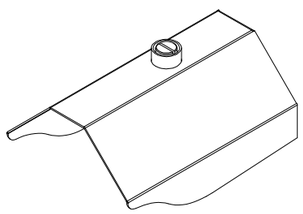



NOTE 5

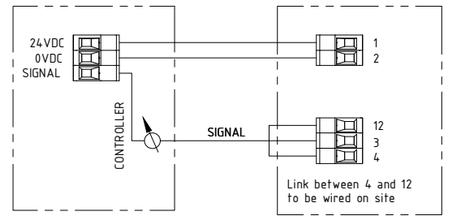
GA WEATHER SHIELD AND DETECTOR



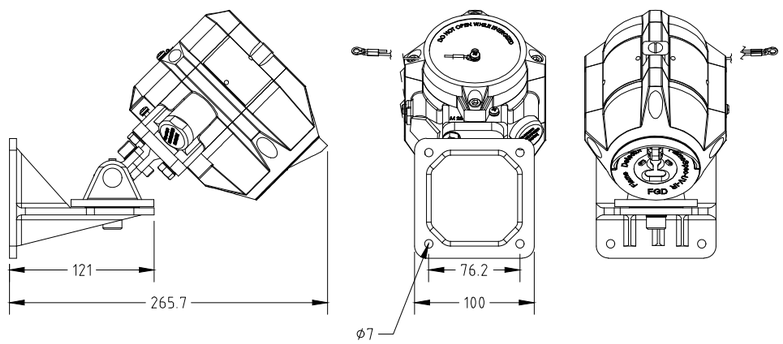



CONTROL CABINET — DETECTOR




INSTALLATION SCHEME




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 013

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# FLAME DETECTOR / 2" PIPE MOUNTING – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-FDZ-01101 |
| 2 | 950-FDZ-01102 |
| 3 | 950-FDZ-01103 |
| 4 | 950-FDZ-01104 |
| 5 | 950-FDZ-02101 |
| 6 | 950-FDZ-02102 |
| 7 | 950-FDZ-02103 |
| 8 | 950-FDZ-02104 |
| 9 | 950-FDZ-03101 |
| 10 | 950-FDZ-03102 |
| 11 | 950-FDZ-03103 |
| 12 | 950-FDZ-03104 |
| 13 | 950-FDZ-04101 |
| 14 | 950-FDZ-04102 |
| 15 | 950-FDZ-04103 |
| 16 | 950-FDZ-04104 |
| 17 | 950-FDZ-05101 |
| 18 | 950-FDZ-05102 |
| 19 | 950-FDZ-05103 |
| 20 | 950-FDZ-05104 |
| 21 | 950-FDZ-06101 |
| 22 | 950-FDZ-06103 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 014 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# FLAME DETECTOR

| POS. | TAG NUMBER | SERVICE |
|---|---|---|
| 1 | 950-FDZ-01101 | FZ-01 FUEL CELL PK AREA |
| 2 | 950-FDZ-01102 | FZ-01 FUEL CELL PK AREA |
| 3 | 950-FDZ-01103 | FZ-01 FUEL CELL PK AREA |
| 4 | 950-FDZ-01104 | FZ-01 FUEL CELL PK AREA |
| 5 | 950-FDZ-02101 | FZ-02 H2 STORAGE VESSELS AREA |
| 6 | 950-FDZ-02102 | FZ-02 H2 STORAGE VESSELS AREA |
| 7 | 950-FDZ-02103 | FZ-02 H2 STORAGE VESSELS AREA |
| 8 | 950-FDZ-02104 | FZ-02 H2 STORAGE VESSELS AREA |
| 9 | 950-FDZ-03101 | FZ-03 ELECTROLYZER PK AREA |
| 10 | 950-FDZ-03102 | FZ-03 ELECTROLYZER PK AREA |
| 11 | 950-FDZ-03103 | FZ-03 ELECTROLYZER PK AREA |
| 12 | 950-FDZ-03104 | FZ-03 ELECTROLYZER PK AREA |
| 13 | 950-FDZ-04101 | FZ-04 B-400/B-300/B-200 AREA |
| 14 | 950-FDZ-04102 | FZ-04 B-400/B-300/B-200 AREA |
| 15 | 950-FDZ-04103 | FZ-04 B-400/B-300/B-200 AREA |
| 16 | 950-FDZ-04104 | FZ-04 B-400/B-300/B-200 AREA |
| 17 | 950-FDZ-05101 | FZ-05 BESS AREA |
| 18 | 950-FDZ-05102 | FZ-05 BESS AREA |
| 19 | 950-FDZ-05103 | FZ-05 BESS AREA |
| 20 | 950-FDZ-05104 | FZ-05 BESS AREA |
| 21 | 950-FDZ-06101 | FZ-06 B-100 AREA |
| 22 | 950-FDZ-06103 | FZ-06 B-100 AREA |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# FlameSpec
# UV-IR
## UV-IR Flame Detector




The FlameSpec UV-IR will detect fires and explosions extremely quickly, thereby allowing mitigation steps to be initiated more rapidly to limit event escalation.

## Introduction

The FlameSpec-UV-IR flame detector provides ultra-fast response, high performance and reliable detection of a large variety of fires including hydrocarbon fires (visible and non-visible), as well as hydrogen and methane/hydrogen mixed fires. The detector addresses slow growing fires as well as fast eruptions of fire using improved UV-IR technology. The detector operates in all weather and light conditions.

## Key Benefits

- High immunity to false alarm
- High sensitivity – up to 100 ft. (30m) for a 1 $ft^2$ (0.1$m^2$) n-heptane pan fire.
- Hydrocarbon and non-hydrocarbon flame detection.
- Ultra-fast detection mode detection within 5 milliseconds for fireballs or explosions
- High speed (<0.5s) model [X5] available for compliance with NFPA 33.
- Four sensitivity levels.
- Universal outputs, 3 and 4 wire, 4-20 mA sink / source, Fire, Auxiliary and Fault Relays. RS485 port using Modbus RTU.
- Event logger – alarms, faults and other relevant events are logged to non-volatile memory
- Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and overall detector operation.
- Dirty optics warning for preventive maintenance needs.
- HART® 7, for configuration & maintenance - option available.
- Window heater to avoid condensation and icing.
- Stainless steel tilt mount with horizontal and vertical adjustment.
- Functional safety - SIL 2 capable - option available.
- Detect high UV (sparks and arcs) or IR levels via auxiliary relay and 4-20mA.


**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave. Anaheim, CA 92807 USA
Tel: (+1) 714-671-8500 | support@fg-detection.com
Version: F110V0010.08 • May 2023

# FlameSpec UV-IR

## UV-IR Flame Detector

Model: FLS-UV-IR

## Response Characteristics

| Fuel | Size | Sensitivity | Distance ft. (m) | Avrg Resp.Time (s) |
|---|---|---|---|---|
| N-Heptane | 1 x 1 ft. | Extreme | 98 (30) | 2.0 |
| N-Heptane | 1 x 1 ft. | High | 75 (23) | 1.7 |
| N-Heptane | 1 x 1 ft. | Medium | 49 (15) | 1.0 |
| N-Heptane | 1 x 1 ft. | Low | 16 (5) | 1.0 |
| Gasoline | 2 x 2 ft. | Extreme | 197 (60) | 3.3 |
| Gasoline | 1 x 1 ft. | Extreme | 98 (30) | 1.8 |
| Gasoline | 1 x 1 ft. | Medium | 49 (15) | 1.3 |
| Methane | 32-in Plume | Extreme | 59 (18) | 1.4 |
| Methane | 32-in Plume | Medium | 30 (9) | 0.9 |
| LPG | 32-in Plume | Extreme | 75 (23) | 1.2 |
| LPG | 32-in Plume | High | 56 (17) | 1.6 |
| LPG | 32-in Plume | Medium | 33 (10) | 1.2 |
| LPG | 32-in Plume | Low | 13 (4) | 1.2 |
| Diesel | 1 x 1 ft. | Extreme | 75 (23) | 2.6 |
| Diesel | 1 x 1 ft. | Medium | 36 (11) | 1.2 |
| JP5 | 1 x 1 ft. | Extreme | 75 (23) | 3.3 |
| JP5 | 1 x 1 ft. | High | 56 (17) | 1.8 |
| JP5 | 1 x 1 ft. | Medium | 36 (11) | 1.2 |
| JP5 | 1 x 1 ft. | Low | 16 (5) | 1.2 |
| Kerosene | 1 x 1 ft. | Extreme | 75 (23) | 1.8 |
| Kerosene | 1 x 1 ft. | Medium | 36 (11) | 0.9 |
| Methanol | 1 x 1 ft. | Extreme | 52 (16) | 0.8 |
| Methanol | 1 x 1 ft. | High | 43 (13) | 3.2 |
| Methanol | 1 x 1 ft. | Medium | 30 (9) | 1.3 |
| Methanol | 1 x 1 ft. | Low | 10 (3) | 2.7 |
| Ethanol | 1 x 1 ft. | Extreme | 62 (19) | 4.1 |
| Ethanol | 1 x 1 ft. | Medium | 31 (9.5) | 2.9 |
| Isopropanol | 1 x 1 ft. | Extreme | 75 (23) | 2.2 |
| Isopropanol | 1 x 1 ft. | Medium | 36 (11) | 0.8 |
| Polypropylene | 1 x 1 ft. | Extreme | 49 (15) | 1.4 |
| Polypropylene | 1 x 1 ft. | Medium | 23 (7) | 0.9 |
| Hydrogen | 32-in Plume | Extreme | 66 (20) | 6.4 |
| Hydrogen | 32-in Plume | Medium | 33 (10) | 1.0 |
| Syngas (30%$CH_4$:70%$H_2$) | 32-in Plume | Extreme | 59 (18) | 3.2 |
| Syngas (30%$CH_4$:70%$H_2$) | 32-in Plume | Medium | 33 (10) | 1.2 |

# FlameSpec UV-IR

## UV-IR Flame Detector

Model: FLS-UV-IR

## Immunity to False Alarm

| False Alarm Source | Modulated | | Unmodulated | |
|---|---|---|---|---|
| | Distance ft. (m) | Response | Distance ft. (m) | Response |
| Sunlight, Direct, Reflected | | No Alarm | | No Alarm |
| Incandescent frosted glass light, 300W | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Fluorescent, 70W (3x23.3W) | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Electric arc | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Arc welding | 10.0 (3.0) | No Alarm | 10.0 (3.0) | No Alarm |
| Radiation heater, 2000W | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Halogen lamp (500W) non-shielded | 7.0 (2.0) | No Alarm | 7.0 (2.0) | No Alarm |
| Halogen lamp (1000W) | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Mercury vapor lamp 160Wx3 | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Exhausts | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Projector led | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Solenoid bell | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| soldering iron | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |
| Electric Drill | 2.0 (0.5) | No Alarm | 2.0 (0.5) | No Alarm |

# FlameSpec UV-IR

## UV-IR Flame Detector

Model: FLS-UV-IR

| | | |
|---|---|---|
| FIRE DETECTION | **Detection time and distance** | 5ms for fast burst of explosion<br>1s for 1 ft² (0.1m²) n-heptane pan fire at 0–50 ft. (0–15m)<br>< 2s for 1 ft² (0.1m²) n-heptane pan fire at 50–100 ft. (15–30m) |
| | **Sensitivity Range** | 4 sensitivity ranges: Extreme, High, Medium, Low |
| | **Field of view (IR detection)** | 90° Horizontal, 80° Vertical |
| | **Time Delay** | 0-30 seconds |
| | **Built in Test** | Automatic and Manual |
| ELECTRICAL SPECIFICATIONS | **Operating Voltage** | 24 VDC nominal (18-32 VDC) |
| | **Current Consumption** | Standby: 120mA<br>180mA all systems in operation (including window heater) |
| | **Electrical Entries** | 2x cable and conduit entries 3/4" NPT(F) or M25x1.5 |
| | **Wiring** | 14-17 AWG (2.5–1.0 mm²) |
| OUTPUTS | **Relays** | SPST volt-free contacts rated 2A at 30 VDC<br>3 relays: Alarm & Auxiliary – normally open; Fault – normally closed |
| | **0-20mA (stepped) current output** | 3 wire and 4 wire (isolated) configurations (sink and source)<br>HART® rev 7.0 (option available) |
| | **Indication** | Tri-color LED (Green, Yellow, Red) |
| | **Modbus** | RTU compatible on RS-485 |
| MECHANICAL SPECIFICATIONS | **Size** | 5.51 x 3.54 × 3.54" (140×90×90mm) |
| | **Weight** | Detector (Stainless Steel 316): 6.6 lbs. (3.0 kg)<br>Tilt mount (Stainless Steel 316): 3.3 lbs. (1.5 kg) |
| ENVIRONMENTAL SPECIFICATIONS | **Temperature Range** | Operating: -67°F to +185°F (-55°C to +85°C)<br>Storage: -67°F to +185°F (-55°C to +85°C) |
| | **Humidity** | Up to 99% (RH), non-condensing |
| | **Ingress Protection** | IP66 & 68 (2m, 24hr); NEMA 4X & 6P |
| APPROVALS | **ATEX** | ATEX: II 2 G D<br>Ex db IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db -55°C<Ta<75°C<br>Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db -55°C<Ta<85°C |
| | **IECEx, INMETRO & PESO** | Ex db IIC T5 Gb -50°C≤Ta≤75°C<br>Ex db IIC T4 Gb -50°C≤Ta≤85°C |
| | **FMus & FMc** | Class I, Div. 1, Groups B, C & D; T4<br>Class I, Zone 1, AEx/Ex db IIC T4 Gb<br>T4 -50°C≤Ta≤85°C<br>T5 -50°C≤Ta≤75°C |
| | **EAC CU TR** | 1Ex d IIC T5 Gb or 1Ex de IIC T5 Gb and Ex tb IIIC T95°C Db -55°C≤Ta≤75°C<br>1Ex d IIC T4 Gb or 1Ex de IIC T4 Gb and Ex tb IIIC T105°C Db -55°C≤Ta≤85°C |
| | **Performance** | ANSI FM 3260<br>EN 54-10 |
| | **Functional safety** | Certified SIL2 capable, per IEC 61508:2010 High & Low demand (option available) |

| | | |
|---|---|---|
| ACCESSORIES | **Tilt mount, model FLS-TMO-S01** | **High vibration mounting bracket, model FLS-MIL-S01** |
| | **Weather cover, model FLS-WCO-S01** | **Flame simulator, model FLS-FSIM-UV-IR-KIT** |
| | **2" & 3" pole mount adapter, model FLS-PMA-S23** | **Airshield, model FLS-ASD-S01** |
| | **Duct mount with window, model FLS-DMW-S01** | **Duct mount for airshield, model FLS-DMX-S01** |
| WARRANTY | **5 years** | |

FIRE & GAS DETECTION TECHNOLOGIES INC.

**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave. Anaheim, CA 92807 USA
Tel: (+1) 714-671-8500 | support@fg-detection.com
Specifications subject to change without notice.

FlameSpec

# FLS-FSIM

Flame Simulator Family



## The FlameSpec Flame Simulator range provides fast and convenient detector verification in the field.

## Introduction

Flame simulators are often used by industry to perform detector testing during commissioning and periodic system testing. FlameSpec simulators differ from many competing products because they test the active sensors and detection algorithms of the devices without using “bypass” techniques to trick the detector into responding.

The FSIM range is lightweight, simple to use and has a modern ergonomic design. Suitable for use in hazardous areas, the FSIM-IR3 has an extended trigger distance of up to 30 feet (10 meters) from the detector.

Three FSIM models are available, depending on the FlameSpec Detector to be tested, IR3, IR3-H2 and UV-IR.

## Key Benefits

- Tests the active sensors and detection algorithms, without using “bypass” techniques.
  - No tricks, detector performance assured.
- Works from distance up to 30 feet (10 meters).
  - Reduces the need for scaffolding.
- Hazardous area use approved.
  - Hot work permits not needed required.
- Lightweight and simple to use.
  - More than 1,000 activations between charges.
- Includes carrying strap, protective storage case, battery charger and operating instructions.
- Easy to transport & supplied with everything needed.
- Complementary to FlameSpec Detector inbuilt test features.
  - Enables full end to end (loop) system test.

FIRE & GAS DETECTION TECHNOLOGIES INC.

**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave., Anaheim, CA 92807
Tel: (+1) 714-671-8500 | support@fg-detection.com

Version: F300V0010.04 • Oct 2023

# FlameSpec-FLS-FSIM

## Flame Simulator Family

| | | | | |
|---|---|---|---|---|
| | **Simulator Kits Part Nos** | FLS-FSIM-IR3-KIT | FLS-FSIM-IR3-H2-KIT | FLS-FSIM-UV-IR-KIT |
| | **Detector type** | FLS-IR3[1]<br>FLS-IR3-HD[1] | FLS-IR3-H2<br>FLS-IR3-H2-HD | FLS-UV-IR<br>FLS-UV-IR-HD |
| OPERATION DISTANCES | **Detector Sensitivity** | ft. m | ft. m | ft. m |
| | Extreme | 30 9.0 | 30 9.0 | 42.5 13.0 |
| | High | 20 6.0 | 20 6.0 | 26 8.0 |
| | Medium | 10 3.0 | 10 3.0 | 20 6.0 |
| | Low | 3.3[2] 1.0[2] | 3.3[2] 1.0[2] | 6.6 2.0 |
| ELECTRICAL SPECIFICATIONS | **Operating Voltage nominal, V** | 3.7 | 3.7 | 3.7 |
| | **Number of activations between charging** | ~1000 | ~1000 | ~50 |
| | **Battery Capacity, mAh** | >3000 | >3000 | >3000 |
| | **Charging time, hours** | up to 3 | up to 3 | up to 3 |
| | **Indication** | 3 Color LED (Green, Yellow, Red) | | |
| | **All Simulator Models** | | | |
| MECHANICAL SPECIFICATIONS | **Size** | 3.9 x 3.9 x 7.8" (100 x 100 x 200mm) | | |
| | **Weight** | 3.96 lbs. (1.8 kg) | | |
| | **Simulator Enclosure Material** | Painted Aluminum LM25 | | |
| ENVIRONMENTAL SPECIFICATIONS | **Ingress Protection** | IP65 (NEMA 4X) | | |
| | **Humidity** | up to 99% (RH), non-condensing | | |
| | **Operating temperature** | Min: −4°F (−20°C)<br>Max: +122°F (+50°C) | | |
| APPROVALS | **Explosion proof** | ATEX<br>Ex II 2 G Ex db ib op is IIC T6 Gb<br>Ex II 2 D Ex tb ib op is IIIC T85°C Db<br>-20°C<Ta<+50°C | | |
| ACCESSORIES included in kits | **Carrying Case** | FLS-FSIM-CASE | | |
| | **Carrying Strap** | FLS-FSIM-STRAP | | |
| | **Cover Tool** | FLS-FSIM-TOOL | | |
| | **Allen Key** | FLS-FSIM-ALLEN | | |
| | **Battery Charger** | FLS-FSIM-CHRGR | | |
| WARRANTY | **3 Years** | | | |

[1]not CO2L variant
[2]with collimator removed

FIRE & GAS DETECTION TECHNOLOGIES INC.

**Fire and Gas Detection Technologies Inc.** | 4222 E. La Palma Ave., Anaheim, CA 92807
Tel: (+1) 714-671-8500 | support@fg-detection.com

ROSETTI MARINO | PROVERLIS | CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-GDZ-05101 | : H2 GD FZ-05 BESS Area | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10001040 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX42 | | Gas/Smoke Detector |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to F&G detection layout drawings. | OK |
| 4 | Check test facility is installed. | OK |
| 5 | Check end of line resistors correctly fitted (where applicable). | NA |
| 6 | Check protective cap is installed. | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | OK |
| 9 | Check accessibility conforms to specifications, with platforming where necessary. | OK |
| 10 | Check calibration certificate (where applicable). | NA |
| 11 | Check electrical connections. | OK |
| 12 | Check earthing connections. | PL |
| 13 | Dismantle and store sensor until installation just before Commissioning. | OK |
| 14 | If required produce Red Line Mark Up for "AS BUILT" | |

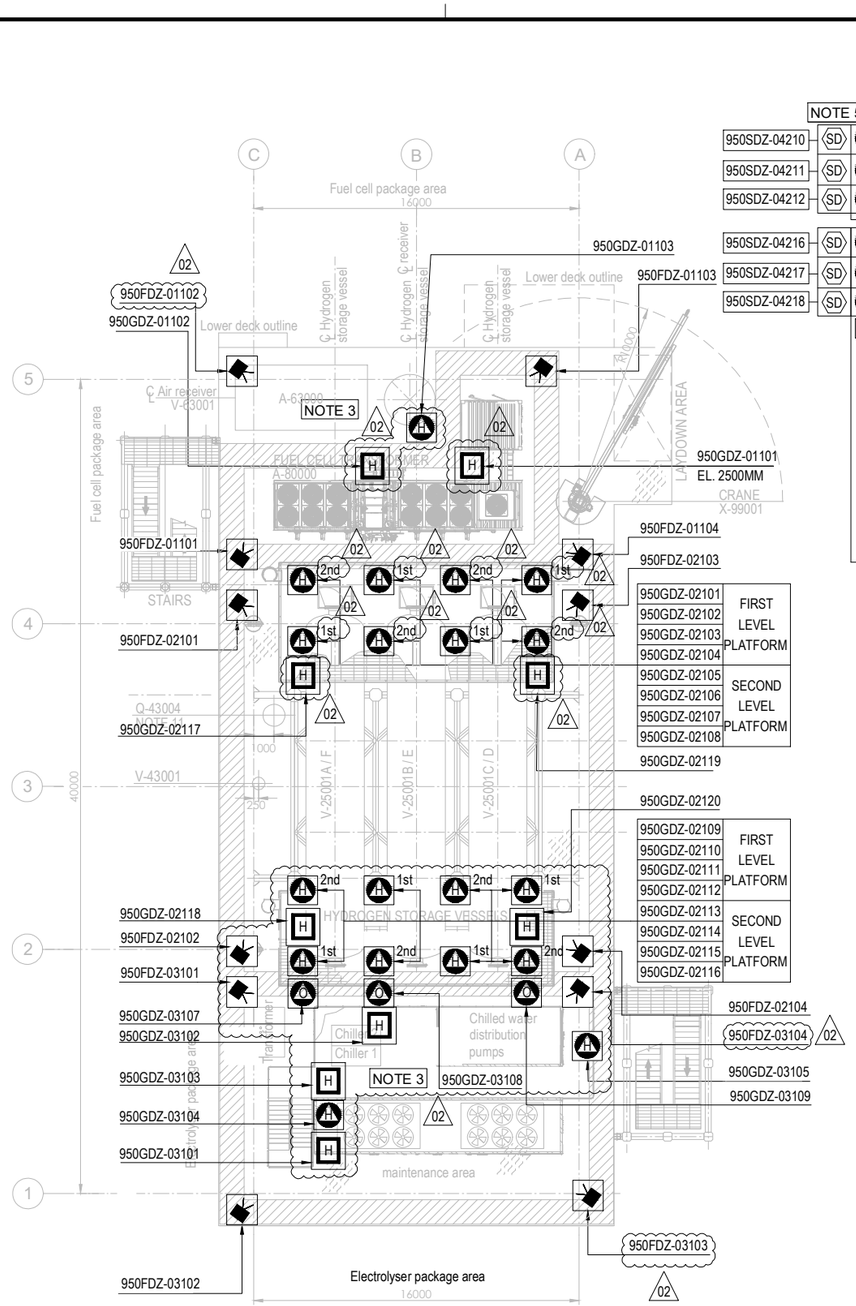
Comments



| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-07 | 2024-12-11 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:55:40.218Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-11T17:24:54.089Z | |

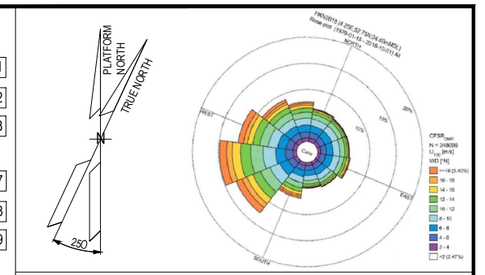
DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-05101 — C-950-FDZ-05101/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05102 — C-950-FDZ-05102/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05103 — C-950-FDZ-05103/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05104 — C-950-FDZ-05104/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05101 — C-950-GDZ-05101/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05102 — C-950-GDZ-05102/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05103 — C-950-GDZ-05103/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05104 — C-950-GDZ-05104/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05105 — C-950-GDZ-05105/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05106 — C-950-GDZ-05106/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

TB-1

| | | |
|---|---|---|
| 1 | | TR1 |
| 2 | | |
| 3 | | |
| SH | | |
| 4 | | TR2 |
| 5 | | |
| 6 | | |
| SH | | |
| 7 | | TR3 |
| 8 | | |
| 9 | | |
| SH | | |
| 10 | | TR4 |
| 11 | | |
| 12 | | |
| SH | | |
| 13 | | TR5 |
| 14 | | |
| 15 | | |
| SH | | |
| 16 | | TR6 |
| 17 | | |
| 18 | | |
| SH | | |
| 19 | | TR7 |
| 20 | | |
| 21 | | |
| SH | | |
| 22 | | TR8 |
| 23 | | |
| 24 | | |
| SH | | |
| 25 | | TR9 |
| 26 | | |
| 27 | | |
| SH | | |
| 28 | | TR10 |
| 29 | | |
| 30 | | |
| SH | | |
| SPARE | 31 | TR11 |
| | 32 | |
| | 33 | |
| SH | | |
| SPARE | 34 | TR12 |
| | 35 | |
| | 36 | |
| SH | | |
| OS | | |

950-JE-05101/B400-FGS-003

~~950-JE-05101/B400-FGS-002~~

12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05101

| | | |
|---|---|---|
| TR1 | 1 | 950-FDZ-05101 |
| | 2 | |
| | 3 | |
| TR2 | 4 | 950-FDZ-05102 |
| | 5 | |
| | 6 | |
| TR3 | 7 | 950-FDZ-05103 |
| | 8 | |
| | 9 | |
| TR4 | 10 | 950-FDZ-05104 |
| | 11 | |
| | 12 | |
| TR5 | 13 | 950-GDZ-05101 |
| | 14 | |
| | 15 | |
| TR6 | 16 | 950-GDZ-05102 |
| | 17 | |
| | 18 | |
| TR7 | 19 | 950-GDZ-05103 |
| | 20 | |
| | 21 | |
| TR8 | 22 | 950-GDZ-05104 |
| | 23 | |
| | 24 | |
| TR9 | 25 | 950-GDZ-05105 |
| | 26 | |
| | 27 | |
| TR10 | 28 | 950-GDZ-05106 |
| | 29 | |
| | 30 | <01> |
| TR11 | 31 | SPARE |
| | 32 | |
| | 33 | |
| TR12 | 34 | SPARE |
| | 35 | |
| | 36 | |

Shield Bar

I.E.

Shield Bar

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DG-40016 | 045 | 01 |

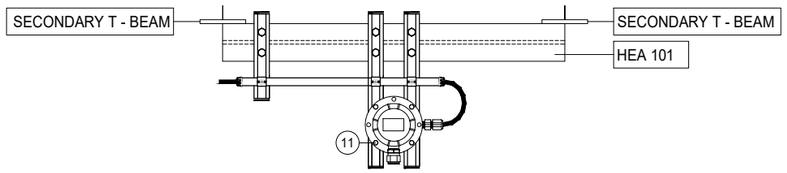
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00

# FGS-19

| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 2m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 6 |
| 6 | AISI 316L BOLT M12X35 + NUT M12 + WASHER M12 | 6 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |




| POS. | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05101 |
| 2 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05102 |
| 3 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05103 |
| 4 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05104 |
| 5 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05105 |
| 6 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05106 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
GAS DETECTORS ON LOWER DECK CEILING

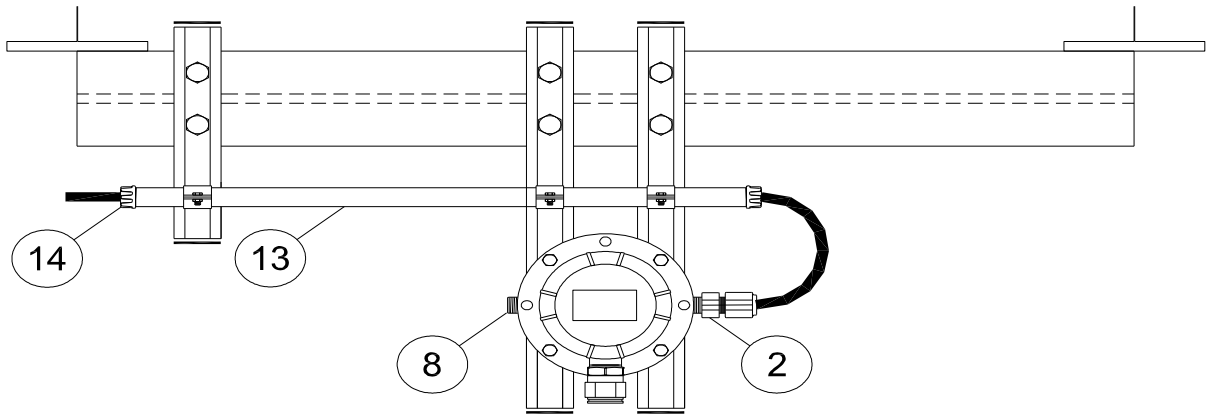
| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. 123A90-DDL-IN-DD-40017 | SHEET 038 | REV. 01 |
|---|---|---|---|

| CROSSWIND | HOLLANDSE KUST NOORD WIND PARK Project<br>Contract No. CW-I-WP4-2023-05 | ROSETTI MARINO |
|---|---|---|
| Document Title: | Instrument Electrical Hook-Ups | Sh. 31 of 37<br>Date: 27/09/2024<br>Rev. 02 |

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES

| INSTRUMENT TAG | |
|---|---|
| 1 | 950-GDZ-05101 |
| 2 | 950-GDZ-05102 |
| 3 | 950-GDZ-05103 |
| 4 | 950-GDZ-05104 |
| 5 | 950-GDZ-05105 |
| 6 | 950-GDZ-05106 |




**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE:

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 14 | | Polyproplylene Bushing | 3/4" | 4 |
| 13 | | Galvanized Steel Conduit UNI 7683 | 3/4" | 12 mt |
| 8 | | Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1 | M20 | 1 |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 1 |

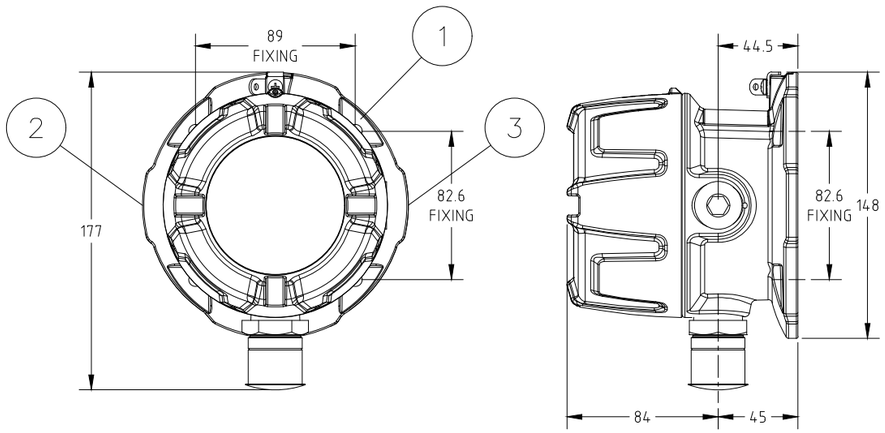

This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

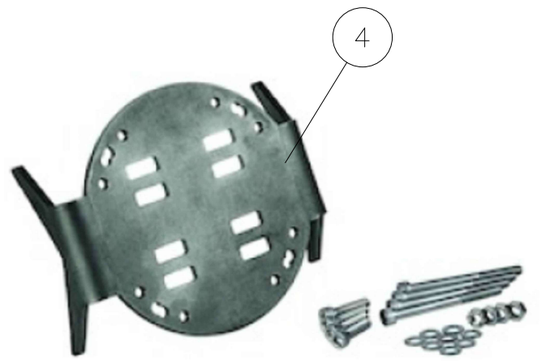
# HYDROGEN POINT DETECTOR / PIPE MOUNTING

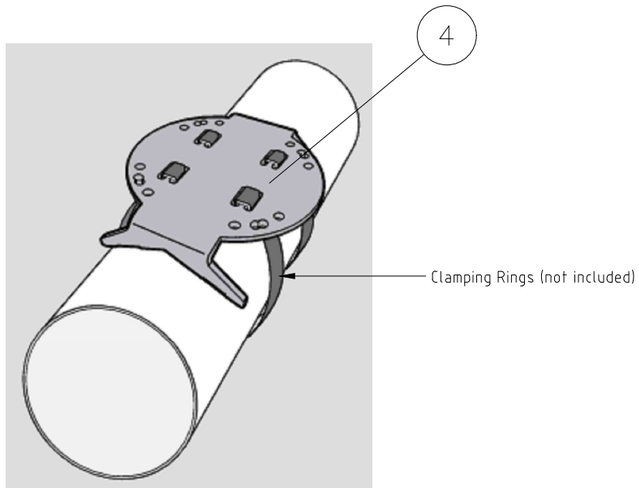
| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Hydrogen point detector, DRÄGER Polytron 8200 CAT DQ d S 4-20/HART | 1 |
| 2 | Reducer 3/4" NPT - M20 Ex d AISI 316 | 2 |
| 3 | 3/4" plug Ex d AISI 316 | 1 |
| 4 | Pipe mount bracket kit Polytron 5000/8000 series, DRÄGER | 1 |
| 5 | Sun and weather protection kit Polytron, DRÄGER | 1 |
| 6 | Stainless Steel Name Plate | 1 |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

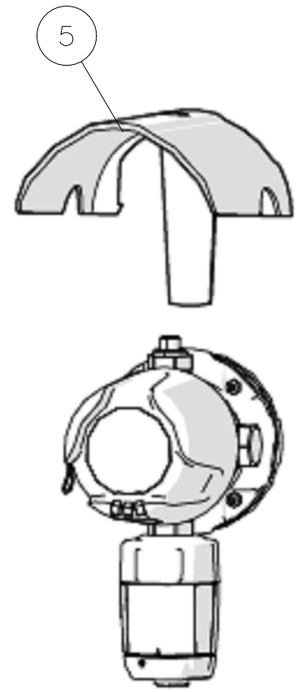
INSTALLATION QUANTITY

25

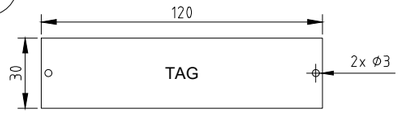


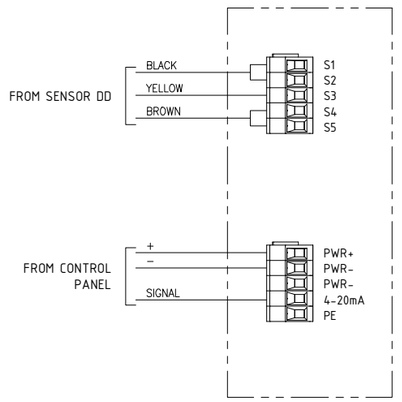




6 STAINLESS STEEL NAME PLATE DETAILS




NOTE 5

WIRING




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN POINT DETECTOR / PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 005

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# HYDROGEN POINT DETECTOR / PIPE MOUNTING – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-GDZ-02101 |
| 2 | 950-GDZ-02102 |
| 3 | 950-GDZ-02103 |
| 4 | 950-GDZ-02104 |
| 5 | 950-GDZ-02105 |
| 6 | 950-GDZ-02106 |
| 7 | 950-GDZ-02107 |
| 8 | 950-GDZ-02108 |
| 9 | 950-GDZ-02109 |
| 10 | 950-GDZ-02110 |
| 11 | 950-GDZ-02111 |
| 12 | 950-GDZ-02112 |
| 13 | 950-GDZ-02113 |
| 14 | 950-GDZ-02114 |
| 15 | 950-GDZ-02115 |
| 16 | 950-GDZ-02116 |
| 17 | 950-GDZ-05101 |
| 18 | 950-GDZ-05102 |
| 19 | 950-GDZ-05103 |
| 20 | 950-GDZ-05104 |
| 21 | 950-GDZ-05105 |
| 22 | 950-GDZ-05106 |
| 23 | 950-GDZ-03104 |
| 24 | 950-GDZ-03105 |
| 25 | 950-GDZ-03106 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN POINT DETECTOR / PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 006

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## HYDROGEN POINT DETECTORS

| POS. | TAG NUMBER | SERVICE |
|---|---|---|
| 1 | 950-GDZ-02101 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 2 | 950-GDZ-02102 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 3 | 950-GDZ-02103 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 4 | 950-GDZ-02104 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 5 | 950-GDZ-02105 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 6 | 950-GDZ-02106 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 7 | 950-GDZ-02107 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 8 | 950-GDZ-02108 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 9 | 950-GDZ-02109 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 10 | 950-GDZ-02110 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 11 | 950-GDZ-02111 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 12 | 950-GDZ-02112 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 13 | 950-GDZ-02113 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 14 | 950-GDZ-02114 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 15 | 950-GDZ-02115 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 16 | 950-GDZ-02116 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 17 | 950-GDZ-04201 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 18 | 950-GDZ-04202 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 19 | 950-GDZ-04203 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 20 | 950-GDZ-04204 | H2 GD FZ-04 B-400 AMBIENT |
| 21 | 950-GDZ-04205 | H2 GD FZ-04 B-400 AMBIENT |
| 22 | 950-GDZ-04206 | H2 GD FZ-04 B-400 AMBIENT |
| 23 | 950-GDZ-04207 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 24 | 950-GDZ-04208 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 25 | 950-GDZ-04209 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 26 | 950-GDZ-04210 | H2 GD FZ-04 B-300 AMBIENT |
| 27 | 950-GDZ-04211 | H2 GD FZ-04 B-300 AMBIENT |
| 28 | 950-GDZ-04212 | H2 GD FZ-04 B-300 AMBIENT |
| 29 | 950-GDZ-04213 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 30 | 950-GDZ-04214 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 31 | 950-GDZ-04215 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 32 | 950-GDZ-04216 | H2 GD FZ-04 B-200 AMBIENT |
| 33 | 950-GDZ-04217 | H2 GD FZ-04 B-200 AMBIENT |
| 34 | 950-GDZ-04218 | H2 GD FZ-04 B-200 AMBIENT |
| 35 | 950-GDZ-05101 | H2 GD FZ-05 BESS AREA |
| 36 | 950-GDZ-05102 | H2 GD FZ-05 BESS AREA |
| 37 | 950-GDZ-05103 | H2 GD FZ-05 BESS AREA |
| 38 | 950-GDZ-05104 | |
| 39 | 950-GDZ-05105 | |
| 40 | 950-GDZ-05106 | |
| 41 | 950-GDZ-06201 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 42 | 950-GDZ-06202 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 43 | 950-GDZ-06203 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 44 | 950-GDZ-06204 | H2 GD FZ-06 B-100 AMBIENT |
| 45 | 950-GDZ-06205 | H2 GD FZ-06 B-100 AMBIENT |
| 46 | 950-GDZ-06206 | H2 GD FZ-06 B-100 AMBIENT |
| 47 | 950-GDZ-03104 | H2 GD FZ-03 ELECTROLYZER PK AREA |
| 48 | 950-GDZ-03105 | H2 GD FZ-03 ELECTROLYZER PK AREA |
| 49 | 950-GDZ-01103 | H2 GD FZ-03 ELECTROLYZER PK AREA |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# Dräger Polytron® 8200 CAT
## Detection of flammable gases and vapors

The Dräger Polytron® 8200 CAT is an advanced explosion-proof transmitter for the detection of combustible gases in the lower explosion limit (LEL). It uses a catalytic bead DrägerSensor® Ex that will detect most flammable gases and vapors. In addition to a 3-wire 4 to 20-mA analog output with relays it also offers HART®, Modbus and Fieldbus protocols, making it compatible with most control systems.




Dräger. Technology for Life®

# Benefits

## Fast and stable – the DrägerSensor® Ex

The built-in DrägerSensor® Ex is based on the proven catalytic bead measuring principle. It has excellent long-term stability with outstanding poison resistance. And this is the reason for its durability. Due to the novel gas inlet opening, the sensor responds to gas in only a few seconds. This allows you to react immediately with countermeasures and prevent the development of a flammable atmosphere.

## Easy device management via digital communication

The Dräger Polytron 8200 is equipped with digital interfaces allowing for quick and easy remote interrogation of the transmitter's state. Integration with existing asset management systems such as PACTware™ is possible via DTM. In addition to the common HART® communication system, the fieldbus interfaces PROFIBUS® PA, FOUNDATION fieldbus™ H1, and Modbus RTU are also available.

## Same design, same operating principle

The Dräger Polytron 8200 belongs to the Polytron 8000 series. All transmitters in this series have the same design and user interface. This allows for uniform operation with reduced training and maintenance requirements. The large graphic backlit display shows status information clearly and in an easy to use format. The measured gas concentration, selected gas type, and measuring unit are displayed during normal operation. Colored LEDs (green, yellow and red) provide additional alarm and status information.

The Polytron 8200 is operated by means of a magnetic wand over contact surfaces.

## Three relays for controlling external equipment

Upon request, the Dräger Polytron 8200 can also be supplied with three integrated relays. This enables you to use it as an independent gas detection system with two arbitrarily adjustable concentration alarms and one fault alarm. Audible alarms, signal lights or similar devices can thus be controlled locally without an additional cable between the transmitter and central controller.

## Safe, robust housing for every application

Polytron 8200 features a Class I, Div. 1 rated explosion proof enclosure made from aluminium or stainless steel, making it suitable for a wide range of environmental conditions.

## Make the impossible possible with the remote sensor

A remote explosion proof junction allows installation of the sensor up to 350' away from the transmitter in difficult to access areas. A permanently attached remote calibration adapter allows for remote bump testing or calibration from the Polytron display by using permanently attached tubing that takes the calibration gas to the sensor.

# Technical Data

| **Dräger Polytron® 8200 CAT** | | | |
|---|---|---|---|
| Type | Explosion proof / flameproof enclosed transmitter (“d”) | | |
| Gases | Flammable gases and vapors | | |
| Measuring ranges | DQ | 0 to 100 % LEL | |
| | LC | 0 to 10 % LEL | |
| Display | Backlit graphic LCD; 3 Status LEDs (green/yellow/red) | | |
| Performance Characteristics | Accuracy/repeatability | Zero | ≤ 1 % LEL |
| | | Span | ≤ 1 % LEL |
| | | Long-term drift | ≤ 3 % LEL after 6 months |
| | Response time | T50 | < 7 seconds (methane) |
| | | T90 | < 13 seconds (methane) |
| Electrical data | Signal output analog | Normal operation | 4 to 20 mA, 3- or 4-wire, sink or source |
| | | Maintenance | Constant 3.4 mA (adjustable) |
| | | Fault | < 1.2 mA |
| | Signal output digital | HART® w/ 3- or 4-wire, PROFIBUS® PA, FOUNDATION fieldbus™ H1 and Modbus RTU w/ 5-wires | |
| | Power supply | 10 to 30 V DC | |
| | Power consumption (max.) | DQ w/o relay, non-remote | 105 mA at 24 V |
| | | DQ w/ relay, remote | 145 mA at 24 V |
| | Relay specification (option) | 2 alarm relays and 1 fault relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC | |
| Environmental conditions (see sensor data sheet) | Temperature | -40 to 80 °C (-40 to 176 °F) without relay<br>-40 to 70 °C (-40 to 158 °F) with relay-<br>-50 to 85 °C (-122 to 185 °F) remote sensor | |
| | Pressure | 23.6 to 38.4 inch Hg / 800 to 1,200 mbar | |
| | Humidity | 5 to 95% r. h., non-condensing | |
| Housing | Transmitter housing | Epoxy coated copper-free aluminium or stainless steel SS316 L | |
| | Sensor housing | Stainless steel 303 | |
| | Enclosure protection type | NEMA 4X & 7, IP65/66/67 | |
| | Cable entry point | 3/4" NPT threaded holes or M20 cable gland | |
| | Dimensions (H x W x D) | 11.0" x 5.9" x 5.1" / 280 x 150 x 130 mm | |
| | Weight, approx. | Aluminium | 4.9 lbs / 2.2 kg |
| | | SS316 L | 8.8 lbs / 4.0 kg |
| Approvals* | UL & CSA | Class I, Div 1, Groups A, B, C, D; | |
| | | Class II, Div 1, Groups E, F, G; | |
| | | Class I, Zone 1, Group IIC; | |
| | | T-Code T6/T4 | |
| | IECEx | Ex db IIC T6/T4 Gb,<br>-40 ≤ Ta ≤ +40/+70 °C; | |
| | ATEX | II 2G Ex db IIC T6/T4 Gb,<br>-40 ≤ Ta ≤ +40/+70 °C; | |
| | CE markings | ATEX (Directive 2014/34/EU) | |
| | | Electromagnetic Compatibility (Directive 2014/30/EU) | |
| | | Low Voltage (Directive 2014/35/EU) | |
| | Shipping approvals (for DQ sensor only) | DNV GL, ABS, LR, CCS, RMRS | |
| | MED approval (for DQ sensor only) | Certificate No. MEDB0000411 | |

# Technical Data

| | | |
|---|---|---|
| | DEKRA Performance approval (for DQ sensor only) | Certificate No. BVS 13 ATEX G 001 X |
| | SIL 2 certified by TUEV Sued | Certificate No. Z10 053474 0023 |

* All docking station versions are only ATEX/IECEx approved

# Ordering Information

| Dräger Polytron® 8200 CAT | Approval Code | Order Number |
|---|---|---|
| Dräger Polytron® 8200 CAT DQ d A 4-20/HART® | XTR 0410 | 83 44 439 |
| Dräger Polytron® 8200 CAT DQ d A 4-20/HART® relay | XTR 0411 | 83 44 440 |
| Dräger Polytron® 8200 CAT DQ d S 4-20/HART® | XTR 0510 | 83 44 448 |
| Dräger Polytron® 8200 CAT DQ d S 4-20/HART® relay | XTR 0511 | 83 44 449 |
| Dräger Polytron® 8xx0 Kit (Custom configuration e. g. LC sensor or bus communication) | | 83 44 800 |

| Accessories | | Order Number |
|---|---|---|
| Magnetic wand | | 45 44 101 |
| Pipe mount bracket | | 45 44 198 |
| Aluminum junction box for remote sensor ‘d’ | | 45 44 099 |
| Stainless steel junction box for remote sensor ‘d’ | | 45 44 098 |
| Duct mount kit | | 68 12 725 |
| IR Connection Kit Polytron® 5000/8000 | | 45 44 197 |
| PolySoft licence (1 year) | | 83 28 600 |
| PolySoft licence (subscription) | | 83 28 601 |
| Splash guard | | 68 12 510 |
| Weather protection kit Dräger Polytron® 5/6/8xxx | | 37 02 198 |
| Gassing adapter | PE, w/o tubing | 68 06 978 |
| | PE incl. tubing | 46 09 314 |
| Calibration adapter Viton® | | 68 10 536 |
| Process adapter (Stainless steel) for DQ | | 68 12 470 |
| Process adapter (Stainless steel) for LC | | 68 12 465 |

HART® is a registered trademark of the HART Communication Foundation.
FOUNDATION fieldbus™ is a registered trademark of the Fieldbus Foundation™.
PROFIBUS® is a registered trademark of PROFIBUS and PROFINET International (PI).
PACTware™ is a registered trademark of Pepperl+Fuchs GmbH.
Viton® is a registered trademark of the DuPont company.
Windows® is a registered trademark of Microsoft Corporation.

ROSETTI MARINO | PROVERLIS | CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-GDZ-05102 | : H2 GD FZ-05 BESS Area | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10001041 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX42 | | Gas/Smoke Detector |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to F&G detection layout drawings. | OK |
| 4 | Check test facility is installed. | OK |
| 5 | Check end of line resistors correctly fitted (where applicable). | NA |
| 6 | Check protective cap is installed. | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | OK |
| 9 | Check accessibility conforms to specifications, with platforming where necessary. | OK |
| 10 | Check calibration certificate (where applicable). | NA |
| 11 | Check electrical connections. | OK |
| 12 | Check earthing connections. | PL |
| 13 | Dismantle and store sensor until installation just before Commissioning. | OK |
| 14 | If required produce Red Line Mark Up for "AS BUILT" | |

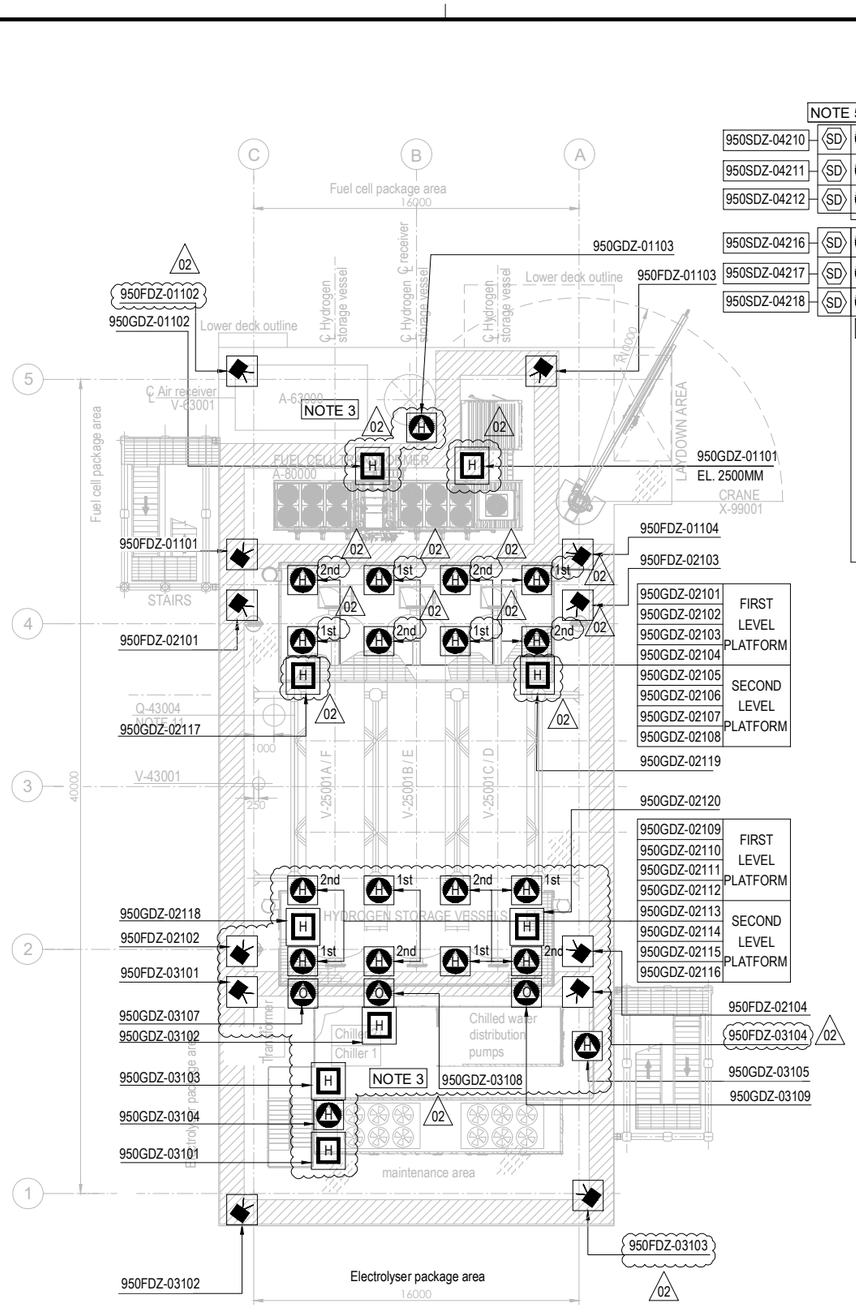
Comments



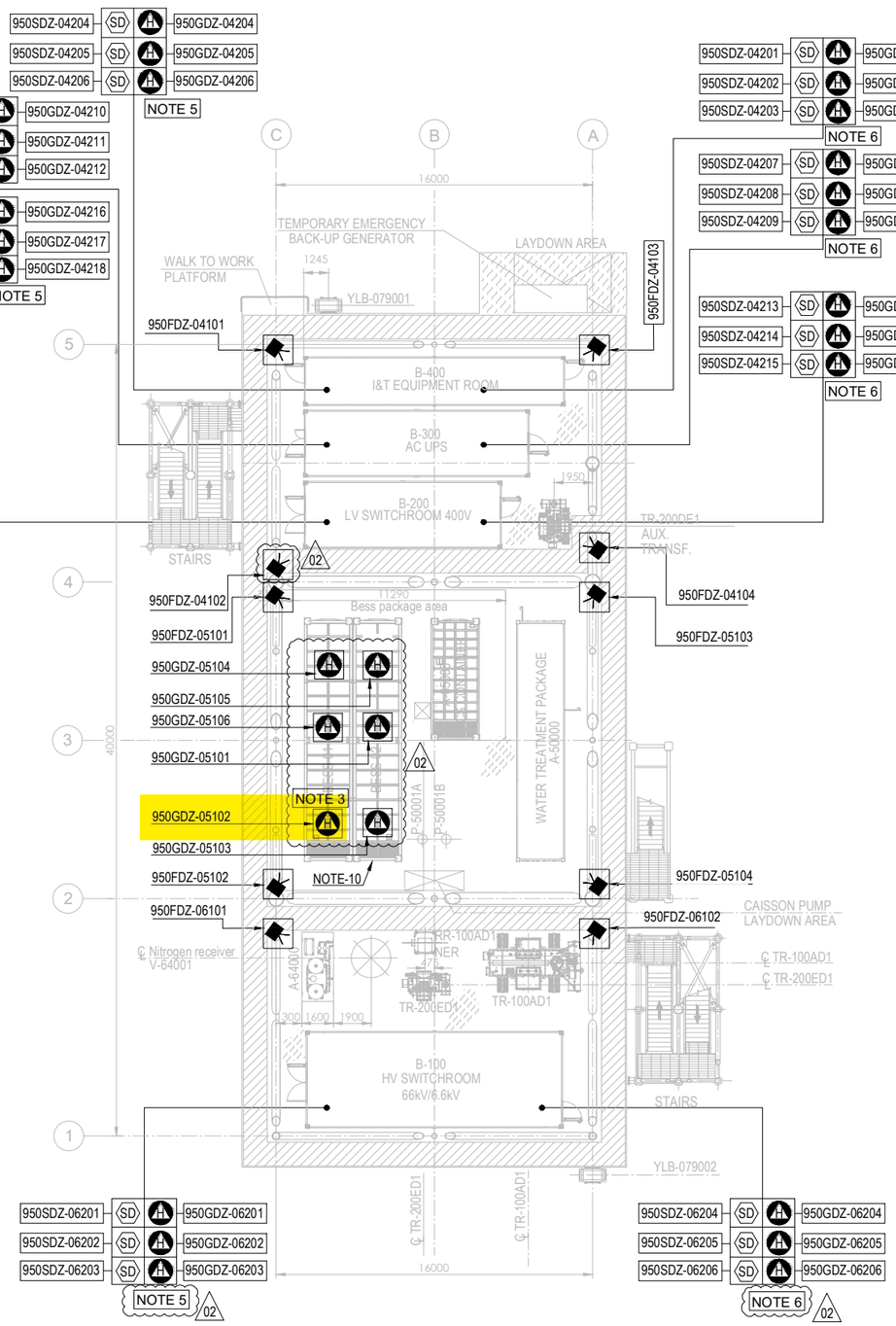
| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-07 | 2024-12-11 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:55:50.649Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-11T17:41:29.500Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.

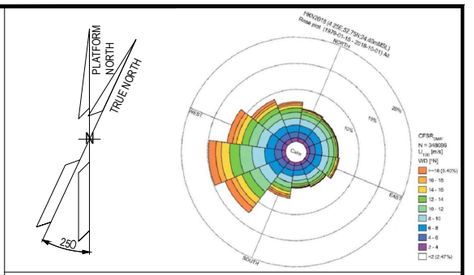



PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

| INSTRUMENTS | | JUNCTION BOX 950-JE-05101 | | MULTICABLE No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 | |
|---|---|---|---|---|---|---|
| | | TB-1 | | | TB-950-JE-05101 | |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05101 (1, 3, 2) RD, WH, BK | NOTE-2 | C-950-FDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | RD, WH, BK<br>1, 2, 3 | TR1 | TR1 RD, WH, BK<br>Shield Bar | 1, 2, 3<br>950-FDZ-05101 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05102 (1, 3, 2) RD, WH, BK | NOTE-2 | C-950-FDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | SH<br>RD, WH, BK<br>4, 5, 6 | TR2 | TR2 RD, WH, BK<br>Shield Bar | 4, 5, 6<br>950-FDZ-05102 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05103 (1, 3, 2) RD, WH, BK | NOTE-2 | C-950-FDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | SH<br>RD, WH, BK<br>7, 8, 9 | TR3 | TR3 RD, WH, BK<br>Shield Bar | 7, 8, 9<br>950-FDZ-05103 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05104 (1, 3, 2) RD, WH, BK | NOTE-2 | C-950-FDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | SH<br>RD, WH, BK<br>10, 11, 12 | TR4 | TR4 RD, WH, BK<br>Shield Bar | 10, 11, 12<br>950-FDZ-05104 |
| 950-GDZ-05101 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | SH<br>RD, WH, BK<br>13, 14, 15 | TR5 | TR5 RD, WH, BK<br>Shield Bar | 13, 14, 15<br>950-GDZ-05101 |
| 950-GDZ-05102 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | SH<br>RD, WH, BK<br>16, 17, 18 | TR6 | TR6 RD, WH, BK<br>Shield Bar | 16, 17, 18<br>950-GDZ-05102 |
| 950-GDZ-05103 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | SH<br>RD, WH, BK<br>19, 20, 21 | TR7 | TR7 RD, WH, BK<br>Shield Bar | 19, 20, 21<br>950-GDZ-05103 |
| 950-GDZ-05104 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | SH<br>RD, WH, BK<br>22, 23, 24 | TR8 | TR8 RD, WH, BK<br>Shield Bar | 22, 23, 24<br>950-GDZ-05104 |
| 950-GDZ-05105 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05105/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | SH<br>RD, WH, BK<br>25, 26, 27 | TR9 | TR9 RD, WH, BK<br>Shield Bar | 25, 26, 27<br>950-GDZ-05105 |
| 950-GDZ-05106 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05106/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | SH<br>RD, WH, BK<br>28, 29, 30 | TR10 | TR10 RD, WH, BK<br>Shield Bar | 28, 29, 30<br>950-GDZ-05106<br><01> |
| | | | SH<br>SPARE<br>31, 32, 33 | TR11 | TR11 RD, WH, BK<br>Shield Bar | 31, 32, 33<br>SPARE |
| | | | SH<br>SPARE<br>34, 35, 36 | TR12 | TR12 RD, WH, BK | 34, 35, 36<br>SPARE |
| | | | SH<br>OS | | I.E.<br>Shield Bar | |

950-JE-05101/B400-FGS-003

~~950-JE-05101/B400-FGS-002~~

12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |
| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 045 | REV. 01 |

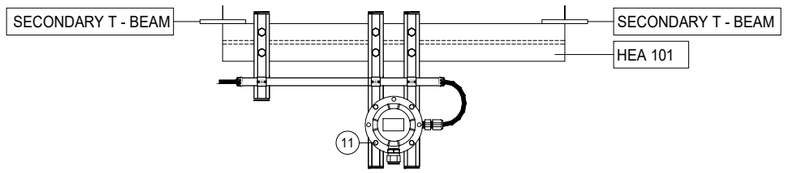
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00

# FGS-19

| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 2m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 6 |
| 6 | AISI 316L BOLT M12X35 + NUT M12 + WASHER M12 | 6 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |




| POS. | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05101 |
| 2 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05102 |
| 3 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05103 |
| 4 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05104 |
| 5 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05105 |
| 6 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05106 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

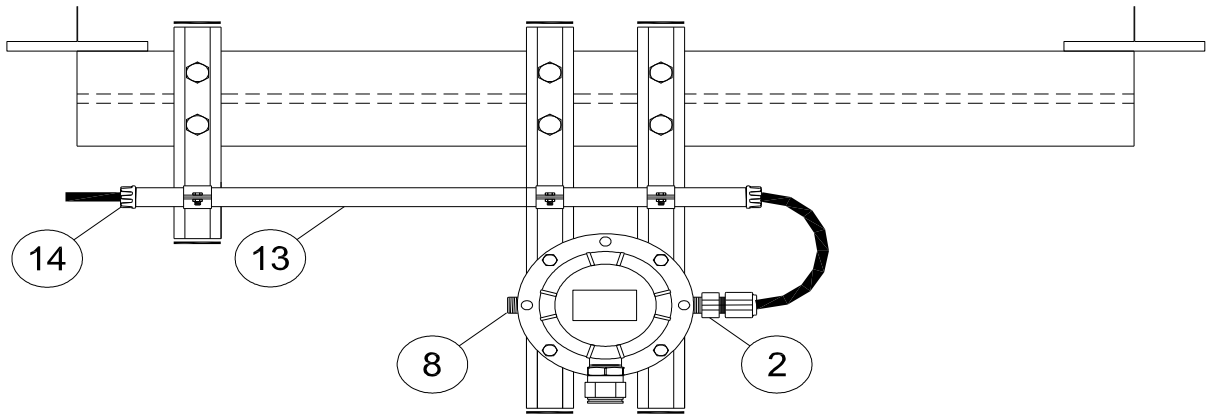
BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
GAS DETECTORS ON LOWER DECK CEILING

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. 123A90-DDL-IN-DD-40017 | SHEET 038 | REV. 01 |
|---|---|---|---|

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES

| INSTRUMENT TAG | |
|---|---|
| 1 | 950-GDZ-05101 |
| 2 | 950-GDZ-05102 |
| 3 | 950-GDZ-05103 |
| 4 | 950-GDZ-05104 |
| 5 | 950-GDZ-05105 |
| 6 | 950-GDZ-05106 |




**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE:

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 14 | | Polyproplylene Bushing | 3/4" | 4 |
| 13 | | Galvanized Steel Conduit UNI 7683 | 3/4" | 12 mt |
| 8 | | Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1 | M20 | 1 |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 1 |

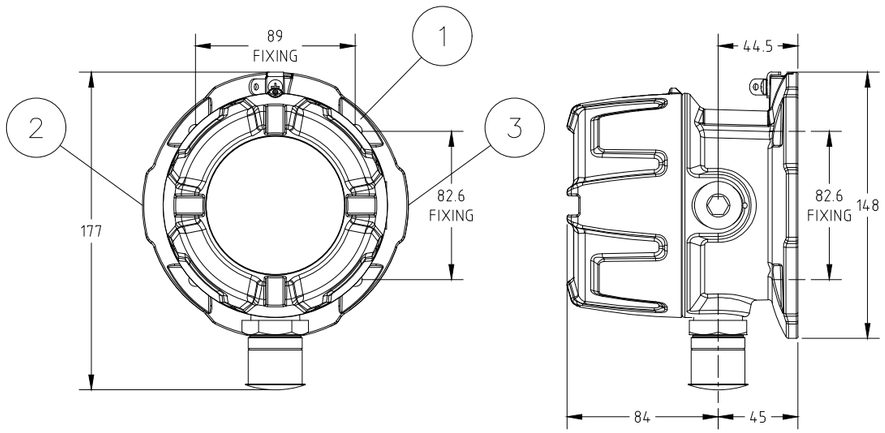

This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

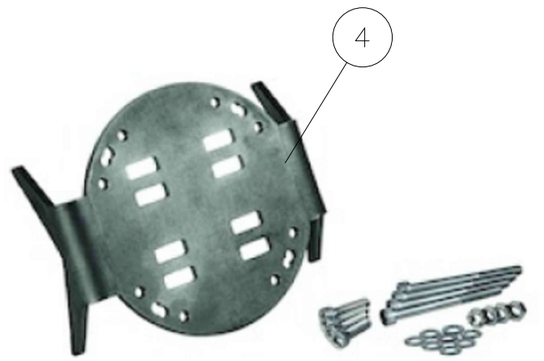
# HYDROGEN POINT DETECTOR / PIPE MOUNTING

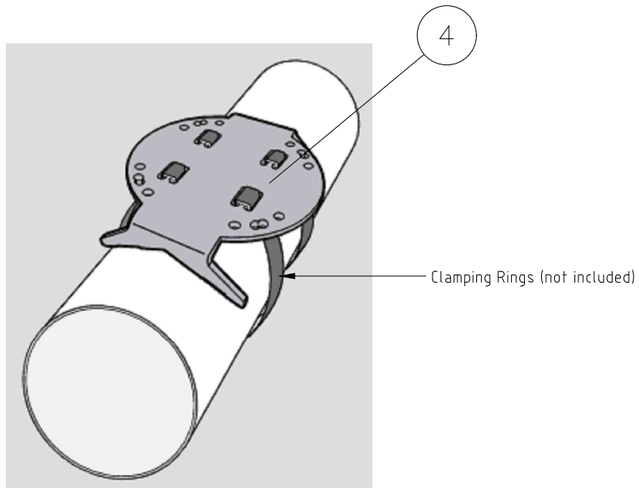
| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Hydrogen point detector, DRÄGER Polytron 8200 CAT DQ d S 4-20/HART | 1 |
| 2 | Reducer 3/4" NPT - M20 Ex d AISI 316 | 2 |
| 3 | 3/4" plug Ex d AISI 316 | 1 |
| 4 | Pipe mount bracket kit Polytron 5000/8000 series, DRÄGER | 1 |
| 5 | Sun and weather protection kit Polytron, DRÄGER | 1 |
| 6 | Stainless Steel Name Plate | 1 |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

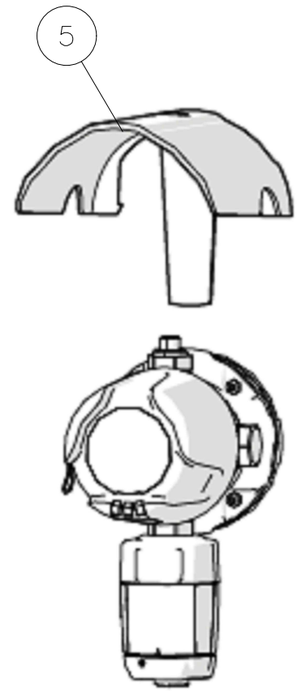
INSTALLATION QUANTITY

25

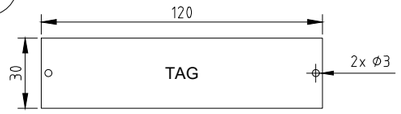


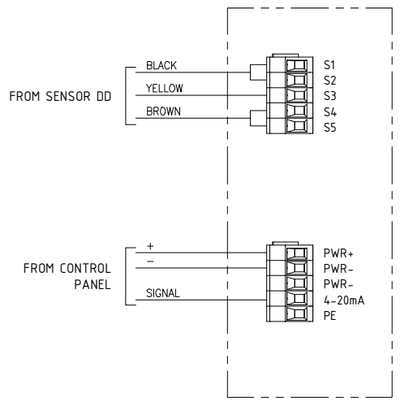




6 STAINLESS STEEL NAME PLATE DETAILS




NOTE 5

WIRING




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN POINT DETECTOR / PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 005

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# HYDROGEN POINT DETECTOR / PIPE MOUNTING – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-GDZ-02101 |
| 2 | 950-GDZ-02102 |
| 3 | 950-GDZ-02103 |
| 4 | 950-GDZ-02104 |
| 5 | 950-GDZ-02105 |
| 6 | 950-GDZ-02106 |
| 7 | 950-GDZ-02107 |
| 8 | 950-GDZ-02108 |
| 9 | 950-GDZ-02109 |
| 10 | 950-GDZ-02110 |
| 11 | 950-GDZ-02111 |
| 12 | 950-GDZ-02112 |
| 13 | 950-GDZ-02113 |
| 14 | 950-GDZ-02114 |
| 15 | 950-GDZ-02115 |
| 16 | 950-GDZ-02116 |
| 17 | 950-GDZ-05101 |
| 18 | 950-GDZ-05102 |
| 19 | 950-GDZ-05103 |
| 20 | 950-GDZ-05104 |
| 21 | 950-GDZ-05105 |
| 22 | 950-GDZ-05106 |
| 23 | 950-GDZ-03104 |
| 24 | 950-GDZ-03105 |
| 25 | 950-GDZ-03106 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN POINT DETECTOR / PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 006 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## HYDROGEN POINT DETECTORS

| POS. | TAG NUMBER | SERVICE |
|---|---|---|
| 1 | 950-GDZ-02101 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 2 | 950-GDZ-02102 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 3 | 950-GDZ-02103 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 4 | 950-GDZ-02104 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 5 | 950-GDZ-02105 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 6 | 950-GDZ-02106 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 7 | 950-GDZ-02107 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 8 | 950-GDZ-02108 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 9 | 950-GDZ-02109 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 10 | 950-GDZ-02110 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 11 | 950-GDZ-02111 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 12 | 950-GDZ-02112 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 13 | 950-GDZ-02113 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 14 | 950-GDZ-02114 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 15 | 950-GDZ-02115 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 16 | 950-GDZ-02116 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 17 | 950-GDZ-04201 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 18 | 950-GDZ-04202 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 19 | 950-GDZ-04203 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 20 | 950-GDZ-04204 | H2 GD FZ-04 B-400 AMBIENT |
| 21 | 950-GDZ-04205 | H2 GD FZ-04 B-400 AMBIENT |
| 22 | 950-GDZ-04206 | H2 GD FZ-04 B-400 AMBIENT |
| 23 | 950-GDZ-04207 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 24 | 950-GDZ-04208 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 25 | 950-GDZ-04209 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 26 | 950-GDZ-04210 | H2 GD FZ-04 B-300 AMBIENT |
| 27 | 950-GDZ-04211 | H2 GD FZ-04 B-300 AMBIENT |
| 28 | 950-GDZ-04212 | H2 GD FZ-04 B-300 AMBIENT |
| 29 | 950-GDZ-04213 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 30 | 950-GDZ-04214 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 31 | 950-GDZ-04215 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 32 | 950-GDZ-04216 | H2 GD FZ-04 B-200 AMBIENT |
| 33 | 950-GDZ-04217 | H2 GD FZ-04 B-200 AMBIENT |
| 34 | 950-GDZ-04218 | H2 GD FZ-04 B-200 AMBIENT |
| 35 | 950-GDZ-05101 | H2 GD FZ-05 BESS AREA |
| 36 | 950-GDZ-05102 | H2 GD FZ-05 BESS AREA |
| 37 | 950-GDZ-05103 | H2 GD FZ-05 BESS AREA |
| 38 | 950-GDZ-05104 | |
| 39 | 950-GDZ-05105 | |
| 40 | 950-GDZ-05106 | |
| 41 | 950-GDZ-06201 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 42 | 950-GDZ-06202 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 43 | 950-GDZ-06203 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 44 | 950-GDZ-06204 | H2 GD FZ-06 B-100 AMBIENT |
| 45 | 950-GDZ-06205 | H2 GD FZ-06 B-100 AMBIENT |
| 46 | 950-GDZ-06206 | H2 GD FZ-06 B-100 AMBIENT |
| 47 | 950-GDZ-03104 | H2 GD FZ-03 ELECTROLYZER PK AREA |
| 48 | 950-GDZ-03105 | H2 GD FZ-03 ELECTROLYZER PK AREA |
| 49 | 950-GDZ-01103 | H2 GD FZ-03 ELECTROLYZER PK AREA |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# Dräger Polytron® 8200 CAT
## Detection of flammable gases and vapors

The Dräger Polytron® 8200 CAT is an advanced explosion-proof transmitter for the detection of combustible gases in the lower explosion limit (LEL). It uses a catalytic bead DrägerSensor® Ex that will detect most flammable gases and vapors. In addition to a 3-wire 4 to 20-mA analog output with relays it also offers HART®, Modbus and Fieldbus protocols, making it compatible with most control systems.




