DRAWING NO. 123A90-DDL-EL-DG-20014

REV. 02

SYMBOL LEGEND:

- VOLTAGE DETECTOR
- ES — EARTHING SWITCH DISCONNECTOR
- MOTORIZED EARTHING SWITCH
- CIRCUIT BREAKER
- FUSE
- CONTACTOR
- THREE-PHASE TRANSFORMER WITH TAP CHANGER, CONNECTION DELTA STAR
- THREE-PHASE TRANSFORMER, CONNECTION DELTA STAR
- THREE-PHASE TRANSFORMER, CONNECTION DELTA DELTA
- THREE-PHASE TRANSFORMER, WITH THREE WINDINGS
- NER — NEUTRAL EARTHING RESISTOR
- VOLTAGE TRANSFORMER
- CURRENT TRANSFORMER
- SURGE ARRESTER
- CORE BALANCE CURRENT TRANSFORMER
- SURGE ARRESTOR FOR T-CONNECTOR (N.1 FOR EACH PHASE)
- VOLTAGE & CURRENT TRANSFORMER (3Ø X 2) (LPIT TYPE)
- VOLTAGE TRANSFORMER (3Ø X 2) (LPVT TYPE)
- CABLE BOX
- T-CONNECTOR CABLE TERMINATION
- CABLE AIR TERMINATION

LEGEND:

- = DIRECTION OF SIGNAL
- ------ = CONTROL CABLE
- 25 = CHECK SYNCHRONISATION
- 26OT = OIL TEMPERATURE INDICATOR
- 50 = INSTANTANEOUS OVERCURRENT PROTECTION
- 50N = INSTANTANEOUS EARTH FAULT PROTECTION
- 51 = AC INVERSE TIME OVERCURRENT PROTECTION
- 51G = AC INVERSE TIME EARTH FAULT PROTECTION
- 97T = BUCHHOLZ RELAY
- 59N = NEUTRAL OVERVOLTAGE RELAY
- 63T = TRANSFORMER PRESSURE RELAY
- 67 = DIRECTIONAL OVERCURRENT PROTECTION
- 67N = DIRECTIONAL EARTH FAULT PROTECTION
- 71OOLTC = OLTC OIL LEVEL INDICATOR
- 71OT = TRANSFORMER OIL LEVEL SWITCH
- 74 = TRIP CIRCUIT SUPERVISION
- 86 = LOCK OUT RELAY
- 49T = WINDING TEMPERATURE THERMAL IMAGE RELAY
- 87NT = RESTRICTED GROUND FAULT
- 87T = DIFFERENTIAL PROTECTION
- 94B = BUCHHOLZ ALARM AND TRIP AUXILIARY RELAY
- 94L = OIL LEVEL ALARM AUXILIARY RELAY
- 94OT = OIL TEMPERATURE ALARM AND TRIP AUXILIARY RELAY
- 94WT = WINDING TEMPERATURE ALARM AND TRIP AUXILIARY RELAY
- 94P = PRESSURE RELIEF DEVICE ALARM AND TRIP AUXILIARY RELAY
- 94X = TRANSFORMER PROTECTION ALARM AND TRIP AUXILIARY RELAY
- 97OLTC = OLTC PROTECTION RELAY
- 98T.1 = BLADDER RUPTURE RELAY
- 98T.2 = SELF DEHYDRATING BREATHER
- OLTC = ON LOAD TAP CHANGE
- OCTC = OPEN CIRCUIT TAP CHANGE
- LSIG = LONG TIME/SHORT TIME INSTANTAANEOUS AND GROUND FAULTS

NOTES:

1. PARTIAL DISCHARGE SYSTEM ON SG-100D1 6.6kV SWITCHGEAR IS INSTALLED IN MEASURE COLUMN. IT IS INTERFACED TO CCS VIA MODBUS TCP/IP.
2. EXERTHERM INTERFACE TO CCS IS VIA MODBUS TCP/IP AND IT IS LOCATED IN THE MEASURE COLUMN.

