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

Revision history		
Rev.	**Date.**	**Description**
001	05/06/2024	First Issue

Document Title:	**BLPH Project - Panel Cabinet Layout: UC30 Coolant Skid Control Cabinet**
Document Number:	K559-2254-CWIWP4202202-E03-003
Revision:	Rev001
Sequence Number:	003
File Name:	K559-2254-CWIWP4202202-E03-003Rev001
Purchaser Job:	K559-2254
Purchase Order:	CWIWP4202202
Code:	E03
Requsition Number:	n/a
Customer:	CrossWind C.V., Rotterdam, The Netherlands

BALLARD™

+UC30

Ballard Power Systems Europe - Technology Solutions

Cabinet: Coolant Skid Control Cabinet
Location: Coolant Skid, Middle

Cabinet Supply:
- Vin = 400VAC, 3P+N+PE
- IKmax = 10kA
- I max = 160A
- IP 55x

Control circuit
- AC 230V
- DC 24V

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& A01

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control 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

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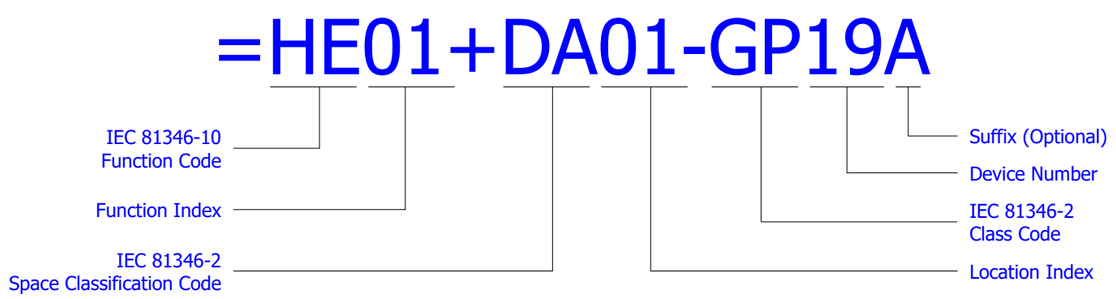
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Standard Wire Colors		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 2 / 18

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	01.P15
EPLAN Project Pages	478
=	++ + UC30 & A01

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Tagging Standard		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 3 / 18

FRM5103656/0B

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Higher-Level Function	Mounting Location	Page	Page Description	Last Modified Date
	UC30	1	Front Page	05-Jun-24
	UC30	2	Standard Wire Colors	05-Jun-24
	UC30	3	Tagging Standard	05-Jun-24
	UC30	4	Table of contents : +UC30&A01/1 - +UC30&C03/342	05-Jun-24
	UC30	4.a	Table of contents : +UC30&C03/350 - +UC30&C04/9	05-Jun-24
	UC30	4.b	Table of contents : +UC30&C04/10 - +UC30&C04/37	05-Jun-24
	UC30	1	Controller IO Overview Introduction	05-Jun-24
	UC30	10	Container Controller, Coolant Rack 1/4	05-Jun-24
	UC30	11	Container Controller, Coolant Rack 2/4	05-Jun-24
	UC30	12	Container Controller, Coolant Rack 3/4	05-Jun-24
	UC30	13	Container Controller, Coolant Rack 4/4	05-Jun-24
	UC30	1	Multiline Documentation Intro	05-Jun-24
	UC30	300	40ft Coolant Skid - Control Cabinet Supply	05-Jun-24
	UC30	301	40ft Coolant Skid - HT pump supply	05-Jun-24
	UC30	302	40ft Coolant Skid - Cabinet light and heater	05-Jun-24
	UC30	308	40ft Coolant skid - 24 VDC Supply	05-Jun-24
	UC30	308B	40ft Coolant skid - 24 VDC Supply - Back up battery	05-Jun-24
	UC30	309	40ft Coolant skid - 24 VDC Supply - fuses	05-Jun-24
	UC30	310	40ft Coolant skid - 24 VDC Supply - Distribution	05-Jun-24
	UC30	311	40ft Coolant skid - 24 VDC Supply - Distribution	05-Jun-24
	UC30	314	40ft Coolant skid - MCCB Trip Indication 24V	05-Jun-24
	UC30	315	40ft Coolant skid - MCCB Trip Indication HT1+2	05-Jun-24
	UC30	320	40ft Coolant Skid - Safety circuit	05-Jun-24
	UC30	321	40ft Coolant Skid - Safety circuit	05-Jun-24
	UC30	340	40ft Coolant Skid - HT #1 Sensors	05-Jun-24
	UC30	341	40ft Coolant Skid - HT #1 Coolant Pump	05-Jun-24
	UC30	341B	40ft Coolant Skid - HT #1 Coolant Pump VFD Interface	05-Jun-24
	UC30	342	40ft Coolant Skid - HT #1 Mixing Valves	05-Jun-24

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Higher-Level Function	Mounting Location	Page	Page Description	Last Modified Date
	UC30	350	40ft Coolant Skid - HT #2 Sensors	05-Jun-24
	UC30	351	40ft Coolant Skid - HT #2 Coolant Pump	05-Jun-24
	UC30	351B	40ft Coolant Skid - HT #2 Coolant Pump VFD Interface	05-Jun-24
	UC30	352	40ft Coolant Skid - HT #2 Mixing Valves	05-Jun-24
	UC30	355	40ft Coolant Skid - LT Header Tank	05-Jun-24
	UC30	356	40ft Coolant Skid - Exterior Temperature	05-Jun-24
	UC30	360	40ft Coolant Skid - HT Cooler #1 Fan Power 1/2	05-Jun-24
	UC30	361	40ft Coolant Skid - HT Cooler #1 Fan Power 2/2	05-Jun-24
	UC30	362	40ft Coolant Skid - HT Cooler #2 Fan Power 1/2	05-Jun-24
	UC30	363	40ft Coolant Skid - HT Cooler #2 Fan Power 2/2	05-Jun-24
	UC30	364	40ft Coolant Skid - LT Cooler Fan Power	05-Jun-24
	UC30	365	40ft Coolant Skid - VFD Cabinet Airconditioning	05-Jun-24
	UC30	368	40ft Coolant Skid - Hydrogen Heater Power	05-Jun-24
	UC30	369	40ft Coolant Skid - Hydrogen Heater Control	05-Jun-24
	UC30	370	40ft Coolant Skid - Hydrogen Heater Control Level	05-Jun-24
	UC30	371	40ft Coolant Skid - Hydrogen Heater Control Temperature	05-Jun-24
	UC30	372	40ft Coolant Skid - Hydrogen Manifold pressure	05-Jun-24
	UC30	500	40ft Coolant Skid - Newtwork switch	05-Jun-24
	UC30	501	40ft Coolant Skid - Secomea	05-Jun-24
	UC30	1	Panel Documentation and Layout	05-Jun-24
	UC30	2	Terminal-strip overview : =LA01+UC30-14 - =LB02+UC30-XD03	05-Jun-24
	UC30	3	Terminal-connection diagram =LA01+UC30-14	05-Jun-24
	UC30	4	Terminal-connection diagram =LA01+UC30-X1	05-Jun-24
	UC30	5	Terminal-connection diagram =LA01+UC30-X02	05-Jun-24
	UC30	6	Terminal-connection diagram =LA01+UC30-X11	05-Jun-24
	UC30	7	Terminal-connection diagram =LA01+UC30-X12	05-Jun-24
	UC30	8	Terminal-connection diagram =LA01+UC30-X13	05-Jun-24
	UC30	9	Terminal-connection diagram =LA01+UC30-X15	05-Jun-24

Reference Item Number	Ballard Part # TBD
EPLAN Project Name	601456B - Shell Baseload Power Hub
EPLAN Revision	01.P15
EPLAN Project Pages	478
=	++ | + UC30 | & A01

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Table of contents : +UC30&C03/350 - +UC30&C04/9		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 4.a /

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F06_002_Ballard

Higher-Level Function	Mounting Location	Page	Page Description	Last Modified Date
	UC30	10	Terminal-connection diagram =LA01+UC30-X16	05-Jun-24
	UC30	11	Terminal-connection diagram =LA01+UC30-X21	05-Jun-24
	UC30	12	Terminal-connection diagram =LA01+UC30-X22	05-Jun-24
	UC30	13	Terminal-connection diagram =LA01+UC30-X23	05-Jun-24
	UC30	14	Terminal-connection diagram =LA01+UC30-X24	05-Jun-24
	UC30	15	Terminal-connection diagram =LA01+UC30-X25	05-Jun-24
	UC30	16	Terminal-connection diagram =LA01+UC30-X26	05-Jun-24
	UC30	17	Terminal-connection diagram =LA01+UC30-X31	05-Jun-24
	UC30	18	Terminal-connection diagram =LA01+UC30-X40	05-Jun-24
	UC30	19	Terminal-connection diagram =LA01+UC30-X41	05-Jun-24
	UC30	20	Terminal-connection diagram =LA01+UC30-X42	05-Jun-24
	UC30	21	Terminal-connection diagram =LA01+UC30-X100	05-Jun-24
	UC30	22	Terminal-connection diagram =LA01+UC30-X110	05-Jun-24
	UC30	23	Terminal-connection diagram =LA01+UC30-X111	05-Jun-24
	UC30	24	Terminal-connection diagram =LA01+UC30-X112	05-Jun-24
	UC30	25	Terminal-connection diagram =LA01+UC30-X113	05-Jun-24
	UC30	26	Terminal-connection diagram =LA01+UC30-X114	05-Jun-24
	UC30	27	Terminal-connection diagram =LA01+UC30-X115	05-Jun-24
	UC30	28	Terminal-connection diagram =LA01+UC30-X201	05-Jun-24
	UC30	29	Terminal-connection diagram =LA01+UC30-X201-	05-Jun-24
	UC30	30	Terminal-connection diagram =LA01+UC30-X202	05-Jun-24
	UC30	31	Terminal-connection diagram =LA01+UC30-X202	05-Jun-24
	UC30	32	Terminal-connection diagram =LA01+UC30-X203	05-Jun-24
	UC30	33	Terminal-connection diagram =LA01+UC30-X203-	05-Jun-24
	UC30	34	Terminal-connection diagram =LA01+UC30-X204	05-Jun-24
	UC30	35	Terminal-connection diagram =LA01+UC30-X204-	05-Jun-24
	UC30	36	Terminal-connection diagram =LA01+UC30-X206	05-Jun-24
	UC30	37	Terminal-connection diagram =LB02+UC30-XD03	05-Jun-24

Reference Item Number	Ballard Part # TBD
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EPLAN Revision	01.P15
EPLAN Project Pages	478
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Table of contents : +UC30&C04/10 - +UC30&C04/37		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 4.b /

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Controller IO Overview Documentation

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Controller IO Overview Introduction		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 1 / 18

0	1	2	3	4	5	6	7	8

=LA01+UC30-KE04
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 +&C01/8.4:E X03 — Ethernet-1 IN

EtherCAT Follower Ring Topology — EtherCAT +&C01/8.4:E X03 — Ethernet-2 OUT

Bus Follower
Multi-line 300

-Slot2
ACM3.1
Alternating Current Module 3.1

ACM3.1

1 L1			Source - L1
2 L2			Source - L2
3 L3			Source - L3
4 N			Source - N
5 L1	BA20-UC30-L1		Coolant Skid Supply Voltage - L1
6 L2	BA20-UC30-L2		Coolant Skid Supply Voltage - L2
7 L3	BA20-UC30-L3		Coolant Skid Supply Voltage - L3
8 N	BA20-UC30-N		Coolant Skid Supply Voltage - N
9 L1-S1	=BA20+UC30-BC01		Current transformer L1 - S1
10 L1-S2	CH1-S2		Channel 1 - S2
11 L2-S1	=BA20+UC30-BC02		Current transformer L2 - S1
12 L2-S2	CH2-S2		Channel 2 - S2
13 L3-S1	=BA20+UC30-BC03		Current transformer L3 - S1
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
&C03/340.4
&C03/350.4
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			Spare
10 AO1 COM			AO1 COM
11 AO2			Spare
12 AO2 COM			AO2 COM
13 AO3			Spare
14 AO3 COM			AO3 COM
15 AO4			Spare
16 AO4 COM			AO4 COM
17 DI1		IAH_FC4X	Fuse trip indication H2 Heat
18 DI2			Spare
19 DI3			Spare
20 DI4			Spare
21 DI1-4 COM			DI1-4 COM
22 AI1			HT1 Coolant Flow
23 AI1 COM			AI1 COM
24 AI2	&C03/340.4	HE01_BL01_LT	HT1 Level header tank
25 AI2 COM	&C03/340.4		AI2 COM
26 AI3			HT2 Coolant Flow
27 AI3 COM			AI3 COM
28 AI4	&C03/350.4	HE02_BL01_LT	HT2 Header Tank Level
29 AI4 COM	&C03/350.4		AI4 COM

Reference Item Number	Ballard Part # TBD		
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EPLAN Project Pages	478		
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control 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

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30-KE04

DEIF AMC300
Controller Extension Rack

-Slot4

&C03/342.3
&C03/352.3
IOM3.2
IO Module 3.2

IOM3.2

1	R1 COM			Relay 1 In
2	DO1			Spare
3	R2 COM			Relay 2 COM
4	DO2			Spare
5	R3 COM			Relay 3 In
6	DO3			Relay 3 Out
7	R4 COM			Relay 4 In
8	DO4			Relay 4 Out
9	AO1	&C03/342.3	HE01_QN01_SP	HT1 Bypass Valve Setpoint
10	AO1 COM	&C03/342.3		AO1 COM
11	AO2	&C03/342.6	HE01_QN02_SP	HT1 Cooler Valve Setpoint
12	AO2 COM	&C03/342.6		AO2 COM
13	AO3	&C03/352.3	HE02_QN01_SP	HT2 Bypass Valve Setpoint
14	AO3 COM	&C03/352.3		AO3 COM
15	AO4	&C03/352.6	HE02_QN02_SP	HT2 Cooler Valve Setpoint
16	AO4 COM	&C03/352.6		AO4 COM
17	DI1			Spare
18	DI2			Spare
19	DI3			Spare
20	DI4			Spare
21	DI1-4 COM			DI1-4 COM
22	AI1	&C03/342.4	HE01_QN01_FB	HT1 Bypass Valve Feedback
23	AI1 COM	&C03/342.4		AI1 COM
24	AI2	&C03/342.7	HE01_QN02_FB	HT1 Cooler Valve Feedback
25	AI2 COM	&C03/342.8		AI2 COM
26	AI3	&C03/352.4	HE02_QN01_FB	HT2 Bypass Valve Feedback
27	AI3 COM	&C03/352.4		AI3 COM
28	AI4	&C03/352.7	HE02_QN02_FB	HT2 Cooler Valve Feedback
29	AI4 COM	&C03/352.8		AI4 COM

-Slot5

&C03/340.3
&C03/340.1
&C03/340.6
&C03/350.3
&C03/350.1
&C03/350.6
&C03/355.4
&C03/356.1
IOM3.3
IO Module 3.3

IOM3.3

1	AI1			Spare
2	AI2	&C03/340.3	HE01_BF01_TT	Main HT Coolant Return Temperature
3	AI3	&C03/340.3		Spare
4	AI4			Spare
5	AI5	&C03/340.1	HE01_BF01_FT	HT1 Coolant Flow
6	AI6			Spare
7	AI7	&C03/340.6	HE01_BT05_TT	HT1 Cooling Tower Return Temperature
8	AI8	&C03/340.6		Spare
9	AI9	&C03/340.6		Spare
10	AI10	&C03/340.7	HE01_BT06_TT	HT1 Pump Inlet Temperature
11	AI11	&C03/340.7		Spare
12	AI12	&C03/340.8		Spare
13	AI13			Spare
14	AI14	&C03/350.3	HE02_BF01_TT	Main HT Coolant Return Temperature
15	AI15			Spare
16	AI16			Spare
17	AI17	&C03/350.1	HE02_BF01_FT	HT2 Coolant Flow
18	AI18			Spare
19	AI19	&C03/350.6	HE02_BT05_TT	HT2 Cooling Tower Return Temperature
20	AI20			Spare
21	AI21			Spare
22	AI22	&C03/350.7	HE02_BT06_TT	HT2 Pump Inlet Temperature
23	AI23			Spare
24	AI24			Spare
25	AI25	&C03/355.4	HE03_BL01_PT	LT Coolant System Header Tank Level
26	AI26			Spare
27	AI27	&C03/355.4		Spare
28	AI28	&C03/356.1	JA01_BT04_TT	Exterior Temperature
29	AI29	&C03/356.1		Spare
30	AI30	&C03/356.2		Spare

-Slot6

IOM3.4
IO Module 3.4

IOM3.4

1	12-24V		Supply +
2	DO01	HA01_EA01	Hydrogen Heater 1
3	DO02	HA01_EA02	Hydrogen Heater 2
4	DO03	DO03	Digital Out 03
5	DO04	DO04	Digital Out 04
6	DO05	DO05	Digital Out 05
7	DO06	DO06	Digital Out 06
8	DO07	DO07	Digital Out 07
9	DO08	DO08	Digital Out 08
10	DO09	DO09	Digital Out 09
11	DO10	DO10	Digital Out 10
12	DO11	DO11	Digital Out 11
13	DO12	DO12	Digital Out 12
14	COM		Supply COM
15	DI03	IAH_FC3X	Fuse Trip Indication HT2
16	DI02	IAH_FC20X	Fuse Trip Indication 24V
17	DI03	IAH_FC2X	Fuse Trip Indication HT1
18	DI04	IAH_FC1X	Fuse Trip Indication LT
19	DI05	JT_RB30_BAT	UPS Battery Operation
20	DI06	JT_RB30_RDY	UPS Battery Ready
21	DI07	JT_RB30_SOH	UPS Battery Low SOH
22	DI08	HA01_BL01	Hydrogen Heater Level Swich
23	COM		Supply COM
24	DI09	DI09	Digital In 09
25	DI10	DI10	Digital In 10
26	DI11	DI11	Digital In 11
27	DI12	DI12	Digital In 12
28	DI13	DI13	Digital In 13
29	DI14	DI14	Digital In 14
30	DI15	DI15	Digital In 15
31	DI16	DI16	Digital In 16
32	COM		Supply COM

Reference Item Number	Ballard Part # TBD
EPLAN Project Name	601456B - Shell Baseload Power Hub
EPLAN Revision	01.P15
EPLAN Project Pages	478
=	++ | + UC30 | & C02