Dräger. Technology for Life®

# Benefits

## Fast and stable – the DrägerSensor® Ex

The built-in DrägerSensor® Ex is based on the proven catalytic bead measuring principle. It has excellent long-term stability with outstanding poison resistance. And this is the reason for its durability. Due to the novel gas inlet opening, the sensor responds to gas in only a few seconds. This allows you to react immediately with countermeasures and prevent the development of a flammable atmosphere.

## Easy device management via digital communication

The Dräger Polytron 8200 is equipped with digital interfaces allowing for quick and easy remote interrogation of the transmitter's state. Integration with existing asset management systems such as PACTware™ is possible via DTM. In addition to the common HART® communication system, the fieldbus interfaces PROFIBUS® PA, FOUNDATION fieldbus™ H1, and Modbus RTU are also available.

## Same design, same operating principle

The Dräger Polytron 8200 belongs to the Polytron 8000 series. All transmitters in this series have the same design and user interface. This allows for uniform operation with reduced training and maintenance requirements. The large graphic backlit display shows status information clearly and in an easy to use format. The measured gas concentration, selected gas type, and measuring unit are displayed during normal operation. Colored LEDs (green, yellow and red) provide additional alarm and status information.

The Polytron 8200 is operated by means of a magnetic wand over contact surfaces.

## Three relays for controlling external equipment

Upon request, the Dräger Polytron 8200 can also be supplied with three integrated relays. This enables you to use it as an independent gas detection system with two arbitrarily adjustable concentration alarms and one fault alarm. Audible alarms, signal lights or similar devices can thus be controlled locally without an additional cable between the transmitter and central controller.

## Safe, robust housing for every application

Polytron 8200 features a Class I, Div. 1 rated explosion proof enclosure made from aluminium or stainless steel, making it suitable for a wide range of environmental conditions.

## Make the impossible possible with the remote sensor

A remote explosion proof junction allows installation of the sensor up to 350' away from the transmitter in difficult to access areas. A permanently attached remote calibration adapter allows for remote bump testing or calibration from the Polytron display by using permanently attached tubing that takes the calibration gas to the sensor.

# Technical Data

| **Dräger Polytron® 8200 CAT** | | | |
|---|---|---|---|
| Type | Explosion proof / flameproof enclosed transmitter (“d”) | | |
| Gases | Flammable gases and vapors | | |
| Measuring ranges | DQ | 0 to 100 % LEL | |
| | LC | 0 to 10 % LEL | |
| Display | Backlit graphic LCD; 3 Status LEDs (green/yellow/red) | | |
| Performance Characteristics | Accuracy/repeatability | Zero | ≤ 1 % LEL |
| | | Span | ≤ 1 % LEL |
| | | Long-term drift | ≤ 3 % LEL after 6 months |
| | Response time | T50 | < 7 seconds (methane) |
| | | T90 | < 13 seconds (methane) |
| Electrical data | Signal output analog | Normal operation | 4 to 20 mA, 3- or 4-wire, sink or source |
| | | Maintenance | Constant 3.4 mA (adjustable) |
| | | Fault | < 1.2 mA |
| | Signal output digital | HART® w/ 3- or 4-wire, PROFIBUS® PA, FOUNDATION fieldbus™ H1 and Modbus RTU w/ 5-wires | |
| | Power supply | 10 to 30 V DC | |
| | Power consumption (max.) | DQ w/o relay, non-remote | 105 mA at 24 V |
| | | DQ w/ relay, remote | 145 mA at 24 V |
| | Relay specification (option) | 2 alarm relays and 1 fault relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC | |
| Environmental conditions (see sensor data sheet) | Temperature | -40 to 80 °C (-40 to 176 °F) without relay<br>-40 to 70 °C (-40 to 158 °F) with relay-<br>-50 to 85 °C (-122 to 185 °F) remote sensor | |
| | Pressure | 23.6 to 38.4 inch Hg / 800 to 1,200 mbar | |
| | Humidity | 5 to 95% r. h., non-condensing | |
| Housing | Transmitter housing | Epoxy coated copper-free aluminium or stainless steel SS316 L | |
| | Sensor housing | Stainless steel 303 | |
| | Enclosure protection type | NEMA 4X & 7, IP65/66/67 | |
| | Cable entry point | 3/4" NPT threaded holes or M20 cable gland | |
| | Dimensions (H x W x D) | 11.0" x 5.9" x 5.1" / 280 x 150 x 130 mm | |
| | Weight, approx. | Aluminium | 4.9 lbs / 2.2 kg |
| | | SS316 L | 8.8 lbs / 4.0 kg |
| Approvals* | UL & CSA | Class I, Div 1, Groups A, B, C, D; | |
| | | Class II, Div 1, Groups E, F, G; | |
| | | Class I, Zone 1, Group IIC; | |
| | | T-Code T6/T4 | |
| | IECEx | Ex db IIC T6/T4 Gb,<br>-40 ≤ Ta ≤ +40/+70 °C; | |
| | ATEX | II 2G Ex db IIC T6/T4 Gb,<br>-40 ≤ Ta ≤ +40/+70 °C; | |
| | CE markings | ATEX (Directive 2014/34/EU) | |
| | | Electromagnetic Compatibility (Directive 2014/30/EU) | |
| | | Low Voltage (Directive 2014/35/EU) | |
| | Shipping approvals (for DQ sensor only) | DNV GL, ABS, LR, CCS, RMRS | |
| | MED approval (for DQ sensor only) | Certificate No. MEDB0000411 | |

# Technical Data

| | | |
|---|---|---|
| | DEKRA Performance approval (for DQ sensor only) | Certificate No. BVS 13 ATEX G 001 X |
| | SIL 2 certified by TUEV Sued | Certificate No. Z10 053474 0023 |

* All docking station versions are only ATEX/IECEx approved

# Ordering Information

| Dräger Polytron® 8200 CAT | Approval Code | Order Number |
|---|---|---|
| Dräger Polytron® 8200 CAT DQ d A 4-20/HART® | XTR 0410 | 83 44 439 |
| Dräger Polytron® 8200 CAT DQ d A 4-20/HART® relay | XTR 0411 | 83 44 440 |
| Dräger Polytron® 8200 CAT DQ d S 4-20/HART® | XTR 0510 | 83 44 448 |
| Dräger Polytron® 8200 CAT DQ d S 4-20/HART® relay | XTR 0511 | 83 44 449 |
| Dräger Polytron® 8xx0 Kit (Custom configuration e. g. LC sensor or bus communication) | | 83 44 800 |

| Accessories | | Order Number |
|---|---|---|
| Magnetic wand | | 45 44 101 |
| Pipe mount bracket | | 45 44 198 |
| Aluminum junction box for remote sensor ‘d’ | | 45 44 099 |
| Stainless steel junction box for remote sensor ‘d’ | | 45 44 098 |
| Duct mount kit | | 68 12 725 |
| IR Connection Kit Polytron® 5000/8000 | | 45 44 197 |
| PolySoft licence (1 year) | | 83 28 600 |
| PolySoft licence (subscription) | | 83 28 601 |
| Splash guard | | 68 12 510 |
| Weather protection kit Dräger Polytron® 5/6/8xxx | | 37 02 198 |
| Gassing adapter | PE, w/o tubing | 68 06 978 |
| | PE incl. tubing | 46 09 314 |
| Calibration adapter Viton® | | 68 10 536 |
| Process adapter (Stainless steel) for DQ | | 68 12 470 |
| Process adapter (Stainless steel) for LC | | 68 12 465 |

HART® is a registered trademark of the HART Communication Foundation.
FOUNDATION fieldbus™ is a registered trademark of the Fieldbus Foundation™.
PROFIBUS® is a registered trademark of PROFIBUS and PROFINET International (PI).
PACTware™ is a registered trademark of Pepperl+Fuchs GmbH.
Viton® is a registered trademark of the DuPont company.
Windows® is a registered trademark of Microsoft Corporation.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-GDZ-05103 | : H2 GD FZ-05 BESS Area | | Dwg | 123A90-DDL-SAF-DL-30027 | |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | Module | LD | |
| **TASK** | code | C10001042 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX42 | | Gas/Smoke Detector |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to F&G detection layout drawings. | OK |
| 4 | Check test facility is installed. | OK |
| 5 | Check end of line resistors correctly fitted (where applicable). | NA |
| 6 | Check protective cap is installed. | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | OK |
| 9 | Check accessibility conforms to specifications, with platforming where necessary. | OK |
| 10 | Check calibration certificate (where applicable). | NA |
| 11 | Check electrical connections. | OK |
| 12 | Check earthing connections. | PL |
| 13 | Dismantle and store sensor until installation just before Commissioning. | OK |
| 14 | If required produce Red Line Mark Up for "AS BUILT" | |

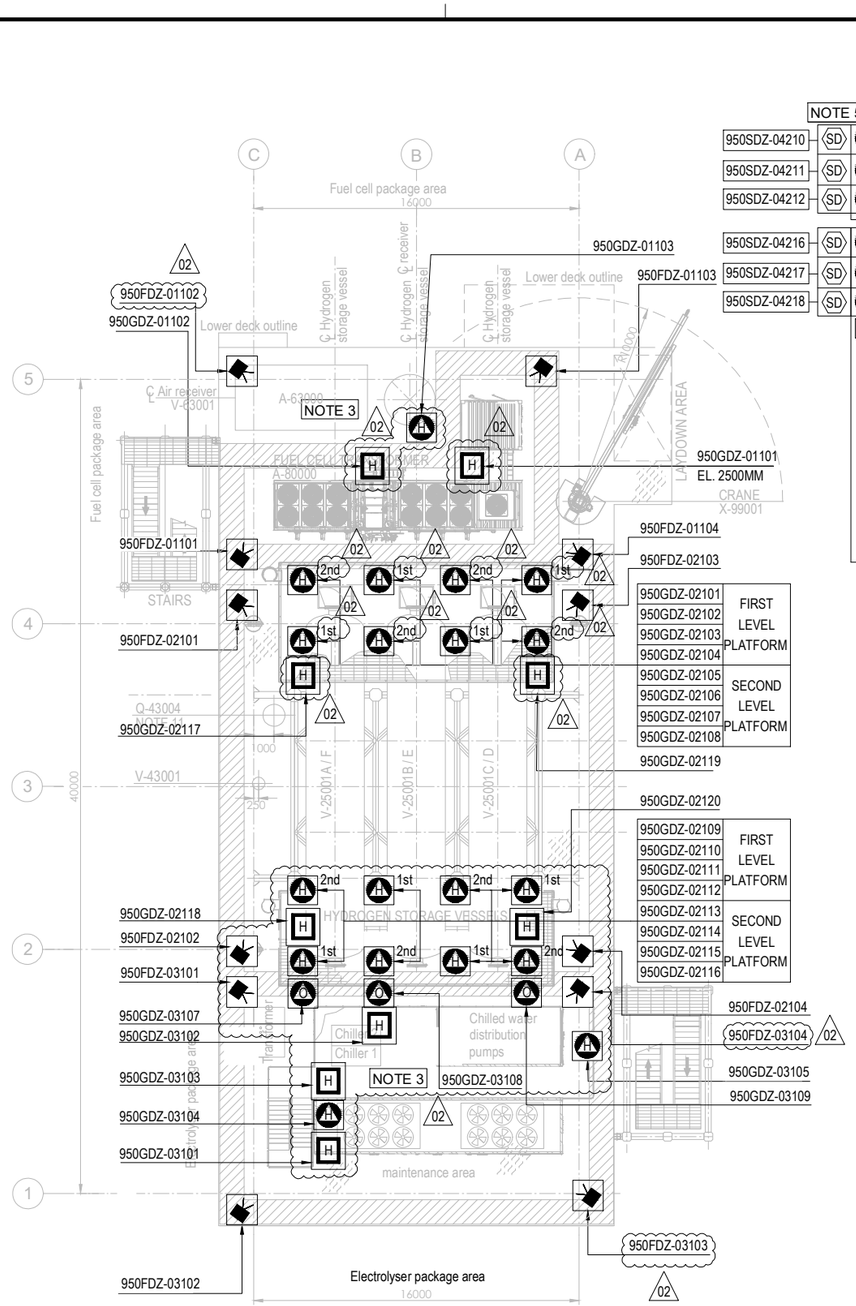
Comments



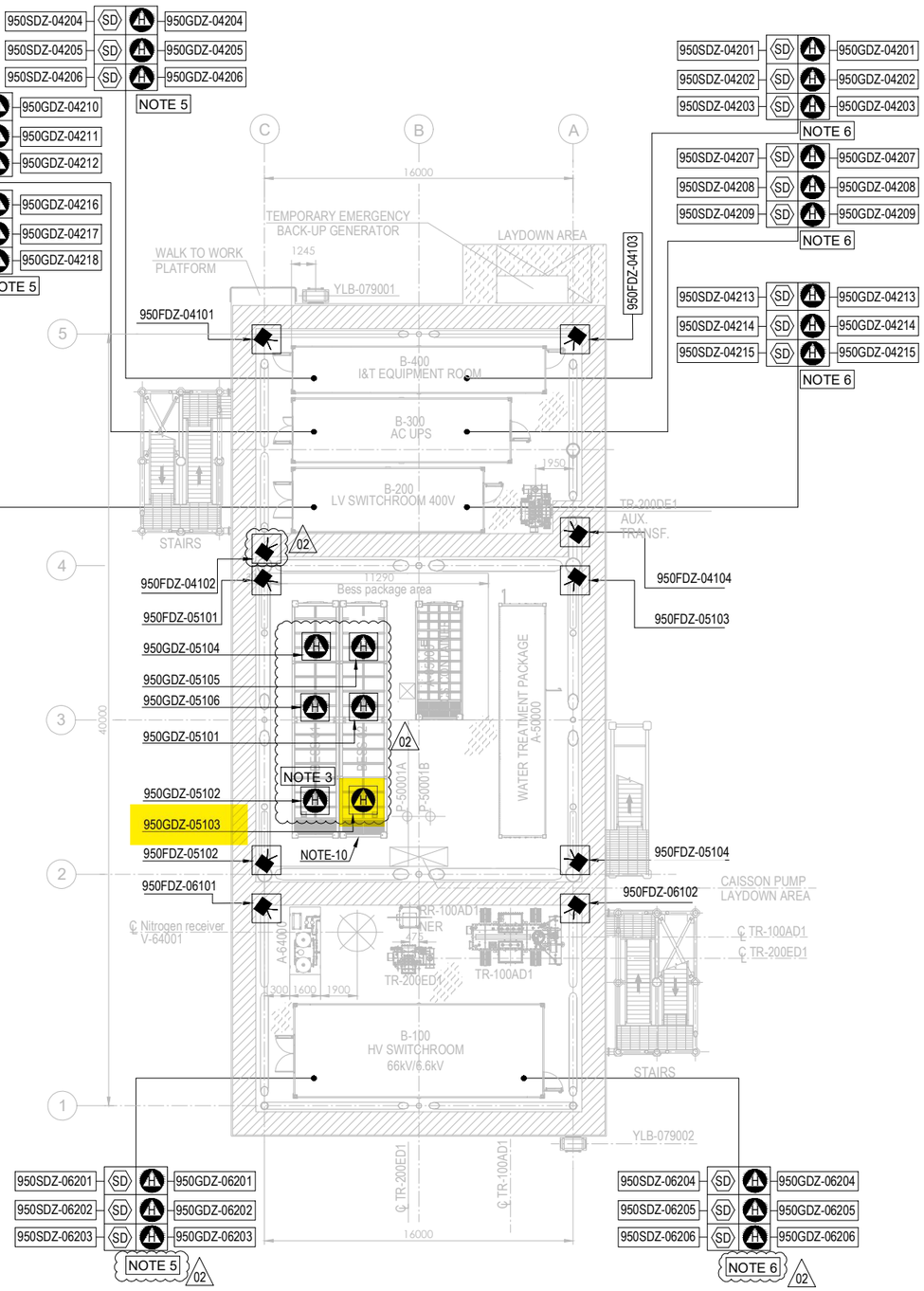
| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-07 | 2024-12-11 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:56:00.707Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-11T17:03:45.821Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

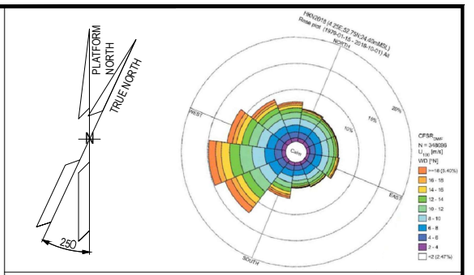
REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.




PLAN ON LOWER DECK
EL+23.310 T.O.S.




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

| INSTRUMENTS | | JUNCTION BOX 950-JE-05101 | MULTICABLE No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |
|---|---|---|---|---|
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05101 (1, 3, 2) RD, WH, BK | NOTE-2 | C-950-FDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 950-JE-05101/B400-FGS-003<br>~~950-JE-05101/B400-FGS-002~~<br>12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS | TB-950-JE-05101<br>TR1 RD, WH, BK<br>Shield Bar<br>1 2 3 → 950-FDZ-05101 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05102 (1, 3, 2) RD, WH, BK | NOTE-2 | C-950-FDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR2 RD, WH, BK<br>Shield Bar<br>4 5 6 → 950-FDZ-05102 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05103 (1, 3, 2) RD, WH, BK | NOTE-2 | C-950-FDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR3 RD, WH, BK<br>Shield Bar<br>7 8 9 → 950-FDZ-05103 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05104 (1, 3, 2) RD, WH, BK | NOTE-2 | C-950-FDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR4 RD, WH, BK<br>Shield Bar<br>10 11 12 → 950-FDZ-05104 |
| 950-GDZ-05101 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR5 RD, WH, BK<br>Shield Bar<br>13 14 15 → 950-GDZ-05101 |
| 950-GDZ-05102 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR6 RD, WH, BK<br>Shield Bar<br>16 17 18 → 950-GDZ-05102 |
| 950-GDZ-05103 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR7 RD, WH, BK<br>Shield Bar<br>19 20 21 → 950-GDZ-05103 |
| 950-GDZ-05104 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR8 RD, WH, BK<br>Shield Bar<br>22 23 24 → 950-GDZ-05104 |
| 950-GDZ-05105 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05105/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR9 RD, WH, BK<br>Shield Bar<br>25 26 27 → 950-GDZ-05105 |
| 950-GDZ-05106 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05106/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR10 RD, WH, BK<br>Shield Bar<br>28 29 30 → 950-GDZ-05106 <01> |
| | | SPARE | | TR11 RD, WH, BK<br>Shield Bar<br>31 32 33 → SPARE |
| | | SPARE | | TR12 RD, WH, BK<br>34 35 36 → SPARE |
| | | TB-1<br>1 2 3 SH 4 5 6 SH 7 8 9 SH 10 11 12 SH 13 14 15 SH 16 17 18 SH 19 20 21 SH 22 23 24 SH 25 26 27 SH 28 29 30 SH 31 32 33 SH 34 35 36 SH OS | | I.E.<br>Shield Bar |

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40016 | SHEET 045 | REV. 01 |

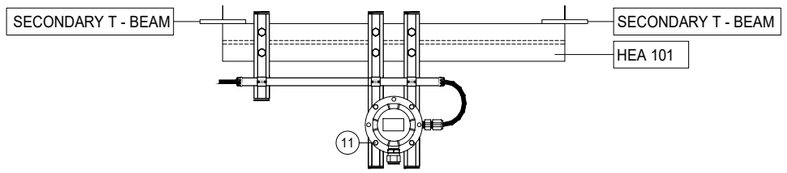
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00

# FGS-19

| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 2m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 6 |
| 6 | AISI 316L BOLT M12X35 + NUT M12 + WASHER M12 | 6 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |




| POS. | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05101 |
| 2 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05102 |
| 3 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05103 |
| 4 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05104 |
| 5 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05105 |
| 6 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05106 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

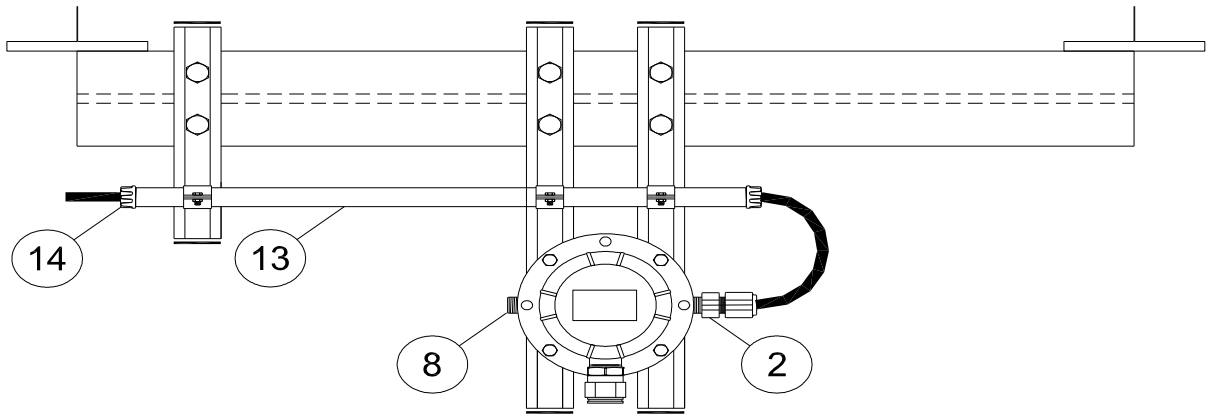
TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
GAS DETECTORS ON LOWER DECK CEILING

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. 123A90-DDL-IN-DD-40017 | SHEET 038 | REV. 01 |
|---|---|---|---|

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES

| INSTRUMENT TAG | |
|---|---|
| 1 | 950-GDZ-05101 |
| 2 | 950-GDZ-05102 |
| 3 | 950-GDZ-05103 |
| 4 | 950-GDZ-05104 |
| 5 | 950-GDZ-05105 |
| 6 | 950-GDZ-05106 |




**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE:

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 14 | | Polyproplylene Bushing | 3/4" | 4 |
| 13 | | Galvanized Steel Conduit UNI 7683 | 3/4" | 12 mt |
| 8 | | Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1 | M20 | 1 |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 1 |

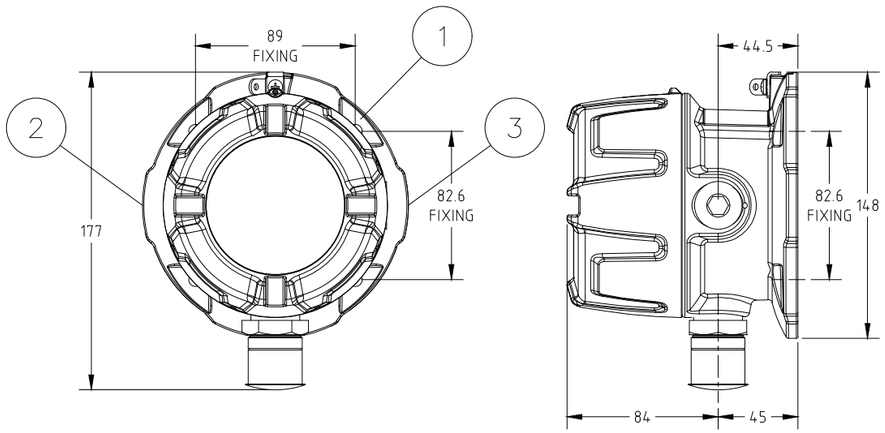

This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

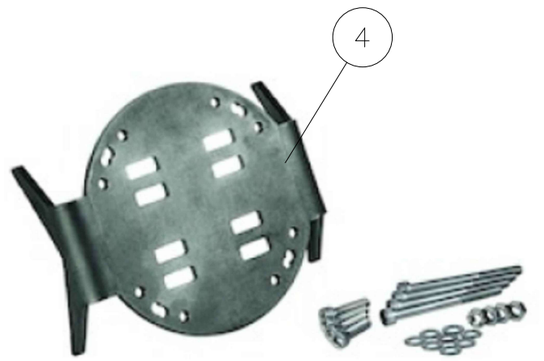
# HYDROGEN POINT DETECTOR / PIPE MOUNTING

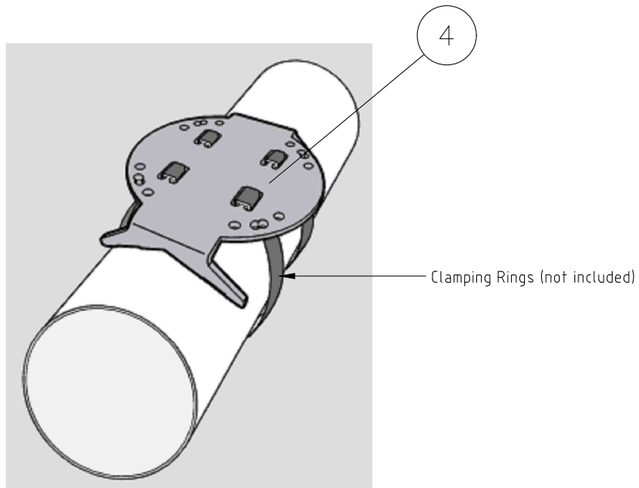
| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Hydrogen point detector, DRÄGER Polytron 8200 CAT DQ d S 4-20/HART | 1 |
| 2 | Reducer 3/4" NPT - M20 Ex d AISI 316 | 2 |
| 3 | 3/4" plug Ex d AISI 316 | 1 |
| 4 | Pipe mount bracket kit Polytron 5000/8000 series, DRÄGER | 1 |
| 5 | Sun and weather protection kit Polytron, DRÄGER | 1 |
| 6 | Stainless Steel Name Plate | 1 |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

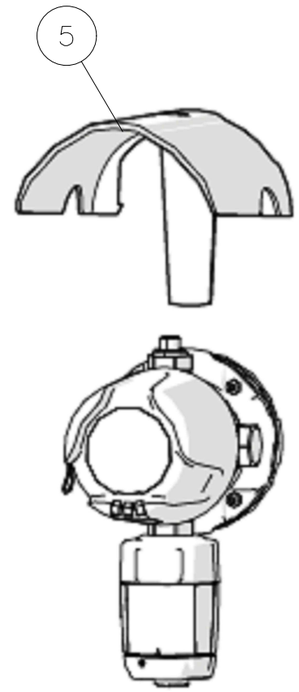
INSTALLATION QUANTITY

25

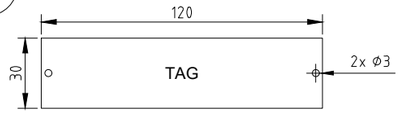


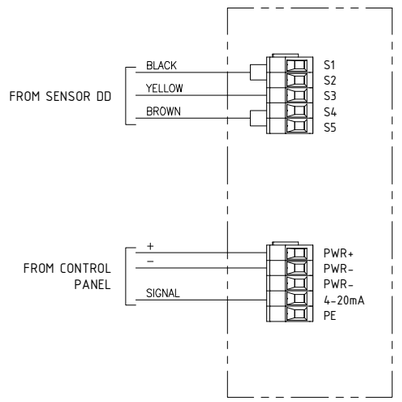




6 STAINLESS STEEL NAME PLATE DETAILS




NOTE 5

WIRING




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN POINT DETECTOR / PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 005

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# HYDROGEN POINT DETECTOR / PIPE MOUNTING – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-GDZ-02101 |
| 2 | 950-GDZ-02102 |
| 3 | 950-GDZ-02103 |
| 4 | 950-GDZ-02104 |
| 5 | 950-GDZ-02105 |
| 6 | 950-GDZ-02106 |
| 7 | 950-GDZ-02107 |
| 8 | 950-GDZ-02108 |
| 9 | 950-GDZ-02109 |
| 10 | 950-GDZ-02110 |
| 11 | 950-GDZ-02111 |
| 12 | 950-GDZ-02112 |
| 13 | 950-GDZ-02113 |
| 14 | 950-GDZ-02114 |
| 15 | 950-GDZ-02115 |
| 16 | 950-GDZ-02116 |
| 17 | 950-GDZ-05101 |
| 18 | 950-GDZ-05102 |
| 19 | 950-GDZ-05103 |
| 20 | 950-GDZ-05104 |
| 21 | 950-GDZ-05105 |
| 22 | 950-GDZ-05106 |
| 23 | 950-GDZ-03104 |
| 24 | 950-GDZ-03105 |
| 25 | 950-GDZ-03106 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN POINT DETECTOR / PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 006 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## HYDROGEN POINT DETECTORS

| POS. | TAG NUMBER | SERVICE |
|---|---|---|
| 1 | 950-GDZ-02101 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 2 | 950-GDZ-02102 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 3 | 950-GDZ-02103 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 4 | 950-GDZ-02104 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 5 | 950-GDZ-02105 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 6 | 950-GDZ-02106 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 7 | 950-GDZ-02107 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 8 | 950-GDZ-02108 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 9 | 950-GDZ-02109 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 10 | 950-GDZ-02110 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 11 | 950-GDZ-02111 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 12 | 950-GDZ-02112 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 13 | 950-GDZ-02113 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 14 | 950-GDZ-02114 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 15 | 950-GDZ-02115 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 16 | 950-GDZ-02116 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 17 | 950-GDZ-04201 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 18 | 950-GDZ-04202 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 19 | 950-GDZ-04203 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 20 | 950-GDZ-04204 | H2 GD FZ-04 B-400 AMBIENT |
| 21 | 950-GDZ-04205 | H2 GD FZ-04 B-400 AMBIENT |
| 22 | 950-GDZ-04206 | H2 GD FZ-04 B-400 AMBIENT |
| 23 | 950-GDZ-04207 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 24 | 950-GDZ-04208 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 25 | 950-GDZ-04209 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 26 | 950-GDZ-04210 | H2 GD FZ-04 B-300 AMBIENT |
| 27 | 950-GDZ-04211 | H2 GD FZ-04 B-300 AMBIENT |
| 28 | 950-GDZ-04212 | H2 GD FZ-04 B-300 AMBIENT |
| 29 | 950-GDZ-04213 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 30 | 950-GDZ-04214 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 31 | 950-GDZ-04215 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 32 | 950-GDZ-04216 | H2 GD FZ-04 B-200 AMBIENT |
| 33 | 950-GDZ-04217 | H2 GD FZ-04 B-200 AMBIENT |
| 34 | 950-GDZ-04218 | H2 GD FZ-04 B-200 AMBIENT |
| 35 | 950-GDZ-05101 | H2 GD FZ-05 BESS AREA |
| 36 | 950-GDZ-05102 | H2 GD FZ-05 BESS AREA |
| 37 | 950-GDZ-05103 | H2 GD FZ-05 BESS AREA |
| 38 | 950-GDZ-05104 | |
| 39 | 950-GDZ-05105 | |
| 40 | 950-GDZ-05106 | |
| 41 | 950-GDZ-06201 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 42 | 950-GDZ-06202 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 43 | 950-GDZ-06203 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 44 | 950-GDZ-06204 | H2 GD FZ-06 B-100 AMBIENT |
| 45 | 950-GDZ-06205 | H2 GD FZ-06 B-100 AMBIENT |
| 46 | 950-GDZ-06206 | H2 GD FZ-06 B-100 AMBIENT |
| 47 | 950-GDZ-03104 | H2 GD FZ-03 ELECTROLYZER PK AREA |
| 48 | 950-GDZ-03105 | H2 GD FZ-03 ELECTROLYZER PK AREA |
| 49 | 950-GDZ-01103 | H2 GD FZ-03 ELECTROLYZER PK AREA |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# Dräger Polytron® 8200 CAT
## Detection of flammable gases and vapors

The Dräger Polytron® 8200 CAT is an advanced explosion-proof transmitter for the detection of combustible gases in the lower explosion limit (LEL). It uses a catalytic bead DrägerSensor® Ex that will detect most flammable gases and vapors. In addition to a 3-wire 4 to 20-mA analog output with relays it also offers HART®, Modbus and Fieldbus protocols, making it compatible with most control systems.




Dräger. Technology for Life®

# Benefits

## Fast and stable – the DrägerSensor® Ex

The built-in DrägerSensor® Ex is based on the proven catalytic bead measuring principle. It has excellent long-term stability with outstanding poison resistance. And this is the reason for its durability. Due to the novel gas inlet opening, the sensor responds to gas in only a few seconds. This allows you to react immediately with countermeasures and prevent the development of a flammable atmosphere.

## Easy device management via digital communication

The Dräger Polytron 8200 is equipped with digital interfaces allowing for quick and easy remote interrogation of the transmitter's state. Integration with existing asset management systems such as PACTware™ is possible via DTM. In addition to the common HART® communication system, the fieldbus interfaces PROFIBUS® PA, FOUNDATION fieldbus™ H1, and Modbus RTU are also available.

## Same design, same operating principle

The Dräger Polytron 8200 belongs to the Polytron 8000 series. All transmitters in this series have the same design and user interface. This allows for uniform operation with reduced training and maintenance requirements. The large graphic backlit display shows status information clearly and in an easy to use format. The measured gas concentration, selected gas type, and measuring unit are displayed during normal operation. Colored LEDs (green, yellow and red) provide additional alarm and status information.

The Polytron 8200 is operated by means of a magnetic wand over contact surfaces.

## Three relays for controlling external equipment

Upon request, the Dräger Polytron 8200 can also be supplied with three integrated relays. This enables you to use it as an independent gas detection system with two arbitrarily adjustable concentration alarms and one fault alarm. Audible alarms, signal lights or similar devices can thus be controlled locally without an additional cable between the transmitter and central controller.

## Safe, robust housing for every application

Polytron 8200 features a Class I, Div. 1 rated explosion proof enclosure made from aluminium or stainless steel, making it suitable for a wide range of environmental conditions.

## Make the impossible possible with the remote sensor

A remote explosion proof junction allows installation of the sensor up to 350' away from the transmitter in difficult to access areas. A permanently attached remote calibration adapter allows for remote bump testing or calibration from the Polytron display by using permanently attached tubing that takes the calibration gas to the sensor.

# Technical Data

| **Dräger Polytron® 8200 CAT** | | | |
|---|---|---|---|
| Type | Explosion proof / flameproof enclosed transmitter (“d”) | | |
| Gases | Flammable gases and vapors | | |
| Measuring ranges | DQ | 0 to 100 % LEL | |
| | LC | 0 to 10 % LEL | |
| Display | Backlit graphic LCD; 3 Status LEDs (green/yellow/red) | | |
| Performance Characteristics | Accuracy/repeatability | Zero | ≤ 1 % LEL |
| | | Span | ≤ 1 % LEL |
| | | Long-term drift | ≤ 3 % LEL after 6 months |
| | Response time | T50 | < 7 seconds (methane) |
| | | T90 | < 13 seconds (methane) |
| Electrical data | Signal output analog | Normal operation | 4 to 20 mA, 3- or 4-wire, sink or source |
| | | Maintenance | Constant 3.4 mA (adjustable) |
| | | Fault | < 1.2 mA |
| | Signal output digital | HART® w/ 3- or 4-wire, PROFIBUS® PA, FOUNDATION fieldbus™ H1 and Modbus RTU w/ 5-wires | |
| | Power supply | 10 to 30 V DC | |
| | Power consumption (max.) | DQ w/o relay, non-remote | 105 mA at 24 V |
| | | DQ w/ relay, remote | 145 mA at 24 V |
| | Relay specification (option) | 2 alarm relays and 1 fault relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC | |
| Environmental conditions (see sensor data sheet) | Temperature | -40 to 80 °C (-40 to 176 °F) without relay<br>-40 to 70 °C (-40 to 158 °F) with relay-<br>-50 to 85 °C (-122 to 185 °F) remote sensor | |
| | Pressure | 23.6 to 38.4 inch Hg / 800 to 1,200 mbar | |
| | Humidity | 5 to 95% r. h., non-condensing | |
| Housing | Transmitter housing | Epoxy coated copper-free aluminium or stainless steel SS316 L | |
| | Sensor housing | Stainless steel 303 | |
| | Enclosure protection type | NEMA 4X & 7, IP65/66/67 | |
| | Cable entry point | 3/4" NPT threaded holes or M20 cable gland | |
| | Dimensions (H x W x D) | 11.0" x 5.9" x 5.1" / 280 x 150 x 130 mm | |
| | Weight, approx. | Aluminium | 4.9 lbs / 2.2 kg |
| | | SS316 L | 8.8 lbs / 4.0 kg |
| Approvals* | UL & CSA | Class I, Div 1, Groups A, B, C, D; | |
| | | Class II, Div 1, Groups E, F, G; | |
| | | Class I, Zone 1, Group IIC; | |
| | | T-Code T6/T4 | |
| | IECEx | Ex db IIC T6/T4 Gb,<br>-40 ≤ Ta ≤ +40/+70 °C; | |
| | ATEX | II 2G Ex db IIC T6/T4 Gb,<br>-40 ≤ Ta ≤ +40/+70 °C; | |
| | CE markings | ATEX (Directive 2014/34/EU) | |
| | | Electromagnetic Compatibility (Directive 2014/30/EU) | |
| | | Low Voltage (Directive 2014/35/EU) | |
| | Shipping approvals (for DQ sensor only) | DNV GL, ABS, LR, CCS, RMRS | |
| | MED approval (for DQ sensor only) | Certificate No. MEDB0000411 | |

# Technical Data

| | | |
|---|---|---|
| | DEKRA Performance approval (for DQ sensor only) | Certificate No. BVS 13 ATEX G 001 X |
| | SIL 2 certified by TUEV Sued | Certificate No. Z10 053474 0023 |

* All docking station versions are only ATEX/IECEx approved

# Ordering Information

| Dräger Polytron® 8200 CAT | Approval Code | Order Number |
|---|---|---|
| Dräger Polytron® 8200 CAT DQ d A 4-20/HART® | XTR 0410 | 83 44 439 |
| Dräger Polytron® 8200 CAT DQ d A 4-20/HART® relay | XTR 0411 | 83 44 440 |
| Dräger Polytron® 8200 CAT DQ d S 4-20/HART® | XTR 0510 | 83 44 448 |
| Dräger Polytron® 8200 CAT DQ d S 4-20/HART® relay | XTR 0511 | 83 44 449 |
| Dräger Polytron® 8xx0 Kit (Custom configuration e. g. LC sensor or bus communication) | | 83 44 800 |

| Accessories | | Order Number |
|---|---|---|
| Magnetic wand | | 45 44 101 |
| Pipe mount bracket | | 45 44 198 |
| Aluminum junction box for remote sensor ‘d’ | | 45 44 099 |
| Stainless steel junction box for remote sensor ‘d’ | | 45 44 098 |
| Duct mount kit | | 68 12 725 |
| IR Connection Kit Polytron® 5000/8000 | | 45 44 197 |
| PolySoft licence (1 year) | | 83 28 600 |
| PolySoft licence (subscription) | | 83 28 601 |
| Splash guard | | 68 12 510 |
| Weather protection kit Dräger Polytron® 5/6/8xxx | | 37 02 198 |
| Gassing adapter | PE, w/o tubing | 68 06 978 |
| | PE incl. tubing | 46 09 314 |
| Calibration adapter Viton® | | 68 10 536 |
| Process adapter (Stainless steel) for DQ | | 68 12 470 |
| Process adapter (Stainless steel) for LC | | 68 12 465 |

HART® is a registered trademark of the HART Communication Foundation.
FOUNDATION fieldbus™ is a registered trademark of the Fieldbus Foundation™.
PROFIBUS® is a registered trademark of PROFIBUS and PROFINET International (PI).
PACTware™ is a registered trademark of Pepperl+Fuchs GmbH.
Viton® is a registered trademark of the DuPont company.
Windows® is a registered trademark of Microsoft Corporation.

ROSETTI MARINO | PROVERLIS | CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-GDZ-05104 | : H2 GD FZ-05 BESS Area | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10001043 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX42 | | Gas/Smoke Detector |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to F&G detection layout drawings. | OK |
| 4 | Check test facility is installed. | OK |
| 5 | Check end of line resistors correctly fitted (where applicable). | NA |
| 6 | Check protective cap is installed. | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | OK |
| 9 | Check accessibility conforms to specifications, with platforming where necessary. | OK |
| 10 | Check calibration certificate (where applicable). | NA |
| 11 | Check electrical connections. | OK |
| 12 | Check earthing connections. | PL |
| 13 | Dismantle and store sensor until installation just before Commissioning. | OK |
| 14 | If required produce Red Line Mark Up for "AS BUILT" | |

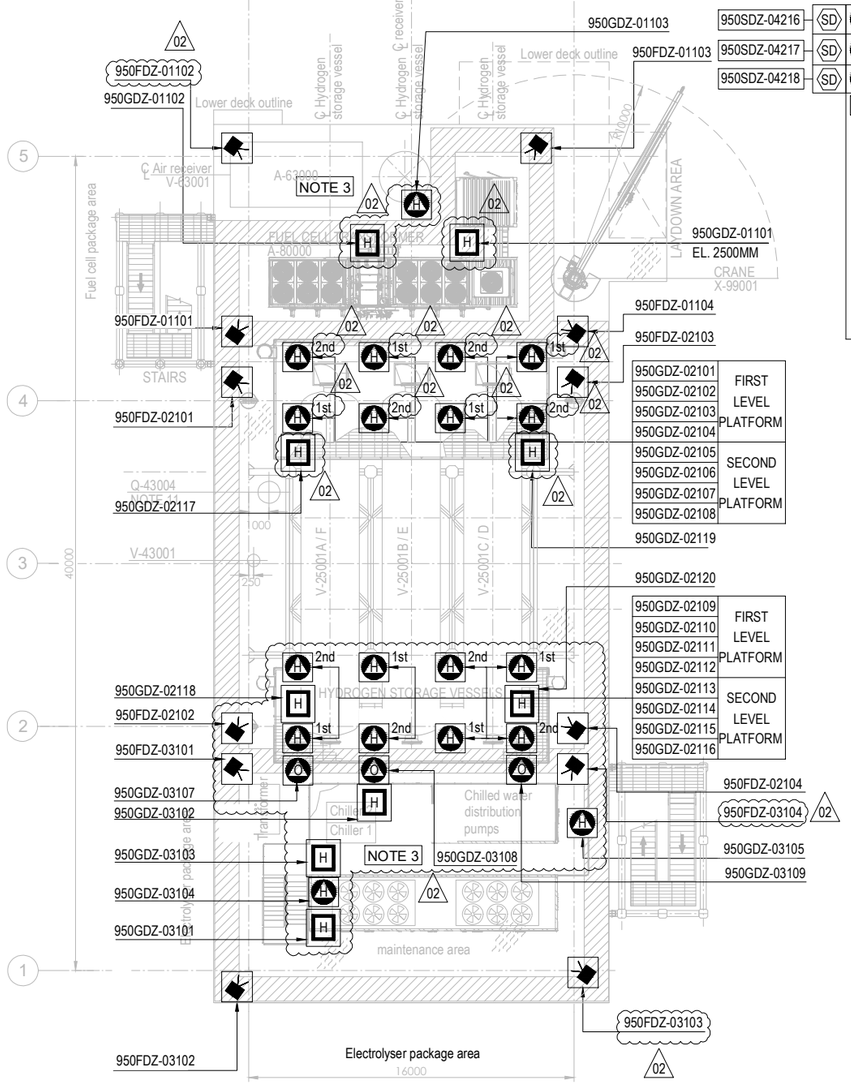
Comments



| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-07 | 2024-12-11 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:56:12.680Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-11T17:50:19.394Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



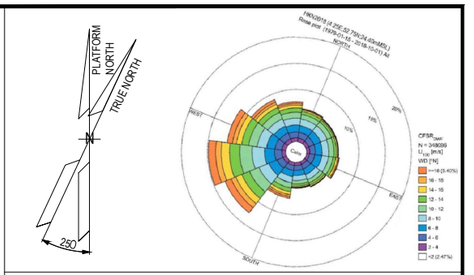

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016 REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

| INSTRUMENTS | | JUNCTION BOX 950-JE-05101 | MULTICABLE No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |
|---|---|---|---|---|
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05101 (1, 3, 2) RD, WH, BK | C-950-FDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | 950-JE-05101/B400-FGS-003 ~~950-JE-05101/B400-FGS-002~~ 12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS | TB-950-JE-05101 |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05102 (1, 3, 2) RD, WH, BK | C-950-FDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05103 (1, 3, 2) RD, WH, BK | C-950-FDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| Note: link between terminals 3, 4 and 12 to be wired on site | 950-FDZ-05104 (1, 3, 2) RD, WH, BK | C-950-FDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05101 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05101/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05102 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05102/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05103 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05103/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05104 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05104/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05105 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05105/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |
| | 950-GDZ-05106 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05106/950-JE-05101 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS NOTE-2 | | |

TB-1

| | | | |
|---|---|---|---|
| 1 | SH | 19 | SH |
| 2 | 4 | 20 | 22 |
| 3 | 5 | 21 | 23 |
| SH | 6 | SH | 24 |
| 4 | SH | 22 | SH |
| 5 | 7 | 23 | 25 |
| 6 | 8 | 24 | 26 |
| SH | 9 | SH | 27 |
| 7 | SH | 25 | SH |
| 8 | 10 | 26 | 28 |
| 9 | 11 | 27 | 29 |
| SH | 12 | SH | 30 |
| 10 | SH | 28 | SH |
| 11 | 13 | 29 | 31 |
| 12 | 14 | 30 | SPARE 32 |
| SH | 15 | SH | 33 |
| 13 | SH | 31 | SH |
| 14 | 16 | 32 | 34 |
| 15 | 17 | 33 | SPARE 35 |
| SH | 18 | SH | 36 |
| 16 | SH | 34 | SH |
| 17 | 19 | 35 | OS |
| 18 | 20 | 36 | |

TR1 RD, WH, BK
TR2 RD, WH, BK
TR3 RD, WH, BK
TR4 RD, WH, BK
TR5 RD, WH, BK
TR6 RD, WH, BK
TR7 RD, WH, BK
TR8 RD, WH, BK
TR9 RD, WH, BK
TR10 RD, WH, BK
TR11 RD, WH, BK
TR12 RD, WH, BK

TB-950-JE-05101

| | | | |
|---|---|---|---|
| TR1 RD, WH, BK | 1 | 950-FDZ-05101 | |
| Shield Bar | 2 | | |
| TR2 RD, WH, BK | 3 | | |
| Shield Bar | 4 | 950-FDZ-05102 | |
| TR3 RD, WH, BK | 5 | | |
| Shield Bar | 6 | | |
| TR4 RD, WH, BK | 7 | 950-FDZ-05103 | |
| Shield Bar | 8 | | |
| TR5 RD, WH, BK | 9 | | |
| Shield Bar | 10 | 950-FDZ-05104 | |
| TR6 RD, WH, BK | 11 | | |
| Shield Bar | 12 | | |
| TR7 RD, WH, BK | 13 | 950-GDZ-05101 | |
| Shield Bar | 14 | | |
| TR8 RD, WH, BK | 15 | | |
| Shield Bar | 16 | 950-GDZ-05102 | |
| TR9 RD, WH, BK | 17 | | |
| Shield Bar | 18 | | |
| TR10 RD, WH, BK | 19 | 950-GDZ-05103 | |
| Shield Bar | 20 | | |
| TR11 RD, WH, BK | 21 | | |
| Shield Bar | 22 | 950-GDZ-05104 | |
| TR12 RD, WH, BK | 23 | | |
| | 24 | | |
| | 25 | 950-GDZ-05105 | |
| | 26 | | |
| | 27 | | |
| | 28 | 950-GDZ-05106 | |
| | 29 | | <01> |
| | 30 | | |
| | 31 | SPARE | |
| | 32 | | |
| | 33 | | |
| | 34 | SPARE | |
| | 35 | | |
| | 36 | | |

I.E.

Shield Bar

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40016 | SHEET 045 | REV. 01 |

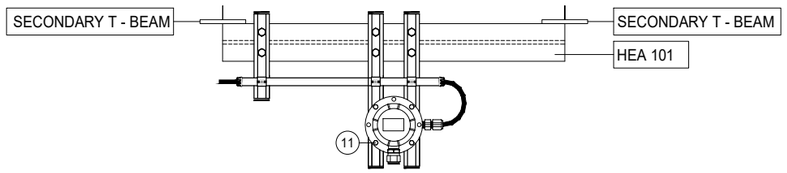
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00

# FGS-19

| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 2m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 6 |
| 6 | AISI 316L BOLT M12X35 + NUT M12 + WASHER M12 | 6 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |




| POS. | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05101 |
| 2 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05102 |
| 3 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05103 |
| 4 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05104 |
| 5 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05105 |
| 6 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05106 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

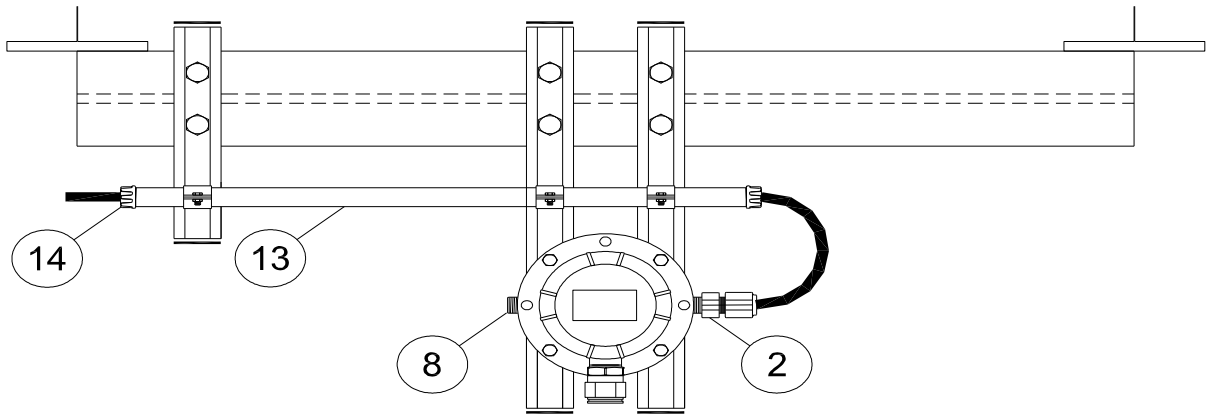
BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
GAS DETECTORS ON LOWER DECK CEILING

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90-DDL-IN-DD-40017 | 038 | 01 |

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES

| INSTRUMENT TAG | |
|---|---|
| 1 | 950-GDZ-05101 |
| 2 | 950-GDZ-05102 |
| 3 | 950-GDZ-05103 |
| 4 | 950-GDZ-05104 |
| 5 | 950-GDZ-05105 |
| 6 | 950-GDZ-05106 |




**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE:

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 14 | | Polyproplylene Bushing | 3/4" | 4 |
| 13 | | Galvanized Steel Conduit UNI 7683 | 3/4" | 12 mt |
| 8 | | Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1 | M20 | 1 |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 1 |

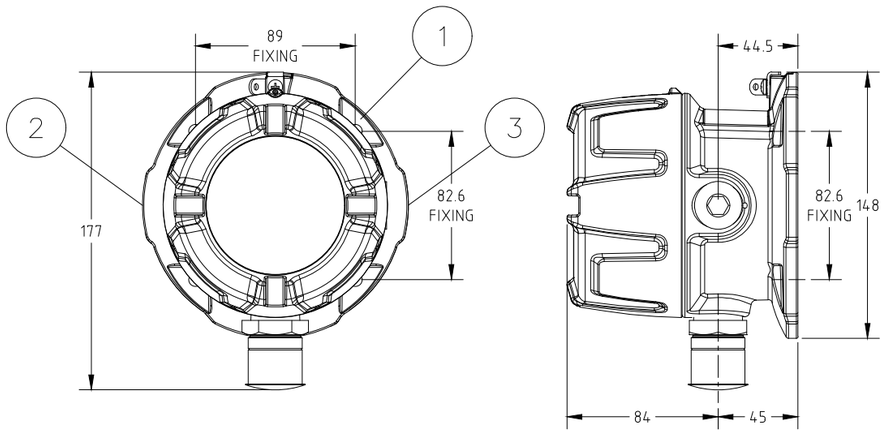

This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

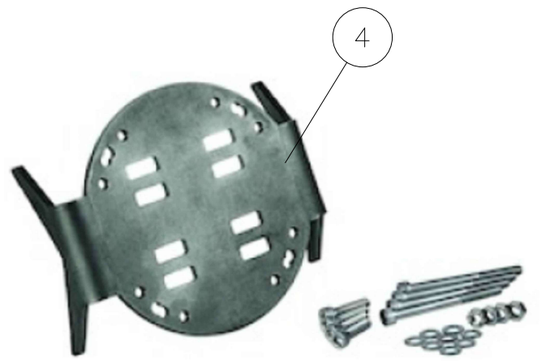
# HYDROGEN POINT DETECTOR / PIPE MOUNTING

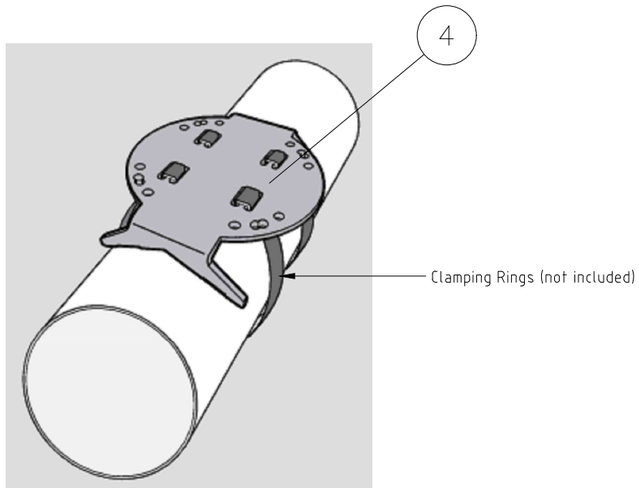
| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Hydrogen point detector, DRÄGER Polytron 8200 CAT DQ d S 4-20/HART | 1 |
| 2 | Reducer 3/4" NPT - M20 Ex d AISI 316 | 2 |
| 3 | 3/4" plug Ex d AISI 316 | 1 |
| 4 | Pipe mount bracket kit Polytron 5000/8000 series, DRÄGER | 1 |
| 5 | Sun and weather protection kit Polytron, DRÄGER | 1 |
| 6 | Stainless Steel Name Plate | 1 |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

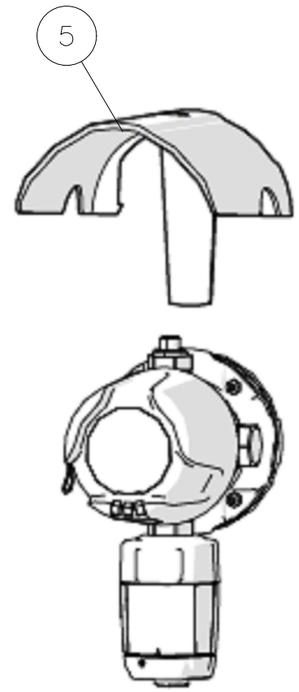
INSTALLATION QUANTITY

25

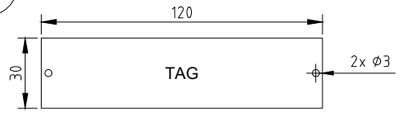


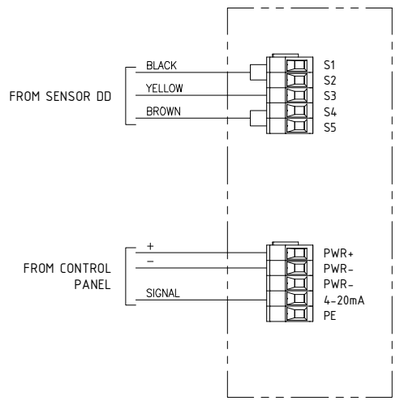




6 STAINLESS STEEL NAME PLATE DETAILS




NOTE 5

WIRING




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN POINT DETECTOR / PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 005

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# HYDROGEN POINT DETECTOR / PIPE MOUNTING – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-GDZ-02101 |
| 2 | 950-GDZ-02102 |
| 3 | 950-GDZ-02103 |
| 4 | 950-GDZ-02104 |
| 5 | 950-GDZ-02105 |
| 6 | 950-GDZ-02106 |
| 7 | 950-GDZ-02107 |
| 8 | 950-GDZ-02108 |
| 9 | 950-GDZ-02109 |
| 10 | 950-GDZ-02110 |
| 11 | 950-GDZ-02111 |
| 12 | 950-GDZ-02112 |
| 13 | 950-GDZ-02113 |
| 14 | 950-GDZ-02114 |
| 15 | 950-GDZ-02115 |
| 16 | 950-GDZ-02116 |
| 17 | 950-GDZ-05101 |
| 18 | 950-GDZ-05102 |
| 19 | 950-GDZ-05103 |
| 20 | 950-GDZ-05104 |
| 21 | 950-GDZ-05105 |
| 22 | 950-GDZ-05106 |
| 23 | 950-GDZ-03104 |
| 24 | 950-GDZ-03105 |
| 25 | 950-GDZ-03106 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN POINT DETECTOR / PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 006 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## HYDROGEN POINT DETECTORS

| POS. | TAG NUMBER | SERVICE |
|---|---|---|
| 1 | 950-GDZ-02101 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 2 | 950-GDZ-02102 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 3 | 950-GDZ-02103 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 4 | 950-GDZ-02104 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 5 | 950-GDZ-02105 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 6 | 950-GDZ-02106 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 7 | 950-GDZ-02107 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 8 | 950-GDZ-02108 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 9 | 950-GDZ-02109 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 10 | 950-GDZ-02110 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 11 | 950-GDZ-02111 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 12 | 950-GDZ-02112 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 13 | 950-GDZ-02113 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 14 | 950-GDZ-02114 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 15 | 950-GDZ-02115 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 16 | 950-GDZ-02116 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 17 | 950-GDZ-04201 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 18 | 950-GDZ-04202 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 19 | 950-GDZ-04203 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 20 | 950-GDZ-04204 | H2 GD FZ-04 B-400 AMBIENT |
| 21 | 950-GDZ-04205 | H2 GD FZ-04 B-400 AMBIENT |
| 22 | 950-GDZ-04206 | H2 GD FZ-04 B-400 AMBIENT |
| 23 | 950-GDZ-04207 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 24 | 950-GDZ-04208 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 25 | 950-GDZ-04209 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 26 | 950-GDZ-04210 | H2 GD FZ-04 B-300 AMBIENT |
| 27 | 950-GDZ-04211 | H2 GD FZ-04 B-300 AMBIENT |
| 28 | 950-GDZ-04212 | H2 GD FZ-04 B-300 AMBIENT |
| 29 | 950-GDZ-04213 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 30 | 950-GDZ-04214 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 31 | 950-GDZ-04215 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 32 | 950-GDZ-04216 | H2 GD FZ-04 B-200 AMBIENT |
| 33 | 950-GDZ-04217 | H2 GD FZ-04 B-200 AMBIENT |
| 34 | 950-GDZ-04218 | H2 GD FZ-04 B-200 AMBIENT |
| 35 | 950-GDZ-05101 | H2 GD FZ-05 BESS AREA |
| 36 | 950-GDZ-05102 | H2 GD FZ-05 BESS AREA |
| 37 | 950-GDZ-05103 | H2 GD FZ-05 BESS AREA |
| 38 | 950-GDZ-05104 | |
| 39 | 950-GDZ-05105 | |
| 40 | 950-GDZ-05106 | |
| 41 | 950-GDZ-06201 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 42 | 950-GDZ-06202 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 43 | 950-GDZ-06203 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 44 | 950-GDZ-06204 | H2 GD FZ-06 B-100 AMBIENT |
| 45 | 950-GDZ-06205 | H2 GD FZ-06 B-100 AMBIENT |
| 46 | 950-GDZ-06206 | H2 GD FZ-06 B-100 AMBIENT |
| 47 | 950-GDZ-03104 | H2 GD FZ-03 ELECTROLYZER PK AREA |
| 48 | 950-GDZ-03105 | H2 GD FZ-03 ELECTROLYZER PK AREA |
| 49 | 950-GDZ-01103 | H2 GD FZ-03 ELECTROLYZER PK AREA |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# Dräger Polytron® 8200 CAT
## Detection of flammable gases and vapors

The Dräger Polytron® 8200 CAT is an advanced explosion-proof transmitter for the detection of combustible gases in the lower explosion limit (LEL). It uses a catalytic bead DrägerSensor® Ex that will detect most flammable gases and vapors. In addition to a 3-wire 4 to 20-mA analog output with relays it also offers HART®, Modbus and Fieldbus protocols, making it compatible with most control systems.




