Ballard Power Systems Europe A/S
Majsmarken 1
9500 Hobro
Denmark

Revision history		
Rev.	**Date.**	**Description**
001	05/06/2024	First Issue
002	28/03/2025	Update with network gateway PLC

Document Title:	**BLPH Project - Panel Cabinet Layout: UC50 AC Power Distribution**
Document Number:	K559-2254-CWIWP4202202-E03-006
Revision:	Rev002
Sequence Number:	006
File Name:	K559-2254-CWIWP4202202-E03-006Rev002
Purchaser Job:	K559-2254
Purchase Order:	CWIWP4202202
Code:	E03
Requsition Number:	n/a
Customer:	CrossWind C.V., Rotterdam, The Netherlands

BALLARD™

+UC50

Ballard Power Systems Europe - Technology Solutions

Cabinet: 40ft Container AC Distribution
Location: 40ft Container, next to access door

Vin = 400VAC, 3ph
Ikmax = 6kA - AC Supply
Ikmax

IP56

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& A01

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Front Page		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 1 / 18

Ballard Power Systems Europe - Technology Solutions, Cabinet Wiring Colors

Standard Basis: EN 61439

Required wire standard compliance:

Required: IEC Wire
Required: UL Recognized
Required: CSA/UL

Wire Numbering:

- Wires inside panels are to be numbered
- Wire number system is perferably "potential oriented with subnumber"
- All wires of the same potential (e.g. DC Common) have the same main number, with sequential subnumber.
- Potential numbers with fewer digits may be leading zero padded (e.g. 19 -> 019)
- Separator between main and subnumber is "."

Example: 019.1 BUWH 0.75mm²

- 019 — Wire potential number
- 1 — Wire sequential subnumber with separator
- BUWH — Wire color code (Dark Blue with White stripe)
- 0.75mm² — Wire dimension

AC Wiring Colors

AC Power Circuit (Generic)	———	Black (BK)
AC Phase L1	———	Brown (BN)
AC Phase L2	———	Black (BK)
AC Phase L3	———	Grey (GY)
AC Neutral	———	Light Blue (BU)
Externally supplied circuit	———	Orange (OG)

DC Wiring Colors

DC Power Circuit	———	Black (BK)
DC Control Voltage (24V)	———	Dark Blue (BU)
DC Control Voltage Refence (0V)	-·-·-·-	Dark Blue with White Stripe (BUWH)
Signal Wire (DI, DO)	———	White (WH)
Signal Wire (AI, AO)	———	Violet (VT)
Externally supplied circuit	———	Orange (OG)

PE Wiring Colors

Protective Earth (PE)	- - - - - - -	Green/Yellow (GNYE)

Conductor Colour Identification

IEC 60757:1983 Designation	Description
BK	Black
BN	Brown
RD	Red
OG	Orange
YE	Yellow
GN	Green
BU	Blue
VT	Violet
GY	Gray
WH	White
PK	Pink
GD	Gold
TQ	Turquoise
SR	Silver
GNYE	Green/Yellow
SH	Shield

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& A01

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

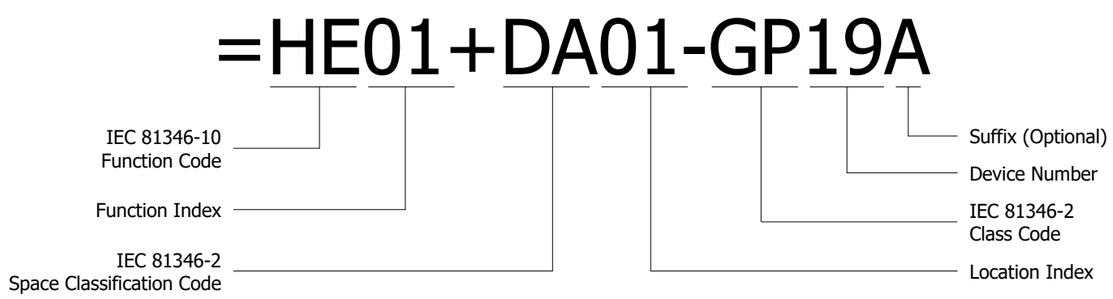
THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Standard Wire Colors		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 2 / 18

Ballard Power Systems Europe - Technology Solutions Device Tag Process

A Ballard Device Tagname consists of three parts:
- A function designation (=)
  - According to IEC81346-10, Table B.1 and B2.
  - Always two letters followed by two digits
- A location designation (+)
  - According to IEC81346-2, Table 4
  - Always two letters followed by two digits
- A class code (-)
  - According to IEC81346-2, Table 2
  - Always two letters followed by two or three digits plus optional suffix

Sample fully qualified Device Tag (DT) for a Coolant Pump



IEC81346-10 Function Examples

IEC 81346-10 Table B.1 and B.2 provide a class definition system, which provides a two letter code for the functional description
Table B.1 is used for power supply systems and table B.2 for other systems

IEC 81346-10 Table B.1 / B.2	Function Codes (Example)
=AA	Structural System, Load support (Frame)
=BA	Transporting Electrical Energy (Power Converters)
=HA	Supply System, Gaseous Matter (Gas Piping)
=HE	Supply System, Heating/Cooling (Radiator)
=JA	Distribution System, Gaseous Matter (Gas Handling Unit)
=JB	Distribution System, Liquid Matter (Fluid Drain)
=LA	Control System, Process (PLC, SCADA)
=LB	Control System, Safety (Safety PLC)
=QA	Storage System, Gaseous Matter (Gas Storage)
=RE	Energy Conversion System, Chemical to Electricity (Fuel cells, Batteries)

IEC81346-2 Space Classification

IEC 81346-2 Table 4 provide a classification scheme for spaces, which provides a two and three letter code for the space (location) classification.
Class code "1" and "1" is used for the location scheme

IEC 81346-2 Table 4	Location Codes (Example)
+GB	Space for power generation, Chemical (Fuel Cells)
+DA	Space for active technical equipment
+UC	Space for electrical equipment (Electrical Cabinet)

IEC81346-2 Class Code

IEC 81346-2 Class Codes is a scheme for defined objects for reference designations according to their inherent function

IEC 81346-2 Table 2	Class Codes (Example)
-BA	Sensing, electrical potential (Voltage Transducer)
-BC	Sensing, electrical current (Current Transducer)
-BP	Sensing, pressure (Pressure Transducer)
-BT	Sensing, temperature (Temperature Transducer)
-EA	Emitting, light (Light Fixture)
-FC	Protecting, overcurrent (Fuse, MCCB)
-GB	Generating, Chemical Reaction (Fuel Cell)
-GP	Generating, Liquid Flow (Pump)
-GQ	Generating, Gas Flow (Van, Ventilator)
-KE	Processing, Electrical signals (PLC)
-KF	Processing, Information (Network Switch)
-MA	Driving, Torque (AC Motor)
-QA	Controlling, Electric Current (Contactor, Motor Starter)
-QB	Controlling, Electric Separation (Disconnector)
-QM	Controlling, Fluid On/Off (Valve)
-QN	Controlling, Fluid Regulation (Damper, Gas Control Valve)
-WD	Guiding, Low Voltage Electric Energy (AC or DC power Cable)
-WE	Guiding, Reference Potential (Grounding Wire/Cable)
-WG	Guiding, Electric Signals (Control, Network Cable)

Reference Item Number	Ballard Part # TBD
EPLAN Project Name	601456B - Shell Baseload Power Hub
EPLAN Revision	06
EPLAN Project Pages	628
= ++ + UC50 & A01	

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™ CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Tagging Standard		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 3 / 18

0	1	2	3	4	5	6	7	8

=LA01+UC50-KE07
DEIF AMC300
Controller Extension Rack

-Slot1
DEIF PSM3.2
Power Supply Module 3.2

PSM3.2

	PE PE		Frame Ground					
	1 12-24V		Supply +					
	2 0V		Supply COM					
	3 R1 COM		Status OK Relay COM					
A52.4	4 DO1	DO1	Status OK Relay					
	5 R2 COM		Relay 2 COM					
A52.5	6 DO2	DO2	Relay 1 Out					
	7 R3 COM		Relay 3 COM					
A52.6	8 DO3	DO3	Relay 3 Out					

EtherCAT Follower Ring Topology — EtherCAT +&C01/8.10:E X03 — Ethernet-1 IN

EtherCAT Follower Ring Topology — EtherCAT +&C01/8.11:E X03 — Ethernet-2 OUT

Bus Follower
Multi-line 300

-Slot2
ACM3.1
Alternating Current Module 3.1

ACM3.1

1 L1	UC50_L1	Voltage measurement Nanogrid L1	
2 L2	UC50_L2	Voltage measurement Nanogrid L2	
3 L3	UC50_L3	Voltage measurement Nanogrid L3	
4 N	UC50_N	Voltage measurement Nanogrid N	
5 L1	UC50_L1'	Voltage measurement AUX L1	
6 L2	UC50_L2'	Voltage measurement AUX L2	
7 L3	UC50_L3'	Voltage measurement AUX L3	
8 N	UC50_N'	Voltage measurement AUX N	
9 L1-S1	UC50_BC01	Current measurement AUX L1	
10 L1-S2	CH1-S2	Channel 1 - S2	
11 L2-S1	UC50_BC02	Current measurement AUX L2	
12 L2-S2	CH2-S2	Channel 2 - S2	
13 L3-S1	UC50_BC03	Current measurement AUX L3	
14 L3-S2	CH3-S2	Channel 3 - S2	
15 4-S1	CH4-S1	Channel 4 - S1	
16 4-S2	CH4-S2	Channel 4 - S2	