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DESCRIPTION
DATE
05-Jun-24

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control 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+UC30-KE05
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 +&C01/8.5:E X03 — Ethernet-1 IN

EtherCAT Follower Ring Topology — EtherCAT +&C01/8.6:E X03 — Ethernet-2 OUT

Bus Slave
Multi-line 300

-Slot2
&C03/371.4
&C03/371.4
IOM3.3
IO Module 3.3

IOM3.3

1 AI1			Spare
2 AI2		=DA01+DA02+BP01	Hydrogen Inlet Pressure
3 AI3			Spare
4 AI4	&C03/371.4	HE01_DA02_BT01	Hydrogen heater temperature
5 AI5	&C03/371.4		Spare
6 AI6			Spare
7 AI7			Spare
8 AI3			Spare
9 AI9			Spare
10 AI10			Spare
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	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C02

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control 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+UC40-KE04
DEIF AMC300
Controller Extension Rack

Reserved

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C02

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Container Controller, Coolant Rack 4/4		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 13 / 18

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Ballard Power Systems Europe - Technology Solutions

Multiline Documentation

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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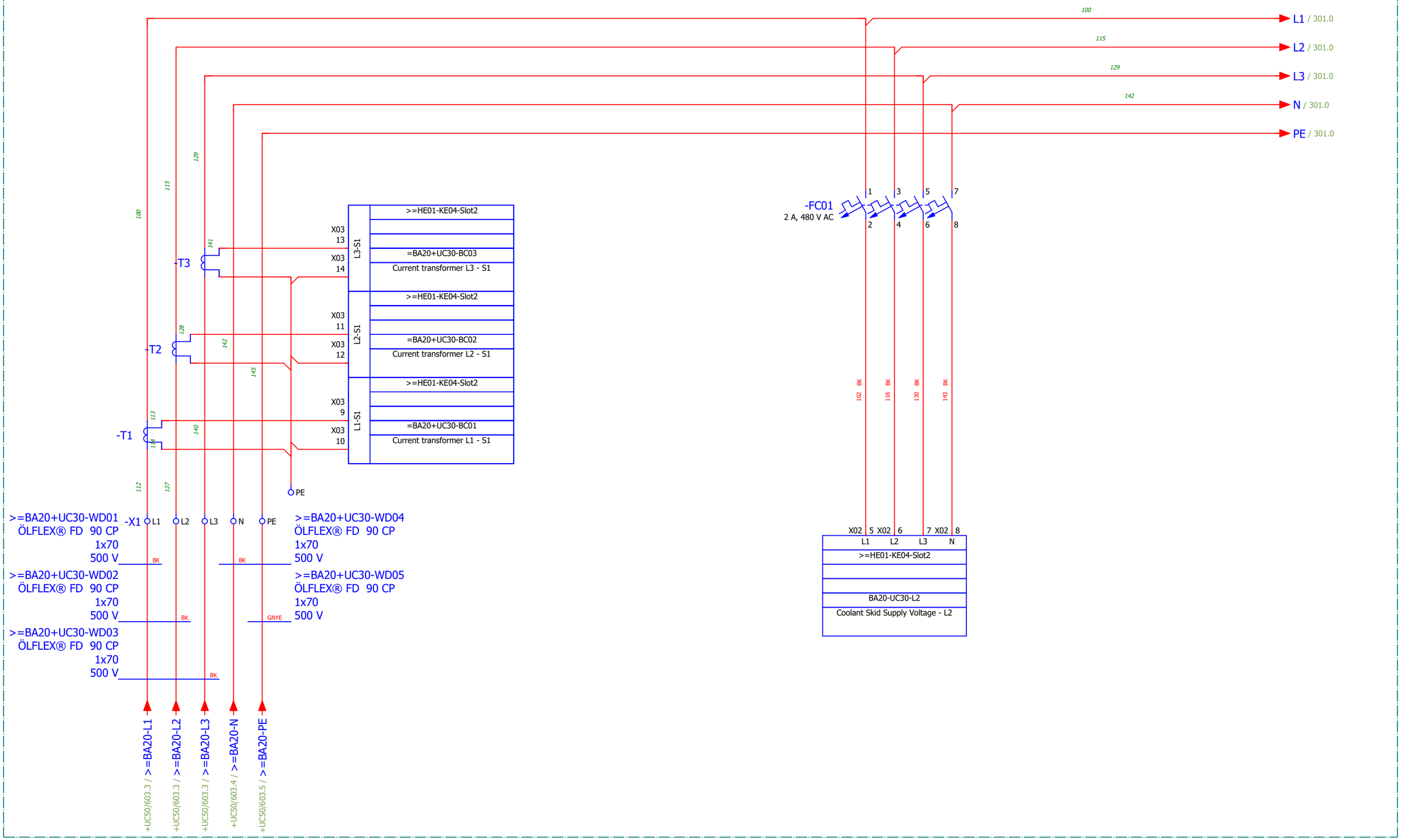
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Multiline Documentation Intro		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 1 / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30

Power conversion BOP Cooling skid cabinet



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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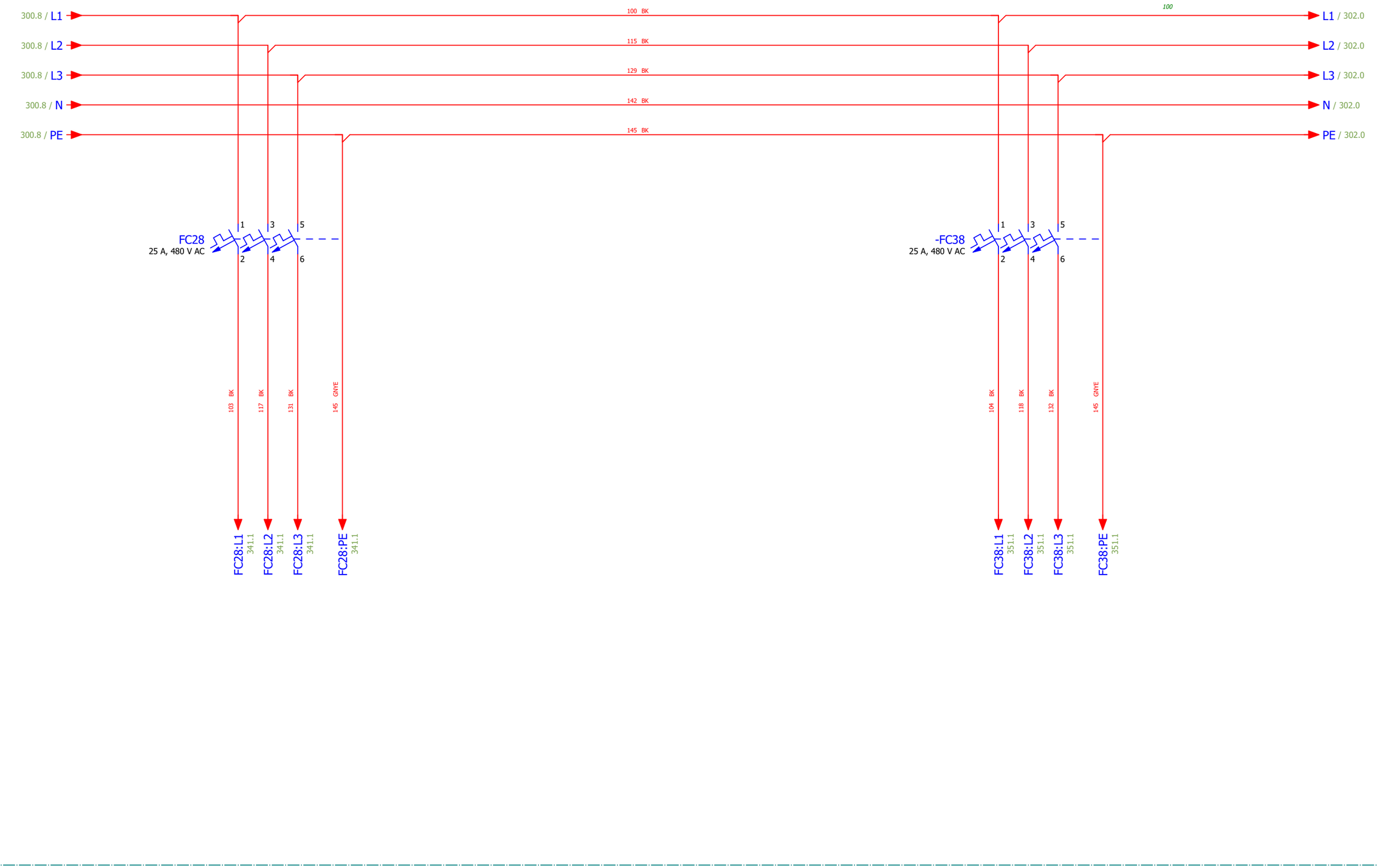
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - Control Cabinet Supply		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 300 / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30

Power conversion BOP Cooling skid cabinet



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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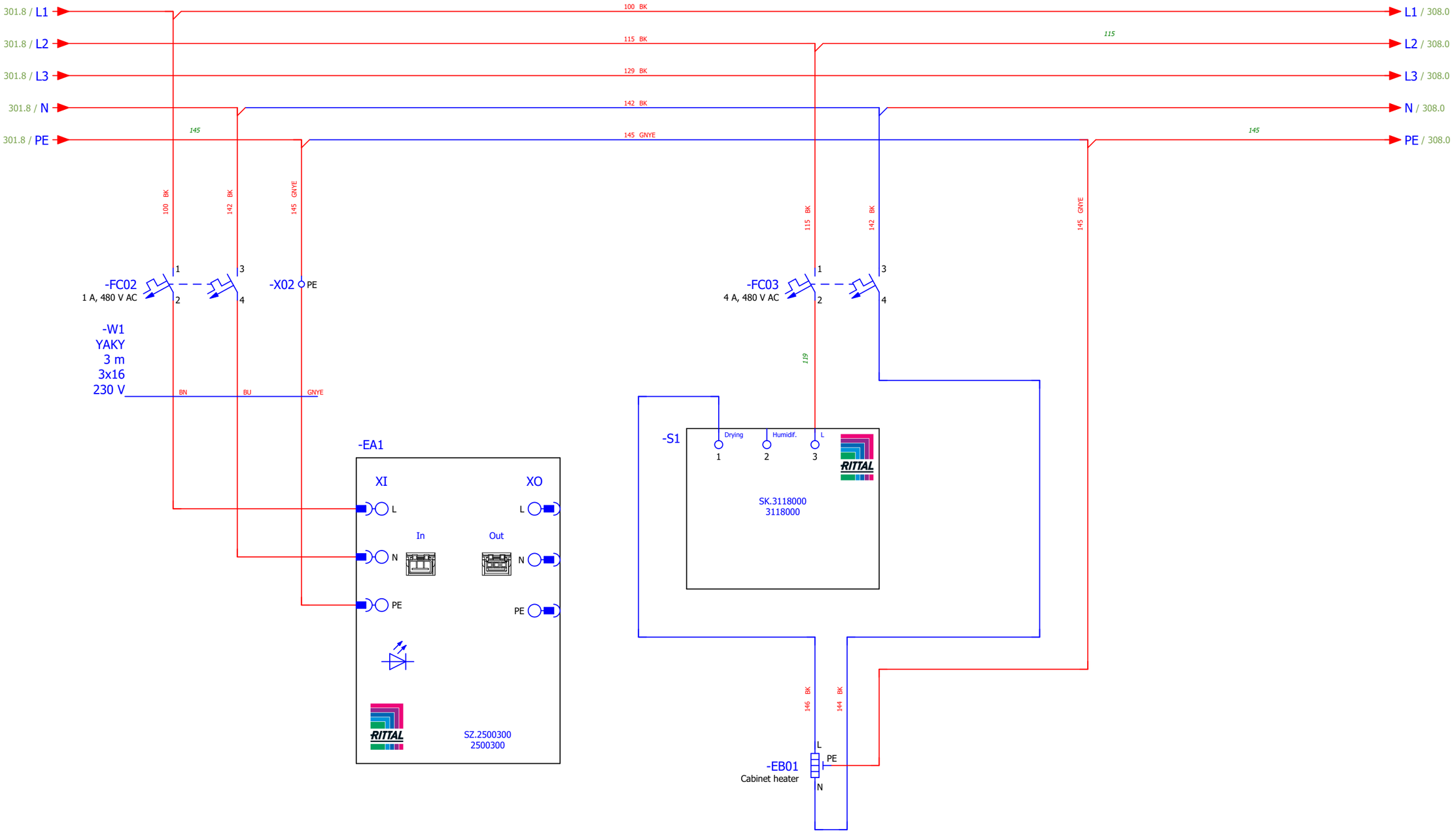
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - HT pump supply		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 301 / 2

=LA01+UC30

Power conversion BOP Cooling skid cabinet



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - Cabinet light and heater		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 302 / 2

=LA01+UC30

302.8 / L1 → 100 → L1 / 360.0
302.8 / L2 → 115 → L2 / 360.0
302.8 / L3 → 129 → L3 / 360.0
302.8 / N → 46 → N /
302.8 / PE → 145 → PE / 360.0

-FC100
6 A
1 3 5
2 4 6

105 BK
120 BK
133 BK
145 GNYE

-TB30
24V, 20A
PSU
L1 L2 L3 PE
3AC 380-480V

PULS
Power
Supply
QT20.241
24-28V
DC-OK
Overload

DC 24V, 20A, 480W/720W
Out + Out +' Out - Out -' 13 14
DC-OK

148
149
149
PE

-RB30
24V, 20A
UPS Module
In + In - In -'
DC 24V
Bat. + Bat. -
11 12 13
PT100 Temp. Sensor
PT100 Temp. Sensor
Battery Center Tap

PULS
DC-UPS Control Unit, 24V, 20A
UB20.25

DC 24V 20A
Out + Out -
Ready 1 Ready 2 Buffering 3 Buffering 4 Repl. Bat. 5 Repl. Bat. 6 Inhibit + 7 Inhibit - 8

153 153 153 153
310.5 / -X202:4B

-RB30+
309.0
-RB30-
309.1

152 → RB30:Bat+ / 308B.0
154 → RB30:Bat- / 308B.0

UPS Battery Ready
JT_RB30_RDY
>=HE01-KE04-Slot6
DI06
X02 20

UPS Battery Operation
JT_RB30_BAT
DI05
19

UPS Battery Low SOH
JT_RB30_SOH
DI07
21

155
157
158

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant skid - 24 VDC Supply		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 308 / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30

308.7 / RB30:Bat+

308.7 / RB30:Bat-

-CA30

PULS

Battery Module, 24V, 12Ah
UZK24.121

DC 24V
Out + Out -

152

154

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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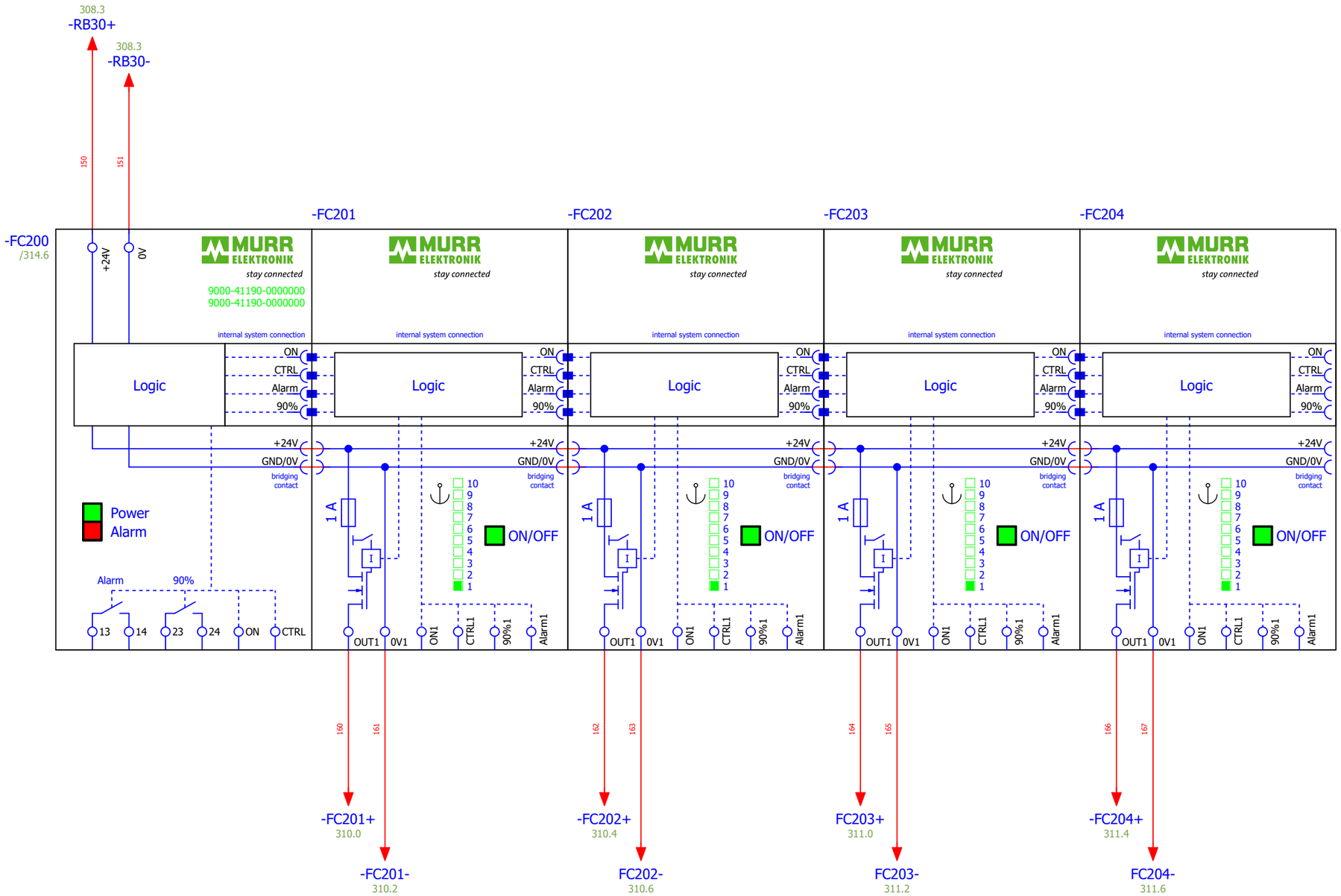
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant skid - 24 VDC Supply - Back up battery		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 308B / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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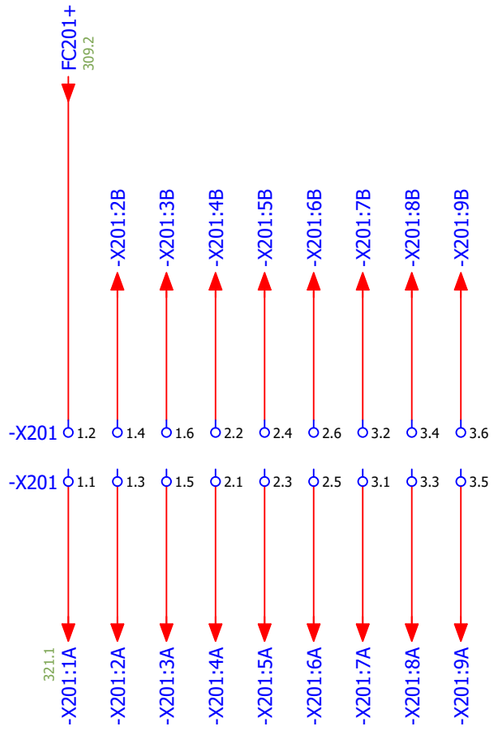
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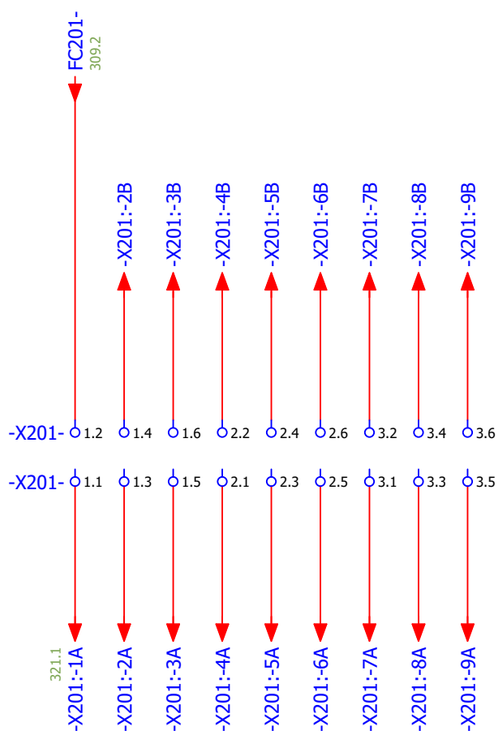
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant skid - 24 VDC Supply - fuses		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 309 / 2