Dräger. Technology for Life®

# Benefits

## Fast and stable – the DrägerSensor® Ex

The built-in DrägerSensor® Ex is based on the proven catalytic bead measuring principle. It has excellent long-term stability with outstanding poison resistance. And this is the reason for its durability. Due to the novel gas inlet opening, the sensor responds to gas in only a few seconds. This allows you to react immediately with countermeasures and prevent the development of a flammable atmosphere.

## Easy device management via digital communication

The Dräger Polytron 8200 is equipped with digital interfaces allowing for quick and easy remote interrogation of the transmitter's state. Integration with existing asset management systems such as PACTware™ is possible via DTM. In addition to the common HART® communication system, the fieldbus interfaces PROFIBUS® PA, FOUNDATION fieldbus™ H1, and Modbus RTU are also available.

## Same design, same operating principle

The Dräger Polytron 8200 belongs to the Polytron 8000 series. All transmitters in this series have the same design and user interface. This allows for uniform operation with reduced training and maintenance requirements. The large graphic backlit display shows status information clearly and in an easy to use format. The measured gas concentration, selected gas type, and measuring unit are displayed during normal operation. Colored LEDs (green, yellow and red) provide additional alarm and status information.

The Polytron 8200 is operated by means of a magnetic wand over contact surfaces.

## Three relays for controlling external equipment

Upon request, the Dräger Polytron 8200 can also be supplied with three integrated relays. This enables you to use it as an independent gas detection system with two arbitrarily adjustable concentration alarms and one fault alarm. Audible alarms, signal lights or similar devices can thus be controlled locally without an additional cable between the transmitter and central controller.

## Safe, robust housing for every application

Polytron 8200 features a Class I, Div. 1 rated explosion proof enclosure made from aluminium or stainless steel, making it suitable for a wide range of environmental conditions.

## Make the impossible possible with the remote sensor

A remote explosion proof junction allows installation of the sensor up to 350' away from the transmitter in difficult to access areas. A permanently attached remote calibration adapter allows for remote bump testing or calibration from the Polytron display by using permanently attached tubing that takes the calibration gas to the sensor.

# Technical Data

| **Dräger Polytron® 8200 CAT** | | | |
|---|---|---|---|
| Type | Explosion proof / flameproof enclosed transmitter (“d”) | | |
| Gases | Flammable gases and vapors | | |
| Measuring ranges | DQ | 0 to 100 % LEL | |
| | LC | 0 to 10 % LEL | |
| Display | Backlit graphic LCD; 3 Status LEDs (green/yellow/red) | | |
| Performance Characteristics | Accuracy/repeatability | Zero | ≤ 1 % LEL |
| | | Span | ≤ 1 % LEL |
| | | Long-term drift | ≤ 3 % LEL after 6 months |
| | Response time | T50 | < 7 seconds (methane) |
| | | T90 | < 13 seconds (methane) |
| Electrical data | Signal output analog | Normal operation | 4 to 20 mA, 3- or 4-wire, sink or source |
| | | Maintenance | Constant 3.4 mA (adjustable) |
| | | Fault | < 1.2 mA |
| | Signal output digital | HART® w/ 3- or 4-wire, PROFIBUS® PA, FOUNDATION fieldbus™ H1 and Modbus RTU w/ 5-wires | |
| | Power supply | 10 to 30 V DC | |
| | Power consumption (max.) | DQ w/o relay, non-remote | 105 mA at 24 V |
| | | DQ w/ relay, remote | 145 mA at 24 V |
| | Relay specification (option) | 2 alarm relays and 1 fault relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC | |
| Environmental conditions (see sensor data sheet) | Temperature | -40 to 80 °C (-40 to 176 °F) without relay<br>-40 to 70 °C (-40 to 158 °F) with relay-<br>-50 to 85 °C (-122 to 185 °F) remote sensor | |
| | Pressure | 23.6 to 38.4 inch Hg / 800 to 1,200 mbar | |
| | Humidity | 5 to 95% r. h., non-condensing | |
| Housing | Transmitter housing | Epoxy coated copper-free aluminium or stainless steel SS316 L | |
| | Sensor housing | Stainless steel 303 | |
| | Enclosure protection type | NEMA 4X & 7, IP65/66/67 | |
| | Cable entry point | 3/4" NPT threaded holes or M20 cable gland | |
| | Dimensions (H x W x D) | 11.0" x 5.9" x 5.1" / 280 x 150 x 130 mm | |
| | Weight, approx. | Aluminium | 4.9 lbs / 2.2 kg |
| | | SS316 L | 8.8 lbs / 4.0 kg |
| Approvals* | UL & CSA | Class I, Div 1, Groups A, B, C, D; | |
| | | Class II, Div 1, Groups E, F, G; | |
| | | Class I, Zone 1, Group IIC; | |
| | | T-Code T6/T4 | |
| | IECEx | Ex db IIC T6/T4 Gb,<br>-40 ≤ Ta ≤ +40/+70 °C; | |
| | ATEX | II 2G Ex db IIC T6/T4 Gb,<br>-40 ≤ Ta ≤ +40/+70 °C; | |
| | CE markings | ATEX (Directive 2014/34/EU) | |
| | | Electromagnetic Compatibility (Directive 2014/30/EU) | |
| | | Low Voltage (Directive 2014/35/EU) | |
| | Shipping approvals (for DQ sensor only) | DNV GL, ABS, LR, CCS, RMRS | |
| | MED approval (for DQ sensor only) | Certificate No. MEDB0000411 | |

# Technical Data

| | | |
|---|---|---|
| | DEKRA Performance approval (for DQ sensor only) | Certificate No. BVS 13 ATEX G 001 X |
| | SIL 2 certified by TUEV Sued | Certificate No. Z10 053474 0023 |

* All docking station versions are only ATEX/IECEx approved

# Ordering Information

| Dräger Polytron® 8200 CAT | Approval Code | Order Number |
|---|---|---|
| Dräger Polytron® 8200 CAT DQ d A 4-20/HART® | XTR 0410 | 83 44 439 |
| Dräger Polytron® 8200 CAT DQ d A 4-20/HART® relay | XTR 0411 | 83 44 440 |
| Dräger Polytron® 8200 CAT DQ d S 4-20/HART® | XTR 0510 | 83 44 448 |
| Dräger Polytron® 8200 CAT DQ d S 4-20/HART® relay | XTR 0511 | 83 44 449 |
| Dräger Polytron® 8xx0 Kit (Custom configuration e. g. LC sensor or bus communication) | | 83 44 800 |

| Accessories | | Order Number |
|---|---|---|
| Magnetic wand | | 45 44 101 |
| Pipe mount bracket | | 45 44 198 |
| Aluminum junction box for remote sensor ‘d’ | | 45 44 099 |
| Stainless steel junction box for remote sensor ‘d’ | | 45 44 098 |
| Duct mount kit | | 68 12 725 |
| IR Connection Kit Polytron® 5000/8000 | | 45 44 197 |
| PolySoft licence (1 year) | | 83 28 600 |
| PolySoft licence (subscription) | | 83 28 601 |
| Splash guard | | 68 12 510 |
| Weather protection kit Dräger Polytron® 5/6/8xxx | | 37 02 198 |
| Gassing adapter | PE, w/o tubing | 68 06 978 |
| | PE incl. tubing | 46 09 314 |
| Calibration adapter Viton® | | 68 10 536 |
| Process adapter (Stainless steel) for DQ | | 68 12 470 |
| Process adapter (Stainless steel) for LC | | 68 12 465 |

HART® is a registered trademark of the HART Communication Foundation.
FOUNDATION fieldbus™ is a registered trademark of the Fieldbus Foundation™.
PROFIBUS® is a registered trademark of PROFIBUS and PROFINET International (PI).
PACTware™ is a registered trademark of Pepperl+Fuchs GmbH.
Viton® is a registered trademark of the DuPont company.
Windows® is a registered trademark of Microsoft Corporation.

ROSETTI MARINO | PROVERLIS | CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-GDZ-05105 | : H2 GD FZ-05 BESS Area | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10001044 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX42 | | Gas/Smoke Detector |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to F&G detection layout drawings. | OK |
| 4 | Check test facility is installed. | OK |
| 5 | Check end of line resistors correctly fitted (where applicable). | NA |
| 6 | Check protective cap is installed. | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | OK |
| 9 | Check accessibility conforms to specifications, with platforming where necessary. | OK |
| 10 | Check calibration certificate (where applicable). | NA |
| 11 | Check electrical connections. | OK |
| 12 | Check earthing connections. | PL |
| 13 | Dismantle and store sensor until installation just before Commissioning. | OK |
| 14 | If required produce Red Line Mark Up for "AS BUILT" | |

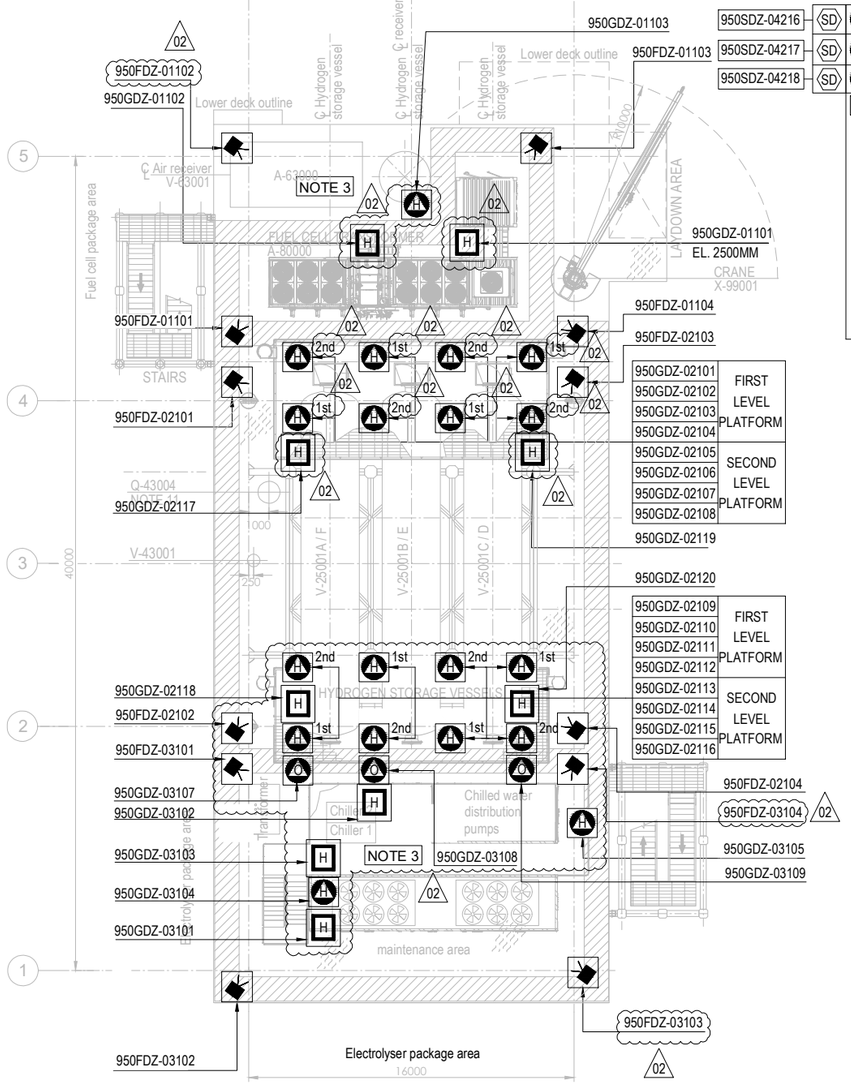
Comments



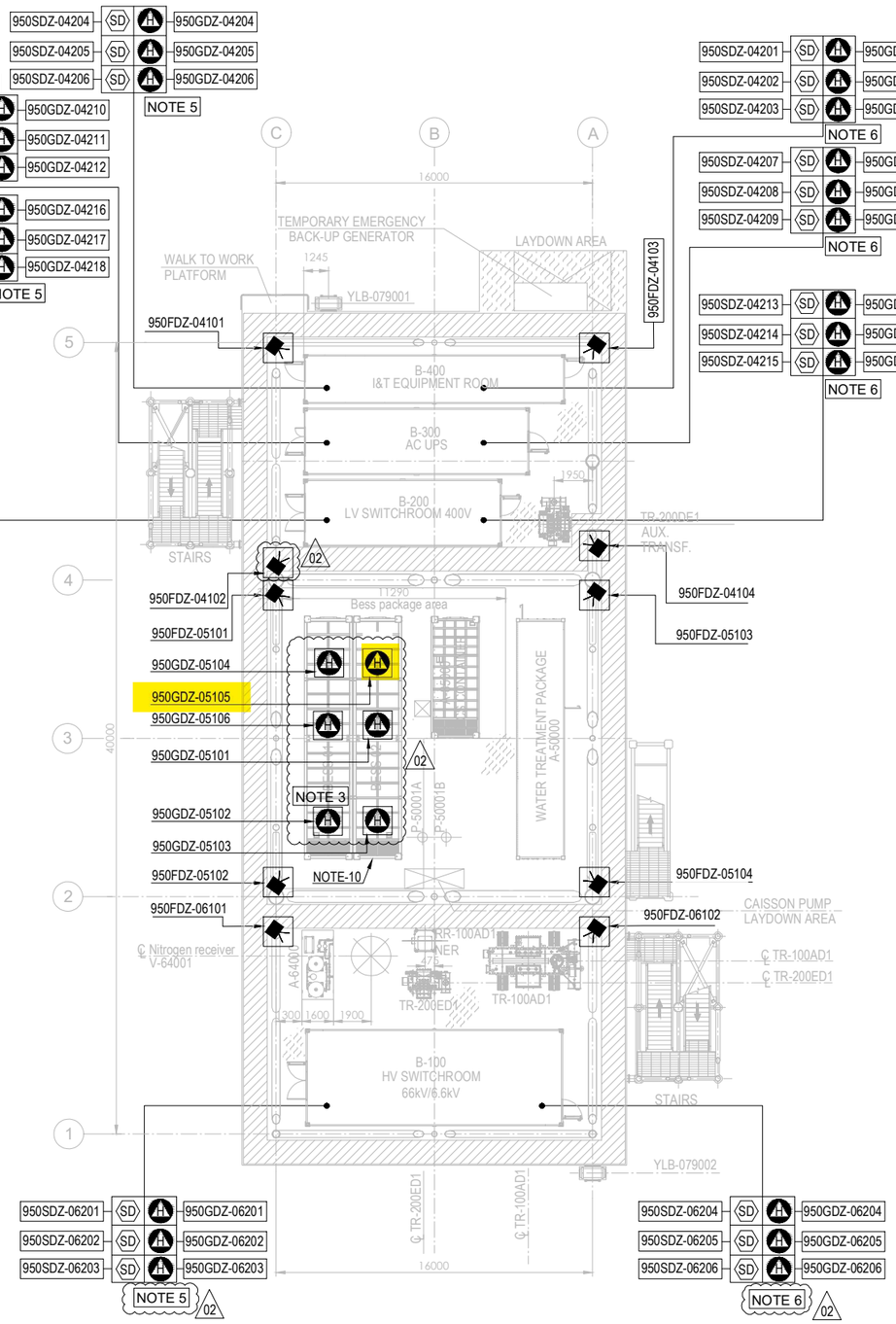
| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-07 | 2024-12-11 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:56:44.018Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-11T18:02:52.271Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.

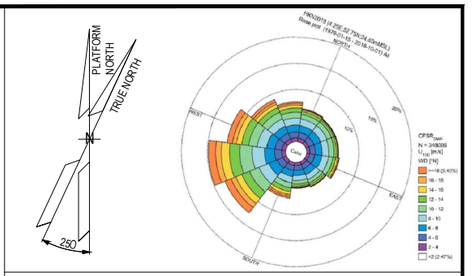



PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

| INSTRUMENTS | | JUNCTION BOX 950-JE-05101 | MULTICABLE No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |
|---|---|---|---|---|
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05101 (1, 3, 2) RD, WH, BK | C-950-FDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | TB-1<br>RD 1, WH 2, BK 3 | 950-JE-05101/B400-FGS-003<br>~~950-JE-05101/B400-FGS-002~~<br>12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS | TB-950-JE-05101<br>TR1 RD 1, WH 2, BK 3, Shield Bar → 950-FDZ-05101 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05102 (1, 3, 2) RD, WH, BK | C-950-FDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 4, WH 5, BK 6 | | TR2 RD 4, WH 5, BK 6, Shield Bar → 950-FDZ-05102 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05103 (1, 3, 2) RD, WH, BK | C-950-FDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 7, WH 8, BK 9 | | TR3 RD 7, WH 8, BK 9, Shield Bar → 950-FDZ-05103 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05104 (1, 3, 2) RD, WH, BK | C-950-FDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 10, WH 11, BK 12 | | TR4 RD 10, WH 11, BK 12, Shield Bar → 950-FDZ-05104 |
| 950-GDZ-05101 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 13, WH 14, BK 15 | | TR5 RD 13, WH 14, BK 15, Shield Bar → 950-GDZ-05101 |
| 950-GDZ-05102 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 16, WH 17, BK 18 | | TR6 RD 16, WH 17, BK 18, Shield Bar → 950-GDZ-05102 |
| 950-GDZ-05103 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 19, WH 20, BK 21 | | TR7 RD 19, WH 20, BK 21, Shield Bar → 950-GDZ-05103 |
| 950-GDZ-05104 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 22, WH 23, BK 24 | | TR8 RD 22, WH 23, BK 24, Shield Bar → 950-GDZ-05104 |
| 950-GDZ-05105 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05105/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 25, WH 26, BK 27 | | TR9 RD 25, WH 26, BK 27, Shield Bar → 950-GDZ-05105 |
| 950-GDZ-05106 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05106/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 28, WH 29, BK 30 | | TR10 RD 28, WH 29, BK 30, Shield Bar → 950-GDZ-05106 <01> |
| | | SH<br>SPARE 31 | | TR11 RD 31, WH 32, BK 33, Shield Bar → SPARE |
| | | SH<br>SPARE 34 | | TR12 RD 34, WH 35, BK 36, Shield Bar → SPARE |
| | | SH<br>OS | | I.E. Shield Bar |

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40016 | SHEET 045 | REV. 01 |

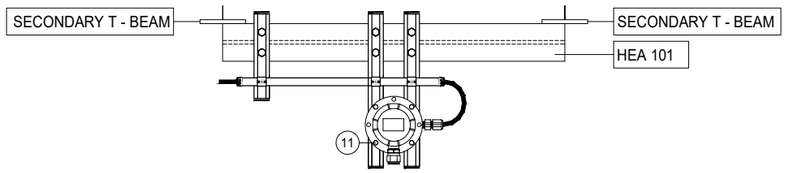
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00

# FGS-19

| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 2m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 6 |
| 6 | AISI 316L BOLT M12X35 + NUT M12 + WASHER M12 | 6 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |




| POS. | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05101 |
| 2 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05102 |
| 3 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05103 |
| 4 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05104 |
| 5 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05105 |
| 6 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05106 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

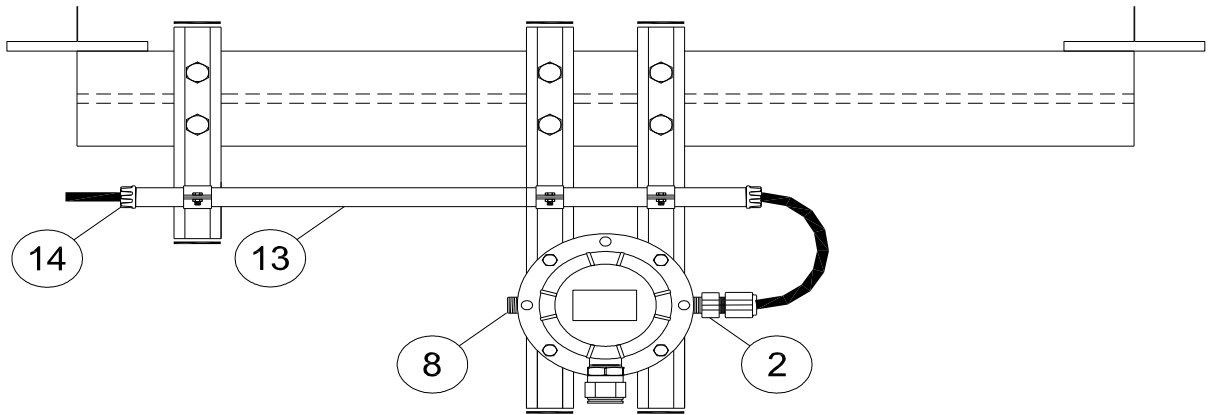
BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
GAS DETECTORS ON LOWER DECK CEILING

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. 123A90-DDL-IN-DD-40017 | SHEET 038 | REV. 01 |
|---|---|---|---|

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES

| INSTRUMENT TAG | |
|---|---|
| 1 | 950-GDZ-05101 |
| 2 | 950-GDZ-05102 |
| 3 | 950-GDZ-05103 |
| 4 | 950-GDZ-05104 |
| 5 | 950-GDZ-05105 |
| 6 | 950-GDZ-05106 |




**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE:

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 14 | | Polyproplylene Bushing | 3/4" | 4 |
| 13 | | Galvanized Steel Conduit UNI 7683 | 3/4" | 12 mt |
| 8 | | Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1 | M20 | 1 |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 1 |

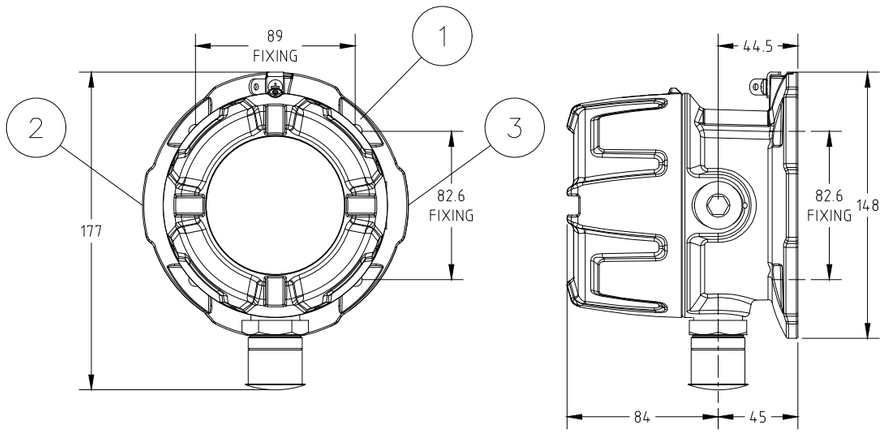

This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

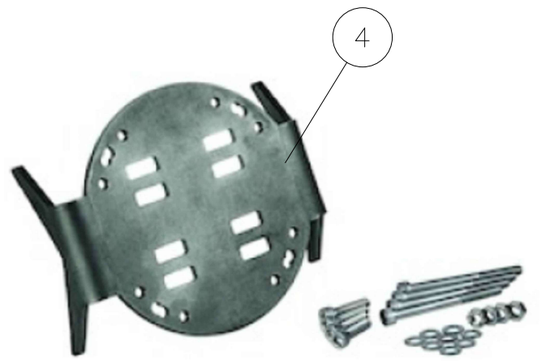
# HYDROGEN POINT DETECTOR / PIPE MOUNTING

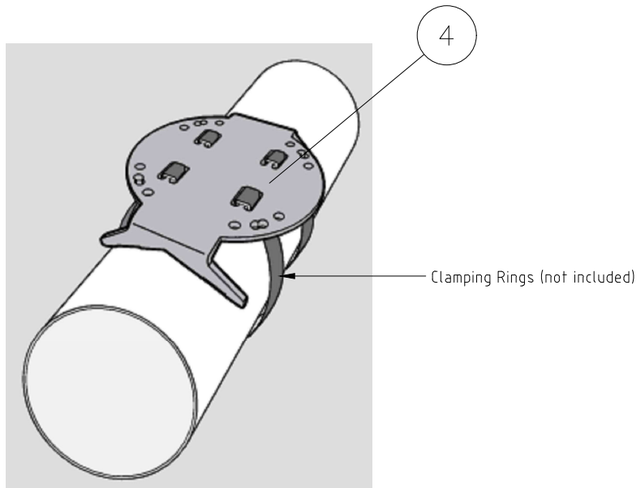
| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Hydrogen point detector, DRÄGER Polytron 8200 CAT DQ d S 4-20/HART | 1 |
| 2 | Reducer 3/4" NPT - M20 Ex d AISI 316 | 2 |
| 3 | 3/4" plug Ex d AISI 316 | 1 |
| 4 | Pipe mount bracket kit Polytron 5000/8000 series, DRÄGER | 1 |
| 5 | Sun and weather protection kit Polytron, DRÄGER | 1 |
| 6 | Stainless Steel Name Plate | 1 |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

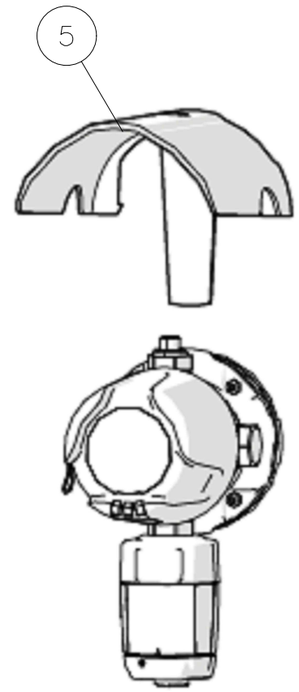
INSTALLATION QUANTITY

25

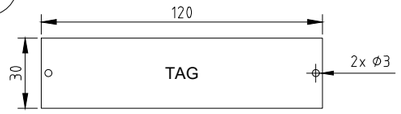


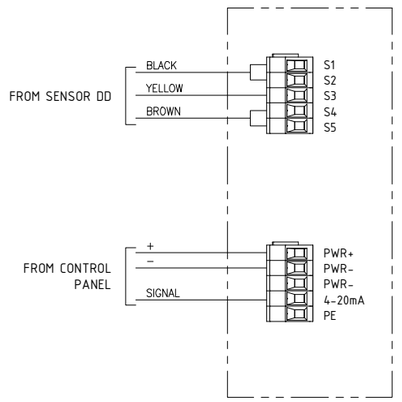




6 STAINLESS STEEL NAME PLATE DETAILS




NOTE 5

WIRING




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN POINT DETECTOR / PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 005

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# HYDROGEN POINT DETECTOR / PIPE MOUNTING – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-GDZ-02101 |
| 2 | 950-GDZ-02102 |
| 3 | 950-GDZ-02103 |
| 4 | 950-GDZ-02104 |
| 5 | 950-GDZ-02105 |
| 6 | 950-GDZ-02106 |
| 7 | 950-GDZ-02107 |
| 8 | 950-GDZ-02108 |
| 9 | 950-GDZ-02109 |
| 10 | 950-GDZ-02110 |
| 11 | 950-GDZ-02111 |
| 12 | 950-GDZ-02112 |
| 13 | 950-GDZ-02113 |
| 14 | 950-GDZ-02114 |
| 15 | 950-GDZ-02115 |
| 16 | 950-GDZ-02116 |
| 17 | 950-GDZ-05101 |
| 18 | 950-GDZ-05102 |
| 19 | 950-GDZ-05103 |
| 20 | 950-GDZ-05104 |
| 21 | 950-GDZ-05105 |
| 22 | 950-GDZ-05106 |
| 23 | 950-GDZ-03104 |
| 24 | 950-GDZ-03105 |
| 25 | 950-GDZ-03106 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN POINT DETECTOR / PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 006 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## HYDROGEN POINT DETECTORS

| POS. | TAG NUMBER | SERVICE |
|---|---|---|
| 1 | 950-GDZ-02101 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 2 | 950-GDZ-02102 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 3 | 950-GDZ-02103 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 4 | 950-GDZ-02104 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 5 | 950-GDZ-02105 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 6 | 950-GDZ-02106 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 7 | 950-GDZ-02107 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 8 | 950-GDZ-02108 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 9 | 950-GDZ-02109 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 10 | 950-GDZ-02110 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 11 | 950-GDZ-02111 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 12 | 950-GDZ-02112 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 13 | 950-GDZ-02113 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 14 | 950-GDZ-02114 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 15 | 950-GDZ-02115 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 16 | 950-GDZ-02116 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 17 | 950-GDZ-04201 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 18 | 950-GDZ-04202 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 19 | 950-GDZ-04203 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 20 | 950-GDZ-04204 | H2 GD FZ-04 B-400 AMBIENT |
| 21 | 950-GDZ-04205 | H2 GD FZ-04 B-400 AMBIENT |
| 22 | 950-GDZ-04206 | H2 GD FZ-04 B-400 AMBIENT |
| 23 | 950-GDZ-04207 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 24 | 950-GDZ-04208 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 25 | 950-GDZ-04209 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 26 | 950-GDZ-04210 | H2 GD FZ-04 B-300 AMBIENT |
| 27 | 950-GDZ-04211 | H2 GD FZ-04 B-300 AMBIENT |
| 28 | 950-GDZ-04212 | H2 GD FZ-04 B-300 AMBIENT |
| 29 | 950-GDZ-04213 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 30 | 950-GDZ-04214 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 31 | 950-GDZ-04215 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 32 | 950-GDZ-04216 | H2 GD FZ-04 B-200 AMBIENT |
| 33 | 950-GDZ-04217 | H2 GD FZ-04 B-200 AMBIENT |
| 34 | 950-GDZ-04218 | H2 GD FZ-04 B-200 AMBIENT |
| 35 | 950-GDZ-05101 | H2 GD FZ-05 BESS AREA |
| 36 | 950-GDZ-05102 | H2 GD FZ-05 BESS AREA |
| 37 | 950-GDZ-05103 | H2 GD FZ-05 BESS AREA |
| 38 | 950-GDZ-05104 | |
| 39 | 950-GDZ-05105 | |
| 40 | 950-GDZ-05106 | |
| 41 | 950-GDZ-06201 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 42 | 950-GDZ-06202 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 43 | 950-GDZ-06203 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 44 | 950-GDZ-06204 | H2 GD FZ-06 B-100 AMBIENT |
| 45 | 950-GDZ-06205 | H2 GD FZ-06 B-100 AMBIENT |
| 46 | 950-GDZ-06206 | H2 GD FZ-06 B-100 AMBIENT |
| 47 | 950-GDZ-03104 | H2 GD FZ-03 ELECTROLYZER PK AREA |
| 48 | 950-GDZ-03105 | H2 GD FZ-03 ELECTROLYZER PK AREA |
| 49 | 950-GDZ-01103 | H2 GD FZ-03 ELECTROLYZER PK AREA |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# Dräger Polytron® 8200 CAT
## Detection of flammable gases and vapors

The Dräger Polytron® 8200 CAT is an advanced explosion-proof transmitter for the detection of combustible gases in the lower explosion limit (LEL). It uses a catalytic bead DrägerSensor® Ex that will detect most flammable gases and vapors. In addition to a 3-wire 4 to 20-mA analog output with relays it also offers HART®, Modbus and Fieldbus protocols, making it compatible with most control systems.




Dräger. Technology for Life®

# Benefits

## Fast and stable – the DrägerSensor® Ex

The built-in DrägerSensor® Ex is based on the proven catalytic bead measuring principle. It has excellent long-term stability with outstanding poison resistance. And this is the reason for its durability. Due to the novel gas inlet opening, the sensor responds to gas in only a few seconds. This allows you to react immediately with countermeasures and prevent the development of a flammable atmosphere.

## Easy device management via digital communication

The Dräger Polytron 8200 is equipped with digital interfaces allowing for quick and easy remote interrogation of the transmitter's state. Integration with existing asset management systems such as PACTware™ is possible via DTM. In addition to the common HART® communication system, the fieldbus interfaces PROFIBUS® PA, FOUNDATION fieldbus™ H1, and Modbus RTU are also available.

## Same design, same operating principle

The Dräger Polytron 8200 belongs to the Polytron 8000 series. All transmitters in this series have the same design and user interface. This allows for uniform operation with reduced training and maintenance requirements. The large graphic backlit display shows status information clearly and in an easy to use format. The measured gas concentration, selected gas type, and measuring unit are displayed during normal operation. Colored LEDs (green, yellow and red) provide additional alarm and status information.

The Polytron 8200 is operated by means of a magnetic wand over contact surfaces.

## Three relays for controlling external equipment

Upon request, the Dräger Polytron 8200 can also be supplied with three integrated relays. This enables you to use it as an independent gas detection system with two arbitrarily adjustable concentration alarms and one fault alarm. Audible alarms, signal lights or similar devices can thus be controlled locally without an additional cable between the transmitter and central controller.

## Safe, robust housing for every application

Polytron 8200 features a Class I, Div. 1 rated explosion proof enclosure made from aluminium or stainless steel, making it suitable for a wide range of environmental conditions.

## Make the impossible possible with the remote sensor

A remote explosion proof junction allows installation of the sensor up to 350' away from the transmitter in difficult to access areas. A permanently attached remote calibration adapter allows for remote bump testing or calibration from the Polytron display by using permanently attached tubing that takes the calibration gas to the sensor.

# Technical Data

| **Dräger Polytron® 8200 CAT** | | | |
|---|---|---|---|
| Type | Explosion proof / flameproof enclosed transmitter (“d”) | | |
| Gases | Flammable gases and vapors | | |
| Measuring ranges | DQ | 0 to 100 % LEL | |
| | LC | 0 to 10 % LEL | |
| Display | Backlit graphic LCD; 3 Status LEDs (green/yellow/red) | | |
| Performance Characteristics | Accuracy/repeatability | Zero | ≤ 1 % LEL |
| | | Span | ≤ 1 % LEL |
| | | Long-term drift | ≤ 3 % LEL after 6 months |
| | Response time | T50 | < 7 seconds (methane) |
| | | T90 | < 13 seconds (methane) |
| Electrical data | Signal output analog | Normal operation | 4 to 20 mA, 3- or 4-wire, sink or source |
| | | Maintenance | Constant 3.4 mA (adjustable) |
| | | Fault | < 1.2 mA |
| | Signal output digital | HART® w/ 3- or 4-wire, PROFIBUS® PA, FOUNDATION fieldbus™ H1 and Modbus RTU w/ 5-wires | |
| | Power supply | 10 to 30 V DC | |
| | Power consumption (max.) | DQ w/o relay, non-remote | 105 mA at 24 V |
| | | DQ w/ relay, remote | 145 mA at 24 V |
| | Relay specification (option) | 2 alarm relays and 1 fault relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC | |
| Environmental conditions (see sensor data sheet) | Temperature | -40 to 80 °C (-40 to 176 °F) without relay<br>-40 to 70 °C (-40 to 158 °F) with relay-<br>-50 to 85 °C (-122 to 185 °F) remote sensor | |
| | Pressure | 23.6 to 38.4 inch Hg / 800 to 1,200 mbar | |
| | Humidity | 5 to 95% r. h., non-condensing | |
| Housing | Transmitter housing | Epoxy coated copper-free aluminium or stainless steel SS316 L | |
| | Sensor housing | Stainless steel 303 | |
| | Enclosure protection type | NEMA 4X & 7, IP65/66/67 | |
| | Cable entry point | 3/4" NPT threaded holes or M20 cable gland | |
| | Dimensions (H x W x D) | 11.0" x 5.9" x 5.1" / 280 x 150 x 130 mm | |
| | Weight, approx. | Aluminium | 4.9 lbs / 2.2 kg |
| | | SS316 L | 8.8 lbs / 4.0 kg |
| Approvals* | UL & CSA | Class I, Div 1, Groups A, B, C, D; | |
| | | Class II, Div 1, Groups E, F, G; | |
| | | Class I, Zone 1, Group IIC; | |
| | | T-Code T6/T4 | |
| | IECEx | Ex db IIC T6/T4 Gb,<br>-40 ≤ Ta ≤ +40/+70 °C; | |
| | ATEX | II 2G Ex db IIC T6/T4 Gb,<br>-40 ≤ Ta ≤ +40/+70 °C; | |
| | CE markings | ATEX (Directive 2014/34/EU) | |
| | | Electromagnetic Compatibility (Directive 2014/30/EU) | |
| | | Low Voltage (Directive 2014/35/EU) | |
| | Shipping approvals (for DQ sensor only) | DNV GL, ABS, LR, CCS, RMRS | |
| | MED approval (for DQ sensor only) | Certificate No. MEDB0000411 | |

# Technical Data

| | | |
|---|---|---|
| | DEKRA Performance approval (for DQ sensor only) | Certificate No. BVS 13 ATEX G 001 X |
| | SIL 2 certified by TUEV Sued | Certificate No. Z10 053474 0023 |

* All docking station versions are only ATEX/IECEx approved

# Ordering Information

| Dräger Polytron® 8200 CAT | Approval Code | Order Number |
|---|---|---|
| Dräger Polytron® 8200 CAT DQ d A 4-20/HART® | XTR 0410 | 83 44 439 |
| Dräger Polytron® 8200 CAT DQ d A 4-20/HART® relay | XTR 0411 | 83 44 440 |
| Dräger Polytron® 8200 CAT DQ d S 4-20/HART® | XTR 0510 | 83 44 448 |
| Dräger Polytron® 8200 CAT DQ d S 4-20/HART® relay | XTR 0511 | 83 44 449 |
| Dräger Polytron® 8xx0 Kit (Custom configuration e. g. LC sensor or bus communication) | | 83 44 800 |

| Accessories | | Order Number |
|---|---|---|
| Magnetic wand | | 45 44 101 |
| Pipe mount bracket | | 45 44 198 |
| Aluminum junction box for remote sensor ‘d’ | | 45 44 099 |
| Stainless steel junction box for remote sensor ‘d’ | | 45 44 098 |
| Duct mount kit | | 68 12 725 |
| IR Connection Kit Polytron® 5000/8000 | | 45 44 197 |
| PolySoft licence (1 year) | | 83 28 600 |
| PolySoft licence (subscription) | | 83 28 601 |
| Splash guard | | 68 12 510 |
| Weather protection kit Dräger Polytron® 5/6/8xxx | | 37 02 198 |
| Gassing adapter | PE, w/o tubing | 68 06 978 |
| | PE incl. tubing | 46 09 314 |
| Calibration adapter Viton® | | 68 10 536 |
| Process adapter (Stainless steel) for DQ | | 68 12 470 |
| Process adapter (Stainless steel) for LC | | 68 12 465 |

HART® is a registered trademark of the HART Communication Foundation.
FOUNDATION fieldbus™ is a registered trademark of the Fieldbus Foundation™.
PROFIBUS® is a registered trademark of PROFIBUS and PROFINET International (PI).
PACTware™ is a registered trademark of Pepperl+Fuchs GmbH.
Viton® is a registered trademark of the DuPont company.
Windows® is a registered trademark of Microsoft Corporation.

ROSETTI MARINO | PROVERLIS | CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-GDZ-05106 | : H2 GD FZ-05 BESS Area | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10001045 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX42 | | Gas/Smoke Detector |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to F&G detection layout drawings. | OK |
| 4 | Check test facility is installed. | OK |
| 5 | Check end of line resistors correctly fitted (where applicable). | NA |
| 6 | Check protective cap is installed. | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | OK |
| 9 | Check accessibility conforms to specifications, with platforming where necessary. | OK |
| 10 | Check calibration certificate (where applicable). | NA |
| 11 | Check electrical connections. | OK |
| 12 | Check earthing connections. | PL |
| 13 | Dismantle and store sensor until installation just before Commissioning. | OK |
| 14 | If required produce Red Line Mark Up for "AS BUILT" | |

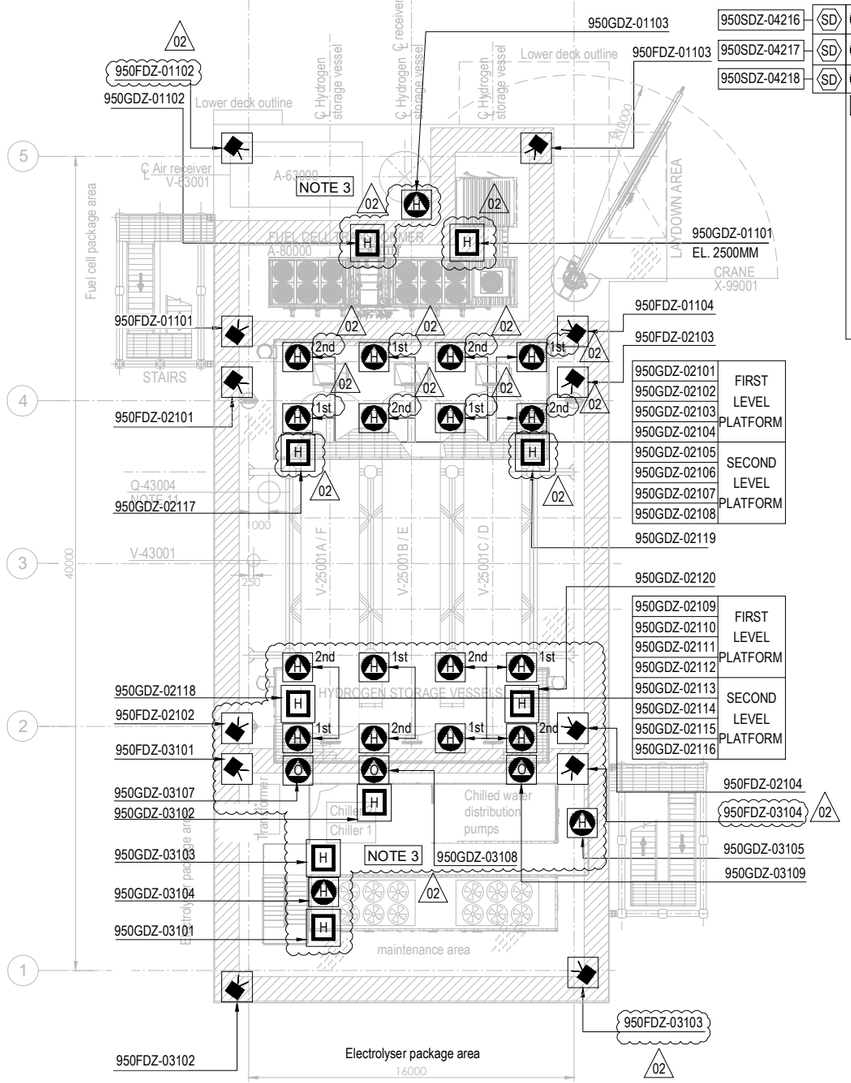
Comments



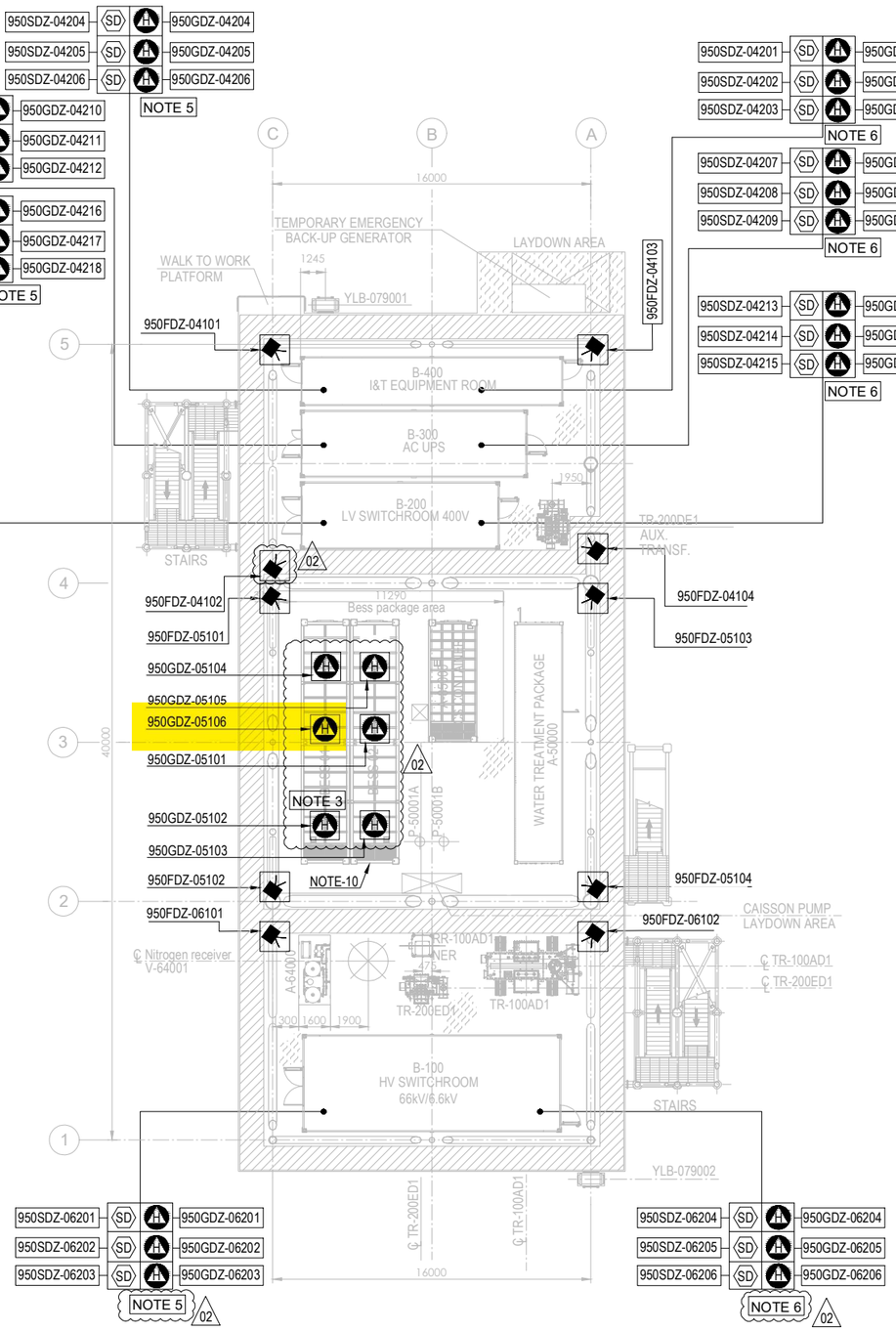
| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Francesco Zucca | Giovanni Tangianu | |
| Date | 2024-12-07 | 2024-12-12 | |
| Signature | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:57:04.628Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-12T07:09:24.403Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.

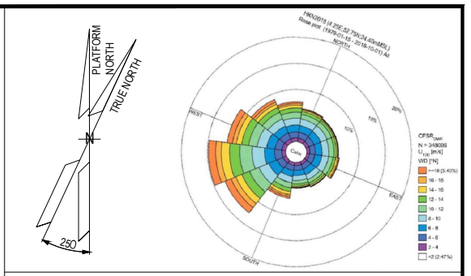



PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

| INSTRUMENTS | | JUNCTION BOX 950-JE-05101 | MULTICABLE No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |
|---|---|---|---|---|
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05101 (1, 3, 2) RD, WH, BK | NOTE-2 | C-950-FDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | 950-JE-05101/B400-FGS-003<br>~~950-JE-05101/B400-FGS-002~~<br>12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS | TB-950-JE-05101<br>TR1 → 1 (RD), 2 (WH), 3 (BK) → 950-FDZ-05101 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05102 (1, 3, 2) RD, WH, BK | NOTE-2 | C-950-FDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR2 → 4 (RD), 5 (WH), 6 (BK) → 950-FDZ-05102 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05103 (1, 3, 2) RD, WH, BK | NOTE-2 | C-950-FDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR3 → 7 (RD), 8 (WH), 9 (BK) → 950-FDZ-05103 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05104 (1, 3, 2) RD, WH, BK | NOTE-2 | C-950-FDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR4 → 10 (RD), 11 (WH), 12 (BK) → 950-FDZ-05104 |
| 950-GDZ-05101 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR5 → 13 (RD), 14 (WH), 15 (BK) → 950-GDZ-05101 |
| 950-GDZ-05102 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR6 → 16 (RD), 17 (WH), 18 (BK) → 950-GDZ-05102 |
| 950-GDZ-05103 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR7 → 19 (RD), 20 (WH), 21 (BK) → 950-GDZ-05103 |
| 950-GDZ-05104 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR8 → 22 (RD), 23 (WH), 24 (BK) → 950-GDZ-05104 |
| 950-GDZ-05105 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05105/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR9 → 25 (RD), 26 (WH), 27 (BK) → 950-GDZ-05105 |
| 950-GDZ-05106 (PWR+, 4-20mA, PWR-) RD, WH, BK | NOTE-2 | C-950-GDZ-05106/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS | | TR10 → 28 (RD), 29 (WH), 30 (BK) → 950-GDZ-05106 <01> |
| | | SPARE 31, 32, 33 | | TR11 → 31 (RD), 32 (WH), 33 (BK) → SPARE |
| | | SPARE 34, 35, 36 | | TR12 → 34 (RD), 35 (WH), 36 (BK) → SPARE |
| | | SH, OS | | Shield Bar, I.E. |

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40016 | SHEET 045 | REV. 01 |

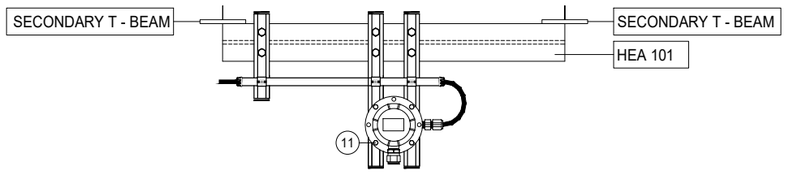
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00

# FGS-19

| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 2m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 6 |
| 6 | AISI 316L BOLT M12X35 + NUT M12 + WASHER M12 | 6 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |




| POS. | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05101 |
| 2 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05102 |
| 3 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05103 |
| 4 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05104 |
| 5 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05105 |
| 6 | GDZ | H2 GAS DETECTOR - CATALITIC TYPE | 950-GDZ-05106 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
GAS DETECTORS ON LOWER DECK CEILING

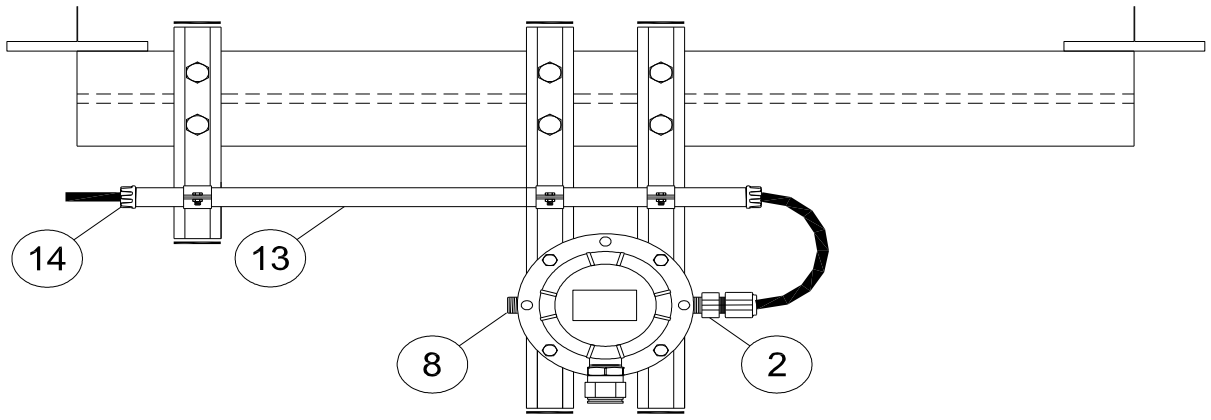
| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. 123A90-DDL-IN-DD-40017 | SHEET 038 | REV. 01 |
|---|---|---|---|

| CROSSWIND | HOLLANDSE KUST NOORD WIND PARK Project<br>Contract No. CW-I-WP4-2023-05 | ROSETTI MARINO |
|---|---|---|
| Document Title: | Instrument Electrical Hook-Ups | Sh. 31 of 37<br>Date: 27/09/2024<br>Rev. 02 |

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES

| INSTRUMENT TAG | |
|---|---|
| 1 | 950-GDZ-05101 |
| 2 | 950-GDZ-05102 |
| 3 | 950-GDZ-05103 |
| 4 | 950-GDZ-05104 |
| 5 | 950-GDZ-05105 |
| 6 | 950-GDZ-05106 |




**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE:

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 14 | | Polyproplylene Bushing | 3/4" | 4 |
| 13 | | Galvanized Steel Conduit UNI 7683 | 3/4" | 12 mt |
| 8 | | Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1 | M20 | 1 |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 1 |

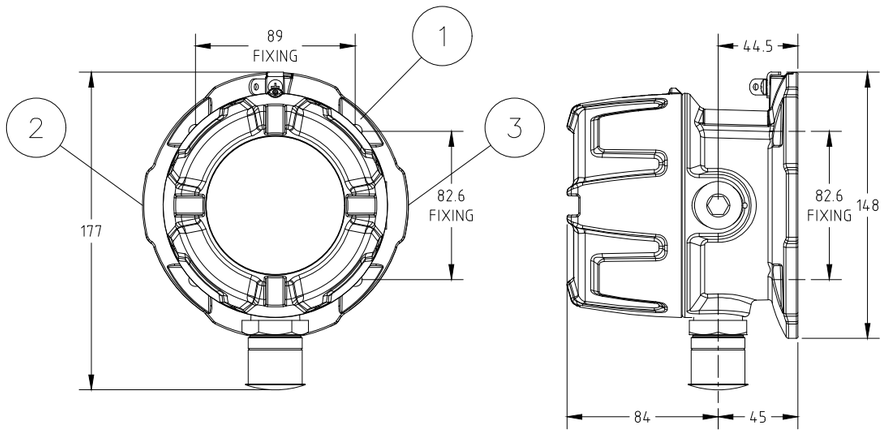

This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

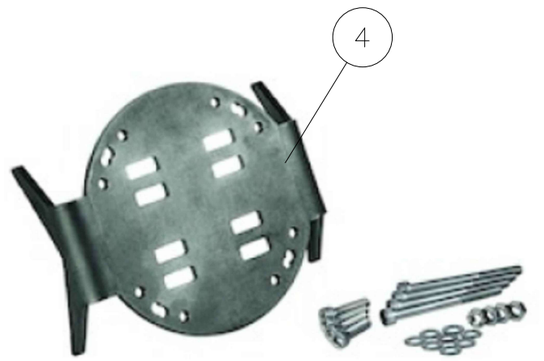
# HYDROGEN POINT DETECTOR / PIPE MOUNTING

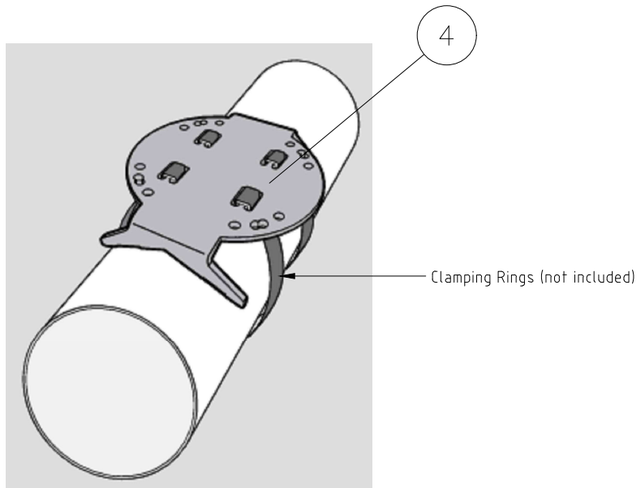
| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Hydrogen point detector, DRÄGER Polytron 8200 CAT DQ d S 4-20/HART | 1 |
| 2 | Reducer 3/4" NPT - M20 Ex d AISI 316 | 2 |
| 3 | 3/4" plug Ex d AISI 316 | 1 |
| 4 | Pipe mount bracket kit Polytron 5000/8000 series, DRÄGER | 1 |
| 5 | Sun and weather protection kit Polytron, DRÄGER | 1 |
| 6 | Stainless Steel Name Plate | 1 |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

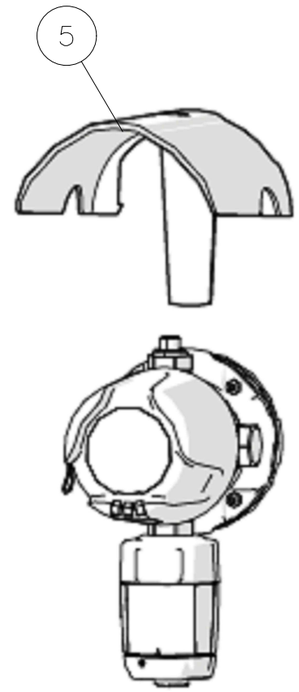
INSTALLATION QUANTITY

25

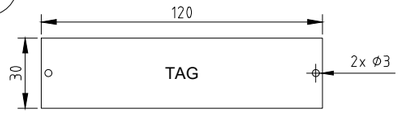


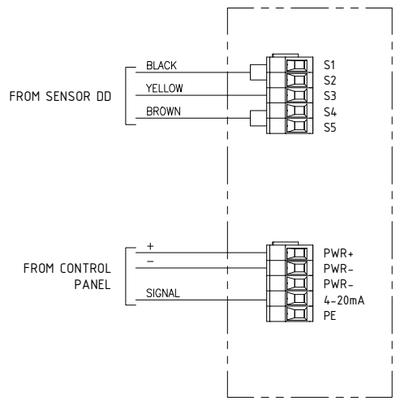




6 STAINLESS STEEL NAME PLATE DETAILS




NOTE 5

WIRING




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN POINT DETECTOR / PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 005

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# HYDROGEN POINT DETECTOR / PIPE MOUNTING – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-GDZ-02101 |
| 2 | 950-GDZ-02102 |
| 3 | 950-GDZ-02103 |
| 4 | 950-GDZ-02104 |
| 5 | 950-GDZ-02105 |
| 6 | 950-GDZ-02106 |
| 7 | 950-GDZ-02107 |
| 8 | 950-GDZ-02108 |
| 9 | 950-GDZ-02109 |
| 10 | 950-GDZ-02110 |
| 11 | 950-GDZ-02111 |
| 12 | 950-GDZ-02112 |
| 13 | 950-GDZ-02113 |
| 14 | 950-GDZ-02114 |
| 15 | 950-GDZ-02115 |
| 16 | 950-GDZ-02116 |
| 17 | 950-GDZ-05101 |
| 18 | 950-GDZ-05102 |
| 19 | 950-GDZ-05103 |
| 20 | 950-GDZ-05104 |
| 21 | 950-GDZ-05105 |
| 22 | 950-GDZ-05106 |
| 23 | 950-GDZ-03104 |
| 24 | 950-GDZ-03105 |
| 25 | 950-GDZ-03106 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN POINT DETECTOR / PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 006

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## HYDROGEN POINT DETECTORS

| POS. | TAG NUMBER | SERVICE |
|---|---|---|
| 1 | 950-GDZ-02101 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 2 | 950-GDZ-02102 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 3 | 950-GDZ-02103 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 4 | 950-GDZ-02104 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 5 | 950-GDZ-02105 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 6 | 950-GDZ-02106 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 7 | 950-GDZ-02107 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 8 | 950-GDZ-02108 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 9 | 950-GDZ-02109 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 10 | 950-GDZ-02110 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 11 | 950-GDZ-02111 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 12 | 950-GDZ-02112 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 13 | 950-GDZ-02113 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 14 | 950-GDZ-02114 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 15 | 950-GDZ-02115 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 16 | 950-GDZ-02116 | H2 GD FZ-02 H2 STORAGE VESSELS AREA |
| 17 | 950-GDZ-04201 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 18 | 950-GDZ-04202 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 19 | 950-GDZ-04203 | H2 GD FZ-04 B-400 HVAC AIR INTAKE |
| 20 | 950-GDZ-04204 | H2 GD FZ-04 B-400 AMBIENT |
| 21 | 950-GDZ-04205 | H2 GD FZ-04 B-400 AMBIENT |
| 22 | 950-GDZ-04206 | H2 GD FZ-04 B-400 AMBIENT |
| 23 | 950-GDZ-04207 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 24 | 950-GDZ-04208 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 25 | 950-GDZ-04209 | H2 GD FZ-04 B-300 HVAC AIR INTAKE |
| 26 | 950-GDZ-04210 | H2 GD FZ-04 B-300 AMBIENT |
| 27 | 950-GDZ-04211 | H2 GD FZ-04 B-300 AMBIENT |
| 28 | 950-GDZ-04212 | H2 GD FZ-04 B-300 AMBIENT |
| 29 | 950-GDZ-04213 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 30 | 950-GDZ-04214 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 31 | 950-GDZ-04215 | H2 GD FZ-04 B-200 HVAC AIR INTAKE |
| 32 | 950-GDZ-04216 | H2 GD FZ-04 B-200 AMBIENT |
| 33 | 950-GDZ-04217 | H2 GD FZ-04 B-200 AMBIENT |
| 34 | 950-GDZ-04218 | H2 GD FZ-04 B-200 AMBIENT |
| 35 | 950-GDZ-05101 | H2 GD FZ-05 BESS AREA |
| 36 | 950-GDZ-05102 | H2 GD FZ-05 BESS AREA |
| 37 | 950-GDZ-05103 | H2 GD FZ-05 BESS AREA |
| 38 | 950-GDZ-05104 | |
| 39 | 950-GDZ-05105 | |
| 40 | 950-GDZ-05106 | |
| 41 | 950-GDZ-06201 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 42 | 950-GDZ-06202 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 43 | 950-GDZ-06203 | H2 GD FZ-06 B-100 HVAC AIR INTAKE |
| 44 | 950-GDZ-06204 | H2 GD FZ-06 B-100 AMBIENT |
| 45 | 950-GDZ-06205 | H2 GD FZ-06 B-100 AMBIENT |
| 46 | 950-GDZ-06206 | H2 GD FZ-06 B-100 AMBIENT |
| 47 | 950-GDZ-03104 | H2 GD FZ-03 ELECTROLYZER PK AREA |
| 48 | 950-GDZ-03105 | H2 GD FZ-03 ELECTROLYZER PK AREA |
| 49 | 950-GDZ-01103 | H2 GD FZ-03 ELECTROLYZER PK AREA |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# Dräger Polytron® 8200 CAT
## Detection of flammable gases and vapors

The Dräger Polytron® 8200 CAT is an advanced explosion-proof transmitter for the detection of combustible gases in the lower explosion limit (LEL). It uses a catalytic bead DrägerSensor® Ex that will detect most flammable gases and vapors. In addition to a 3-wire 4 to 20-mA analog output with relays it also offers HART®, Modbus and Fieldbus protocols, making it compatible with most control systems.




Dräger. Technology for Life®

# Benefits

## Fast and stable – the DrägerSensor® Ex

The built-in DrägerSensor® Ex is based on the proven catalytic bead measuring principle. It has excellent long-term stability with outstanding poison resistance. And this is the reason for its durability. Due to the novel gas inlet opening, the sensor responds to gas in only a few seconds. This allows you to react immediately with countermeasures and prevent the development of a flammable atmosphere.

