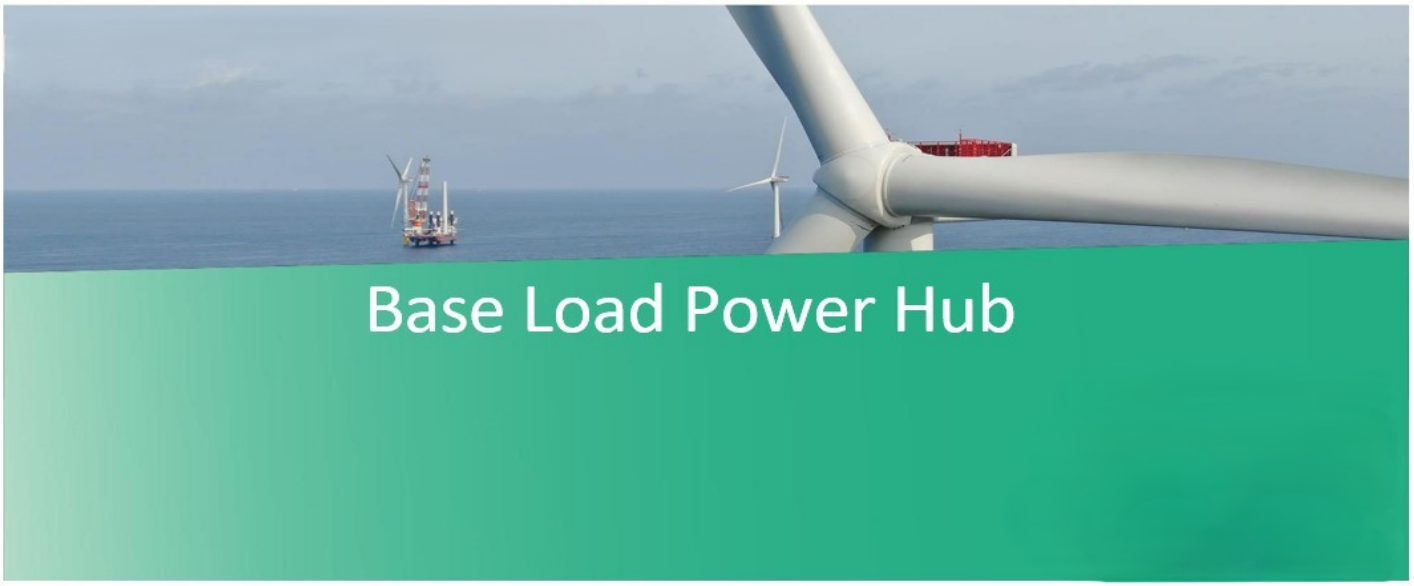
CROSSWIND

ROSETTI MARINO

PROVERUS

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




# COMMISSIONING DOSSIER (ONSHORE)

| | |
|---|---|
| SYSTEM | 79<br>Emergency Shutdown systems |
| SUBSYSTEM | 79-15<br>Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) |

CROSSWIND

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

# COMMISSIONING DOSSIER INDEX

ROSETTI MARINO

| | | | | |
|---|---|---|---|---|
| **Sub System N°:** | 79-15 | **Tick as appropriate** | ONSHORE | OK |
| **Description:** | Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | | OFFSHORE | |

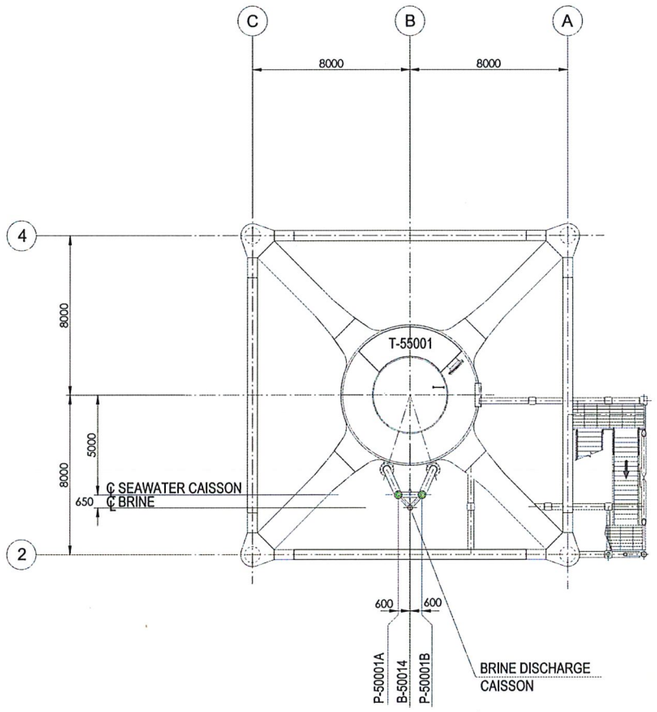
| | | |
|---|---|---|
| **1.** | ***SUB-SYSTEM DEFINITION*** | OK |
| 1.1 | Sub-System Description / Boundary Limit Drawings | |
| **2.** | ***READY FOR OPERATION CERTIFICATE*** | OK |
| 2.1 | Achievement Of Ready for Operation Certificate (RFO) | |
| 2.2 | Exception Punch Lists (per discipline) | |
| 2.3 | “As-Commissioned” P&ID’s / SLD’s / D&ID’s / C&E’s | |
| **3.** | ***CONSOLIDATED PUNCH LISTS*** | OK |
| 3.1 | Cleared and Residual Items (sorted by discipline) | |
| **4.** | ***FUNCTIONAL TESTS SHEETS*** | OK |
| 4.1 | Electrical functional test sheets index | |
| 4.2 | Electrical “As-Commissioned” interconnection diagrams | |
| 4.3 | Instrumentation Functional Test Sheets Index | |
| 4.4 | Instrumentation “As-Commissioned” interconnection diagrams | |
| 4.5 | Telecommunication Functional Test Sheets Index | |
| 4.6 | Telecommunication “As-Commissioned” I.C.D. / TSLD’s | |
| **5.** | ***SITE / OPERATIONAL:*** | OK |
| 5.1 | Operational Test Procedure | |
| 5.2 | Operational Test Certificates | |
| **6.** | ***PIPING AND VESSEL PREPARATION*** | NA |
| 6.1 | Final Mechanical / Vessel Inspection Checks Index | |
| 6.2 | Leak Test / Drying / Inerting Test Sheets Index | |
| 6.3 | Chemical Loading & First Fill records Index | |
| 6.4 | Chemical Cleaning Reports and Records Index | |
| 6.5 | Lubrication Schedule | |
| **7.** | ***VENDORS*** | OK |
| 7.1 | Vendor Package Summary Index | |
| 7.2 | SAT Procedure with associated punch list and reference (Front Page) | |
| 7.3 | Vendor Spares & Special Tools lists references | |
| 7.4 | Vendor Data / Operations / Maintenance Manuals References | |
| **8.** | ***LIST OF MODIFICATIONS*** | NA |
| 8.1 | List of changes initiated during the WORKSITE Commissioning phase pertaining to the relevant Sub-System will be incorporated in this section with relevant references (with location and position of blinds/spades, isolation LO & LC valves, list of electrical isolation status, and remaining inhibits and overrides) | |
| **9.** | ***SUPPORTING DOCUMENTS*** | NA |
| 9.1 | Other supporting documents (as applicable) | |

| | Contractor Commissioning Site Leader | Company Commissioning Site Leader |
|---|---|---|
| Name | Anthony Iveson | Martin Taylor |
| Date | 2025-06-13 | 2025-06-18 |
| Signature | PROVERLIS Digitaly signed by Anthony Iveson 2025-06-13T07:12:39.858Z | PROVERLIS Digitaly signed by Martin Taylor 2025-06-18T13:50:27.686Z |

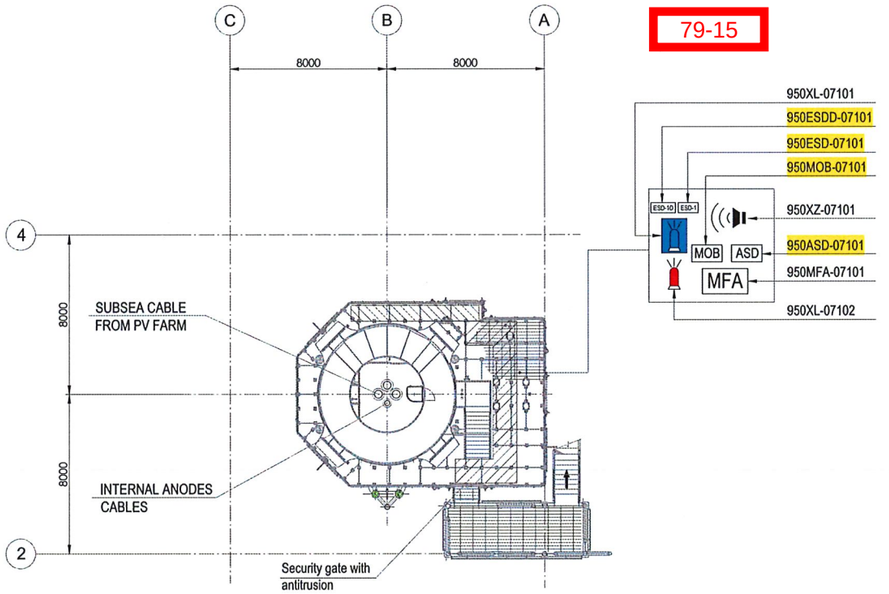
# Section 1 SUB-SYSTEM DEFINITION

DRAWING NO. 123A90-DDL-SAF-DL-30028

REV. 00




PLAN ON TRANSITION PIECE
EL+21.710 T.O.S.




PLAN ON EXISTING
PLATFORM AT
EL+16.860 T.O.S.

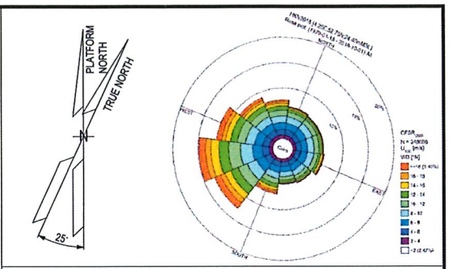
79-15




## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION |
|---|---|
| P-50001A/B | SEAWATER LIFT PUMPS |
| T-55001 | WASTE WATER TANK |

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




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
01 4. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

01 ELEVATION
1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACONS ARE 2.4/2.5M

## LEGEND

## HOLDS

## REFERENCE DOCUMENTS

| | | |
|---|---|---|
| | 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 01 | 123A90-DDL-SAP-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 - BELOW LOWER 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-30028 | SHEET 001 | REV. 01

File Name : 123A90-DDL-SAF-DL-30028 Rev.01

# Section 2 READY FOR OPERATION

# Section 2.1 Achievement Of Ready for Operation Certificate (RFO)

ROSETTI MARINO

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

CROSSWIND

# Ready For Operation (RFO) Certificate

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

| | | | | | |
|---|---|---|---|---|---|
| Revision: | 1 | | Issued on: | 2025-05-28 | |

| | | | |
|---|---|---|---|
| System: | 79 | / | Emergency Shutdown systems |
| SubSystem: | 79-15 | / | Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) |

We hereby confirm that all Mechanical Completion (MC) and Pre-Commissioning/Commissioning (Pre-Comm./Comm.) activities for the above-mentioned System/Sub-System have been successfully completed in accordance with project specifications, relevant standards and contractual requirements. The System/Sub-System has been tested and verified to ensure readiness for operation. Issuance of this Certificate shall not release CONTRACTOR from any of his obligations, responsibilities or liabilities under the CONTRACT.