-Slot3
&C03/615.1
IOM3.2
IO Module 3.2

IOM3.2

1 R1 COM			Relay 1 In
2 DO1			Relay 1 out
3 R2 COM			Relay 2 COM
4 DO2			Relay 2 Out
5 R3 COM			Relay 3 In
6 DO3			Relay 3 Out
7 R4 COM			Relay 4 In
8 DO4			Relay 4 Out
9 AO1	&C03/615.1	JA01_QM05.SP	Ventilation Outlet C Damper Postion SP
10 AO1 COM			AO1 COM
11 AO2	&C03/615.5	JA01_QM06.SP	Ventilation Outlet D Damper Postion SP
12 AO2 COM			AO2 COM
13 AO3		HE03_QN01.SP	LT Mixing valve SP
14 AO3 COM	&C03/615.2		AO3 COM
15 AO4			Spare
16 AO4 COM	&C03/615.5		AO4 COM
17 DI1			Spare
18 DI2			Spare
19 DI3			Spare
20 DI4			Spare
21 DI1-4 COM			DI1-4 COM
22 AI1	&C03/615.2	JA01_QM05.FB	Ventilation Outlet C Damper Postion FB
23 AI1 COM			AI1 COM
24 AI2	&C03/615.6	JA01_QM06.FB	Ventilation Outlet D Damper Postion FB
25 AI2 COM			AI2 COM
26 AI3			Spare
27 AI3 COM		HE03_QN01.FB	LT Mixing valve feedback
28 AI4			Spare
29 AI4 COM	&C08/615.6		AI4 COM

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C02

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Container Controller, Coolant Rack 1/4		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 10 / 18

0	1	2	3	4	5	6	7	8

=LA01+UC50-KE07
DEIF AMC300
Controller Extension Rack

-Slot4
IOM3.4
IO Module 3.4

IOM3.4

	1 12-24V			Supply +
	2 DO01	+CU50_KF01	Control Nanogrid supply	
	3 DO02	+CU50_KF02	AUX Nanogrid supply	
A3.0	4 DO03	DO03	Digital Out 03	
A3.1	5 DO04	DO04	Digital Out 04	
A3.2	6 DO05	DO05	Digital Out 05	
A3.3	7 DO06	DO06	Digital Out 06	
A3.4	8 DO07	DO07	Digital Out 07	
A3.5	9 DO08	DO08	Digital Out 08	
A3.6	10 DO09	DO09	Digital Out 09	
A3.7	11 DO10	DO10	Digital Out 10	
A4.0	12 DO11	DO11	Digital Out 11	
A4.1	13 DO12	DO12	Digital Out 12	
	14 COM		Supply COM	
	15 DI01	+UC50_FC01	Nanogrid MCCB feedback	
	16 DI02	+UC50_FC02	AUX Supply MCCB feedback	
	17 DI03	+UC50_QA01	Nanogrid contactor QA01 feedback	
	18 DI04	+UC50_QA02	AUX Contactor QA02 feedback	
	19 DI05	+UC50_FC03 - 05	Distribution MCB feedback	
	20 DI06	+UC50_13 - 14	Control MCB feedback	
	21 DI07	+UC50_FC10	Nanogrid measurement MCB feedback	
	22 DI08	+UC50_FC11	AUX measurement MCB feedback	
	23 COM		Supply COM	
	24 DI09	+UC50_FC12	Surge protection MCB feedback	
	25 DI10	+UC50_FA	Surge protection feedback	
E7.7	26 DI11	DI11	Digital In 11	
E8.0	27 DI12	DI12	Digital In 12	
E8.1	28 DI13	DI13	Digital In 13	
E8.2	29 DI14	DI14	Digital In 14	
E8.3	30 DI15	DI15	Digital In 15	
E8.4	31 DI16	DI16	Digital In 16	
	32 COM		Supply COM	

-Slot5
IOM3.3
IO Module 3.3

IOM3.3

1 AI1			Spare
2 AI2	HE03_FT01	LT Cooling Circuit Flow Rate	
3 AI3			Spare
4 AI4			Spare
5 AI5	HE03_TT02	LT Circuit Forward Temperature	
6 AI6			Spare
7 AI7	HE03_TT01	LT Circuit Return Temperature	
8 AI3			Spare
9 AI9			Spare
10 AI10	HE03_TT03	LT Circuit Radiator Outlet Temperature	
11 AI11			Spare
12 AI12			Spare
13 AI13			Spare
14 AI14			Spare
15 AI15			Spare
16 AI16			Spare
17 AI17			Spare
18 AI18			Spare
19 AI19			Spare
20 AI20			Spare
21 AI21			Spare
22 AI22			Spare
23 AI23			Spare
24 AI24			Spare
25 AI25			Spare
26 AI26			Spare
27 AI27			Spare
28 AI28			Spare
29 AI29			Spare
30 AI30			Spare

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C02

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Container Controller, Coolant Rack 2/4		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 11 / 18

0	1	2	3	4	5	6	7	8

=LA01+UC50-KE07
DEIF AMC300
Controller Extension Rack

Reserved

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C02

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Container Controller, Coolant Rack 3/4		

ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 12 / 18

0	1	2	3	4	5	6	7	8

=LA01-KE10
DEIF AMC300
Network Separation PLC

-Slot1
DEIF PSM3.1
Power Supply
Module 3.1

PSM3.1

PE PE &C03/701.1 — Frame Ground
1 12/24V &C03/701.1 — Supply +
2 0V &C03/701.1 — Supply COM

3 R1 COM — Status OK Relay COM
A1.0 4 DO1 — DO1 — Status OK Relay

5 R2 COM — Relay 2 COM
A1.1 6 DO2 — DO2 — Relay 1 Out

7 R3 COM — Relay 3 COM
A1.2 8 DO3 — DO3 — Relay 3 Out

Note: Slot 2 and 3: Blanking plates

EtherCAT Master Ring Topology — Other bus systems X03 — Ethernet-1 IN
EtherCAT Master Ring Topology — Other bus systems X03 — Ethernet-2 OUT

Bus Master
Multi-line 300

-Slot4
DEIF PCM3.3
Processor and
Communication
Module 3.3
&C03/701.3

PCM3.3

X01 RS-483/232 — 1 2 3 4 5 6 7 8
X02 CAN-A / CAN-B — 9 10 11 12 13 14
X03 CAN-C / CAN-D — 15 16 17 18 19 20

ETH1 Other bus systems X04 — Ethernet-1 1
ETH1 Other bus systems &C03/701.4 X02 — Ethernet-3 1
ETH1 Other bus systems &C03/701.4 X02 — Ethernet-3 1
AGI Screen Connection Other bus systems X03 — Ethernet-4 1
ETH04 Other bus systems X04 — Ethernet-5 1

CPU
Multi-line 300

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C02

REVISION INFORMATION
DESCRIPTION
DATE
28-Mar-25

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Network Gateway, Rack 1/1		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 13 / 18