REFERENCES:

1. 123A90-DDL-EL-SP-20166-ELECTRICAL PROTECTION PHILOSOPHY
2. 123A90-DDL-EL-SP-20141 ELECTRICAL SYSTEM DESCRIPTION & DESIGN PHILOSOPHY
3. 123A90-DDL-EL-DG-20158 OVERALL/KEY SINGLE LINE DIAGRAM
4. 123A90-DDL-EL-DG-20015 ELECTRICAL SINGLE LINE DIAGRAM 6.6kV SYSTEMS
5. 1723002197-EL-DG-00010 SG-100D1 ELECTRICAL SINGLE LINE DIAGRAM

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	15/09/25	PS	LMA/AMA	CGI	ASBUILT (ASB)
1	14/05/24	ASA	LMA/AMA	MDO	ACCEPTED FOR CONSTRUCTION (AFC)
0	21/12/23	DSF	CB/AMA	OYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : ELECTRICAL CONTROL, PROTECTION AND METERING DIAGRAMS LEGEND

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE	N/A
DRAWN	GPA	CHECKED	LMA/AMA	APPROVED	MDO	DATE	14/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DG-20014			SHEET	001/007	REV.	02

File Name : 123A90-DDL-EL-DG-20014_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DG-20014 | REV. 02

66 / 6.6 kV TRANSFORMER INCOMER

110 V DC
CONTROL + PROTECTIVE
RELAY SUPPLY

HNA6-AFA70 - 66 kV

SURGE ARRESTOR

VD1

ES
QZ92

1250A
DS
QZ92

LPVT

MERGING UNIT

66:V3 kV
Cl. 0.5/3P

CB
Q0(QA1)
31.5kA
1250A

DS
QZ91
1250A

ES
QZ91

LPIT

66:V3 kV
Cl. 0.5/3P
250A
Cl. 0.25/5TPE

VD2

PERMISSIVES

NOTE 3

NOTE 3

SIEMENS/7SJ85

25	27
50	51
50N	51G
67	67N

SIEMENS/7UT85

87	87NT

FO/MM/2 CORE

IEC61850
TO EMCS

86-1

74

INTERTRIP

3x(1x300)

TR-100AD1
KNAN
7MVA
66KV+/-8*1.25%%%/6.9kV
DynII
Zcc=8%

63T	98T.1
71OT	98T.2
26OT	71OOLTC
97T	97OLTC
49T	

3x(2x120)+1x120

NEUTRAL CTs
1 1

200/1A
5VA, 5P20
5VA, 5P20

RR - 100D1
NER - 400A

NOTE 8

100/1A
5VA, 5P5

CBCT

6600:V3/110:V3/110:3 V
20VA, 0.5+3P
30VA, 0.5+3P
30VA, 3P

x3

7KV SURGE ARRESTOR

EARTH SWITCH

VOLTAGE
TRANSFORMER

600/1/1A
10VA, 5P25
5VA, 0.5+5P20

CURRENT
TRANSFORMER

XI
XI

x3

ARC FAULT

REX640

MEASURE

U	pF
I	W
F	VAR
-	-

PROTECTION

50	50N
25	-
51	51N
74	86
50BF	59N

IEC61850
ETH (RJ45)
redundant port

COM

ETH-cat6

ETH-cat6

IEC 61850
TO EMCS

94X

NOTE 8

K86

TRIP

NOTE 3

A6-12KV,630A VCB

SG-100D1 - 6.6 kV

110 V DC
CONTROL + PROTECTIVE
RELAY SUPPLY

PERMANENT INFRARED HOTSPOT DETECTION

FROM OTHER DEVICE

TO OTHER DEVICE

EXERTHERM
Alarm Temp. Control
Ch 1 ÷ 8

TR1

MODBUS TCP/IP
TO EMCS

x8
Sens

NOTES:

1. DELETED.
2. DELETED.
3. MCBS SHALL HAVE FACILITY TO LOCK IN OPEN POSITION.
4. TO PREVENT A TRIP DURING TRANSFORMER ENERGISATION SECOND HARMONIC BLOCKING SHALL BE USED.
5. DELETED.
6. DELETED.
7. CHECK SYNCHRONISATION TO BE INCLUDED TO VERIFY THE VOLTAGE, PHASE ANGLE AND FREQUENCY ARE WITHIN ACCEPTABLE LIMITS PRIOR TO CLOSING THE CIRCUIT BREAKER. THE CHECK SYNCHRONISATION SHALL INCLUDE THE FACILITY FOR DEAD BUS CLOSING.
8. TRANSFORMER ALARMS ARE WIRED TO PROTECTION RELAY, TRIP SIGNALS ARE INSTEAD WIRED TO 94X INTERPOSING RELAYS: 94B, 94OT, 94L, 94P, 94WT, 94L-OLTC, 94P-OLTC.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	15/09/25	PS	LMA/AMA	CGI	ASBUILT (ASB)
1	14/05/24	ASA	LMA/AMA	MDO	ACCEPTED FOR CONSTRUCTION (AFC)
0	21/12/23	DSF	CB/AMA	CHYO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : ELECTRICAL CONTROL, PROTECTION AND METERING DIAGRAMS
66 / 6.6 kV TRANSFORMER INCOMER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE N/A