- **Mechanical Completion:** All required MC activities have been completed and approved
- **Pre-Commissioning & Commissioning:** All required Pre-Comm. and Comm. activities and OTPs have been completed and approved (Status Index attached)
- **Punch List:** All Punch items categorized as A and B have been cleared (PL report attached)
- **Documentation:** As-built documentation and Commissioning dossier has been completed, reviewed and approved

| PUNCH LIST | PENDING POINTS |
|---|---|
| **Note: All Category "A" and "B" Items must be cleared prior to issuance of the Ready For Operation (RFO) Certificate** | B<br>'0 |

**REMARKS:**

| | **CONTRACTOR**<br>Commissioning Manager | **COMPANY**<br>Commissioning Lead |
|---|---|---|
| Name | Anthony Iveson | Gerry McCann |
| Date | 2025-05-29 | 2025-06-12 |
| Signature | PROVERLIS Digitaly signed by Anthony Iveson 2025-05-29T08:57:12.299Z | PROVERLIS Digitaly signed by Gerry McCann 2025-06-12T10:33:49.624Z |

CROSSWIND

ROSETTI MARINO

# Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 79-15 & process: COMM

| Instrumental | 79-15 Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | | | | | | |
|---|---|---|---|---|---|---|---|
| ITEM | | TASK | | | | | |
| Code | Description | Location | Code | Form | Progress | Date | Certificate |
| 950-ASD-07101 | FZ-07 Abandon Shutdown Activation | ONSHORE | C10004400 | FJ04PB_SIS | 100 | 2025-01-30 | RFO 1 |
| 950-ESD-07101 | FZ-07 ESD-1 Push Button Activation | ONSHORE | C10004410 | FJ04PB_SIS | 100 | 2025-01-30 | RFO 1 |
| 950-ESDD-07101 | FZ-07 ESD-1D Push Button Activation | ONSHORE | C10004405 | FJ04PB_SIS | 100 | 2025-01-30 | RFO 1 |
| 950-MOB-07101 | FZ-07 Man Over Board Activation | ONSHORE | C10004427 | FJ04PB_SIS | 100 | 2025-01-30 | RFO 1 |

CROSSWIND

ROSETTI MARINO

# Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 79 Emergency Shutdown systems

SUBSYSTEM 79-15 Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30004030 | A | C-950-ESDD-07101/00-JE-22002 | The termination ( core white) to be redone | . | | APolo 2025-02-19 | 2025-03-04 | JKrizanic 2025-03-04 | 2025-03-04 |
| C30004032 | A | C-950-ESD-07101/00-JE-22002 C10000168 | The termination ( core black) to be redone | . | | APolo 2025-02-19 | 2025-03-04 | JKrizanic 2025-03-04 | 2025-03-04 |
| C30004029 | B | C-950-ESDD-07101/00-JE-22002 | Wrong cores identification tag. side 00-JE-22002 . (see document 123A90-DDL-IN-DG-40016 sh.3) | . | | APolo 2025-02-19 | 2025-02-21 | JKrizanic 2025-02-21 | 2025-02-21 |
| C30004031 | B | C-950-ESD-07101/00-JE-22002 C10000168 | Wrong cores identification tag. side J.B. 00-JE-22002 . (see document 123A90-DDL-IN-DG-40016 sh.3) | . | | APolo 2025-02-19 | 2025-02-26 | APolo 2025-02-26 | 2025-02-26 |
| C30004033 | B | C-950-MOB-07101/00-JE-22002 C10000167 | Wrong cores identification tag. side J.B. 00-JE-22002 . (see document 123A90-DDL-IN-DG-40016 sh.3) | . | | APolo 2025-02-19 | 2025-02-21 | JKrizanic 2025-02-21 | 2025-02-21 |
| C30004034 | B | C-950-ASD-07101/00-JE-22002 C10000166 | Wrong cores identification tag. side J.B. 00-JE-22002 . (see document 123A90-DDL-IN-DG-40016 sh.3) | . | | APolo 2025-02-19 | 2025-02-21 | JKrizanic 2025-02-21 | 2025-02-21 |
| C30004337 | B | 950-ASD-07101 C10000958 | Painting is damage on the instrument. (See attached photo) | . | | Gtangianu 2025-04-29 | 2025-05-21 | Gtangianu 2025-05-21 | 2025-05-21 |
| C30004338 | B | 950-ESD-07101 C10000963 | Painting is damage on the instrument. (See attached photo) | . | | Gtangianu 2025-04-29 | 2025-05-21 | Gtangianu 2025-05-21 | 2025-05-21 |
| C30004339 | B | 950-MOB-07101 C10001077 | Painting is damage on the instrument. (See attached photo) | . | | Gtangianu 2025-04-29 | 2025-05-21 | Gtangianu 2025-05-21 | 2025-05-21 |

CROSSWIND

ROSETTI MARINO

# Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 79 Emergency Shutdown systems

SUBSYSTEM 79-15 Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30004340 | B | 950-ESDD-07101 C10000968 | Painting is damage on the instrument. (See attached photo) | . | | Gtangianu 2025-04-29 | 2025-05-21 | Gtangianu 2025-05-21 | 2025-05-21 |

# Section 2.2 Exception Punch Lists (per discipline)

# Project CROSSWIND

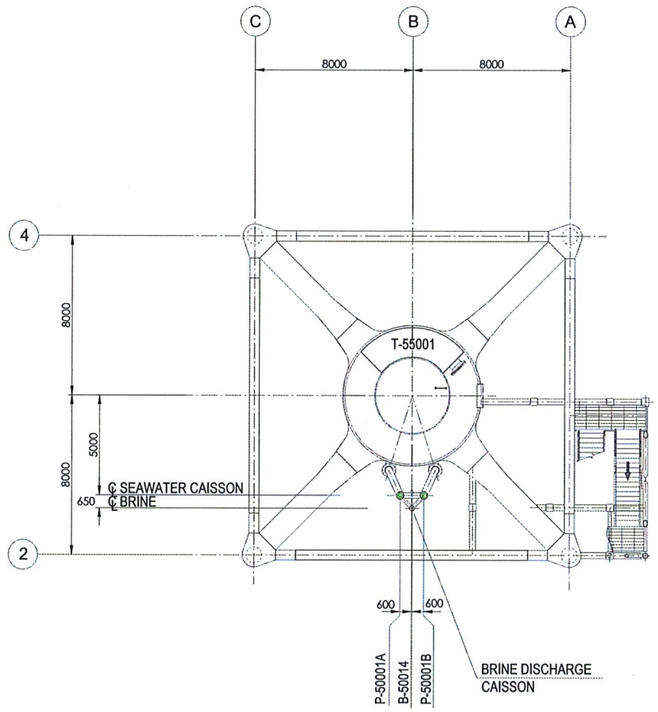
PUNCH LIST REPORT

NO DATA AVAILABLE

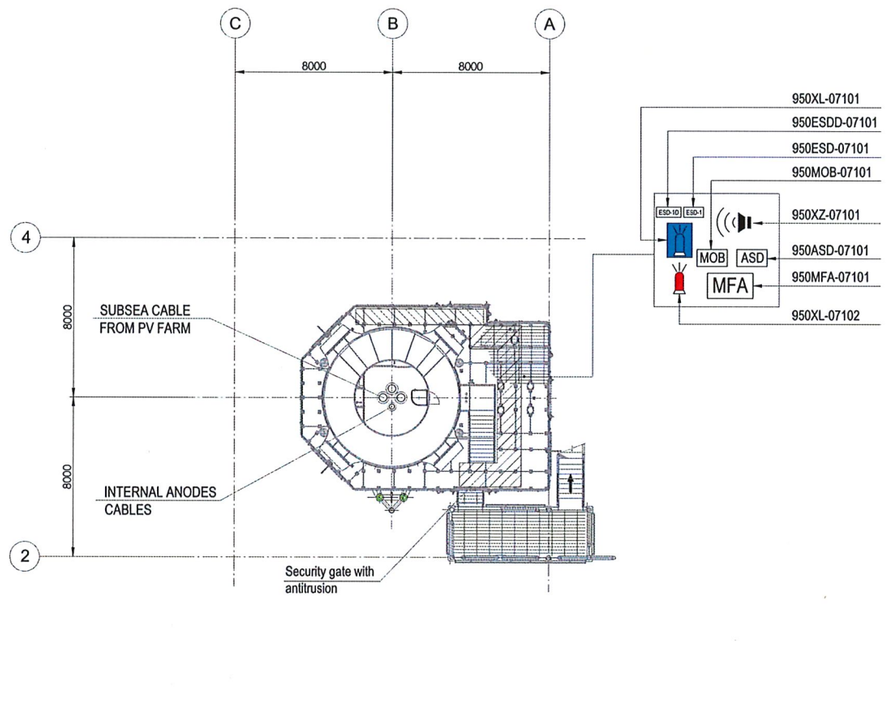
# Section 2.3 “As-Commissioned” P&ID's / SLD's / D&ID's / C&E's

DRAWING NO. 123A90-DDL-SAF-DL-30028

REV. 00




PLAN ON TRANSITION PIECE
EL+21.710 T.O.S.

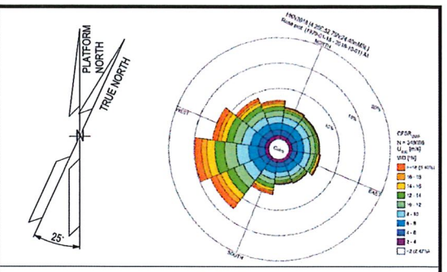



PLAN ON EXISTING
PLATFORM AT
EL+16.860 T.O.S.

## EQUIPMENT LIST

| TAG NUMBER | DESCRIPTION |
|---|---|
| P-50001A/B | SEAWATER LIFT PUMPS |
| T-55001 | WASTE WATER TANK |

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




## NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
01 4. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

01 ELEVATION
1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACONS ARE 2.4/2.5M

## LEGEND

## HOLDS

## REFERENCE DOCUMENTS

| | | |
|---|---|---|
| 01 | 123A90-DDL-PP-DS-70071 | PLOT PLAN - BELOW LOWER DECK |
| 01 | 123A90-DDL-SAP-RE-30020 | FERA REPORT |

AS COMMISSIONED
30-05-2025
GIANDOMENICO DE MISSIER

| 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 - BELOW LOWER 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-30028 | SHEET 001 | REV. 01

File Name : 123A90-DDL-SAF-DL-30028 Rev.01

# Section 3 CONSOLIDATED PUNCH LISTS

CROSSWIND

ROSETTI MARINO

# Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 79 Emergency Shutdown systems

SUBSYSTEM 79-15 Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30004030 | A | C-950-ESDD-07101/00-JE-22002 | The termination ( core white) to be redone | . | | APolo 2025-02-19 | 2025-03-04 | JKrizanic 2025-03-04 | 2025-03-04 |
| C30004032 | A | C-950-ESD-07101/00-JE-22002 C10000168 | The termination ( core black) to be redone | . | | APolo 2025-02-19 | 2025-03-04 | JKrizanic 2025-03-04 | 2025-03-04 |
| C30004029 | B | C-950-ESDD-07101/00-JE-22002 | Wrong cores identification tag. side 00-JE-22002 . (see document 123A90-DDL-IN-DG-40016 sh.3) | . | | APolo 2025-02-19 | 2025-02-21 | JKrizanic 2025-02-21 | 2025-02-21 |
| C30004031 | B | C-950-ESD-07101/00-JE-22002 C10000168 | Wrong cores identification tag. side J.B. 00-JE-22002 . (see document 123A90-DDL-IN-DG-40016 sh.3) | . | | APolo 2025-02-19 | 2025-02-26 | APolo 2025-02-26 | 2025-02-26 |
| C30004033 | B | C-950-MOB-07101/00-JE-22002 C10000167 | Wrong cores identification tag. side J.B. 00-JE-22002 . (see document 123A90-DDL-IN-DG-40016 sh.3) | . | | APolo 2025-02-19 | 2025-02-21 | JKrizanic 2025-02-21 | 2025-02-21 |
| C30004034 | B | C-950-ASD-07101/00-JE-22002 C10000166 | Wrong cores identification tag. side J.B. 00-JE-22002 . (see document 123A90-DDL-IN-DG-40016 sh.3) | . | | APolo 2025-02-19 | 2025-02-21 | JKrizanic 2025-02-21 | 2025-02-21 |
| C30004337 | B | 950-ASD-07101 C10000958 | Painting is damage on the instrument. (See attached photo) | . | | Gtangianu 2025-04-29 | 2025-05-21 | Gtangianu 2025-05-21 | 2025-05-21 |
| C30004338 | B | 950-ESD-07101 C10000963 | Painting is damage on the instrument. (See attached photo) | . | | Gtangianu 2025-04-29 | 2025-05-21 | Gtangianu 2025-05-21 | 2025-05-21 |
| C30004339 | B | 950-MOB-07101 C10001077 | Painting is damage on the instrument. (See attached photo) | . | | Gtangianu 2025-04-29 | 2025-05-21 | Gtangianu 2025-05-21 | 2025-05-21 |

CROSSWIND

ROSETTI MARINO

# Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 79 Emergency Shutdown systems

SUBSYSTEM 79-15 Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area)

Instrumental

| CODE | CAT | ITEM | DEFECT DESCRIPTION | CORRECTIVE ACTION | PERFORMED ACTION | ISSUED | CARRIED | CHECKED | APPROVED |
|---|---|---|---|---|---|---|---|---|---|
| C30004340 | B | 950-ESDD-07101 C10000968 | Painting is damage on the instrument. (See attached photo) | . | | Gtangianu 2025-04-29 | 2025-05-21 | Gtangianu 2025-05-21 | 2025-05-21 |

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30004029

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000169 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-ESDD-07101/00-JE-22002 | PUSH BUTTON / MARSHALLING PCS | |
| 1.3 Subsystem | 79-15 | Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | |

## 2 - OBSERVATION

Wrong cores identification tag. side 00-JE-22002 . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo

Date: 2025-02-19

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 | 2025-02-19 |
| 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

C30004030

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000169 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-ESDD-07101/00-JE-22002 | PUSH BUTTON / MARSHALLING PCS | |
| 1.3 Subsystem | 79-15 | Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | |

## 2 - OBSERVATION

The termination ( core white)  to be redone

Name: Alessio Polo

Date: 2025-02-19

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | A PL A | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2025-02-19 |
| 3.5 Action by | PRE-COMM | Signature | |