0	1	2	3	4	5	6	7	8

BALLARD™

Ballard Power Systems Europe - Technology Solutions

Multiline Documentation

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

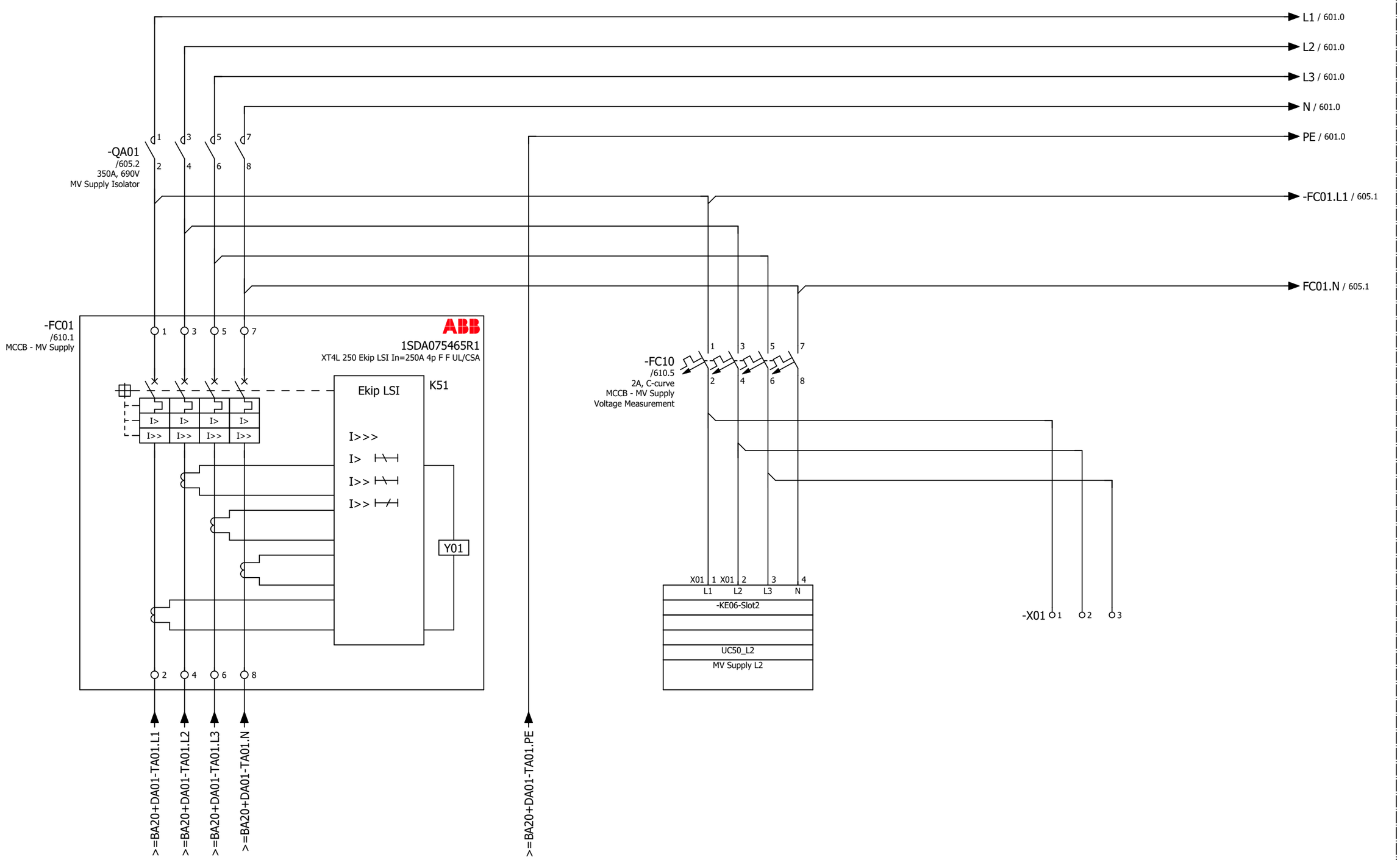
THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Multiline Documentation Intro		

ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 1 / 2

0	1	2	3	4	5	6	7	8

=BA20



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - AC distrbution Nanogrid supply		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 600 / 2

0	1	2	3	4	5	6	7	8

=BA20

600.8 / L1 → L1 / 603.0
600.8 / L2 → L2 / 603.0
600.8 / L3 → L3 / 603.0
600.8 / N → N / 603.0
600.8 / PE → PE / 602.0

-QA02
/605.4
55A, 4-pole
AUX Isolation Contactor

-FC02.L1 / 605.4
FC02.N / 605.4

-BC01
/601.1
/601.1

-BC02
+&C01/4.3:B

-BC03
/601.1
/601.1

X03 9	L1-S1	-KE06-Slot2
		UC50_BC01
10	L1-S2	Current measurement AUX L1
		-KE06-Slot2
X03 11	L2-S1	
		UC50_BC02
12	L2-S2	Current measurement AUX L2
		-KE06-Slot2
X03 13	L3-S1	
		UC50_BC03
14	L3-S2	Current measurement AUX L3

-FC11
/610.6
2A, C-curve
MCCB - Aux Voltage Measurement

X02 5 6 7 8
L1 L2 L3 N

-KE06-Slot2
UC50_L2'
Voltage measurement AUX L2

-FC02
/610.2
63A, C-curve
MCCB - Aux Supply

PE

EXT-L1 EXT-L2 EXT-L3 EXT-N

-SG01
63 A
AUX Supply Disconnector

L1 1 → 2 T1
L2 3 → 4 T2
L3 5 → 6 T3
L4 (N)7 → (N)8 T4

EXT-L1 EXT-L2 EXT-L3 EXT-N EXT-PE

EXT-L1 EXT-L2 EXT-L3 EXT-N

2L1 / 602.0
2L2 / 602.0
2L3 / 602.0
2N / 602.0

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
26-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - AC distrbution Nanogrid supply		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 601 / 2

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=BA20

601.8 / 2L1
601.8 / 2L2
601.8 / 2L3
601.8 / 2N
601.8 / PE

-FA01
Surge Arrester

L1 L2 L3 N

PE' PE

ABB

-XPE:1

2

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - AC distrbution Surge Protection		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 602 / 2

0	1	2	3	4	5	6	7	8

=BA20

601.8 / L1
601.8 / L2
601.8 / L3
601.8 / N
603.8 / PE

L1 /
L2 /
L3 /
N /
PE / 603.0

-FC04
/610.3
160A, Trip Curve
MCCB Cooling Skid
+UC30

1 3 5 7

Ekip LSI
K51
I>
I>>
I>>>
I>
I>>
I>>
Y01

2 4 6 8

-FC03
/610.3
63A, B-curve
MCCB Control Cabinet
+UC20

1 3 5 7
2 4 6 8

>=LA01+UC20-WD01
ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV
5x16
0,6/1,0 kV
Supply UC20 MCU cabinet

1 2 3 4 GNYE
1 2 3 4 GNYE

+UC20/11.1 / >=LA01+UC20-WD01

-FC05
/610.3
32A, B-curve
MCCB - 10ft Container

1 3 5 7
2 4 6 8
PE

>+UC31-WD01
ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV
5x6
0,6/1,0 kV
Supply +UC31 10ft Cabinet

1 2 3 4 GNGY
1 2 3 4 GNYE

>=LA01+UC31-WD01 / +UC31/2.0

+UC30/300.1 / >=BA20+UC30-L1
+UC30/300.1 / >=BA20+UC30-L2
+UC30/300.1 / >=BA20+UC30-L3
+UC30/300.1 / >=BA20+UC30-N
+UC30/300.1 / >=BA20+UC30-PE

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jul-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - AC distrbution Nanogrid		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 603 / 2

0	1	2	3	4	5	6	7	8

=BA20

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

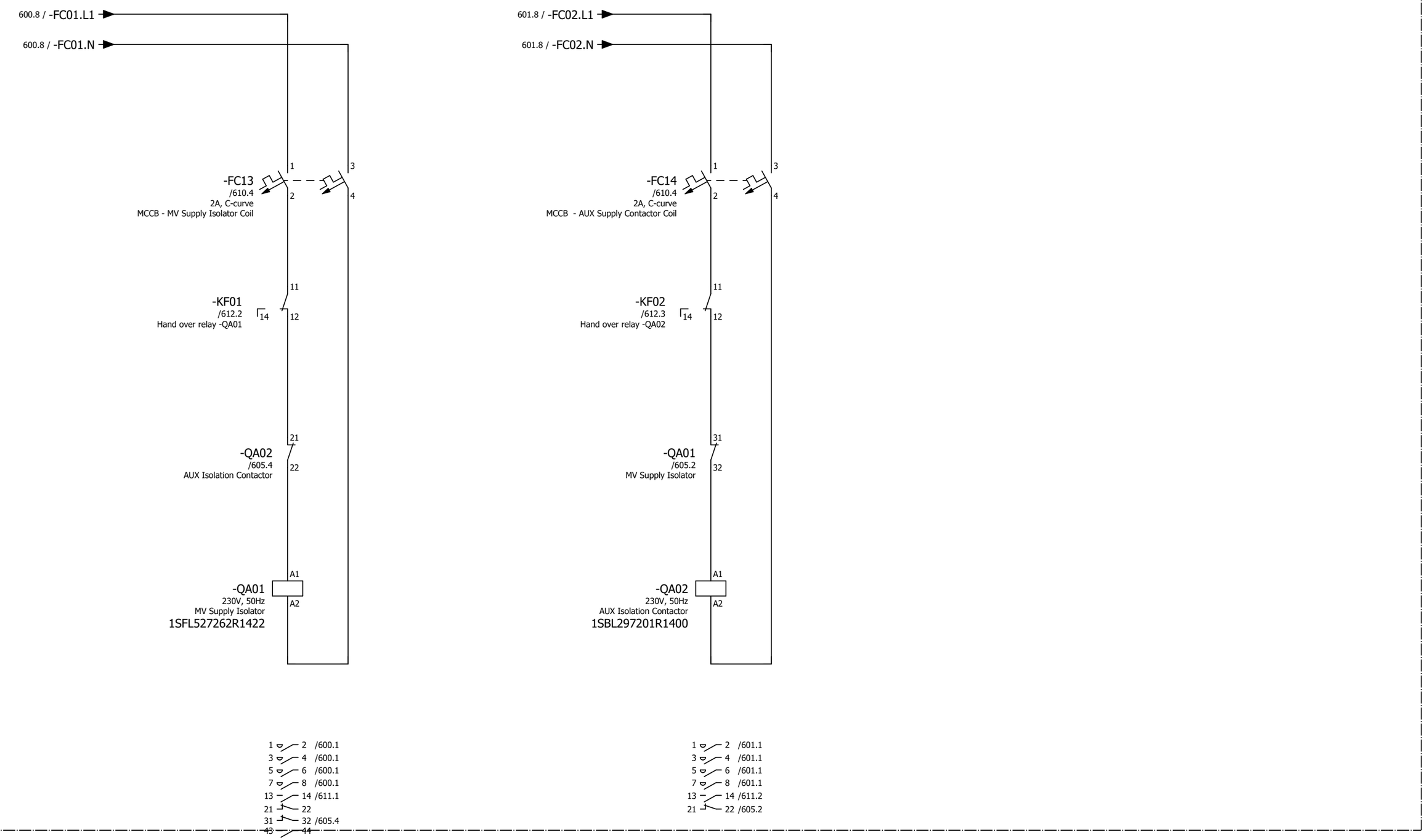
BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - AC distrbution Control fuses		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 604 / 2