## Easy device management via digital communication

The Dräger Polytron 8200 is equipped with digital interfaces allowing for quick and easy remote interrogation of the transmitter's state. Integration with existing asset management systems such as PACTware™ is possible via DTM. In addition to the common HART® communication system, the fieldbus interfaces PROFIBUS® PA, FOUNDATION fieldbus™ H1, and Modbus RTU are also available.

## Same design, same operating principle

The Dräger Polytron 8200 belongs to the Polytron 8000 series. All transmitters in this series have the same design and user interface. This allows for uniform operation with reduced training and maintenance requirements. The large graphic backlit display shows status information clearly and in an easy to use format. The measured gas concentration, selected gas type, and measuring unit are displayed during normal operation. Colored LEDs (green, yellow and red) provide additional alarm and status information.

The Polytron 8200 is operated by means of a magnetic wand over contact surfaces.

## Three relays for controlling external equipment

Upon request, the Dräger Polytron 8200 can also be supplied with three integrated relays. This enables you to use it as an independent gas detection system with two arbitrarily adjustable concentration alarms and one fault alarm. Audible alarms, signal lights or similar devices can thus be controlled locally without an additional cable between the transmitter and central controller.

## Safe, robust housing for every application

Polytron 8200 features a Class I, Div. 1 rated explosion proof enclosure made from aluminium or stainless steel, making it suitable for a wide range of environmental conditions.

## Make the impossible possible with the remote sensor

A remote explosion proof junction allows installation of the sensor up to 350' away from the transmitter in difficult to access areas. A permanently attached remote calibration adapter allows for remote bump testing or calibration from the Polytron display by using permanently attached tubing that takes the calibration gas to the sensor.

# Technical Data

| **Dräger Polytron® 8200 CAT** | | | |
|---|---|---|---|
| Type | Explosion proof / flameproof enclosed transmitter (“d”) | | |
| Gases | Flammable gases and vapors | | |
| Measuring ranges | DQ | 0 to 100 % LEL | |
| | LC | 0 to 10 % LEL | |
| Display | Backlit graphic LCD; 3 Status LEDs (green/yellow/red) | | |
| Performance Characteristics | Accuracy/repeatability | Zero | ≤ 1 % LEL |
| | | Span | ≤ 1 % LEL |
| | | Long-term drift | ≤ 3 % LEL after 6 months |
| | Response time | T50 | < 7 seconds (methane) |
| | | T90 | < 13 seconds (methane) |
| Electrical data | Signal output analog | Normal operation | 4 to 20 mA, 3- or 4-wire, sink or source |
| | | Maintenance | Constant 3.4 mA (adjustable) |
| | | Fault | < 1.2 mA |
| | Signal output digital | HART® w/ 3- or 4-wire, PROFIBUS® PA, FOUNDATION fieldbus™ H1 and Modbus RTU w/ 5-wires | |
| | Power supply | 10 to 30 V DC | |
| | Power consumption (max.) | DQ w/o relay, non-remote | 105 mA at 24 V |
| | | DQ w/ relay, remote | 145 mA at 24 V |
| | Relay specification (option) | 2 alarm relays and 1 fault relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC | |
| Environmental conditions (see sensor data sheet) | Temperature | -40 to 80 °C (-40 to 176 °F) without relay<br>-40 to 70 °C (-40 to 158 °F) with relay-<br>-50 to 85 °C (-122 to 185 °F) remote sensor | |
| | Pressure | 23.6 to 38.4 inch Hg / 800 to 1,200 mbar | |
| | Humidity | 5 to 95% r. h., non-condensing | |
| Housing | Transmitter housing | Epoxy coated copper-free aluminium or stainless steel SS316 L | |
| | Sensor housing | Stainless steel 303 | |
| | Enclosure protection type | NEMA 4X & 7, IP65/66/67 | |
| | Cable entry point | 3/4" NPT threaded holes or M20 cable gland | |
| | Dimensions (H x W x D) | 11.0" x 5.9" x 5.1" / 280 x 150 x 130 mm | |
| | Weight, approx. | Aluminium | 4.9 lbs / 2.2 kg |
| | | SS316 L | 8.8 lbs / 4.0 kg |
| Approvals* | UL & CSA | Class I, Div 1, Groups A, B, C, D; | |
| | | Class II, Div 1, Groups E, F, G; | |
| | | Class I, Zone 1, Group IIC; | |
| | | T-Code T6/T4 | |
| | IECEx | Ex db IIC T6/T4 Gb,<br>-40 ≤ Ta ≤ +40/+70 °C; | |
| | ATEX | II 2G Ex db IIC T6/T4 Gb,<br>-40 ≤ Ta ≤ +40/+70 °C; | |
| | CE markings | ATEX (Directive 2014/34/EU) | |
| | | Electromagnetic Compatibility (Directive 2014/30/EU) | |
| | | Low Voltage (Directive 2014/35/EU) | |
| | Shipping approvals (for DQ sensor only) | DNV GL, ABS, LR, CCS, RMRS | |
| | MED approval (for DQ sensor only) | Certificate No. MEDB0000411 | |

# Technical Data

| | | |
|---|---|---|
| | DEKRA Performance approval (for DQ sensor only) | Certificate No. BVS 13 ATEX G 001 X |
| | SIL 2 certified by TUEV Sued | Certificate No. Z10 053474 0023 |

* All docking station versions are only ATEX/IECEx approved

# Ordering Information

| Dräger Polytron® 8200 CAT | Approval Code | Order Number |
|---|---|---|
| Dräger Polytron® 8200 CAT DQ d A 4-20/HART® | XTR 0410 | 83 44 439 |
| Dräger Polytron® 8200 CAT DQ d A 4-20/HART® relay | XTR 0411 | 83 44 440 |
| Dräger Polytron® 8200 CAT DQ d S 4-20/HART® | XTR 0510 | 83 44 448 |
| Dräger Polytron® 8200 CAT DQ d S 4-20/HART® relay | XTR 0511 | 83 44 449 |
| Dräger Polytron® 8xx0 Kit (Custom configuration e. g. LC sensor or bus communication) | | 83 44 800 |

| Accessories | | Order Number |
|---|---|---|
| Magnetic wand | | 45 44 101 |
| Pipe mount bracket | | 45 44 198 |
| Aluminum junction box for remote sensor ‘d’ | | 45 44 099 |
| Stainless steel junction box for remote sensor ‘d’ | | 45 44 098 |
| Duct mount kit | | 68 12 725 |
| IR Connection Kit Polytron® 5000/8000 | | 45 44 197 |
| PolySoft licence (1 year) | | 83 28 600 |
| PolySoft licence (subscription) | | 83 28 601 |
| Splash guard | | 68 12 510 |
| Weather protection kit Dräger Polytron® 5/6/8xxx | | 37 02 198 |
| Gassing adapter | PE, w/o tubing | 68 06 978 |
| | PE incl. tubing | 46 09 314 |
| Calibration adapter Viton® | | 68 10 536 |
| Process adapter (Stainless steel) for DQ | | 68 12 470 |
| Process adapter (Stainless steel) for LC | | 68 12 465 |

HART® is a registered trademark of the HART Communication Foundation.
FOUNDATION fieldbus™ is a registered trademark of the Fieldbus Foundation™.
PROFIBUS® is a registered trademark of PROFIBUS and PROFINET International (PI).
PACTware™ is a registered trademark of Pepperl+Fuchs GmbH.
Viton® is a registered trademark of the DuPont company.
Windows® is a registered trademark of Microsoft Corporation.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-MFA-05101 | : FZ-05 MFA Activation | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10001065 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX00 | | Miscellaneous |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to P&ID and hook-up drawing. | PL |
| 4 | Check tube fittings manufacturer is the one chosen for the plant. | NA |
| 5 | Check that piping connections provide the block & bleed facility (if required). | NA |
| 6 | Check that all stop plugs are properly installed | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | PL |
| 9 | Check the conformity of earthing as per specification (I.P.E. or I.E.) | OK |
| 10 | If required produce Red Line Mark Up for "AS BUILT" | |

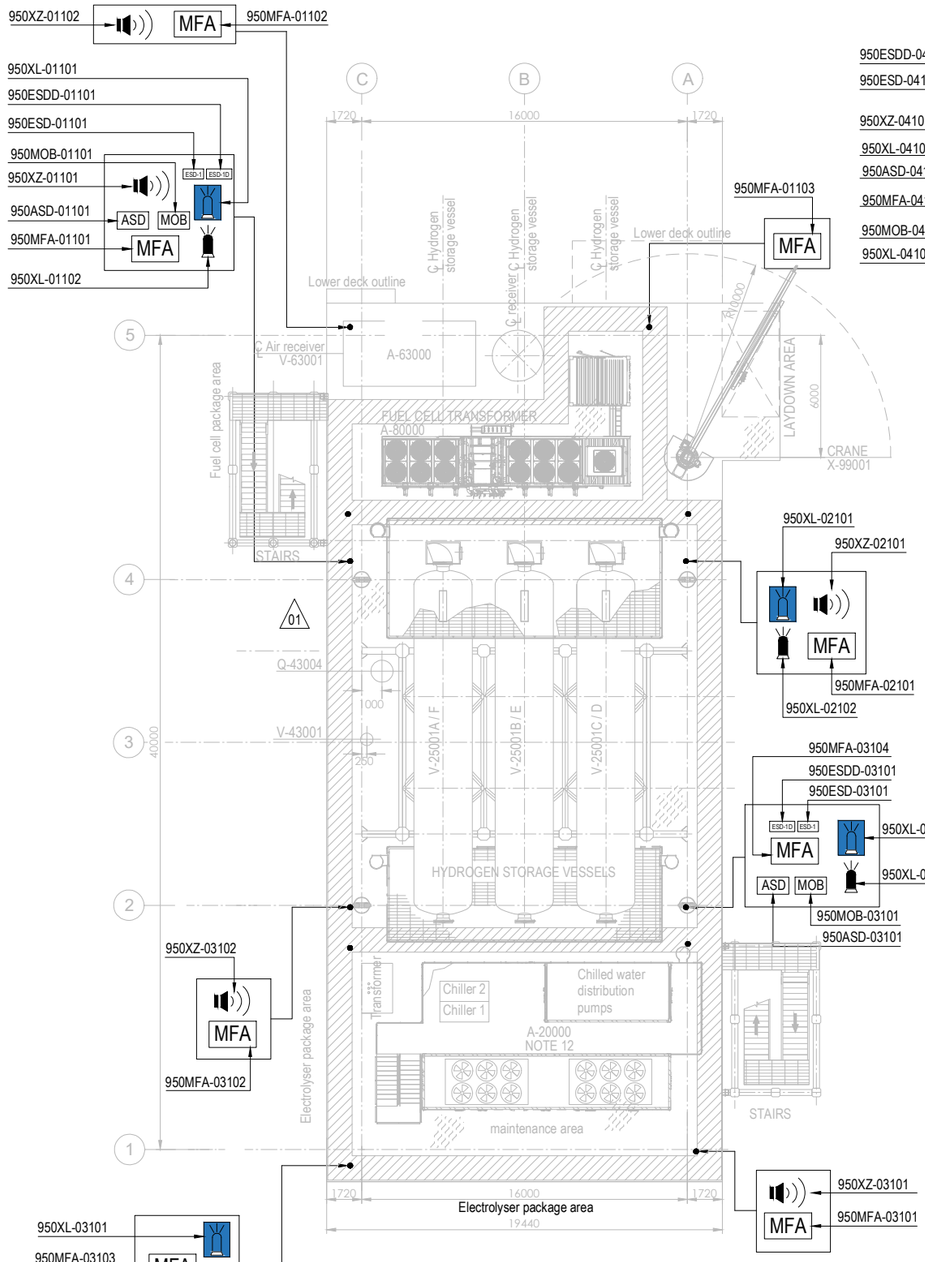
Comments:



| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Francesco Zucca | Alessio Polo | |
| Date | 2024-12-04 | 2024-12-05 | |
| Signature | Digitaly signed by Francesco Zucca 2024-12-04T16:09:55.183Z | Digitaly signed by Alessio Polo 2024-12-05T14:40:28.552Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



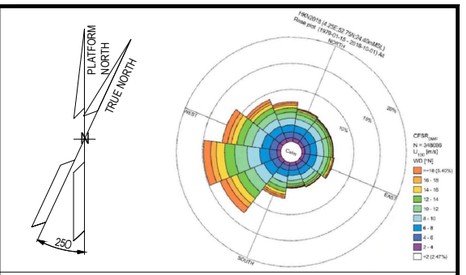

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION
1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05102 | No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |

<01>

950-MFA-05101 (1/8) WH/BK — C-950-MFA-05101/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-MFA-05102 (1/8) WH/BK — C-950-MFA-05102/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-MFA-05103 (1/8) WH/BK — C-950-MFA-05103/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-MFA-05104 (1/8) WH/BK — C-950-MFA-05104/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

TB-1

| | | |
|---|---|---|
| WH/BK | 1 | PR1 |
| | 2 | |
| | SH | |
| WH/BK | 3 | PR2 |
| | 4 | |
| | SH | |
| WH/BK | 5 | PR3 |
| | 6 | |
| | SH | |
| WH/BK | 7 | PR4 |
| | 8 | |
| | SH | |
| SPARE | 9 | PR5 |
| | 10 | |
| | SH | |
| SPARE | 11 | PR6 |
| | 12 | |
| | SH | |
| | OS | |

950-JE-05102/B400-FGS-003
~~950-JE-05102/B400-FGS-002~~
6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05102

| | | |
|---|---|---|
| PR1 | 1 | 950-MFA-05101 |
| Shield Bar | 2 | |
| PR2 | 3 | 950-MFA-05102 |
| Shield Bar | 4 | |
| PR3 | 5 | 950-MFA-05103 |
| Shield Bar | 6 | |
| PR4 | 7 | 950-MFA-05104 |
| Shield Bar | 8 | |
| PR5 | 9 | SPARE |
| Shield Bar | 10 | |
| PR6 | 11 | SPARE |
| | 12 | |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_M | 02/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05102

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

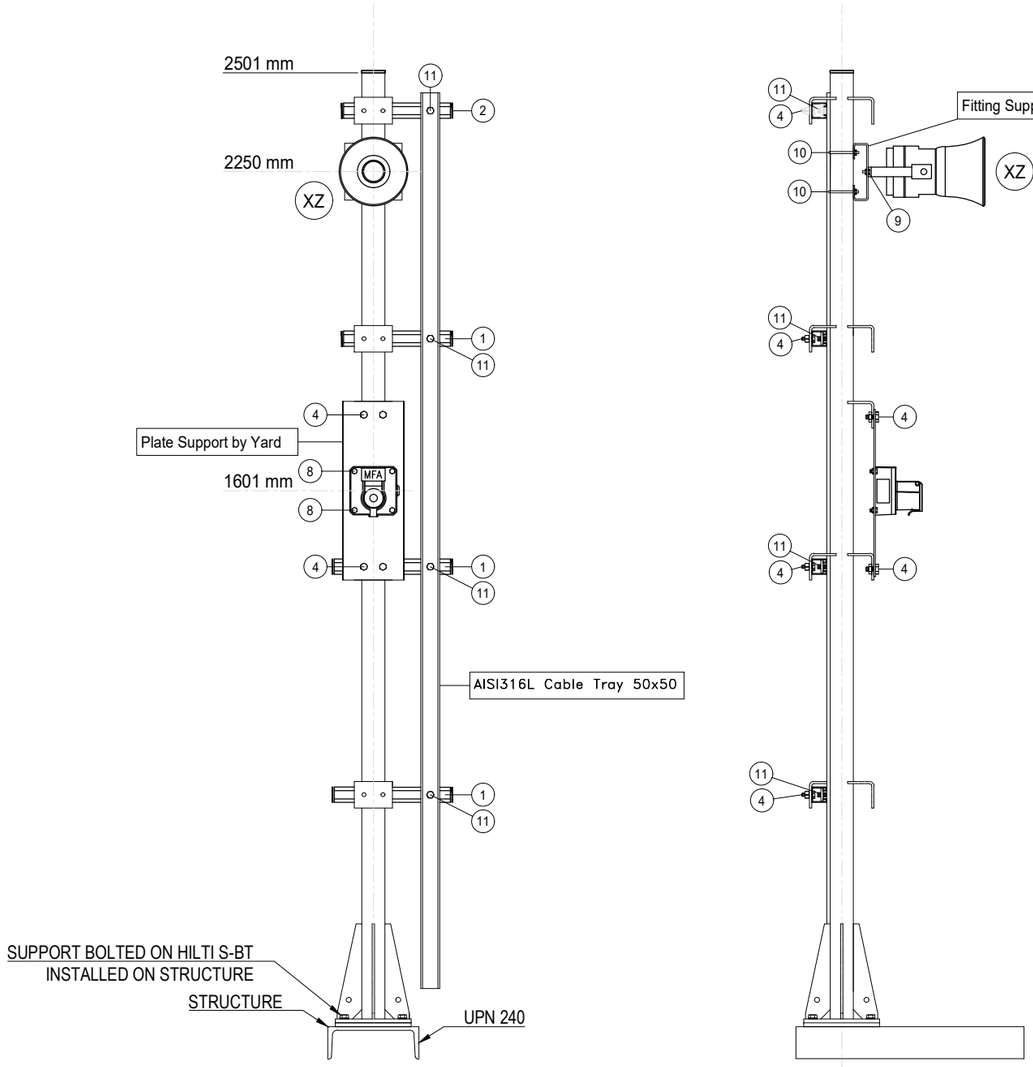
| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90–DDL–IN–DG–40016 | 046 | 01 |

File Name : 123A90-DDL-IN-DG-40016_Rev.01

# FGS-08

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00







| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 4m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 8 |
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 10 |
| 8 | AISI 316L BOLT M8x35 + NUT M8 + WASHER M8 | 4 |
| 9 | ~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~ | 2 |
| 10 | AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8 | 2 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |

| POLE | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | XZ | SOUNDER | 950-XZ-05101 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05101 |
| 2 | XZ | SOUNDER | 950-XZ-05102 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05102 |
| 3 | XZ | SOUNDER | 950-XZ-05103 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05103 |
| 4 | XZ | SOUNDER | 950-XZ-05104 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05104 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_G | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

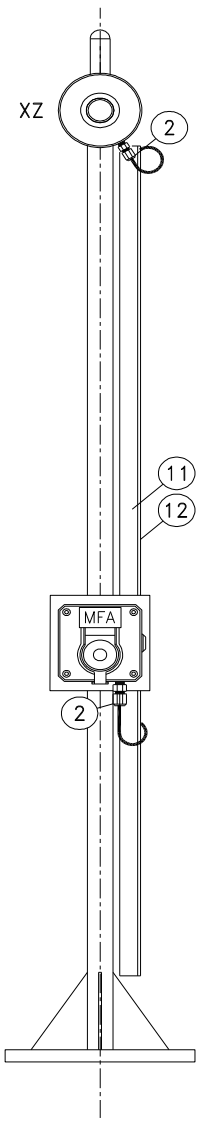
TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT INSTALLATION DETAILS
# FIRE & GAS DEVISES ON POLE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. 123A90-DDL-IN-DD-40017 | SHEET 027 | REV. 01 |
|---|---|---|---|

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES




| INSTRUMENT TAG | |
|---|---|
| 1 | 950-XZ-05101 |
| | 950-MFA-05101 |
| 2 | 950-XZ-05102 |
| | 950-MFA-05102 |
| 3 | 950-XZ-05103 |
| | 950-MFA-05103 |
| 4 | 950-XZ-05104 |
| | 950-MFA-05104 |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 12 | | Cover for cable tray, FRP, Grey Color | 50 W x 10 H x 5 THK | 3 mt |
| 11 | | Perforated cable tray, FRP, Grey Color | 50 W x 50 H x 5 THK | 3 mt |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 2 |



This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

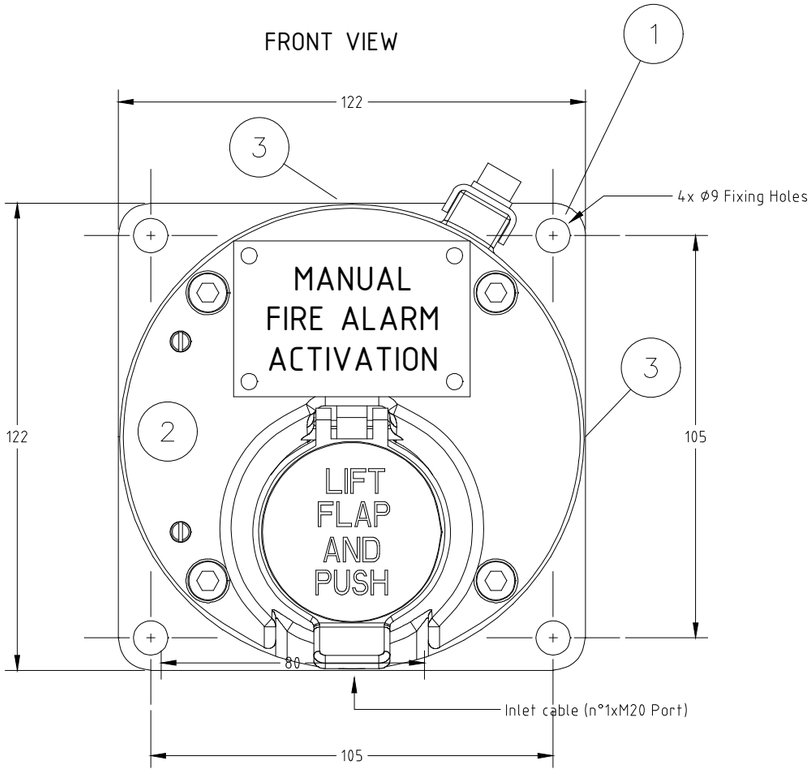
# MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Manual Call Point (Manual Fire Alarm) (Red), MEDC SM87PBLSD1B1ROYHDRZ | 1 |
| 2 | Stainless Steel Name Plate | 1 |
| 3 | Stop Plug M20 Ex d AISI 316 | 2 |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

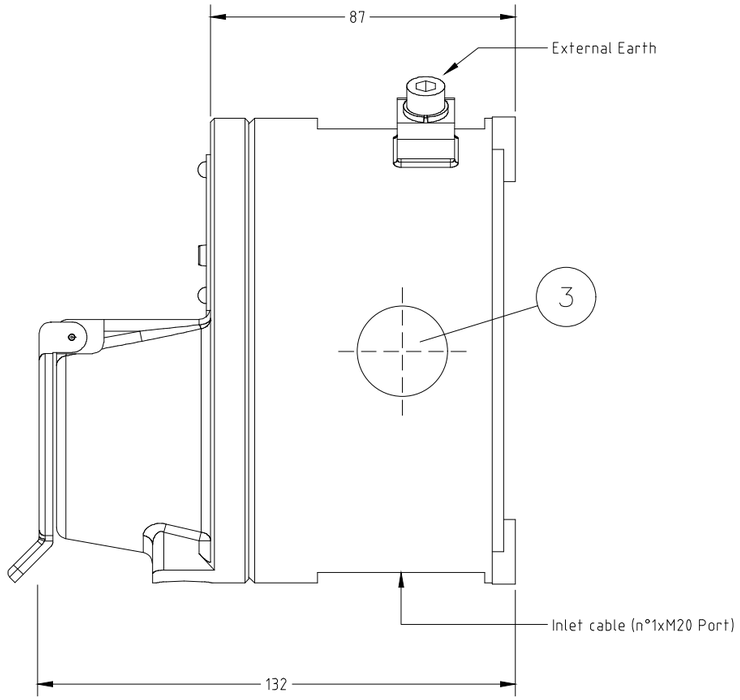
INSTALLATION QUANTITY

21

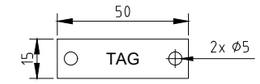
FRONT VIEW




SIDE VIEW




2 STAINLESS STEEL NAME PLATE DETAILS

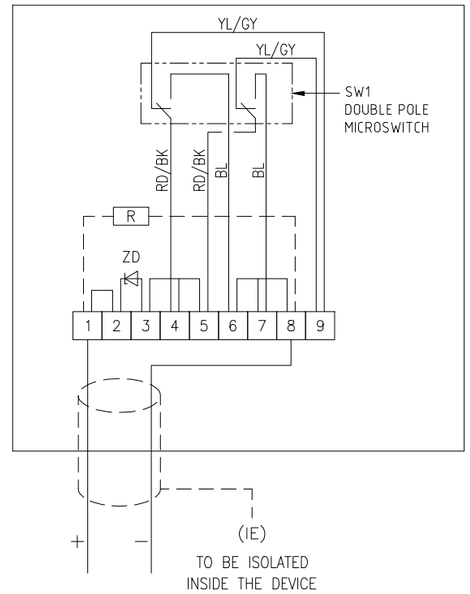



NOTE 5

WIRING

TERMINAL STRIP

ZD= ZENER 1N5339B 5.6V
R= 36 KOhm




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 015 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-MFA-01101 |
| 2 | 950-MFA-01102 |
| 3 | 950-MFA-01103 |
| 4 | 950-MFA-02101 |
| 5 | 950-MFA-03101 |
| 6 | 950-MFA-03102 |
| 7 | 950-MFA-03103 |
| 8 | 950-MFA-03104 |
| 9 | 950-MFA-04101 |
| 10 | 950-MFA-04102 |
| 11 | 950-MFA-04201 |
| 12 | 950-MFA-04202 |
| 13 | 950-MFA-04203 |
| 14 | 950-MFA-05101 |
| 15 | 950-MFA-05102 |
| 16 | 950-MFA-05103 |
| 17 | 950-MFA-05104 |
| 18 | 950-MFA-06101 |
| 19 | 950-MFA-06102 |
| 20 | 950-MFA-06201 |
| 21 | 950-MFA-07101 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 016 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## MANUAL FIRE ALARM

| POS. | TAG NUMBER | SERVICE | DUTY LABEL |
|---|---|---|---|
| 1 | 950-MFA-01101 | FZ-01 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 2 | 950-MFA-01102 | FZ-01 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 3 | 950-MFA-01103 | FZ-01 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 4 | 950-MFA-02101 | FZ-02 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 5 | 950-MFA-03101 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 6 | 950-MFA-03102 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 7 | 950-MFA-03103 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 8 | 950-MFA-03104 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 9 | 950-MFA-04101 | FZ-04 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 10 | 950-MFA-04102 | FZ-04 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 11 | 950-MFA-04201 | FZ-04 MFA ACTIVATION - B-400 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 12 | 950-MFA-04202 | FZ-04 MFA ACTIVATION - B-300 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 13 | 950-MFA-04203 | FZ-04 MFA ACTIVATION - B-200 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 14 | 950-MFA-05101 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 15 | 950-MFA-05102 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 16 | 950-MFA-05103 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 17 | 950-MFA-05104 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 18 | 950-MFA-06101 | FZ-06 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 19 | 950-MFA-06102 | FZ-06 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 20 | 950-MFA-06201 | FZ-06 MFA ACTIVATION - B-100 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 21 | 950-MFA-07101 | FZ-07 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# SM87BG & SM87PB manual call point range

## Ex d, Ex ia, weatherproof




## Overview

These manual fire alarm, emergency shutdown break-glass and pushbutton units have been designed for the most arduous environmental conditions.

The units are both easy to install and maintain. Intrinsically safe Ex ia and flameproof Ex d versions of each model are available.

A choice of either stainless steel or alloy makes the range suitable for either the offshore or onshore industries. Stainless steel, one of the most durable materials available on the market, is both hard wearing and corrosion resistant, increasing the life of products in harsh environments and therefore reducing maintenance costs.

## Features

- Zone 0, Zone 1 and Zone 2 use*
- ATEX certified
- UL listed for USA and Canada (SM87PBL only). Class I, Div 1, Groups C & D
- ULC certified (SM87PBL only) for Class I, Zone 1 Groups C & D
- CSA certified
- IECEx certified
- Brazilian (INMETRO) certified
- Russian Fire certified
- PESO certified (Ex d only)
- SIL 2 certified (SM87PB only)
- IP66 and IP67
- DNV type approval (IEC 60945) (SM87PB only)
- Certified temperature: –55°C to +70°C*
- Stainless steel or marine grade alloy
- Robust yet lightweight
- Easy to maintain

*Model dependent

ATEX IECEx cULus LISTED ULC INMETRO CSA DNV·GL MARITIME CCC

Eaton
Unit B, Sutton Parkway
Oddicroft Lane
Sutton in Ashfield
United Kingdom
NG17 5FB

T: +44 (0) 1623 444 400
www.crouse-hinds.com/hac
MEDCSales@Eaton.com

© 2024 Eaton
All Rights Reserved
Printed in UK
Publication
No.DSMC0005/H
March 2024

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Powering Business Worldwide



All specifications, dimensions, weights and tolerances are nominal (typical) and Eaton reserve the right to vary all data without prior notice.
No liability is accepted for any consequence of use.

## Certifications

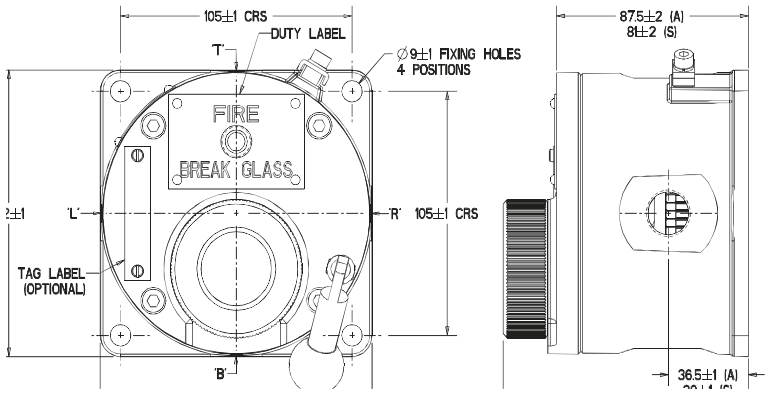
| | |
|---|---|
| **ATEX Ex d** | Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD<br>Certified to: EN60079-0, EN60079-1, EN60079-31<br>Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67 |
| **ATEX Ex ia** | Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD<br>Certified to: EN60079-0, EN60079-11<br>Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da |
| **IECEx Ex d** | Cert. no. IECEx BAS 09.0060<br>Certified to: EN60079-0, EN60079-1, EN60079-31<br>Ex d IIC T5/T6 Gb, Ex tb IIIC T85°/T100°C Db. IP66/IP67 |
| **IECEx Ex ia** | Cert. no. IECEx BAS 10.0033X<br>Certified to: IEC60079-0, IEC60079-11,<br>Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da |
| **UL** | Listing no. E186629<br>UL listed to Class 1, Div 1. Groups C & D. (SM87PBL) |
| **ULC** | Cert. no. 20091023-E320282<br>ULC certified for Class I, Zone 1 Groups C & D (SM87PBL) |
| **CSA Explosion proof** | Class 1, Div 1 & 2. Group D<br>Ex d IIC T5/T6 Gb |
| **CSA Intrinsically safe** | Class 1, Div 1 & 2. Groups A-D |
| **INMETRO Ex d** | Ex db IIC T5/T6 Gb |
| **Type Approvals** | DNV (IEC 60945) (Stainless Steel SM87PB only) |
| **SIL** | SM87PB only - SIL2 Certification to IEC61508. Cert no. 20151118-4786827453 |
| **CCC** | Ex d IIC T5/T6 Gb, Ex tD A21 IP66/IP67 T85°C/T100°C |

## Specifications

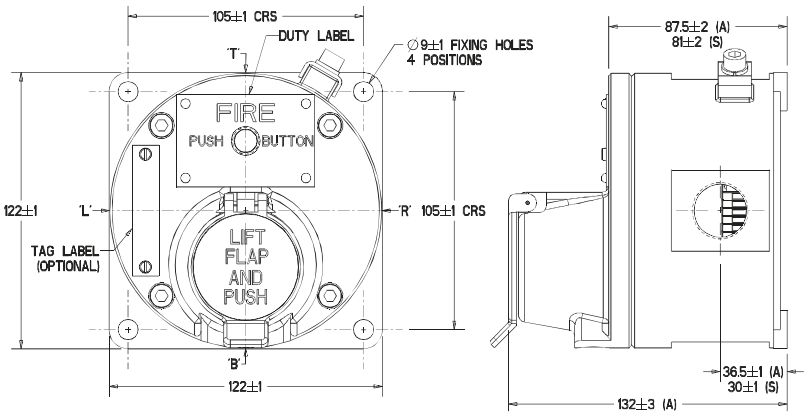
| | | |
|---|---|---|
| **Material** | Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy | |
| **Finish** | Paint finish as standard or to customer specification | |
| **Voltage** | Ex d 24V a.c./d.c. Ex ia 28V | |
| **Rating** | 2A | |
| **Switches** | 2 pole c/o, wired to terminals<br>Optional up to 4 pole (UL version 2 pole only) | |
| **Optional indicator** | A red high intensity LED can be fitted for alarm indication<br>As standard the LED is not provided with over current protection. The forward current (If) should be limited to 20mA | |
| **Certified temp** | Ex d*<br>Ex ia*<br><br>UL<br><br>CSA Explosion proof - Class 1, Div 1 & 2.<br>CSA - Ex d IIC<br>CSA Intrinsically safe - Class 1, Div 1 & 2<br>*Note: includes ATEX, IECEx & INMETRO versions | –55°C to +70°C.<br>–55°C to +60°C<br>–20°C to +55°C (LED version only)<br>–40°C to +70°C,<br>–20°C to +55°C (LED version only)<br>–50°C to +55°C<br>–55°C to +70°C<br>–50°C to +40°C |
| **Weight** | 3·8 kg. steel (approx.) or 2.5 kg. alloy (approx) | |
| **Ingress protection** | IP66 & IP67. SM87PB IP68 (35m for 40 hours) | |
| **Entries** | Up to 4 x M20 or M25 ISO Ex d/Ex ia<br>Up to 4 x ½" or ¾" NPT UL<br>Stainless steel version comes with two entries as standard.<br>Units ordered with a single entry ordering code are supplied with 2x entries inc. plug on the opposite side | |
| **Terminals** | Will accept up to 1·5mm² cable | |
| **Resistor values** | 470R minimum (d.c. & I.S. units only) | |

## General arrangement drawing (all dimensions in mm)

Break glass




Push button




Both the Ex ia units and the Ex d units have the same external appearance. Also the internal components are identical throughout the range. Each unit can be wired for either NO, NC or CO contacts to customer specification

# Ordering requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

| Unit | Model | Material | Certification | Entries | Duty label | Tag label | Options | Finish |
|---|---|---|---|---|---|---|---|---|
| SM87 | PBL | S | D | 1B1R | O | Y | HD | R |

**Material***

| | Code |
|---|---|
| Stainless steel | S |
| Alloy | A |

*UL version only available in alloy

**Model***

| | Code |
|---|---|
| Breakglass latching | BGL |
| Lift flap breakglass latching | LBGL |
| Push button latching key reset | PBL |
| Push button only momentary action | PBM |

*UL and ULC versions only available in PBL model

**Certification**

| | Code |
|---|---|
| Ex ia | I |
| Ex d | D |
| IECEx - Ex ia | IJ |
| IECEx - Ex d | DJ |
| UL | UL |
| ULC | UC |
| CSA - Intrinsically Safe | IC |
| CSA - Ex proof | DC |
| INMETRO - Ex d | DM |
| CCC | DQ |

**Entries**

| | Code |
|---|---|
| M20 | 1 |
| M25 | 2 |
| ½" NPT | 3 |
| ¾" NPT | 4 |
| Other | 5 |
| **Position** | |
| Top | *T |
| Bottom | *B |
| RHS | *R |
| LHS | *L |

*Prefix position with size code i.e. 1T1B = M20 Top and Bottom

**Duty label**

| | Code |
|---|---|
| Fire breakglass | 1 |
| Push button | 2 |
| Fire push button | 3 |
| ESDO abandon | 4 |
| Burning house logo | 5 |
| Fire/FEU | 6† |
| Other | O* |
| None | N |

*Please specify
†This option must be used when ordering a red callpoint for ULC Fire Alarm applications

**Tag label**

| | Code |
|---|---|
| Required | Y* |
| Not required | N |

*Please specify

**Options**

| | Code |
|---|---|
| Not required | N |
| LED | A |
| Resistor series | G* |
| Resistor EOL | H* |
| Diode | D* |
| 3 pole c/o switch | T |
| 4 pole c/o switch | F |

*Please specify

**Finish**

| | Code |
|---|---|
| Red | R |
| Blue | B |
| Yellow | Y |
| Yellow/black stripes | X |
| Special | S* |

*Please specify

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-MFA-05102 | : FZ-05 MFA Activation | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10001066 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX00 | | Miscellaneous |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to P&ID and hook-up drawing. | OK |
| 4 | Check tube fittings manufacturer is the one chosen for the plant. | NA |
| 5 | Check that piping connections provide the block & bleed facility (if required). | NA |
| 6 | Check that all stop plugs are properly installed | PL |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | PL |
| 9 | Check the conformity of earthing as per specification (I.P.E. or I.E.) | OK |
| 10 | If required produce Red Line Mark Up for "AS BUILT" | |

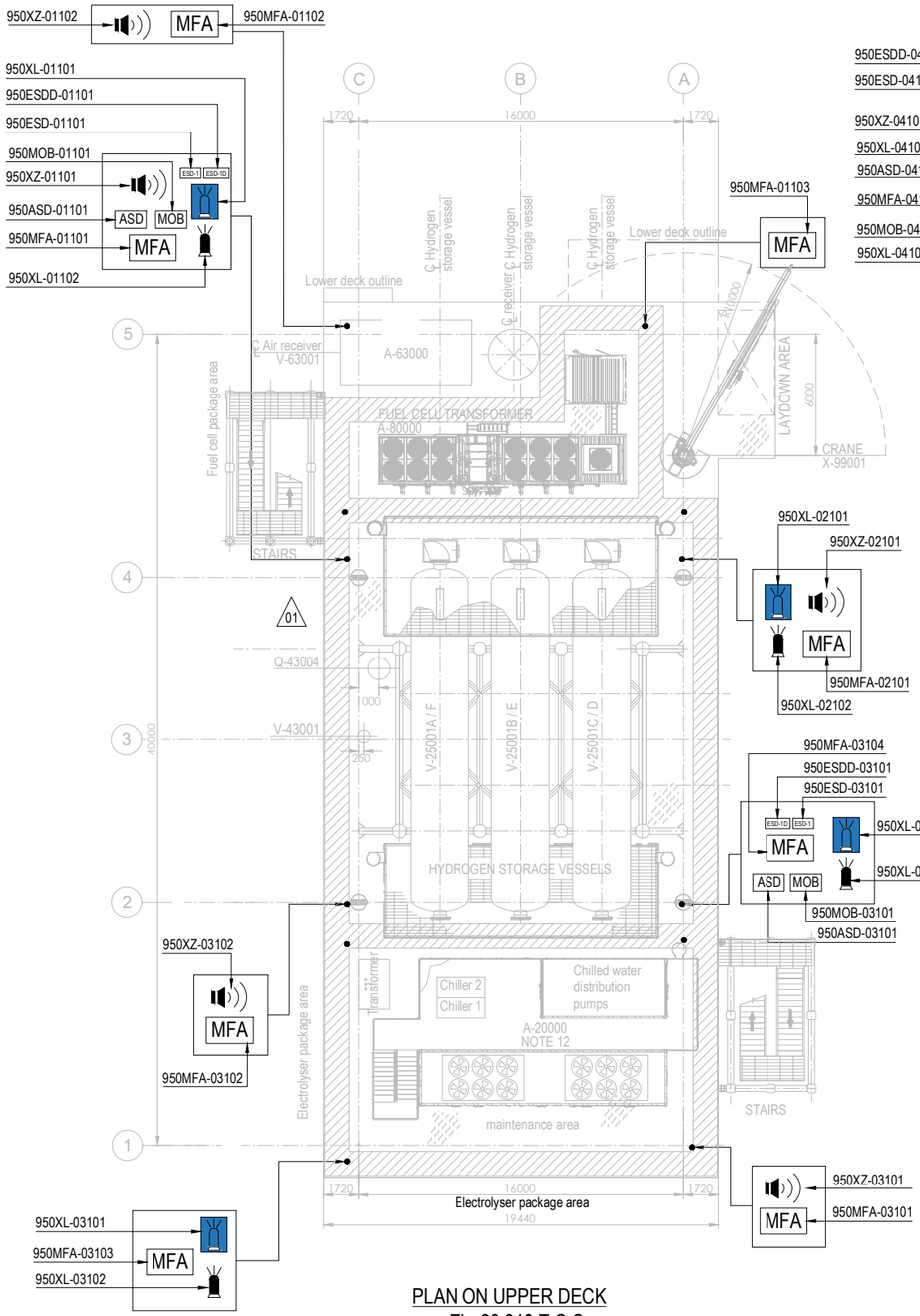
Comments:



| | Performed by | ☉ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Francesco Zucca | Alessio Polo | |
| Date | 2024-12-07 | 2025-01-13 | |
| Signature | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:57:38.797Z | PROVERLIS Digitaly signed by Alessio Polo 2025-01-13T16:28:53.389Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



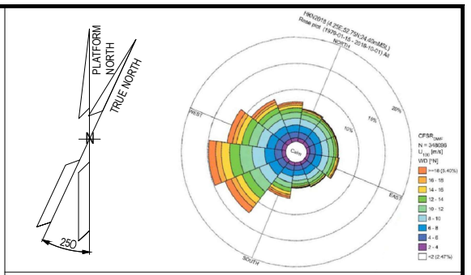

## PLAN ON UPPER DECK
## EL+30.310 T.O.S.

## PLAN ON LOWER DECK
## EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05102 | No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |

<01>

950-MFA-05101 (1/8) WH/BK — NOTE-2 — C-950-MFA-05101/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05102 (1/8) WH/BK — NOTE-2 — C-950-MFA-05102/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05103 (1/8) WH/BK — NOTE-2 — C-950-MFA-05103/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05104 (1/8) WH/BK — NOTE-2 — C-950-MFA-05104/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

| | | |
|---|---|---|
| WH/BK | 1 | PR1 |
| | 2 | |
| | SH | |
| WH/BK | 3 | PR2 |
| | 4 | |
| | SH | |
| WH/BK | 5 | PR3 |
| | 6 | |
| | SH | |
| WH/BK | 7 | PR4 |
| | 8 | |
| | SH | |
| SPARE | 9 | PR5 |
| | 10 | |
| | SH | |
| SPARE | 11 | PR6 |
| | 12 | |
| | SH | |
| | OS | |

950-JE-05102/B400-FGS-003
~~950-JE-05102/B400-FGS-002~~
6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05102

| | | |
|---|---|---|
| PR1 | 1 | 950-MFA-05101 |
| Shield Bar | 2 | |
| PR2 | 3 | 950-MFA-05102 |
| Shield Bar | 4 | |
| PR3 | 5 | 950-MFA-05103 |
| Shield Bar | 6 | |
| PR4 | 7 | 950-MFA-05104 |
| Shield Bar | 8 | |
| PR5 | 9 | SPARE |
| Shield Bar | 10 | |
| PR6 | 11 | SPARE |
| | 12 | |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–05102

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

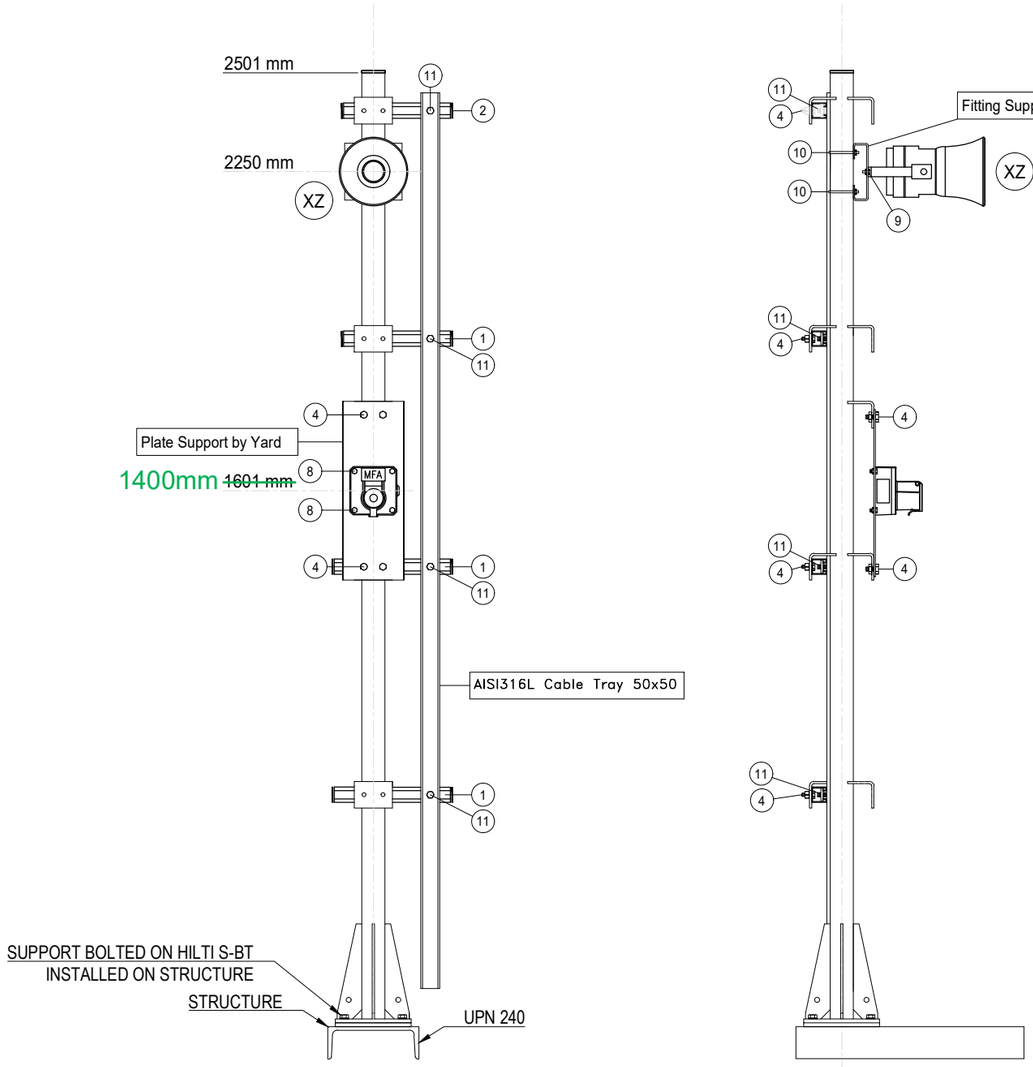
| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 046 | REV. 01 |
|---|---|---|---|

File Name : 123A90-DDL-IN-DG-40016_Rev.01

# FGS-08

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00







| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 4m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 8 |
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 10 |
| 8 | AISI 316L BOLT M8x35 + NUT M8 + WASHER M8 | 4 |
| 9 | ~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~ | 2 |
| 10 | AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8 | 2 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |

| POLE | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | XZ | SOUNDER | 950-XZ-05101 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05101 |
| 2 | XZ | SOUNDER | 950-XZ-05102 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05102 |
| 3 | XZ | SOUNDER | 950-XZ-05103 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05103 |
| 4 | XZ | SOUNDER | 950-XZ-05104 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05104 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

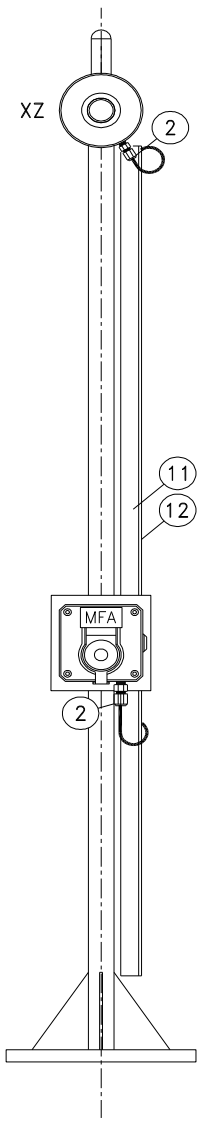
TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT INSTALLATION DETAILS
# FIRE & GAS DEVISES ON POLE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. 123A90-DDL-IN-DD-40017 | SHEET 027 | REV. 01 |
|---|---|---|---|

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES




| INSTRUMENT TAG | |
|---|---|
| 1 | 950-XZ-05101 |
| | 950-MFA-05101 |
| 2 | 950-XZ-05102 |
| | 950-MFA-05102 |
| 3 | 950-XZ-05103 |
| | 950-MFA-05103 |
| 4 | 950-XZ-05104 |
| | 950-MFA-05104 |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 12 | | Cover for cable tray, FRP, Grey Color | 50 W x 10 H x 5 THK | 3 mt |
| 11 | | Perforated cable tray, FRP, Grey Color | 50 W x 50 H x 5 THK | 3 mt |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 2 |



This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

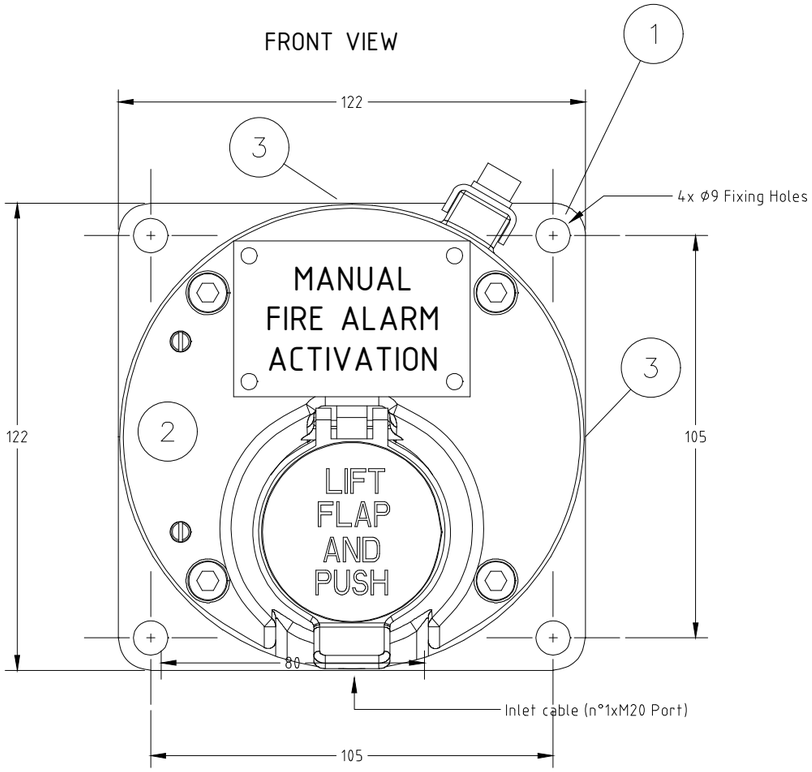
# MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Manual Call Point (Manual Fire Alarm) (Red), MEDC SM87PBLSD1B1ROYHDRZ | 1 |
| 2 | Stainless Steel Name Plate | 1 |
| 3 | Stop Plug M20 Ex d AISI 316 | 2 |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

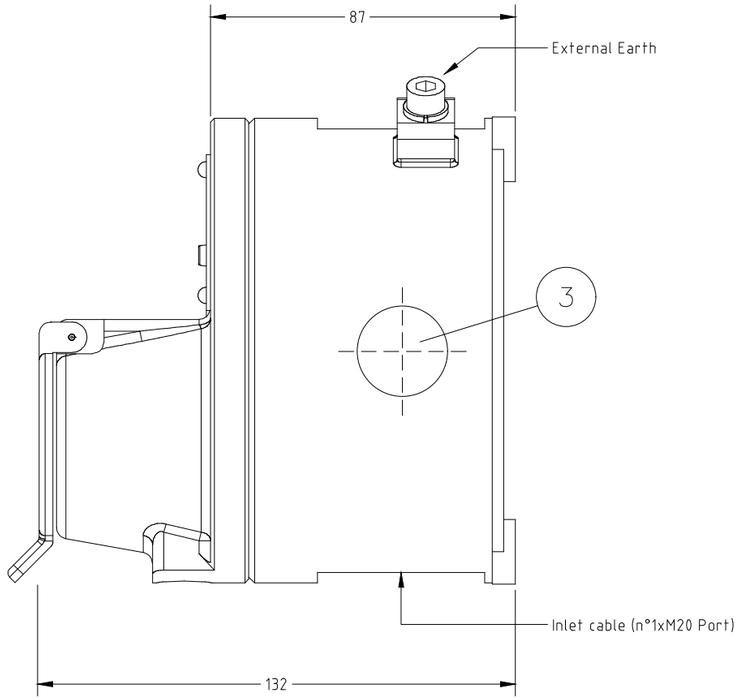
INSTALLATION QUANTITY

21

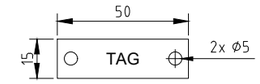
FRONT VIEW




SIDE VIEW




2 STAINLESS STEEL NAME PLATE DETAILS

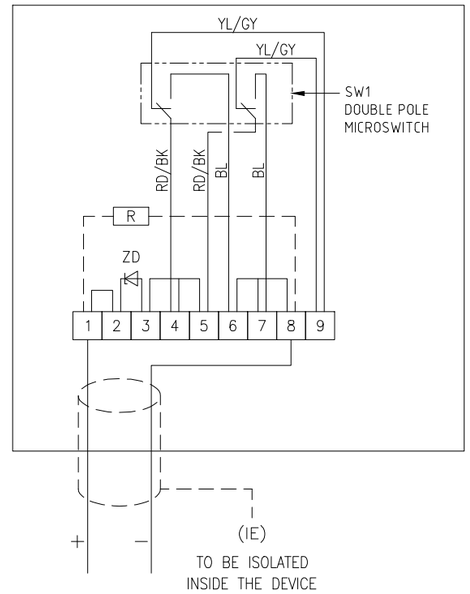



NOTE 5

WIRING

TERMINAL STRIP

ZD= ZENER 1N5339B 5.6V
R= 36 KOhm




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 015 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-MFA-01101 |
| 2 | 950-MFA-01102 |
| 3 | 950-MFA-01103 |
| 4 | 950-MFA-02101 |
| 5 | 950-MFA-03101 |
| 6 | 950-MFA-03102 |
| 7 | 950-MFA-03103 |
| 8 | 950-MFA-03104 |
| 9 | 950-MFA-04101 |
| 10 | 950-MFA-04102 |
| 11 | 950-MFA-04201 |
| 12 | 950-MFA-04202 |
| 13 | 950-MFA-04203 |
| 14 | 950-MFA-05101 |
| 15 | 950-MFA-05102 |
| 16 | 950-MFA-05103 |
| 17 | 950-MFA-05104 |
| 18 | 950-MFA-06101 |
| 19 | 950-MFA-06102 |
| 20 | 950-MFA-06201 |
| 21 | 950-MFA-07101 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 016 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## MANUAL FIRE ALARM

| POS. | TAG NUMBER | SERVICE | DUTY LABEL |
|---|---|---|---|
| 1 | 950-MFA-01101 | FZ-01 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 2 | 950-MFA-01102 | FZ-01 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 3 | 950-MFA-01103 | FZ-01 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 4 | 950-MFA-02101 | FZ-02 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 5 | 950-MFA-03101 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 6 | 950-MFA-03102 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 7 | 950-MFA-03103 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 8 | 950-MFA-03104 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 9 | 950-MFA-04101 | FZ-04 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 10 | 950-MFA-04102 | FZ-04 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 11 | 950-MFA-04201 | FZ-04 MFA ACTIVATION - B-400 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 12 | 950-MFA-04202 | FZ-04 MFA ACTIVATION - B-300 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 13 | 950-MFA-04203 | FZ-04 MFA ACTIVATION - B-200 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 14 | 950-MFA-05101 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 15 | 950-MFA-05102 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 16 | 950-MFA-05103 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 17 | 950-MFA-05104 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 18 | 950-MFA-06101 | FZ-06 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 19 | 950-MFA-06102 | FZ-06 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 20 | 950-MFA-06201 | FZ-06 MFA ACTIVATION - B-100 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 21 | 950-MFA-07101 | FZ-07 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# SM87BG & SM87PB manual call point range

## Ex d, Ex ia, weatherproof




## Overview

These manual fire alarm, emergency shutdown break-glass and pushbutton units have been designed for the most arduous environmental conditions.

The units are both easy to install and maintain. Intrinsically safe Ex ia and flameproof Ex d versions of each model are available.

A choice of either stainless steel or alloy makes the range suitable for either the offshore or onshore industries. Stainless steel, one of the most durable materials available on the market, is both hard wearing and corrosion resistant, increasing the life of products in harsh environments and therefore reducing maintenance costs.

## Features

- Zone 0, Zone 1 and Zone 2 use*
- ATEX certified
- UL listed for USA and Canada (SM87PBL only). Class I, Div 1, Groups C & D
- ULC certified (SM87PBL only) for Class I, Zone 1 Groups C & D
- CSA certified
- IECEx certified
- Brazilian (INMETRO) certified
- Russian Fire certified
- PESO certified (Ex d only)
- SIL 2 certified (SM87PB only)
- IP66 and IP67
- DNV type approval (IEC 60945) (SM87PB only)
- Certified temperature: –55°C to +70°C*
- Stainless steel or marine grade alloy
- Robust yet lightweight
- Easy to maintain

*Model dependent

ATEX IECEx cULus LISTED ULC INMETRO CSA DNV·GL MARITIME CCC

Eaton
Unit B, Sutton Parkway
Oddicroft Lane
Sutton in Ashfield
United Kingdom
NG17 5FB

T: +44 (0) 1623 444 400
www.crouse-hinds.com/hac
MEDCSales@Eaton.com

© 2024 Eaton
All Rights Reserved
Printed in UK
Publication
No.DSMC0005/H
March 2024

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Powering Business Worldwide



All specifications, dimensions, weights and tolerances are nominal (typical) and Eaton reserve the right to vary all data without prior notice.
No liability is accepted for any consequence of use.