## 4 - PERFORMED  ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-04

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


CORTEA
SH/64-ZSH-001/6
17/950-ASD-031011
18/950-ASD-031016
SH/950-ASD-031013SH

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30004031

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000168 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-ESD-07101/00-JE-22002 | PUSH BUTTON / MARSHALLING PCS | |
| 1.3 Subsystem | 79-15 | Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | |

## 2 - OBSERVATION

Wrong cores identification tag. side J.B. 00-JE-22002 . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo

Date: 2025-02-19

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 | 2025-02-19 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-26

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30004032

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000168 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-ESD-07101/00-JE-22002 | PUSH BUTTON / MARSHALLING PCS | |
| 1.3 Subsystem | 79-15 | Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | |

## 2 - OBSERVATION

The termination ( core black)  to be redone

Name: Alessio Polo

Date: 2025-02-19

Signature:

## 3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

| | | | |
|---|---|---|---|
| 3.3 Priority | A PL A | Name | Alessio Polo |
| 3.4 Activity code | MC Mechanical Completion | Date | 2025-02-19 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED  ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-04

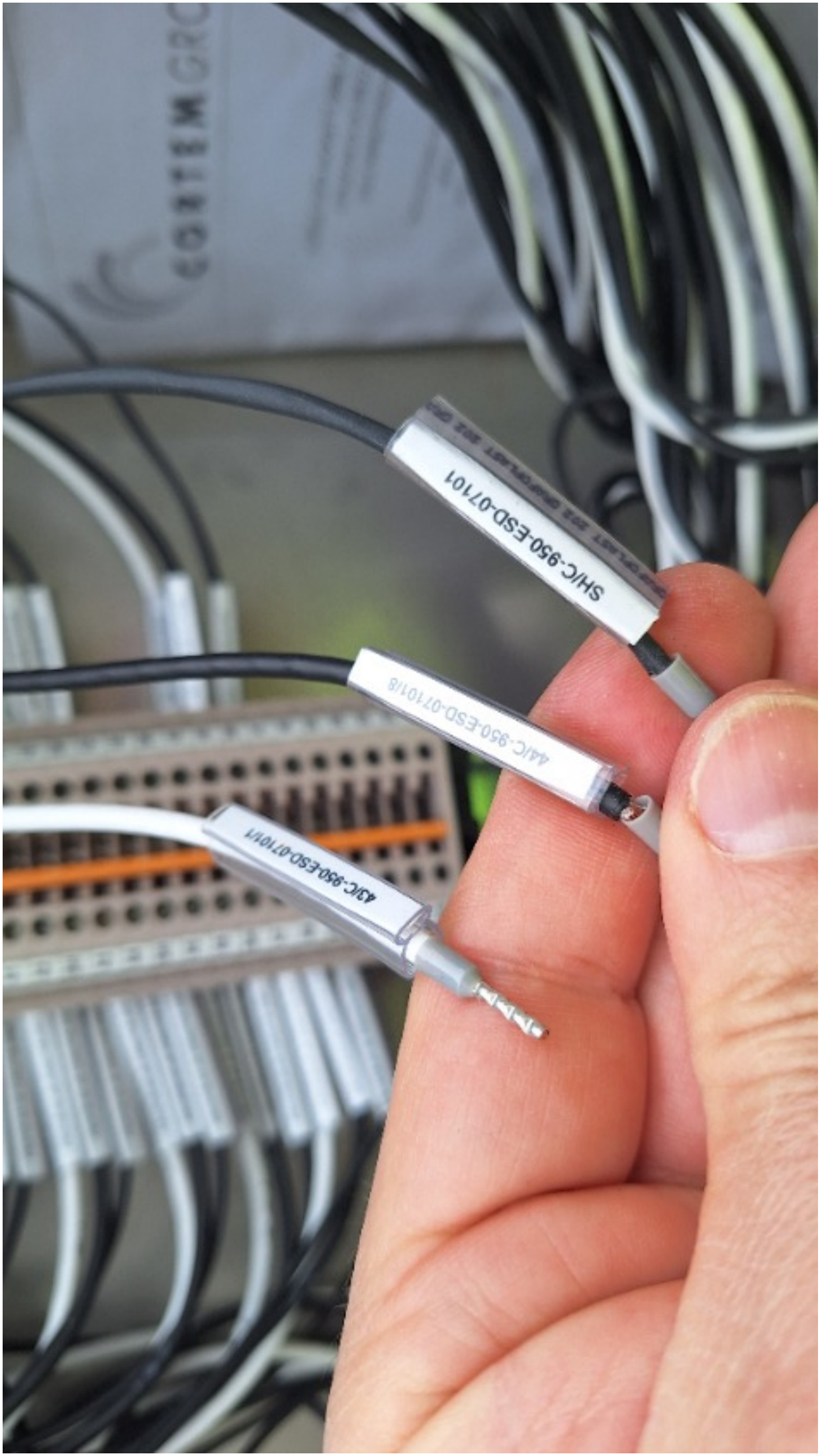
Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


SHJC-950-ESD-07101
44JC-950-ESD-07101/8
43JC-950-ESD-07101/7

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30004033

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000167 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-MOB-07101/00-JE-22002 | PUSH BUTTON / MARSHALLING PCS | |
| 1.3 Subsystem | 79-15 | Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | |

## 2 - OBSERVATION

Wrong cores identification tag. side J.B. 00-JE-22002 . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo

Date: 2025-02-19

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 | 2025-02-19 |
| 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

C30004034

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000166 | 1.4 Discipline | Instrumental |
| 1.2 Item | C-950-ASD-07101/00-JE-22002 | PUSH BUTTON / MARSHALLING PCS | |
| 1.3 Subsystem | 79-15 | Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | |

## 2 - OBSERVATION

Wrong cores identification tag. side J.B. 00-JE-22002 . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo

Date: 2025-02-19

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 | 2025-02-19 |
| 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

C30004337

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000958 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-ASD-07101 | FZ-07 Abandon Shutdown Activation | |
| 1.3 Subsystem | 79-15 | Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | |

## 2 - OBSERVATION

Painting is damage on the instrument. (See attached photo)

Name: Giovanni Tangianu

Date: 2025-04-29

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 | 2025-04-29 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Paint has been restored

Name: Giovanni Tangianu

Date: 2025-05-21

Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


ABANDON ACTIVATION
950-ASD-07101
LIFT
FLAP
AND
PUSH


MEDC
TYPE SMB7PBLD
T6 (Tamb -55°C to +70°C) Db IP66/67
T85°C (Tamb -55°C to +55°C)
RATINGS - V: 24V I: 2A
WARNING - DO NOT OPEN WHEN AN EXPLOSIVE
ATMOSPHERE IS PRESENT
CABLE TEMPERATURE RISE: 10K
CABLE ENTRIES: 2XM20
SERIAL No. 225420465 30 05 Y.o.M. 2024
SUTTON-IN-ASHFIELD U.K. NG17 5FB
0598
SERIES
E.O.L.


950-ASD-07101

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30004338

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000963 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-ESD-07101 | FZ-07 ESD-1 Push Button Activation | |
| 1.3 Subsystem | 79-15 | Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | |

## 2 - OBSERVATION

Painting is damage on the instrument. (See attached photo)

Name: Giovanni Tangianu

Date: 2025-04-29

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 | 2025-04-29 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Paint has been restored

Name: Giovanni Tangianu

Date: 2025-05-21

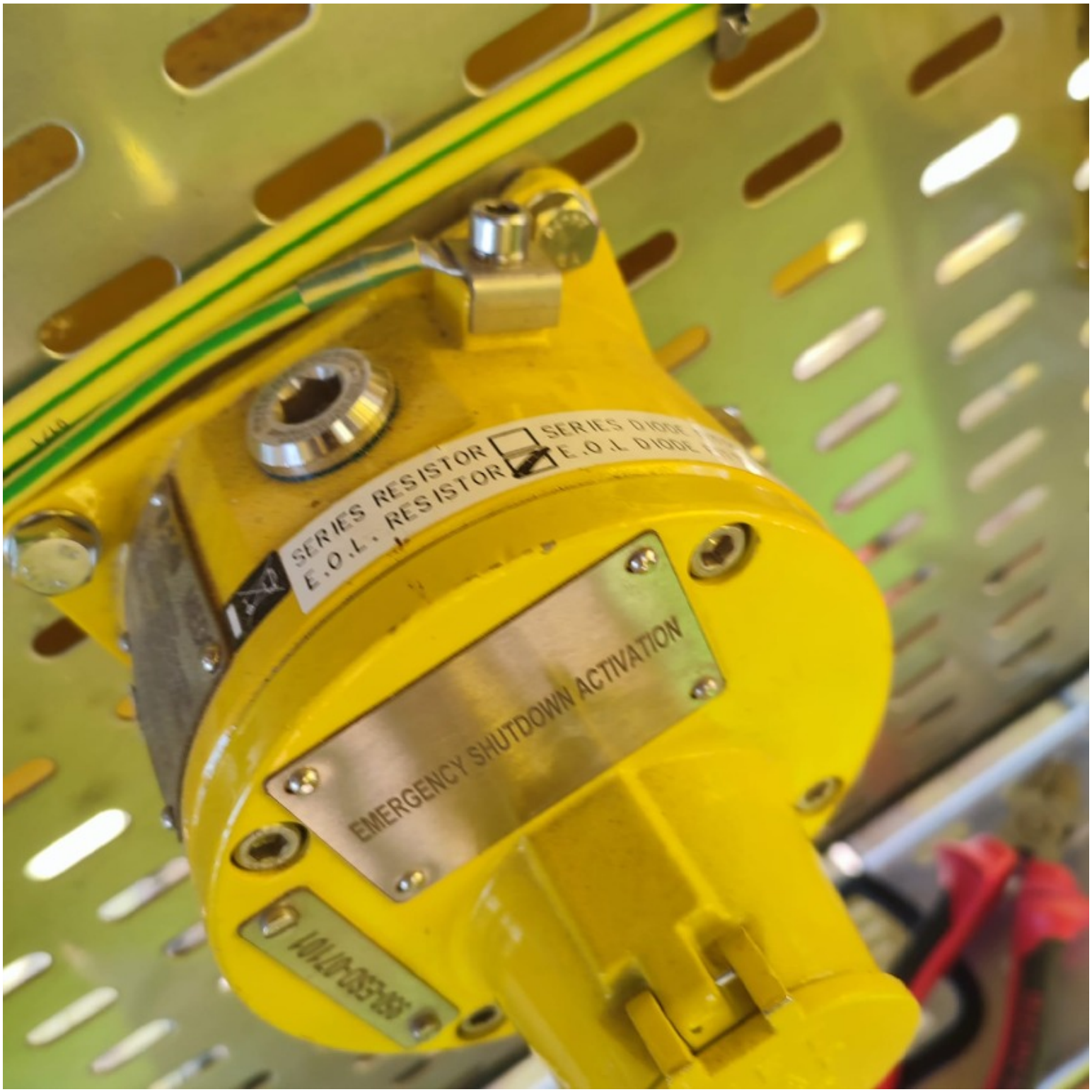
Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


SERIES RESISTOR
E.O.L. RESISTOR
EMERGENCY SHUTDOWN ACTIVATION


EATON
MEDC
TYPE SM077BLD
T3 (Tamb.-55°C to +70°C) Gb
T6 (Tamb.-55°C to +55°C)
T85°C (Tamb.-55°C to +70°C) Db IP66/67
T80°C (Tamb.-55°C to +55°C)
Baseefa03ATEX0075
RATINGS V: 24V I: 2A
DO NOT OPEN WHEN AN EXPLOSIVE
ATMOSPHERE IS PRESENT
CABLE TEMPERATURE RISE: 10K
CABLE ENTRIES 2xM20
PASSED
INSPECTION
SERIES
E.O.L.