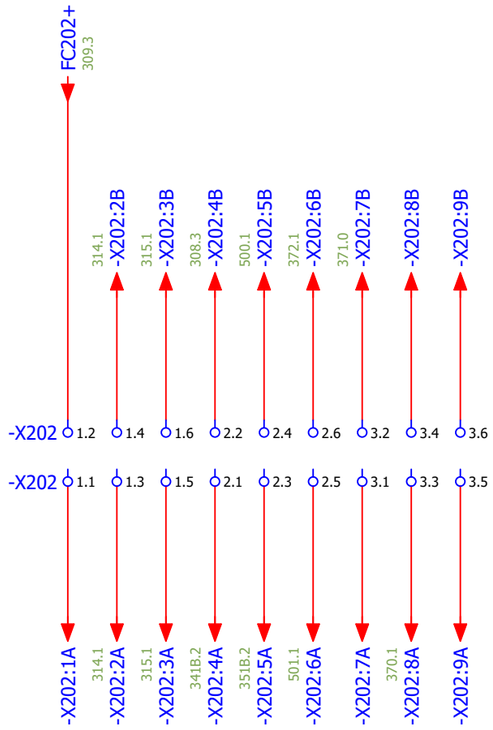
=LA01+UC30

Safety





Internal 24VDC Supply





Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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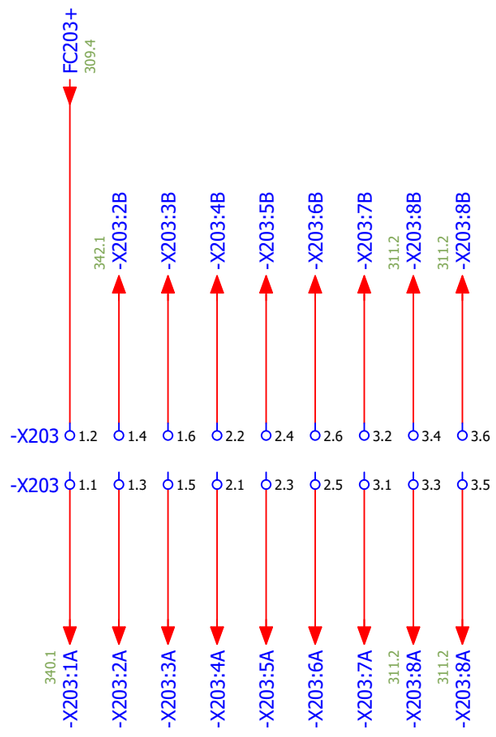
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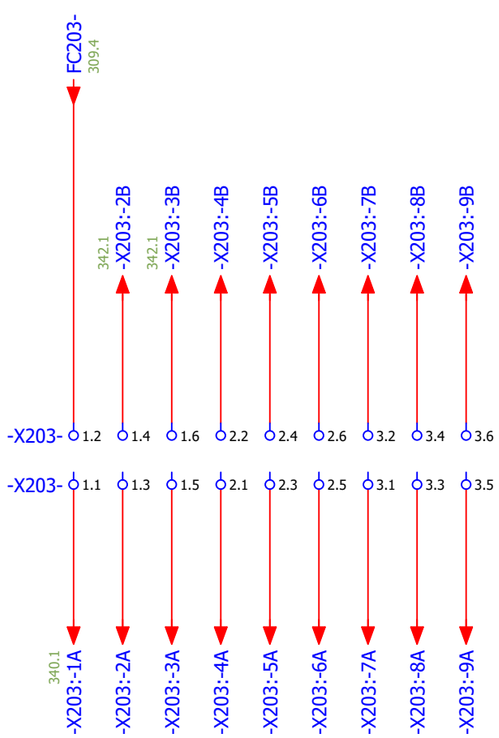
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant skid - 24 VDC Supply - Distribution		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 310 / 2

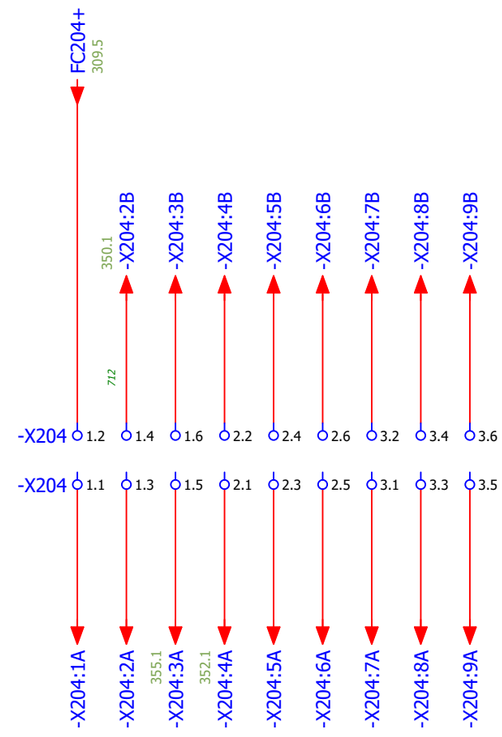
=LA01+UC30

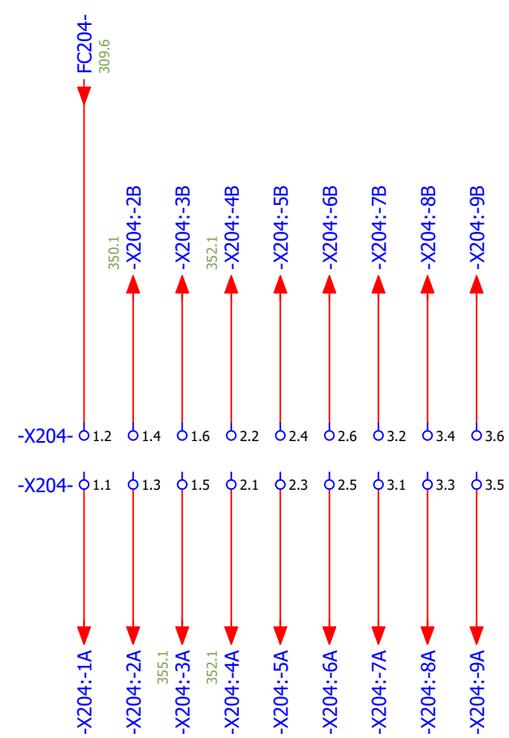
External 24VDC Supply





External 24VDC Supply





Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

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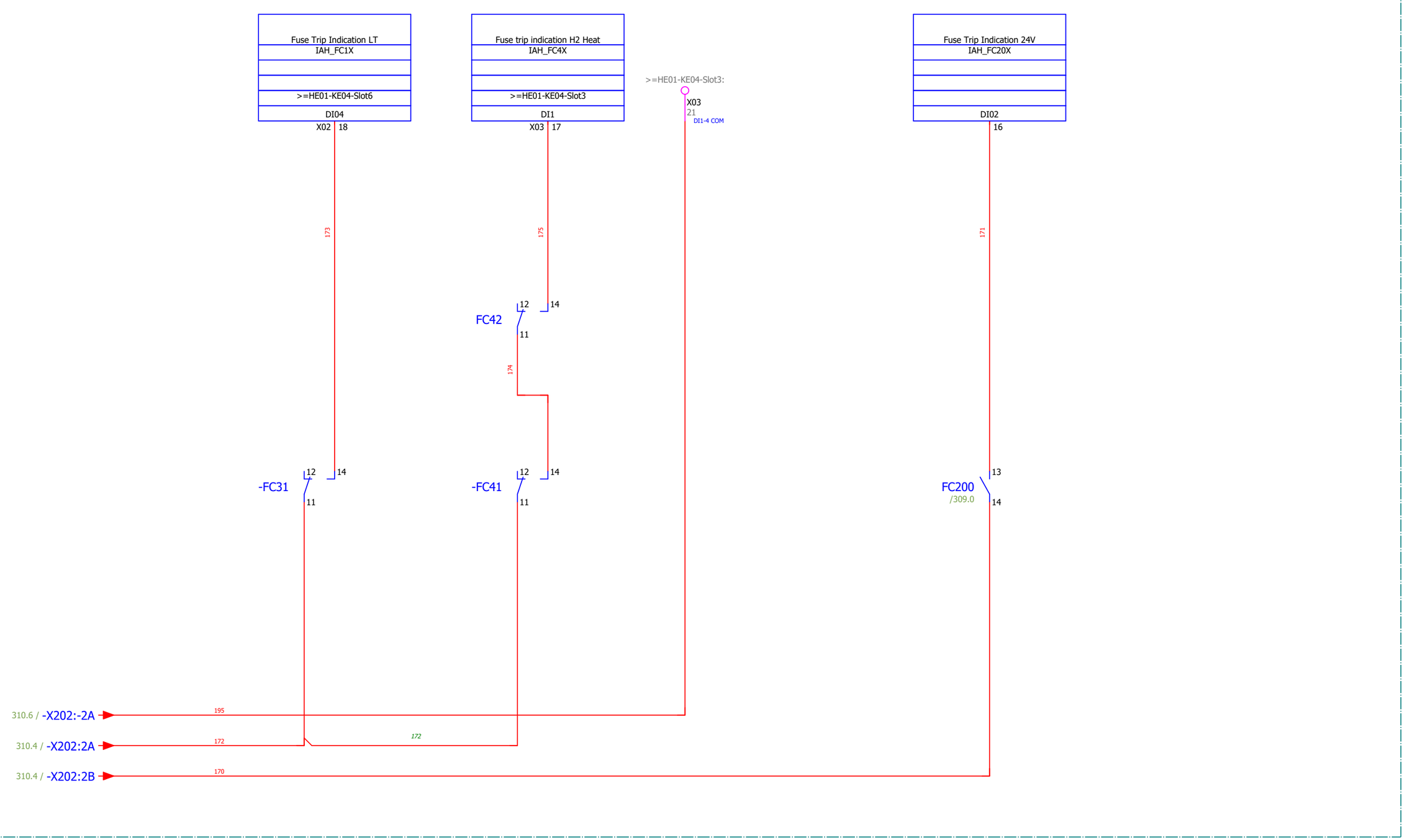
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant skid - 24 VDC Supply - Distribution		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 311 / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30

Power conversion BOP Cooling skid cabinet



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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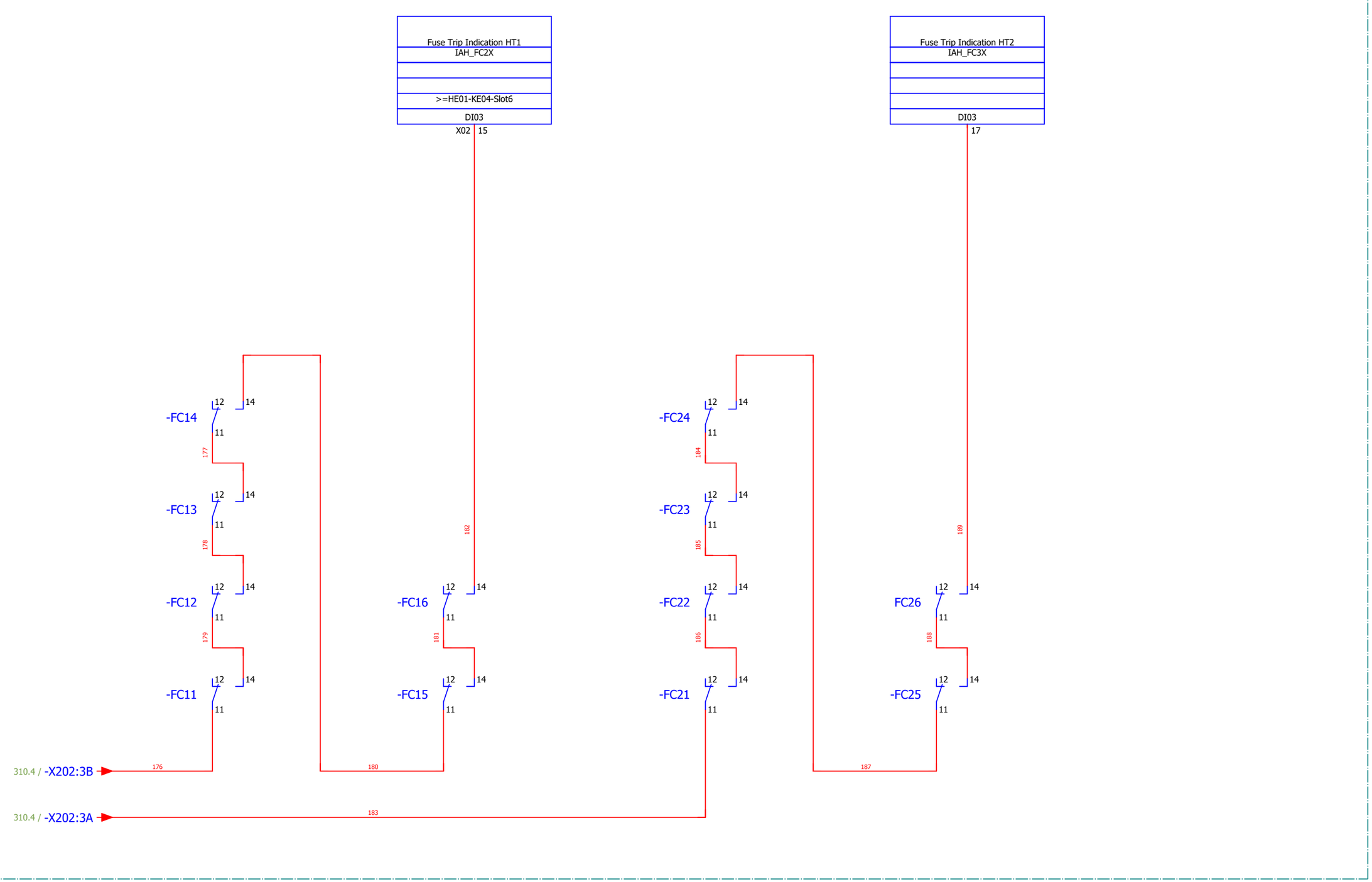
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant skid - MCCB Trip Indication 24V		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 314 / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30

Power conversion BOP Cooling skid cabinet



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant skid - MCCB Trip Indication HT1+2		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 315 / 2

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30
Coolant System Power Distribution, Container #1 Outside

=LB02+DA04
Coolant System Power Distribution, Container #1 Outside

719
721
720
722

-SG01
Cabinet ESTOP
11 21
12 22

-S1
11 21
12 22

-WG01
Emergency stop
1 2 3 4

719 → KE12:X1 / 321.1
723 → KE12:3 / 321.1
724 → KE12:4 / 321.1
725 → KE12:7 / 321.1

-X100 X1 1 2 3 4 5 6 7 3' 4'

KF10 FB Forward
ESD CH1 Forward
ESD CH2 Forward
KF10 FB Return
KF10 Coil
ESD CH1 Return
ESD CH2 Return
KF10 DCCOM

-WG01
ÖLFLEX® CLASSIC 110 CH
4x1
300/500 V
Coolant Skid ESTOP

-WG02
ÖLFLEX® CLASSIC 110 CH
18x0,75
300/500 V
Coolant Skid Safety Relay

-WG01
+UC20/50.1

-WG02
+UC20/50.1

Reference Item Number	Ballard Part # TBD
EPLAN Project Name	601456B - Shell Baseload Power Hub
EPLAN Revision	01.P15
EPLAN Project Pages	478
=	++ | + UC30 | & C03

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - Safety circuit		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 320 / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30