0	1	2	3	4	5	6	7	8

=BA20



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

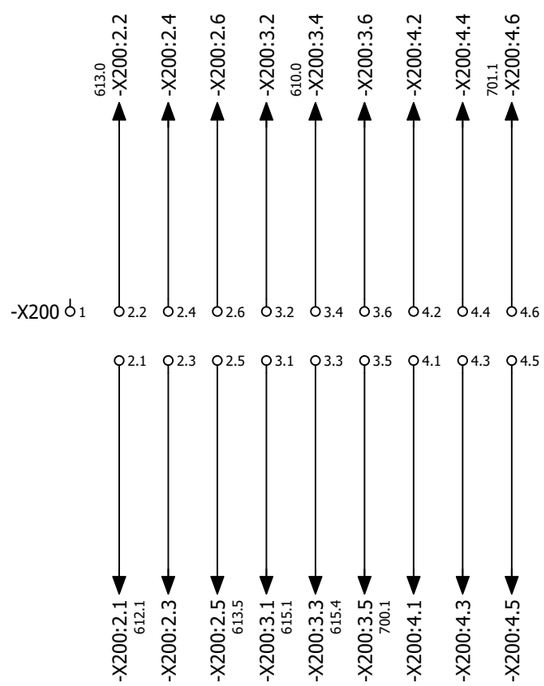
BALLARD™
CONFIDENTIAL

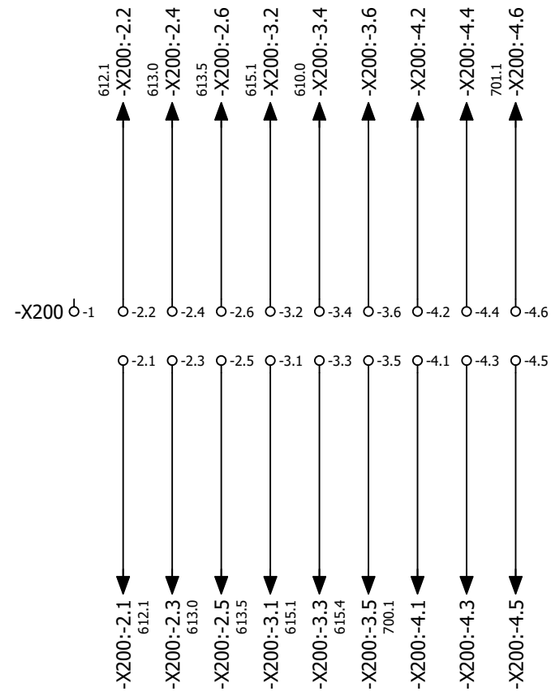
THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - AC distrbution Control -QA01 & -QA02		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 605 / 2

0	1	2	3	4	5	6	7	8

=BA20





Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
24-Feb-25

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

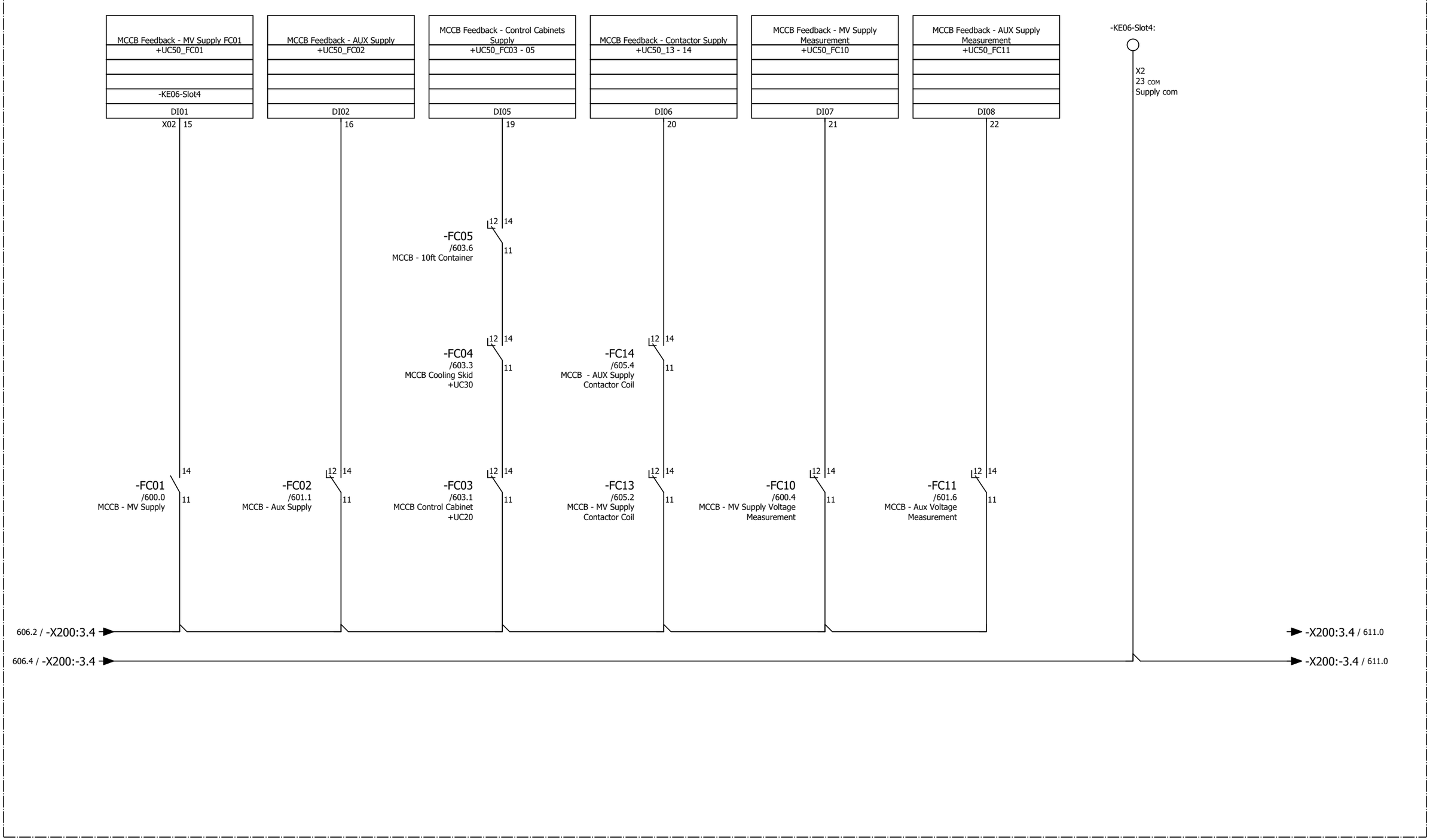
BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - AC distribution - 24VDC		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 606 / 2