EMERGENCY SHUTDOWN ACTIVATION
950-ESD-07101
LIFT
FLAP
AND
PUSH

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30004339

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10001077 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-MOB-07101 | FZ-07 Man Over Board Activation | |
| 1.3 Subsystem | 79-15 | Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | |

## 2 - OBSERVATION

Painting is damage on the instrument. (See attached photo)

Name: Giovanni Tangianu

Date: 2025-04-29

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 | 2025-04-29 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Paint has been restored

Name: Giovanni Tangianu

Date: 2025-05-21

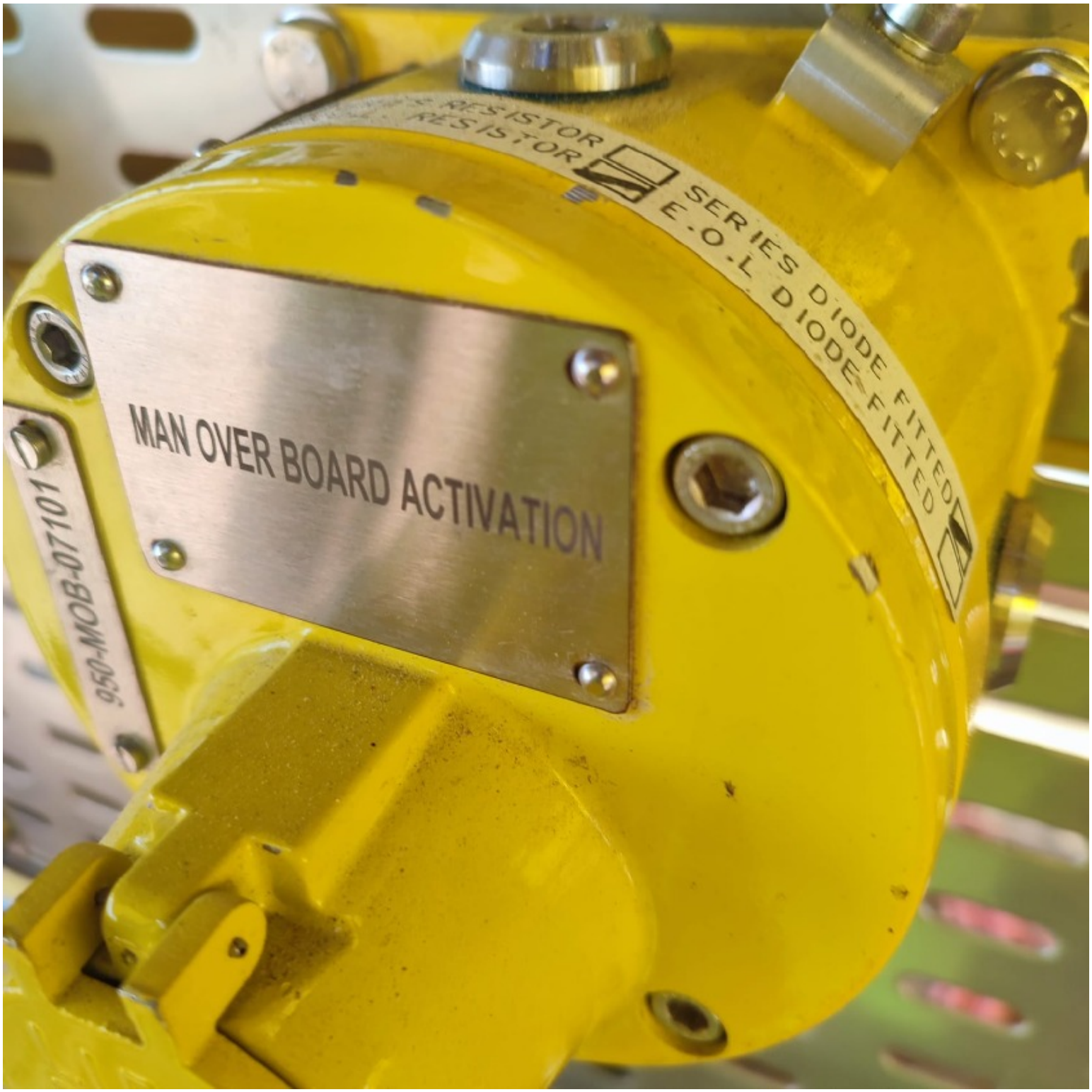
Signature:

## 6- CLEARANCE APPROVAL

Name:

Date:

Signature:


RESISTOR
RESISTOR
SERIES DIODE FITTED
E.O.L DIODE FITTED
MAN OVER BOARD ACTIVATION
950-MOB-07101


SERIES RESISTOR
E.O.L. RESISTOR
E.O.L DIODE
MAN OVER BOARD ACTIVATION


EATON
MEDC
PASSED


950-MOB-07101
LIFT
FLAP
AND
PUSH

ROSETTI MARINO
CROSSWIND

# PUNCH ITEM ENTRY / CLEARANCE FORM

C30004340

PROVERLIS

## 1 -ELEMENT IDENTIFICATION

| | | | |
|---|---|---|---|
| 1.1 Task | C10000968 | 1.4 Discipline | Instrumental |
| 1.2 Item | 950-ESDD-07101 | FZ-07 ESD-1D Push Button Activation | |
| 1.3 Subsystem | 79-15 | Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | |

## 2 - OBSERVATION

Painting is damage on the instrument. (See attached photo)

Name: Giovanni Tangianu

Date: 2025-04-29

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 | 2025-04-29 |
| 3.5 Action by | RM_CONSTR RM | Signature | |

## 4 - PERFORMED ACTION

Name:

Date:

Signature:

## 5 - CLEARANCE CHECK

Paint has been restored

Name: Giovanni Tangianu

Date: 2025-05-21

Signature:

## 6- CLEARANCE APPROVAL

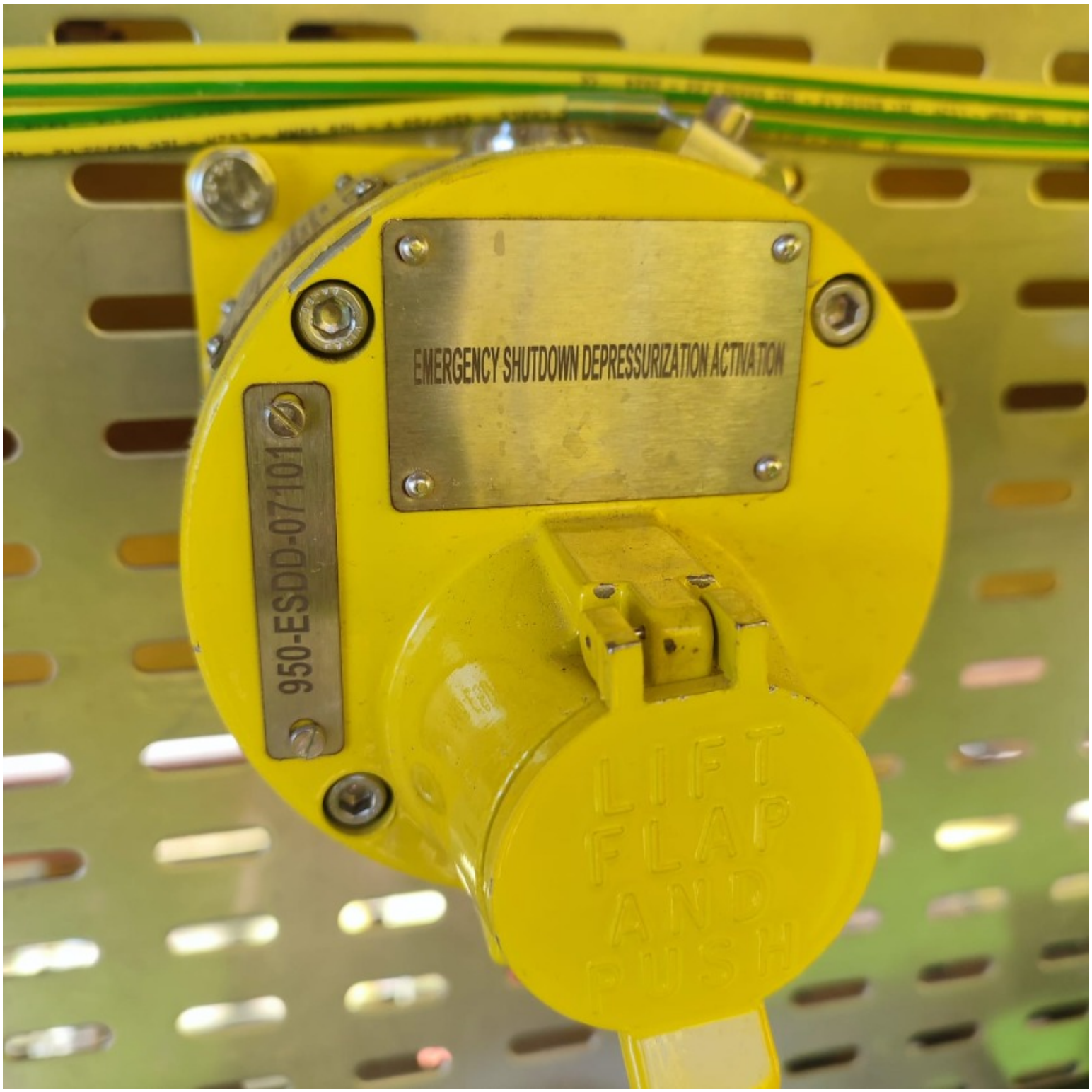
Name:

Date:

Signature:


EATON
MEDC
II 2 GD Ex d IIC T5 (Tamb.-55°C to +70°C) Gb
Ex tb IIIC T100°C (Tamb.-55°C to +55°C)
T6 (Tamb.-55°C to +70°C) Db IP66/67
T85°C (Tamb.-55°C to +55°C)
Baseefa03ATEX0075
RATINGS - V: 24V I: 2A
WARNING - DO NOT OPEN WHEN AN EXPLOSIVE
ATMOSPHERE IS PRESENT
CABLE TEMPERATURE RISE: 10K
CABLE ENTRIES: 2XM20
SERIAL No. 225420465 30 20 Y.o.M. 2024
SUTTON-IN-ASHFIELD U.K. NG17 5FB
LB60402
0598
PASSED
INSPECTION
DATE


EMERGENCY SHUTDOWN DEPRESSURIZATION
950-ESDD-07101


EMERGENCY SHUTDOWN DEPRESSURIZATION ACTIVATION
950-ESDD-07101
LIFT
FLAP
AND
PUSH

# Section 4 FUNCTIONAL TESTS SHEETS

# Section 4.1 Electrical functional test sheets index

# NOT APPLICABLE

# Section 4.2 Electrical
# “As-Commissioned” interconnection diagrams

# NOT APPLICABLE

# Section 4.3 Instrumentation functional test sheets index

CROSSWIND

ROSETTI MARINO

# Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 79-15 & discipline : I

| Instrumental | 79-15 Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) |
|---|---|

| ITEM | | TASK | | | | | |
|---|---|---|---|---|---|---|---|
| Code | Description | Location | Code | Form | Progress | Date | Certificate |
| 950-ASD-07101 | FZ-07 Abandon Shutdown Activation | ONSHORE | C10004400 | FJ04PB_SIS | 100 | 2025-01-30 | RFO 1 |
| 950-ESD-07101 | FZ-07 ESD-1 Push Button Activation | ONSHORE | C10004410 | FJ04PB_SIS | 100 | 2025-01-30 | RFO 1 |
| 950-ESDD-07101 | FZ-07 ESD-1D Push Button Activation | ONSHORE | C10004405 | FJ04PB_SIS | 100 | 2025-01-30 | RFO 1 |
| 950-MOB-07101 | FZ-07 Man Over Board Activation | ONSHORE | C10004427 | FJ04PB_SIS | 100 | 2025-01-30 | RFO 1 |

ROSETTI MARINO | PROVERLIS | CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-ASD-07101 | : FZ-07 Abandon Shutdown Activation | Dwg | 123A90-DDL-SAF-DL-30027 | | |
| | S/Sys | 79-15 | : Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | Module | TP | | |
| **TASK** | code | C10004400 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | COMM | Activity FTS | Discipline | Instrumental | Form | FJ04PB_SIS Push Button SIS |

## LOOP DATA

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Loop TAG | 950-ASD-07101 | | | TSLD | 123A90-FDL-IN-DG-40014 rev.1A | | | | |
| IO Type | Input | Yes | Output | No | Energy by transmitter | No | Energy by system | Yes | |
| Marshalling | B400-SIS-001 | Terminal | 11A/11B | Slot | 03 | Rack | 02 | Chanel | 11 |

## LOOP TEST

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | Check earth isolation of the loop. | | | | | OK |
| 2 | Connect loop to terminal | | | | | OK |
| 3 | Energise Loop (close loop) and record status | Normal | No | Alarm/trip | Yes | OK |
| 4 | De-Energise Loop (open loop) and record status | Normal | Yes | Alarm/trip | No | OK |
| 5 | Record Fail Safe position | Open | NA | Closed | NA | NA |

## LOOP SERVICE

| | | **Action** Shutdown | | **Alarm / Control** SIS | | **Display** PCS | |
|---|---|---|---|---|---|---|---|
| 6 | Loop energized | Yes | | Yes | | OK | OK |
| 7 | Loop not energized | No | | Yes | | OK | OK |
| 8 | Checking of line monitoring | Yes | | Yes | | OK | OK |
| 9 | Checking of Maintenance Inhibition | NA | | NA | | NA | NA |
| 10 | Associated safety Level / bar | ASD | | | | | OK |
| 11 | Associated outputs | | | | | | |

## LOOP DOCUMENTATION

| | | |
|---|---|---|
| 12 | Loop diagram is marked up and attached to this test sheet | OK |
| 13 | Cause and effect chart is highlighted accordingly | OK |
| 14 | Any defect is recorded for punch list issuance | OK |

Comments:

| **Page 1/1** | Performed by | ☒ WITNESS ☐ REVIEW | ☒ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | RM COMM | RM COMM | CW OPS |
| **Name** | Laurentiu Grozavu | Giandonato Delmissier | Jamie McAllister |
| **Date** | 2025-01-29 | 2025-01-29 | 2025-01-30 |
| **Signature** | PROVERLIS Digitaly signed by Laurentiu Grozavu 2025-01-29T06:45:19.223Z | PROVERLIS Digitaly signed by Giandonato Delmissier 2025-01-29T08:55:05.925Z | PROVERLIS Digitaly signed by Jamie McAllister 2025-01-30T07:27:27.698Z |