Coolant System Power Distribution, Container #1 Outside

320.5 / KE12:X1 → 719

320.5 / KE12:4 → 724

726 → KF10:23 / 341B.5

727 → KF10:33 / 341B.5

KF10

PHOENIX CONTACT

PSR-MC82-5NO-1NC-1DO-24DC-SC

24V, A1, 11, 23, 33, 43, 53, 63

A1, A2, 11, 12, 23, 24, 33, 34, 43, 44, 53, 54, 63, 64

M1, A2, 12, 24, 34, 44, 54, 64

310.0 / -X201:1A → 168

310.2 / -X201:-1A → 169

320.5 / KE12:7 → 725

320.5 / KE12:3 → 723

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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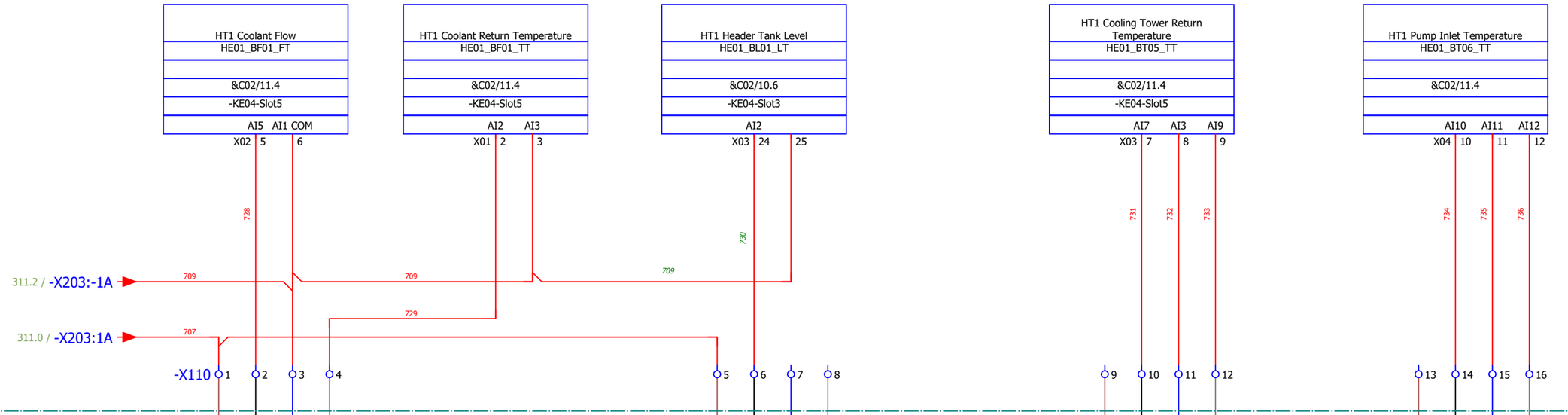
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - Safety circuit		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 321 / 2

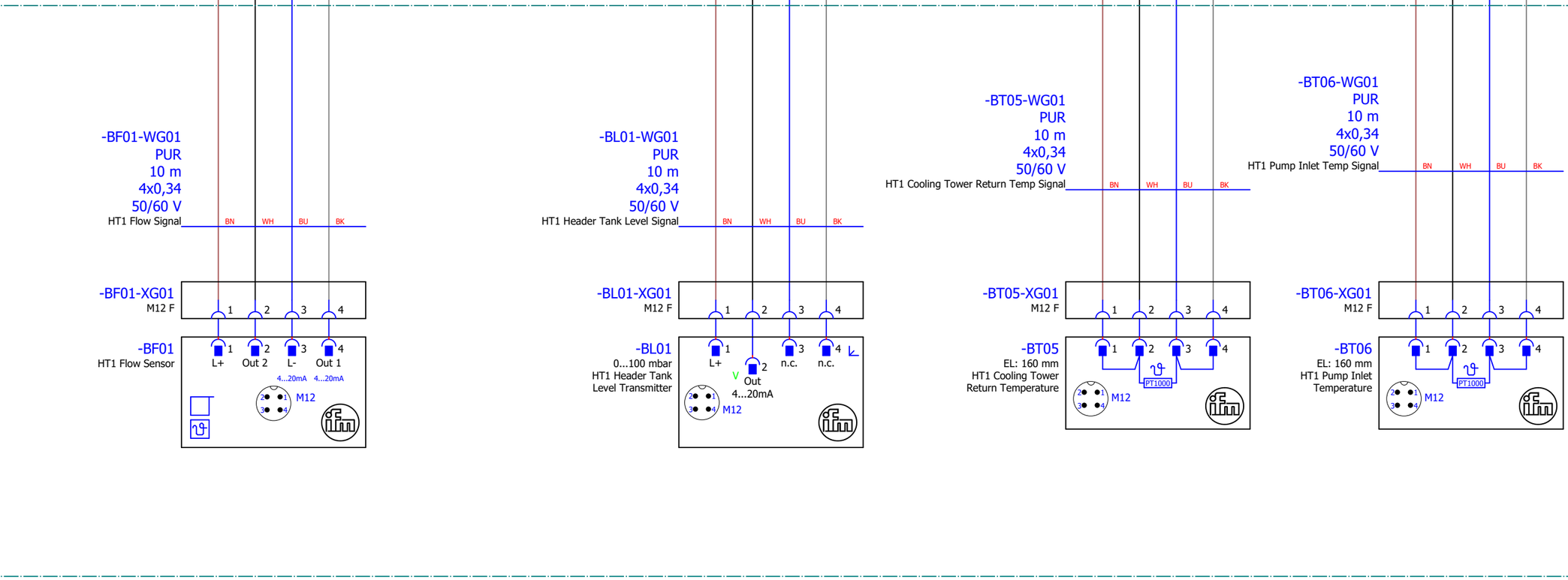
FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30
Coolant System Power Distribution, Container #1 Outside



=HE01+DA02
HT#1 Coolant Sensor/Actuator, Coolant Skid



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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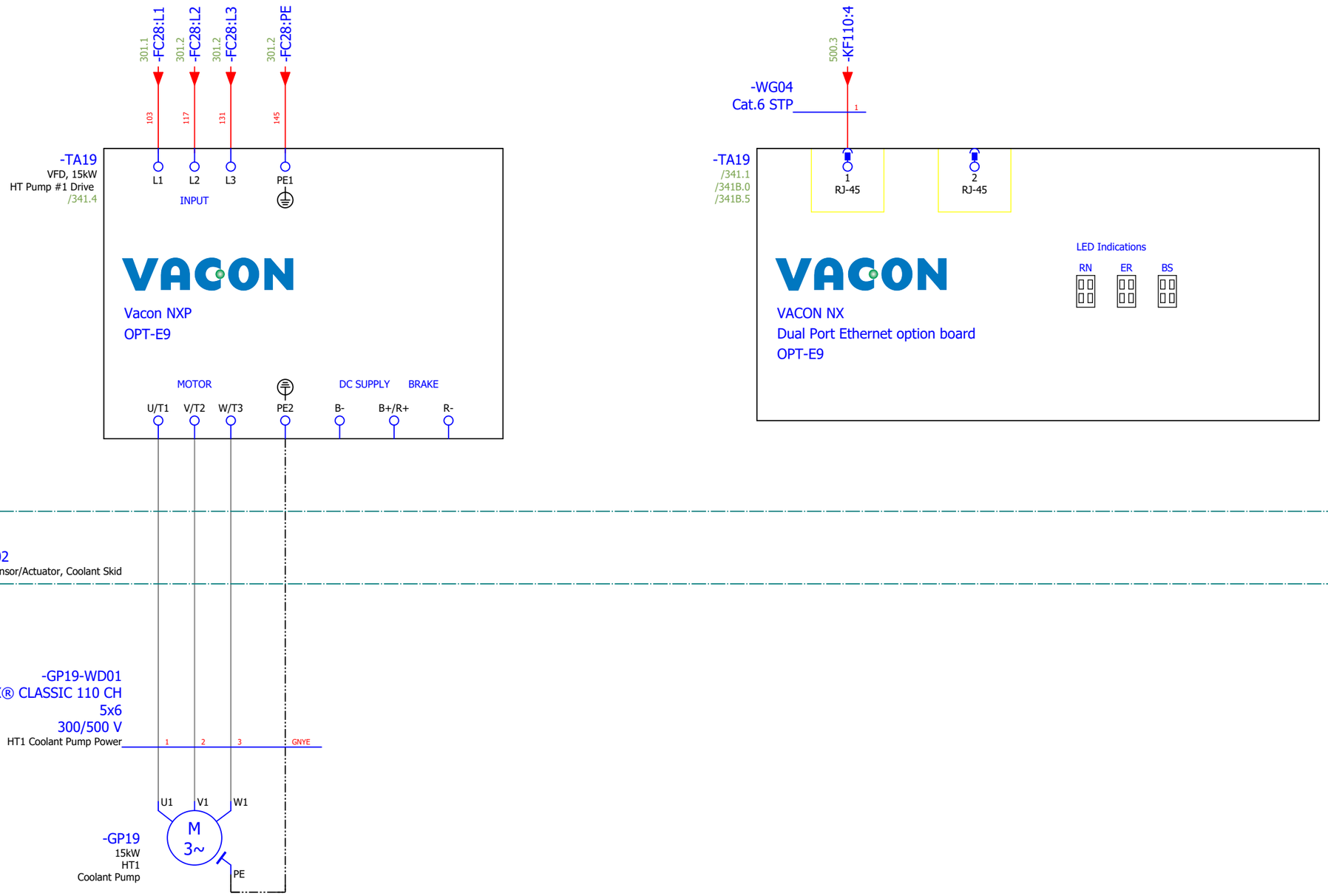
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - HT #1 Sensors		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 340 / 2

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30
Coolant System Power Distribution, Container #1 Outside



=HE01+DA02
HT#1 Coolant Sensor/Actuator, Coolant Skid

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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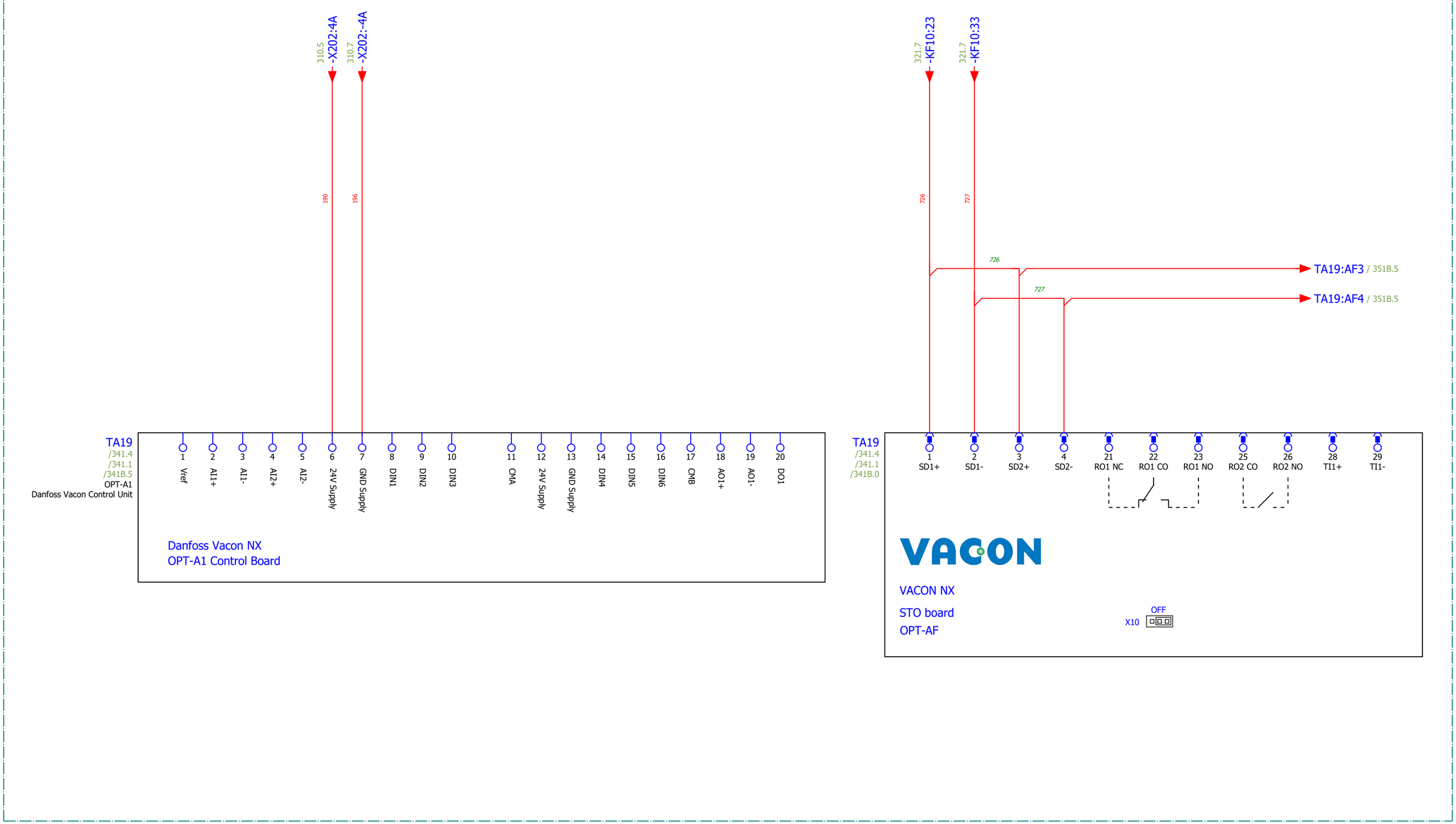
DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - HT #1 Coolant Pump		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 341 / 2

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30

Coolant System Power Distribution, Container #1 Outside



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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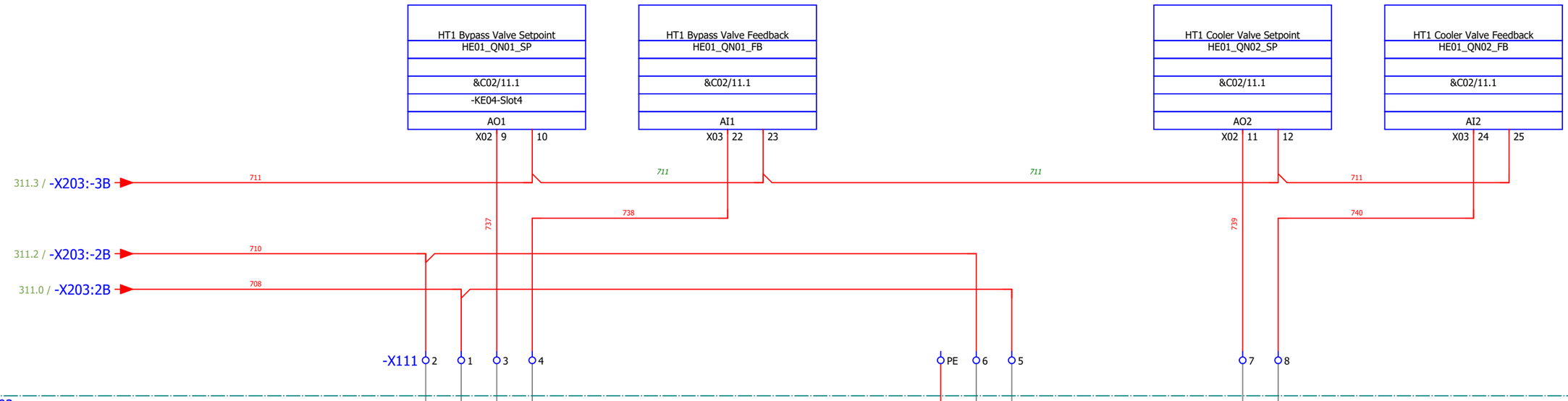
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - HT #1 Coolant Pump VFD Interface		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 341B / 2

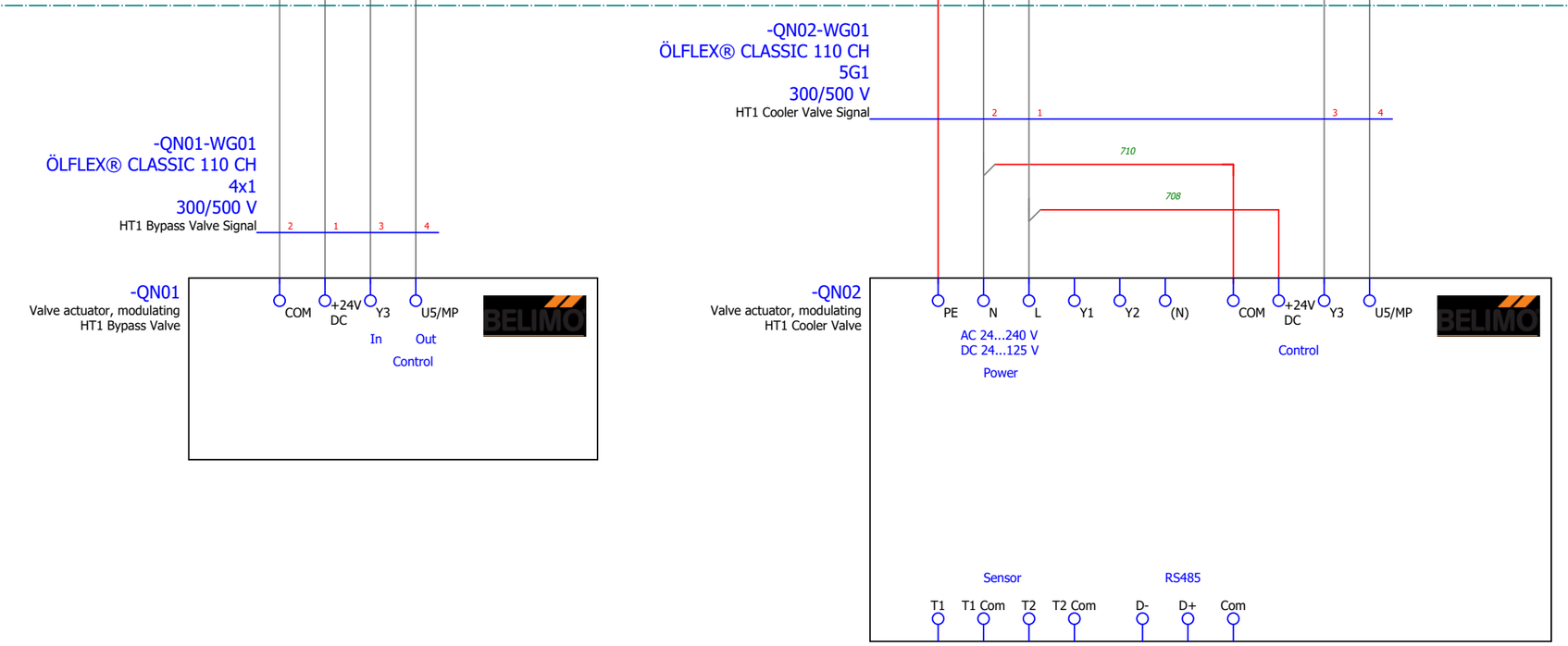
FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30
Coolant System Power Distribution, Container #1 Outside