## Certifications

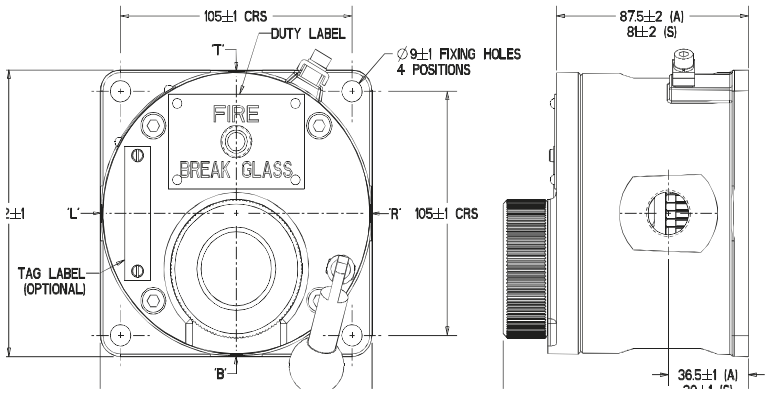
| | |
|---|---|
| **ATEX Ex d** | Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD<br>Certified to: EN60079-0, EN60079-1, EN60079-31<br>Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67 |
| **ATEX Ex ia** | Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD<br>Certified to: EN60079-0, EN60079-11<br>Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da |
| **IECEx Ex d** | Cert. no. IECEx BAS 09.0060<br>Certified to: EN60079-0, EN60079-1, EN60079-31<br>Ex d IIC T5/T6 Gb, Ex tb IIIC T85°/T100°C Db. IP66/IP67 |
| **IECEx Ex ia** | Cert. no. IECEx BAS 10.0033X<br>Certified to: IEC60079-0, IEC60079-11,<br>Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da |
| **UL** | Listing no. E186629<br>UL listed to Class 1, Div 1. Groups C & D. (SM87PBL) |
| **ULC** | Cert. no. 20091023-E320282<br>ULC certified for Class I, Zone 1 Groups C & D (SM87PBL) |
| **CSA Explosion proof** | Class 1, Div 1 & 2. Group D<br>Ex d IIC T5/T6 Gb |
| **CSA Intrinsically safe** | Class 1, Div 1 & 2. Groups A-D |
| **INMETRO Ex d** | Ex db IIC T5/T6 Gb |
| **Type Approvals** | DNV (IEC 60945) (Stainless Steel SM87PB only) |
| **SIL** | SM87PB only - SIL2 Certification to IEC61508. Cert no. 20151118-4786827453 |
| **CCC** | Ex d IIC T5/T6 Gb, Ex tD A21 IP66/IP67 T85°C/T100°C |

## Specifications

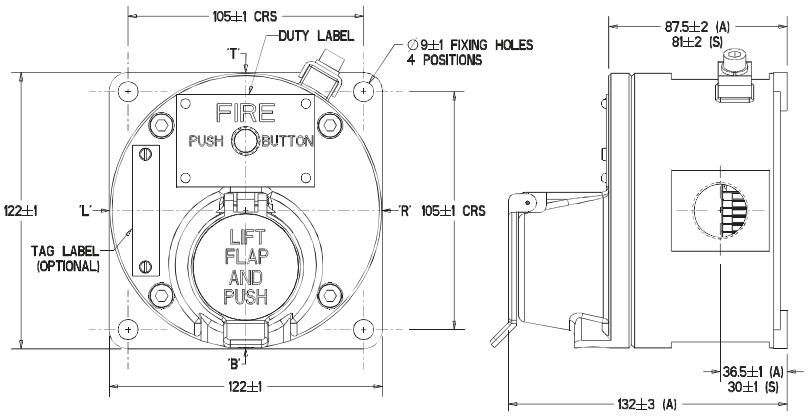
| | | |
|---|---|---|
| **Material** | Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy | |
| **Finish** | Paint finish as standard or to customer specification | |
| **Voltage** | Ex d 24V a.c./d.c. Ex ia 28V | |
| **Rating** | 2A | |
| **Switches** | 2 pole c/o, wired to terminals<br>Optional up to 4 pole (UL version 2 pole only) | |
| **Optional indicator** | A red high intensity LED can be fitted for alarm indication<br>As standard the LED is not provided with over current protection. The forward current (If) should be limited to 20mA | |
| **Certified temp** | Ex d*<br>Ex ia*<br><br>UL<br><br>CSA Explosion proof - Class 1, Div 1 & 2.<br>CSA - Ex d IIC<br>CSA Intrinsically safe - Class 1, Div 1 & 2<br>*Note: includes ATEX, IECEx & INMETRO versions | –55°C to +70°C.<br>–55°C to +60°C<br>–20°C to +55°C (LED version only)<br>–40°C to +70°C,<br>–20°C to +55°C (LED version only)<br>–50°C to +55°C<br>–55°C to +70°C<br>–50°C to +40°C |
| **Weight** | 3·8 kg. steel (approx.) or 2.5 kg. alloy (approx) | |
| **Ingress protection** | IP66 & IP67. SM87PB IP68 (35m for 40 hours) | |
| **Entries** | Up to 4 x M20 or M25 ISO Ex d/Ex ia<br>Up to 4 x ½" or ¾" NPT UL<br>Stainless steel version comes with two entries as standard.<br>Units ordered with a single entry ordering code are supplied with 2x entries inc. plug on the opposite side | |
| **Terminals** | Will accept up to 1·5mm² cable | |
| **Resistor values** | 470R minimum (d.c. & I.S. units only) | |

## General arrangement drawing (all dimensions in mm)

Break glass




Push button




Both the Ex ia units and the Ex d units have the same external appearance. Also the internal components are identical throughout the range. Each unit can be wired for either NO, NC or CO contacts to customer specification

# Ordering requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

| Unit | Model | Material | Certification | Entries | Duty label | Tag label | Options | Finish |
|---|---|---|---|---|---|---|---|---|
| SM87 | PBL | S | D | 1B1R | O | Y | HD | R |

**Material***

| | Code |
|---|---|
| Stainless steel | S |
| Alloy | A |

*UL version only available in alloy

**Model***

| | Code |
|---|---|
| Breakglass latching | BGL |
| Lift flap breakglass latching | LBGL |
| Push button latching key reset | PBL |
| Push button only momentary action | PBM |

*UL and ULC versions only available in PBL model

**Certification**

| | Code |
|---|---|
| Ex ia | I |
| Ex d | D |
| IECEx - Ex ia | IJ |
| IECEx - Ex d | DJ |
| UL | UL |
| ULC | UC |
| CSA - Intrinsically Safe | IC |
| CSA - Ex proof | DC |
| INMETRO - Ex d | DM |
| CCC | DQ |

**Entries**

| | Code |
|---|---|
| M20 | 1 |
| M25 | 2 |
| ½" NPT | 3 |
| ¾" NPT | 4 |
| Other | 5 |
| **Position** | |
| Top | *T |
| Bottom | *B |
| RHS | *R |
| LHS | *L |

*Prefix position with size code i.e. 1T1B = M20 Top and Bottom

**Duty label**

| | Code |
|---|---|
| Fire breakglass | 1 |
| Push button | 2 |
| Fire push button | 3 |
| ESDO abandon | 4 |
| Burning house logo | 5 |
| Fire/FEU | 6† |
| Other | O* |
| None | N |

*Please specify
†This option must be used when ordering a red callpoint for ULC Fire Alarm applications

**Tag label**

| | Code |
|---|---|
| Required | Y* |
| Not required | N |

*Please specify

**Options**

| | Code |
|---|---|
| Not required | N |
| LED | A |
| Resistor series | G* |
| Resistor EOL | H* |
| Diode | D* |
| 3 pole c/o switch | T |
| 4 pole c/o switch | F |

*Please specify

**Finish**

| | Code |
|---|---|
| Red | R |
| Blue | B |
| Yellow | Y |
| Yellow/black stripes | X |
| Special | S* |

*Please specify

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-MFA-05103 | : FZ-05 MFA Activation | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10001067 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX00 | | Miscellaneous |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to P&ID and hook-up drawing. | OK |
| 4 | Check tube fittings manufacturer is the one chosen for the plant. | NA |
| 5 | Check that piping connections provide the block & bleed facility (if required). | NA |
| 6 | Check that all stop plugs are properly installed | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | PL |
| 9 | Check the conformity of earthing as per specification (I.P.E. or I.E.) | OK |
| 10 | If required produce Red Line Mark Up for "AS BUILT" | |

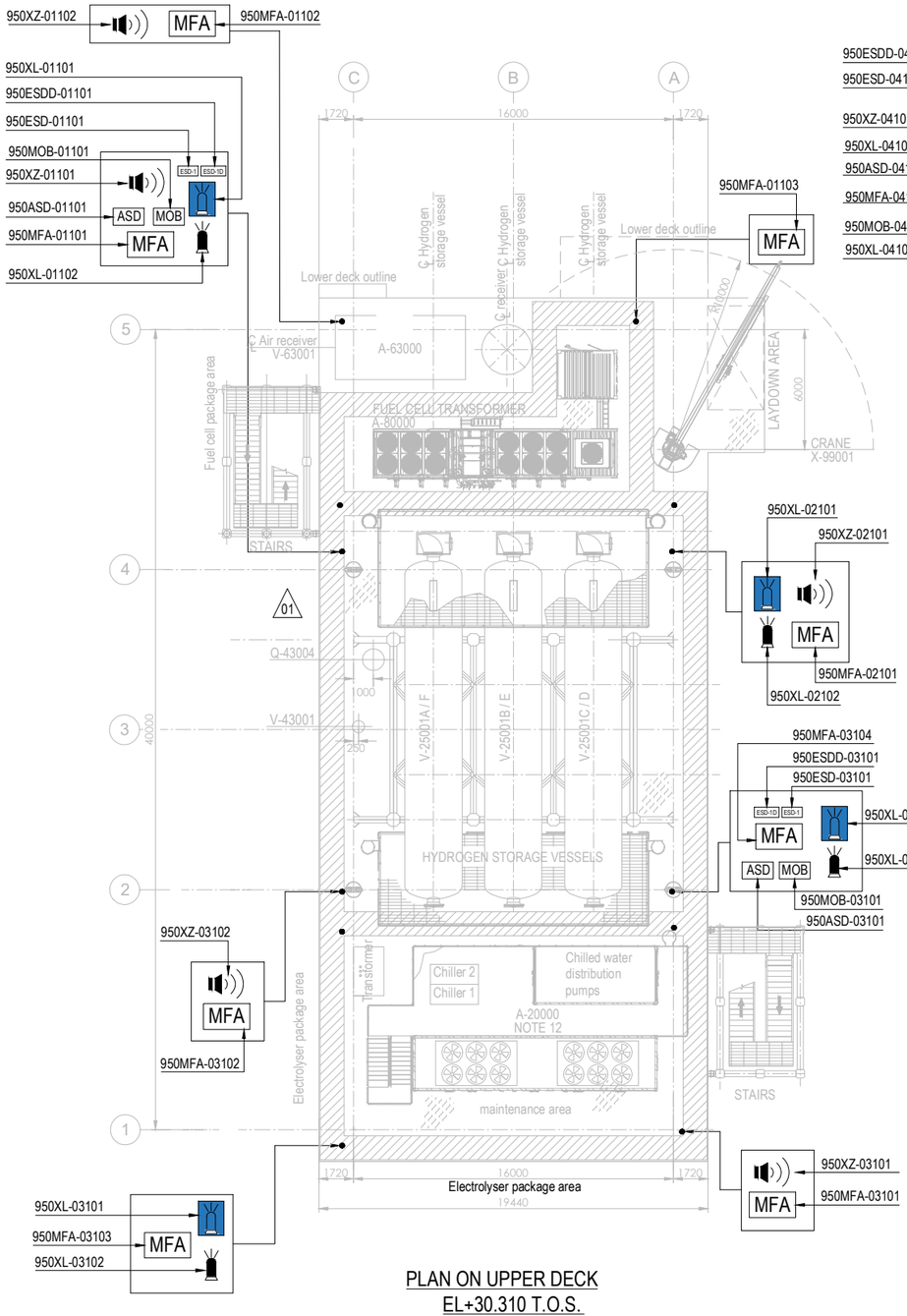
Comments:



| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Francesco Zucca | Giovanni Tangianu | |
| Date | 2024-12-07 | 2024-12-12 | |
| Signature | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:57:50.246Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-12T13:33:32.052Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



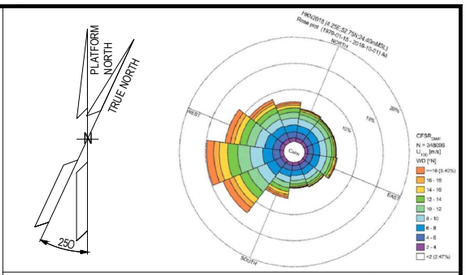

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION
1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05102 | No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |

<01>

950-MFA-05101 (1/8) WH/BK — C-950-MFA-05101/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-MFA-05102 (1/8) WH/BK — C-950-MFA-05102/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-MFA-05103 (1/8) WH/BK — C-950-MFA-05103/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-MFA-05104 (1/8) WH/BK — C-950-MFA-05104/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

TB-1

| | | |
|---|---|---|
| WH/BK | 1 | PR1 |
| | 2 | |
| | SH | |
| WH/BK | 3 | PR2 |
| | 4 | |
| | SH | |
| WH/BK | 5 | PR3 |
| | 6 | |
| | SH | |
| WH/BK | 7 | PR4 |
| | 8 | |
| | SH | |
| SPARE | 9 | PR5 |
| | 10 | |
| | SH | |
| SPARE | 11 | PR6 |
| | 12 | |
| | SH | |
| | OS | |

950-JE-05102/B400-FGS-003
~~950-JE-05102/B400-FGS-002~~
6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05102

| | | |
|---|---|---|
| PR1 | 1 | 950-MFA-05101 |
| Shield Bar | 2 | |
| PR2 | 3 | 950-MFA-05102 |
| Shield Bar | 4 | |
| PR3 | 5 | 950-MFA-05103 |
| Shield Bar | 6 | |
| PR4 | 7 | 950-MFA-05104 |
| Shield Bar | 8 | |
| PR5 | 9 | SPARE |
| Shield Bar | 10 | |
| PR6 | 11 | SPARE |
| | 12 | |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05102

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

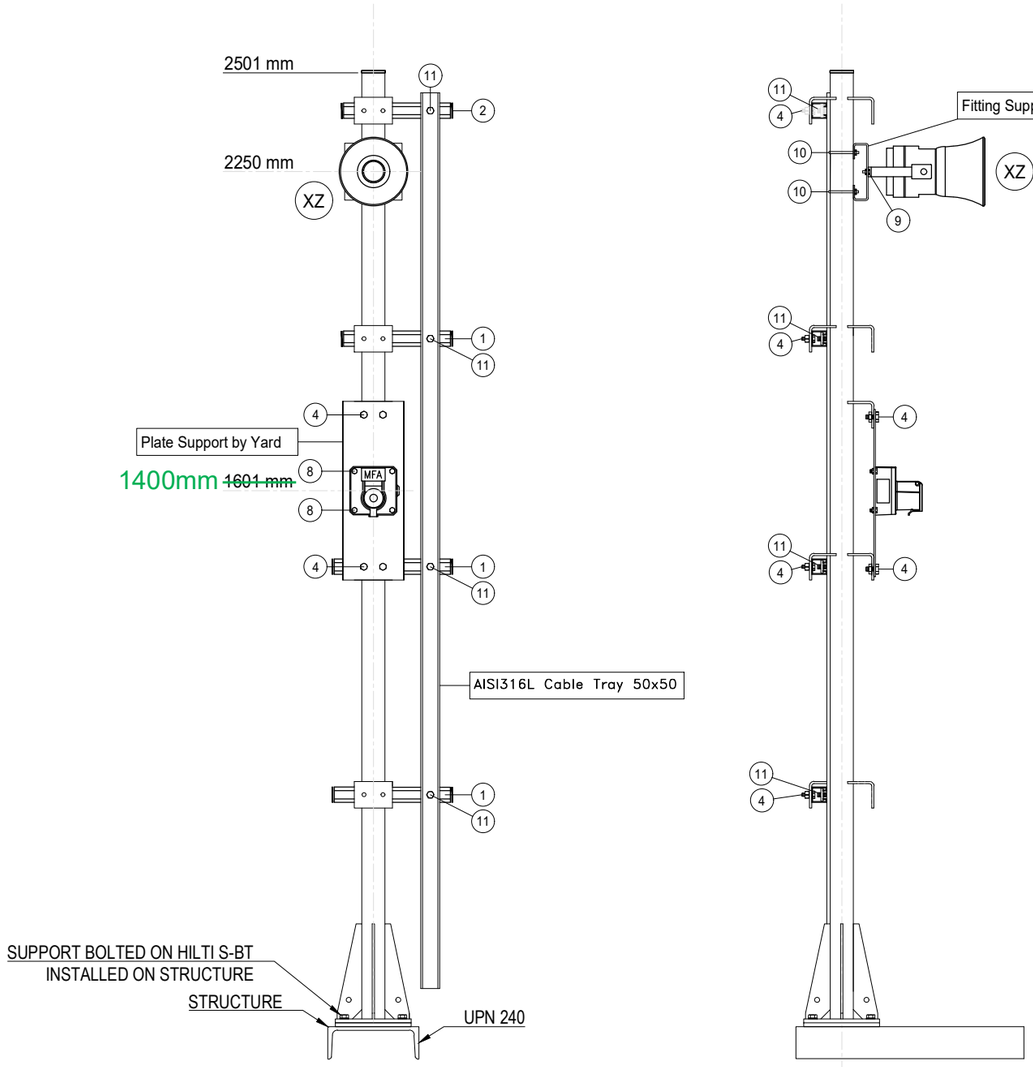
| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90–DDL–IN–DG–40016 | 046 | 01 |

File Name : 123A90-DDL-IN-DG-40016_Rev.01

# FGS-08

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00







| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 4m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 8 |
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 10 |
| 8 | AISI 316L BOLT M8x35 + NUT M8 + WASHER M8 | 4 |
| ~~9~~ | ~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~ | 2 |
| 10 | AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8 | 2 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |

| POLE | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | XZ | SOUNDER | 950-XZ-05101 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05101 |
| 2 | XZ | SOUNDER | 950-XZ-05102 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05102 |
| 3 | XZ | SOUNDER | 950-XZ-05103 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05103 |
| 4 | XZ | SOUNDER | 950-XZ-05104 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05104 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

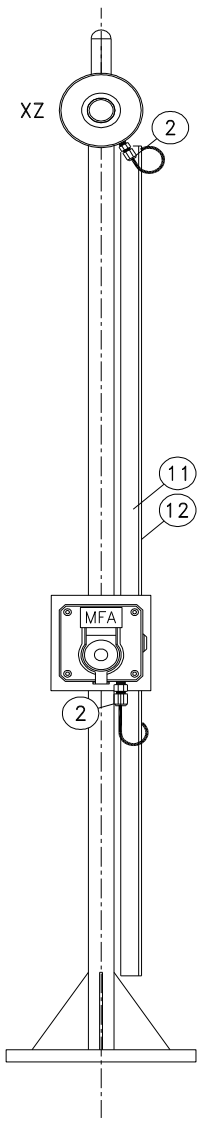
TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT INSTALLATION DETAILS
# FIRE & GAS DEVISES ON POLE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. 123A90-DDL-IN-DD-40017 | SHEET 027 | REV. 01 |
|---|---|---|---|

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES




| INSTRUMENT TAG | |
|---|---|
| 1 | 950-XZ-05101 |
| | 950-MFA-05101 |
| 2 | 950-XZ-05102 |
| | 950-MFA-05102 |
| 3 | 950-XZ-05103 |
| | 950-MFA-05103 |
| 4 | 950-XZ-05104 |
| | 950-MFA-05104 |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 12 | | Cover for cable tray, FRP, Grey Color | 50 W x 10 H x 5 THK | 3 mt |
| 11 | | Perforated cable tray, FRP, Grey Color | 50 W x 50 H x 5 THK | 3 mt |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 2 |



This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

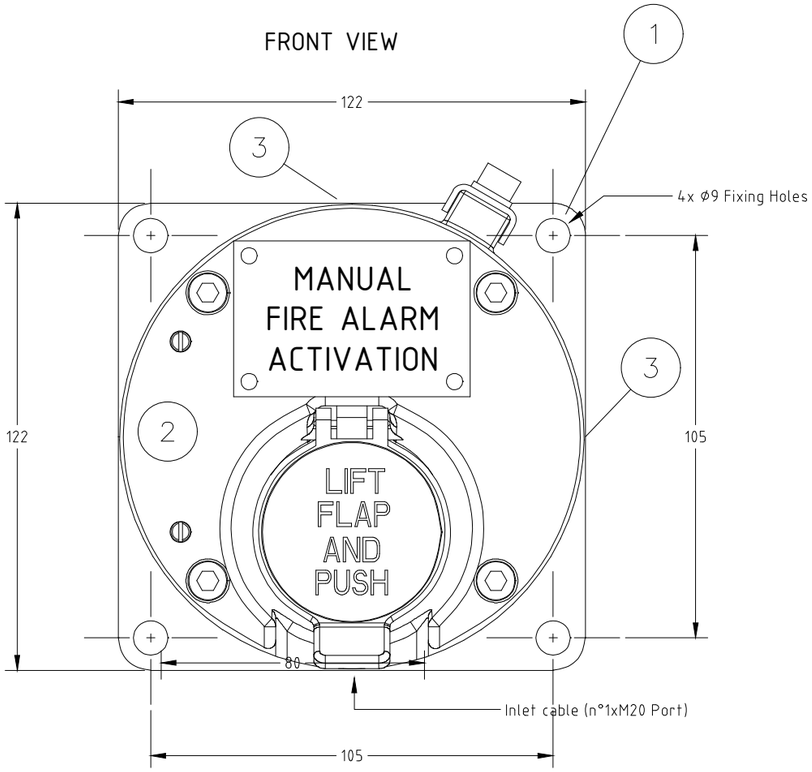
# MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Manual Call Point (Manual Fire Alarm) (Red), MEDC SM87PBLSD1B1ROYHDRZ | 1 |
| 2 | Stainless Steel Name Plate | 1 |
| 3 | Stop Plug M20 Ex d AISI 316 | 2 |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

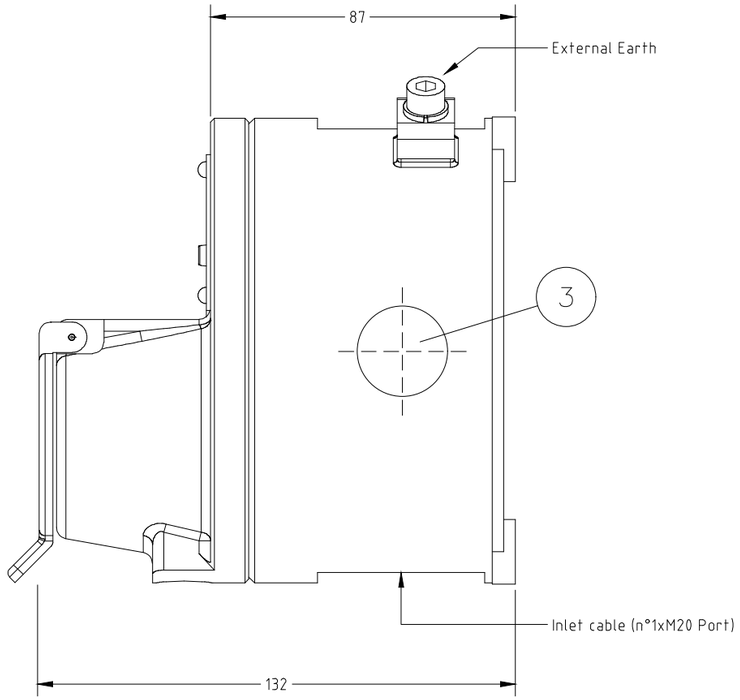
INSTALLATION QUANTITY

21

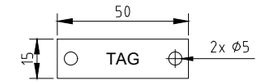
FRONT VIEW




SIDE VIEW




2 STAINLESS STEEL NAME PLATE DETAILS

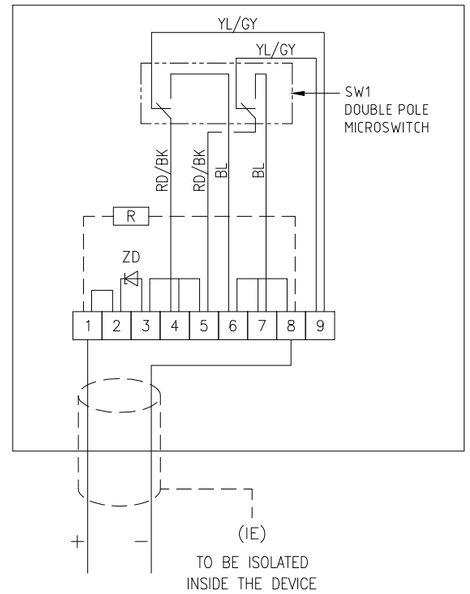



NOTE 5

WIRING

TERMINAL STRIP

ZD= ZENER 1N5339B 5.6V
R= 36 KOhm




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 015 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-MFA-01101 |
| 2 | 950-MFA-01102 |
| 3 | 950-MFA-01103 |
| 4 | 950-MFA-02101 |
| 5 | 950-MFA-03101 |
| 6 | 950-MFA-03102 |
| 7 | 950-MFA-03103 |
| 8 | 950-MFA-03104 |
| 9 | 950-MFA-04101 |
| 10 | 950-MFA-04102 |
| 11 | 950-MFA-04201 |
| 12 | 950-MFA-04202 |
| 13 | 950-MFA-04203 |
| 14 | 950-MFA-05101 |
| 15 | 950-MFA-05102 |
| 16 | 950-MFA-05103 |
| 17 | 950-MFA-05104 |
| 18 | 950-MFA-06101 |
| 19 | 950-MFA-06102 |
| 20 | 950-MFA-06201 |
| 21 | 950-MFA-07101 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 016 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## MANUAL FIRE ALARM

| POS. | TAG NUMBER | SERVICE | DUTY LABEL |
|---|---|---|---|
| 1 | 950-MFA-01101 | FZ-01 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 2 | 950-MFA-01102 | FZ-01 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 3 | 950-MFA-01103 | FZ-01 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 4 | 950-MFA-02101 | FZ-02 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 5 | 950-MFA-03101 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 6 | 950-MFA-03102 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 7 | 950-MFA-03103 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 8 | 950-MFA-03104 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 9 | 950-MFA-04101 | FZ-04 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 10 | 950-MFA-04102 | FZ-04 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 11 | 950-MFA-04201 | FZ-04 MFA ACTIVATION - B-400 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 12 | 950-MFA-04202 | FZ-04 MFA ACTIVATION - B-300 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 13 | 950-MFA-04203 | FZ-04 MFA ACTIVATION - B-200 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 14 | 950-MFA-05101 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 15 | 950-MFA-05102 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 16 | 950-MFA-05103 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 17 | 950-MFA-05104 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 18 | 950-MFA-06101 | FZ-06 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 19 | 950-MFA-06102 | FZ-06 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 20 | 950-MFA-06201 | FZ-06 MFA ACTIVATION - B-100 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 21 | 950-MFA-07101 | FZ-07 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# SM87BG & SM87PB manual call point range

## Ex d, Ex ia, weatherproof




## Overview

These manual fire alarm, emergency shutdown break-glass and pushbutton units have been designed for the most arduous environmental conditions.

The units are both easy to install and maintain. Intrinsically safe Ex ia and flameproof Ex d versions of each model are available.

A choice of either stainless steel or alloy makes the range suitable for either the offshore or onshore industries. Stainless steel, one of the most durable materials available on the market, is both hard wearing and corrosion resistant, increasing the life of products in harsh environments and therefore reducing maintenance costs.

## Features

- Zone 0, Zone 1 and Zone 2 use*
- ATEX certified
- UL listed for USA and Canada (SM87PBL only). Class I, Div 1, Groups C & D
- ULC certified (SM87PBL only) for Class I, Zone 1 Groups C & D
- CSA certified
- IECEx certified
- Brazilian (INMETRO) certified
- Russian Fire certified
- PESO certified (Ex d only)
- SIL 2 certified (SM87PB only)
- IP66 and IP67
- DNV type approval (IEC 60945) (SM87PB only)
- Certified temperature: –55°C to +70°C*
- Stainless steel or marine grade alloy
- Robust yet lightweight
- Easy to maintain

*Model dependent

ATEX IECEx cULus LISTED ULC INMETRO CSA DNV·GL MARITIME CCC

Eaton
Unit B, Sutton Parkway
Oddicroft Lane
Sutton in Ashfield
United Kingdom
NG17 5FB

T: +44 (0) 1623 444 400
www.crouse-hinds.com/hac
MEDCSales@Eaton.com

© 2024 Eaton
All Rights Reserved
Printed in UK
Publication
No.DSMC0005/H
March 2024

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Powering Business Worldwide



All specifications, dimensions, weights and tolerances are nominal (typical) and Eaton reserve the right to vary all data without prior notice.
No liability is accepted for any consequence of use.

## Certifications

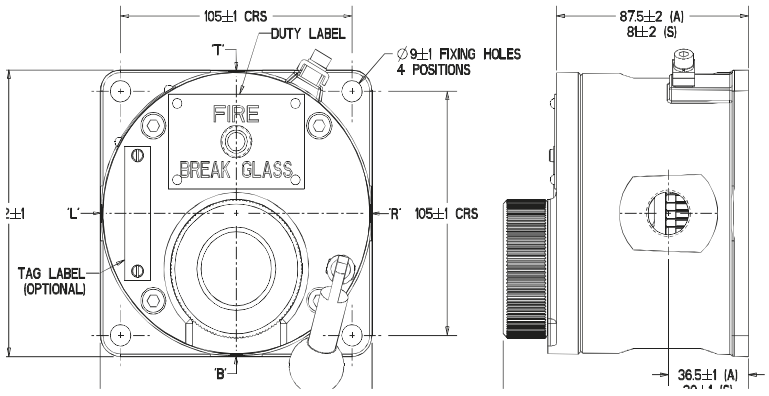
| | |
|---|---|
| **ATEX Ex d** | Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD<br>Certified to: EN60079-0, EN60079-1, EN60079-31<br>Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67 |
| **ATEX Ex ia** | Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD<br>Certified to: EN60079-0, EN60079-11<br>Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da |
| **IECEx Ex d** | Cert. no. IECEx BAS 09.0060<br>Certified to: EN60079-0, EN60079-1, EN60079-31<br>Ex d IIC T5/T6 Gb, Ex tb IIIC T85°/T100°C Db. IP66/IP67 |
| **IECEx Ex ia** | Cert. no. IECEx BAS 10.0033X<br>Certified to: IEC60079-0, IEC60079-11,<br>Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da |
| **UL** | Listing no. E186629<br>UL listed to Class 1, Div 1. Groups C & D. (SM87PBL) |
| **ULC** | Cert. no. 20091023-E320282<br>ULC certified for Class I, Zone 1 Groups C & D (SM87PBL) |
| **CSA Explosion proof** | Class 1, Div 1 & 2. Group D<br>Ex d IIC T5/T6 Gb |
| **CSA Intrinsically safe** | Class 1, Div 1 & 2. Groups A-D |
| **INMETRO Ex d** | Ex db IIC T5/T6 Gb |
| **Type Approvals** | DNV (IEC 60945) (Stainless Steel SM87PB only) |
| **SIL** | SM87PB only - SIL2 Certification to IEC61508. Cert no. 20151118-4786827453 |
| **CCC** | Ex d IIC T5/T6 Gb, Ex tD A21 IP66/IP67 T85°C/T100°C |

## Specifications

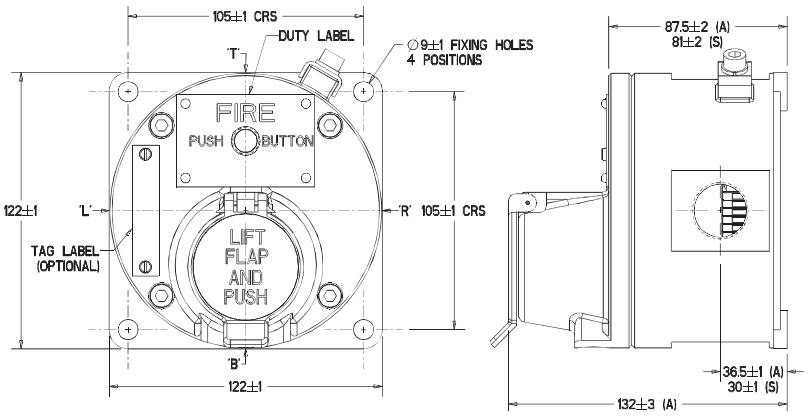
| | | |
|---|---|---|
| **Material** | Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy | |
| **Finish** | Paint finish as standard or to customer specification | |
| **Voltage** | Ex d 24V a.c./d.c. Ex ia 28V | |
| **Rating** | 2A | |
| **Switches** | 2 pole c/o, wired to terminals<br>Optional up to 4 pole (UL version 2 pole only) | |
| **Optional indicator** | A red high intensity LED can be fitted for alarm indication<br>As standard the LED is not provided with over current protection. The forward current (If) should be limited to 20mA | |
| **Certified temp** | Ex d*<br>Ex ia*<br><br>UL<br><br>CSA Explosion proof - Class 1, Div 1 & 2.<br>CSA - Ex d IIC<br>CSA Intrinsically safe - Class 1, Div 1 & 2<br>*Note: includes ATEX, IECEx & INMETRO versions | –55°C to +70°C.<br>–55°C to +60°C<br>–20°C to +55°C (LED version only)<br>–40°C to +70°C,<br>–20°C to +55°C (LED version only)<br>–50°C to +55°C<br>–55°C to +70°C<br>–50°C to +40°C |
| **Weight** | 3·8 kg. steel (approx.) or 2.5 kg. alloy (approx) | |
| **Ingress protection** | IP66 & IP67. SM87PB IP68 (35m for 40 hours) | |
| **Entries** | Up to 4 x M20 or M25 ISO Ex d/Ex ia<br>Up to 4 x ½" or ¾" NPT UL<br>Stainless steel version comes with two entries as standard.<br>Units ordered with a single entry ordering code are supplied with 2x entries inc. plug on the opposite side | |
| **Terminals** | Will accept up to 1·5mm² cable | |
| **Resistor values** | 470R minimum (d.c. & I.S. units only) | |

## General arrangement drawing (all dimensions in mm)

Break glass




Push button




Both the Ex ia units and the Ex d units have the same external appearance. Also the internal components are identical throughout the range. Each unit can be wired for either NO, NC or CO contacts to customer specification

# Ordering requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

| Unit | Model | Material | Certification | Entries | Duty label | Tag label | Options | Finish |
|---|---|---|---|---|---|---|---|---|
| SM87 | PBL | S | D | 1B1R | O | Y | HD | R |

**Material***

| | Code |
|---|---|
| Stainless steel | S |
| Alloy | A |

*UL version only available in alloy

**Model***

| | Code |
|---|---|
| Breakglass latching | BGL |
| Lift flap breakglass latching | LBGL |
| Push button latching key reset | PBL |
| Push button only momentary action | PBM |

*UL and ULC versions only available in PBL model

**Certification**

| | Code |
|---|---|
| Ex ia | I |
| Ex d | D |
| IECEx - Ex ia | IJ |
| IECEx - Ex d | DJ |
| UL | UL |
| ULC | UC |
| CSA - Intrinsically Safe | IC |
| CSA - Ex proof | DC |
| INMETRO - Ex d | DM |
| CCC | DQ |

**Entries**

| | Code |
|---|---|
| M20 | 1 |
| M25 | 2 |
| ½" NPT | 3 |
| ¾" NPT | 4 |
| Other | 5 |
| **Position** | |
| Top | *T |
| Bottom | *B |
| RHS | *R |
| LHS | *L |

*Prefix position with size code i.e. 1T1B = M20 Top and Bottom

**Duty label**

| | Code |
|---|---|
| Fire breakglass | 1 |
| Push button | 2 |
| Fire push button | 3 |
| ESDO abandon | 4 |
| Burning house logo | 5 |
| Fire/FEU | 6† |
| Other | O* |
| None | N |

*Please specify
†This option must be used when ordering a red callpoint for ULC Fire Alarm applications

**Tag label**

| | Code |
|---|---|
| Required | Y* |
| Not required | N |

*Please specify

**Options**

| | Code |
|---|---|
| Not required | N |
| LED | A |
| Resistor series | G* |
| Resistor EOL | H* |
| Diode | D* |
| 3 pole c/o switch | T |
| 4 pole c/o switch | F |

*Please specify

**Finish**

| | Code |
|---|---|
| Red | R |
| Blue | B |
| Yellow | Y |
| Yellow/black stripes | X |
| Special | S* |

*Please specify

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-MFA-05104 | : FZ-05 MFA Activation | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10001068 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX00 | | Miscellaneous |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to P&ID and hook-up drawing. | OK |
| 4 | Check tube fittings manufacturer is the one chosen for the plant. | NA |
| 5 | Check that piping connections provide the block & bleed facility (if required). | NA |
| 6 | Check that all stop plugs are properly installed | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | PL |
| 9 | Check the conformity of earthing as per specification (I.P.E. or I.E.) | OK |
| 10 | If required produce Red Line Mark Up for "AS BUILT" | |

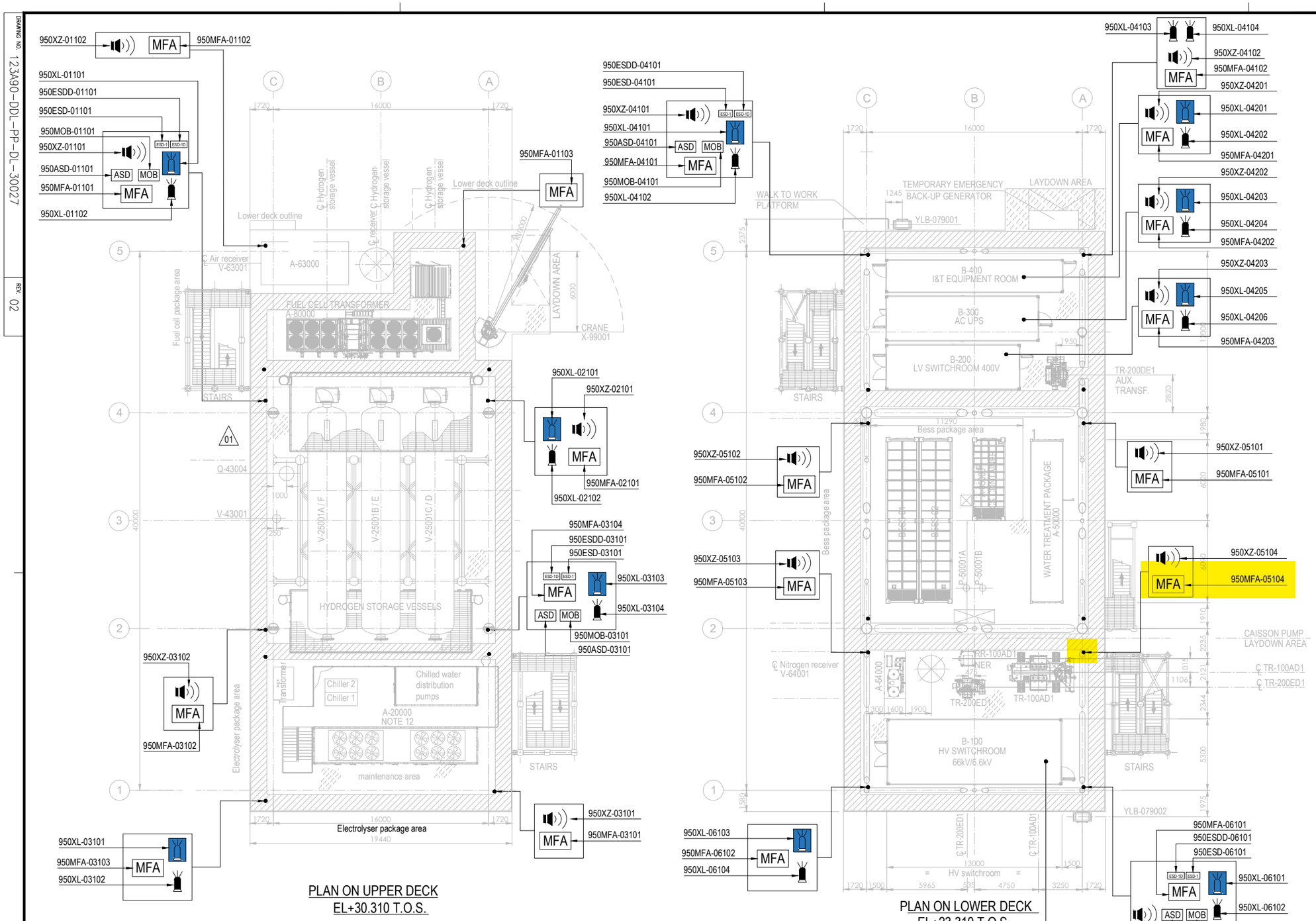
Comments:



| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Alessio Polo | |
| **Date** | 2024-12-04 | 2024-12-05 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-04T16:10:15.621Z | PROVERLIS Digitaly signed by Alessio Polo 2024-12-05T13:24:18.091Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



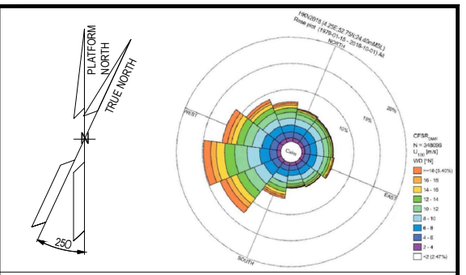

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION
1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05102 | No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |

<01>

950-MFA-05101 (1 / 8) WH BK — NOTE-2 — C-950-MFA-05101/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05102 (1 / 8) WH BK — NOTE-2 — C-950-MFA-05102/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05103 (1 / 8) WH BK — NOTE-2 — C-950-MFA-05103/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-05104 (1 / 8) WH BK — NOTE-2 — C-950-MFA-05104/950-JE-05102 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

| | | |
|---|---|---|
| WH BK | 1 | WH BK PR1 |
| | 2 | |
| | SH | |
| WH BK | 3 | WH BK PR2 |
| | 4 | |
| | SH | |
| WH BK | 5 | WH BK PR3 |
| | 6 | |
| | SH | |
| WH BK | 7 | WH BK PR4 |
| | 8 | |
| | SH | |
| SPARE | 9 | WH BK PR5 |
| | 10 | |
| | SH | |
| SPARE | 11 | WH BK PR6 |
| | 12 | |
| | SH | |
| | OS | |

950-JE-05102/B400-FGS-003
~~950-JE-05102/B400-FGS-002~~
6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05102

| | | |
|---|---|---|
| PR1 Shield Bar | WH BK 1 | 950-MFA-05101 |
| | 2 | |
| PR2 Shield Bar | WH BK 3 | 950-MFA-05102 |
| | 4 | |
| PR3 Shield Bar | WH BK 5 | 950-MFA-05103 |
| | 6 | |
| PR4 Shield Bar | WH BK 7 | 950-MFA-05104 |
| | 8 | |
| PR5 Shield Bar | WH BK 9 | SPARE |
| | 10 | |
| PR6 Shield Bar | WH BK 11 | SPARE |
| | 12 | |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_M | 02/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05102

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

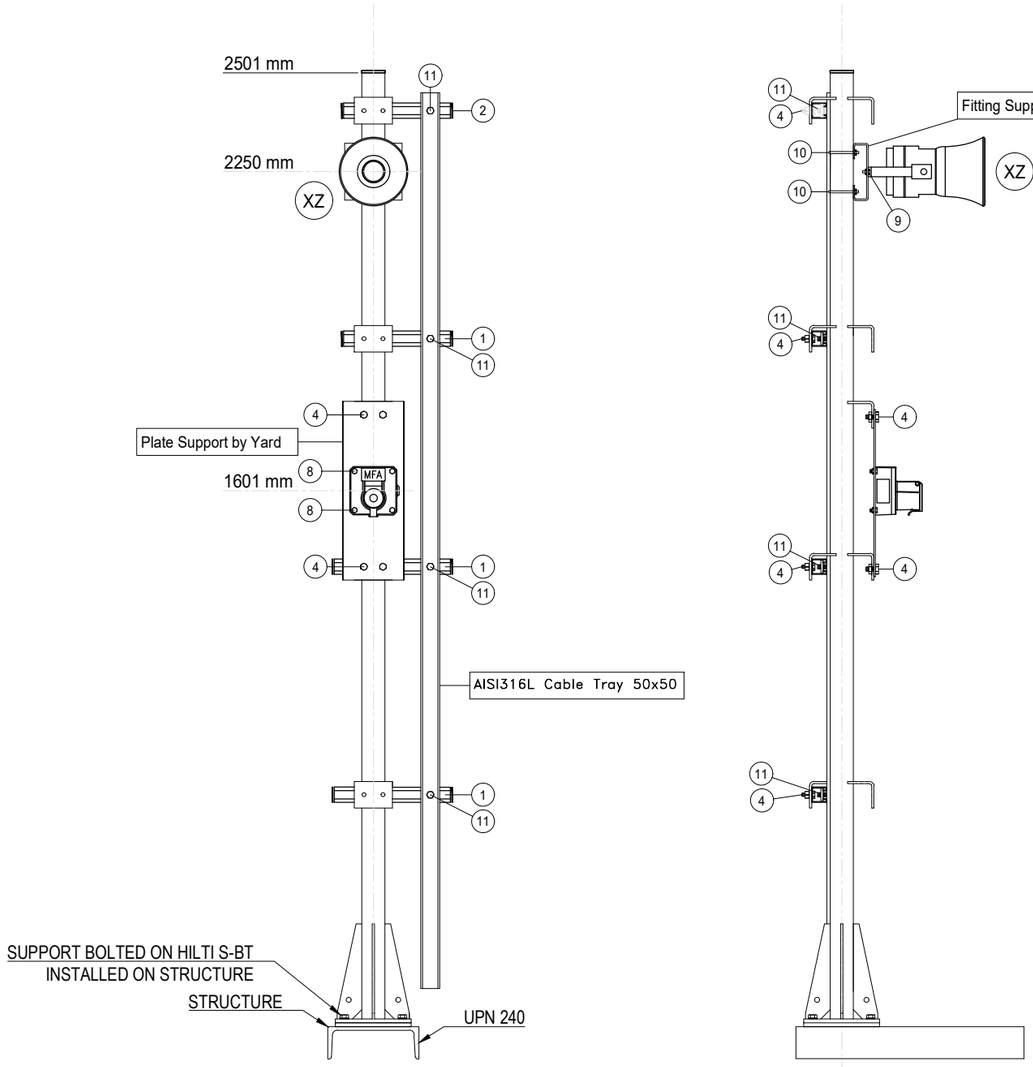
| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90–DDL–IN–DG–40016 | 046 | 01 |

File Name : 123A90-DDL-IN-DG-40016_Rev.01

# FGS-08

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00







| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 4m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 8 |
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 10 |
| 8 | AISI 316L BOLT M8x35 + NUT M8 + WASHER M8 | 4 |
| 9 | ~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~ | 2 |
| 10 | AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8 | 2 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |

| POLE | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | XZ | SOUNDER | 950-XZ-05101 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05101 |
| 2 | XZ | SOUNDER | 950-XZ-05102 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05102 |
| 3 | XZ | SOUNDER | 950-XZ-05103 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05103 |
| 4 | XZ | SOUNDER | 950-XZ-05104 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05104 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_G | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

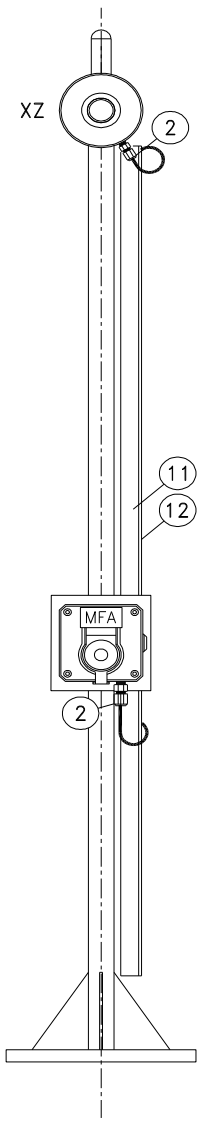
TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT INSTALLATION DETAILS
# FIRE & GAS DEVISES ON POLE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. 123A90-DDL-IN-DD-40017 | SHEET 027 | REV. 01 |
|---|---|---|---|

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES




| INSTRUMENT TAG | |
|---|---|
| 1 | 950-XZ-05101 |
| | 950-MFA-05101 |
| 2 | 950-XZ-05102 |
| | 950-MFA-05102 |
| 3 | 950-XZ-05103 |
| | 950-MFA-05103 |
| 4 | 950-XZ-05104 |
| | 950-MFA-05104 |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 12 | | Cover for cable tray, FRP, Grey Color | 50 W x 10 H x 5 THK | 3 mt |
| 11 | | Perforated cable tray, FRP, Grey Color | 50 W x 50 H x 5 THK | 3 mt |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 2 |



This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

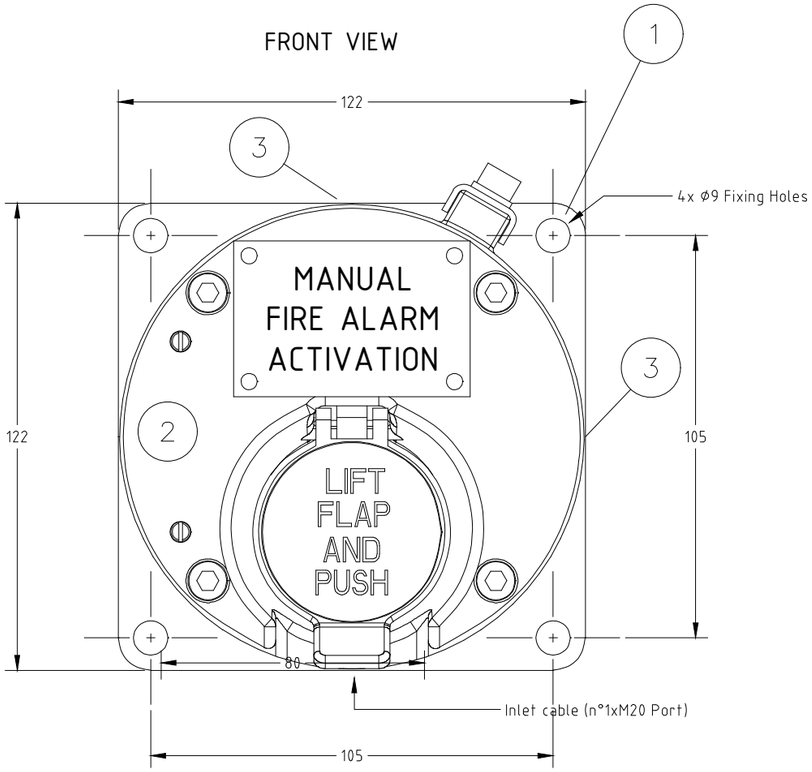
# MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Manual Call Point (Manual Fire Alarm) (Red), MEDC SM87PBLSD1B1ROYHDRZ | 1 |
| 2 | Stainless Steel Name Plate | 1 |
| 3 | Stop Plug M20 Ex d AISI 316 | 2 |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

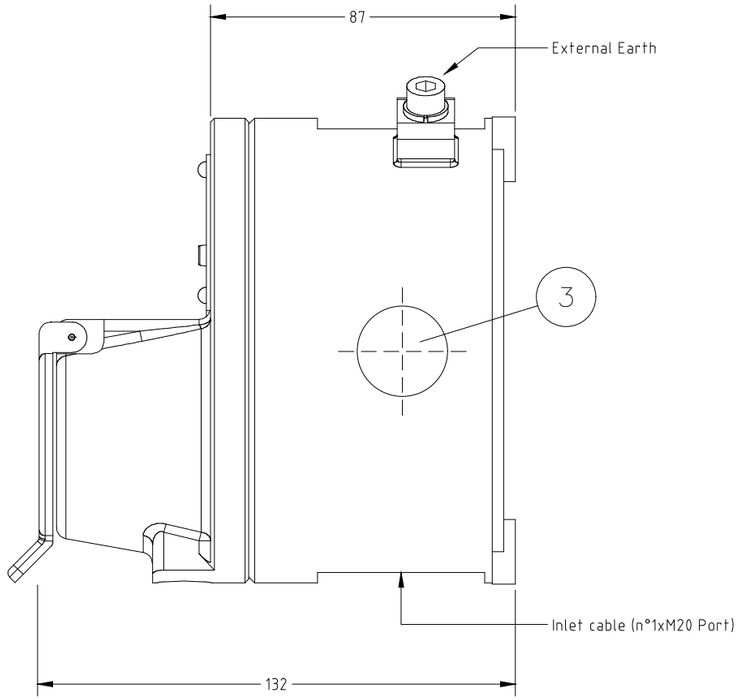
INSTALLATION QUANTITY

21

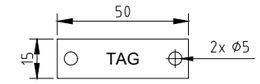
FRONT VIEW




SIDE VIEW




2 STAINLESS STEEL NAME PLATE DETAILS

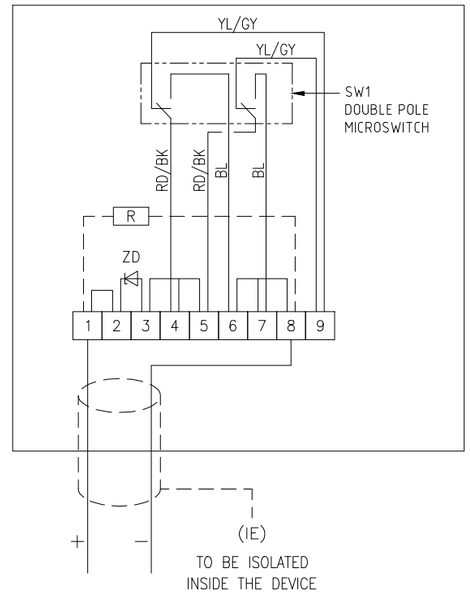



NOTE 5

WIRING

TERMINAL STRIP

ZD= ZENER 1N5339B 5.6V
R= 36 KOhm




| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 015 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-MFA-01101 |
| 2 | 950-MFA-01102 |
| 3 | 950-MFA-01103 |
| 4 | 950-MFA-02101 |
| 5 | 950-MFA-03101 |
| 6 | 950-MFA-03102 |
| 7 | 950-MFA-03103 |
| 8 | 950-MFA-03104 |
| 9 | 950-MFA-04101 |
| 10 | 950-MFA-04102 |
| 11 | 950-MFA-04201 |
| 12 | 950-MFA-04202 |
| 13 | 950-MFA-04203 |
| 14 | 950-MFA-05101 |
| 15 | 950-MFA-05102 |
| 16 | 950-MFA-05103 |
| 17 | 950-MFA-05104 |
| 18 | 950-MFA-06101 |
| 19 | 950-MFA-06102 |
| 20 | 950-MFA-06201 |
| 21 | 950-MFA-07101 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 016 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## MANUAL FIRE ALARM

| POS. | TAG NUMBER | SERVICE | DUTY LABEL |
|---|---|---|---|
| 1 | 950-MFA-01101 | FZ-01 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 2 | 950-MFA-01102 | FZ-01 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 3 | 950-MFA-01103 | FZ-01 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 4 | 950-MFA-02101 | FZ-02 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 5 | 950-MFA-03101 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 6 | 950-MFA-03102 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 7 | 950-MFA-03103 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 8 | 950-MFA-03104 | FZ-03 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 9 | 950-MFA-04101 | FZ-04 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 10 | 950-MFA-04102 | FZ-04 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 11 | 950-MFA-04201 | FZ-04 MFA ACTIVATION - B-400 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 12 | 950-MFA-04202 | FZ-04 MFA ACTIVATION - B-300 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 13 | 950-MFA-04203 | FZ-04 MFA ACTIVATION - B-200 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 14 | 950-MFA-05101 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 15 | 950-MFA-05102 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 16 | 950-MFA-05103 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 17 | 950-MFA-05104 | FZ-05 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 18 | 950-MFA-06101 | FZ-06 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 19 | 950-MFA-06102 | FZ-06 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |
| 20 | 950-MFA-06201 | FZ-06 MFA ACTIVATION - B-100 INDOOR | MANUAL FIRE ALARM ACTIVATION |
| 21 | 950-MFA-07101 | FZ-07 MFA ACTIVATION | MANUAL FIRE ALARM ACTIVATION |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# SM87BG & SM87PB manual call point range

## Ex d, Ex ia, weatherproof




## Overview

These manual fire alarm, emergency shutdown break-glass and pushbutton units have been designed for the most arduous environmental conditions.

The units are both easy to install and maintain. Intrinsically safe Ex ia and flameproof Ex d versions of each model are available.

A choice of either stainless steel or alloy makes the range suitable for either the offshore or onshore industries. Stainless steel, one of the most durable materials available on the market, is both hard wearing and corrosion resistant, increasing the life of products in harsh environments and therefore reducing maintenance costs.

## Features

- Zone 0, Zone 1 and Zone 2 use*
- ATEX certified
- UL listed for USA and Canada (SM87PBL only). Class I, Div 1, Groups C & D
- ULC certified (SM87PBL only) for Class I, Zone 1 Groups C & D
- CSA certified
- IECEx certified
- Brazilian (INMETRO) certified
- Russian Fire certified
- PESO certified (Ex d only)
- SIL 2 certified (SM87PB only)
- IP66 and IP67
- DNV type approval (IEC 60945) (SM87PB only)
- Certified temperature: –55°C to +70°C*
- Stainless steel or marine grade alloy
- Robust yet lightweight
- Easy to maintain

*Model dependent

ATEX IECEx cULus LISTED ULC INMETRO CSA DNV·GL MARITIME CCC

Eaton
Unit B, Sutton Parkway
Oddicroft Lane
Sutton in Ashfield
United Kingdom
NG17 5FB

T: +44 (0) 1623 444 400
www.crouse-hinds.com/hac
MEDCSales@Eaton.com

© 2024 Eaton
All Rights Reserved
Printed in UK
Publication
No.DSMC0005/H
March 2024

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Powering Business Worldwide



All specifications, dimensions, weights and tolerances are nominal (typical) and Eaton reserve the right to vary all data without prior notice.
No liability is accepted for any consequence of use.

## Certifications

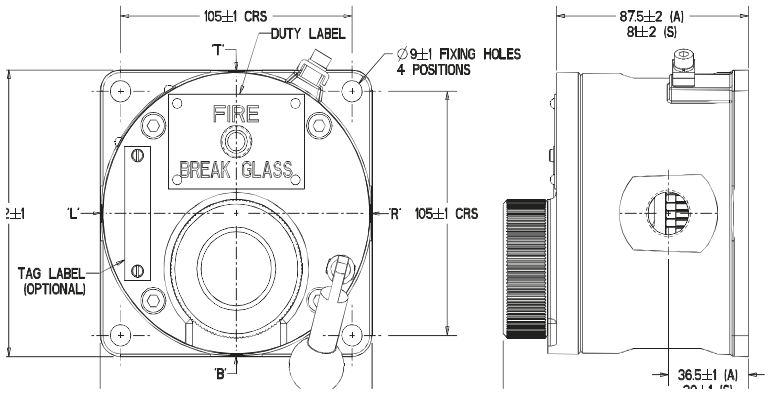
| | |
|---|---|
| **ATEX Ex d** | Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD<br>Certified to: EN60079-0, EN60079-1, EN60079-31<br>Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67 |
| **ATEX Ex ia** | Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD<br>Certified to: EN60079-0, EN60079-11<br>Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da |
| **IECEx Ex d** | Cert. no. IECEx BAS 09.0060<br>Certified to: EN60079-0, EN60079-1, EN60079-31<br>Ex d IIC T5/T6 Gb, Ex tb IIIC T85°/T100°C Db. IP66/IP67 |
| **IECEx Ex ia** | Cert. no. IECEx BAS 10.0033X<br>Certified to: IEC60079-0, IEC60079-11,<br>Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da |
| **UL** | Listing no. E186629<br>UL listed to Class 1, Div 1. Groups C & D. (SM87PBL) |
| **ULC** | Cert. no. 20091023-E320282<br>ULC certified for Class I, Zone 1 Groups C & D (SM87PBL) |
| **CSA Explosion proof** | Class 1, Div 1 & 2. Group D<br>Ex d IIC T5/T6 Gb |
| **CSA Intrinsically safe** | Class 1, Div 1 & 2. Groups A-D |
| **INMETRO Ex d** | Ex db IIC T5/T6 Gb |
| **Type Approvals** | DNV (IEC 60945) (Stainless Steel SM87PB only) |
| **SIL** | SM87PB only - SIL2 Certification to IEC61508. Cert no. 20151118-4786827453 |
| **CCC** | Ex d IIC T5/T6 Gb, Ex tD A21 IP66/IP67 T85°C/T100°C |

## Specifications

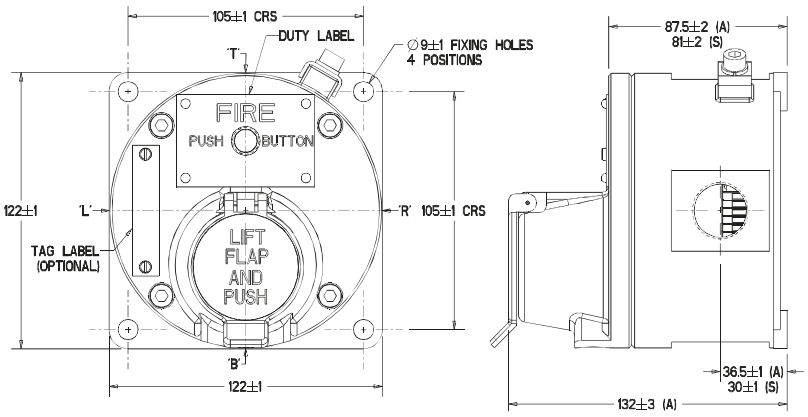
| | | |
|---|---|---|
| **Material** | Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy | |
| **Finish** | Paint finish as standard or to customer specification | |
| **Voltage** | Ex d 24V a.c./d.c. Ex ia 28V | |
| **Rating** | 2A | |
| **Switches** | 2 pole c/o, wired to terminals<br>Optional up to 4 pole (UL version 2 pole only) | |
| **Optional indicator** | A red high intensity LED can be fitted for alarm indication<br>As standard the LED is not provided with over current protection. The forward current (If) should be limited to 20mA | |
| **Certified temp** | Ex d*<br>Ex ia*<br><br>UL<br><br>CSA Explosion proof - Class 1, Div 1 & 2.<br>CSA - Ex d IIC<br>CSA Intrinsically safe - Class 1, Div 1 & 2<br>*Note: includes ATEX, IECEx & INMETRO versions | –55°C to +70°C.<br>–55°C to +60°C<br>–20°C to +55°C (LED version only)<br>–40°C to +70°C,<br>–20°C to +55°C (LED version only)<br>–50°C to +55°C<br>–55°C to +70°C<br>–50°C to +40°C |
| **Weight** | 3·8 kg. steel (approx.) or 2.5 kg. alloy (approx) | |
| **Ingress protection** | IP66 & IP67. SM87PB IP68 (35m for 40 hours) | |
| **Entries** | Up to 4 x M20 or M25 ISO Ex d/Ex ia<br>Up to 4 x ½" or ¾" NPT UL<br>Stainless steel version comes with two entries as standard.<br>Units ordered with a single entry ordering code are supplied with 2x entries inc. plug on the opposite side | |
| **Terminals** | Will accept up to 1·5mm² cable | |
| **Resistor values** | 470R minimum (d.c. & I.S. units only) | |

## General arrangement drawing (all dimensions in mm)

Break glass




Push button




Both the Ex ia units and the Ex d units have the same external appearance. Also the internal components are identical throughout the range. Each unit can be wired for either NO, NC or CO contacts to customer specification

# Ordering requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

| Unit | Model | Material | Certification | Entries | Duty label | Tag label | Options | Finish |
|---|---|---|---|---|---|---|---|---|
| SM87 | PBL | S | D | 1B1R | O | Y | HD | R |

**Material***

| | Code |
|---|---|
| Stainless steel | S |
| Alloy | A |

*UL version only available in alloy

**Model***

| | Code |
|---|---|
| Breakglass latching | BGL |
| Lift flap breakglass latching | LBGL |
| Push button latching key reset | PBL |
| Push button only momentary action | PBM |

*UL and ULC versions only available in PBL model

**Certification**

| | Code |
|---|---|
| Ex ia | I |
| Ex d | D |
| IECEx - Ex ia | IJ |
| IECEx - Ex d | DJ |
| UL | UL |
| ULC | UC |
| CSA - Intrinsically Safe | IC |
| CSA - Ex proof | DC |
| INMETRO - Ex d | DM |
| CCC | DQ |

**Entries**

| | Code |
|---|---|
| M20 | 1 |
| M25 | 2 |
| ½" NPT | 3 |
| ¾" NPT | 4 |
| Other | 5 |
| **Position** | |
| Top | *T |
| Bottom | *B |
| RHS | *R |
| LHS | *L |

*Prefix position with size code i.e. 1T1B = M20 Top and Bottom

**Duty label**

| | Code |
|---|---|
| Fire breakglass | 1 |
| Push button | 2 |
| Fire push button | 3 |
| ESDO abandon | 4 |
| Burning house logo | 5 |
| Fire/FEU | 6† |
| Other | O* |
| None | N |

*Please specify
†This option must be used when ordering a red callpoint for ULC Fire Alarm applications

**Tag label**

| | Code |
|---|---|
| Required | Y* |
| Not required | N |

*Please specify

**Options**

| | Code |
|---|---|
| Not required | N |
| LED | A |
| Resistor series | G* |
| Resistor EOL | H* |
| Diode | D* |
| 3 pole c/o switch | T |
| 4 pole c/o switch | F |

*Please specify

**Finish**

| | Code |
|---|---|
| Red | R |
| Blue | B |
| Yellow | Y |
| Yellow/black stripes | X |
| Special | S* |

*Please specify

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-XZ-05101 | : FZ-05 Sounder Activation | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10001138 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX00 | | Miscellaneous |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to P&ID and hook-up drawing. | OK |
| 4 | Check tube fittings manufacturer is the one chosen for the plant. | OK |
| 5 | Check that piping connections provide the block & bleed facility (if required). | OK |
| 6 | Check that all stop plugs are properly installed | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | PL |
| 9 | Check the conformity of earthing as per specification (I.P.E. or I.E.) | OK |
| 10 | If required produce Red Line Mark Up for "AS BUILT" | |

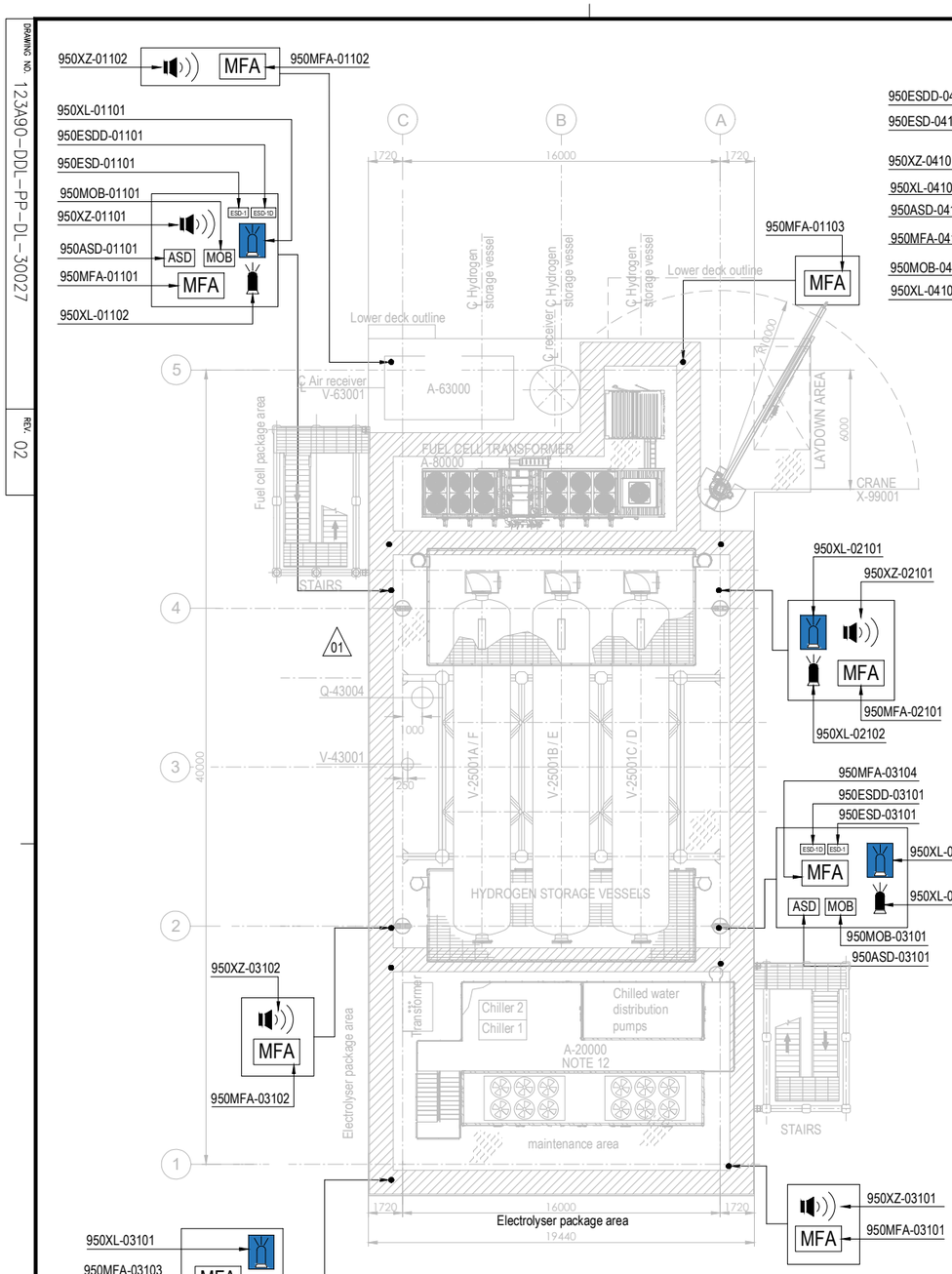
Comments:



| | Performed by | ☉ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-04 | 2024-12-06 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-04T16:15:43.369Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-06T08:01:57.653Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



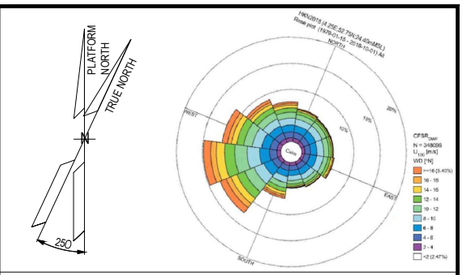

## PLAN ON UPPER DECK
## EL+30.310 T.O.S.

## PLAN ON LOWER DECK
## EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05103 | No. | MARSHALLING CABINET B400-FGS-002 |

<01>

950-XZ-05101 (1 1BK, 2 2BK) — NOTE-2 — C-950-XZ-05101/950-JE-051003 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-05102 (1 1BK, 2 2BK) — NOTE-2 — C-950-XZ-05102/950-JE-051003 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-05103 (1 1BK, 2 2BK) — NOTE-2 — C-950-XZ-05103/950-JE-051003 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-05104 (1 1BK, 2 2BK) — NOTE-2 — C-950-XZ-05104/950-JE-051003 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

| | | |
|---|---|---|
| 1BK | 1 | 1BK |
| 2BK | 2 | 2BK |
| | SH | |
| 3BK | 3 | 3BK |
| 4BK | 4 | 4BK |
| | SH | |
| 5BK | 5 | 5BK |
| 6BK | 6 | 6BK |
| | SH | |
| 7BK | 7 | 7BK |
| 8BK | 8 | 8BK |
| | SH | |
| | 9 | 9BK |
| | 10 | 10BK |
| | SH | |
| | 11 | 11BK |
| | 12 | 12BK |
| | SH | |
| | OS | |