# 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

Eaton
Unit B, Sutton Parkway
Oddicroft Lane
Sutton in Ashfield
United Kingdom
NG17 5FB

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MEDCSales@Eaton.com

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No.DSMC0005/H
March 2024

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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

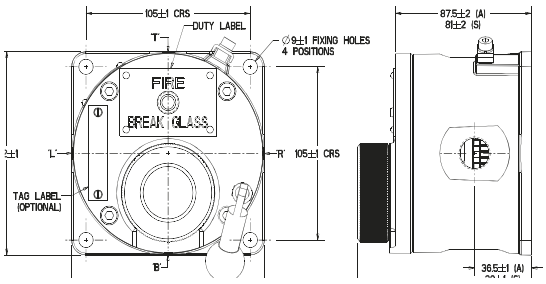
| | |
|---|---|
| **ATEX Ex d** | Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD<br>Certified to: EN60079-0, EN60079-1, EN60079-31<br>Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67 |
| **ATEX Ex ia** | Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD<br>Certified to: EN60079-0, EN60079-11<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

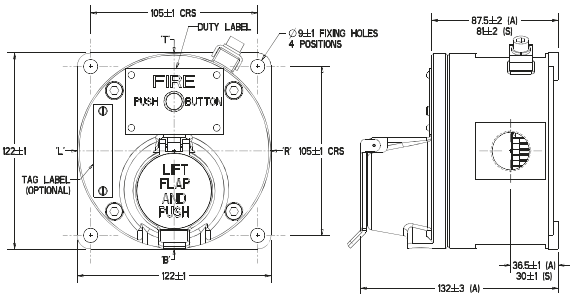
| | |
|---|---|
| **Material** | Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy |
| **Finish** | Paint finish as standard or to customer specification |
| **Voltage** | Ex d 24V a.c./d.c. Ex ia 28V |
| **Rating** | 2A |
| **Switches** | 2 pole c/o, wired to terminals<br>Optional up to 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* –55°C to +70°C.<br>Ex ia* –55°C to +60°C<br>–20°C to +55°C (LED version only)<br>UL –40°C to +70°C,<br>–20°C to +55°C (LED version only)<br>CSA Explosion proof - Class 1, Div 1 & 2. –50°C to +55°C<br>CSA - Ex d IIC –55°C to +70°C<br>CSA Intrinsically safe - Class 1, Div 1 & 2 –50°C to +40°C<br>*Note: includes ATEX, IECEx & INMETRO versions |
| **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 | Y |

| 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 |

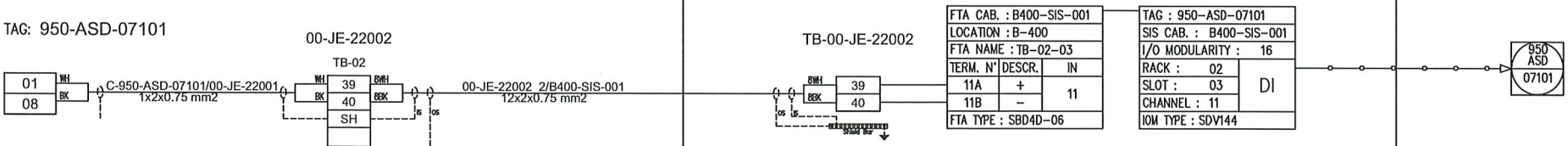
*Please specify

| Finish | Code |
|---|---|
| Red | R |
| Blue | B |
| Yellow | Y |
| Yellow/black stripes | X |
| Special | S* |

*Please specify

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

| FIELD | ITER – B400 | CENTRAL CONTROL ROOM |
|---|---|---|
| | SAFETY INSTRUMENTED SYSTEM | OPERATOR CONSOLE |




NO MARK UP
21/01/25

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 06/12/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 23/10/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-ASD-07101
FZ-07 ABANDON SHUTDOWN (ASD)

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CONTRACT_NO. | | | SCALE 1:1 |
| DRAWN: VBA | CHECKED: LCA | APPROVED: DLO | DATE 23/10/2024 |
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40014 | SHEET 110 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40014_REV.01

ROSETTI MARINO | PROVERLIS | CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-ESDD-07101 | : FZ-07 ESD-1D Push Button Activation | Dwg | 123A90-DDL-SAF-DL-30027 | | |
| | S/Sys | 79-15 | : Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | Module | TP | | |
| **TASK** | code | C10004405 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | COMM | Activity FTS | Discipline | Instrumental | Form | FJ04PB_SIS Push Button SIS |

## LOOP DATA

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Loop TAG | 950-ESDD-07101 | | | TSLD | 123A90-FDL-IN-DG-40014 rev.1A | | | | |
| IO Type | Input | Yes | Output | No | Energy by transmitter | No | Energy by system | Yes | |
| Marshalling | B400-SIS-001 | Terminal | 14A/14B | Slot | 03 | Rack | 02 | Chanel | 14 |

## LOOP TEST

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | Check earth isolation of the loop. | | | | | OK |
| 2 | Connect loop to terminal | | | | | OK |
| 3 | Energise Loop (close loop) and record status | Normal | No | Alarm/trip | Yes | OK |
| 4 | De-Energise Loop (open loop) and record status | Normal | Yes | Alarm/trip | No | OK |
| 5 | Record Fail Safe position | Open | NA | Closed | NA | NA |

## LOOP SERVICE

| | | Action Shutdown | | Alarm / Control SIS | | Display PCS | |
|---|---|---|---|---|---|---|---|
| 6 | Loop energized | Yes | | Yes | | OK | OK |
| 7 | Loop not energized | No | | Yes | | OK | OK |
| 8 | Checking of line monitoring | Yes | | Yes | | OK | OK |
| 9 | Checking of Maintenance Inhibition | NA | | NA | | NA | NA |
| 10 | Associated safety Level / bar | ESD-1D | | | | | OK |
| 11 | Associated outputs | | | | | | |

## LOOP DOCUMENTATION

| | | |
|---|---|---|
| 12 | Loop diagram is marked up and attached to this test sheet | OK |
| 13 | Cause and effect chart is highlighted accordingly | OK |
| 14 | Any defect is recorded for punch list issuance | OK |

Comments:

| Page 1/1 | Performed by | ☑ WITNESS ☐ REVIEW | ☑ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | RM COMM | RM COMM | CW OPS |
| Name | Laurentiu Grozavu | Giandonato Delmissier | Jamie McAllister |
| Date | 2025-01-29 | 2025-01-29 | 2025-01-30 |
| Signature | PROVERLIS Digitaly signed by Laurentiu Grozavu 2025-01-29T06:52:28.237Z | PROVERLIS Digitaly signed by Giandonato Delmissier 2025-01-29T08:57:52.097Z | PROVERLIS Digitaly signed by Jamie McAllister 2025-01-30T07:29:14.829Z |

# 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

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Powering Business Worldwide

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## Certifications

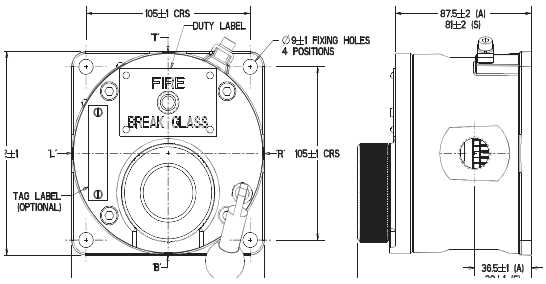
| | |
|---|---|
| **ATEX Ex d** | Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD<br>Certified to: EN60079-0, EN60079-1, EN60079-31<br>Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67 |
| **ATEX Ex ia** | Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD<br>Certified to: EN60079-0, EN60079-11<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

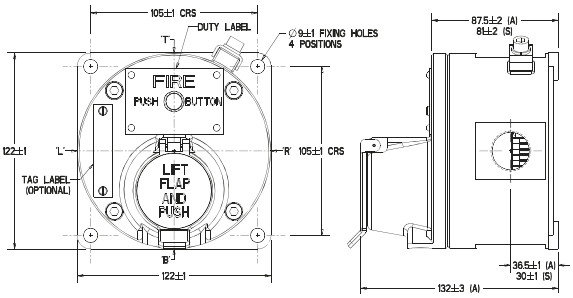
| | |
|---|---|
| **Material** | Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy |
| **Finish** | Paint finish as standard or to customer specification |
| **Voltage** | Ex d 24V a.c./d.c. Ex ia 28V |
| **Rating** | 2A |
| **Switches** | 2 pole c/o, wired to terminals<br>Optional up to 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* –55°C to +70°C.<br>Ex ia* –55°C to +60°C<br>–20°C to +55°C (LED version only)<br>UL –40°C to +70°C,<br>–20°C to +55°C (LED version only)<br>CSA Explosion proof - Class 1, Div 1 & 2. –50°C to +55°C<br>CSA - Ex d IIC –55°C to +70°C<br>CSA Intrinsically safe - Class 1, Div 1 & 2 –50°C to +40°C<br>*Note: includes ATEX, IECEx & INMETRO versions |
| **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 | Y |

| 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 |

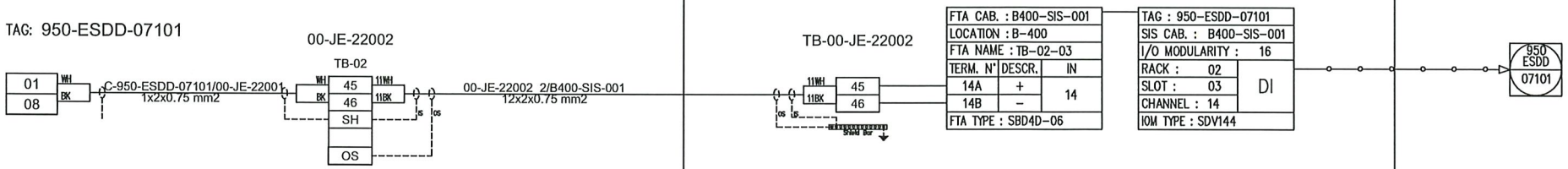
*Please specify

| Finish | Code |
|---|---|
| Red | R |
| Blue | B |
| Yellow | Y |
| Yellow/black stripes | X |
| Special | S* |

*Please specify

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

| FIELD | ITER – B400 | CENTRAL CONTROL ROOM |
|---|---|---|
| | SAFETY INSTRUMENTED SYSTEM | OPERATOR CONSOLE |




NO MARK UP
L.Giugam
21/01/25

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 06/12/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 23/10/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV.: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND | ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-ESDD-07101
FZ-07 DEPRESS. EMERGENCY SHUT DOWN (ESDD)

| CONTRACT NO./TITLE CONTRACT_NO. | | | SCALE 1:1 |
|---|---|---|---|
| DRAWN: VBA | CHECKED: LCA | APPROVED: DLO | DATE 23/10/2024 |

| A3 | DRAWING NO. 123A90-DDL-IN-DG-40014 | SHEET 120 | REV. 01 |
|---|---|---|---|

File Name : 123A90-DDL-IN-DG-40014_REV.01

ROSETTI MARINO | PROVERLIS | CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-ESD-07101 | : FZ-07 ESD-1 Push Button Activation | Dwg | 123A90-DDL-SAF-DL-30027 | | |
| | S/Sys | 79-15 | : Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | Module | TP | | |
| **TASK** | code | C10004410 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | COMM | Activity FTS | Discipline | Instrumental | Form | FJ04PB_SIS Push Button SIS |

## LOOP DATA

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Loop TAG | 950-ESD-07101 | | | TSLD | 123A90-FDL-IN-DG-40014 rev.1A | | | | |
| IO Type | Input | Yes | Output | No | Energy by transmitter | No | Energy by system | Yes | |
| Marshalling | B400-SIS-001 | Terminal | 13A/13B | Slot | 03 | Rack | 02 | Chanel | 13 |

## LOOP TEST

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | Check earth isolation of the loop. | | | | | OK |
| 2 | Connect loop to terminal | | | | | OK |
| 3 | Energise Loop (close loop) and record status | Normal | No | Alarm/trip | Yes | OK |
| 4 | De-Energise Loop (open loop) and record status | Normal | Yes | Alarm/trip | No | OK |
| 5 | Record Fail Safe position | Open | NA | Closed | NA | NA |

## LOOP SERVICE

| | | Action Shutdown | | Alarm / Control SIS | | Display PCS | |
|---|---|---|---|---|---|---|---|
| 6 | Loop energized | Yes | | Yes | | OK | OK |
| 7 | Loop not energized | No | | Yes | | OK | OK |
| 8 | Checking of line monitoring | Yes | | Yes | | OK | OK |
| 9 | Checking of Maintenance Inhibition | NA | | NA | | NA | NA |
| 10 | Associated safety Level / bar | ESD | | | | | OK |
| 11 | Associated outputs | | | | | | |