0	1	2	3	4	5	6	7	8

=BA20



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

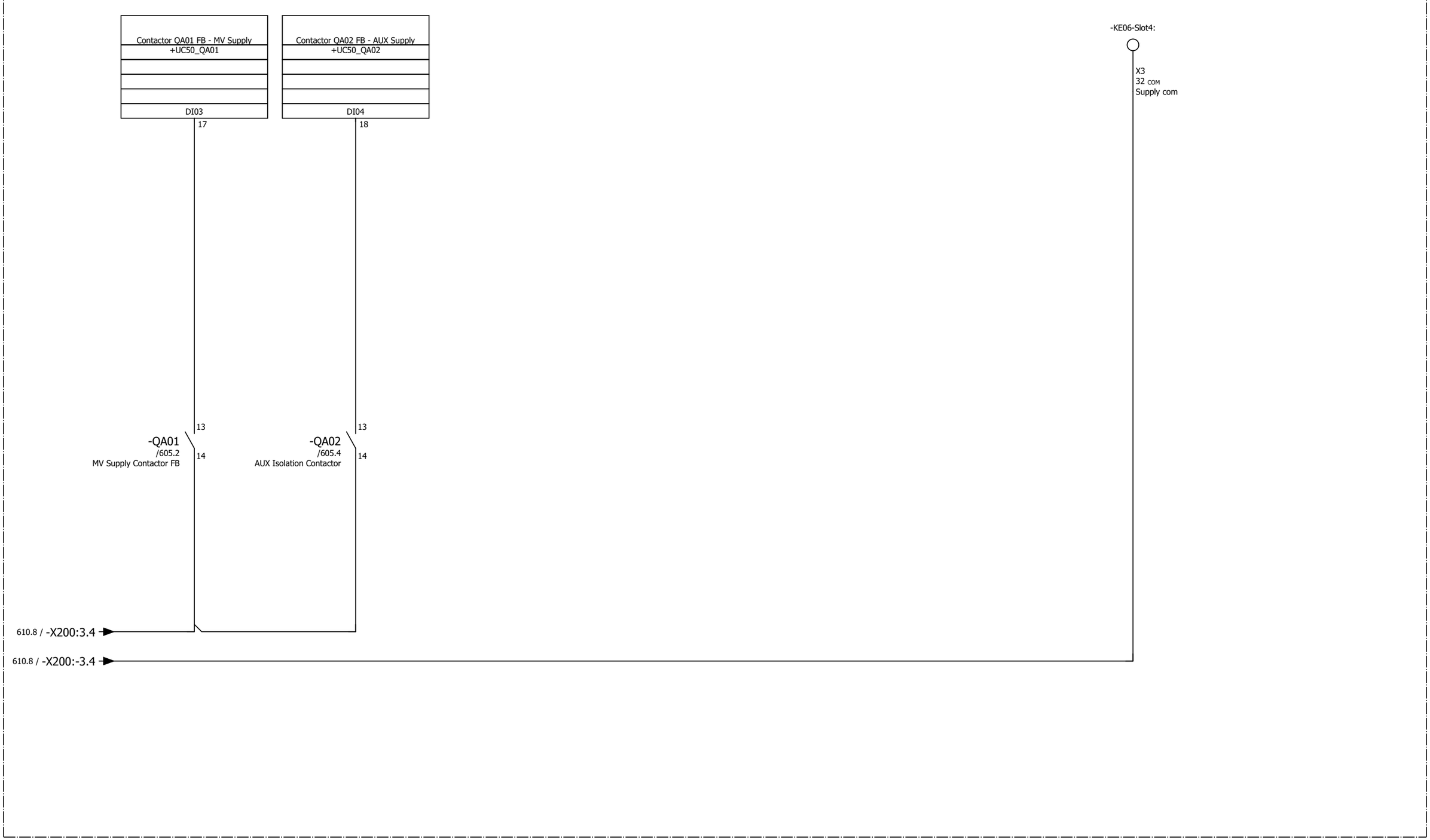
BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - MCCB Feedback		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 610 / 2

0	1	2	3	4	5	6	7	8

=BA20



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

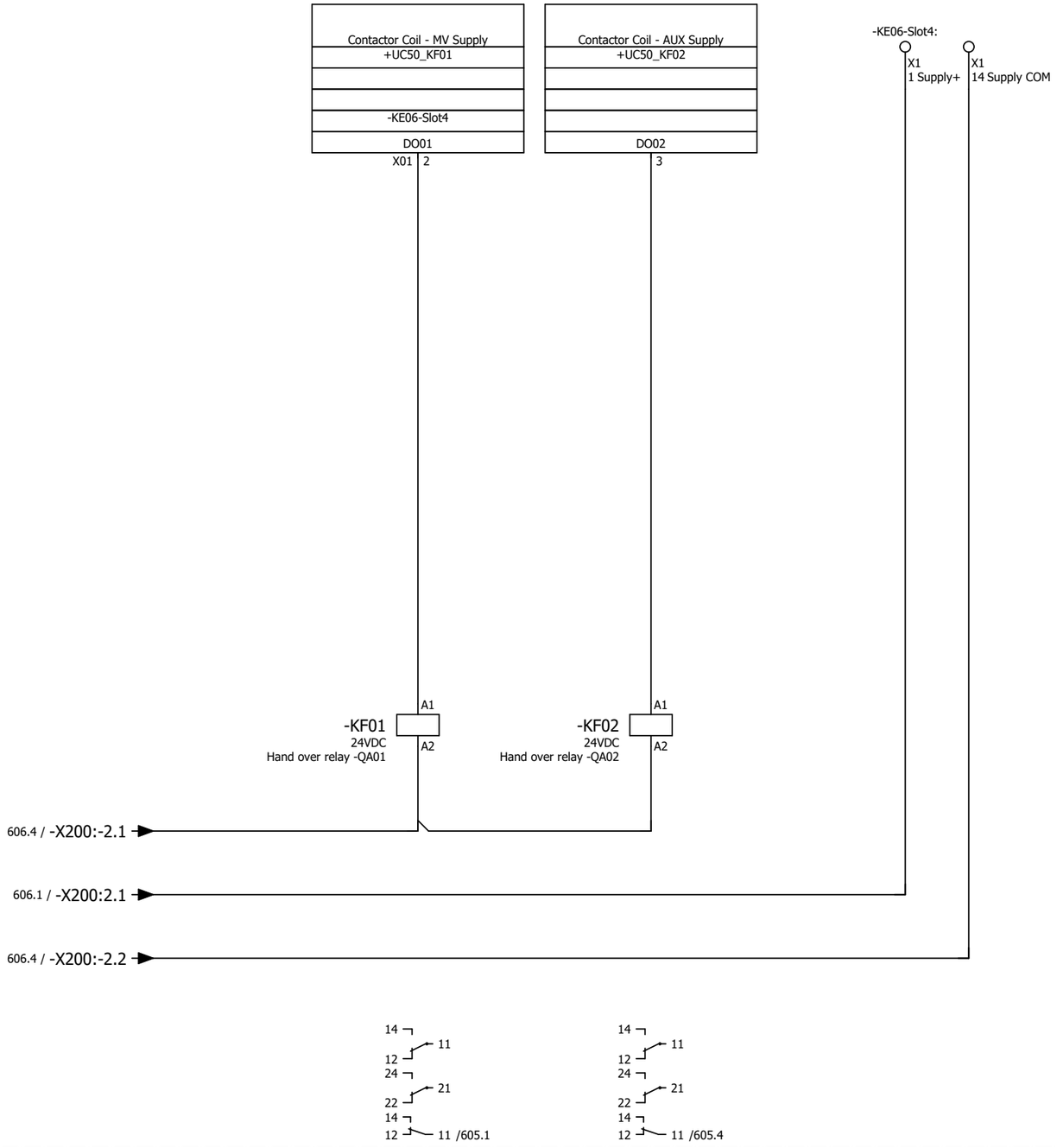
BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - Contactor Feedback		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 611 / 2

0	1	2	3	4	5	6	7	8

=BA20



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - Contactor Coils		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 612 / 2

0	1	2	3	4	5	6	7	8

=BA20

LT Cooling Circuit Flow Rate
HE03_FT01
-KE06-Slot5
AI2 AI1
X01 2 3

LT Circuit Forward Temperature
HE03_TT02
AI5
X02 5 6

LT Mixing Valve Setpoint
LT_QN01_SP
-KE01-Slot4
AO3 AO3 COM
X02 13 14

LT Mixing Valve Feedback
LT_QN01_FB
AI3 AI3 COM
X03 26 27

606.4 / -X200:-2.3
606.4 / -X200:-2.4
606.1 / -X200:2.2
606.4 / -X200:-2.6
606.2 / -X200:2.5
606.4 / -X200:-2.5

-X10 9 10 11 12 13 14 15 16

=HE03+DA01

-BF01-WG01
PUR
10 m
4x0,34
50/60 V
LT Circuit Flow Signal
BN WH BU Bk

-BF01-XD01
M12 F
1 2 3 4

-BF01
LT Circuit
Flow Rate
1 L+ 2 Out 2 3 L- 4 Out 1
4...20mA 4...20mA
M12
2 1 3 4

-QN01.WG01
ÖLFLEX® CLASSIC 110 CH
4x1
300/500 V
LT Mixing Valve Supply and Signal
1 2 3 4

TF01
LT Coolant
Mixing Valve
Signal Converter
- + 0-20mA 0-20mA
C1 C2 C3 C5
Jumper "J" must be installed
A1 A2 A3 A5
- + Y U

-QN01.WG02
ÖLFLEX® CLASSIC 110 CH
4x1
300/500 V
LT Mixing Valve Supply and Signal
1 2 3 4

-QN01.MA01
+&B02/9.5:C
24V, 4W
LT Coolant Mixing
Valve Drive Motor
COM 24V Y U
1 2 3 5
U: Setpoint - 2..10V
Y: Feedback - 2..10V