=HE01+DA02
HT#1 Coolant Sensor/Actuator, Coolant Skid



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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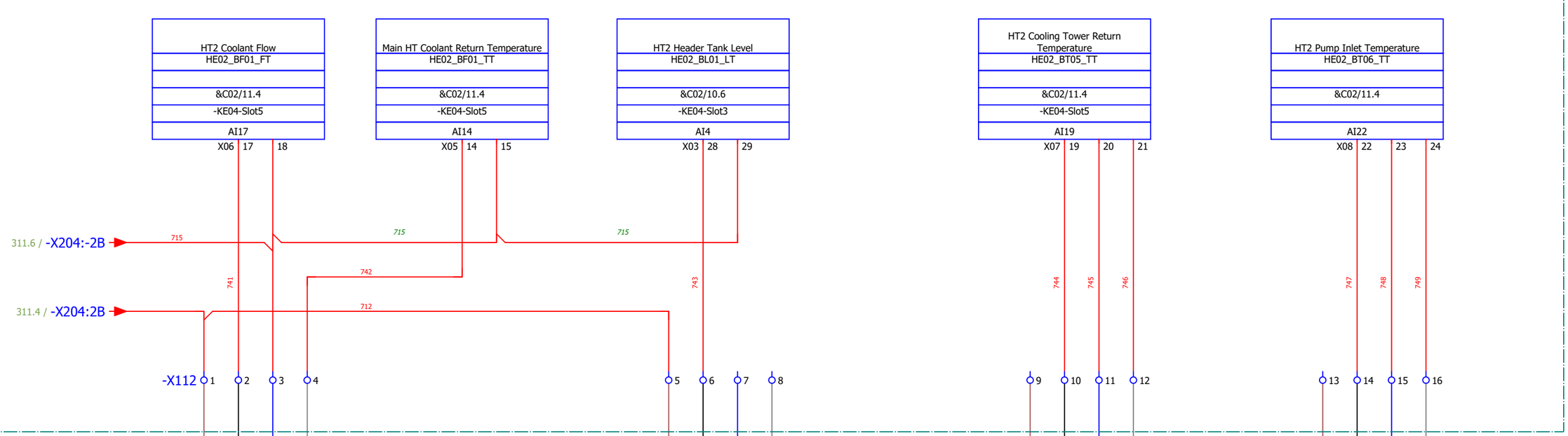
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - HT #1 Mixing Valves		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 342 / 2

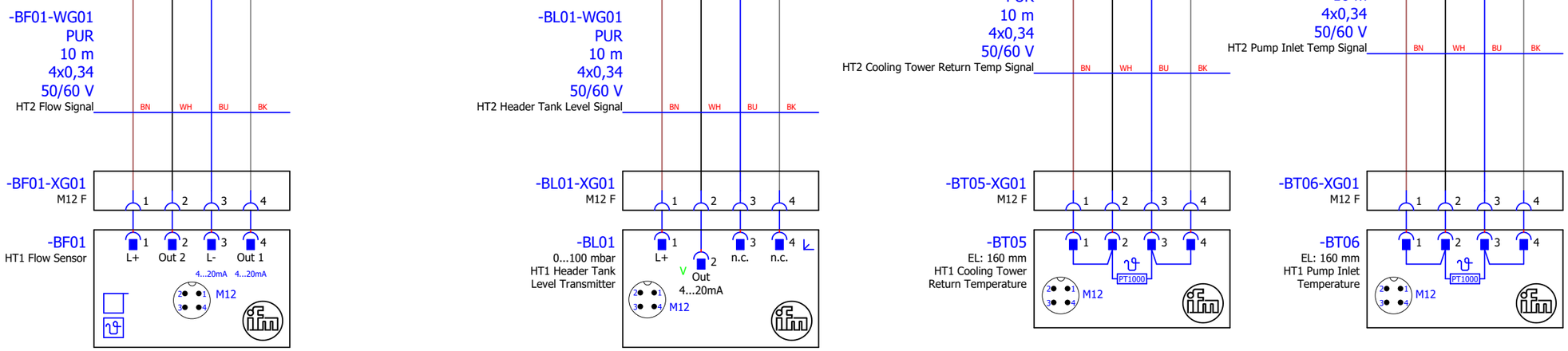
FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30
Coolant System Power Distribution, Container #1 Outside



=HE02+DA02
HT#2 Coolant Sensor/Actuator, Coolant Skid



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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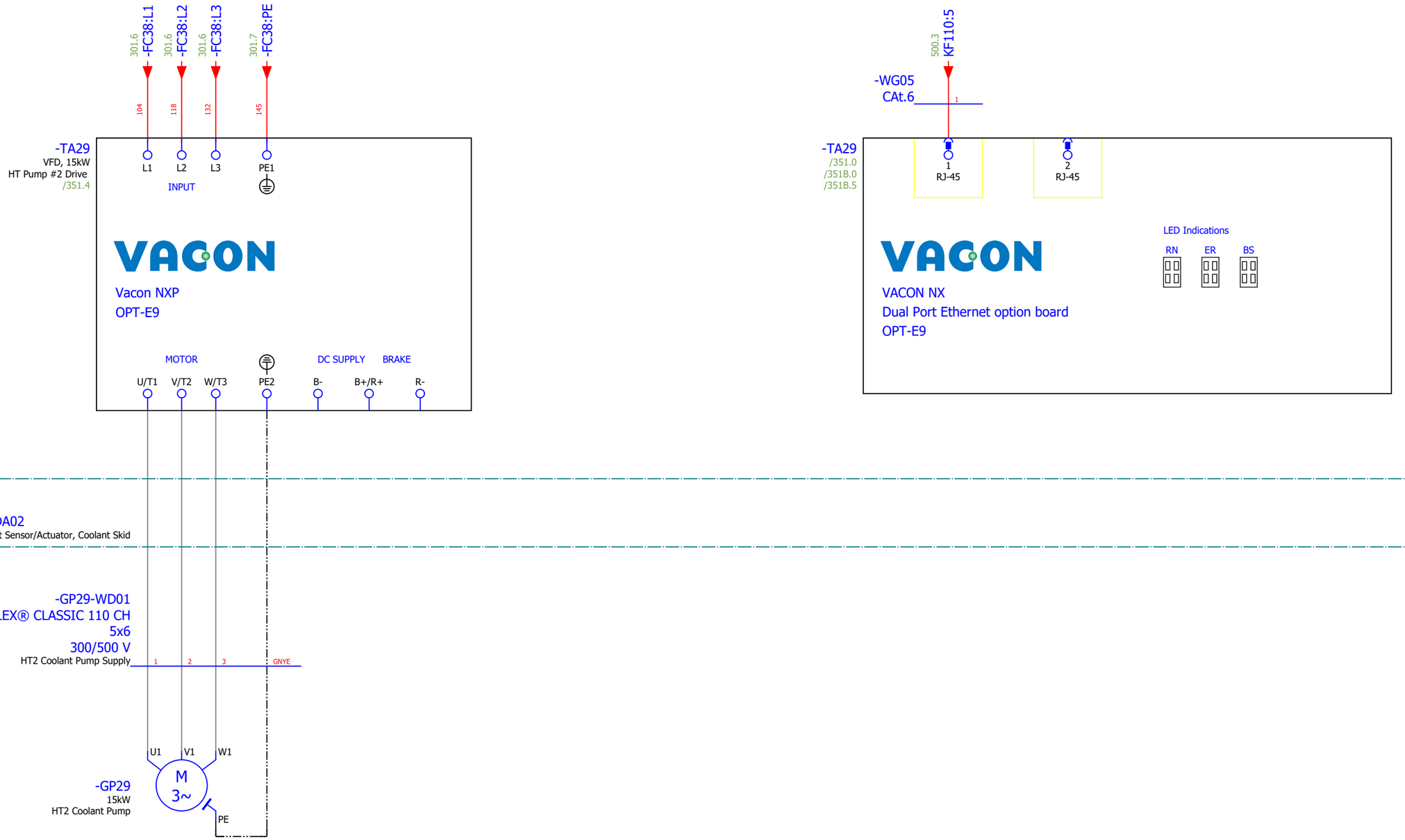
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - HT #2 Sensors		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 350 / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30
Coolant System Power Distribution, Container #1 Outside



=HE02+DA02
HT#2 Coolant Sensor/Actuator, Coolant Skid

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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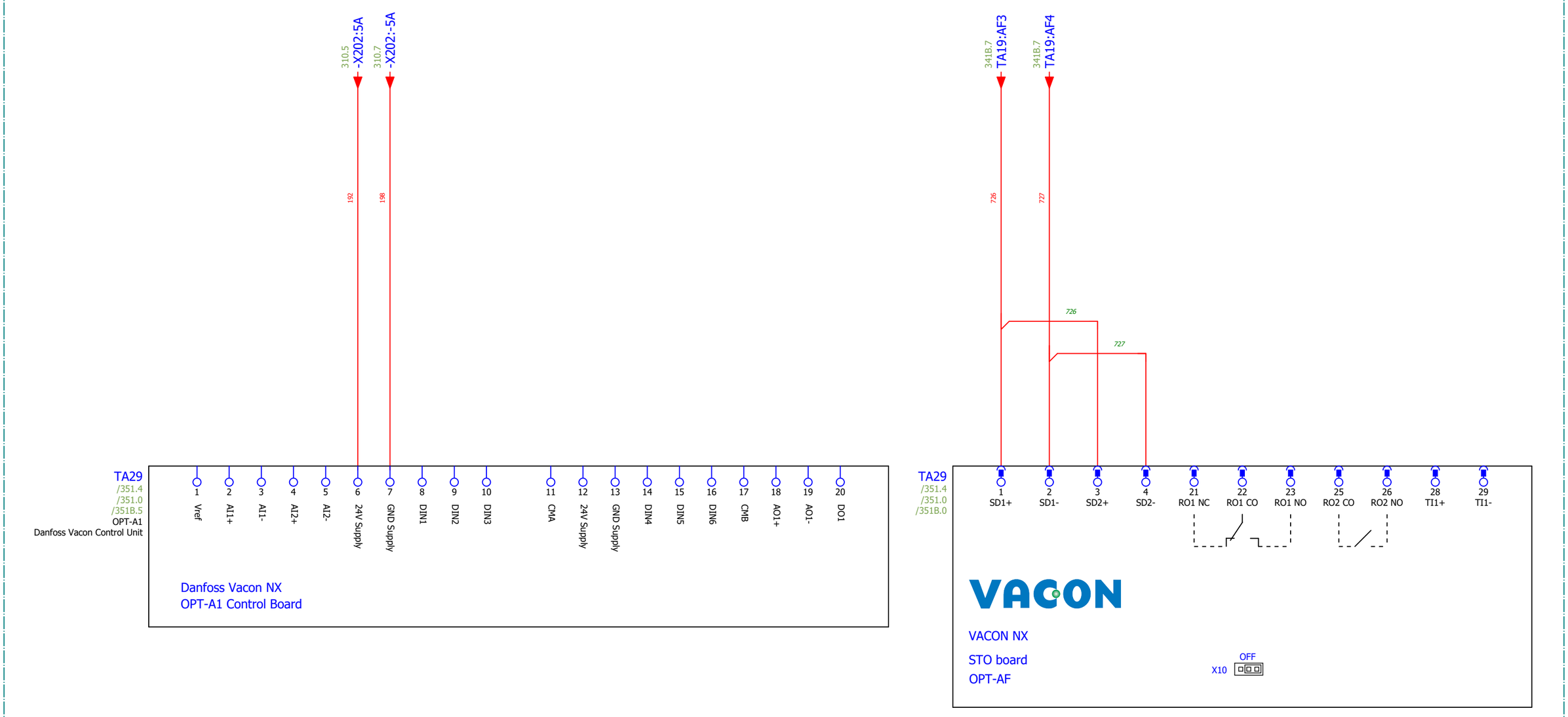
DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - HT #2 Coolant Pump		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 351 / 2

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30

Coolant System Power Distribution, Container #1 Outside



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - HT #2 Coolant Pump VFD Interface		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 351B / 2

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30
Coolant System Power Distribution, Container #1 Outside

HT2 Bypass Valve Setpoint
HE02_QN01_SP
&C02/11.1
>+UC30-KE04-Slot4
AO3
X02 13 14

HT2 Bypass Valve Feedback
HE02_QN01_FB
&C02/11.1
AI3
X03 26 27

HT2 Cooler Valve Setpoint
HE02_QN02_SP
&C02/11.1
AO4
X02 15 16

HT2 Cooler Valve Feedback
HE02_QN02_FB
&C02/11.1
AI4
X03 28 29

311.7 / -X204:-4A
311.5 / -X204:4A
311.7 / -X204:-4B

718 718 718 718
751 753
750 752
714
717

-X113 2 1 3 4 PE 6 5 7 8

=HE02+DA02
HT#2 Coolant Sensor/Actuator, Coolant Skid

-QN01-WG01
ÖLFLEX® CLASSIC 110 CH
4x1
300/500 V
HT2 Bypass Valve Signal
2 1 3 4

-QN01
Valve actuator, modulating
HT1 Bypass Valve
COM +24V DC Y3 U5/MP
In Out
Control

-QN02-WG01
ÖLFLEX® CLASSIC 110 CH
5G1
300/500 V
HT2 Cooler Valve Signal
2 1 3 4

717
714

-QN02
Valve actuator, modulating
HT2 Cooler Valve
PE N L Y1 Y2 (N) COM +24V DC Y3 U5/MP
AC 24...240 V
DC 24...125 V
Power
Control

Sensor
T1 T1 Com T2 T2 Com
RS485
D- D+ Com

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
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=	++	+ UC30	& C03

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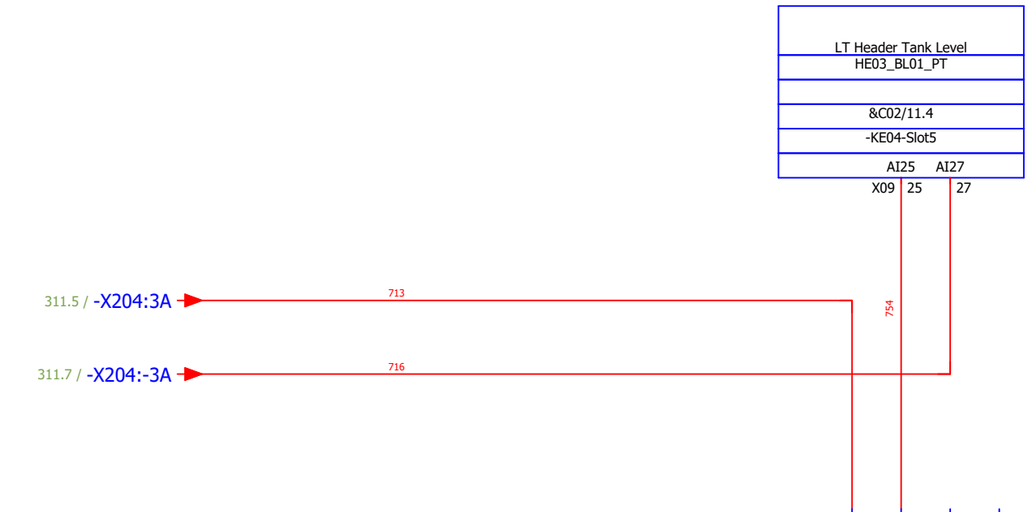
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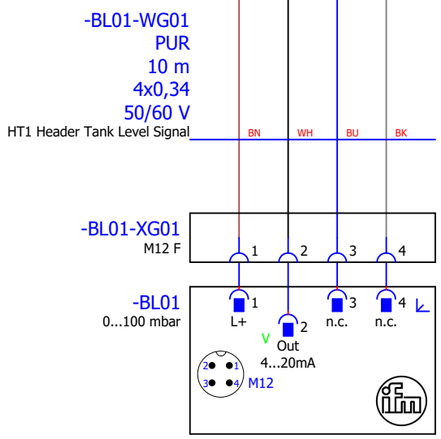
DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - HT #2 Mixing Valves		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 352 / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30
Coolant System Power Distribution, Container #1 Outside



=HE03+DA02
LT Header Tank Coolant Sensor/Actuator, Coolant Skid



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

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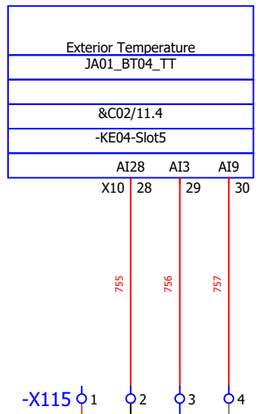
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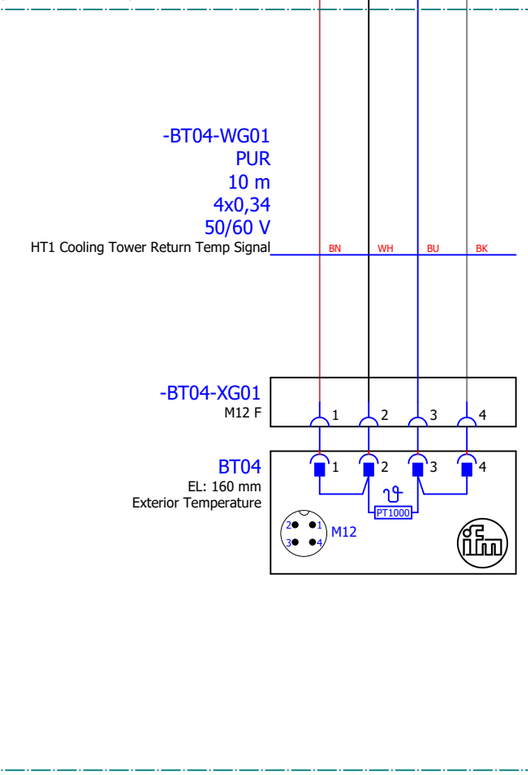
DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - LT Header Tank		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 355 / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30
Coolant System Power Distribution, Container #1 Outside