950-JE-05103/B400-FGS-002
12x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05103

| | | |
|---|---|---|
| 1BK | 1 | 950-XZ-05101 |
| 2BK | 2 | |
| 3BK | 3 | 950-XZ-05102 |
| 4BK | 4 | |
| 5BK | 5 | 950-XZ-05103 |
| 6BK | 6 | |
| 7BK | 7 | 950-XZ-05104 |
| 8BK | 8 | |
| 9BK | 9 | SPARE |
| 10BK | 10 | |
| 11BK | 11 | SPARE |
| 12BK | 12 | |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_M | 02/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–05103

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

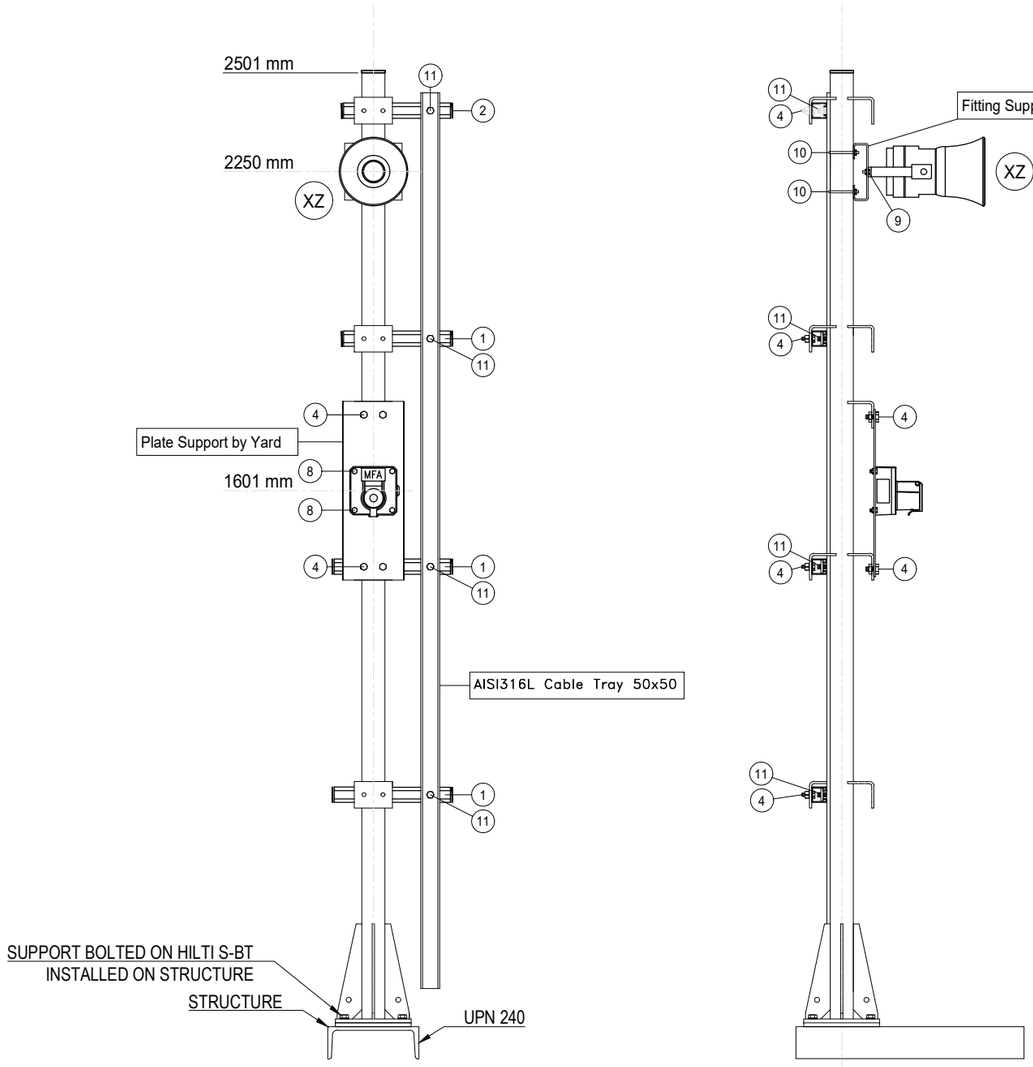
| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 070 | REV. 01 |
|---|---|---|---|

File Name : 123A90-DDL-IN-DG-40016_Rev.01

# FGS-08

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00







| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 4m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 8 |
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 10 |
| 8 | AISI 316L BOLT M8x35 + NUT M8 + WASHER M8 | 4 |
| 9 | ~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~ | 2 |
| 10 | AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8 | 2 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |

| POLE | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | XZ | SOUNDER | 950-XZ-05101 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05101 |
| 2 | XZ | SOUNDER | 950-XZ-05102 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05102 |
| 3 | XZ | SOUNDER | 950-XZ-05103 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05103 |
| 4 | XZ | SOUNDER | 950-XZ-05104 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05104 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_G | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

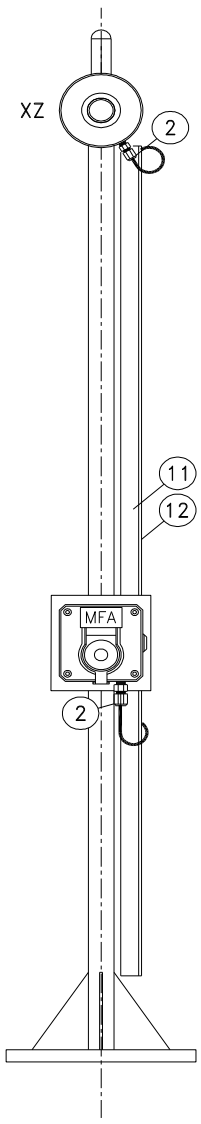
TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT INSTALLATION DETAILS
# FIRE & GAS DEVISES ON POLE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. 123A90-DDL-IN-DD-40017 | SHEET 027 | REV. 01 |
|---|---|---|---|

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES




| INSTRUMENT TAG | |
|---|---|
| 1 | 950-XZ-05101 |
| | 950-MFA-05101 |
| 2 | 950-XZ-05102 |
| | 950-MFA-05102 |
| 3 | 950-XZ-05103 |
| | 950-MFA-05103 |
| 4 | 950-XZ-05104 |
| | 950-MFA-05104 |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

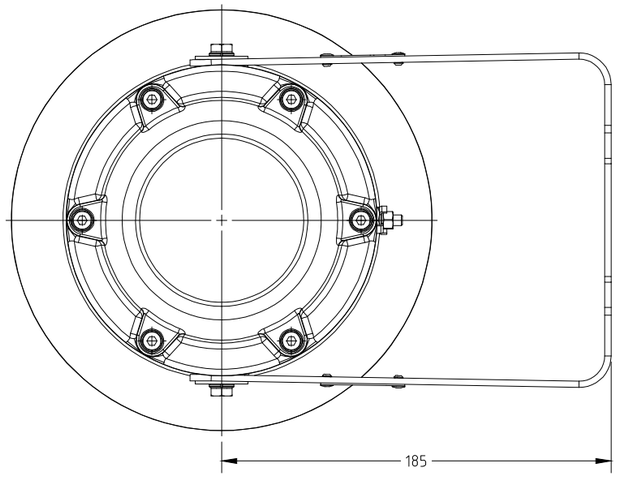
NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

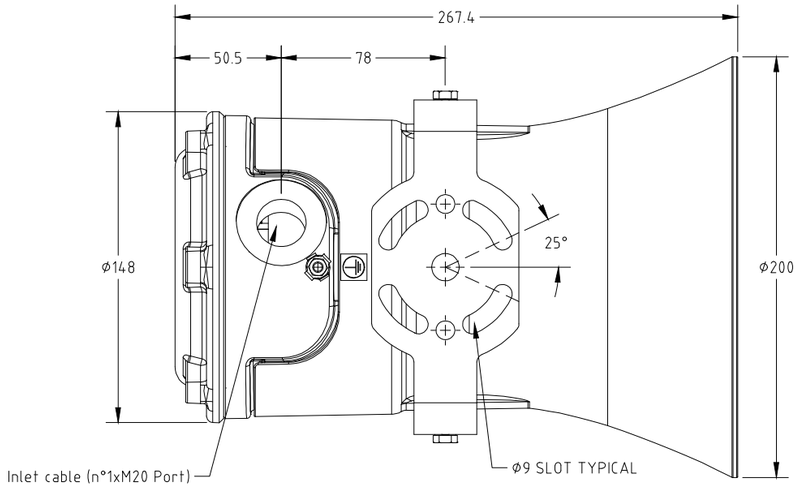
| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 12 | | Cover for cable tray, FRP, Grey Color | 50 W x 10 H x 5 THK | 3 mt |
| 11 | | Perforated cable tray, FRP, Grey Color | 50 W x 50 H x 5 THK | 3 mt |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 2 |



This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# SOUNDER



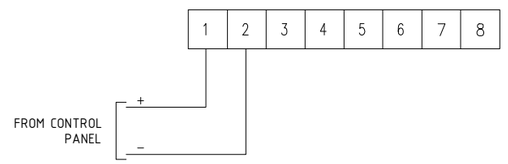

| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Sounder, MEDC DM3BMSD048DT1BNR | 1 |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

INSTALLATION QUANTITY

17

NOTE:
DUTY LABEL: EMERGENCY SHUTDOWN ALARM

## WIRING




FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
SOUNDER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 023

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# SOUNDER – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-XZ-01101 |
| 2 | 950-XZ-01102 |
| 3 | 950-XZ-02101 |
| 4 | 950-XZ-03101 |
| 5 | 950-XZ-03102 |
| 6 | 950-XZ-04101 |
| 7 | 950-XZ-04102 |
| 8 | 950-XZ-04201 |
| 9 | 950-XZ-04202 |
| 10 | 950-XZ-04203 |
| 11 | 950-XZ-05101 |
| 12 | 950-XZ-05102 |
| 13 | 950-XZ-05103 |
| 14 | 950-XZ-05104 |
| 15 | 950-XZ-06101 |
| 16 | 950-XZ-06201 |
| 17 | 950-XZ-07101 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
SOUNDER – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 024

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## SOUNDER

| POS. | TAG NUMBER | SERVICE | DUTY LABEL |
|---|---|---|---|
| 1 | 950-XZ-01101 | FZ-01 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 2 | 950-XZ-01102 | FZ-01 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 3 | 950-XZ-02101 | FZ-02 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 4 | 950-XZ-03101 | FZ-03 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 5 | 950-XZ-03102 | FZ-03 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 6 | 950-XZ-04101 | FZ-04 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 7 | 950-XZ-04102 | FZ-04 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 8 | 950-XZ-04201 | FZ-04 SOUNDER ACT. - B-400 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 9 | 950-XZ-04202 | FZ-04 SOUNDER ACT. - B-300 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 10 | 950-XZ-04203 | FZ-04 SOUNDER ACT. - B-200 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 11 | 950-XZ-05101 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 12 | 950-XZ-05102 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 13 | 950-XZ-05103 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 14 | 950-XZ-05104 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 15 | 950-XZ-06101 | FZ-06 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 16 | 950-XZ-06201 | FZ-06 SOUNDER ACT. - B-100 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 17 | 950-XZ-07101 | FZ-07 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# DB3BM sounders range up to 116dB

## Ex d, weatherproof



## Overview

The DB3BM is a high power explosion proof sounder, introduced as a replacement for the current DB1 / DB1H with improved functionality and performance. Certified for use in a wide range of temperatures from -60°C to +85°C the Ex enclosure is manufactured in either marine grade alloy or stainless steel with a rugged thermoplastic flare providing a corrosion free and aesthetically pleasing product.

Capable of producing 116 dB @ 1m and with a range of pre-recorded tones, the DB3BM includes an integral volume control which is ideal when a lower output is required.

The unit is provided with versatile control options allowing compatibility with a wide range of control methods and PLCs.

The standard DC unit provides 3 tone stages, each stage has 28 tones available which can be independently selected. The unit can be controlled by reversing the polarity of the power supply (2 stage) or providing a common negative and switching between multiple positive supplies.

The DB3BM proves its versatility by additionally being able to work with a common positive supply and switching the negatives. The tone stages of the DB3BM can also be controlled via voltage free contacts provided by a control panel.

The flexibility of the range continues with a wide range of supply voltages. The short flare option is a worthy addition to the range offering a high SPL in a compact unit.

## Features

- UKEX / ATEX / IECEx
  Ex db IIC T4/T5/T6 Gb
  Ex tb IIIC T4/T5/T6 Db
- Certified temperature: –60°C to +85°C
- IP66 & IP67 (terminal only)
- Up to 116 dB output @ 1 m
- Integral volume control
- 28 tones, user selectable
- 3 stage unit remotely switchable
- Tones can be programmed to customer's specification
- DC supply voltage between 12 V and 48 V
- End of line resistor option
- Sounder & beacon combination units available, for further details contact MEDC
- Ex enclosure – marine grade alloy or stainless steel
- Flare - high impact thermoplastic polyester
- Stainless steel mounting bracket and cover screws
- Mounting bracket has ratchet facility as standard
- Swivel bracket standard on Stainless steel unit, optional on Alloy units



Stainless steel body, short flare version

ATEX IECEx UKCA

Eaton
Unit B, Sutton Parkway
Oddicroft Lane
Sutton in Ashfield
United Kingdom
NG17 5FB

T: +44 (0) 1623 444 400
www.crouse-hinds.com/hac
MEDCSales@Eaton.com

© 2022 Eaton
All Rights Reserved
Printed in UK
Publication
No.DSMC0032/B
March 2022

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Powering Business Worldwide

All specifications, dimensions, weights and tolerances are nominal (typical) and Eaton reserve the right to vary all data without prior notice.
No liability is accepted for any consequence of use.

## Certifications

| | |
|---|---|
| **ATEX Ex db** | Cert. no. UL 21 ATEX02559X. Certified to: EN IEC 60079-0, EN 60079-1, 31<br>Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db,<br>IP66 (IP65 short flare) |
| **IECEx Ex db** | Cert. no. IECEx ULD 21.0017X. Certified to: IEC60079-0,1,31<br>Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db,<br>IP66 (IP65 short flare) |
| **UKEX Ex db** | Cert. no. UL21UKEX2209X. Certified to: EN IEC 60079-0, EN 60079-1, 31<br>Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db<br>IP66 (IP65 short flare) |
| **Safe Area** | EN 61010-1, EN 60529, EN61000-6 |

## Specifications

| | |
|---|---|
| **Material** | Ex enclosure – marine grade alloy or stainless steel<br>Flare - flame retardant, high impact, UV stable, thermoplastic polyester<br>(UV stability tested to ISO 4892 part 3)<br>Hardware - bracket, fixings and captive cover screws in 316 stainless steel |
| **Fire retardancy** | Outer flare - thermoplastic polyester. V0 flammability rating |
| **Finish** | Body – alloy: painted black. Stainless steel: painted black. Flare - natural black, natural red or painted as specified |
| **Voltage** | DC: 12 - 48 V. AC: Up to 254 V. if using EOL resistor/s the maximum power dissipation must be limited to 3 W. |
| **Weight** | Alloy - 4.4 kg, stainless steel 8.35 kg based on long flare DC unit |
| **Ingress protection** | IP66 & IP67 (terminal only). IP65 short flare |
| **Entries** | Up to 2 x M20 or M25 or ½"or ¾" NPT. Blanking plug available |
| **Terminals** | AC: 4 x 1.5mm² (loop in / out power), 3 x 2.5mm² (tone selection) (standard unit only)<br>DC: 8 x 2.5mm² (8 for loop in / out power and tone selection) (standard unit only) |
| **Mounting arrangement** | Stainless steel bracket with ratchet facility, optional swivel bracket available.<br>Swivel standard on stainless steel unit |
| **Labels** | Optional duty and tag labels available |
| **Tone information** | 28 tones per stage. Additional custom tones available (contact MEDC)<br>Suitable for use with 200 Hz tones |
| **Relative Humidity** | 99% Non-condensing |

## Tone activation and selection

| Voltage | Unit | No.of stages | Tone activation | Tone selection |
|---|---|---|---|---|
| DC | Standard | 1 | Apply power | 1 x DIP switch |
| | | 2 | Reverse polarity | 2 x DIP switches |
| | | | Common -ve with 2 +ve supplies | 2 x DIP switches |
| | | | *Common +ve with 2 -ve supplies | 2 x DIP switches |
| | | 3 | Common -ve with 3 +ve supplies | 3 x DIP switches |
| | Alternative tone activation (Option M) | 2 | *Common -ve with 2 +ve supplies | 2 x DIP switches |
| | | 3 | Common +ve with 3 -ve supplies | 3 x DIP switches |
| | Alternative tone activation (remote) (Option R) | 1-5 | Volt free activation (remote switching) | 1 x DIP switch for stage 1. Tone pre-selected for subsequent stages |
| AC | Standard | 1 | Apply power | 1 x DIP switch |
| | Alternative tone activation (remote) (Option R) | 1-2 | Volt free activation (remote switching) | 1 x DIP switch for stage 1. Tone preselected for the 2nd stage |

*Reverse polarity line monitoring can be used with common positive or negative switching to give up to 2 operational stages and a 3rd monitoring connection. An EOL resistor can be fitted as shown in the technical manual. All connection details are shown in the technical manual.

**Current consumption:** Based on a continuous 970Hz tone

| Voltage | Current for IIC unit | Current for IIIC unit |
|---|---|---|
| 12 Vdc | 700 mA | 716 mA |
| 24 Vdc | 329 mA | 339 mA |
| 48 Vdc | 171 mA | 173 mA |
| 110 Vac | 115 mA | 122 mA |
| 120 Vac | 106 mA | 113 mA |
| 220 Vac | 59 mA | 63 mA |
| 230 Vac | 52 mA | 55 mA |
| 240 Vac | 55 mA | 58 mA |
| 254 Vac | 59 mA | 63 mA |

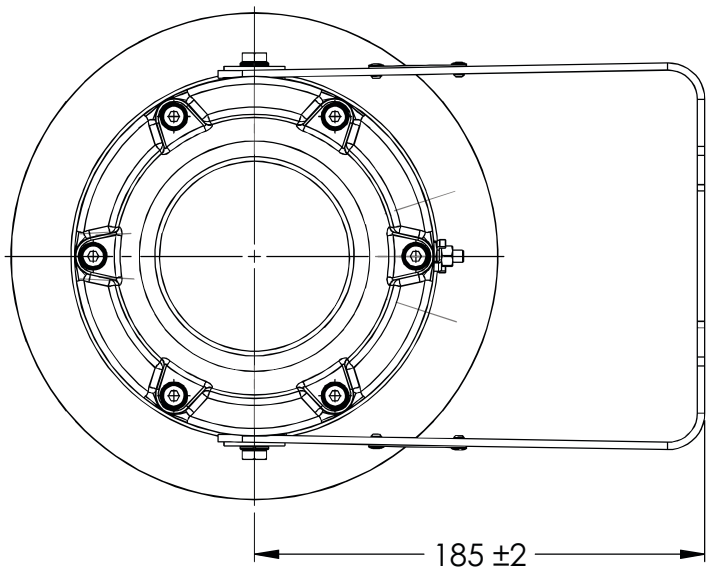
| Certified temperature | Ex d/UL min | Max |
|---|---|---|
| | -60°C | +85°C |

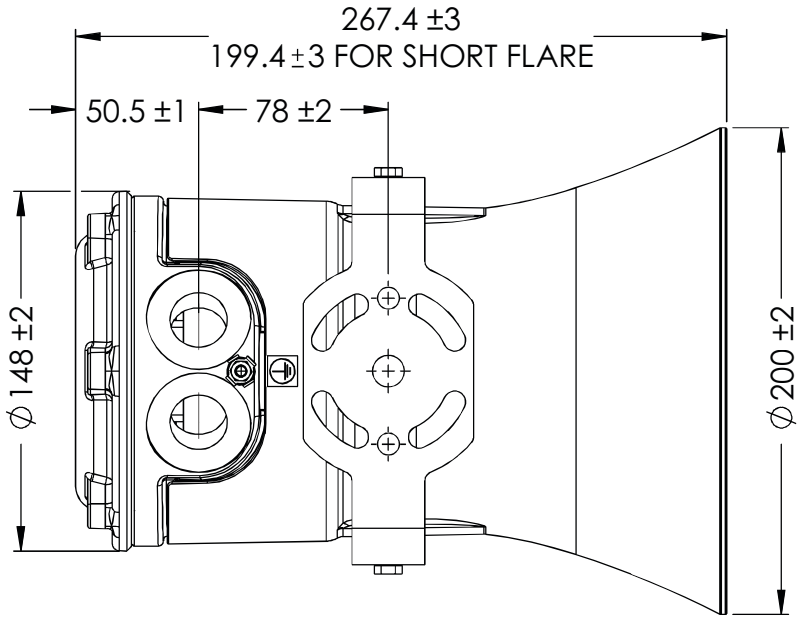
Operating temperature at launch (DC Only): -40 °C min +85 °C max
**-55 °C as standard to follow. Please contact MEDC for low temperature options**

| Max output (dB) 1400Hz @ 1m | Short Flare | Long Flare |
|---|---|---|
| | 113 dB | 116 dB |

For Labels and Entries select any option as required. For Options select either (N) None or (E) EOL as required
Tolerance +/-3dB. Please see the technical manual for tone specific SPL values

## General arrangement drawing (all dimensions in mm)




# Ordering requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

**Model:** DB3BM

**Material:** S

| Finish | Code |
|---|---|
| Alloy | A |
| Stainless Steel | S |

**Ex Certification:** D

| Ex Certification | Code |
|---|---|
| UKEX/ATEX Ex d | D |
| IECEx Ex d | J |
| Weatherproof | W |

**Voltage:** 048

| Voltage | Code |
|---|---|
| 12-48 Vdc | 048‡ |
| 110 Vac | 110 |
| 120 Vac | 120* |
| 220 Vac | 220 |
| 230 Vac | 230 |
| 240 Vac | 240* |
| 254 Vac | 254 |

*Complies with UL regulated power supply requirements

**Labels:** DT

| Labels | Code |
|---|---|
| None | N |
| Duty | D* |
| Tag | T* |

*Please specify

**Entries:** 1B

| Entries | Code |
|---|---|
| 1 x M20 | 1B |
| 2 x M20 | 2B |
| 2 x M20 inc 1 x plug | 2BP |
| 1 x ½"NPT | 1C |
| 2 x ½" NPT | 2C |
| 2 x ½" NPT inc 1 x plug | 2CP |
| 1 x M25 | 1D |
| 2 x M25 | 2D |
| 2 x M25 inc 1x plug | 2DP |
| 1 x ¾" NPT | 1E |
| 2 x ¾" NPT | 2E |
| 2 x ¾" NPT inc 1x plug | 2EP |

**Options:** N

| Options | Code |
|---|---|
| None | N |
| Swivel bracket | B‡ |
| EOL | E* |
| Alternative tone activation | M** |
| Volt free activation (remote) | R** |
| Short flare | S |
| Custom tones (not std 27) | TΔ |

‡ Alloy only - stainless steel has swivel as standard
*Specify value max power dissipation is 3W
**These options cannot be selected together
ΔSpecify details

**Finish:** R (RAL 3020)

| Finish | Code |
|---|---|
| Natural black | N |
| Natural red | R |
| Yellow | Y |
| Grey | G |
| Blue | B |
| Special | S* |

*Please specify

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-XZ-05102 | : FZ-05 Sounder Activation | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10001139 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX00 | | Miscellaneous |

| | | |
|---|---|---|
| **1** | Check for mechanical damage. | OK |
| **2** | Check installed equipment is suitable and conforms to specification. | OK |
| **3** | Check installation conforms to P&ID and hook-up drawing. | OK |
| **4** | Check tube fittings manufacturer is the one chosen for the plant. | OK |
| **5** | Check that piping connections provide the block & bleed facility (if required). | OK |
| **6** | Check that all stop plugs are properly installed | OK |
| **7** | Check identification (tag number, tag plates). | OK |
| **8** | Check supporting and protection against vibrations. | OK |
| **9** | Check the conformity of earthing as per specification (I.P.E. or I.E.) | OK |
| **10** | If required produce Red Line Mark Up for "AS BUILT" | |

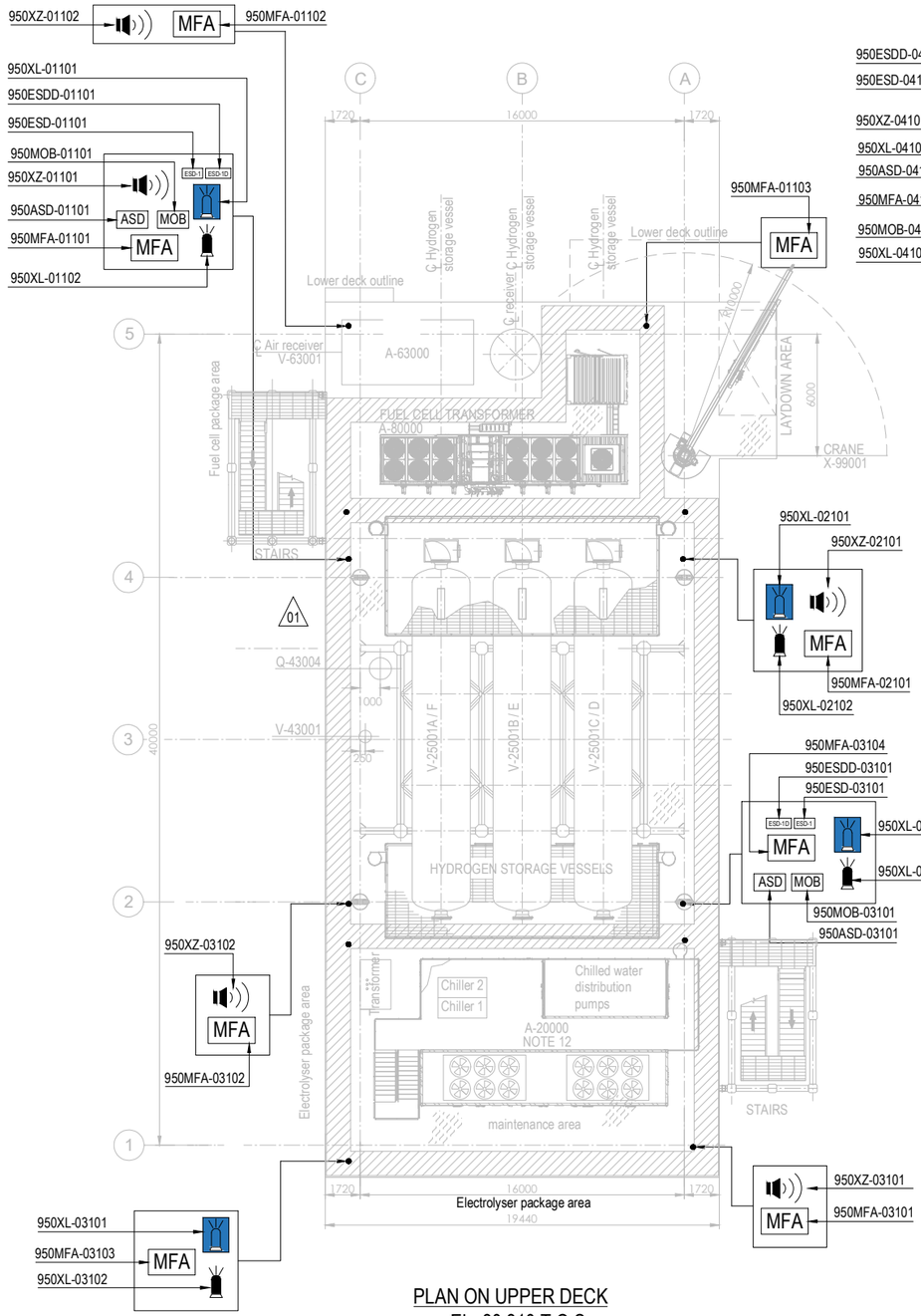
Comments:



| | Performed by | ● WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Alessio Polo | |
| **Date** | 2024-12-07 | 2025-01-13 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:58:38.407Z | PROVERLIS Digitaly signed by Alessio Polo 2025-01-13T16:38:26.341Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



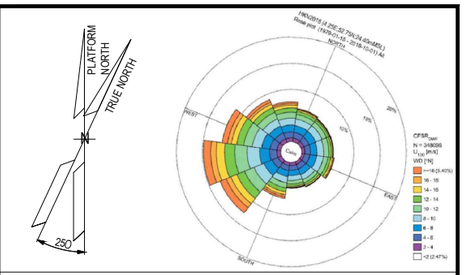

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION
1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05103 | No. | MARSHALLING CABINET B400-FGS-002 |

<01>

950-XZ-05101 — C-950-XZ-05101/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-XZ-05102 — C-950-XZ-05102/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-XZ-05103 — C-950-XZ-05103/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-XZ-05104 — C-950-XZ-05104/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

TB-1

| | | |
|---|---|---|
| 1BK | 1 | 1BK |
| 2BK | 2 | 2BK |
| | SH | |
| 3BK | 3 | 3BK |
| 4BK | 4 | 4BK |
| | SH | |
| 5BK | 5 | 5BK |
| 6BK | 6 | 6BK |
| | SH | |
| 7BK | 7 | 7BK |
| 8BK | 8 | 8BK |
| | SH | |
| | 9 | 9BK |
| | 10 | 10BK |
| | SH | |
| | 11 | 11BK |
| | 12 | 12BK |
| | SH | |
| | OS | |

950-JE-05103/B400-FGS-002

12x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05103

| | | |
|---|---|---|
| 1BK | 1 | 950-XZ-05101 |
| 2BK | 2 | |
| 3BK | 3 | 950-XZ-05102 |
| 4BK | 4 | |
| 5BK | 5 | 950-XZ-05103 |
| 6BK | 6 | |
| 7BK | 7 | 950-XZ-05104 |
| 8BK | 8 | |
| 9BK | 9 | SPARE |
| 10BK | 10 | |
| 11BK | 11 | SPARE |
| 12BK | 12 | |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–05103

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

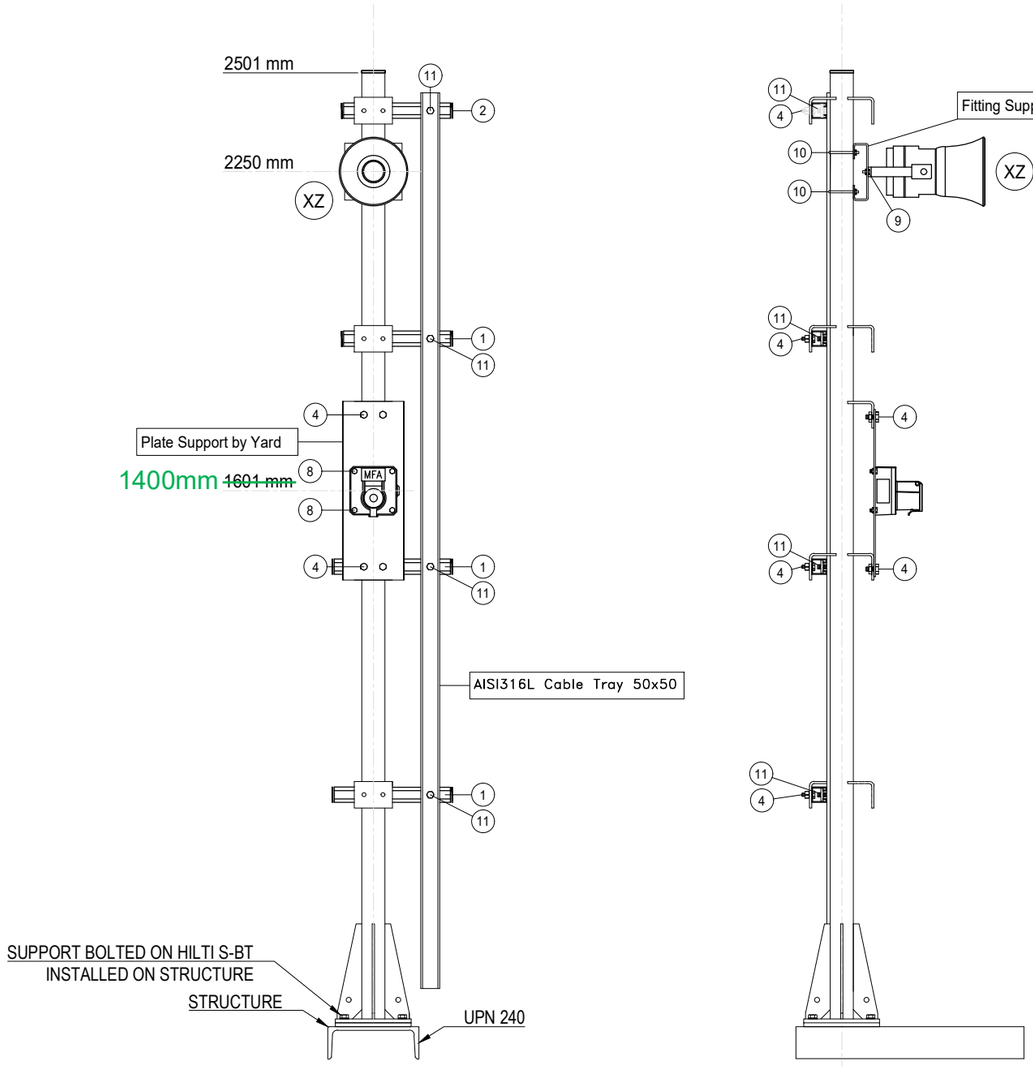
| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 070 | REV. 01 |
|---|---|---|---|

File Name : 123A90-DDL-IN-DG-40016_Rev.01

# FGS-08

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00







| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 4m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 8 |
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 10 |
| 8 | AISI 316L BOLT M8x35 + NUT M8 + WASHER M8 | 4 |
| ~~9~~ | ~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~ | 2 |
| 10 | AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8 | 2 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |

| POLE | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | XZ | SOUNDER | 950-XZ-05101 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05101 |
| 2 | XZ | SOUNDER | 950-XZ-05102 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05102 |
| 3 | XZ | SOUNDER | 950-XZ-05103 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05103 |
| 4 | XZ | SOUNDER | 950-XZ-05104 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05104 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

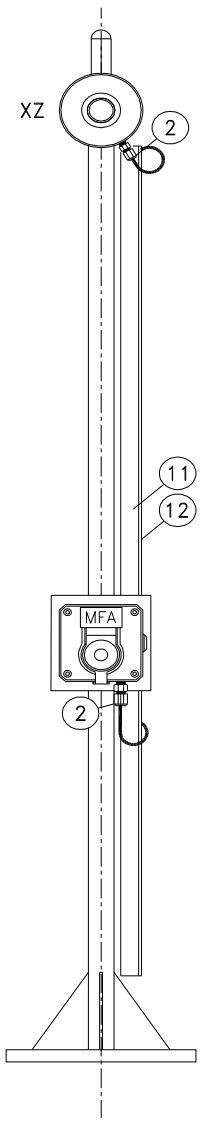
TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT INSTALLATION DETAILS
# FIRE & GAS DEVISES ON POLE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| | 123A90-DDL-IN-DD-40017 | 027 | 01 |

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES




| INSTRUMENT TAG | |
|---|---|
| 1 | 950-XZ-05101 |
| | 950-MFA-05101 |
| 2 | 950-XZ-05102 |
| | 950-MFA-05102 |
| 3 | 950-XZ-05103 |
| | 950-MFA-05103 |
| 4 | 950-XZ-05104 |
| | 950-MFA-05104 |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

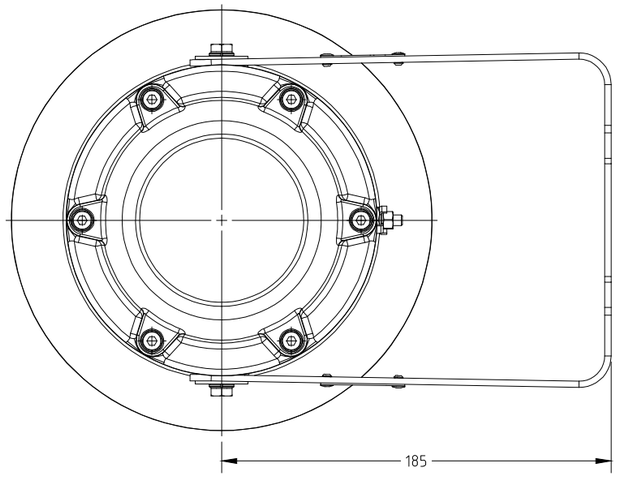
NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

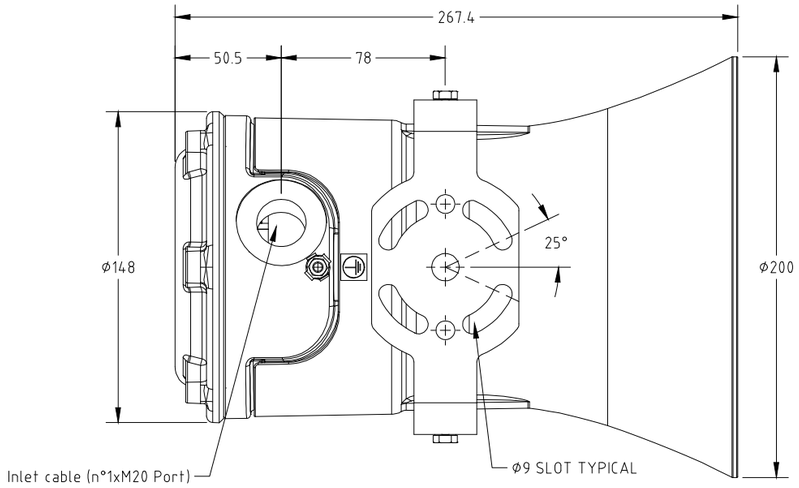
| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 12 | | Cover for cable tray, FRP, Grey Color | 50 W x 10 H x 5 THK | 3 mt |
| 11 | | Perforated cable tray, FRP, Grey Color | 50 W x 50 H x 5 THK | 3 mt |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 2 |



This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# SOUNDER



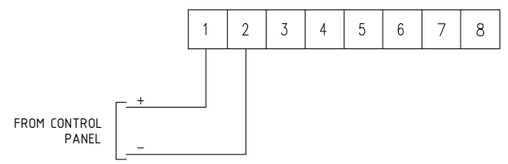

| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Sounder, MEDC DM3BMSD048DT1BNR | 1 |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

INSTALLATION QUANTITY

17

NOTE:
DUTY LABEL: EMERGENCY SHUTDOWN ALARM

## WIRING




FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
SOUNDER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 023

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# SOUNDER – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-XZ-01101 |
| 2 | 950-XZ-01102 |
| 3 | 950-XZ-02101 |
| 4 | 950-XZ-03101 |
| 5 | 950-XZ-03102 |
| 6 | 950-XZ-04101 |
| 7 | 950-XZ-04102 |
| 8 | 950-XZ-04201 |
| 9 | 950-XZ-04202 |
| 10 | 950-XZ-04203 |
| 11 | 950-XZ-05101 |
| 12 | 950-XZ-05102 |
| 13 | 950-XZ-05103 |
| 14 | 950-XZ-05104 |
| 15 | 950-XZ-06101 |
| 16 | 950-XZ-06201 |
| 17 | 950-XZ-07101 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
SOUNDER – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 024

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## SOUNDER

| POS. | TAG NUMBER | SERVICE | DUTY LABEL |
|---|---|---|---|
| 1 | 950-XZ-01101 | FZ-01 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 2 | 950-XZ-01102 | FZ-01 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 3 | 950-XZ-02101 | FZ-02 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 4 | 950-XZ-03101 | FZ-03 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 5 | 950-XZ-03102 | FZ-03 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 6 | 950-XZ-04101 | FZ-04 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 7 | 950-XZ-04102 | FZ-04 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 8 | 950-XZ-04201 | FZ-04 SOUNDER ACT. - B-400 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 9 | 950-XZ-04202 | FZ-04 SOUNDER ACT. - B-300 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 10 | 950-XZ-04203 | FZ-04 SOUNDER ACT. - B-200 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 11 | 950-XZ-05101 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 12 | 950-XZ-05102 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 13 | 950-XZ-05103 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 14 | 950-XZ-05104 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 15 | 950-XZ-06101 | FZ-06 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 16 | 950-XZ-06201 | FZ-06 SOUNDER ACT. - B-100 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 17 | 950-XZ-07101 | FZ-07 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# DB3BM sounders range up to 116dB

## Ex d, weatherproof



## Overview

The DB3BM is a high power explosion proof sounder, introduced as a replacement for the current DB1 / DB1H with improved functionality and performance. Certified for use in a wide range of temperatures from -60°C to +85°C the Ex enclosure is manufactured in either marine grade alloy or stainless steel with a rugged thermoplastic flare providing a corrosion free and aesthetically pleasing product.

Capable of producing 116 dB @ 1m and with a range of pre-recorded tones, the DB3BM includes an integral volume control which is ideal when a lower output is required.

The unit is provided with versatile control options allowing compatibility with a wide range of control methods and PLCs.

The standard DC unit provides 3 tone stages, each stage has 28 tones available which can be independently selected. The unit can be controlled by reversing the polarity of the power supply (2 stage) or providing a common negative and switching between multiple positive supplies.

The DB3BM proves its versatility by additionally being able to work with a common positive supply and switching the negatives. The tone stages of the DB3BM can also be controlled via voltage free contacts provided by a control panel.

The flexibility of the range continues with a wide range of supply voltages. The short flare option is a worthy addition to the range offering a high SPL in a compact unit.

## Features

- UKEX / ATEX / IECEx
  Ex db IIC T4/T5/T6 Gb
  Ex tb IIIC T4/T5/T6 Db
- Certified temperature: –60°C to +85°C
- IP66 & IP67 (terminal only)
- Up to 116 dB output @ 1 m
- Integral volume control
- 28 tones, user selectable
- 3 stage unit remotely switchable
- Tones can be programmed to customer's specification
- DC supply voltage between 12 V and 48 V
- End of line resistor option
- Sounder & beacon combination units available, for further details contact MEDC
- Ex enclosure – marine grade alloy or stainless steel
- Flare - high impact thermoplastic polyester
- Stainless steel mounting bracket and cover screws
- Mounting bracket has ratchet facility as standard
- Swivel bracket standard on Stainless steel unit, optional on Alloy units



Stainless steel body, short flare version

ATEX IECEx UKCA

Eaton
Unit B, Sutton Parkway
Oddicroft Lane
Sutton in Ashfield
United Kingdom
NG17 5FB

T: +44 (0) 1623 444 400
www.crouse-hinds.com/hac
MEDCSales@Eaton.com

© 2022 Eaton
All Rights Reserved
Printed in UK
Publication
No.DSMC0032/B
March 2022

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Powering Business Worldwide

All specifications, dimensions, weights and tolerances are nominal (typical) and Eaton reserve the right to vary all data without prior notice.
No liability is accepted for any consequence of use.

## Certifications

| | |
|---|---|
| **ATEX Ex db** | Cert. no. UL 21 ATEX02559X. Certified to: EN IEC 60079-0, EN 60079-1, 31<br>Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db,<br>IP66 (IP65 short flare) |
| **IECEx Ex db** | Cert. no. IECEx ULD 21.0017X. Certified to: IEC60079-0,1,31<br>Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db,<br>IP66 (IP65 short flare) |
| **UKEX Ex db** | Cert. no. UL21UKEX2209X. Certified to: EN IEC 60079-0, EN 60079-1, 31<br>Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db<br>IP66 (IP65 short flare) |
| **Safe Area** | EN 61010-1, EN 60529, EN61000-6 |

## Specifications

| | |
|---|---|
| **Material** | Ex enclosure – marine grade alloy or stainless steel<br>Flare - flame retardant, high impact, UV stable, thermoplastic polyester<br>(UV stability tested to ISO 4892 part 3)<br>Hardware - bracket, fixings and captive cover screws in 316 stainless steel |
| **Fire retardancy** | Outer flare - thermoplastic polyester. V0 flammability rating |
| **Finish** | Body – alloy: painted black. Stainless steel: painted black. Flare - natural black, natural red or painted as specified |
| **Voltage** | DC: 12 - 48 V. AC: Up to 254 V. if using EOL resistor/s the maximum power dissipation must be limited to 3 W. |
| **Weight** | Alloy - 4.4 kg, stainless steel 8.35 kg based on long flare DC unit |
| **Ingress protection** | IP66 & IP67 (terminal only). IP65 short flare |
| **Entries** | Up to 2 x M20 or M25 or ½"or ¾" NPT. Blanking plug available |
| **Terminals** | AC: 4 x 1.5mm² (loop in / out power), 3 x 2.5mm² (tone selection) (standard unit only)<br>DC: 8 x 2.5mm² (8 for loop in / out power and tone selection) (standard unit only) |
| **Mounting arrangement** | Stainless steel bracket with ratchet facility, optional swivel bracket available.<br>Swivel standard on stainless steel unit |
| **Labels** | Optional duty and tag labels available |
| **Tone information** | 28 tones per stage. Additional custom tones available (contact MEDC)<br>Suitable for use with 200 Hz tones |
| **Relative Humidity** | 99% Non-condensing |

## Tone activation and selection

| Voltage | Unit | No.of stages | Tone activation | Tone selection |
|---|---|---|---|---|
| DC | Standard | 1 | Apply power | 1 x DIP switch |
| | | 2 | Reverse polarity | 2 x DIP switches |
| | | | Common -ve with 2 +ve supplies | 2 x DIP switches |
| | | | *Common +ve with 2 -ve supplies | 2 x DIP switches |
| | | 3 | Common -ve with 3 +ve supplies | 3 x DIP switches |
| | Alternative tone activation (Option M) | 2 | *Common -ve with 2 +ve supplies | 2 x DIP switches |
| | | 3 | Common +ve with 3 -ve supplies | 3 x DIP switches |
| | Alternative tone activation (remote) (Option R) | 1-5 | Volt free activation (remote switching) | 1 x DIP switch for stage 1. Tone pre-selected for subsequent stages |
| AC | Standard | 1 | Apply power | 1 x DIP switch |
| | Alternative tone activation (remote) (Option R) | 1-2 | Volt free activation (remote switching) | 1 x DIP switch for stage 1. Tone preselected for the 2nd stage |

*Reverse polarity line monitoring can be used with common positive or negative switching to give up to 2 operational stages and a 3rd monitoring connection. An EOL resistor can be fitted as shown in the technical manual. All connection details are shown in the technical manual.

**Current consumption:** Based on a continuous 970Hz tone

| Voltage | Current for IIC unit | Current for IIIC unit |
|---|---|---|
| 12 Vdc | 700 mA | 716 mA |
| 24 Vdc | 329 mA | 339 mA |
| 48 Vdc | 171 mA | 173 mA |
| 110 Vac | 115 mA | 122 mA |
| 120 Vac | 106 mA | 113 mA |
| 220 Vac | 59 mA | 63 mA |
| 230 Vac | 52 mA | 55 mA |
| 240 Vac | 55 mA | 58 mA |
| 254 Vac | 59 mA | 63 mA |

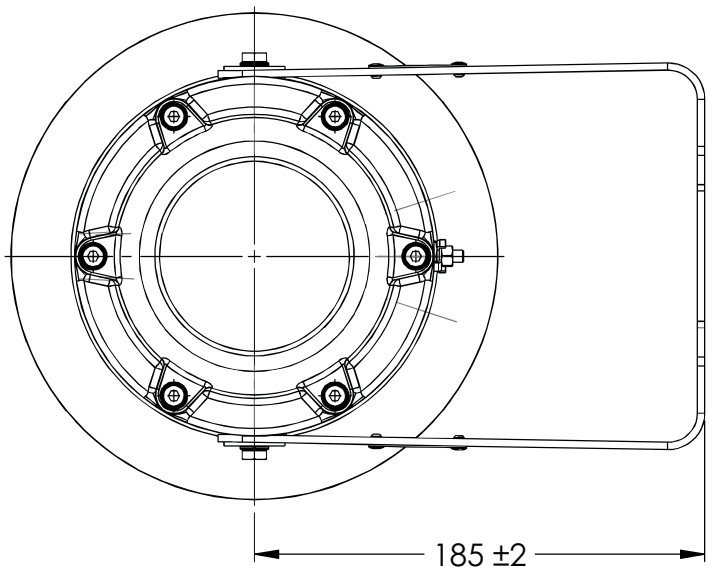
| Certified temperature | Ex d/UL min | Max |
|---|---|---|
| | -60°C | +85°C |

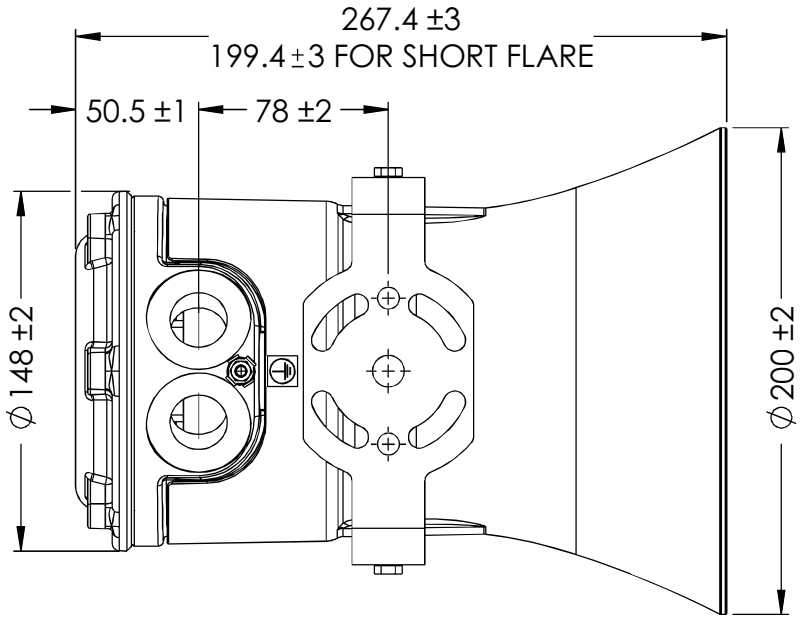
Operating temperature at launch (DC Only): -40 °C min +85 °C max
**-55 °C as standard to follow. Please contact MEDC for low temperature options**

| Max output (dB) 1400Hz @ 1m | Short Flare | Long Flare |
|---|---|---|
| | 113 dB | 116 dB |

For Labels and Entries select any option as required. For Options select either (N) None or (E) EOL as required
Tolerance +/-3dB. Please see the technical manual for tone specific SPL values

## General arrangement drawing (all dimensions in mm)




# Ordering requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

**Model:** DB3BM

**Material:** S

| Finish | Code |
|---|---|
| Alloy | A |
| Stainless Steel | S |

**Ex Certification:** D

| Ex Certification | Code |
|---|---|
| UKEX/ATEX Ex d | D |
| IECEx Ex d | J |
| Weatherproof | W |

**Voltage:** 048

| Voltage | Code |
|---|---|
| 12-48 Vdc | 048‡ |
| 110 Vac | 110 |
| 120 Vac | 120* |
| 220 Vac | 220 |
| 230 Vac | 230 |
| 240 Vac | 240* |
| 254 Vac | 254 |

*Complies with UL regulated power supply requirements

**Labels:** DT

| Labels | Code |
|---|---|
| None | N |
| Duty | D* |
| Tag | T* |

*Please specify

**Entries:** 1B

| Entries | Code |
|---|---|
| 1 x M20 | 1B |
| 2 x M20 | 2B |
| 2 x M20 inc 1 x plug | 2BP |
| 1 x ½"NPT | 1C |
| 2 x ½" NPT | 2C |
| 2 x ½" NPT inc 1 x plug | 2CP |
| 1 x M25 | 1D |
| 2 x M25 | 2D |
| 2 x M25 inc 1x plug | 2DP |
| 1 x ¾" NPT | 1E |
| 2 x ¾" NPT | 2E |
| 2 x ¾" NPT inc 1x plug | 2EP |

**Options:** N

| Options | Code |
|---|---|
| None | N |
| Swivel bracket | B‡ |
| EOL | E* |
| Alternative tone activation | M** |
| Volt free activation (remote) | R** |
| Short flare | S |
| Custom tones (not std 27) | TΔ |

‡ Alloy only - stainless steel has swivel as standard
*Specify value max power dissipation is 3W
**These options cannot be selected together
ΔSpecify details

**Finish:** R (RAL 3020)

| Finish | Code |
|---|---|
| Natural black | N |
| Natural red | R |
| Yellow | Y |
| Grey | G |
| Blue | B |
| Special | S* |

*Please specify

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-XZ-05103 | : FZ-05 Sounder Activation | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10001140 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX00 | | Miscellaneous |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to P&ID and hook-up drawing. | OK |
| 4 | Check tube fittings manufacturer is the one chosen for the plant. | OK |
| 5 | Check that piping connections provide the block & bleed facility (if required). | OK |
| 6 | Check that all stop plugs are properly installed | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | PL |
| 9 | Check the conformity of earthing as per specification (I.P.E. or I.E.) | OK |
| 10 | If required produce Red Line Mark Up for "AS BUILT" | |

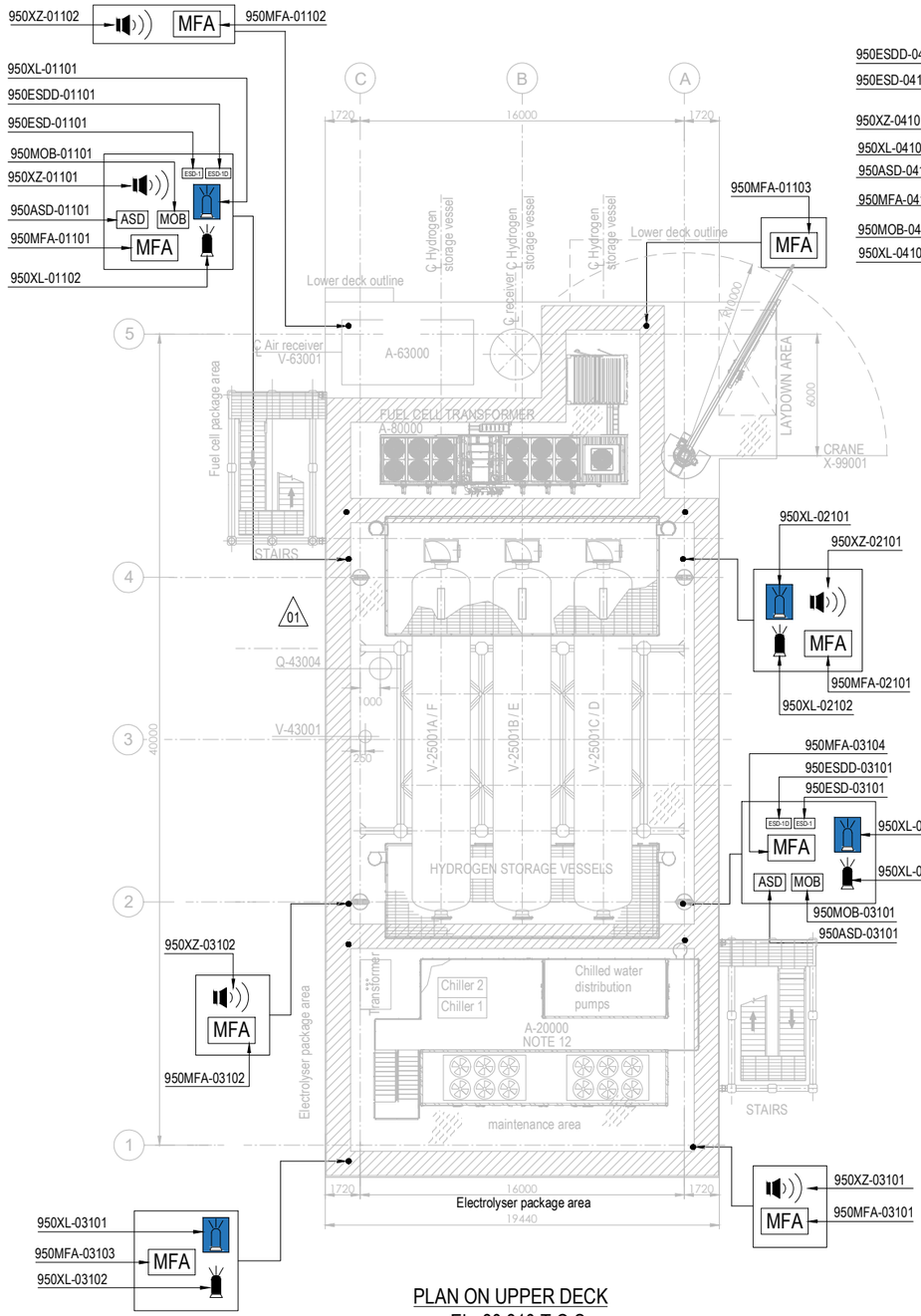
Comments:



| | Performed by | ☉ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-07 | 2024-12-12 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:59:36.492Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-12T13:44:49.480Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



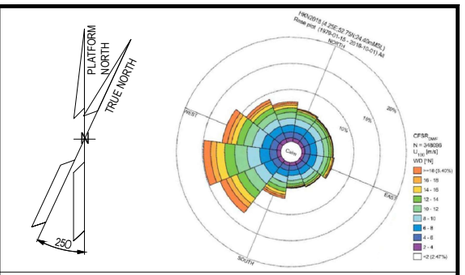

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05103 | No. | MARSHALLING CABINET B400-FGS-002 |

<01>

950-XZ-05101 — 1BK / 2BK — NOTE-2 — C-950-XZ-05101/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-05102 — 1BK / 2BK — NOTE-2 — C-950-XZ-05102/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-05103 — 1BK / 2BK — NOTE-2 — C-950-XZ-05103/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-05104 — 1BK / 2BK — NOTE-2 — C-950-XZ-05104/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

| | | |
|---|---|---|
| 1BK | 1 | 1BK |
| 2BK | 2 | 2BK |
| | SH | |
| 3BK | 3 | 3BK |
| 4BK | 4 | 4BK |
| | SH | |
| 5BK | 5 | 5BK |
| 6BK | 6 | 6BK |
| | SH | |
| 7BK | 7 | 7BK |
| 8BK | 8 | 8BK |
| | SH | |
| | 9 | 9BK |
| | 10 | 10BK |
| | SH | |
| | 11 | 11BK |
| | 12 | 12BK |
| | SH | |
| | OS | |

950-JE-05103/B400-FGS-002

12x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05103

| | | |
|---|---|---|
| 1BK | 1 | 950-XZ-05101 |
| 2BK | 2 | |
| 3BK | 3 | 950-XZ-05102 |
| 4BK | 4 | |
| 5BK | 5 | 950-XZ-05103 |
| 6BK | 6 | |
| 7BK | 7 | 950-XZ-05104 |
| 8BK | 8 | |
| 9BK | 9 | SPARE |
| 10BK | 10 | |
| 11BK | 11 | SPARE |
| 12BK | 12 | |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–05103

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

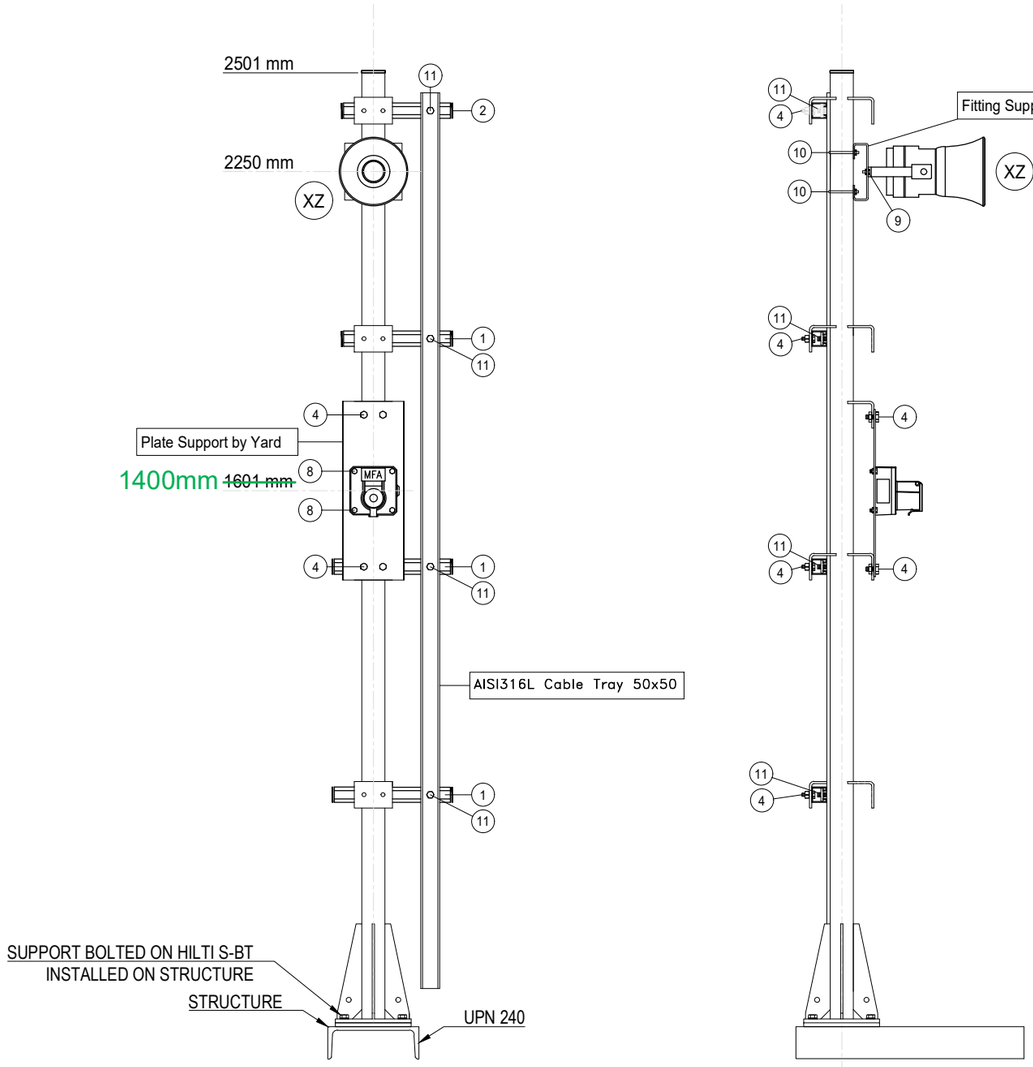
| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 070 | REV. 01 |
|---|---|---|---|

File Name : 123A90-DDL-IN-DG-40016_Rev.01

# FGS-08

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00







| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 4m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 8 |
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 10 |
| 8 | AISI 316L BOLT M8x35 + NUT M8 + WASHER M8 | 4 |
| 9 | ~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~ | 2 |
| 10 | AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8 | 2 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |

| POLE | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | XZ | SOUNDER | 950-XZ-05101 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05101 |
| 2 | XZ | SOUNDER | 950-XZ-05102 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05102 |
| 3 | XZ | SOUNDER | 950-XZ-05103 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05103 |
| 4 | XZ | SOUNDER | 950-XZ-05104 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05104 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

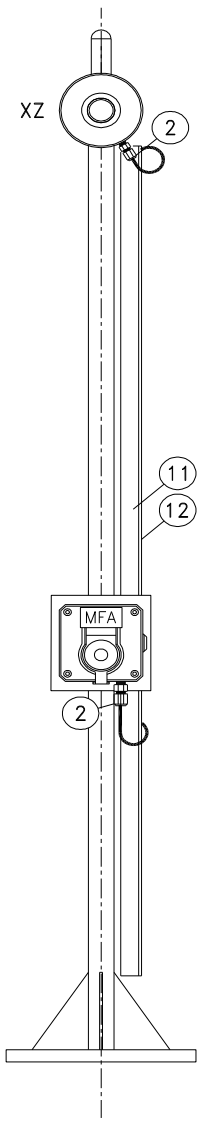
TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT INSTALLATION DETAILS
# FIRE & GAS DEVISES ON POLE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| | 123A90-DDL-IN-DD-40017 | 027 | 01 |

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES




| INSTRUMENT TAG | |
|---|---|
| 1 | 950-XZ-05101 |
| | 950-MFA-05101 |
| 2 | 950-XZ-05102 |
| | 950-MFA-05102 |
| 3 | 950-XZ-05103 |
| | 950-MFA-05103 |
| 4 | 950-XZ-05104 |
| | 950-MFA-05104 |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

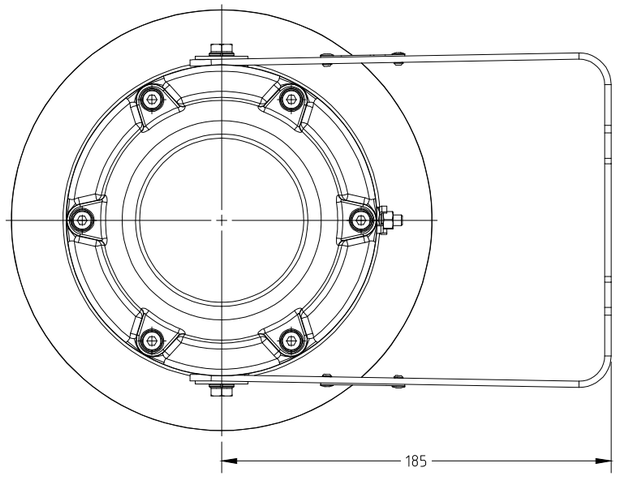
NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

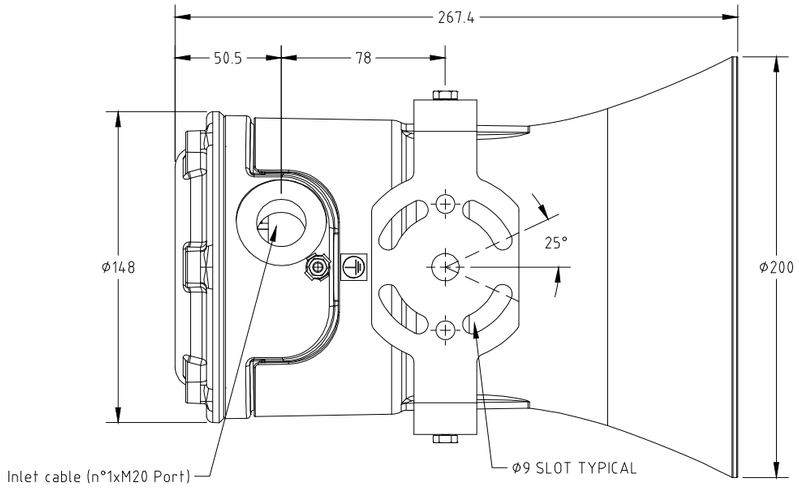
| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 12 | | Cover for cable tray, FRP, Grey Color | 50 W x 10 H x 5 THK | 3 mt |
| 11 | | Perforated cable tray, FRP, Grey Color | 50 W x 50 H x 5 THK | 3 mt |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 2 |



This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# SOUNDER



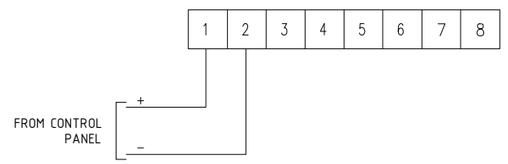

| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Sounder, MEDC DM3BMSD048DT1BNR | 1 |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

INSTALLATION QUANTITY

17

NOTE:
DUTY LABEL: EMERGENCY SHUTDOWN ALARM

## WIRING




FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
SOUNDER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 023

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# SOUNDER – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-XZ-01101 |
| 2 | 950-XZ-01102 |
| 3 | 950-XZ-02101 |
| 4 | 950-XZ-03101 |
| 5 | 950-XZ-03102 |
| 6 | 950-XZ-04101 |
| 7 | 950-XZ-04102 |
| 8 | 950-XZ-04201 |
| 9 | 950-XZ-04202 |
| 10 | 950-XZ-04203 |
| 11 | 950-XZ-05101 |
| 12 | 950-XZ-05102 |
| 13 | 950-XZ-05103 |
| 14 | 950-XZ-05104 |
| 15 | 950-XZ-06101 |
| 16 | 950-XZ-06201 |
| 17 | 950-XZ-07101 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
SOUNDER – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 024

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## SOUNDER

| POS. | TAG NUMBER | SERVICE | DUTY LABEL |
|---|---|---|---|
| 1 | 950-XZ-01101 | FZ-01 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 2 | 950-XZ-01102 | FZ-01 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 3 | 950-XZ-02101 | FZ-02 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 4 | 950-XZ-03101 | FZ-03 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 5 | 950-XZ-03102 | FZ-03 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 6 | 950-XZ-04101 | FZ-04 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 7 | 950-XZ-04102 | FZ-04 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 8 | 950-XZ-04201 | FZ-04 SOUNDER ACT. - B-400 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 9 | 950-XZ-04202 | FZ-04 SOUNDER ACT. - B-300 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 10 | 950-XZ-04203 | FZ-04 SOUNDER ACT. - B-200 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 11 | 950-XZ-05101 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 12 | 950-XZ-05102 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 13 | 950-XZ-05103 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 14 | 950-XZ-05104 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 15 | 950-XZ-06101 | FZ-06 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 16 | 950-XZ-06201 | FZ-06 SOUNDER ACT. - B-100 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 17 | 950-XZ-07101 | FZ-07 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# DB3BM sounders range up to 116dB

## Ex d, weatherproof



## Overview

The DB3BM is a high power explosion proof sounder, introduced as a replacement for the current DB1 / DB1H with improved functionality and performance. Certified for use in a wide range of temperatures from -60°C to +85°C the Ex enclosure is manufactured in either marine grade alloy or stainless steel with a rugged thermoplastic flare providing a corrosion free and aesthetically pleasing product.