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

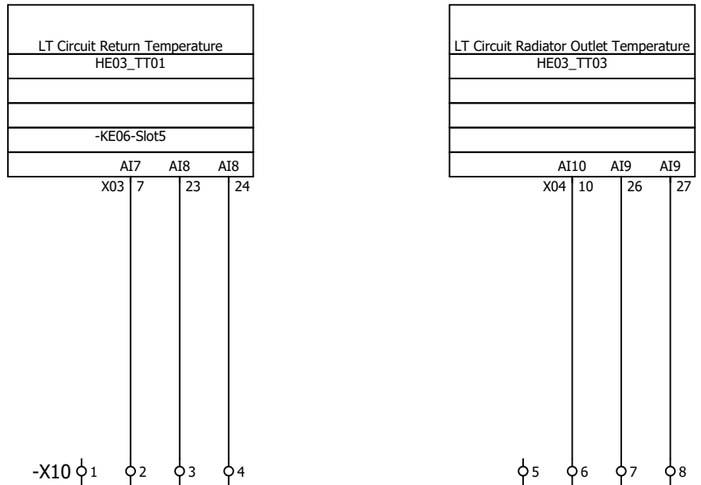
BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

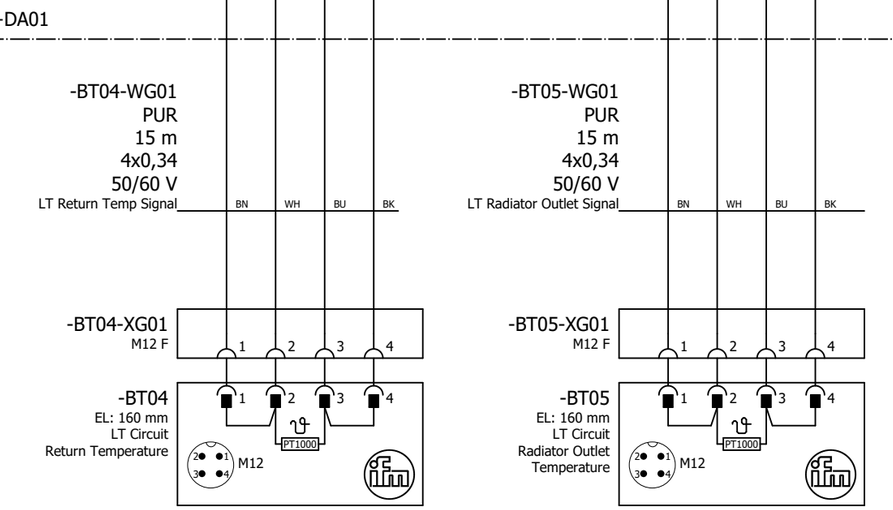
DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - LT Cooling System		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 613 / 2

0	1	2	3	4	5	6	7	8

=BA20



=HE03+DA01



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

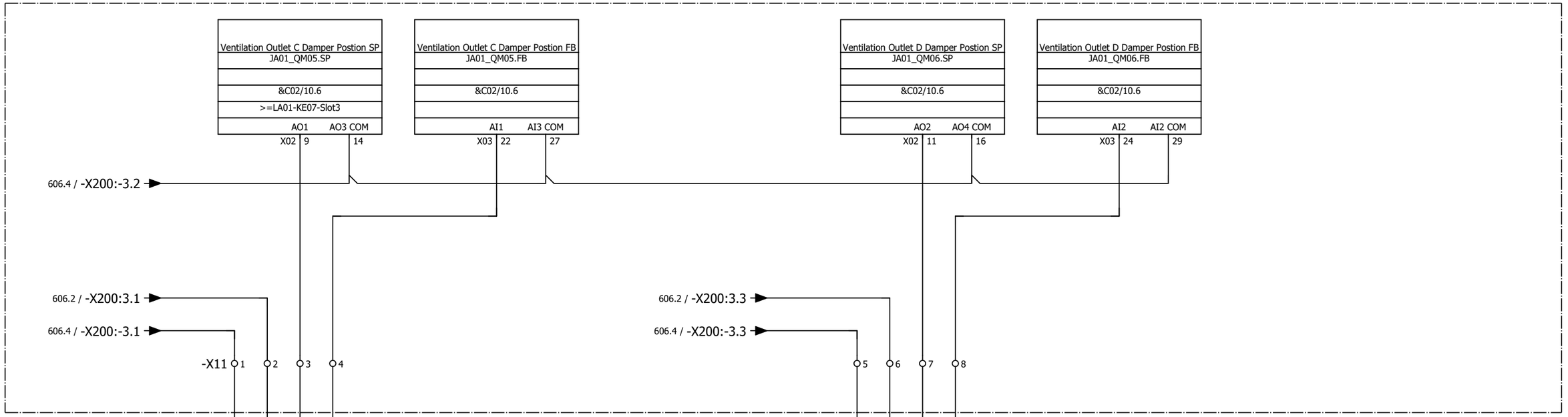
BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

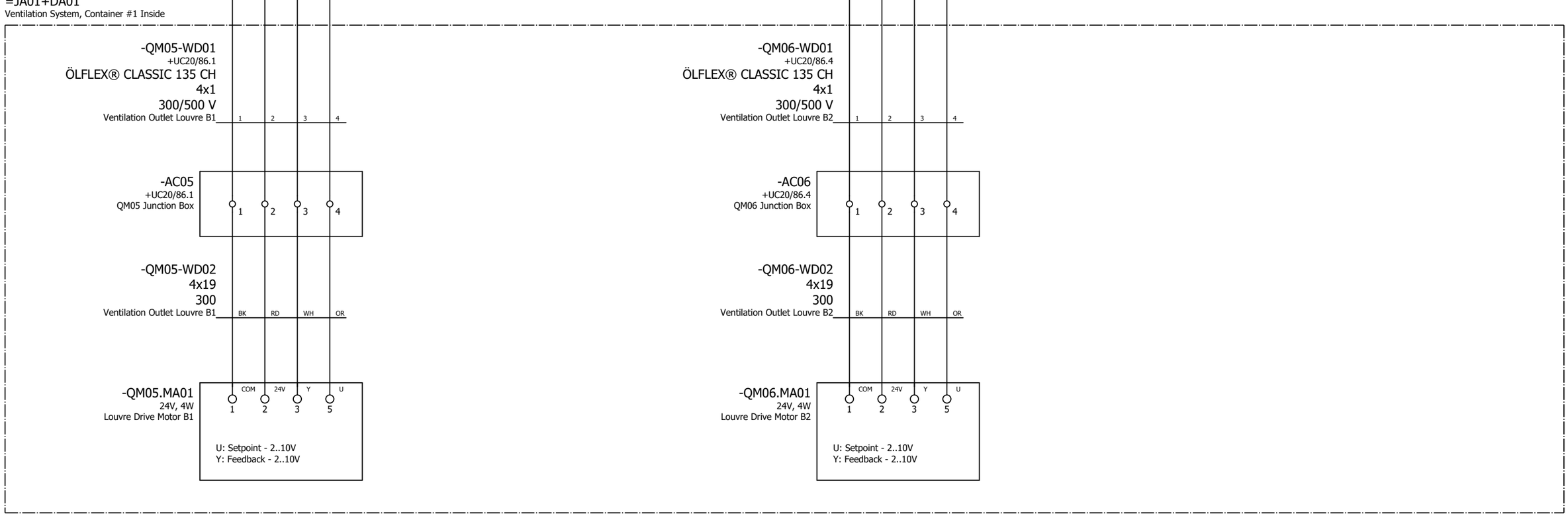
DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - LT Cooling System		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 614 / 2