## LOOP DOCUMENTATION

| | | |
|---|---|---|
| 12 | Loop diagram is marked up and attached to this test sheet | OK |
| 13 | Cause and effect chart is highlighted accordingly | OK |
| 14 | Any defect is recorded for punch list issuance | OK |

Comments:



| | Performed by | ☒ WITNESS ☐ REVIEW | ☒ WITNESS ☐ REVIEW |
|---|---|---|---|
| Company | RM COMM | RM COMM | CW OPS |
| Name | Laurentiu Grozavu | Giandonato Delmissier | Jamie McAllister |
| Date | 2025-01-29 | 2025-01-29 | 2025-01-30 |
| Signature | PROVERLIS Digitaly signed by Laurentiu Grozavu 2025-01-29T06:53:05.917Z | PROVERLIS Digitaly signed by Giandonato Delmissier 2025-01-29T08:58:45.943Z | PROVERLIS Digitaly signed by Jamie McAllister 2025-01-30T07:29:49.669Z |

# 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

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## Certifications

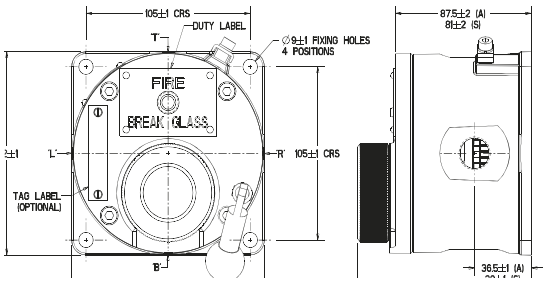
| | |
|---|---|
| **ATEX Ex d** | Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD<br>Certified to: EN60079-0, EN60079-1, EN60079-31<br>Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67 |
| **ATEX Ex ia** | Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD<br>Certified to: EN60079-0, EN60079-11<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

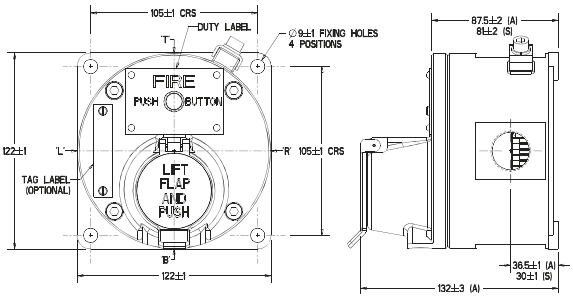
| | |
|---|---|
| **Material** | Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy |
| **Finish** | Paint finish as standard or to customer specification |
| **Voltage** | Ex d 24V a.c./d.c. Ex ia 28V |
| **Rating** | 2A |
| **Switches** | 2 pole c/o, wired to terminals<br>Optional up to 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* –55°C to +70°C.<br>Ex ia* –55°C to +60°C<br>–20°C to +55°C (LED version only)<br>UL –40°C to +70°C,<br>–20°C to +55°C (LED version only)<br>CSA Explosion proof - Class 1, Div 1 & 2. –50°C to +55°C<br>CSA - Ex d IIC –55°C to +70°C<br>CSA Intrinsically safe - Class 1, Div 1 & 2 –50°C to +40°C<br>*Note: includes ATEX, IECEx & INMETRO versions |
| **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 | Y |

| 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 |

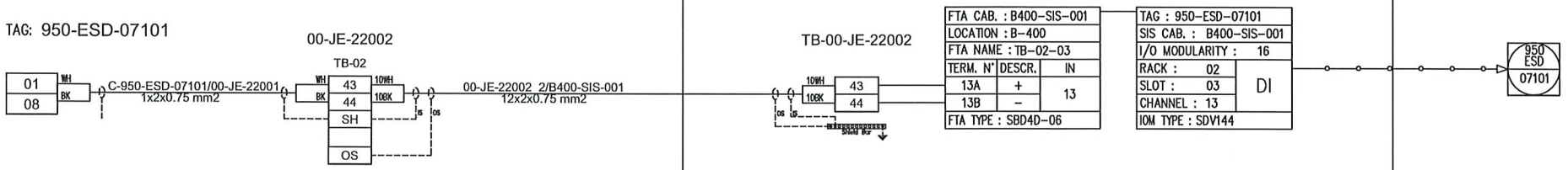
*Please specify

| Finish | Code |
|---|---|
| Red | R |
| Blue | B |
| Yellow | Y |
| Yellow/black stripes | X |
| Special | S* |

*Please specify

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

| FIELD | ITER – B400 | CENTRAL CONTROL ROOM |
|---|---|---|
| | SAFETY INSTRUMENTED SYSTEM | OPERATOR CONSOLE |




NO MARK UP
29/01/25

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 06/12/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 23/10/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
rev: 1_A | date: 20/12/24 | signature: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-ESD-07101
FZ-07 EMERGENCY SHUT DOWN (ESD)

CONTRACT NO./TITLE CONTRACT_NO. | SCALE 1:1
DRAWN: VBA | CHECKED: LCA | APPROVED: DLO | DATE 23/10/2024

| A3 | DRAWING NO. | SHEET | REV. |
|---|---|---|---|
| | 123A90-DDL-IN-DG-40014 | 115 | 01 |

File Name : 123A90-DDL-IN-DG-40014_REV.01

ROSETTI MARINO | PROVERLIS | CROSSWIND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ITEM** | Tag | 950-MOB-07101 | : FZ-07 Man Over Board Activation | | Dwg | 123A90-DDL-SAF-DL-30027 | |
| | S/Sys | 79-15 | : Emergency Shutdown Systems (SIS) - Devices FZ-07 (Transition Piece Area) | | Module | TP | |
| **TASK** | code | C10004427 | Location | Onshore Activities | User | Rosetti Marino Quality Control | |
| **FORM** | Process | COMM | Activity FTS | Discipline Instrumental | Form | FJ04PB_SIS | Push Button SIS |

## LOOP DATA

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Loop TAG | 950-MOB-07101 | | | | TSLD | 123A90-FDL-IN-DG-40014 rev.1A | | | |
| IO Type | Input | Yes | Output | No | Energy by transmitter | No | | Energy by system | Yes |
| Marshalling | B400-SIS-001 | Terminal | 12A/12B | | Slot | 03 | Rack 02 | Chanel | 12 |

## LOOP TEST

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | Check earth isolation of the loop. | | | | | OK |
| 2 | Connect loop to terminal | | | | | OK |
| 3 | Energise Loop (close loop) and record status | Normal | No | Alarm/trip | Yes | OK |
| 4 | De-Energise Loop (open loop) and record status | Normal | Yes | Alarm/trip | No | OK |
| 5 | Record Fail Safe position | Open | NA | Closed | NA | NA |

## LOOP SERVICE

| | | **Action** Shutdown | | **Alarm / Control** SIS | | **Display** PCS | |
|---|---|---|---|---|---|---|---|
| 6 | Loop energized | Yes | | Yes | | OK | OK |
| 7 | Loop not energized | No | | Yes | | OK | OK |
| 8 | Checking of line monitoring | Yes | | Yes | | OK | OK |
| 9 | Checking of Maintenance Inhibition | NA | | NA | | NA | NA |
| 10 | Associated safety Level / bar | | | | | | |
| 11 | Associated outputs | | | | | | |

## LOOP DOCUMENTATION

| | | |
|---|---|---|
| 12 | Loop diagram is marked up and attached to this test sheet | OK |
| 13 | Cause and effect chart is highlighted accordingly | OK |
| 14 | Any defect is recorded for punch list issuance | OK |

Comments:

| **Page 1/1** | Performed by | ☑ WITNESS ☐ REVIEW | ☑ WITNESS ☐ REVIEW |
|---|---|---|---|
| **Company** | RM COMM | RM COMM | CW OPS |
| **Name** | Laurentiu Grozavu | Giandonato Delmissier | Jamie McAllister |
| **Date** | 2025-01-29 | 2025-01-29 | 2025-01-30 |
| **Signature** | PROVERLIS Digitaly signed by Laurentiu Grozavu 2025-01-29T06:44:46.338Z | PROVERLIS Digitaly signed by Giandonato Delmissier 2025-01-29T09:01:16.156Z | PROVERLIS Digitaly signed by Jamie McAllister 2025-01-30T07:30:38.374Z |

# 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

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Unit B, Sutton Parkway
Oddicroft Lane
Sutton in Ashfield
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March 2024

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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

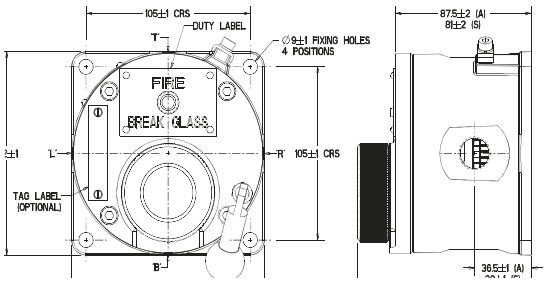
| | |
|---|---|
| **ATEX Ex d** | Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD<br>Certified to: EN60079-0, EN60079-1, EN60079-31<br>Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67 |
| **ATEX Ex ia** | Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD<br>Certified to: EN60079-0, EN60079-11<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

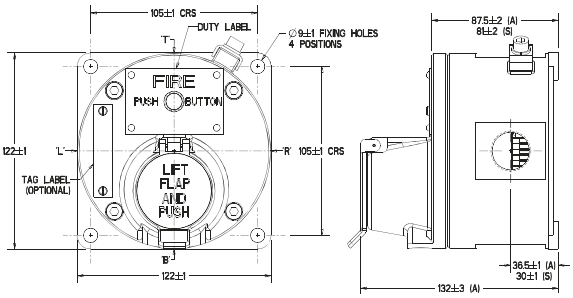
| | |
|---|---|
| **Material** | Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy |
| **Finish** | Paint finish as standard or to customer specification |
| **Voltage** | Ex d 24V a.c./d.c. Ex ia 28V |
| **Rating** | 2A |
| **Switches** | 2 pole c/o, wired to terminals<br>Optional up to 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* –55°C to +70°C.<br>Ex ia* –55°C to +60°C<br>–20°C to +55°C (LED version only)<br>UL –40°C to +70°C,<br>–20°C to +55°C (LED version only)<br>CSA Explosion proof - Class 1, Div 1 & 2. –50°C to +55°C<br>CSA - Ex d IIC –55°C to +70°C<br>CSA Intrinsically safe - Class 1, Div 1 & 2 –50°C to +40°C<br>*Note: includes ATEX, IECEx & INMETRO versions |
| **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 | Y |

| 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 |

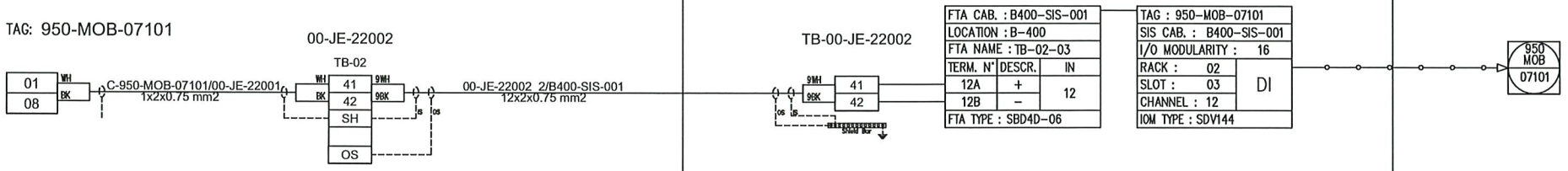
*Please specify

| Finish | Code |
|---|---|
| Red | R |
| Blue | B |
| Yellow | Y |
| Yellow/black stripes | X |
| Special | S* |

*Please specify

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

| FIELD | ITER – B400 | CENTRAL CONTROL ROOM |
|---|---|---|
| | SAFETY INSTRUMENTED SYSTEM | OPERATOR CONSOLE |




NO MARK UP
LGW Jones
21/01/25

| REV. | DATE | DRN | CHKD | APPD | DESCRIPTION |
|---|---|---|---|---|---|
| 01 | 06/12/2024 | VBA | LCA | DLO | ACCEPTED FOR CONSTRUCTION (AFC) |
| 00 | 23/10/2024 | VBA | LCA | DLO | ISSUE FOR REVIEW (IFR) |

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-MOB-07101
FZ-07 DEPRESS. EMERGENCY SHUT DOWN (MOB)

| | | | |
|---|---|---|---|
| CONTRACT NO./TITLE CONTRACT_NO. | | | SCALE 1:1 |
| DRAWN: VBA | CHECKED: LCA | APPROVED: DLO | DATE 23/10/2024 |
| A3 | DRAWING NO. 123A90-DDL-IN-DG-40014 | SHEET 125 | REV. 01 |

File Name : 123A90-DDL-IN-DG-40014_REV.01

# Section 4.4 Instrumentation “As-Commissioned” interconnection diagrams

# NOT APPLICABLE

# Section 4.5 Telecommunication functional test sheets index

# NOT APPLICABLE

# Section 4.6 Telecommunication
# “As-Commissioned” I.C.D. / TSLD's

# NOT APPLICABLE

# Section 5 SITE / OPERATIONAL

# Section 5.1 Operational Test Procedure

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

Main reference document **123A90-PML-COM-PRO-03054 _ OTP – F&G and ESD C&E Logics** has been uploaded in the Subsystem 70-00 Commissioning Dossier Sect. 5.1