Capable of producing 116 dB @ 1m and with a range of pre-recorded tones, the DB3BM includes an integral volume control which is ideal when a lower output is required.

The unit is provided with versatile control options allowing compatibility with a wide range of control methods and PLCs.

The standard DC unit provides 3 tone stages, each stage has 28 tones available which can be independently selected. The unit can be controlled by reversing the polarity of the power supply (2 stage) or providing a common negative and switching between multiple positive supplies.

The DB3BM proves its versatility by additionally being able to work with a common positive supply and switching the negatives. The tone stages of the DB3BM can also be controlled via voltage free contacts provided by a control panel.

The flexibility of the range continues with a wide range of supply voltages. The short flare option is a worthy addition to the range offering a high SPL in a compact unit.

## Features

- UKEX / ATEX / IECEx
  Ex db IIC T4/T5/T6 Gb
  Ex tb IIIC T4/T5/T6 Db
- Certified temperature: –60°C to +85°C
- IP66 & IP67 (terminal only)
- Up to 116 dB output @ 1 m
- Integral volume control
- 28 tones, user selectable
- 3 stage unit remotely switchable
- Tones can be programmed to customer's specification
- DC supply voltage between 12 V and 48 V
- End of line resistor option
- Sounder & beacon combination units available, for further details contact MEDC
- Ex enclosure – marine grade alloy or stainless steel
- Flare - high impact thermoplastic polyester
- Stainless steel mounting bracket and cover screws
- Mounting bracket has ratchet facility as standard
- Swivel bracket standard on Stainless steel unit, optional on Alloy units



Stainless steel body, short flare version

ATEX IECEx UKCA

Eaton
Unit B, Sutton Parkway
Oddicroft Lane
Sutton in Ashfield
United Kingdom
NG17 5FB

T: +44 (0) 1623 444 400
www.crouse-hinds.com/hac
MEDCSales@Eaton.com

© 2022 Eaton
All Rights Reserved
Printed in UK
Publication
No.DSMC0032/B
March 2022

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Powering Business Worldwide

All specifications, dimensions, weights and tolerances are nominal (typical) and Eaton reserve the right to vary all data without prior notice.
No liability is accepted for any consequence of use.

## Certifications

| | |
|---|---|
| **ATEX Ex db** | Cert. no. UL 21 ATEX02559X. Certified to: EN IEC 60079-0, EN 60079-1, 31<br>Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db,<br>IP66 (IP65 short flare) |
| **IECEx Ex db** | Cert. no. IECEx ULD 21.0017X. Certified to: IEC60079-0,1,31<br>Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db,<br>IP66 (IP65 short flare) |
| **UKEX Ex db** | Cert. no. UL21UKEX2209X. Certified to: EN IEC 60079-0, EN 60079-1, 31<br>Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db<br>IP66 (IP65 short flare) |
| **Safe Area** | EN 61010-1, EN 60529, EN61000-6 |

## Specifications

| | |
|---|---|
| **Material** | Ex enclosure – marine grade alloy or stainless steel<br>Flare - flame retardant, high impact, UV stable, thermoplastic polyester<br>(UV stability tested to ISO 4892 part 3)<br>Hardware - bracket, fixings and captive cover screws in 316 stainless steel |
| **Fire retardancy** | Outer flare - thermoplastic polyester. V0 flammability rating |
| **Finish** | Body – alloy: painted black. Stainless steel: painted black. Flare - natural black, natural red or painted as specified |
| **Voltage** | DC: 12 - 48 V. AC: Up to 254 V. if using EOL resistor/s the maximum power dissipation must be limited to 3 W. |
| **Weight** | Alloy - 4.4 kg, stainless steel 8.35 kg based on long flare DC unit |
| **Ingress protection** | IP66 & IP67 (terminal only). IP65 short flare |
| **Entries** | Up to 2 x M20 or M25 or ½"or ¾" NPT. Blanking plug available |
| **Terminals** | AC: 4 x 1.5mm² (loop in / out power), 3 x 2.5mm² (tone selection) (standard unit only)<br>DC: 8 x 2.5mm² (8 for loop in / out power and tone selection) (standard unit only) |
| **Mounting arrangement** | Stainless steel bracket with ratchet facility, optional swivel bracket available.<br>Swivel standard on stainless steel unit |
| **Labels** | Optional duty and tag labels available |
| **Tone information** | 28 tones per stage. Additional custom tones available (contact MEDC)<br>Suitable for use with 200 Hz tones |
| **Relative Humidity** | 99% Non-condensing |

## Tone activation and selection

| Voltage | Unit | No.of stages | Tone activation | Tone selection |
|---|---|---|---|---|
| DC | Standard | 1 | Apply power | 1 x DIP switch |
| | | 2 | Reverse polarity | 2 x DIP switches |
| | | | Common -ve with 2 +ve supplies | 2 x DIP switches |
| | | | *Common +ve with 2 -ve supplies | 2 x DIP switches |
| | | 3 | Common -ve with 3 +ve supplies | 3 x DIP switches |
| | Alternative tone activation (Option M) | 2 | *Common -ve with 2 +ve supplies | 2 x DIP switches |
| | | 3 | Common +ve with 3 -ve supplies | 3 x DIP switches |
| | Alternative tone activation (remote) (Option R) | 1-5 | Volt free activation (remote switching) | 1 x DIP switch for stage 1. Tone pre-selected for subsequent stages |
| AC | Standard | 1 | Apply power | 1 x DIP switch |
| | Alternative tone activation (remote) (Option R) | 1-2 | Volt free activation (remote switching) | 1 x DIP switch for stage 1. Tone preselected for the 2nd stage |

*Reverse polarity line monitoring can be used with common positive or negative switching to give up to 2 operational stages and a 3rd monitoring connection. An EOL resistor can be fitted as shown in the technical manual. All connection details are shown in the technical manual.

**Current consumption:** Based on a continuous 970Hz tone

| Voltage | Current for IIC unit | Current for IIIC unit |
|---|---|---|
| 12 Vdc | 700 mA | 716 mA |
| 24 Vdc | 329 mA | 339 mA |
| 48 Vdc | 171 mA | 173 mA |
| 110 Vac | 115 mA | 122 mA |
| 120 Vac | 106 mA | 113 mA |
| 220 Vac | 59 mA | 63 mA |
| 230 Vac | 52 mA | 55 mA |
| 240 Vac | 55 mA | 58 mA |
| 254 Vac | 59 mA | 63 mA |

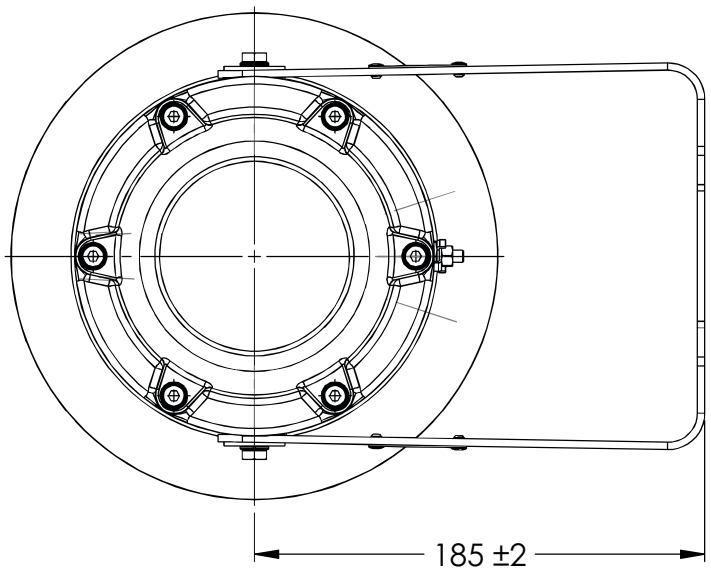
| Certified temperature | Ex d/UL min | Max |
|---|---|---|
| | -60°C | +85°C |

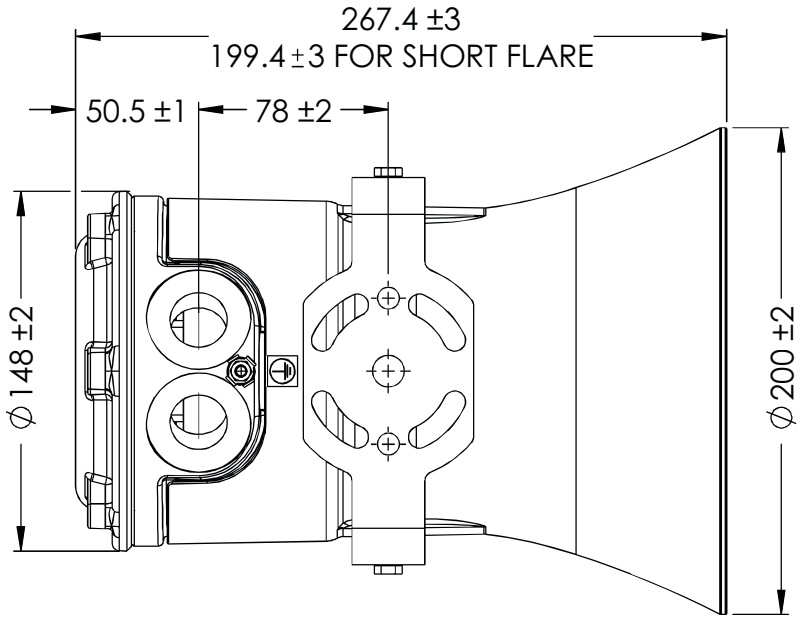
Operating temperature at launch (DC Only): -40 °C min +85 °C max
**-55 °C as standard to follow. Please contact MEDC for low temperature options**

| Max output (dB) 1400Hz @ 1m | Short Flare | Long Flare |
|---|---|---|
| | 113 dB | 116 dB |

For Labels and Entries select any option as required. For Options select either (N) None or (E) EOL as required
Tolerance +/-3dB. Please see the technical manual for tone specific SPL values

## General arrangement drawing (all dimensions in mm)




# Ordering requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

**Model:** DB3BM

**Material:** S

| Finish | Code |
|---|---|
| Alloy | A |
| Stainless Steel | S |

**Ex Certification:** D

| Ex Certification | Code |
|---|---|
| UKEX/ATEX Ex d | D |
| IECEx Ex d | J |
| Weatherproof | W |

**Voltage:** 048

| Voltage | Code |
|---|---|
| 12-48 Vdc | 048‡ |
| 110 Vac | 110 |
| 120 Vac | 120* |
| 220 Vac | 220 |
| 230 Vac | 230 |
| 240 Vac | 240* |
| 254 Vac | 254 |

*Complies with UL regulated power supply requirements

**Labels:** DT

| Labels | Code |
|---|---|
| None | N |
| Duty | D* |
| Tag | T* |

*Please specify

**Entries:** 1B

| Entries | Code |
|---|---|
| 1 x M20 | 1B |
| 2 x M20 | 2B |
| 2 x M20 inc 1 x plug | 2BP |
| 1 x ½"NPT | 1C |
| 2 x ½" NPT | 2C |
| 2 x ½" NPT inc 1 x plug | 2CP |
| 1 x M25 | 1D |
| 2 x M25 | 2D |
| 2 x M25 inc 1x plug | 2DP |
| 1 x ¾" NPT | 1E |
| 2 x ¾" NPT | 2E |
| 2 x ¾" NPT inc 1x plug | 2EP |

**Options:** N

| Options | Code |
|---|---|
| None | N |
| Swivel bracket | B‡ |
| EOL | E* |
| Alternative tone activation | M** |
| Volt free activation (remote) | R** |
| Short flare | S |
| Custom tones (not std 27) | TΔ |

‡ Alloy only - stainless steel has swivel as standard
*Specify value max power dissipation is 3W
**These options cannot be selected together
ΔSpecify details

**Finish:** R (RAL 3020)

| Finish | Code |
|---|---|
| Natural black | N |
| Natural red | R |
| Yellow | Y |
| Grey | G |
| Blue | B |
| Special | S* |

*Please specify

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-XZ-05104 | : FZ-05 Sounder Activation | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD |
| **TASK** | code | C10001141 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX00 | | Miscellaneous |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to P&ID and hook-up drawing. | OK |
| 4 | Check tube fittings manufacturer is the one chosen for the plant. | OK |
| 5 | Check that piping connections provide the block & bleed facility (if required). | OK |
| 6 | Check that all stop plugs are properly installed | OK |
| 7 | Check identification (tag number, tag plates). | OK |
| 8 | Check supporting and protection against vibrations. | PL |
| 9 | Check the conformity of earthing as per specification (I.P.E. or I.E.) | OK |
| 10 | If required produce Red Line Mark Up for "AS BUILT" | |

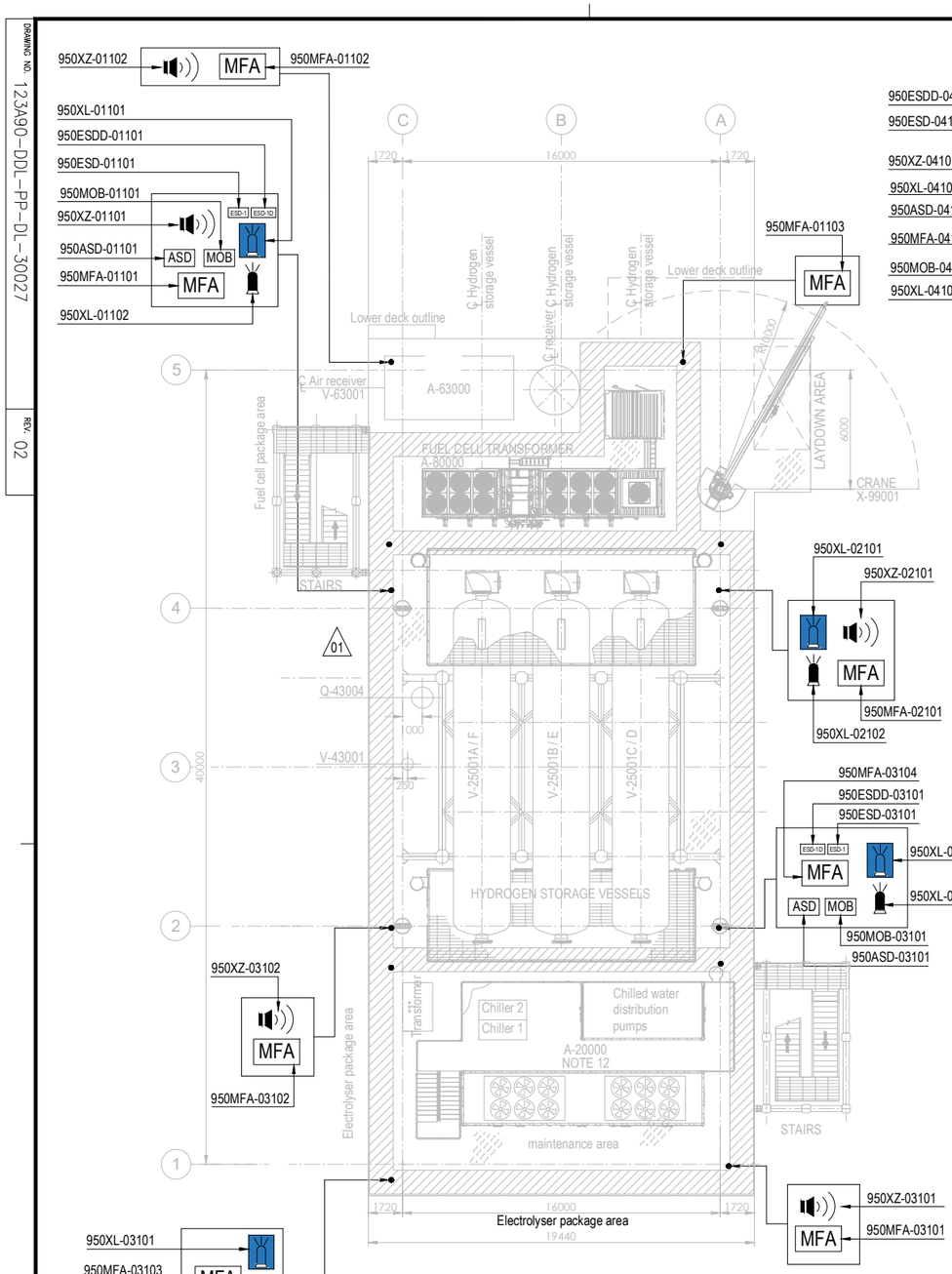
Comments:



| | Performed by | ☉ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-07 | 2024-12-12 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:59:54.079Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-12T13:37:54.539Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



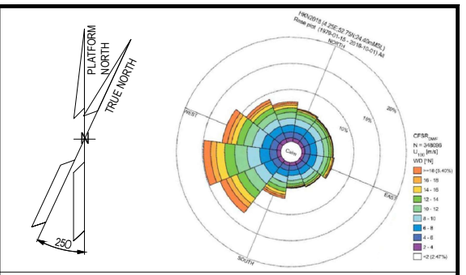

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-80000 | FUEL CELL | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-85000 | BESS | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-50000 | WATER TREATMENT PACKAGE | V-63001 | AIR RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | V-64001 | NITROGEN RECEIVER |
| Q-43004 | HYDROGEN VENT | X-99001 | CRANE |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |

| SYMBOL | DESCRIPTION | QTY. | SYMBOL | DESCRIPTION | QTY. |
|---|---|---|---|---|---|
| | SOUNDER (XZ) | 11 | | FIRE BEACON (XL) COLOR: RED | 8 |
| MOB | MAN OVER BOARD (MOB) | 4 | | FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER | 8 |
| ASD | ABANDON SHUTDOWN (ASD) | 4 | ESD-1 | ESD-1 PUSH BUTTON (ESD) | 4 |
| MFA | MANUAL FIRE ALARM (MFA) | 16 | ESD-1D | ESD-1D PUSH BUTTON (ESDD) | 4 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION
1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
|---|---|---|---|
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 002 | REV. 02 |

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | MULTICABLE | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|---|
| INSTRUMENTS | JUNCTION BOX 950-JE-05103 | No. | MARSHALLING CABINET B400-FGS-002 |

<01>

950-XZ-05101 — 1BK / 2BK — NOTE-2 — C-950-XZ-05101/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-05102 — 1BK / 2BK — NOTE-2 — C-950-XZ-05102/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-05103 — 1BK / 2BK — NOTE-2 — C-950-XZ-05103/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-05104 — 1BK / 2BK — NOTE-2 — C-950-XZ-05104/950-JE-051003 — 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

| | | |
|---|---|---|
| 1BK | 1 | 1BK |
| 2BK | 2 | 2BK |
| | SH | |
| 3BK | 3 | 3BK |
| 4BK | 4 | 4BK |
| | SH | |
| 5BK | 5 | 5BK |
| 6BK | 6 | 6BK |
| | SH | |
| 7BK | 7 | 7BK |
| 8BK | 8 | 8BK |
| | SH | |
| | 9 | 9BK |
| | 10 | 10BK |
| | SH | |
| | 11 | 11BK |
| | 12 | 12BK |
| | SH | |
| | OS | |

950-JE-05103/B400-FGS-002 — 12x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05103

| | | |
|---|---|---|
| 1BK | 1 | 950-XZ-05101 |
| 2BK | 2 | |
| 3BK | 3 | 950-XZ-05102 |
| 4BK | 4 | |
| 5BK | 5 | 950-XZ-05103 |
| 6BK | 6 | |
| 7BK | 7 | 950-XZ-05104 |
| 8BK | 8 | |
| 9BK | 9 | SPARE |
| 10BK | 10 | |
| 11BK | 11 | SPARE |
| 12BK | 12 | |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–05103

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

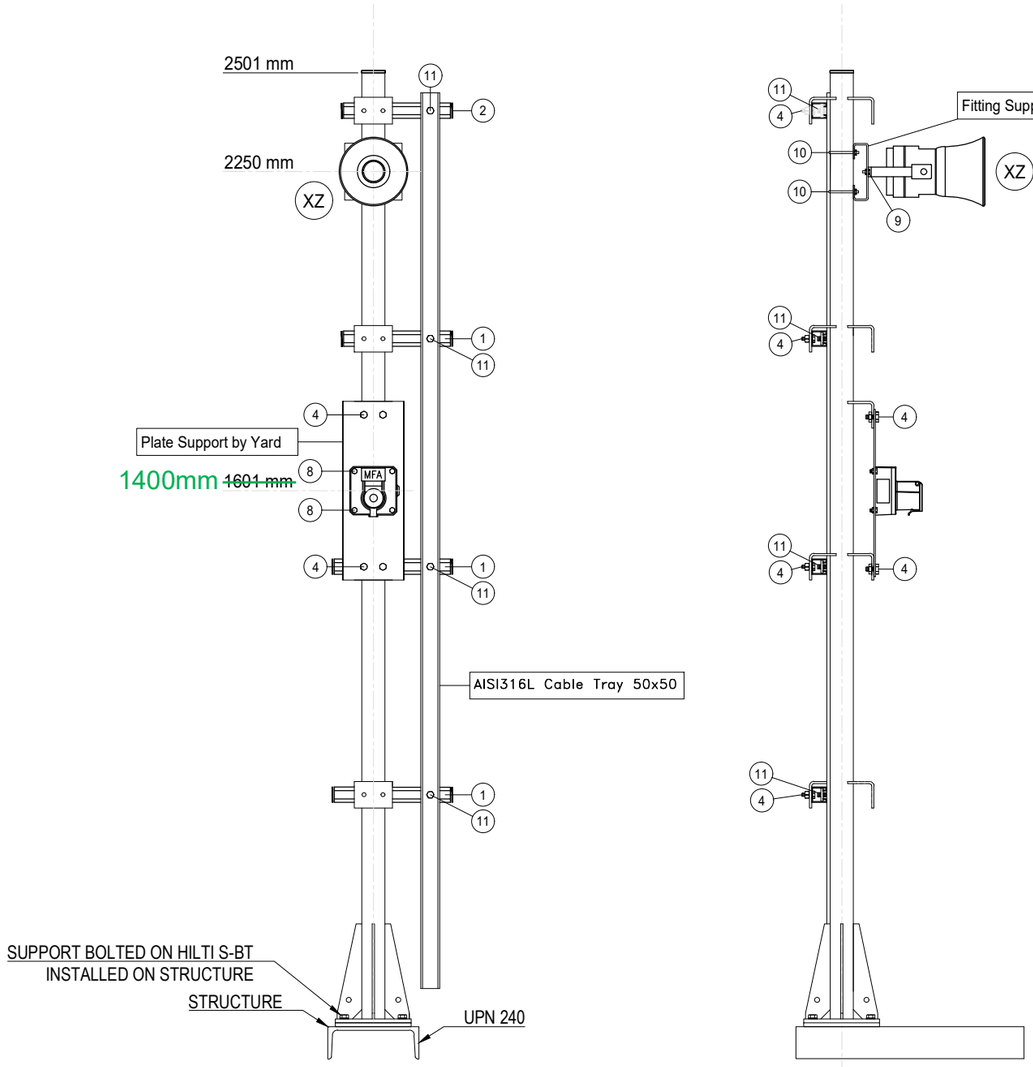
| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 070 | REV. 01 |
|---|---|---|---|

File Name : 123A90-DDL-IN-DG-40016_Rev.01

# FGS-08

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00







| POS. | DESCRIPTION | Q.TY |
|---|---|---|
| 1 | AISI 316L U-CHANNEL 41x41 | 4m |
| 2 | LDPE PLUG FOR U-CHANNEL 41x41 | 8 |
| 4 | AISI 316L BOLT M10x35 + NUT M10 + WASHER M10 | 10 |
| 8 | AISI 316L BOLT M8x35 + NUT M8 + WASHER M8 | 4 |
| 9 | ~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~ | 2 |
| 10 | AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8 | 2 |
| 11 | AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6 | 4 |

| POLE | ITEM | DESCRIPTION | TAGNAME |
|---|---|---|---|
| 1 | XZ | SOUNDER | 950-XZ-05101 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05101 |
| 2 | XZ | SOUNDER | 950-XZ-05102 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05102 |
| 3 | XZ | SOUNDER | 950-XZ-05103 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05103 |
| 4 | XZ | SOUNDER | 950-XZ-05104 |
| | MFA | MANUAL CALL POINT CONNECTED TO FGS | 950-MFA-05104 |

NOTES

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 02/09/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 11/07/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DD-40017**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_H | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

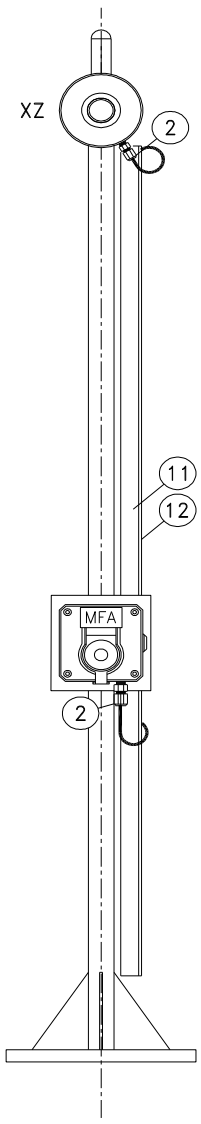
TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT INSTALLATION DETAILS
# FIRE & GAS DEVISES ON POLE

| CONTRACT NO./TITLE | | | SCALE / |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024 |

| A3 | DRAWING NO. 123A90-DDL-IN-DD-40017 | SHEET 027 | REV. 01 |
|---|---|---|---|

# ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES




| INSTRUMENT TAG | |
|---|---|
| 1 | 950-XZ-05101 |
| | 950-MFA-05101 |
| 2 | 950-XZ-05102 |
| | 950-MFA-05102 |
| 3 | 950-XZ-05103 |
| | 950-MFA-05103 |
| 4 | 950-XZ-05104 |
| | 950-MFA-05104 |

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-HD-40079**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_E | 03/12/24 | G.Randi |

**ROSETTI MARINO SpA**

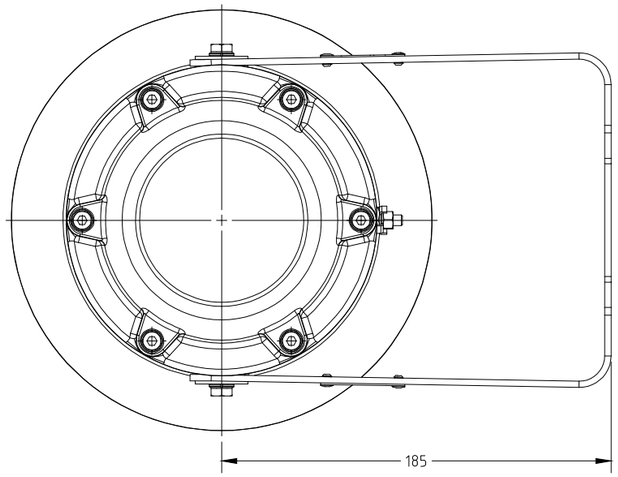
NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

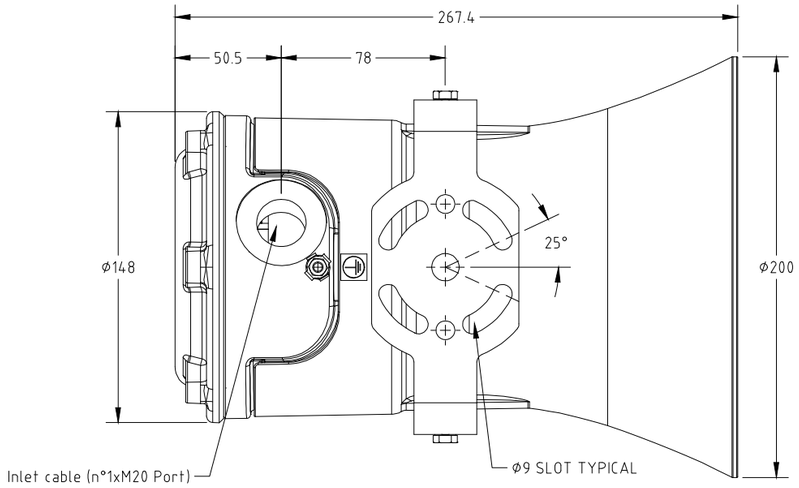
| POS. | NORM/STD CODE | DESCRIPTION | SIZE/ CONNECTION TYPE | Q.TY |
|---|---|---|---|---|
| 12 | | Cover for cable tray, FRP, Grey Color | 50 W x 10 H x 5 THK | 3 mt |
| 11 | | Perforated cable tray, FRP, Grey Color | 50 W x 50 H x 5 THK | 3 mt |
| 2 | | Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1 | M20 | 2 |



This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# SOUNDER



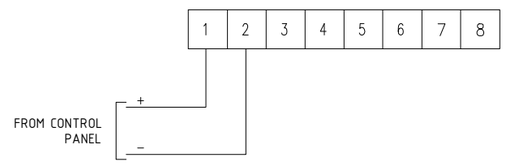

| ITEM | DESCRIPTIONS | NR |
|---|---|---|
| 1 | Sounder, MEDC DM3BMSD048DT1BNR | 1 |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

INSTALLATION QUANTITY

17

NOTE:
DUTY LABEL: EMERGENCY SHUTDOWN ALARM

## WIRING




FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
SOUNDER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 023

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

# SOUNDER – TAG

| POS. | TAG NUMBER |
|---|---|
| 1 | 950-XZ-01101 |
| 2 | 950-XZ-01102 |
| 3 | 950-XZ-02101 |
| 4 | 950-XZ-03101 |
| 5 | 950-XZ-03102 |
| 6 | 950-XZ-04101 |
| 7 | 950-XZ-04102 |
| 8 | 950-XZ-04201 |
| 9 | 950-XZ-04202 |
| 10 | 950-XZ-04203 |
| 11 | 950-XZ-05101 |
| 12 | 950-XZ-05102 |
| 13 | 950-XZ-05103 |
| 14 | 950-XZ-05104 |
| 15 | 950-XZ-06101 |
| 16 | 950-XZ-06201 |
| 17 | 950-XZ-07101 |

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| 02 | 10/10/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 03/09/24 | DB | MO | SM | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 08/07/24 | DB | MO | SM | ISSUE FOR REVIEW (IFR) |

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
SOUNDER – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 024

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

## SOUNDER

| POS. | TAG NUMBER | SERVICE | DUTY LABEL |
|---|---|---|---|
| 1 | 950-XZ-01101 | FZ-01 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 2 | 950-XZ-01102 | FZ-01 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 3 | 950-XZ-02101 | FZ-02 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 4 | 950-XZ-03101 | FZ-03 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 5 | 950-XZ-03102 | FZ-03 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 6 | 950-XZ-04101 | FZ-04 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 7 | 950-XZ-04102 | FZ-04 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 8 | 950-XZ-04201 | FZ-04 SOUNDER ACT. - B-400 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 9 | 950-XZ-04202 | FZ-04 SOUNDER ACT. - B-300 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 10 | 950-XZ-04203 | FZ-04 SOUNDER ACT. - B-200 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 11 | 950-XZ-05101 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 12 | 950-XZ-05102 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 13 | 950-XZ-05103 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 14 | 950-XZ-05104 | FZ-05 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 15 | 950-XZ-06101 | FZ-06 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |
| 16 | 950-XZ-06201 | FZ-06 SOUNDER ACT. - B-100 INDOOR | EMERGENCY SHUTDOWN ALARM |
| 17 | 950-XZ-07101 | FZ-07 SOUNDER ACTIVATION | EMERGENCY SHUTDOWN ALARM |



File: 1724000821-IN-DS-00004-02.xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

# DB3BM sounders range up to 116dB

## Ex d, weatherproof



## Overview

The DB3BM is a high power explosion proof sounder, introduced as a replacement for the current DB1 / DB1H with improved functionality and performance. Certified for use in a wide range of temperatures from -60°C to +85°C the Ex enclosure is manufactured in either marine grade alloy or stainless steel with a rugged thermoplastic flare providing a corrosion free and aesthetically pleasing product.

Capable of producing 116 dB @ 1m and with a range of pre-recorded tones, the DB3BM includes an integral volume control which is ideal when a lower output is required.

The unit is provided with versatile control options allowing compatibility with a wide range of control methods and PLCs.

The standard DC unit provides 3 tone stages, each stage has 28 tones available which can be independently selected. The unit can be controlled by reversing the polarity of the power supply (2 stage) or providing a common negative and switching between multiple positive supplies.

The DB3BM proves its versatility by additionally being able to work with a common positive supply and switching the negatives. The tone stages of the DB3BM can also be controlled via voltage free contacts provided by a control panel.

The flexibility of the range continues with a wide range of supply voltages. The short flare option is a worthy addition to the range offering a high SPL in a compact unit.

## Features

- UKEX / ATEX / IECEx
  Ex db IIC T4/T5/T6 Gb
  Ex tb IIIC T4/T5/T6 Db
- Certified temperature: –60°C to +85°C
- IP66 & IP67 (terminal only)
- Up to 116 dB output @ 1 m
- Integral volume control
- 28 tones, user selectable
- 3 stage unit remotely switchable
- Tones can be programmed to customer's specification
- DC supply voltage between 12 V and 48 V
- End of line resistor option
- Sounder & beacon combination units available, for further details contact MEDC
- Ex enclosure – marine grade alloy or stainless steel
- Flare - high impact thermoplastic polyester
- Stainless steel mounting bracket and cover screws
- Mounting bracket has ratchet facility as standard
- Swivel bracket standard on Stainless steel unit, optional on Alloy units



Stainless steel body, short flare version

ATEX IECEx UKCA

Eaton
Unit B, Sutton Parkway
Oddicroft Lane
Sutton in Ashfield
United Kingdom
NG17 5FB

T: +44 (0) 1623 444 400
www.crouse-hinds.com/hac
MEDCSales@Eaton.com

© 2022 Eaton
All Rights Reserved
Printed in UK
Publication
No.DSMC0032/B
March 2022

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Powering Business Worldwide

All specifications, dimensions, weights and tolerances are nominal (typical) and Eaton reserve the right to vary all data without prior notice.
No liability is accepted for any consequence of use.

## Certifications

| | |
|---|---|
| **ATEX Ex db** | Cert. no. UL 21 ATEX02559X. Certified to: EN IEC 60079-0, EN 60079-1, 31<br>Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db,<br>IP66 (IP65 short flare) |
| **IECEx Ex db** | Cert. no. IECEx ULD 21.0017X. Certified to: IEC60079-0,1,31<br>Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db,<br>IP66 (IP65 short flare) |
| **UKEX Ex db** | Cert. no. UL21UKEX2209X. Certified to: EN IEC 60079-0, EN 60079-1, 31<br>Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db<br>IP66 (IP65 short flare) |
| **Safe Area** | EN 61010-1, EN 60529, EN61000-6 |

## Specifications

| | |
|---|---|
| **Material** | Ex enclosure – marine grade alloy or stainless steel<br>Flare - flame retardant, high impact, UV stable, thermoplastic polyester<br>(UV stability tested to ISO 4892 part 3)<br>Hardware - bracket, fixings and captive cover screws in 316 stainless steel |
| **Fire retardancy** | Outer flare - thermoplastic polyester. V0 flammability rating |
| **Finish** | Body – alloy: painted black. Stainless steel: painted black. Flare - natural black, natural red or painted as specified |
| **Voltage** | DC: 12 - 48 V. AC: Up to 254 V. if using EOL resistor/s the maximum power dissipation must be limited to 3 W. |
| **Weight** | Alloy - 4.4 kg, stainless steel 8.35 kg based on long flare DC unit |
| **Ingress protection** | IP66 & IP67 (terminal only). IP65 short flare |
| **Entries** | Up to 2 x M20 or M25 or ½"or ¾" NPT. Blanking plug available |
| **Terminals** | AC: 4 x 1.5mm² (loop in / out power), 3 x 2.5mm² (tone selection) (standard unit only)<br>DC: 8 x 2.5mm² (8 for loop in / out power and tone selection) (standard unit only) |
| **Mounting arrangement** | Stainless steel bracket with ratchet facility, optional swivel bracket available.<br>Swivel standard on stainless steel unit |
| **Labels** | Optional duty and tag labels available |
| **Tone information** | 28 tones per stage. Additional custom tones available (contact MEDC)<br>Suitable for use with 200 Hz tones |
| **Relative Humidity** | 99% Non-condensing |

## Tone activation and selection

| Voltage | Unit | No.of stages | Tone activation | Tone selection |
|---|---|---|---|---|
| DC | Standard | 1 | Apply power | 1 x DIP switch |
| | | 2 | Reverse polarity | 2 x DIP switches |
| | | | Common -ve with 2 +ve supplies | 2 x DIP switches |
| | | | *Common +ve with 2 -ve supplies | 2 x DIP switches |
| | | 3 | Common -ve with 3 +ve supplies | 3 x DIP switches |
| | Alternative tone activation (Option M) | 2 | *Common -ve with 2 +ve supplies | 2 x DIP switches |
| | | 3 | Common +ve with 3 -ve supplies | 3 x DIP switches |
| | Alternative tone activation (remote) (Option R) | 1-5 | Volt free activation (remote switching) | 1 x DIP switch for stage 1. Tone pre-selected for subsequent stages |
| AC | Standard | 1 | Apply power | 1 x DIP switch |
| | Alternative tone activation (remote) (Option R) | 1-2 | Volt free activation (remote switching) | 1 x DIP switch for stage 1. Tone preselected for the 2nd stage |

*Reverse polarity line monitoring can be used with common positive or negative switching to give up to 2 operational stages and a 3rd monitoring connection. An EOL resistor can be fitted as shown in the technical manual. All connection details are shown in the technical manual.

**Current consumption:** Based on a continuous 970Hz tone

| Voltage | Current for IIC unit | Current for IIIC unit |
|---|---|---|
| 12 Vdc | 700 mA | 716 mA |
| 24 Vdc | 329 mA | 339 mA |
| 48 Vdc | 171 mA | 173 mA |
| 110 Vac | 115 mA | 122 mA |
| 120 Vac | 106 mA | 113 mA |
| 220 Vac | 59 mA | 63 mA |
| 230 Vac | 52 mA | 55 mA |
| 240 Vac | 55 mA | 58 mA |
| 254 Vac | 59 mA | 63 mA |

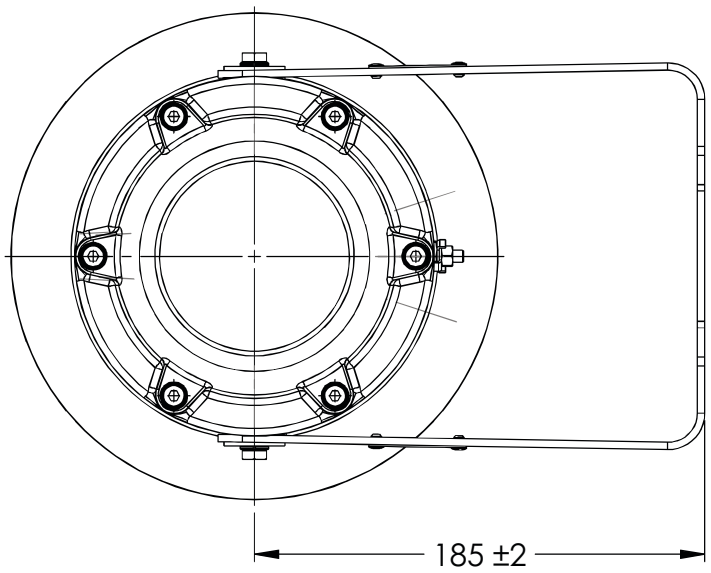
| Certified temperature | Ex d/UL min | Max |
|---|---|---|
| | -60°C | +85°C |

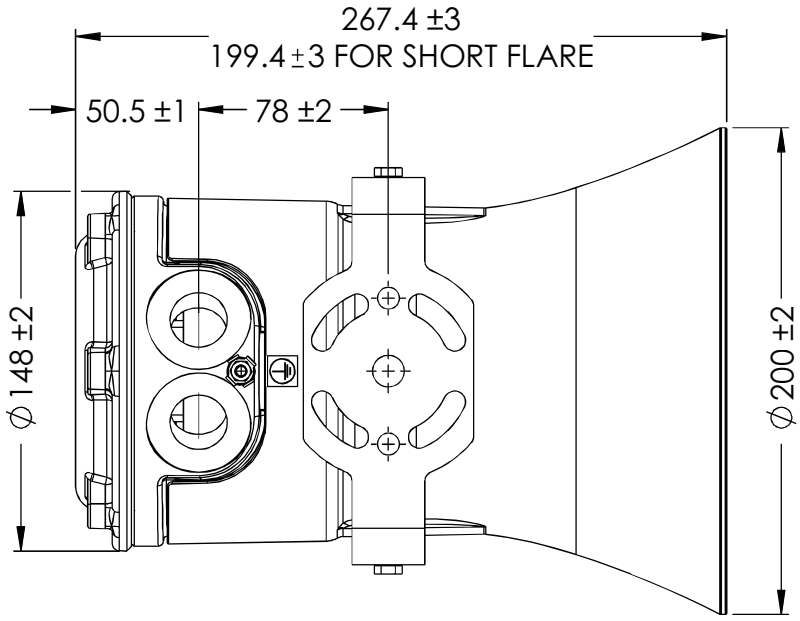
Operating temperature at launch (DC Only): -40 °C min +85 °C max
**-55 °C as standard to follow. Please contact MEDC for low temperature options**

| Max output (dB) 1400Hz @ 1m | Short Flare | Long Flare |
|---|---|---|
| | 113 dB | 116 dB |

For Labels and Entries select any option as required. For Options select either (N) None or (E) EOL as required
Tolerance +/-3dB. Please see the technical manual for tone specific SPL values

## General arrangement drawing (all dimensions in mm)




# Ordering requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

**Model:** DB3BM

**Material:** S

| Finish | Code |
|---|---|
| Alloy | A |
| Stainless Steel | S |

**Ex Certification:** D

| Ex Certification | Code |
|---|---|
| UKEX/ATEX Ex d | D |
| IECEx Ex d | J |
| Weatherproof | W |

**Voltage:** 048

| Voltage | Code |
|---|---|
| 12-48 Vdc | 048‡ |
| 110 Vac | 110 |
| 120 Vac | 120* |
| 220 Vac | 220 |
| 230 Vac | 230 |
| 240 Vac | 240* |
| 254 Vac | 254 |

*Complies with UL regulated power supply requirements

**Labels:** DT

| Labels | Code |
|---|---|
| None | N |
| Duty | D* |
| Tag | T* |

*Please specify

**Entries:** 1B

| Entries | Code |
|---|---|
| 1 x M20 | 1B |
| 2 x M20 | 2B |
| 2 x M20 inc 1 x plug | 2BP |
| 1 x ½"NPT | 1C |
| 2 x ½" NPT | 2C |
| 2 x ½" NPT inc 1 x plug | 2CP |
| 1 x M25 | 1D |
| 2 x M25 | 2D |
| 2 x M25 inc 1x plug | 2DP |
| 1 x ¾" NPT | 1E |
| 2 x ¾" NPT | 2E |
| 2 x ¾" NPT inc 1x plug | 2EP |

**Options:** N

| Options | Code |
|---|---|
| None | N |
| Swivel bracket | B‡ |
| EOL | E* |
| Alternative tone activation | M** |
| Volt free activation (remote) | R** |
| Short flare | S |
| Custom tones (not std 27) | TΔ |

‡ Alloy only - stainless steel has swivel as standard
*Specify value max power dissipation is 3W
**These options cannot be selected together
ΔSpecify details

**Finish:** R (RAL 3020)

| Finish | Code |
|---|---|
| Natural black | N |
| Natural red | R |
| Yellow | Y |
| Grey | G |
| Blue | B |
| Special | S* |

*Please specify

ROSETTI MARINO — CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-GDZ-05104/950-JE-05101 : GAS DETECTOR / MARSHALLING PCS | | | | Dwg | 123A90-DDL-IN-LIS-40091 |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | | Module | LD/LD_B-100_Ext |
| **TASK** | code | C10001461 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental | Form | CJX10 — Multi/Single-Core Instrument Control Cable |

## CABLE DATA

Type: Cu-MICA-XLPE-OS-LSZH-SWB-LSZH — Cores/Size mm²: 1X3X2,5 mm2 — Color: ORANGE

From: 950-GDZ-05104 — To: 950-JE-05101

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | PL |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | | |
|---|---|---|---|---|
| INSULATION | CORE to EARTH | | >999 | MΩ |
| | CORE to CORE | | >999 | MΩ |
| | CORE to SCREEN | | >999 | MΩ |
| | CORE to ARMr | | >999 | MΩ |
| | SCREEN to EARTH | | >999 | MΩ |
| | SCREEN to ARMr | | >999 | MΩ |
| CONTINUITY | CORES | | 0.4 | Ω |
| | SCREEN | | 0.4 | Ω |
| | EARTH | | NA | Ω |
| | ARMr | | 0.4 | Ω |
| | TEST VOLTS | | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

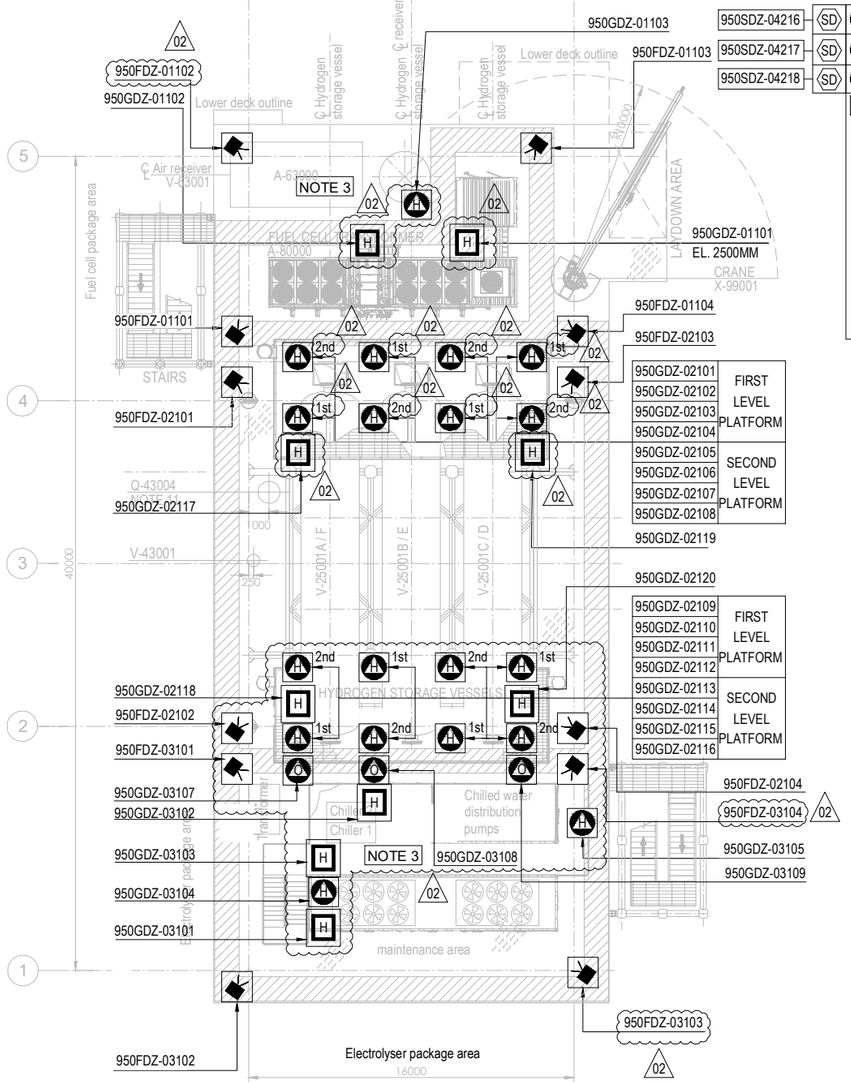
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 — Calibration date: N°7722/24 10/07/2024

Comments: Nota 5: refer to PL C30000680

| Page 1/1 | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Francesco Zucca | Giovanni Tangianu | |
| Date | 2024-12-07 | 2024-12-11 | |
| Signature | Digitaly signed by Francesco Zucca 2024-12-07T08:01:01.914Z | Digitaly signed by Giovanni Tangianu 2024-12-11T17:53:47.240Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



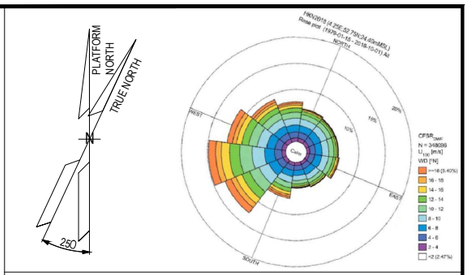

PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

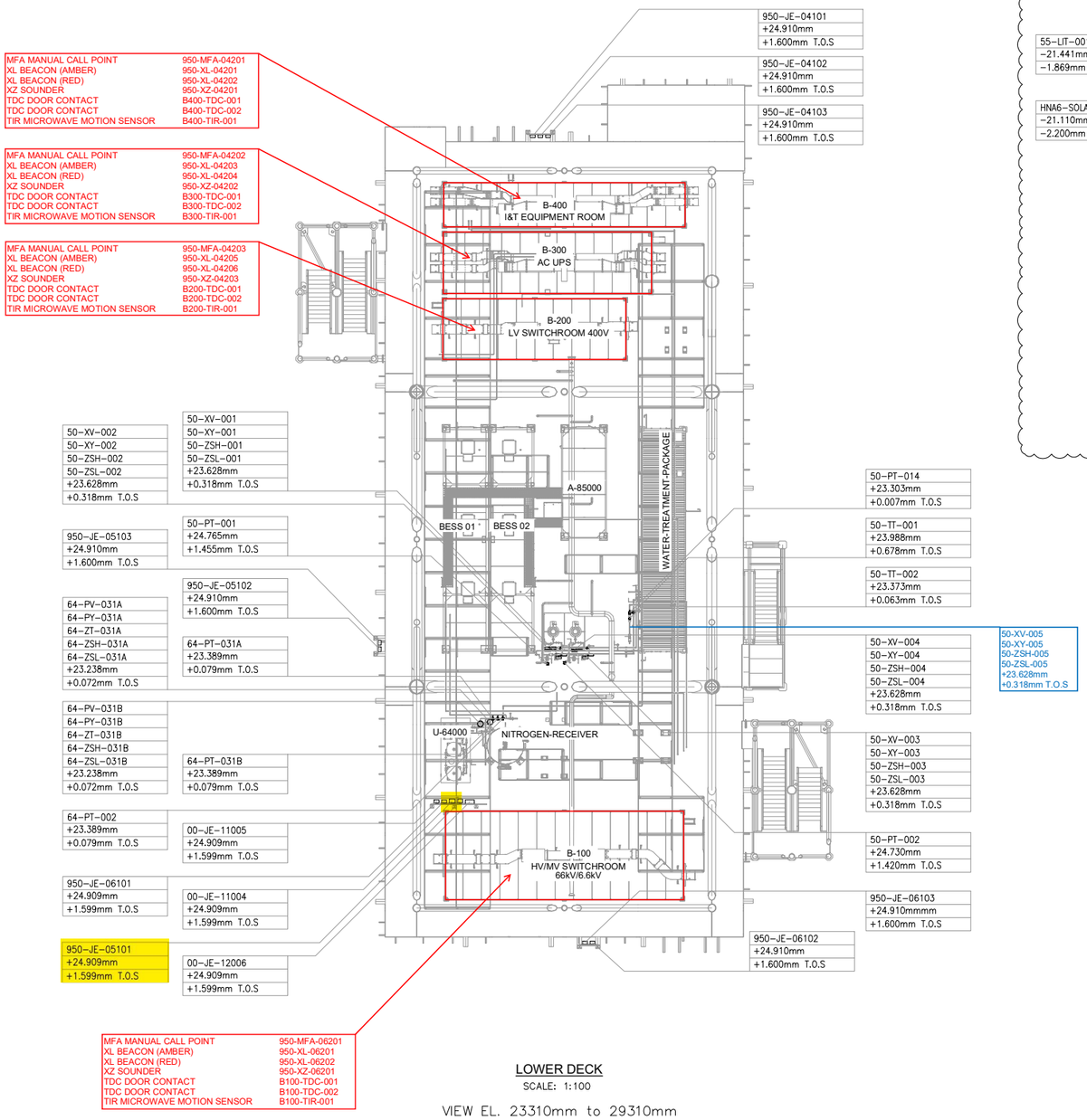
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

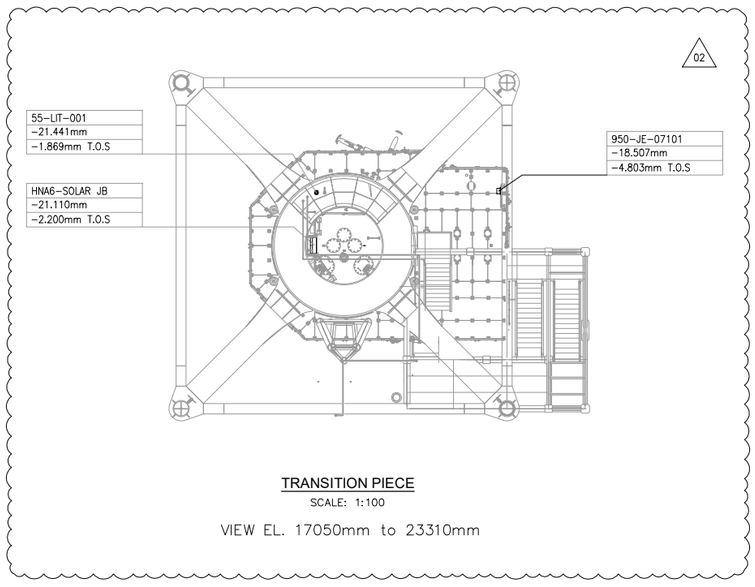
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

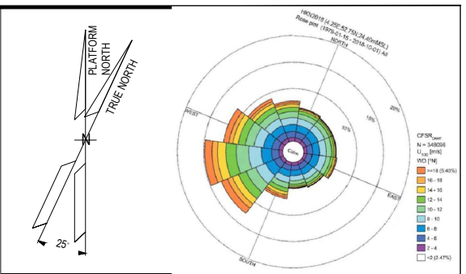
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016 REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-05101 — C-950-FDZ-05101/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05102 — C-950-FDZ-05102/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05103 — C-950-FDZ-05103/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05104 — C-950-FDZ-05104/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05101 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05101/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05102 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05102/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05103 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05103/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05104 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05104/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05105 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05105/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05106 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05106/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

TB-1

| | | |
|---|---|---|
| 1 | TR1 | |
| 2 | TR1 | |
| 3 | TR1 | |
| SH | | |
| 4 | TR2 | |
| 5 | TR2 | |
| 6 | TR2 | |
| SH | | |
| 7 | TR3 | |
| 8 | TR3 | |
| 9 | TR3 | |
| SH | | |
| 10 | TR4 | |
| 11 | TR4 | |
| 12 | TR4 | |
| SH | | |
| 13 | TR5 | |
| 14 | TR5 | |
| 15 | TR5 | |
| SH | | |
| 16 | TR6 | |
| 17 | TR6 | |
| 18 | TR6 | |
| SH | | |
| 19 | TR7 | |
| 20 | TR7 | |
| 21 | TR7 | |
| SH | | |
| 22 | TR8 | |
| 23 | TR8 | |
| 24 | TR8 | |
| SH | | |
| 25 | TR9 | |
| 26 | TR9 | |
| 27 | TR9 | |
| SH | | |
| 28 | TR10 | |
| 29 | TR10 | |
| 30 | TR10 | |
| SH | | |
| 31 | TR11 | |
| SPARE 32 | TR11 | |
| 33 | TR11 | |
| SH | | |
| 34 | TR12 | |
| SPARE 35 | TR12 | |
| 36 | TR12 | |
| SH | | |
| OS | | |

950-JE-05101/B400-FGS-003

~~950-JE-05101/B400-FGS-002~~

12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05101

| | | |
|---|---|---|
| 1 | TR1 | |
| 2 | TR1 | 950-FDZ-05101 |
| 3 | TR1 | |
| 4 | TR2 | |
| 5 | TR2 | 950-FDZ-05102 |
| 6 | TR2 | |
| 7 | TR3 | |
| 8 | TR3 | 950-FDZ-05103 |
| 9 | TR3 | |
| 10 | TR4 | |
| 11 | TR4 | 950-FDZ-05104 |
| 12 | TR4 | |
| 13 | TR5 | |
| 14 | TR5 | 950-GDZ-05101 |
| 15 | TR5 | |
| 16 | TR6 | |
| 17 | TR6 | 950-GDZ-05102 |
| 18 | TR6 | |
| 19 | TR7 | |
| 20 | TR7 | 950-GDZ-05103 |
| 21 | TR7 | |
| 22 | TR8 | |
| 23 | TR8 | 950-GDZ-05104 |
| 24 | TR8 | |
| 25 | TR9 | |
| 26 | TR9 | 950-GDZ-05105 |
| 27 | TR9 | |
| 28 | TR10 | |
| 29 | TR10 | 950-GDZ-05106 |
| 30 | TR10 | <01> |
| 31 | TR11 | |
| 32 | TR11 | SPARE |
| 33 | TR11 | |
| 34 | TR12 | |
| 35 | TR12 | SPARE |
| 36 | TR12 | |

Shield Bar — I.E. — Shield Bar

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |
| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 045 | REV. 01 |

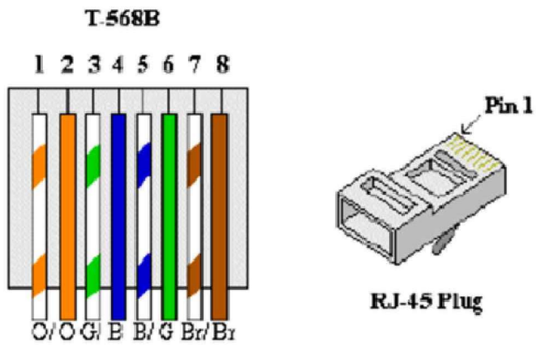
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



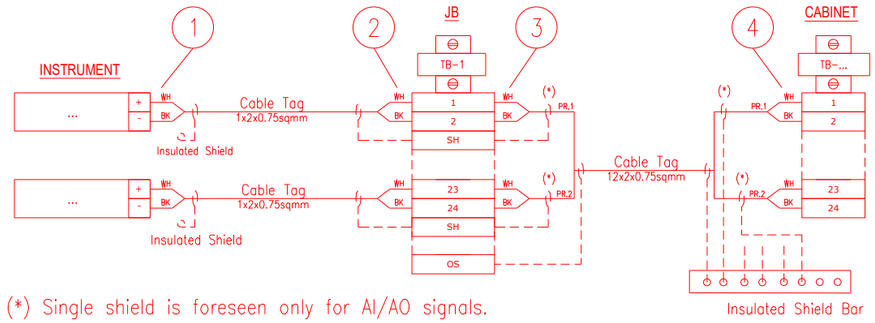

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

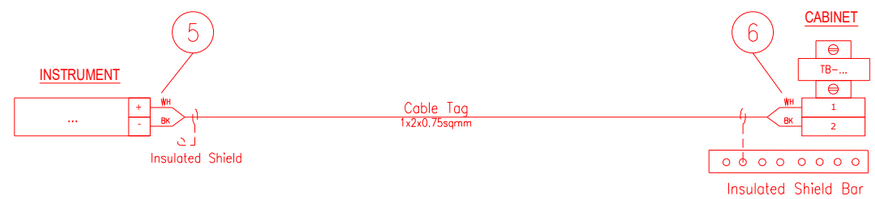
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

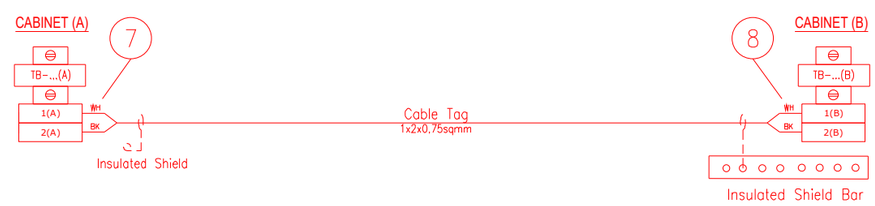
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

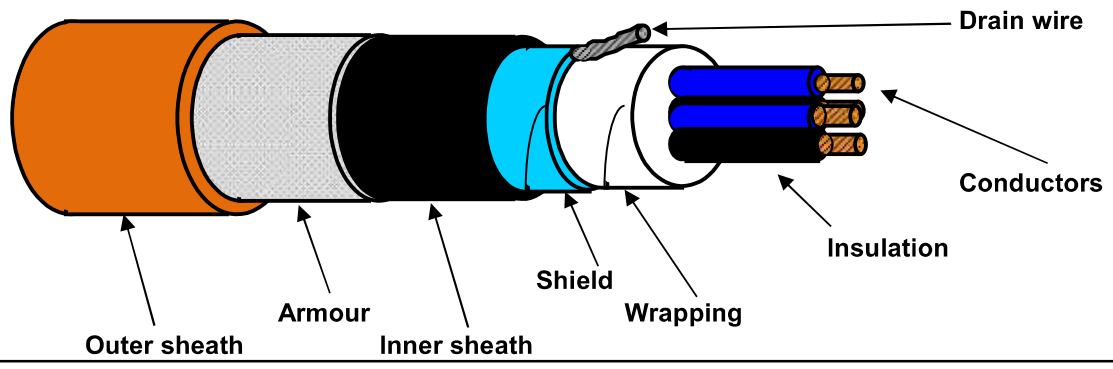
| | | | |
|---|---|---|---|
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40015 | SHEET 003 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-GDZ-05104/950-JE-05101 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-GDZ-05104 | Gas Detector | Lower Deck | 950-JE-05101 | AI JB to FGS | Lower Deck (B-100) Ext. | SMICV14-1X3X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange | T2_M20_Double | | | T2_M20_Dou ble | | | | L-SEC-1F / L-SEC-1G / L-SEC-1H / L-SEC-1I / L-SEC-1J / L-SEC-1L / L-SEC-1M / L-SEC-16 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| **Cores colour code :** | **Red - White - Black** | |
| **Triad Assembling :** | Not required | |
| **Triad Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Triad Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 7/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (10,9 ± 10%) mm | |
| **Over armour diameter :** | (12,1 ± 10%) mm | |
| **Outer diameter :** | (14,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 7,86 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 60 μH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

The data provided herein are meant for the transmission will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-GDZ-05105/950-JE-05101 : GAS DETECTOR / MARSHALLING PCS | | | | Dwg | 123A90-DDL-IN-LIS-40091 |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | | Module | LD/LD_B-100_Ext |
| **TASK** | code | C10001462 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental | Form | CJX10 Multi/Single-Core Instrument Control Cable |

## CABLE DATA

Type: Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm²: 1X3X2,5 mm2 | Color: ORANGE

From: 950-GDZ-05105 | To: 950-JE-05101

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | PL |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | PL |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | | |
|---|---|---|---|---|
| INSULATION | CORE to EARTH | | >999 | MΩ |
| | CORE to CORE | | >999 | MΩ |
| | CORE to SCREEN | | >999 | MΩ |
| | CORE to ARMr | | >999 | MΩ |
| | SCREEN to EARTH | | >999 | MΩ |
| | SCREEN to ARMr | | >999 | MΩ |
| CONTINUITY | CORES | | 0,5 | Ω |
| | SCREEN | | 0,5 | Ω |
| | EARTH | | NA | Ω |
| | ARMr | | 0,5 | Ω |
| | TEST VOLTS | | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

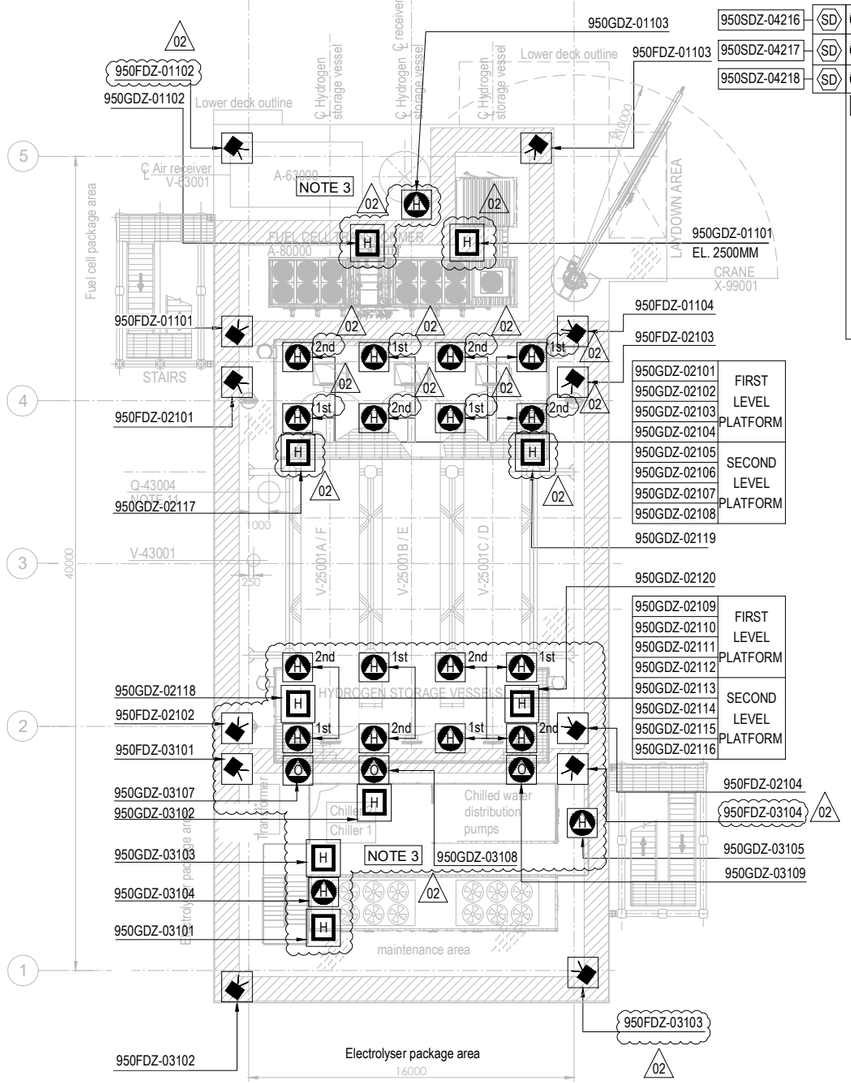
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 | Calibration date: N°7722/24 10/07/2024

Comments: Nota 5: refer to PL C30000680

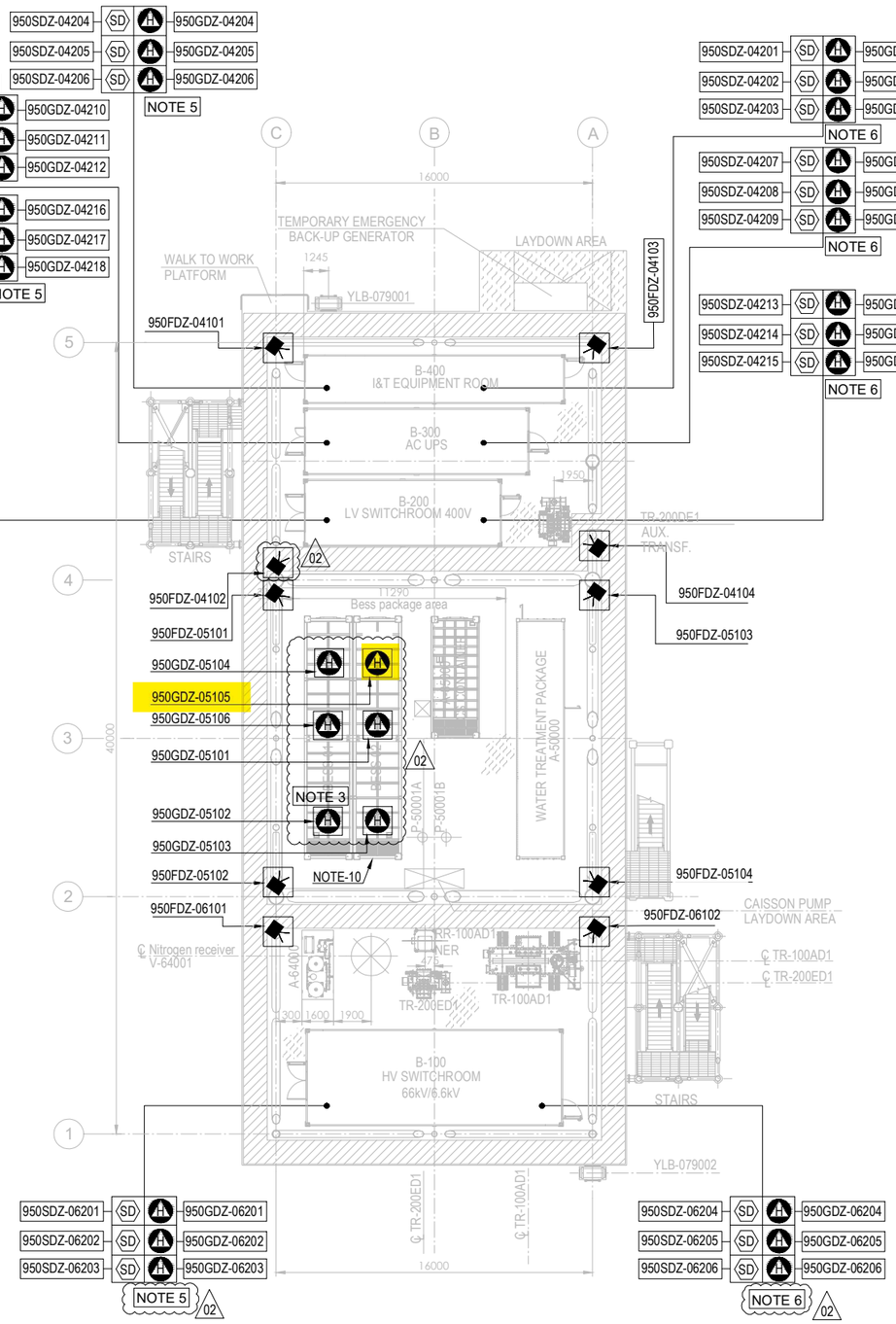
| Page 1/1 | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Francesco Zucca | Giovanni Tangianu | |
| Date | 2024-12-07 | 2024-12-11 | |
| Signature | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T08:01:20.494Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-11T18:00:20.010Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.