DRAWN GPA | CHECKED LMA/AMA | APPROVED MDO | DATE 14/05/2024

A1 | DRAWING NO. 123A90-DDL-EL-DG-20014 | SHEET 002/007 | REV. 02

File Name : 123A90-DDL-EL-DG-20014_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DG-20014

REV. 02

6.6 KV BESS FEEDER

110 V DC
CONTROL + PROTECTIVE
RELAY SUPPLY

SG-100D1 - 6.6 kV

FUSE-7.2KV, 160A

A3-LC, 7.2KV, 400A DCO

TRIP

NOTE 3

REX640

MEASURE		PROTECTION	
U	pF	50	50N
I	W	51	25
F	VAR	67N	67
-	-	51N	86
		74	59N

K86

PERMANENT INFRARED HOTSPOT DETECTION

FROM OTHER DEVICE

TO OTHER DEVICE

EXERTHERM TR1

Alarm Temp. Control

Ch 1 ÷ 8

MODBUS TCP/IP
TO EMCS

x8 Sens

150/1A
5VA, 0.5+5P20

CURRENT TRANSFORMER

3

XI

x3

ARC FAULT

IEC61850
ETH (RJ45)
redundant port

COM

ETH-cat6

ETH-cat6

IEC 61850
TO EMCS

6600:V3/110:V3/110:3 V
20VA, 0.5+3P
30VA, 0.5+3P
30VA, 3P

VOLTAGE TRANSFORMER

x3

AVAILABLE

TRIP

94WT NOTE 9

EARTH SWITCH

7KV SURGE ARRESTOR

100/1A
5VA, 5P5

CBCT

3x(1x70)

INTERTRIPS VIA SERIAL
LINK FROM/TO CCS

PACKAGE
INTERFACE

18T1
1.25MVA
7KV+/-2*2.5%/620V
Dyn5
Zcc=8%
OCTC,AN

26WT

NOTE 9

80Q1-620V
1250A

1 MW

BESS
1MW/5MWhe

VENDOR

BESS PACKAGE
A-85000

NOTES:

1. DELETED.
2. DELETED.
3. MCBS SHALL HAVE FACILITY TO LOCK IN OPEN POSITION.
4. DELETED.
5. CHECK SYNCHRONISATION TO BE INCLUDED FOR BESS AND FUEL CELL FEEDERS TO VERIFY THE VOLTAGE, PHASE ANGLE AND FREQUENCY ARE WITHIN ACCEPTABLE LIMITS PRIOR TO CLOSING THE SWITCHING DEVICE. THE CHECK SYNCHRONISATION SHALL INCLUDE THE FACILITY FOR DEAD BUS CLOSING.
6. NUMERICAL RELAYS TO PROVIDE EVENT RECORDING AND IEC 61850 CAPABILITY.
7. DELETED.
8. DELETED.
9. TRANSFORMER ALARMS ARE WIRED TO PROTECTION RELAY, TRIP SIGNALS ARE INSTEAD WIRED TO 94X INTERPOSING RELAYS: 94WT.
10. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	15/09/25	PS	LMA/AMA	CGI	ASBUILT (ASB)
1	14/05/24	ASA	LMA/AMA	MDO	ACCEPTED FOR CONSTRUCTION (AFC)
0	21/12/23	DSF	CB/AMA	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : ELECTRICAL CONTROL, PROTECTION AND METERING DIAGRAMS
6.6 kV BESS FEEDER

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE	N/A
DRAWN	GPA	CHECKED	LMA/AMA	APPROVED	MDO	DATE	14/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DG-20014			SHEET	003/007	REV.	02

File Name : 123A90-DDL-EL-DG-20014_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DG-20014