# CAUSE AND EFFECT CHARTS

# ASD

**EFFECT**

| Col. | Group | To sheet | P&ID | Description | ESD Level | Action | Tag. No. |
|---|---|---|---|---|---|---|---|
| 1 | ALARM / INTERFACE | | | OPERATOR WORKSTATION DISPLAY - EVENT/ALARM | | | |
| 3 | ALARM / INTERFACE | | | ALARM ON CAP ONSHORE | | | |
| 5 | ALARM / INTERFACE | 6 | | ESD-1D ACTIVATION | | | |
| 7 | ALARM / INTERFACE | NOTE 4 | | ASD ACTIVATION TO FGS SYSTEM | | | 79-XS-001 |
| 9 | BATTERIES DISCONNECTED | | | DISCONNECT AC UPS UP-200F3 BATTERIES A/B (B-300 CONTAINER) | | ISOLATE | 84-XS-007A/B |
| 11 | BATTERIES DISCONNECTED | | | DISCONNECT AC UPS UP-200F4 BATTERIES A/B (B-300 CONTAINER) | | ISOLATE | 84-XS-008A/B |
| 13 | BATTERIES DISCONNECTED | | | DISCONNECT DC UPS (B-100 CONTAINER) | | ISOLATE | 84-XS-006 |
| 15 | PROCESS/POWER PACKAGES | | 80011 | SHUTDOWN ELECTROLYZER PACKAGE A-20000 | | | 20-XS-001 |
| 17 | PROCESS/POWER PACKAGES | | | SHUTDOWN BESS PACKAGE A-85000 | | | 85-XS-001 |
| 19 | PROCESS/POWER PACKAGES | | | SHUTDOWN SOLAR FARM PACKAGE (NOTE 1) | | | 83-XS-001 |
| 21 | PROCESS/POWER PACKAGES | | 80012 | SHUTDOWN FUEL CELL PACKAGE A-80000 | | | 80-XS-001 |
| 23 | PROCESS/POWER PACKAGES | | 80022/23/ | SHUTDOWN WATER TREATMENT PACKAGE A-50000 | | | 50-XS-001 |
| 25 | PROCESS/POWER PACKAGES | | 80027 | SHUTDOWN INSTRUMENT AIR PACKAGE A-63000 | | | 63-XS-001 |
| 27 | PROCESS/POWER PACKAGES | | 80027 | SHUTDOWN NITROGEN PACKAGE A-64000 | | | 64-XS-001 |
| 29 | INCOMING CIRCUIT BREAKERS POWER GENERATION | | | OPEN BESS A-85000 INCOMING CIRCUIT BREAKERS | | | 82-XS-002 |
| 31 | INCOMING CIRCUIT BREAKERS POWER GENERATION | | | OPEN FUEL CELL A-80000 INCOMING CIRCUIT BREAKERS | | | 82-XS-003 |
| 33 | INCOMING CIRCUIT BREAKERS POWER GENERATION | | | OPEN SOLAR INCOMING CIRCUIT BREAKERS | | | 82-XS-001 |
| 35 | INCOMING CIRCUIT BREAKERS POWER GENERATION | | | OPEN WIND FARM INCOMING CIRCUIT BREAKERS | | | 81-XS-001 |
| 37 | HVAC SYSTEM | | | SHUTDOWN HVAC SYSTEM OF B-100 (HV CONTAINER) | | | 77-XS-001 |
| 39 | HVAC SYSTEM | | | SHUTDOWN HVAC SYSTEM OF B-200 (LV CONTAINER) | | | 77-XS-002 |
| 41 | HVAC SYSTEM | | | SHUTDOWN HVAC SYSTEM OF B-300 (UPS CONTAINER) | | | 77-XS-003 |
| 43 | HVAC SYSTEM | | | SHUTDOWN HVAC SYSTEM OF B-400 (ITER CONTAINER) | | | 77-XS-004 |
| 45 | ELECTRICAL ISOLATION UPS POWERS | | | ELECT. ISOLATION UPS POWER UCP (WATER TREAT. A-50000) | | | 84-XS-001 |
| 47 | ELECTRICAL ISOLATION UPS POWERS | | | ELECT. ISOLATION UPS POWER UCP (INSTRUMENT AIR A-63000) | | | 84-XS-003 |
| 49 | ELECTRICAL ISOLATION UPS POWERS | | | ELECT. ISOLATION UPS POWER UCP (NITROGEN A-64000) | | | 84-XS-002 |
| 51 | ELECTRICAL ISOLATION UPS POWERS | | | ELECT. ISOLATION UPS POWER UCP HVAC B-100 | | | 84-XS-004 |
| 53 | ELECTRICAL ISOLATION UPS POWERS | | | ELECT. ISOLATION UPS POWER UCP HVAC B-200 | | | 84-XS-005 |

**CAUSE**

| Row | ESD Level | DESCRIPTION | TAG NO. | FUNC. | By-Pass / Reset | P&ID NO. | NOTE | 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 25 | 27 | 29 | 31 | 33 | 35 | 37 | 39 | 41 | 43 | 45 | 47 | 49 | 51 | 53 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | ASD | ASD ACTIVATION FROM FGS SYSTEM | 70-XA-001 | | | | 4 | | | X | | T3 | T3 | T4 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | ASD | FZ-01 ABANDON SHUTDOWN ACTIVATION PUSH BUTTON | 950-ASD-01101 | | X | | 3 | X | F | X | X | T3 | T3 | T4 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | ASD | FZ-03 ABANDON SHUTDOWN ACTIVATION PUSH BUTTON | 950-ASD-03101 | | X | | 3 | X | F | X | X | T3 | T3 | T4 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | ASD | FZ-04 ABANDON SHUTDOWN ACTIVATION PUSH BUTTON | 950-ASD-04101 | | X | | 3 | X | F | X | X | T3 | T3 | T4 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | ASD | FZ-06 ABANDON SHUTDOWN ACTIVATION PUSH BUTTON | 950-ASD-06101 | | X | | 3 | X | F | X | X | T3 | T3 | T4 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | ASD | FZ-07 ABANDON SHUTDOWN ACTIVATION PUSH BUTTON | 950-ASD-07101 | | X | | 3 | X | F | X | X | T3 | T3 | T4 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

## NOTES

1. SERIAL SIGNALS THROUGH FIBER OPTIC CABLE.
2. T4= 1 sec. (PROPOSED delay time).
3. THE FLASHING ALARM ON CAP ONSHORE IS A CUMULATIVE OF ALL ASD PUSH BUTTONS ACTIVATION.
4. FGS AND SIS SYSTEM EXCHANGE DATA BETWEEN THEM BY USING THE VnetIP NETWORK. THIS IS IMPLEMENTED AS REDUNDANT SAFETY COMMUNICATION, APPROVED FOR SIL 3 LOOP.

TEST COMPLETED
GIANDONATO 19-03-2025
[signature] R.H.
PUNCH LIST HAS BEEN RAISED TO REFLECT REMOTE RESET ISSUE STILL TO RESOLVE. ALL OTHER TESTING ACKNOWLEDGED BY CROSSWIND
[signature] MARTIN TAYLOR

## HOLDS

CROSSWIND 15/04/25

1. T1= 1439 min 55 sec
2. T2= 5 sec.
3. T3= 30 sec.
4. T4= 15 sec. (T4<T3)
5. T5= 24 hours (T1+ T2)

## Reference

| Document Title | Document Number |
|---|---|
| Fire & Gas Cause & Effect Matrix | 123A90-DDL-IN-CE-40002 |
| Process Safety Cause and Effect Block Diagram | 123A90-DDL-PR-DG-80000 |

## LEGEND

| | |
|---|---|
| CCR | CENTRAL CONTROL ROOM (ONSHORE) |
| OER | ONSHORE EQUIPMENT ROOM |
| ITER | OFFSHORE CONTROL ROOM |
| R | RESET |
| EL | EVENT LOG |
| F | FLASHING LIGHT INDICATION ON CAP |
| T | TIME DELAY |

| Rev. | Date | Description | Issued by | Checked by | Approved by |
|---|---|---|---|---|---|
| 00 | 24/11/2023 | Issue for Acceptance (IFA) | LCA | MGA | DLO |
| 01 | 08/03/2024 | Accepted For Construction (AFC) | LCA | MGA | DLO |
| 02 | 12/06/2024 | Accepted For Construction (AFC) | LCA | MGA | DLO |
| 04 | 11/02/2025 | Accepted For Construction (AFC) | LCA | MGA | DLO |

Process Safety Cause & Effect Matrix

ASD: ABANDON

Document Reference: 123A90-DDL-IN-CE-40000
Rev: 04 Status: AFC
Contract No. CW-I-WP4-2023-05
Sheet 5 of 9

# CAUSE AND EFFECT CHARTS

## ESD-1

CAUSE / EFFECT

| ESD Level | DESCRIPTION | TAG NO. | FUNC. | By-Pass / Reset | P&ID NO 123A90-DDL-PR-PID-. | NOTE |
|---|---|---|---|---|---|---|
| ESD-1D | ESD-1 ACTIVATION IN CASCADE FROM ESD-1D | | | | | |
| ESD-1 | FZ-01 ESD-1 PUSH BUTTON ACTIVATION | 950-ESD-01101 | X | | | 1 |
| ESD-1 | FZ-03 ESD-1 PUSH BUTTON ACTIVATION | 950-ESD-03101 | X | | | 1 |
| ESD-1 | FZ-04 ESD-1 PUSH BUTTON ACTIVATION | 950-ESD-04101 | X | | | 1 |
| ESD-1 | FZ-05 ESD-1 PUSH BUTTON ACTIVATION | 950-ESD-05101 | X | | | 1 |
| ESD-1 | FZ-07 ESD-1 PUSH BUTTON ACTIVATION | 950-ESD-07101 | X | | | 1 |
| ESD-1 | ESD-1 PUSH BUTTONS ONSHORE | 950-ESD-00001 | | | | 1 |
| ESD-1 | BESS ALARM THERMAL RUN AWAY | 85-XA-004 | | | | |

| | DESCRIPTION | TAG. NO. | ACTION | ESD LEVEL | P&ID | To sheet |
|---|---|---|---|---|---|---|
| | ALARM / INTERFACE | | | | | |
| 1 | WORKSTATION HMIs - EVENT/ALARM | | | 1 | | |
| 2 | ALARM ON CAP ONSHORE | | | | | |
| 3 | PSD ACTIVATION | | | PSD | | 8 |
| 4 | ESD-1 ACTIVATION TO FGS SYSTEM | 79-XS-003 | | 1 | | NOTE 2 |
| | PROCESS/POWER PACKAGES | | | | | |
| 5 | SHUTDOWN ELECTROLYZER PACKAGE A-20000 | 20-XS-001 | | | 80011 | |
| 6 | SHUTDOWN FUEL CELL PACKAGE A-80000 | 80-XS-001 | | 1 | 80012 | |
| 7 | SHUTDOWN WATER TREATMENT PACKAGE A-50000 | 50-XS-001 | | 1 | 80022/23/2 | |
| | SHUT-DOWN VALVES | | | | | |
| 8 | CLOSE 64-SDV-001 NITROGEN TO H2 STORAGE TANKS | 64-SDY-001 | | 1 | 80027 | |
| 9 | CLOSE 25-SDV-023 ON OUTLET H2 HEADER TO FUEL CELL PKG | 25-SDY-023 | | | 80014 | |
| 10 | CLOSE 25-SDV-001 ON H2 HEADER TO STORAGE TANKS | 25-SDY-001 | | | 80013 | |

| ESD Level | DESCRIPTION | TAG NO. | FUNC. | By-Pass / Reset | P&ID NO 123A90-DDL-PR-PID-. | NOTE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ESD-1D | ESD-1 ACTIVATION IN CASCADE FROM ESD-1D | | | | | | | | X | | | | | | | | | | | | | | | | | X | | | | X | X |
| ESD-1 | FZ-01 ESD-1 PUSH BUTTON ACTIVATION | 950-ESD-01101 | X | | | 1 | | X | F | X | X | X | | | | | | | X | X | | | | | | X | | | | X | X |
| ESD-1 | FZ-03 ESD-1 PUSH BUTTON ACTIVATION | 950-ESD-03101 | X | | | 1 | | X | F | X | X | X | | | | | | | X | X | | | | | | X | | | | X | X |
| ESD-1 | FZ-04 ESD-1 PUSH BUTTON ACTIVATION | 950-ESD-04101 | X | | | 1 | | X | F | X | X | X | | | | | | | X | X | | | | | | X | | | | X | X |
| ESD-1 | FZ-05 ESD-1 PUSH BUTTON ACTIVATION | 950-ESD-05101 | X | | | 1 | | X | F | X | X | X | | | | | | | X | X | | | | | | X | | | | X | X |
| ESD-1 | FZ-07 ESD-1 PUSH BUTTON ACTIVATION | 950-ESD-07101 | X | | | 1 | | X | F | X | X | X | | | | | | | X | X | | | | | | X | | | | X | X |
| ESD-1 | ESD-1 PUSH BUTTONS ONSHORE | 950-ESD-00001 | | | | 1 | | X | F | X | X | X | | | | | | | X | X | | | | | | X | | | | X | X |
| ESD-1 | BESS ALARM THERMAL RUN AWAY | 85-XA-004 | | | | | | X | F | X | X | X | | | | | | | X | X | | | | | | X | | | | X | X |

## NOTES

1. THE FLASHING ALARM ON CAP ONSHORE IS A CUMULATIVE OF ALL ESD-1 PUSH BUTTONS ACTIVATION.

2. FGS AND SIS SYSTEM EXCHANGE DATA BETWEEN THEM BY USING THE Vnet/IP NETWORK. THIS IS IMPLEMENTED AS REDUNDANT SAFETY COMMUNICATION, APPROVED FOR SIL 3 LOOP.