=JA01+DA02
Ventilation systerm, Exterior Temperature



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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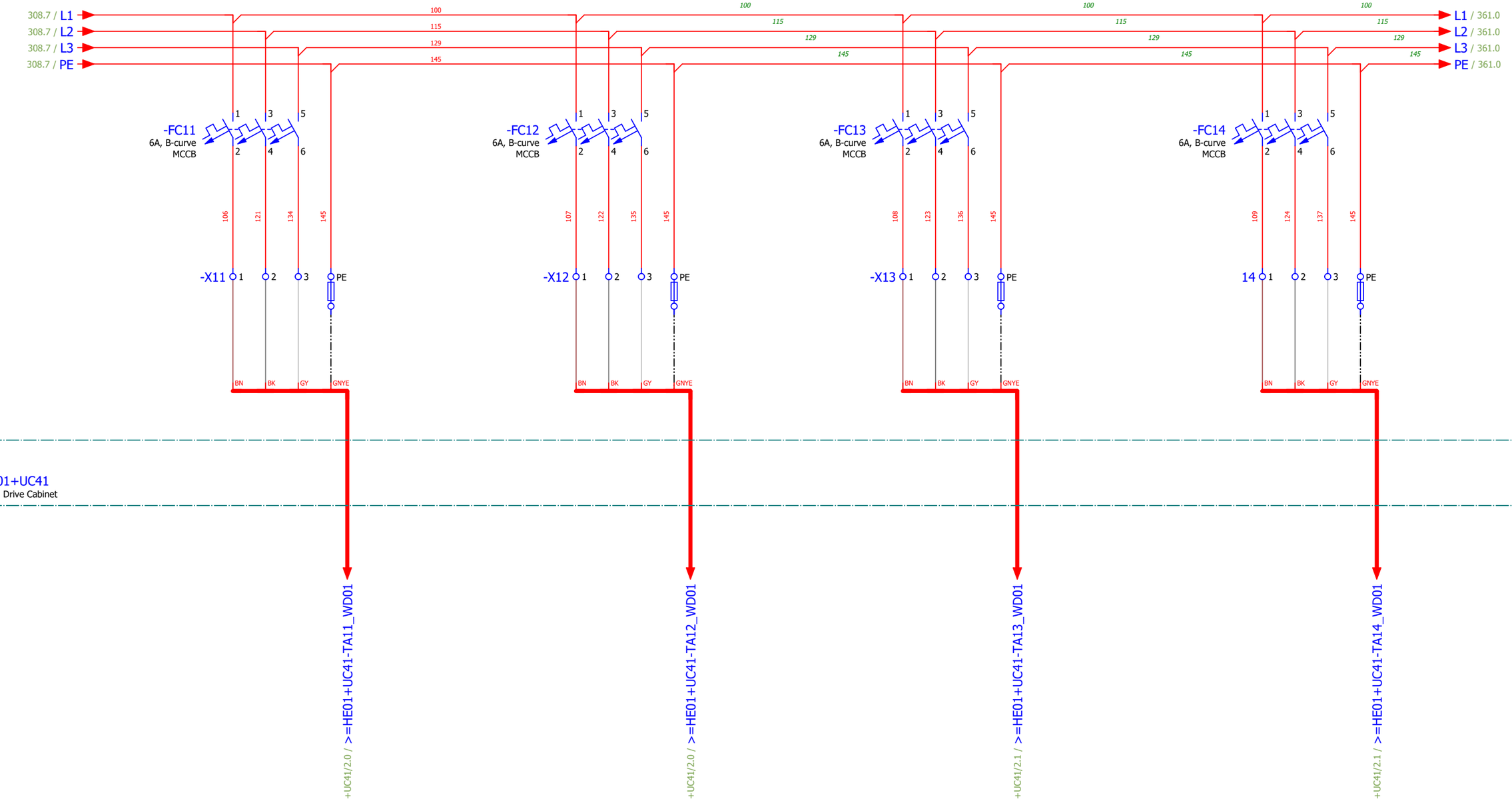
DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - Exterior Temperature		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 356 / 2

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30

40ft Coolant Skid - Control Cabinet



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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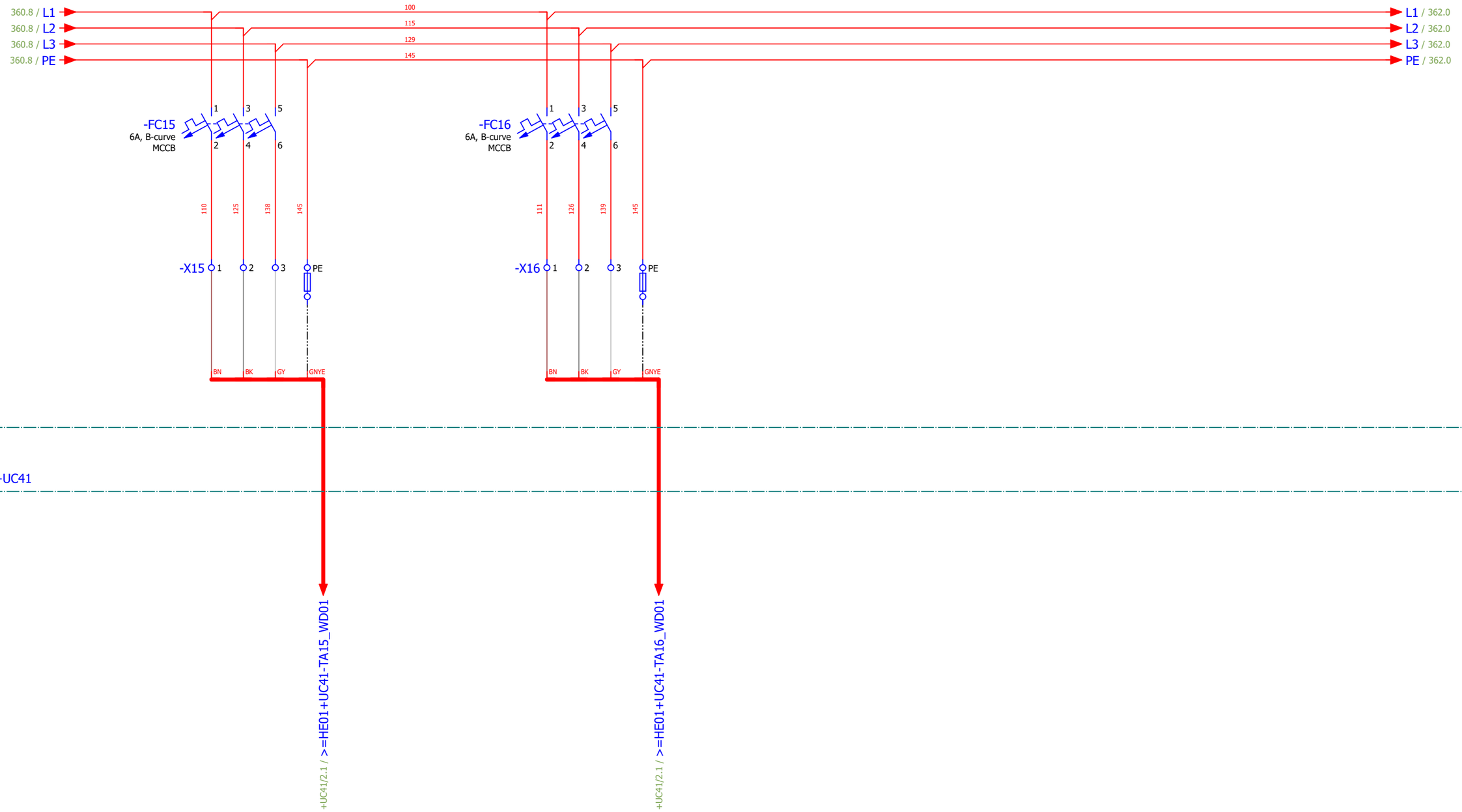
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - HT Cooler #1 Fan Power 1/2		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 360 / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30

40ft Coolant Skid - Control Cabinet



=HE01+UC41

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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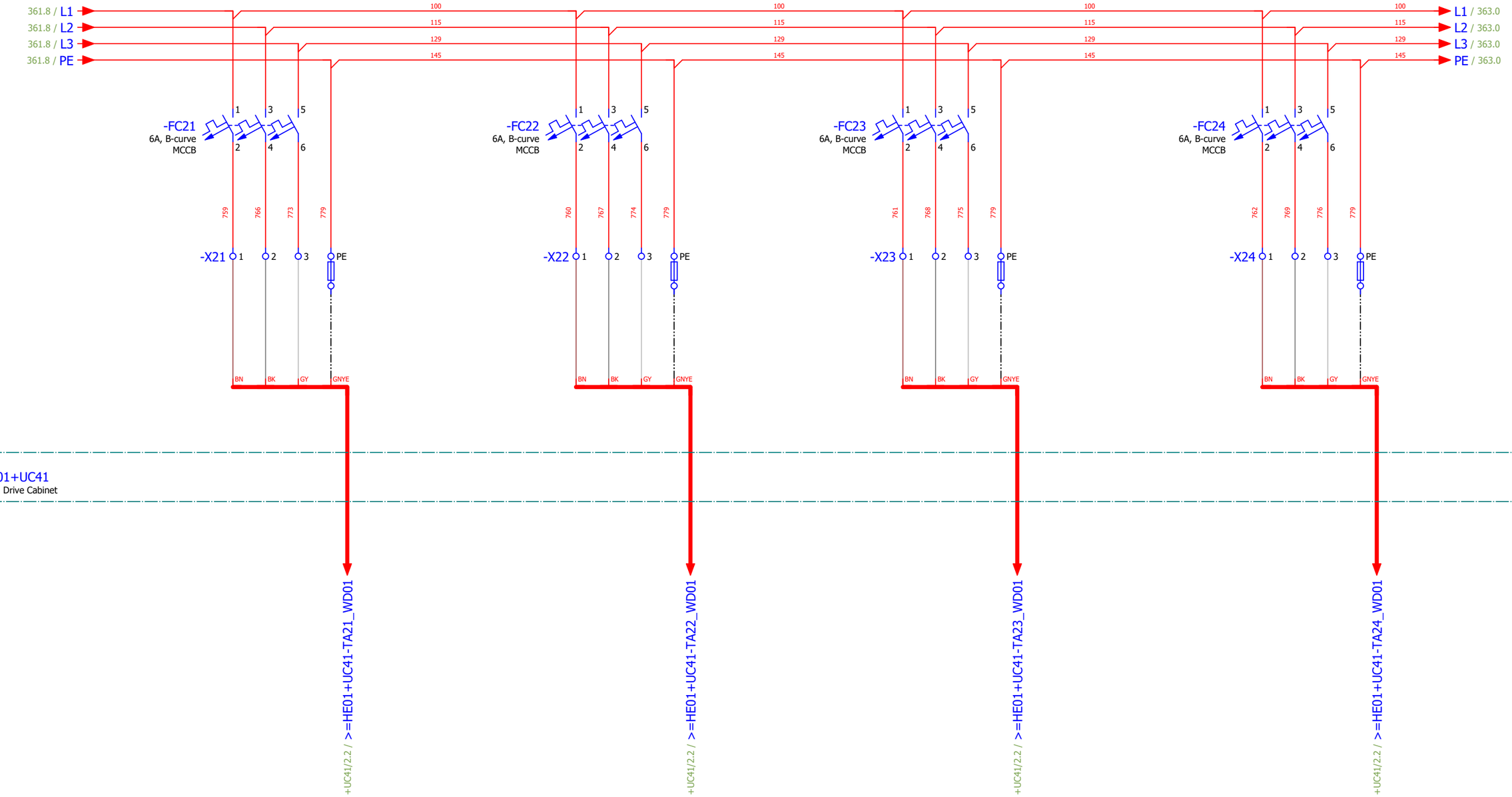
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - HT Cooler #1 Fan Power 2/2		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 361 / 2

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30
40ft Coolant Skid - Control Cabinet



=HE01+UC41
HT Fan Drive Cabinet

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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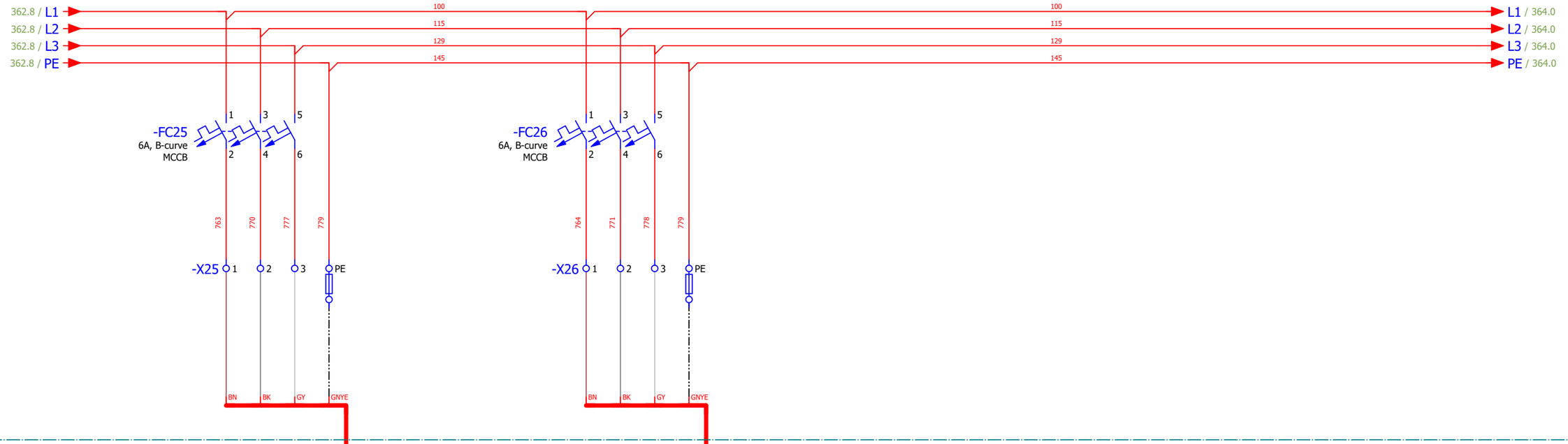
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - HT Cooler #2 Fan Power 1/2		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 362 / 2

=LA01+UC30
40ft Coolant Skid - Control Cabinet



=HE01+UC41
HT Fan Drive Cabinet

+UC41/2.2 / >=HE01+UC41-TA25_WD01

+UC41/2.2 / >=HE01+UC41-TA26_WD01

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - HT Cooler #2 Fan Power 2/2		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 363 / 2

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30
40ft Coolant Skid - Control Cabinet



=HE01+UC41
HT Fan Drive Cabinet

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - LT Cooler Fan Power		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 364 / 2

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30
40ft Coolant Skid - Control Cabinet



=HE01+UC41
HT Fan Drive Cabinet

+UC41/2.3 / >=HE01+UC41-EA40_WD01

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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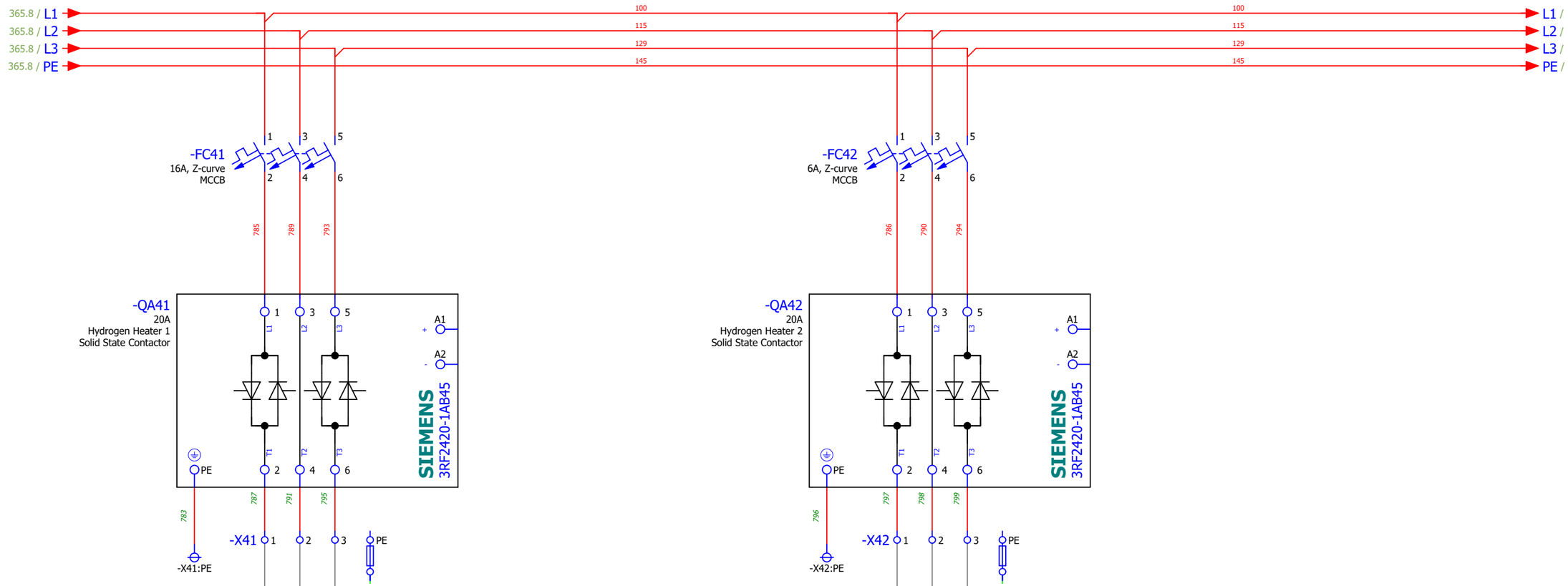
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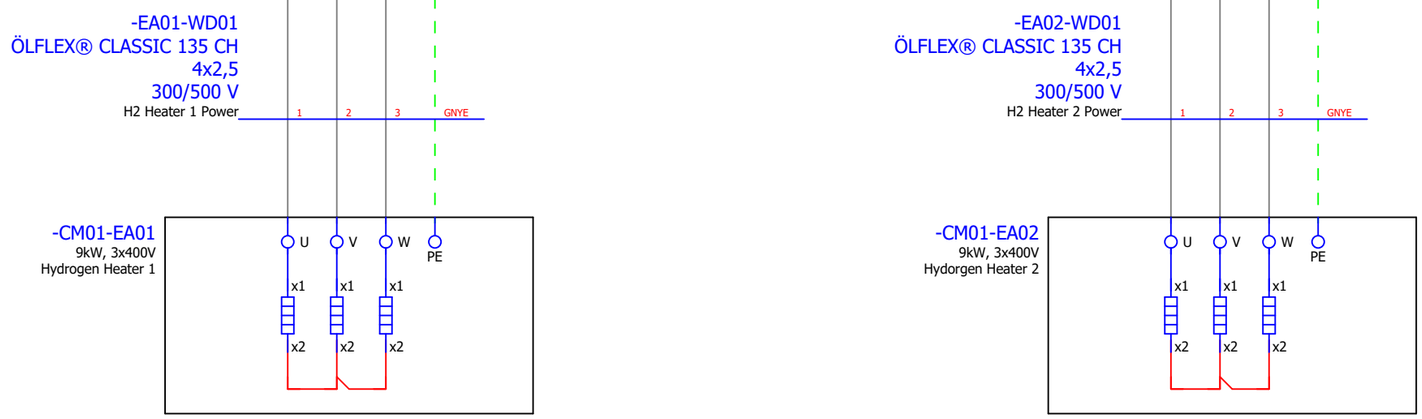
DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - VFD Cabinet Airconditioning		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 365 / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30
40ft Coolant Skid - Control Cabinet