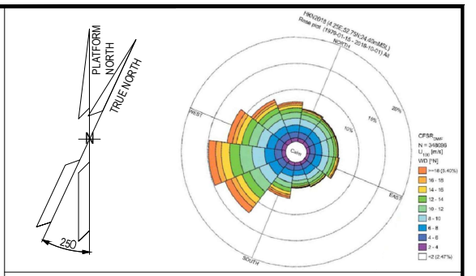



PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

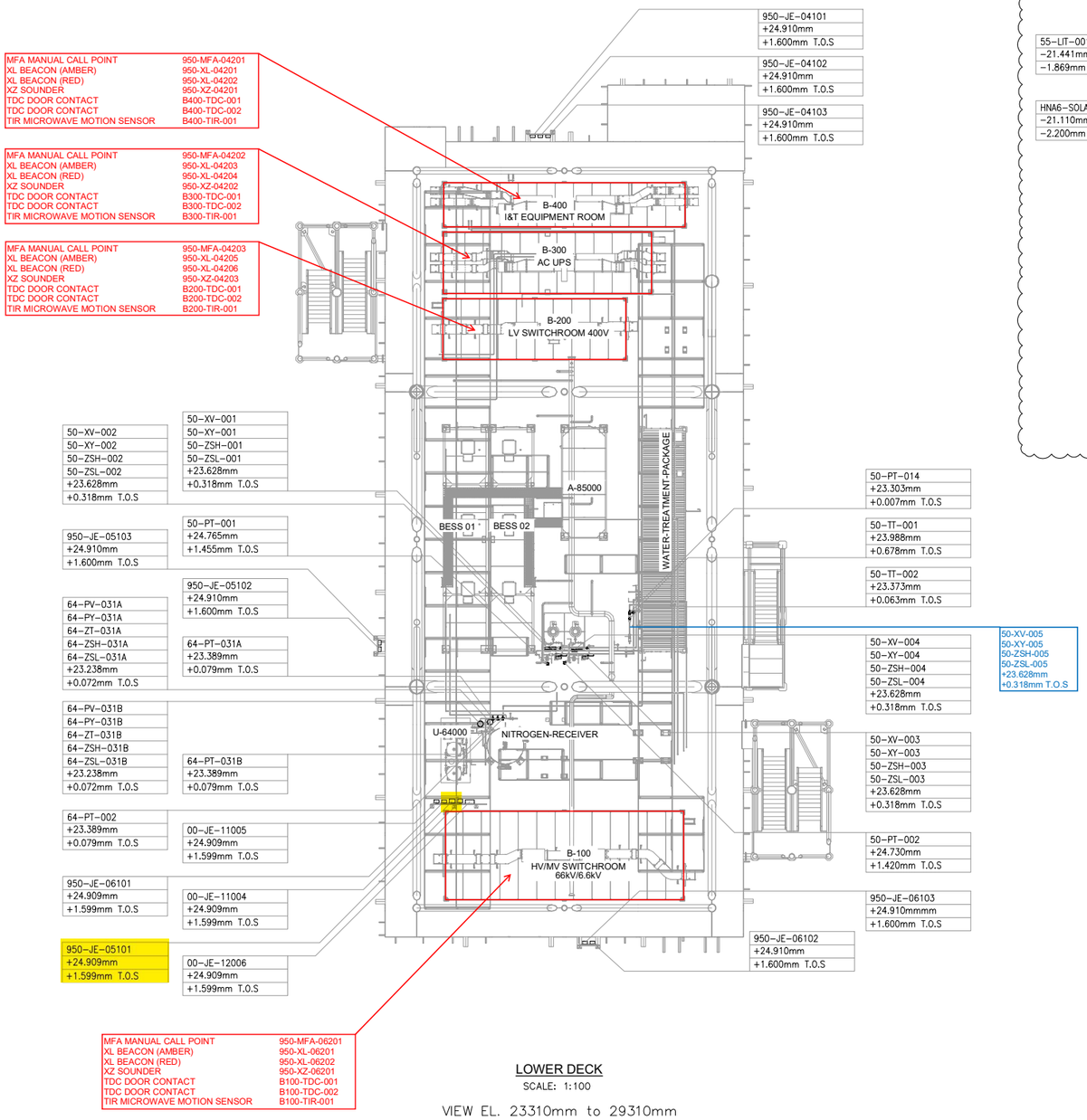
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

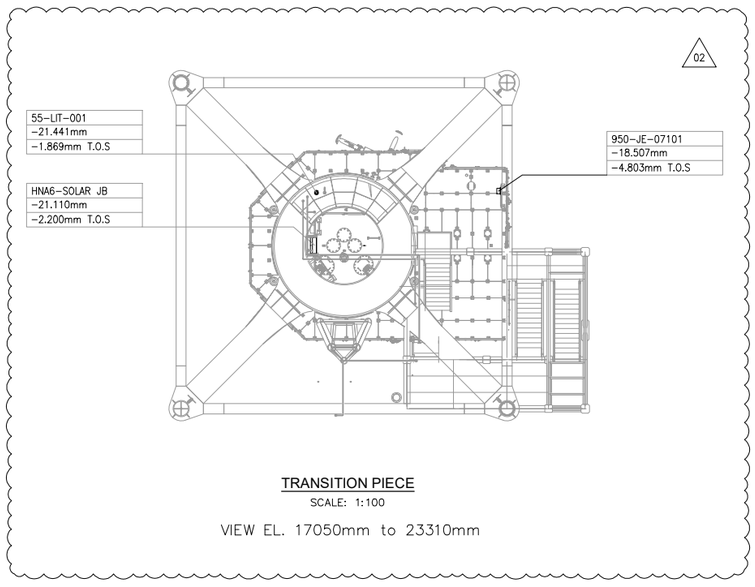
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

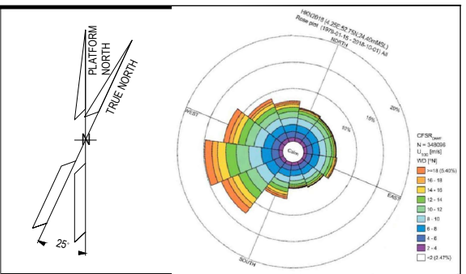
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016 REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-05101 — C-950-FDZ-05101/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05102 — C-950-FDZ-05102/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05103 — C-950-FDZ-05103/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-FDZ-05104 — C-950-FDZ-05104/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05101 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05101/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05102 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05102/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05103 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05103/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05104 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05104/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05105 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05105/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-GDZ-05106 (PWR+, 4-20mA, PWR-) — C-950-GDZ-05106/950-JE-05101 — 3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

TB-1

| | | |
|---|---|---|
| 1 | TR1 | RD, WH, BK |
| 2 | | |
| 3 | | |
| SH | | |
| 4 | TR2 | RD, WH, BK |
| 5 | | |
| 6 | | |
| SH | | |
| 7 | TR3 | RD, WH, BK |
| 8 | | |
| 9 | | |
| SH | | |
| 10 | TR4 | RD, WH, BK |
| 11 | | |
| 12 | | |
| SH | | |
| 13 | TR5 | RD, WH, BK |
| 14 | | |
| 15 | | |
| SH | | |
| 16 | TR6 | RD, WH, BK |
| 17 | | |
| 18 | | |
| SH | | |
| 19 | TR7 | RD, WH, BK |
| 20 | | |
| 21 | | |
| SH | | |
| 22 | TR8 | RD, WH, BK |
| 23 | | |
| 24 | | |
| SH | | |
| 25 | TR9 | RD, WH, BK |
| 26 | | |
| 27 | | |
| SH | | |
| 28 | TR10 | RD, WH, BK |
| 29 | | |
| 30 | | |
| SH | | |
| 31 | TR11 | RD, WH, BK |
| SPARE | | |
| 32 | | |
| 33 | | |
| SH | | |
| 34 | TR12 | RD, WH, BK |
| SPARE | | |
| 35 | | |
| 36 | | |
| SH | | |
| OS | | |

950-JE-05101/B400-FGS-003

~~950-JE-05101/B400-FGS-002~~

12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-05101

| | | |
|---|---|---|
| TR1 | 1, 2, 3 | 950-FDZ-05101 |
| TR2 | 4, 5, 6 | 950-FDZ-05102 |
| TR3 | 7, 8, 9 | 950-FDZ-05103 |
| TR4 | 10, 11, 12 | 950-FDZ-05104 |
| TR5 | 13, 14, 15 | 950-GDZ-05101 |
| TR6 | 16, 17, 18 | 950-GDZ-05102 |
| TR7 | 19, 20, 21 | 950-GDZ-05103 |
| TR8 | 22, 23, 24 | 950-GDZ-05104 |
| TR9 | 25, 26, 27 | 950-GDZ-05105 |
| TR10 | 28, 29, 30 | 950-GDZ-05106 <01> |
| TR11 | 31, 32, 33 | SPARE |
| TR12 | 34, 35, 36 | SPARE |

Shield Bar — I.E.

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# 950–JE–05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |
| A3 | DRAWING NO. 123A90–DDL–IN–DG–40016 | SHEET 045 | REV. 01 |

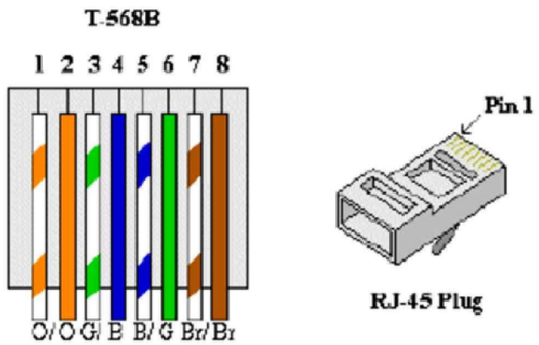
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



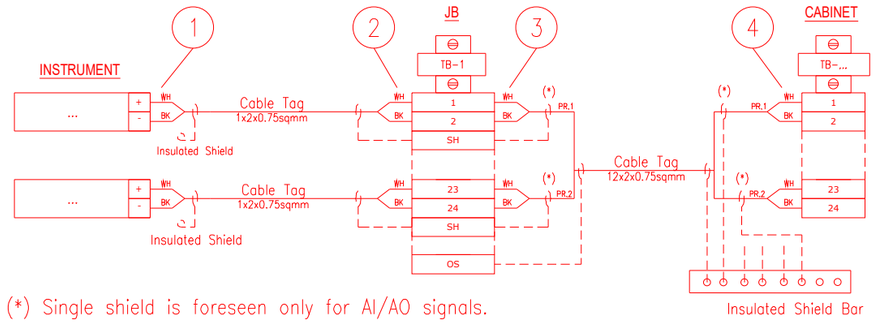

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

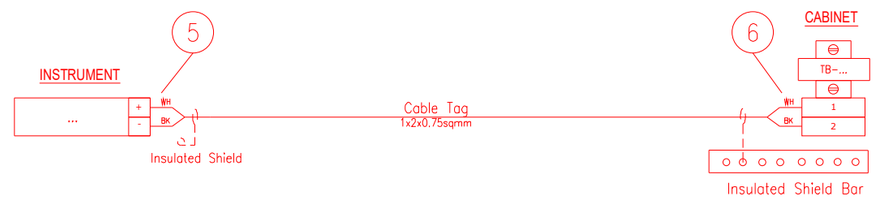
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

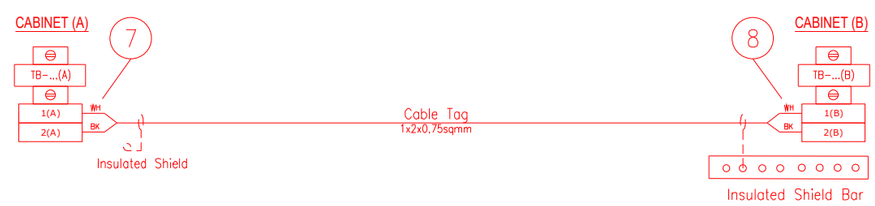
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

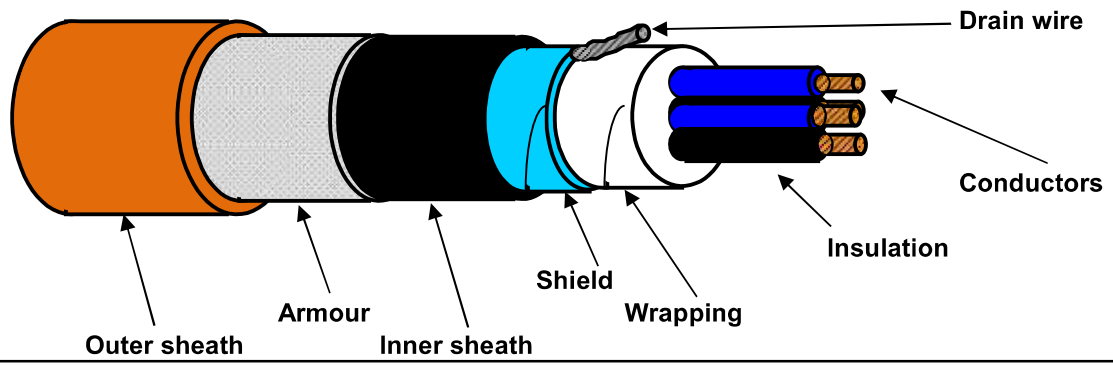
| | | | |
|---|---|---|---|
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40015 | SHEET 003 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-GDZ-05105/950-JE-05101 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-GDZ-05105 | Gas Detector | Lower Deck | 950-JE-05101 | AI JB to FGS | Lower Deck (B-100) Ext. | SMICV14-1X3X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange | T2_M20_Double | | | T2_M20_Dou ble | | | | L-SEC-1F / L-SEC-1G / L-SEC-1H / L-SEC-1I / L-SEC-1J / L-SEC-1L / L-SEC-1M / L-SEC-16 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| **Cores colour code :** | **Red - White - Black** | |
| **Triad Assembling :** | Not required | |
| **Triad Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Triad Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 7/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (10,9 ± 10%) mm | |
| **Over armour diameter :** | (12,1 ± 10%) mm | |
| **Outer diameter :** | (14,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 7,86 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 60 μH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

The data provided herein are meant for the transmission will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

ROSETTI MARINO — PROVERLIS — CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | C-950-GDZ-05106/950-JE-05101 : GAS DETECTOR / MARSHALLING PCS | | | | Dwg | 123A90-DDL-IN-LIS-40091 |
| | S/Sys | 70-16 : F&G Devices FZ-05 (Bess Area) | | | | Module | LD/LD_B-100_Ext |
| **TASK** | code | C10001463 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX10 | | Multi/Single-Core Instrument Control Cable |

## CABLE DATA

| | | | | | |
|---|---|---|---|---|---|
| Type | Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm² | 1X3X2,5 mm2 | Color | ORANGE |
| From | 950-GDZ-05106 | | To | 950-JE-05101 | |

| | | |
|---|---|---|
| 1 | Check cable is as specified in project cable schedule. | OK |
| 2 | Check relevant documents are at the latest revision. | OK |
| 3 | Check cable is routed in accordance with cable layout drawings. | OK |
| 4 | Check cable for any physical damage. | OK |
| 5 | Check cable is adequately supported and correctly fixed to rack according to Project specification. | Note |
| 6 | Check bending radius is within the specified limits. | OK |
| 7 | Check cable is correctly loomed and segregated in accordance with specification. | OK |
| 8 | Check cable and core marking are in accordance with specification. | PL |
| 9 | Check cable labelling is in accordance with specification. | PL |
| 10 | Check that glands, shrouds and earthing are in accordance with specification. | OK |
| 11 | Check terminations are in accordance with termination diagram | OK |
| 12 | Check gland plate for single core cables is non-ferrous. | NA |
| 13 | If required produce Red Line Mark Up for "AS BUILT" | |

| | | | | |
|---|---|---|---|---|
| INSULATION | CORE to EARTH | | >999 | MΩ |
| | CORE to CORE | | >999 | MΩ |
| | CORE to SCREEN | | >999 | MΩ |
| | CORE to ARMr | | >999 | MΩ |
| | SCREEN to EARTH | | >999 | MΩ |
| | SCREEN to ARMr | | >999 | MΩ |
| CONTINUITY | CORES | | 0,4 | Ω |
| | SCREEN | | 0,4 | Ω |
| | EARTH | | NA | Ω |
| | ARMr | | 0,4 | Ω |
| | TEST VOLTS | | 500 | V |

**TEST ALL CORES AND RECORD LOWEST VALUE**

Notes: The lowest value is recorded and must be within project specifications

**TESTING INSTRUMENTS USED**

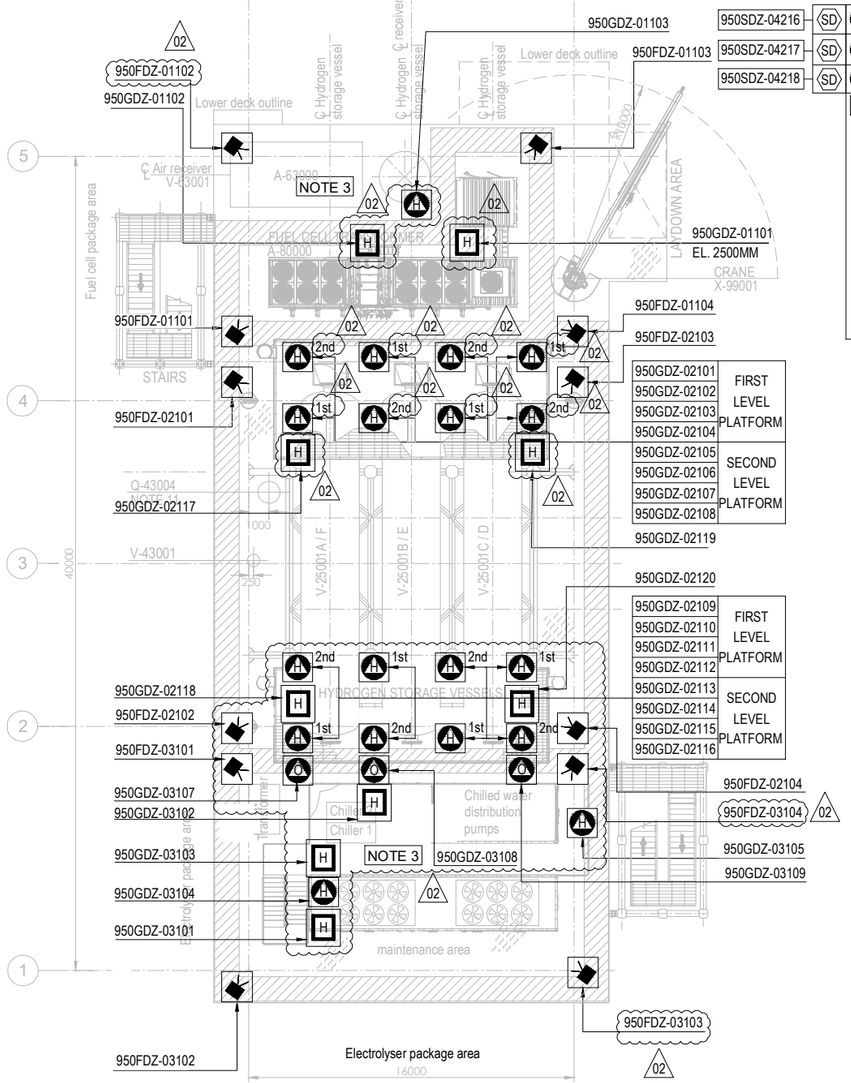
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680

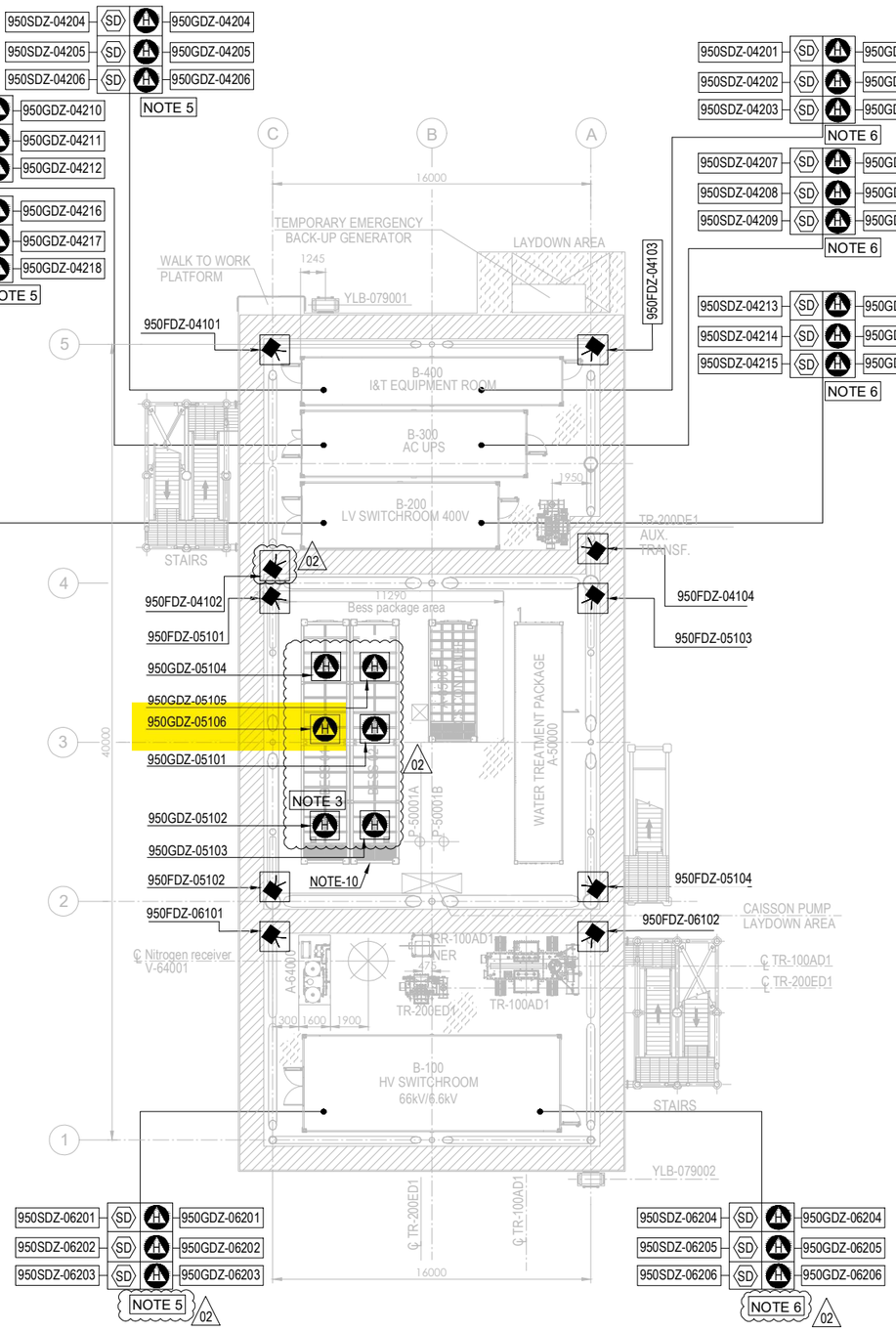
| Page 1/1 | Performed by | ☑ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| Name | Francesco Zucca | Giovanni Tangianu | |
| Date | 2024-12-07 | 2024-12-12 | |
| Signature | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T08:01:31.286Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-12T07:12:04.453Z | |

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02




PLAN ON UPPER DECK
EL+30.310 T.O.S.

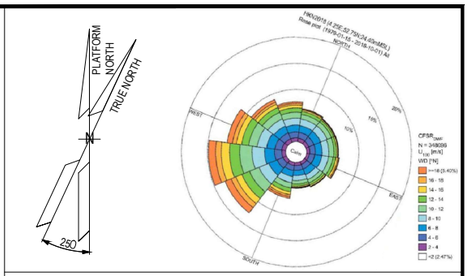



PLAN ON LOWER DECK
EL+23.310 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION | TAG NUMBER | DESCRIPTION |
|---|---|---|---|
| A-20000 | ELECTROLYSER | TR-200DE1 | TRANSFORMER AUX. 6.6kV/0.4kV |
| A-63000 | INSTRUMENT AIR PACKAGE | TR-200ED1 | SOLAR TRANSFORMER PV FARM EQUIPMENT |
| A-80000 | FUEL CELL | RR-100AD1-NER | NEUTRAL EARTHING RESISTOR |
| A-85000 | BESS | V-63001 | AIR RECEIVER |
| A-50000 | WATER TREATMENT PACKAGE | V-64001 | NITROGEN RECEIVER |
| P-50001A/B | SEAWATER LIFT PUMPS | X-99001 | CRANE |
| Q-43004 | HYDROGEN VENT | | |
| A-64000 | NITROGEN SYSTEM | | |
| V-25001A-F | HYDROGEN STORAGE VESSELS | | |
| V-43001 | HYDROGEN VENT KO DRUM | | |
| YLB-079001/2 | LIFE RAFTS | | |
| B-100 | HV/MV SWITCHROOM 66kV/6.6kV | | |
| B-200 | LV SWITCHROOM 400V | | |
| B-300 | AC UPS EQUIPMENT ROOM | | |
| B-400 | I&T EQUIPMENT ROOM | | |
| TR-100AD1 | TRANSFORMER MAIN 66kV/6.6kV | | |

| SYMBOL | DESCRIPTION | QTY. |
|---|---|---|
| | UV-IR FLAME DETECTOR (FDZ) | 22 |
| | POINT SOURCE HYDROGEN DETECTOR (GDZ) | 46 |
| SD | SMOKE DETECTOR (SDZ) | 24 |
| | POINT SOURCE OXYGEN DETECTOR (GDZ) | 3 |
| H | ULTRA SONIC HYDROGEN DETECTOR (GDZ) | 9 |




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

## HOLDS

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-SAF-DL-30027**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_A | 22/10/24 | G.Randi |

**ROSETTI MARINO SpA**

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DS-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 123A90-DDL-SAF-RE-30020 | FERA REPORT |
| | |
| | |

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 23/10/24 | ECA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 10/07/24 | MMA | CCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 12/02/24 | MMA | CCA | DLO | ISSUE FOR APPROVAL (IFA) |

CROSSWIND

ROSETTI MARINO

TITLE :

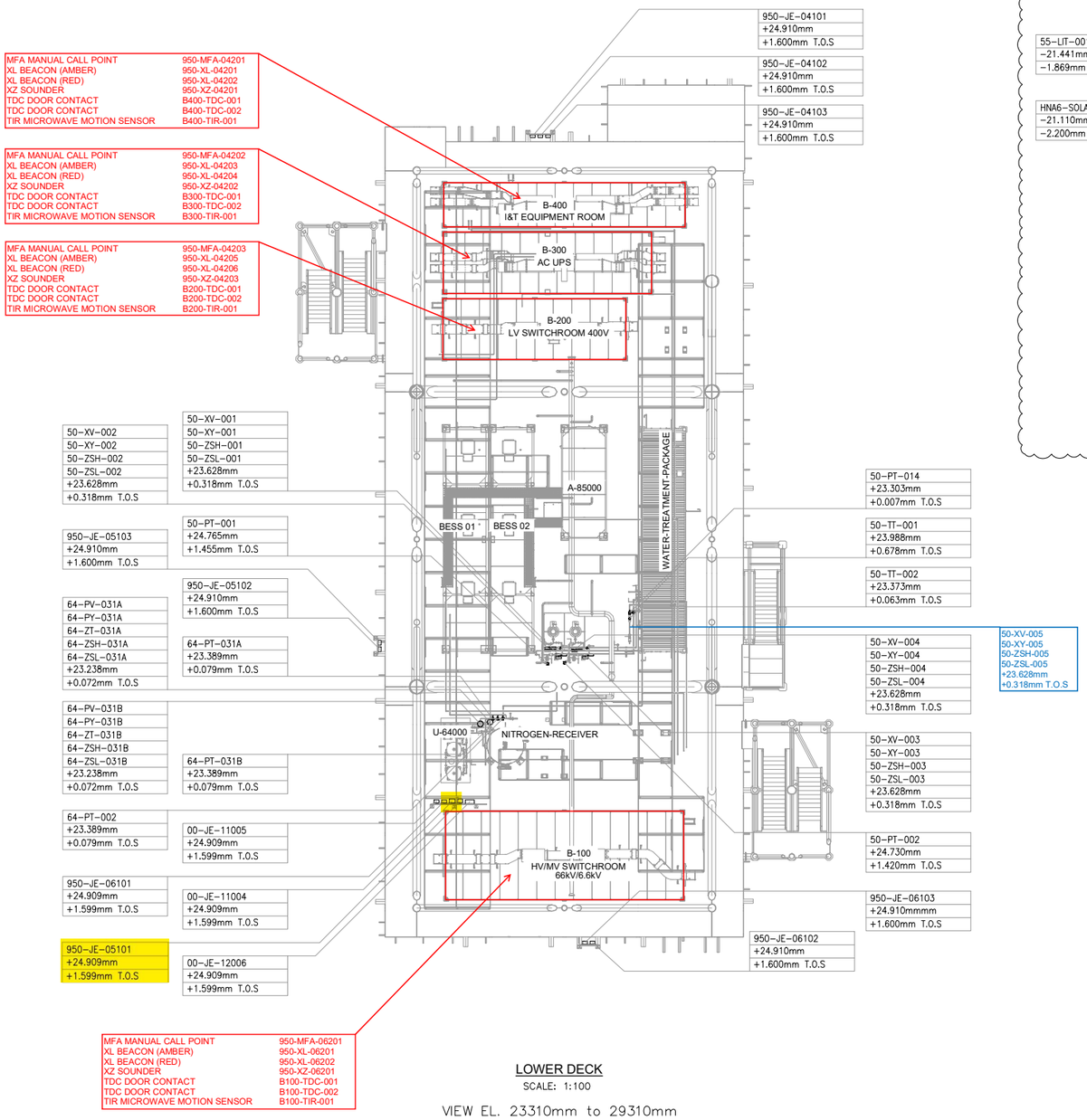
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN | CHECKED C. CARACCIOLO | APPROVED D. LO STERZO | DATE 23/10/24 |
| A1 | DRAWING NO. 123A90-DDL-SAF-DL-30027 | SHEET 001 | REV. 02 |

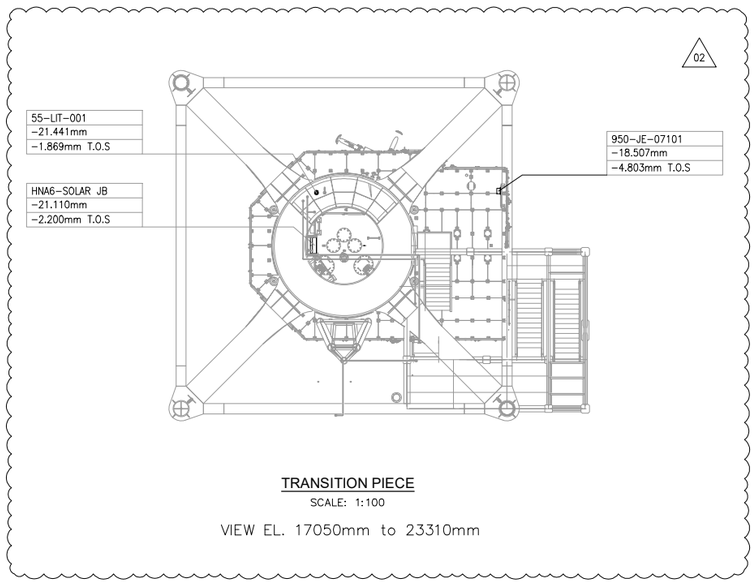
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40080

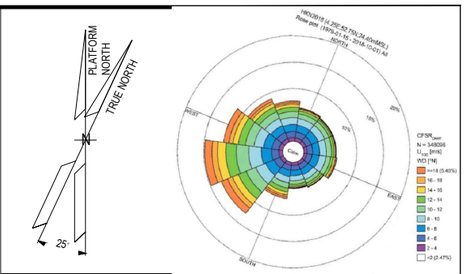
REV. 02




LOWER DECK
SCALE: 1:100
VIEW EL. 23310mm to 29310mm




TRANSITION PIECE
SCALE: 1:100
VIEW EL. 17050mm to 23310mm




## NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

## LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-IN-DL-40081 | INSTRUMENT LAYOUT - UPPER DECK |
| 123A90-DDL-IN-LIS-40091 | INSTRUMENT CABLE LIST |
| 123A90-DDL-IN-DG-40015 | INSTRUMENT-CCS WIRING DIAGRAMS |
| 123A90-DDL-IN-DG-40016 | INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS |
| 123A90-DDL-IN-DL-40083 | INSTRUMENT MAIN CABLES ROUTING-UPPER DECK |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 02 | 04/10/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 01 | 26/08/24 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 22/12/23 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DL-40080**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 2_C | 06/11/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–LOWER DECK
TOS EL. 23.310M

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 04/10/24 |
| A1 | DRAWING NO. 123A90–DDL–IN–DL–40080 | SHEET 001 | REV. 02 |

File Name : 123A90-DDL-IN-DL-40080 REV02.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-05101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

| INSTRUMENTS | | JUNCTION BOX 950-JE-05101 | MULTICABLE No. | MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003 |
|---|---|---|---|---|
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05101 (1, 3, 2) RD, WH, BK | C-950-FDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | TB-1<br>RD 1, WH 2, BK 3 → TR1 | 950-JE-05101/B400-FGS-003<br>~~950-JE-05101/B400-FGS-002~~<br>12x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS | TB-950-JE-05101<br>TR1 RD 1, WH 2, BK 3, Shield Bar → 950-FDZ-05101 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05102 (1, 3, 2) RD, WH, BK | C-950-FDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 4, WH 5, BK 6 → TR2 | | TR2 RD 4, WH 5, BK 6, Shield Bar → 950-FDZ-05102 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05103 (1, 3, 2) RD, WH, BK | C-950-FDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 7, WH 8, BK 9 → TR3 | | TR3 RD 7, WH 8, BK 9, Shield Bar → 950-FDZ-05103 |
| Note: link between terminals 3, 4 and 12 to be wired on site<br>950-FDZ-05104 (1, 3, 2) RD, WH, BK | C-950-FDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 10, WH 11, BK 12 → TR4 | | TR4 RD 10, WH 11, BK 12, Shield Bar → 950-FDZ-05104 |
| 950-GDZ-05101 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05101/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 13, WH 14, BK 15 → TR5 | | TR5 RD 13, WH 14, BK 15, Shield Bar → 950-GDZ-05101 |
| 950-GDZ-05102 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05102/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 16, WH 17, BK 18 → TR6 | | TR6 RD 16, WH 17, BK 18, Shield Bar → 950-GDZ-05102 |
| 950-GDZ-05103 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05103/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 19, WH 20, BK 21 → TR7 | | TR7 RD 19, WH 20, BK 21, Shield Bar → 950-GDZ-05103 |
| 950-GDZ-05104 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05104/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 22, WH 23, BK 24 → TR8 | | TR8 RD 22, WH 23, BK 24, Shield Bar → 950-GDZ-05104 |
| 950-GDZ-05105 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05105/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 25, WH 26, BK 27 → TR9 | | TR9 RD 25, WH 26, BK 27, Shield Bar → 950-GDZ-05105 |
| 950-GDZ-05106 (PWR+, 4-20mA, PWR-) RD, WH, BK | C-950-GDZ-05106/950-JE-05101<br>3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS<br>NOTE-2 | SH<br>RD 28, WH 29, BK 30 → TR10 | | TR10 RD 28, WH 29, BK 30, Shield Bar → 950-GDZ-05106 <01> |
| | | SH<br>SPARE 31 → TR11 | | TR11 RD 31, WH 32, BK 33, Shield Bar → SPARE |
| | | SH<br>SPARE 34 → TR12 | | TR12 RD 34, WH 35, BK 36, Shield Bar → SPARE |
| | | SH<br>OS | | I.E. Shield Bar |

**VALID FOR CONSTRUCTION**

FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT-FGS WIRING DIAGRAMS
# 950-JE-05101

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40016 | SHEET 045 | REV. 01 |

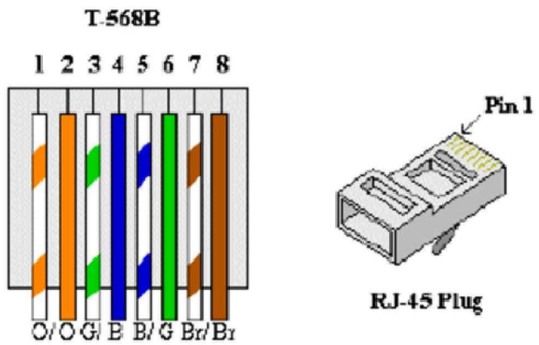
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

## NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



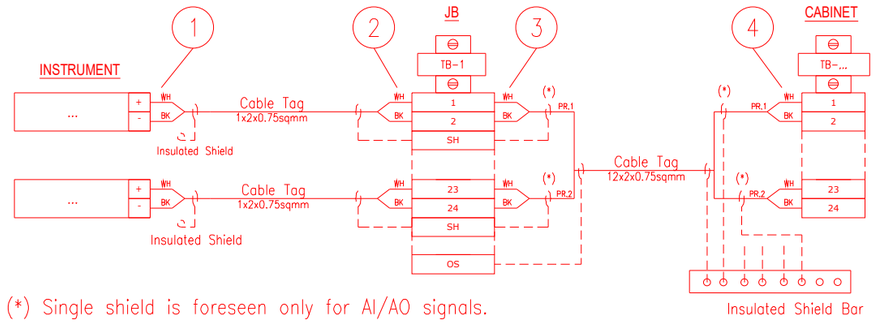

8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

## LEGENDS & SYMBOLS:

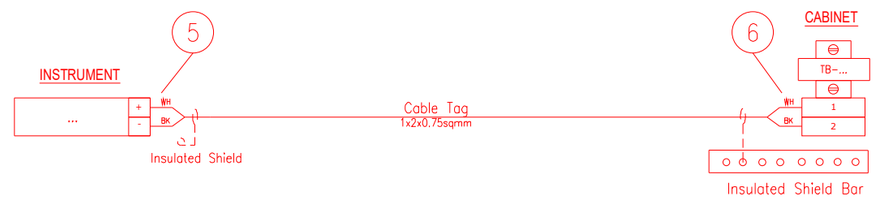
| | |
|---|---|
| I.E. | - GREEN ⟶ INSTRUMENT SIGNAL EARTH |
| P.E. | - GREEN / YELLOW ⟶ P.E. EARTH / BONDING |
| | - TERMINAL BLOCK (TB) |
| WH | - WHITE |
| BK | - BLACK |
| RD | - RED |
| S | - SHIELD TERMINAL |
| OS | - OVERALL SHIELD TERMINAL |
| O/A Shld | - OVERALL SHIELD |
| I&O/A Shld | - INDIVIDUAL & OVERALL SHIELD |
| NIS | - NON INTRINSICALLY SAFE |
| IS | - INTRINSICALLY SAFE |
| P.E. | - PLANT EARTH |
| PCS | - PROCESS CONTROL SYSTEM |
| ESD | - EMERGENCY SHUTDOWN SYSTEM |
| SIS | - SAFETY INSTRUMENT SYSTEM |
| FGS | - FIRE & GAS SYSTEM |
| MC | - MARSHALLING CABINET |
| AI | - ANALOGUE INPUT |
| AO | - ANALOGUE OUTPUT |
| DI | - DIGITAL INPUT |
| DO | - DIGITAL OUTPUT |
| JE | - JUNCTION BOX FOR ELECTRICAL SIGNALS |

## PHILOSOPHY OF CROSS-FERRULING:

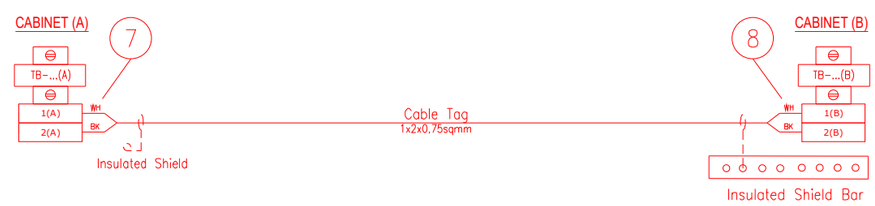
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET




INSTRUMENT CONNECTION STRAIGHT TO CABINET




CABINET CONNECTION TO CABINET




1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

## REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM . . . . . 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX . . . . . 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT . . . . . 123A90-DDL-SAF-DL-30027

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_N | 06/12/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :
# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT – PCS WIRING DIAGRAMS
# GENERAL NOTES/LEGENDS

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE | | | SCALE N/A |
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

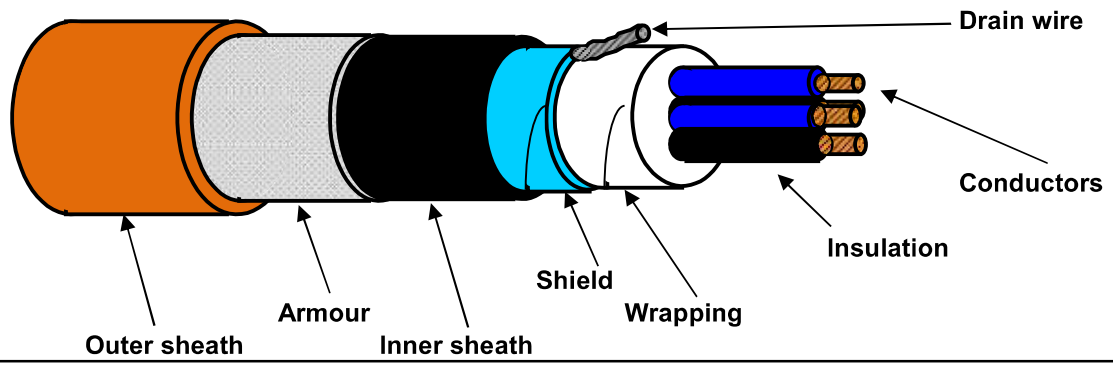
| | | | |
|---|---|---|---|
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40015 | SHEET 003 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40015_Rev.01

| Tag Number | Category | Disciplin | Eng Statu | NativeDoc | Layout | Parent Tag | Main Function | Secondary Functio | Area | From Tag | From Main Function | From Area | To Tag | To Main Function | To Area | Material ID | Material Desc. | From Gland | From Entry | From Fitting | To Gland | To Entry | To Fitting | Routing | Routing Manual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-950-GDZ-05106/950-JE-05101 | Cable | IN | VFC | 123A90-DDL-IN-LIS-40091 | | | | | | 950-GDZ-05106 | Gas Detector | Lower Deck | 950-JE-05101 | AI JB to FGS | Lower Deck (B-100) Ext. | SMICV14-1X3X2,5 | Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange | T2_M20_Double | | | T2_M20_Dou ble | | | | L-SEC-1H / L-SEC-1I / L-SEC-1J / L-SEC-1L / L-SEC-1M / L-SEC-16 |

# Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

## 1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.




### TECHNICAL FEATURES

| | | |
|---|---|---|
| **Conductors :** | **7-STRANDED** plain/bare soft annealed copper wires | **IEC 60228 Class 2** |
| **Insulation :** | Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm | |
| **Cores colour code :** | **Red - White - Black** | |
| **Triad Assembling :** | Not required | |
| **Triad Wrapping:** | Not required | |
| **Drain wire :** | Not required | |
| **Triad Shield :** | Not required | |
| **Shield Insulation :** | Not required | |
| **Total Assembling :** | 7/1mt | |
| **Overall Wrapping:** | by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Drain wire :** | 7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield | |
| **Overall Shield :** | by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%) | |
| **Inner sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm | |
| **Inner sheath color code:** | **Black** | |
| **Armour :** | Galvanized Steel Wire Braid Armour (coverage ≥ 90%) | |
| **Outer sheath :** | Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, | |
| | Average Thickness 1,3 mm | |
| **Outer sheath color code:** | **Orange** | |
| **Outer printing (INKJET) :** | **FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -** | |
| **(every 1000 mm)** | **IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking** | |
| **Under armour diameter :** | (10,9 ± 10%) mm | |
| **Over armour diameter :** | (12,1 ± 10%) mm | |
| **Outer diameter :** | (14,7 ± 10%) mm | |
| **Bending radius :** | cable outer diameter x 10 (in fixed installation) | |
| **Voltage Test :** | 1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield) | |
| **Conductors DC Resistance :** | ≤ 7,86 Ω/km (@ 20°C) | |
| **Insulation Resistance :** | ≥ 1000 MΩ x Km (@ 20°C) | |
| **Mutual Capacitance :** | ≤ 150 nF/km | |
| **L/R ratio :** | ≤ 60 μH/Ω | |
| **Inductance :** | ≤ 0,9 mH/km | |
| **Applicable Standards** | | |
| **Design Guidelines :** | **IEC 60092.376** | |
| **ON COMPLETE CABLE** | | |
| **Fire Resistant test :** | **IEC 60331.21** | |
| **Flame Retardant test :** | IEC 60332.1.2 - IEC 60332.3.22 | |
| **Acid Gas generation :** | IEC 60754.1/2 | |
| **Smoke density/Light Transmittance :** | IEC 61034.2 (LT ≥ 60%) | |
| **Hazardous Areas :** | IEC 60079.14 par.9.3.2a | |
| **Temperature Range :** | | |
| **ON INSULATION** | (max +90°C) (max continuous operation temperature of conductors) | |
| | (max +250°C) (max conductors temperature during short-circuit for 5 seconds) | |
| **ON COMPLETE CABLE** | | |
| **During Operation :** | (-20°C up to +90°C) (in fixed installation) | |
| **During installation :** | (- 5°C up to +50°C) | |
| **Note :** | **To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.** | |

| *Office* | Date | Sign | Rev. | Date | Sign |
|---|---|---|---|---|---|
| **Drawn by :** | 04/04/2024 | Messa | | | |
| **Checked :** | 04/04/2024 | Spaccasassi | | | |
| **Approved :** | 04/04/2024 | Cucinotta | | | |

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

The data provided herein are meant for the transmission will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

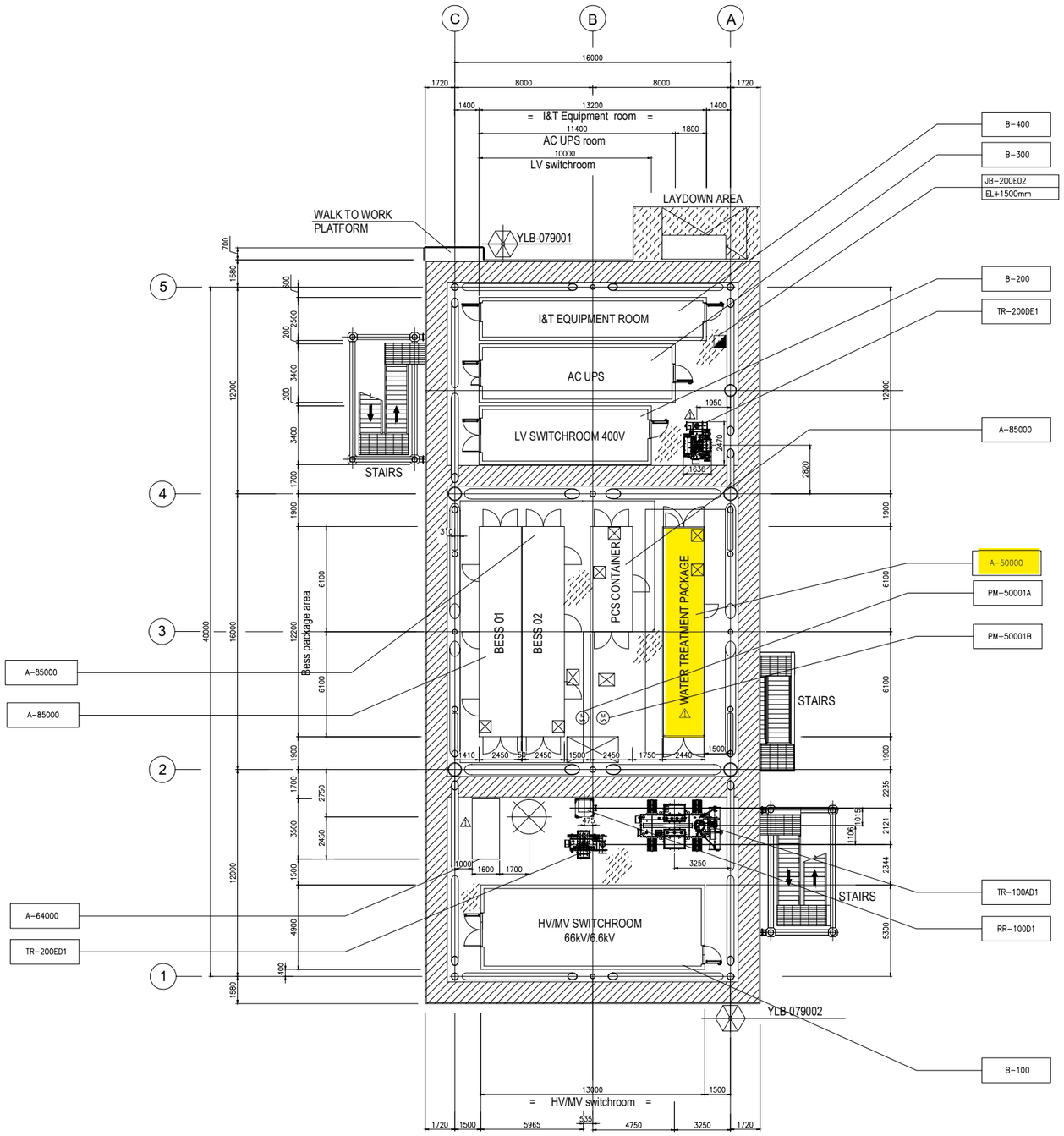
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-MFA-05201 | : FZ-05 Manual fire alarm (MFA) water treat. pkg | | | Dwg | 123A90-DDL-SAF-DL-30027 |
| | S/Sys | 70-16 | : F&G Devices FZ-05 (Bess Area) | | | Module | LD_B-400_Ext |
| **TASK** | code | C10001475 | | Location | Onshore Activities | User | Rosetti Marino Quality Control |
| **FORM** | Process | MC | Activity CCK | Discipline | Instrumental Form CJX00 | | Miscellaneous |

| | | |
|---|---|---|
| 1 | Check for mechanical damage. | OK |
| 2 | Check installed equipment is suitable and conforms to specification. | OK |
| 3 | Check installation conforms to P&ID and hook-up drawing. | OK |
| 4 | Check tube fittings manufacturer is the one chosen for the plant. | OK |
| 5 | Check that piping connections provide the block & bleed facility (if required). | OK |
| 6 | Check that all stop plugs are properly installed | OK |
| 7 | Check identification (tag number, tag plates). | PL |
| 8 | Check supporting and protection against vibrations. | OK |
| 9 | Check the conformity of earthing as per specification (I.P.E. or I.E.) | OK |
| 10 | If required produce Red Line Mark Up for "AS BUILT" | |

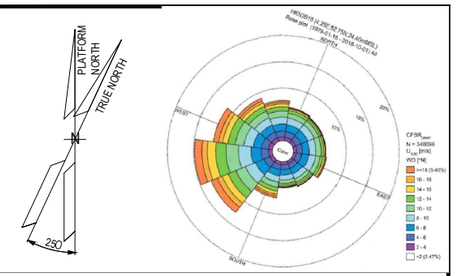
Comments:



| | Performed by | ☉ WITNESS ☐ REVIEW | ☐ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | ICS IMPIANTI | RM(ROSETTI MARINO) | |
| **Name** | Francesco Zucca | Giovanni Tangianu | |
| **Date** | 2024-12-12 | 2024-12-12 | |
| **Signature** | PROVERLIS Digitaly signed by Francesco Zucca 2024-12-12T16:38:27.822Z | PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-12T16:50:13.124Z | |




PLAN ON LOWER DECK
EL+23.310 T.O.S.




## NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S.
4. FOR ELECTRICAL EQUIPMENT LAYOUT OF CONTAINERS B-100, B-200, B-300, B-400 REFER TO THE RESPECTIVE LAYOUTS.

## LEGEND

| | |
|---|---|
| (M) | ELECTRIC MOTOR – LOW VOLTAGE |
| ⊠ | INTERFACE PANEL |
| ◪ | JUNCTION BOX |
| JB-200E2 / EL+500mm | TAG ITEM / REFERED ELEVATION TO T.O.S. (TOP OF STEEL) |

## HOLDS

## REFERENCE DOCUMENTS

| | |
|---|---|
| 123A90-DDL-PP-DL-70070 | PLOT PLAN - LOWER & UPPER DECK |
| 123A90-DDL-EL-DL-20106 | ELECTRICAL EQUIPMENT LAYOUT UPSs & BATTERIES SWITCHROOM |
| ⚠ 123A90-DDL-IN-DL-40012 | ITER EQUIPMENT LAYOUT |
| 123A90-DDL-EL-DL-20104 | ELECTRICAL EQUIPMENT LAYOUT HV & MV SWITCHROOM |
| 123A90-DDL-EL-DL-20105 | LV SWITCHGEAR ROOM EQUIPMENT LAYOUT |

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 06/05/24 | SAM | FMA/AMA | FPA/DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 04/03/24 | SAM | FMA/AMA | FPA/DLO | ISSUE FOR REVIEW (IFR) |

CROSSWIND

ROSETTI MARINO

**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-EL-DL-20101**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_A | 08/08/24 | G.Randi |

**ROSETTI MARINO SpA**

TITLE :
BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LOWER DECK

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | | | SCALE 1:150 |
| DRAWN SAM | CHECKED FMA/AMA | APPROVED FPA/DLO | DATE 04/03/24 |
| A1 | DRAWING NO. 123A90-DDL-EL-DL-20101 | | SHEET 001 / REV. 01 |

DRAWING NO. 123A90-DDL-EL-DL-20101 REV. 01

File Name : 123A90-DDL-EL-DL-20101-Electrical Equipment Layout – Lower Deck

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

| FIELD | | I&T EQUIPMENT ROOM (ITER) |
|---|---|---|
| INSTRUMENTS | CABLE NO | MARSHALLING CABINET<br>~~B400-FGS-002~~<br>B400-FGS-003 |

<01>




**VALID FOR CONSTRUCTION**
FDL DWG: **123A90-FDL-IN-DG-40016**

| REV.: | DATE: | SIGNATURE: |
|---|---|---|
| 1_L | 26/11/24 | G.Randi |

**ROSETTI MARINO SpA**

CROSSWIND

ROSETTI MARINO

TITLE :

# BASE LOAD POWER HUB (BLPH)
# INSTRUMENT–FGS WIRING DIAGRAMS
# MANUAL FIRE ALARM(MFA)–DIRECT CABLES

| CONTRACT NO./TITLE | | | SCALE N/A |
|---|---|---|---|
| DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 23/02/2024 |

| | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| A3 | 123A90–DDL–IN–DG–40016 | 051 | 01 |

File Name : 123A90-DDL-IN-DG-40016_Rev.01

# Section 7 MECHANICAL COMPLETION STATUS INDEX - MECHANICAL DISCIPLINE

# NOT APPLICABLE

# Section 8 MECHANICAL COMPLETION STATUS INDEX - TELECOMMUNICATION DISCIPLINE

# NOT APPLICABLE

# Section 9 MECHANICAL COMPLETION STATUS INDEX - HVAC DISCIPLINE

# NOT APPLICABLE

# Section 10 MECHANICAL COMPLETION STATUS INDEX - PIPING DISCIPLINE

# NOT APPLICABLE

# Section 11 MECHANICAL COMPLETION INDEX - SAFETY DISCIPLINE

# NOT APPLICABLE

# Section 12 FAT / VENDOR REPORTS

# NOT APPLICABLE

# Section 13 MECHANICAL COMPLETION CHANGES / MARK-UPS

# NOT APPLICABLE