REV. 02

6.6 KV ELECTROLYSER FEEDER

110 V DC
CONTROL + PROTECTIVE
RELAY SUPPLY

SG-100D1 - 6.6 kV

A1
VCB(VD4)
12KV,630A
25KA

NOTE 3

OPENING

CLOSURE BLOCK

REX640

MEASURE		PROTECTION	
U	pF	50	50N
I	W	51	51N
F	VAR		
-	-	74	86

K86

PERMANENT INFRARED HOTSPOT DETECTION

FROM OTHER DEVICE

TO OTHER DEVICE

EXERTHERM

TR1

Alarm Temp. Control

Ch 1 ÷ 8

MODBUS TCP/IP
TO EMCS

x8

Sens

400/1A
5VA, 0.5+5P20

CURRENT TRANSFORMER

3

XI

x3

ARC FAULT

IEC61850
ETH (RJ45)
redundant port

COM

ETH-cat6

ETH-cat6

IEC 61850
TO EMCS

6600:V3/110:V3/110:3 V
20VA, 0.5+3P
30VA, 0.5+3P
30VA, 3P

TRIP

VOLTAGE TRANSFORMER

x3

AVAILABLE

94X

NOTE 8

EARTH SWITCH

7KV SURGE ARRESTOR

100/1A
5VA, 5P5

CBCT

ADDITIONAL

INTERTRIPS VIA SERIAL
LINK FROM/TO CCS

3x(1x120)

PACKAGE
INTERFACE

T4
3.2MVA
6.6/0.4/0.36KV
Dyn11
Zcc=7%
OCTC, KNAN

49T

63T

26OT

NOTE 8

1.25MW

1.25MW

ELECTROLYSER
2.5MW

VENDOR

ELECTROLYSER PACKAGE
A-20000

NOTES:

1. DELETED.
2. DELETED.
3. MCBS SHALL HAVE FACILITY TO LOCK IN OPEN POSITION.
4. DELETED.
5. CHECK SYNCHRONISATION TO BE INCLUDED TO VERIFY THE VOLTAGE, PHASE ANGLE AND FREQUENCY ARE WITHIN ACCEPTABLE LIMITS PRIOR TO CLOSING THE SWITCHING DEVICE. THE CHECK SYNCHRONISATION SHALL INCLUDE THE FACILITY FOR DEAD BUS CLOSING.
6. NUMERICAL RELAYS TO PROVIDE EVENT RECORDING AND IEC 61850 CAPABILITY.
7. DELETED.
8. TRANSFORMER ALARMS ARE WIRED TO PROTECTION RELAY, TRIP SIGNALS ARE INSTEAD WIRED TO 94X INTERPOSING RELAYS: 94WT, 94OT, 94P.
9. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	15/09/25	PS	LMA/AMA	CGI	ASBUILT (ASB)
1	14/05/24	ASA	LMA/AMA	MDO	ACCEPTED FOR CONSTRUCTION (AFC)
0	21/12/23	DSF	CB/AMA	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : ELECTRICAL CONTROL, PROTECTION AND METERING DIAGRAMS
6.6 kV ELECTROLYSER FEEDER

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE	N/A
DRAWN	GPA	CHECKED	LMA/AMA	APPROVED	MDO	DATE	14/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DG-20014			SHEET	004/007	REV.	02

File Name : 123A90-DDL-EL-DG-20014_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DG-20014

REV. 02

6.6 KV FUEL CELL FEEDER

110 V DC
CONTROL + PROTECTIVE
RELAY SUPPLY

SG-100D1 - 6.6 kV

FUSE-7.2KV, 160A

A7-LC, 7.2KV, 400A DCO

OPENING

NOTE 3

REX640

MEASURE		PROTECTION	
U	pF	50	50N
I	W	51	25
F	VAR	67N	67
-	-	51N	86
		74	59N

K86

PERMANENT INFRARED HOTSPOT DETECTION

FROM OTHER DEVICE

TO OTHER DEVICE

EXERTHERM TR1

Alarm Temp. Control

Ch 1 ÷ 8

MODBUS TCP/IP
TO EMCS

x8 Sens

150/1A
5VA, 0.5+5P20

CURRENT TRANSFORMER

3

XI

x3

ARC FAULT

IEC61850
ETH (RJ45)
redundant port

COM

ETH-cat6

ETH-cat6

IEC 61850
TO EMCS

6600:V3/110:V3/110:3 V
20VA, 0.5+3P
30VA, 0.5+3P
30VA, 3P

TRIP

VOLTAGE TRANSFORMER

x3

AVAILABLE

94WT NOTE 9

EARTH SWITCH

7KV SURGE ARRESTOR

100/1A
5VA, 5P5

CBCT

3x(1x70)