=HA01+DA02
Hydrogen Supply System, Outside Container #1



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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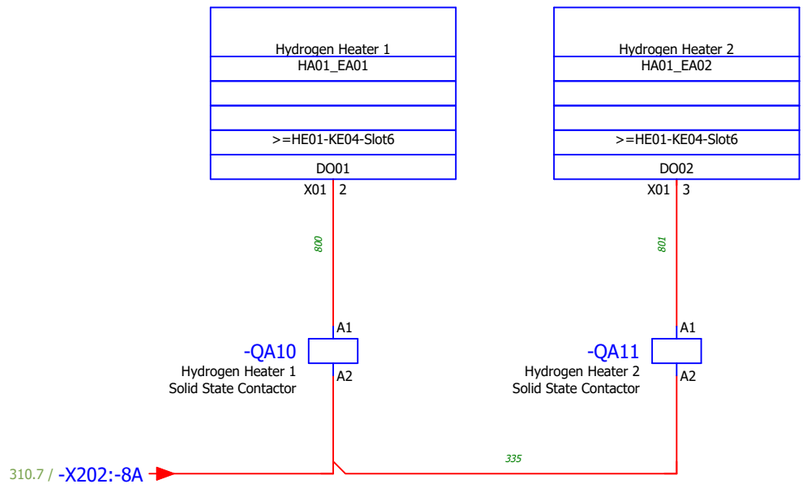
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - Hydrogen Heater Power		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 368 / 2

FRM5103656/0B

=LA01+UC30
40ft Coolant Skid - Control Cabinet



=HA01+DA02
Hydrogen Heater

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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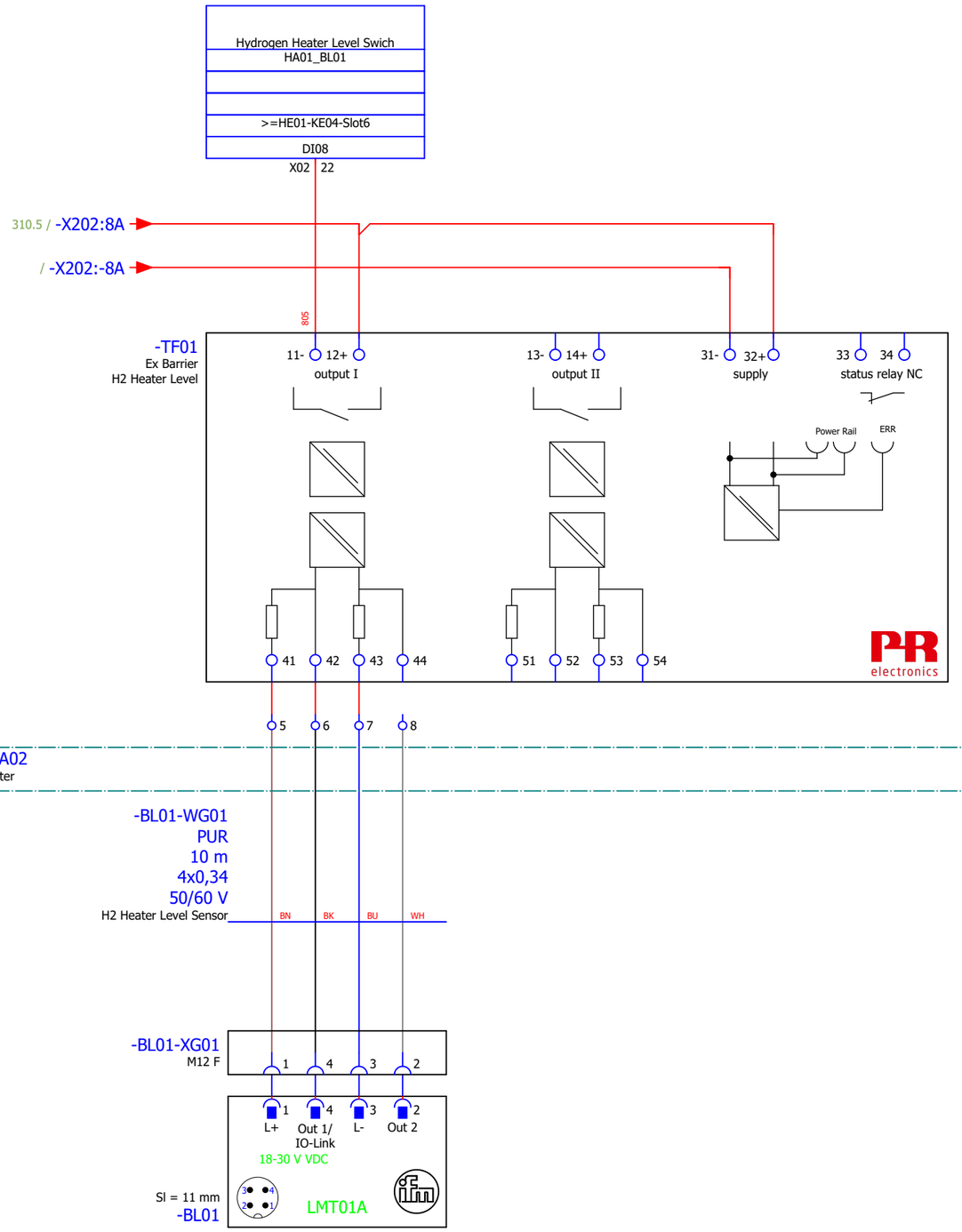
DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - Hydrogen Heater Control		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 369 / 2

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30

40ft Coolant Skid - Control Cabinet



335

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C03

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - Hydrogen Heater Control Level		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 370 / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30
40ft Coolant Skid - Control Cabinet

Hydrogen heater temperature
HE01_DA02_BT01
&C02/12.4
-KE05-Slot2
AI5 AI4
X02 5 4

310.5 / -X202:7B
310.7 / -X202:-7B

-TF02
Ex Barrier
H2 Heater Temperature

11- 12+ output I
13- 14+ output II
31- 32+ supply
33 34 status relay NC

Power Rail
ERR

Configuration:
RTD 3-wire
-20...100°C -> 4..20mA

input I
41 42 43 44
input II
51 52 53 54

P+R electronics

802 803 804
-X206 1 2 3 4

=HA01+DA02
Hydrogen Heater

-BT02-WG01
PUR
10 m
4x0,34
50/60 V
H2 Heater Temperature
BN WH BU BK

-BT01-XG01
M12 F
1 2 3 4

-BT01
PT1000
Hydrogen Heater
Temperature
1 2 3 4
PT1000
M12
2 1 3 4

Reference Item Number	Ballard Part # TBD		
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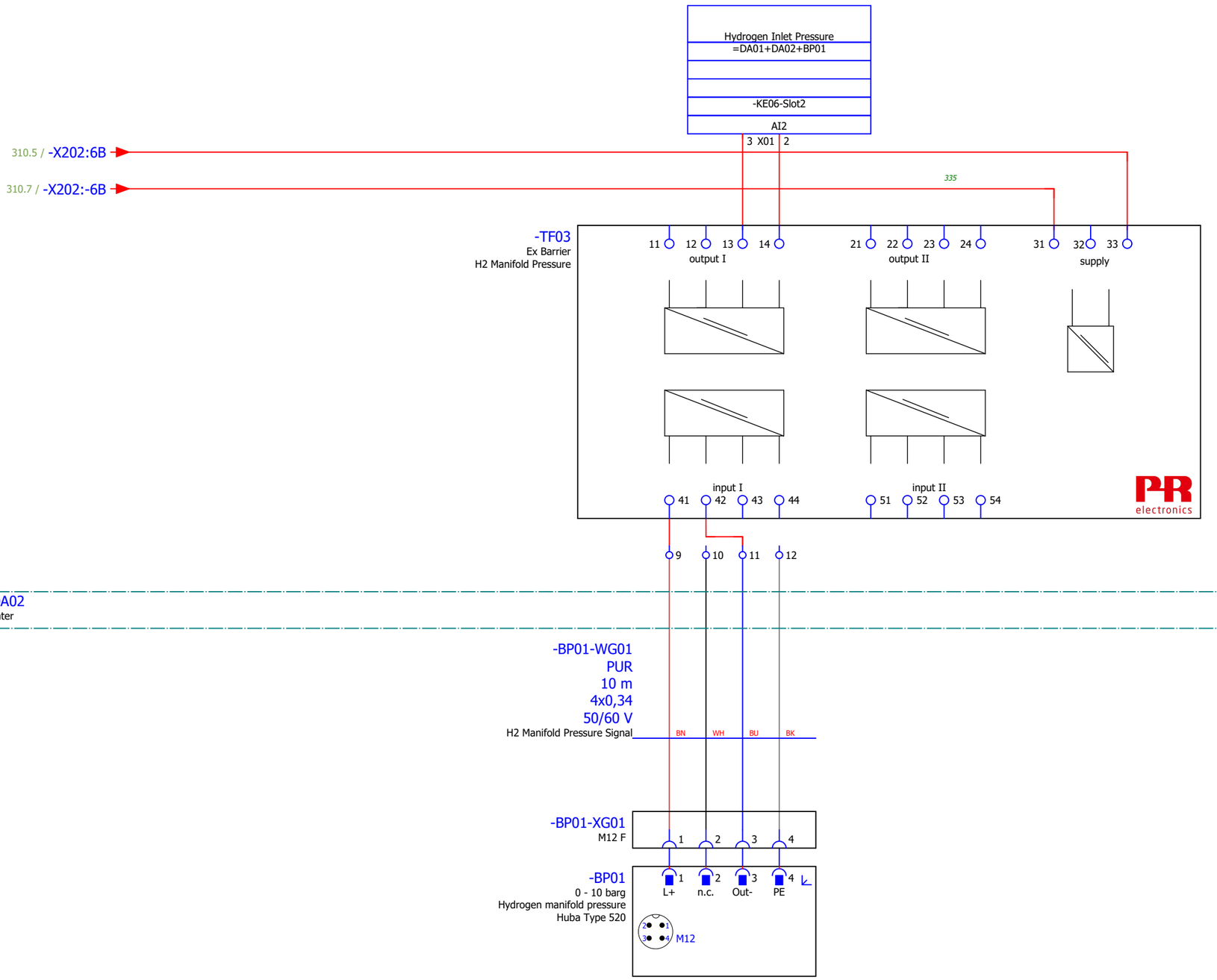
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - Hydrogen Heater Control Temperature		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 371 / 2

0	1	2	3	4	5	6	7	8

=LA01+UC30
40ft Coolant Skid - Control Cabinet



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
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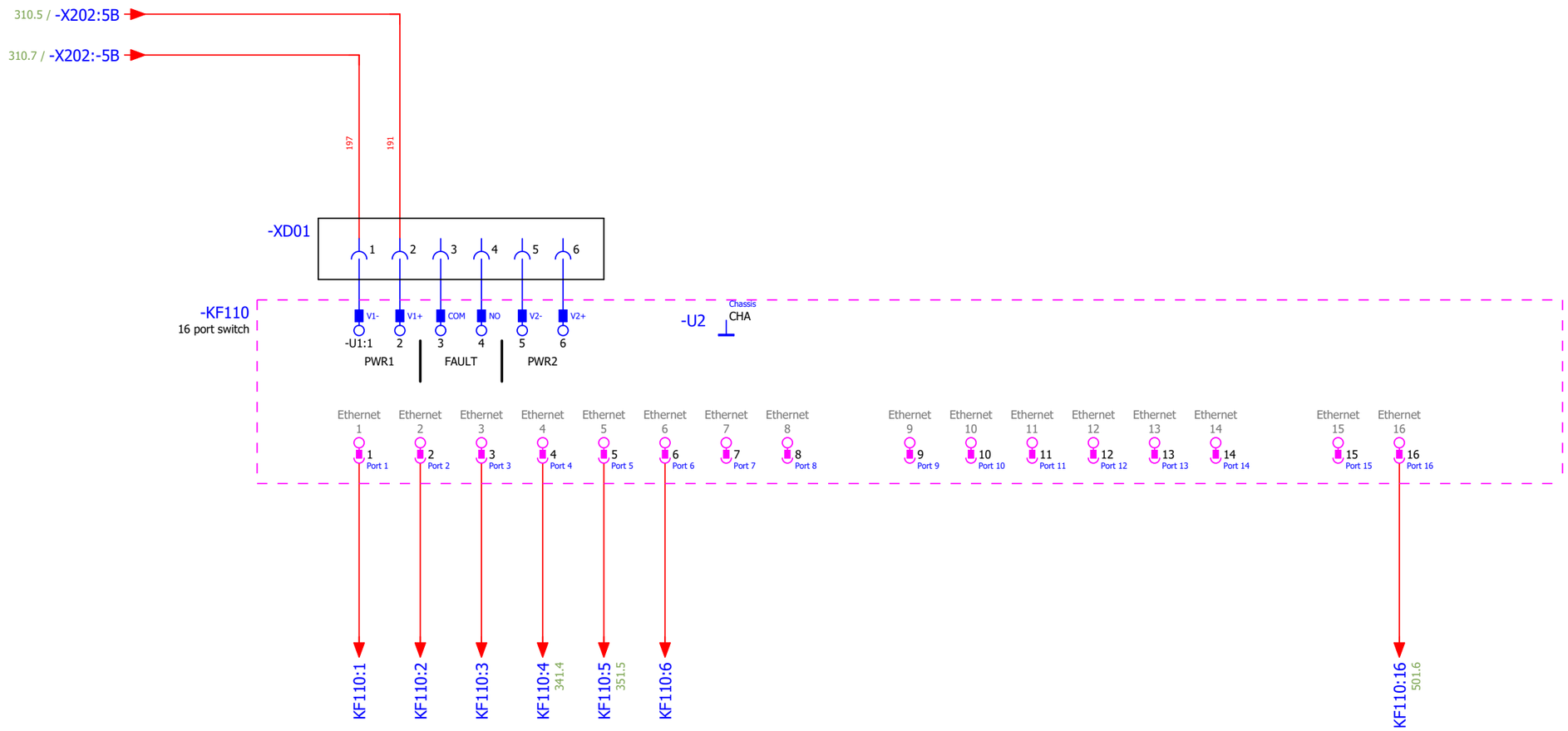
DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - Hydrogen Manifold pressure		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 372 / 2

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30

40ft Coolant Skid - Control Cabinet



Reference Item Number	Ballard Part # TBD		
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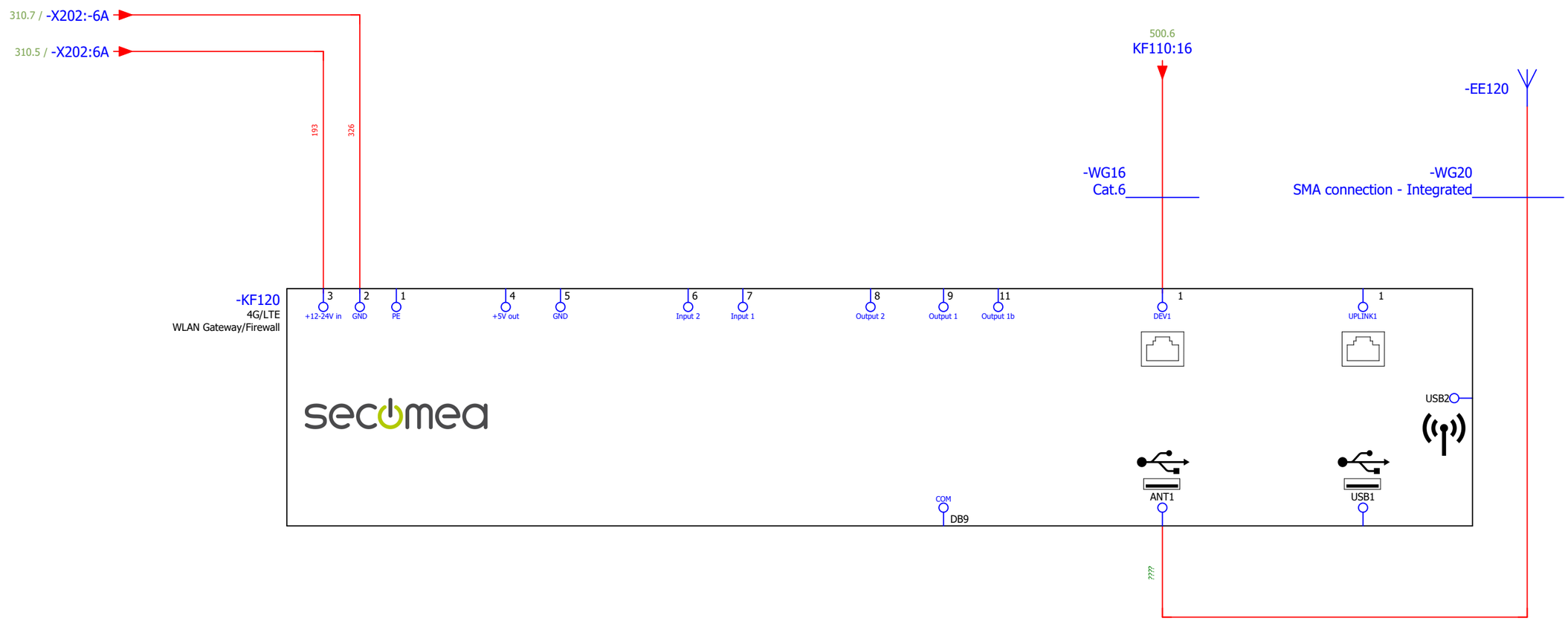
DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - Newtwork switch		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 500 / 2