TEST COMPLETED
GIVEN DATED 19-03-2025
R.M.
PUNCH LIST HAS BEEN RAISED TO REFLECT REMOTE RESET ISSUE STILL TO BE RESOLVED. ALL OTHER TESTING ACKNOWLEDGED BY CROSSWIND.
MARTIN TAYLOR

HOLDS

15/04/25

1. T1= 1439 min 55 sec
2. T2= 5 sec.
3. T3= 30 sec.
4. T4= 15 sec. (T4<T3)
5. T5= 24 hours (T1+ T2)

### Reference

| Document Title | Document Number |
|---|---|
| Fire & Gas Cause & Effect Matrix | 123A90-DDL-IN-CE-40002 |
| Process Safety Cause and Effect Block Diagram | 123A90-DDL-PR-DG-80000 |

### LEGEND

| | |
|---|---|
| CCR | CENTRAL CONTROL ROOM (ONSHORE) |
| OER | ONSHORE EQUIPMENT ROOM |
| ITER | OFFSHORE CONTROL ROOM |
| R | RESET |
| EL | EVENT LOG |
| F | FLASHING LIGHT INDICATION ON CAP |
| T | TIME DELAY |

| Rev. | Date | Description | Issued by | Checked by | Approved by |
|---|---|---|---|---|---|
| 00 | 24/11/2023 | Issue for Acceptance (IFA) | LCA | MGA | DLO |
| 01 | 08/03/2024 | Accepted For Construction (AFC) | LCA | MGA | DLO |
| 02 | 12/06/2024 | Accepted For Construction (AFC) | LCA | MGA | DLO |
| 04 | 11/02/2025 | Accepted For Construction (AFC) | LCA | MGA | DLO |

Process Safety Cause & Effect Matrix

ESD-1: EMERGENCY SHUT DOWN WITHOUT DEPRESSURIZATION

Document Reference: 123A90-DDL-IN-CE-40000

Rev: 04 Status: AFC

Contract No. CVI-I-YP4-2023-05

# CAUSE AND EFFECT CHARTS

## MOB PUSH BUTTONS

CAUSE / EFFECT

| PSD | DESCRIPTION | TAG NO. | FUNC. | By-Pass / Reset | P&ID NO 123A90-DDL-PR-PID-. | NOTE |
|---|---|---|---|---|---|---|
| | FZ-01 MAN OVER BOARD ACTIVATION | 950-MOB-01101 | | X | | 1 |
| | FZ-03 MAN OVER BOARD ACTIVATION | 950-MOB-03101 | | X | | 1 |
| | FZ-04 MAN OVER BOARD ACTIVATION | 950-MOB-04101 | | X | | 1 |
| | FZ-06 MAN OVER BOARD ACTIVATION | 950-MOB-06101 | | X | | 1 |
| | FZ-07 MAN OVER BOARD ACTIVATION | 950-MOB-07101 | | X | | 1 |

| | ALARM / INTERFACE | | | | | |
|---|---|---|---|---|---|---|
| To sheet | | | | | | NOTE 2 |
| P&ID | | | | | | |
| DESCRIPTION | WORKSTATION HMIs - EVENT/ALARM | ALARM ON CAP ONSHORE | | | MOB PUSH BUTTONS ALARM ACTIVATION TO FGS SYSTEM | |
| ACTION | | | | | ALARM | |
| TAG. NO. | | | | | 79-XS-004 | |
| 1 | X | F | | | X | |
| 2 | | | | | | |
| 3 | X | F | | | X | |
| 4 | | | | | | |
| 5 | X | F | | | X | |
| 6 | | | | | | |
| 7 | X | F | | | X | |
| 8 | | | | | | |
| 9 | X | F | | | X | |
| 10 | | | | | | |

## NOTES

1. The Flahing Alarm on CAP onshore is a cumulative of all Man Onverboard (MOB) push buttons activation.

2. FGS AND SIS SYSTEM EXCHANGE DATA BETWEEN THEM BY USING THE Vnet/IP NETWORK. THIS IS IMPLEMENTED AS REDUNDANT SAFETY COMMUNICATION, APPROVED FOR SIL 3 LOOP.

TEST COMPLETED
14-03-2025 GIANDONATO
R.M.

GERRY McCANN
CROSSWIND
14/3/25

## HOLDS

1. T1= 1439 min 55 sec
2. T2= 5 sec.
3. T3= 30 sec.
4. T4= 15 sec. (T4<T3)
5. T5= 24 hours (T1+ T2)

## Reference

| Document Title | Document Number |
|---|---|
| Fire & Gas Cause & Effect Matrix | 123A90-DDL-IN-CE-40002 |
| Process Safety Cause and Effect Block Diagram | 123A90-DDL-PR-DG-80000 |

## LEGEND

| | |
|---|---|
| CCR | CENTRAL CONTROL ROOM (ONSHORE) |
| OER | ONSHORE EQUIPMENT ROOM |
| ITER | OFFSHORE CONTROL ROOM |
| R | RESET |
| EL | EVENT LOG |
| F | FLASHING LIGHT INDICATION ON CAP |
| T | TIME DELAY |

| Rev. | Date | Description | Issued by | Checked by | Approved by |
|---|---|---|---|---|---|
| 00 | 24/11/2023 | Issue for Acceptance (IFA) | LCA | MGA | DLO |
| 01 | 08/03/2024 | Accepted For Construction (AFC) | LCA | MGA | DLO |
| 02 | 12/06/2024 | Accepted For Construction (AFC) | LCA | MGA | DLO |
| 04 | 11/02/2025 | Accepted For Construction (AFC) | LCA | MGA | DLO |

Process Safety Cause & Effect Matrix

MOB PUSH BUTTONS

Document Reference: 123A90-DDL-IN-CE-40008

Rev: 04 Status: AFC

Contract No. CW4-WP4-2023-05

# Section 5.2 Operational Test Certificates

# NOT APPLICABLE

# Section 6 PIPING AND VESSEL PREPARATION

# Section 6.1 Final Mechanical / Vessel Inspection Checks Index

# NOT APPLICABLE

# Section 6.2 Leak Test / Drying / Inerting Test Sheets Index

# NOT APPLICABLE

# Section 6.3 Chemical Loading & First Fill records Index

# NOT APPLICABLE

# Section 6.4 Chemical Cleaning Reports and Records Index

# NOT APPLICABLE

# Section 6.5 Lubrication Schedule

# NOT APPLICABLE

# Section 7 VENDOR

# Section 7.1 Vendor Package Summary Index

# NOT APPLICABLE

# Section 7.2 SAT Procedure with associated punch list and reference (Front Page)

# NOT APPLICABLE

# Section 7.3 Vendor Spares & Special Tools lists references

ROSETTI MARINO

# SPARE PARTS LIST

CROSSWIND

| | |
|---|---|
| Document Title | **SPARE PART INDEX REGISTER (COMMISSIONING, 2-YEAR's) - FIRE AND GAS FIELD EQUIPMENT** |
| The document relates to | **HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)** |
| Contract | **CW-I-WP4-2023-05** |

| Project ID | Doc. n° | Rev. | Rev. Date | Status | Class |
|---|---|---|---|---|---|
| **123A90** | **1724000821-COM-LIS-00011** | **Issued for review** | **22-Oct-24** | **IFR** | **2** |

The equipment consists of the following units/components

1 Tag no.

2 Tag description

| | | | |
|---|---|---|---|
| Supplier: FORES ENGINEERING srl | PO Number: 1721002632 | PO description: FIRE AND GAS FIELD EQUIPMENT | Contact name: MRS MATTEO OSSANI |
| Address: VIA SECONDO CASADEI 12<br>47122 Forli<br>ITALY | | Supplier telephone no: +39.0543.813811 | Contact mobile no: |
| | | E-mail: Fores@fores.it | WEBSITE http://www.fores.it/ |

General Information:

3 Manufacturer model/type no.

4 Manufacturer serial no.

5 No. of units

6 Quantity of parts FITTED / INSTALLED per unit/component

| Item Number | Total number of identical spares installed | MATERIALS DATA | | | | | | | | | | | | | | | | | | Commissioning spares | 2 Years spares | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Description of recommended spare parts | Parts/drawing ref. | | | Material | Certicate Type (if applicable) | Certicate Reference (if applicable) | Shelf life (years) | Weight (net) | Weight (gross) | Volume | HS Code | ECCN Code | % US Content | Country of origin | Supplier part no. | Manufacturer part no. | Manufacturername | Quantity ordered | Quantity ordered | |
| | | | Project Datasheet no. | Project Detail dwg. no. | Item ref. | | | | | | | | | | | | | | | | | |
| 7 | 8 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 1 | 24 | SMOKE DETECTOR ZETTLER MR601TEx | 1724000821-IN-DS-00004 | 1724000821-IN-DA-00003 | | FR110 "Bayblend" fire resistant | | | | | | | | | | | | MR601TEx | ZETTLER | 0 | 1 | |
| 2 | 49 | GAS DETECTOR HYDROGEN Dräger Polytron® 8200 CAT DQ | 1724000821-IN-DS-00004 | 1724000821-IN-DA-00003 | | AISI 316 | | | | | | | | | | | | Polytron® 8200 CAT DQ d S | Dräger | 0 | 1 | |
| 3 | 9 | GAS DETECTOR ULTRASONIC Dräger Polytron® 8900 UGLD | 1724000821-IN-DS-00004 | 1724000821-IN-DA-00003 | | AISI 316 | | | | | | | | | | | | Polytron® 8900 UGLD d S 4- | Dräger | 0 | 1 | |
| 4 | 3 | GAS DETECTOR OXYGEN Dräger Polytron 8100 EC d S 4- | 1724000821-IN-DS-00004 | 1724000821-IN-DA-00003 | | AISI 316 | | | | | | | | | | | | Polytron 8100 EC d S 4- | Dräger | 0 | 1 | |
| 5 | 22 | FLAME DETECTOR FGD FlameSpec FLS-UV-IR-AS11 | 1724000821-IN-DS-00004 | 1724000821-IN-DA-00003 | | AISI 316 | | | | | | | | | | | | FlameSpec FLS-UV-IR-AS11 | FGD | 0 | 1 | |
| 6 | 21 | PUSH BUTTON MEDC SM87PBL MANUAL FIRE ALARM | 1724000821-IN-DS-00004 | 1724000821-IN-DA-00003 | | AISI 316 | | | | | | | | | | | | SM87PB | MEDC | 0 | 1 | |
| 7 | 20 | PUSH BUTTON MEDC SM87PBL PUSH BUTTON TO SIS | 1724000821-IN-DS-00004 | 1724000821-IN-DA-00003 | | AISI 316 | | | | | | | | | | | | SM87PB | MEDC | 0 | 1 | |
| 8 | 13 | GAS FLASH BEACON (AMBER) MEDC SM87LEDS | 1724000821-IN-DS-00004 | 1724000821-IN-DA-00003 | | AISI 316 | | | | | | | | | | | | SM87LEDS | MEDC | 0 | 1 | |
| 9 | 13 | FIRE FLASH BEACON (RED) MEDC SM87LEDS | 1724000821-IN-DS-00004 | 1724000821-IN-DA-00003 | | AISI 316 | | | | | | | | | | | | SM87LEDS | MEDC | 0 | 1 | |
| 10 | 17 | SOUNDER MEDC DB3B | 1724000821-IN-DS-00004 | 1724000821-IN-DA-00003 | | AISI 316 | | | | | | | | | | | | DB3B | MEDC | 0 | 1 | |
| 11 | 32 | PUSH BUTTON DPDT CONTACT EATON GHG 432 | 1724000821-IN-DS-00004 | 1724000821-IN-DA-00003 | | Polyamide | | | | | | | | | | | | GHG 432 | EATON | 0 | 0 | |
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# Section 7.4 Vendor Data / Operations / Maintenance Manuals References

# NOT APPLICABLE

# Section 8 LIST OF MODIFICATIONS

# NOT APPLICABLE

# Section 8.1 List of changes

# NOT APPLICABLE

# Section 9 SUPPORTING DOCUMENTS

# NOT APPLICABLE