0	1	2	3	4	5	6	7	8

=BA20
Container Control System, Container #1 Inside



=JA01+DA01
Ventilation System, Container #1 Inside



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

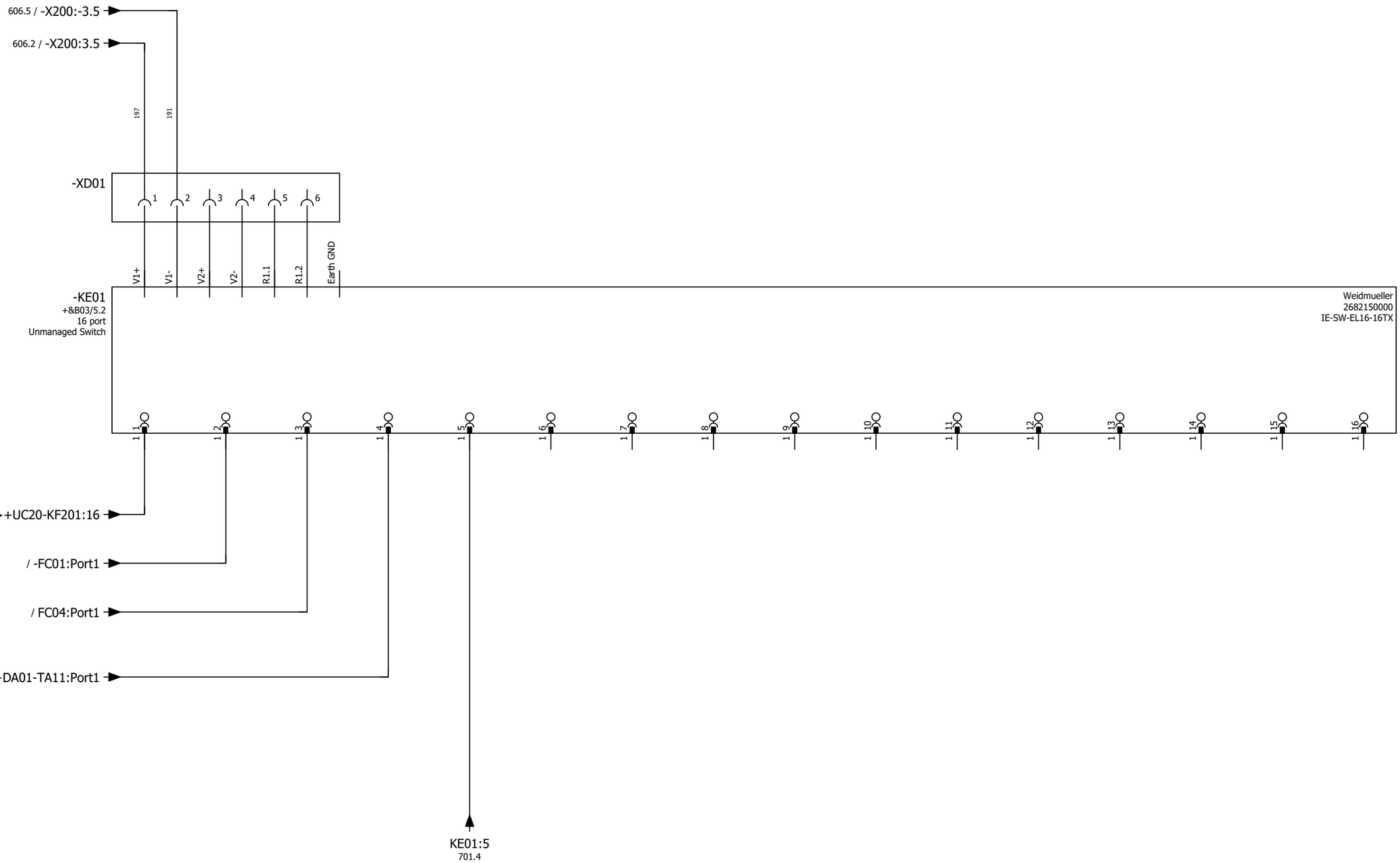
BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - Container Exhaust Louvre B		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 615 / 2

0	1	2	3	4	5	6	7	8

=BA20
40ft Container - AUX distribution



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

REVISION INFORMATION
DESCRIPTION
DATE
28-Mar-25

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container AUX distribution - Newtwork switch		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 700 / 2

0	1	2	3	4	5	6	7	8

=BA20
40ft Container - AUX distribution

700.3
KE01:5

>=LA01-KE10-Slot1
DEIF PSM3.1
Power Supply
Module 3.1

Supply +
&C02/13.1
1
12-24V

Supply COM
&C02/13.1
2
0V

Frame Ground
&C02/13.1
PE
PE

606.3
-X200:4.6

606.5
-X200:-4.6

>=LA01-KE10-Slot4
&C02/13.5
DEIF PCM3.3
Processor and
Communication
Module 3.3

1
Top side of card
X02
Other bus systems
&C02/13.5
&C02/13.5

Other bus systems
X03
Bottom side of card
3

Connected to RM network cable - See sheet &B03:5

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C03

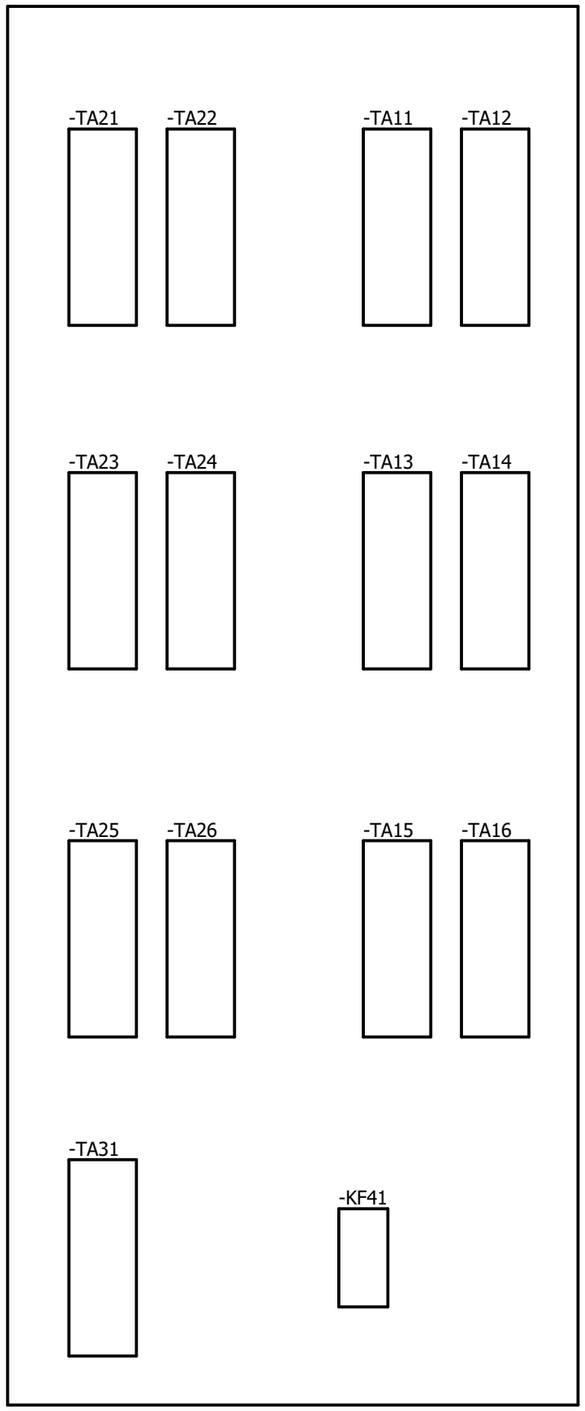
REVISION INFORMATION
DESCRIPTION
DATE
28-Mar-25

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	40ft Container - Gateway PLC		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 701 / 2



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C04

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Front Page		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 1 / 18

Terminal-strip overview

F14_001

Terminal strip	Terminal strip definition text	Terminals					Graphical page of terminal diagrams
		first	last	Total PE	Total N	Total number	
=BA20-X01		1	3	0	0	3	
=BA20-X10		1	16	0	0	20	
=BA20-X11		1	8	0	0	10	
=BA20-X200		1	4.6	0	0	22	
=BA20-XB01		1	1	0	0	1	

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C04

REVISION INFORMATION
DESCRIPTION
DATE
13-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™

CONFIDENTIAL

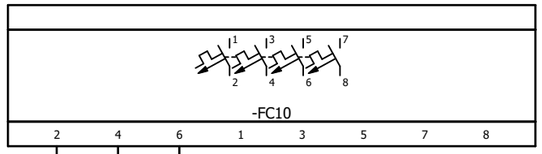
THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Terminal-strip overview : =BA20+UC50-X01 - =BA20+UC50-XB01		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 2 /

Terminal-connection diagram

F11_001
PBL 13-Jun-24

Internal targets



=BA20+UC50-X01

Jumpers

Terminal

Connection point

External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C04

REVISION INFORMATION
DESCRIPTION
DATE
13-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =BA20+UC50-X01		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 3 /

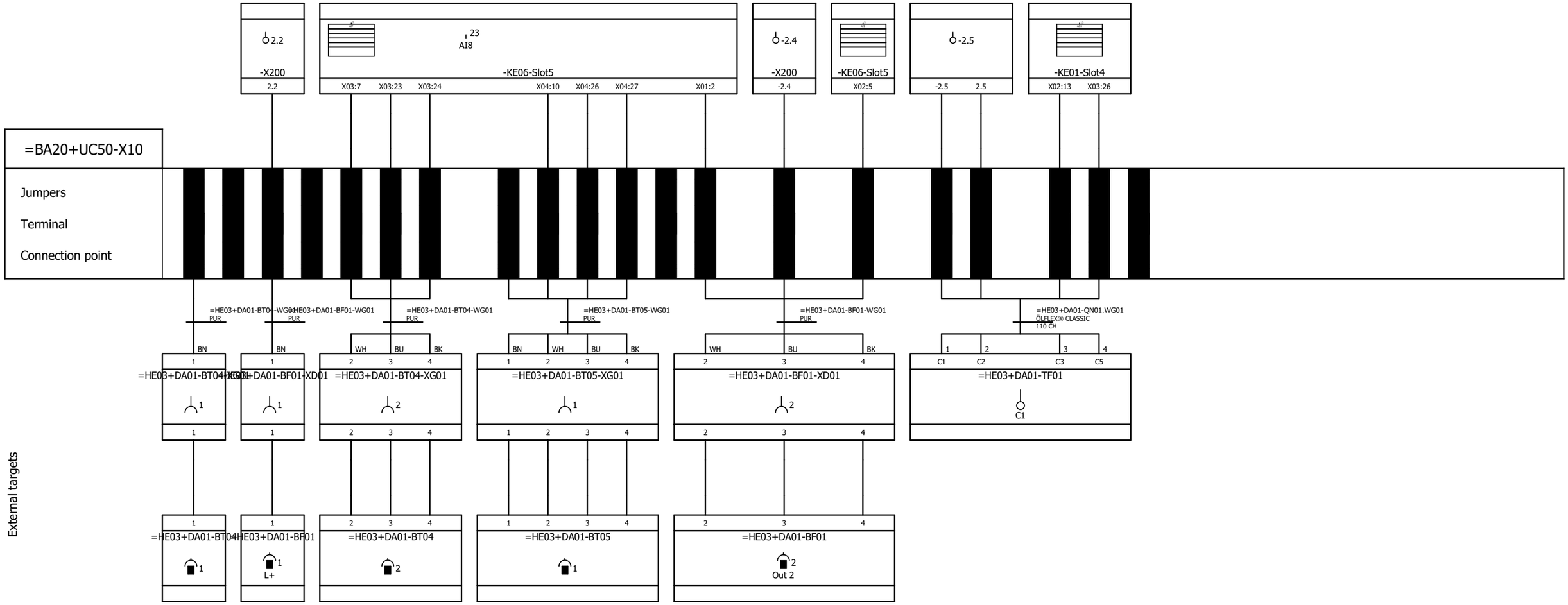
FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 13-Jun-24