INTERTRIPS VIA SERIAL
LINK FROM/TO CCS

PACKAGE
INTERFACE

TA 30
1.25MVA
6.6KV+/-2*2.5%/400V
Dd0
Zcc=6%
OCTC,AN

26WT

NOTE 9

FC30-400V
2500A

TB30

1 MW

FUEL CELL
1MW

VENDOR

FUEL CELL PACKAGE
A-80000

NOTES:

1. DELETED.
2. DELETED.
3. MCBS SHALL HAVE FACILITY TO LOCK IN OPEN POSITION.
4. DELETED.
5. CHECK SYNCHRONISATION TO BE INCLUDED FOR BESS AND FUEL CELL FEEDERS TO VERIFY THE VOLTAGE, PHASE ANGLE AND FREQUENCY ARE WITHIN ACCEPTABLE LIMITS PRIOR TO CLOSING THE SWITCHING DEVICE. THE CHECK SYNCHRONISATION SHALL INCLUDE THE FACILITY FOR DEAD BUS CLOSING.
6. NUMERICAL RELAYS TO PROVIDE EVENT RECORDING AND IEC 61850 CAPABILITY.
7. DELETED.
8. DELETED.
9. TRANSFORMER ALARMS ARE WIRED TO PROTECTION RELAY, TRIP SIGNALS ARE INSTEAD WIRED TO 94X INTERPOSING RELAYS: 94WT.
10. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	15/09/25	PS	LMA/AMA	CGI	ASBUILT (ASB)
1	14/05/24	ASA	LMA/AMA	MDO	ACCEPTED FOR CONSTRUCTION (AFC)
0	21/12/23	DSF	CB/AMA	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : ELECTRICAL CONTROL, PROTECTION AND METERING DIAGRAMS
6.6 kV FUEL CELL FEEDER

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE N/A
DRAWN GPA	CHECKED LMA/AMA	APPROVED MDO	DATE 14/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DG-20014	SHEET 005/007	REV. 02

File Name : 123A90-DDL-EL-DG-20014_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DG-20014

REV. 02

6.6 / 0.4 kV DISTRIBUTION TRANSFORMER FEEDER

SG-100D1 - 6.6 kV

110 V DC
CONTROL + PROTECTIVE
RELAY SUPPLY

FUSE-7.2KV, 200A

A4-LC, 7.2KV, 400A DCO

TRIP

NOTE 3

INTERTRIP

REX640

MEASURE		PROTECTION	
U	pF	50	50N
I	W	51	-
F	VAR	-	-
-	-	51N	86
		74	59N
		51G	NOTE 10

K86

200/1A
5VA, 0.5+5P20

CURRENT
TRANSFORMER

3

XI

x3

ARC FAULT

IEC61850
ETH (RJ45)
redundant port

COM

ETH-cat6

ETH-cat6

IEC 61850
TO EMCS

PERMANENT INFRARED HOTSPOT DETECTION

FROM OTHER DEVICE

TO OTHER DEVICE

EXERTHERM

TR1

Alarm Temp. Control

Ch 1 ÷ 8

MODBUS TCP/IP
TO EMCS

x8

Sens

TRIP

94X

NOTE 7

EARTH SWITCH

7KV SURGE ARRESTOR

PERMISSIVE

100/1A
5VA, 5P5

CBCT

3x(1x70)

TR-200DE1
KNAN
1.6MVA
6.6KV+/-2x2.5%/0.42KV
Dyn 11
Zcc=6%
OCTC

49T
63T
97T
260T
710T

NOTE 7

INTERTRIPS VIA SERIAL
LINK FROM/TO CCS

1

NEUTRAL CT

2500/1A
6VA,SP20

5x(1x300) + 3x (1x300)

SA

2500A ACB

NOTE 6

M

3

TRIP

REF 615

50 51 50N 51N

PERMISSVES

TRIP

SG-200N1- 400 V

NOTES:

1. DELETED.
2. DELETED.
3. MCBS SHALL HAVE FACILITY TO LOCK IN OPEN POSITION.
4. DELETED.
5. DELETED.
6. DELETED.
7. TRANSFORMER ALARMS ARE WIRED TO PROTECTION RELAY, TRIP SIGNALS ARE INSTEAD WIRED TO 94X INTERPOSING RELAYS: 94B, 94OT, 94WT.
8. NUMERICAL RELAYS TO PROVIDE EVENT RECORDING AND IEC 61850 CAPABILITY.
9. DELETED.
10. 59G TO BE CONNECTED TO THE OPEN DELTA VOLTAGE FROM BUSBAR CUBICLE.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	15/09/25	PS	LMA/AMA	CGI	ASBUILT (ASB)
1	14/05/24	ASA	LMA/AMA	MDO	ACCEPTED FOR CONSTRUCTION (AFC)
0	21/12/23	DSF	CB/AMA	OYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : ELECTRICAL CONTROL, PROTECTION AND METERING DIAGRAMS
6.6 / 0.4 kV DISTRIBUTION TRANSFORMER FEEDER

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE N/A
DRAWN GPA	CHECKED LMA/AMA	APPROVED MDO	DATE 14/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DG-20014	SHEET 006/007	REV. 02

File Name : 123A90-DDL-EL-DG-20014_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DG-20014

REV. 02

6.6 kV SOLAR PACKAGE FEEDER

SG-100D1 - 6.6 kV

110 V DC
CONTROL + PROTECTIVE
RELAY SUPPLY

FUSE-7.2KV, 63A

A2-LC, 7.2KV, 400A DCO

NOTE 3

OPENING

INTERTRIP

REX640

MEASURE		PROTECTION	
U	pF	50	50N
I	W	51	25
F	VAR	67N	67
-	-	51N	86
		74	59N

K86

XI

3

50/1A
2.5VA, 0.5+5P15

CURRENT
TRANSFORMER

x3

ARC FAULT

IEC61850
ETH (RJ45)
redundant port

COM

ETH-cat6

ETH-cat6

IEC 61850
TO EMCS

6600:V3/110:V3/110:3 V
20VA, 0.5+3P
30VA, 0.5+3P
30VA, 3P

TRIP

VOLTAGE
TRANSFORMER

x3

AVAILABLE

94X

NOTE 5

EARTH SWITCH

7KV SURGE ARRESTOR

PERMISSIVE

100/1A
5VA, 5P5

CBCT

3x(1x70)

TR-200ED1
KNAN
0.5MVA
6.6kV+/-2*2.5%/0.8KV
Dyn 11
Zcc=6%
OCTC

49T
63T
97T
260T
710T

NOTE 5

INTERTRIPS VIA SERIAL
LINK FROM/TO CCS

3x (1x300)

SG-200D2

QB1
630A

QB2
630A

SA

3x (1x300)

PACKAGE
INTERFACE

SOLAR FARM VENDOR
PACKAGE

330 kVA

330 kVA

POWER DC 480kW

PERMANENT INFRARED HOTSPOT DETECTION

FROM OTHER DEVICE

TO OTHER DEVICE

EXERTHERM

TR1

Alarm Temp. Control

Ch 1 ÷ 8

MODBUS TCP/IP
TO EMCS

x8

Sens

NOTES:

1. DELETED.
2. DELETED.
3. MCBS SHALL HAVE FACILITY TO LOCK IN OPEN POSITION.
4. DELETED.
5. TRANSFORMER ALARMS ARE WIRED TO PROTECTION RELAY, TRIP SIGNALS ARE INSTEAD WIRED TO 94X INTERPOSING RELAYS: 94WT, 94OT, 94P.
6. CHECK SYNCHRONISATION TO BE INCLUDED TO VERIFY THE VOLTAGE, PHASE ANGLE AND FREQUENCY ARE WITHIN ACCEPTABLE LIMITS PRIOR TO CLOSING THE SWITCHING DEVICE. THE CHECK SYNCHRONISATION SHALL INCLUDE THE FACILITY FOR DEAD BUS CLOSING.
7. NUMERICAL RELAYS TO PROVIDE EVENT RECORDING AND IEC 61850 CAPABILITY.
8. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	15/09/25	PS	LMA/AMA	CGI	ASBUILT (ASB)
1	14/05/24	ASA	LMA/AMA	MDO	ACCEPTED FOR CONSTRUCTION (AFC)
0	21/12/23	DSF	CB/AMA	OYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : ELECTRICAL CONTROL, PROTECTION AND METERING DIAGRAMS
6.6 kV SOLAR PACKAGE FEEDER

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE N/A
DRAWN GPA	CHECKED LMA/AMA	APPROVED MDO	DATE 14/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DG-20014	SHEET 007/007	REV. 02

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