Internal targets

External targets



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C04

REVISION INFORMATION
DESCRIPTION
DATE
13-Jun-24

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

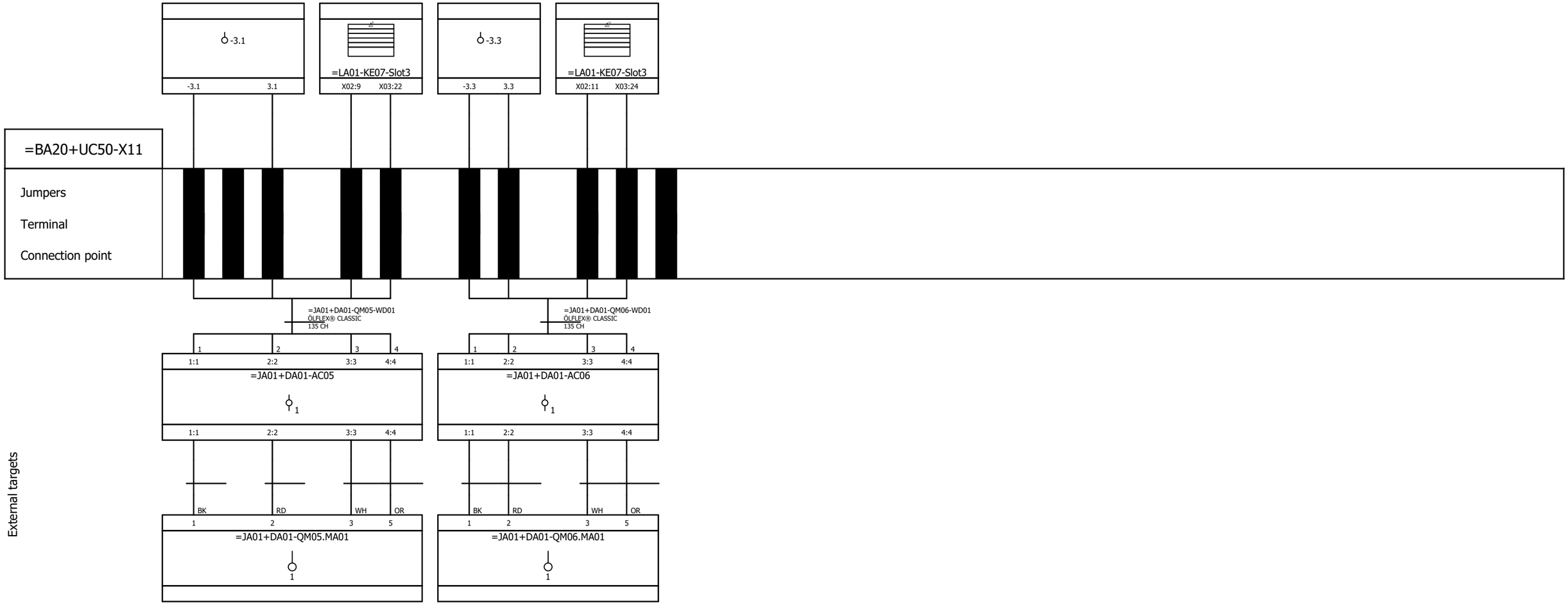
DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =BA20+UC50-X10		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 4 /

Terminal-connection diagram

F11_001
PBL 28-Mar-25

Internal targets

External targets



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC50	& C04

REVISION INFORMATION
DESCRIPTION
DATE
28-Mar-25

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

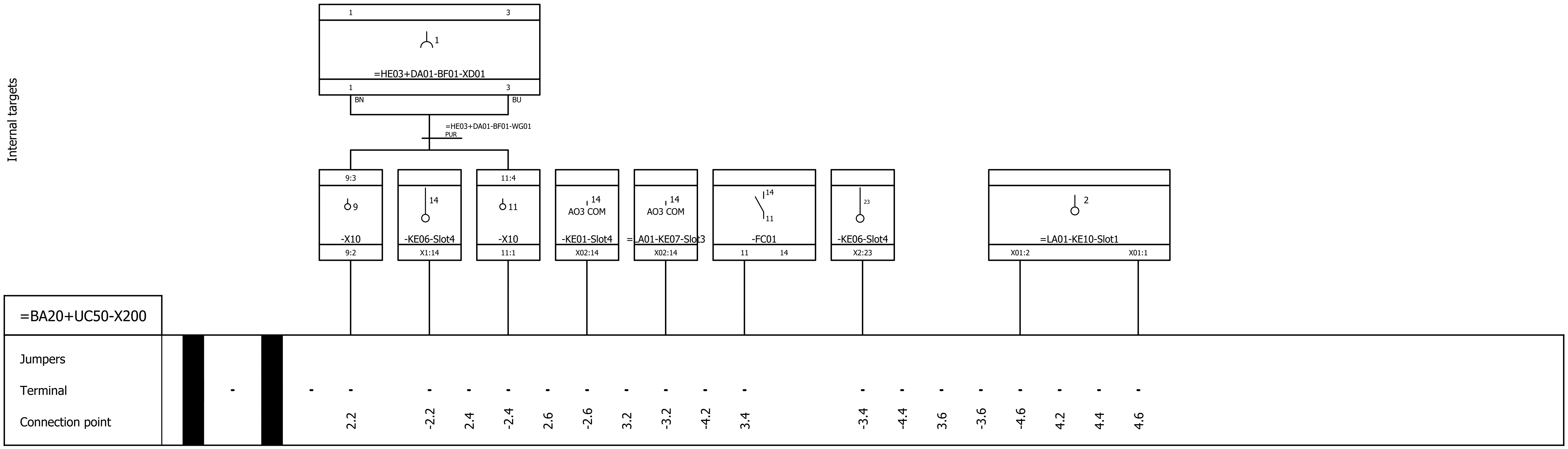
BALLARD™
CONFIDENTIAL

THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =BA20+UC50-X11		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 5 /

Terminal-connection diagram

F11_001
PBL 28-Mar-25



External targets

Reference Item Number	Ballard Part # TBD
EPLAN Project Name	601456B - Shell Baseload Power Hub
EPLAN Revision	06
EPLAN Project Pages	628

= | ++ | + UC50 | & C04

FRM5103656/0B

REVISION INFORMATION
DESCRIPTION
DATE
28-Mar-25

THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.

BALLARD™
CONFIDENTIAL

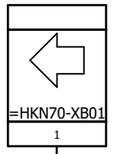
THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM

DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =BA20+UC50-X200		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 6 /

Terminal-connection diagram

F11_001
PBL 28-Mar-25

Internal targets



=BA20+UC50-XB01	
Jumpers	
Terminal	
Connection point	1

External targets

Reference Item Number	Ballard Part # TBD			REVISION INFORMATION	THIS DOCUMENT, SUBMITTED IN CONFIDENCE, CONTAINS PROPRIETARY INFORMATION WHICH SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF BALLARD POWER SYSTEMS INC. OR A RELATED WHOLLY-OWNED SUBSIDIARY OR AFFILIATE.	BALLARD™ CONFIDENTIAL	DRAWING	601456B UC50 AC Distribution Cabinet	REVISION	06
EPLAN Project Name	601456B - Shell Baseload Power Hub			DESCRIPTION			DRAWING TITLE	Crosswind UC50 AC Distribution Cabinet		
EPLAN Revision	06					THIS DOCUMENT'S APPROVAL IS MANAGED BY E-SIGNATURE ON FILE IN BALLARD POWER SYSTEMS' PLM SYSTEM	SHEET TYPE/DESC	Terminal-connection diagram =BA20+UC50-XB01		
EPLAN Project Pages	628			DATE			ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 7 /
=	++	+ UC50	& C04	28-Mar-25						

FRM5103656/0B