FRM5103656/0B

0	1	2	3	4	5	6	7	8

=LA01+UC30

40ft Coolant Skid - Control Cabinet



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	40ft Coolant Skid - Secomea		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 501 / 2

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Panel Documentation

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Panel Documentation and Layout		
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	
=LA01-14		1	PE	1	0	4	
=LA01-X1		L1	PE	0	0	5	
=LA01-X02		PE	PE	0	0	1	
=LA01-X11		1	PE	1	0	4	
=LA01-X12		1	PE	1	0	4	
=LA01-X13		1	PE	1	0	4	
=LA01-X15		1	PE	1	0	4	
=LA01-X16		1	PE	1	0	4	
=LA01-X21		1	PE	1	0	4	
=LA01-X22		1	PE	1	0	4	
=LA01-X23		1	PE	1	0	4	
=LA01-X24		1	PE	1	0	4	
=LA01-X25		1	PE	1	0	4	
=LA01-X26		1	PE	1	0	4	
=LA01-X31		1	PE	1	0	4	
=LA01-X40		1	PE	1	0	4	
=LA01-X41		1	PE	1	0	4	
=LA01-X42		1	PE	1	0	4	
=LA01-X100		1	X1	0	0	10	
=LA01-X110		1	16	0	0	16	
=LA01-X111		PE	8	0	0	9	
=LA01-X112		1	16	0	0	16	
=LA01-X113		PE	8	0	0	9	
=LA01-X114		1	4	0	0	4	
=LA01-X115		1	4	0	0	4	
=LA01-X201		1.1	3.6	0	0	18	
=LA01-X201-		1.1	3.6	0	0	18	
=LA01-X202		1.1	3.6	0	0	36	
=LA01-X203		1.1	3.6	0	0	18	
=LA01-X203-		1.1	3.6	0	0	18	
=LA01-X204		1.1	3.6	0	0	18	
=LA01-X204-		1.1	3.6	0	0	18	
=LA01-X206		1	4	0	0	4	
=LB02-XD03		1	1	0	0	1	

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-strip overview : =LA01+UC30-14 - =LB02+UC30-XD03		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 2 /

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
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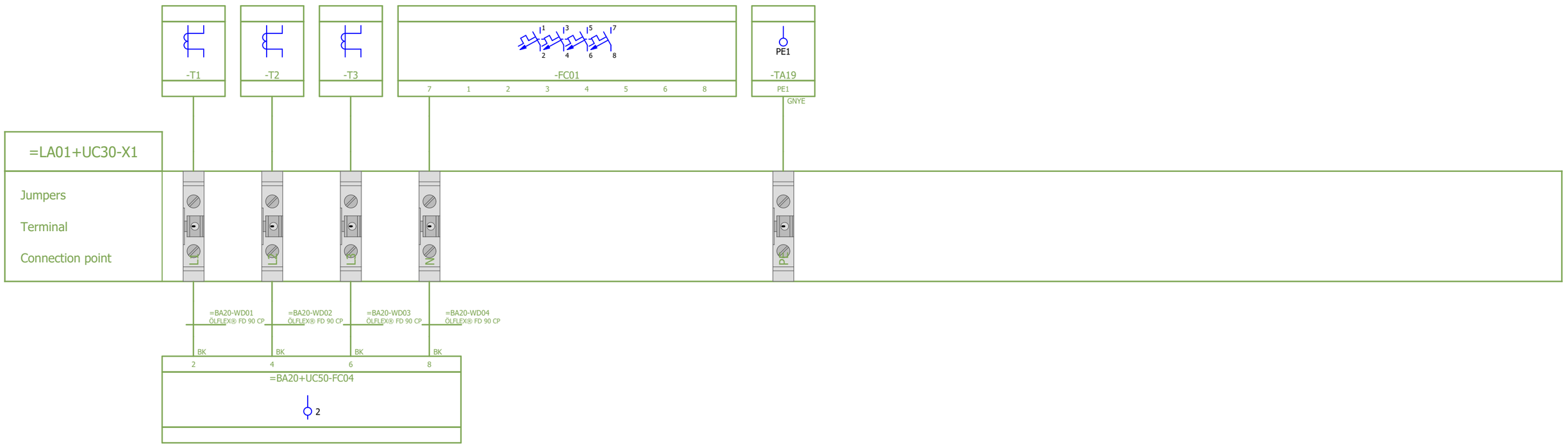
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-14		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 3 /

Terminal-connection diagram

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Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
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EPLAN Revision	01.P15		
EPLAN Project Pages	478		
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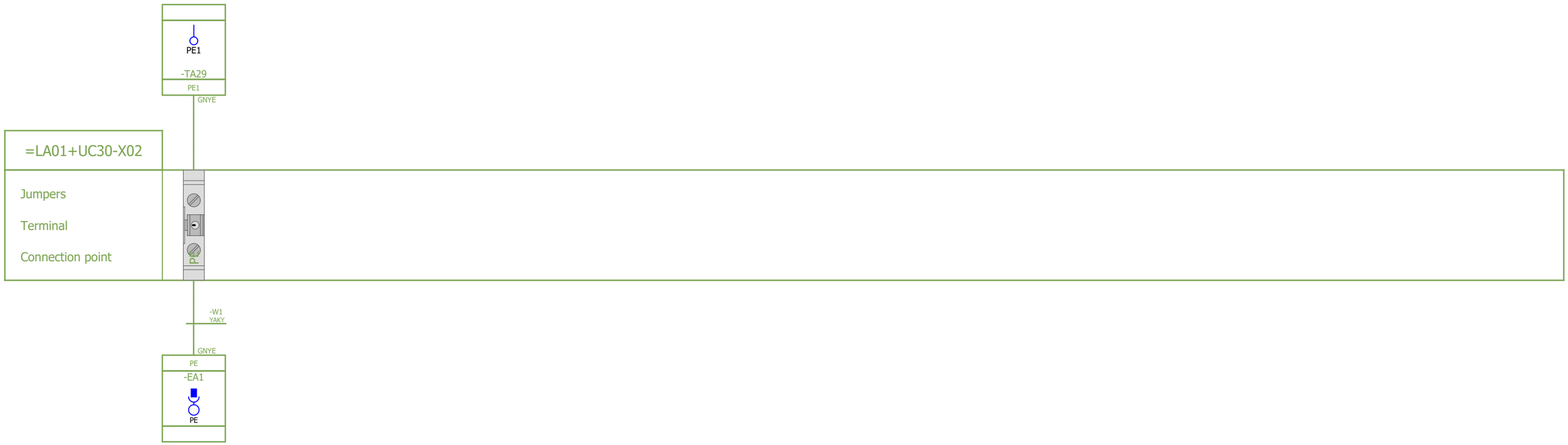
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X1		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 4 /

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Terminal-connection diagram

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Internal targets



External targets

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EPLAN Revision	01.P15		
EPLAN Project Pages	478		
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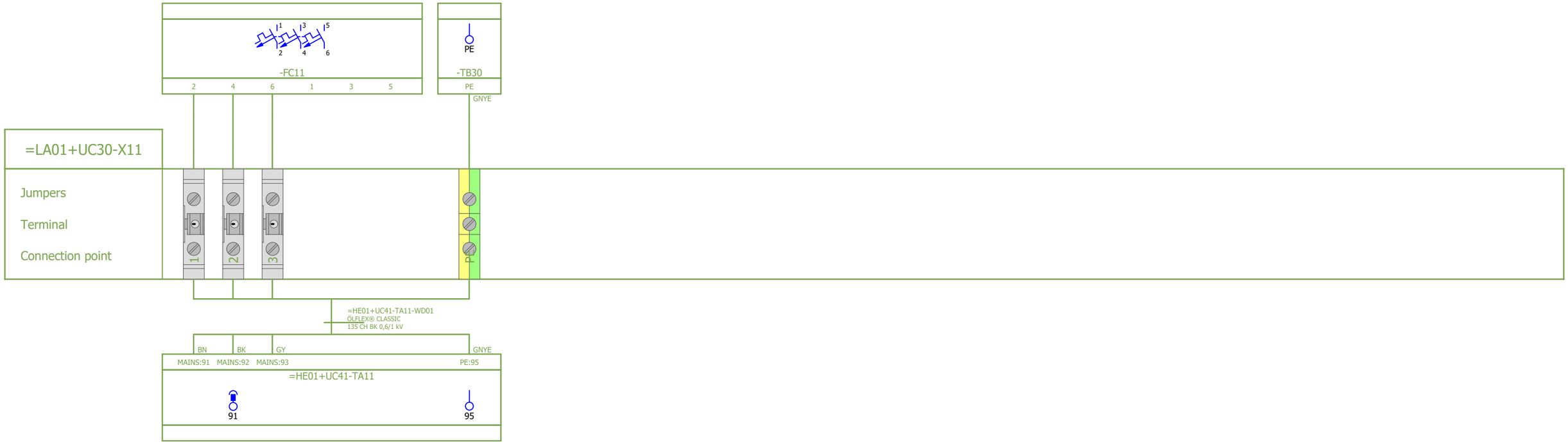
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SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X02		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 5 /

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Terminal-connection diagram

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Internal targets



External targets

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EPLAN Revision	01.P15		
EPLAN Project Pages	478		
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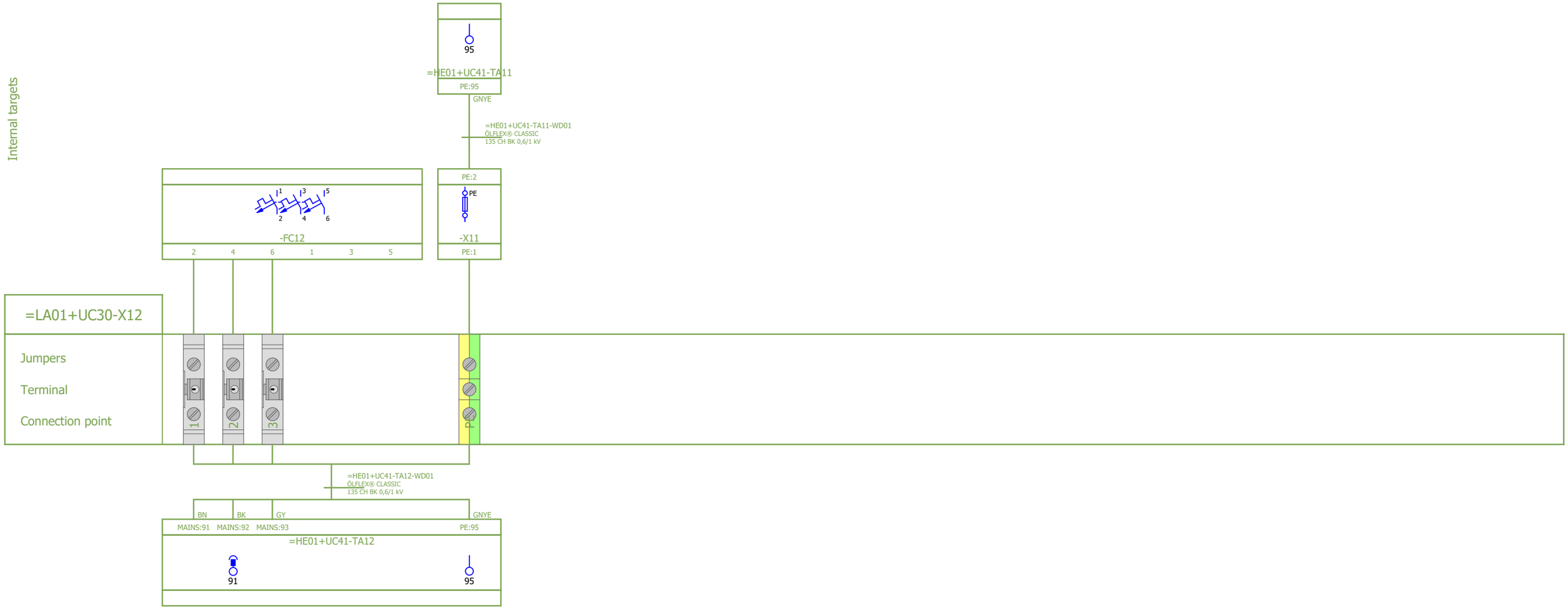
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X11		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 6 /

Terminal-connection diagram

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Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
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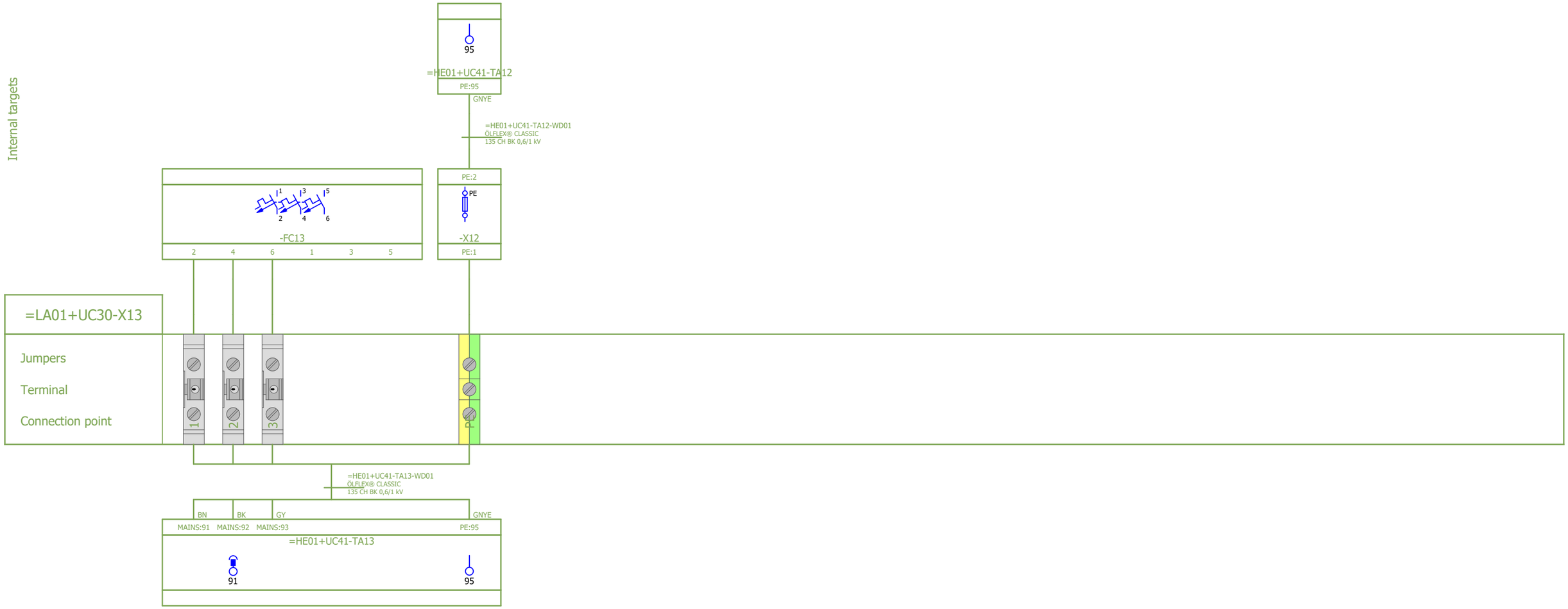
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X12		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 7 /

Terminal-connection diagram

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Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
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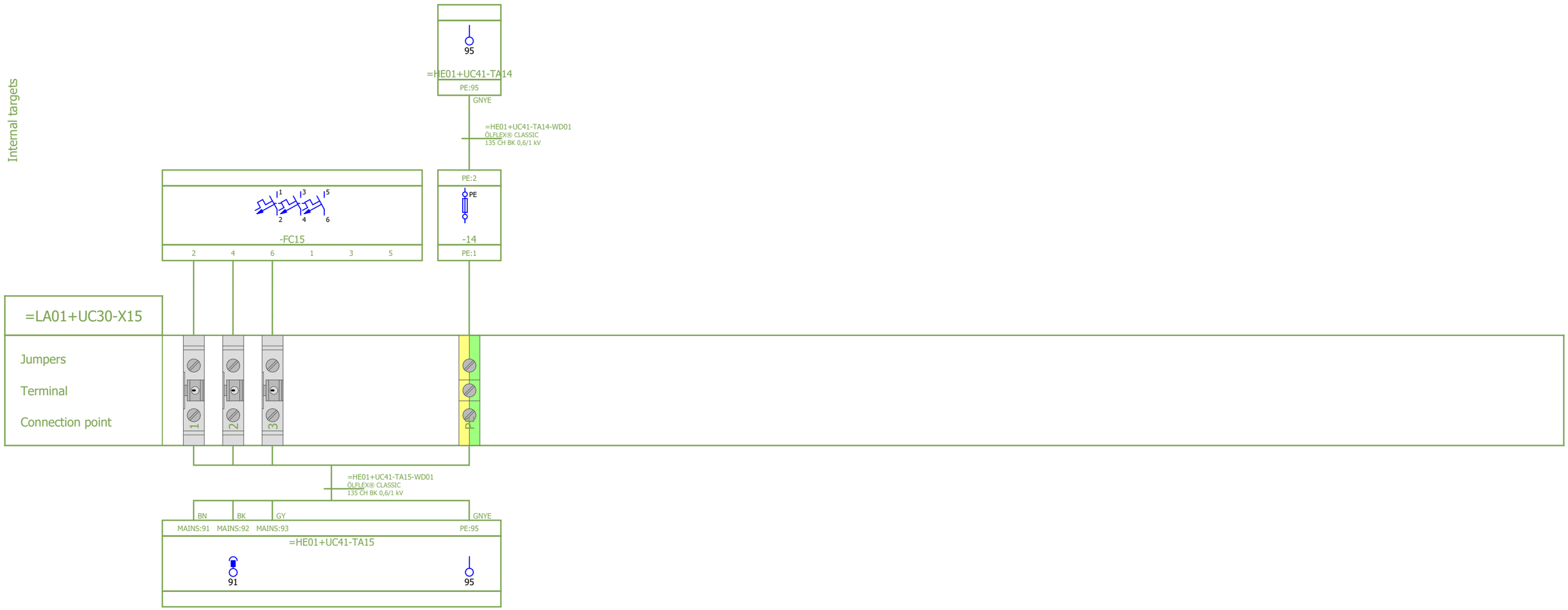
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X13		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 8 /

Terminal-connection diagram

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Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
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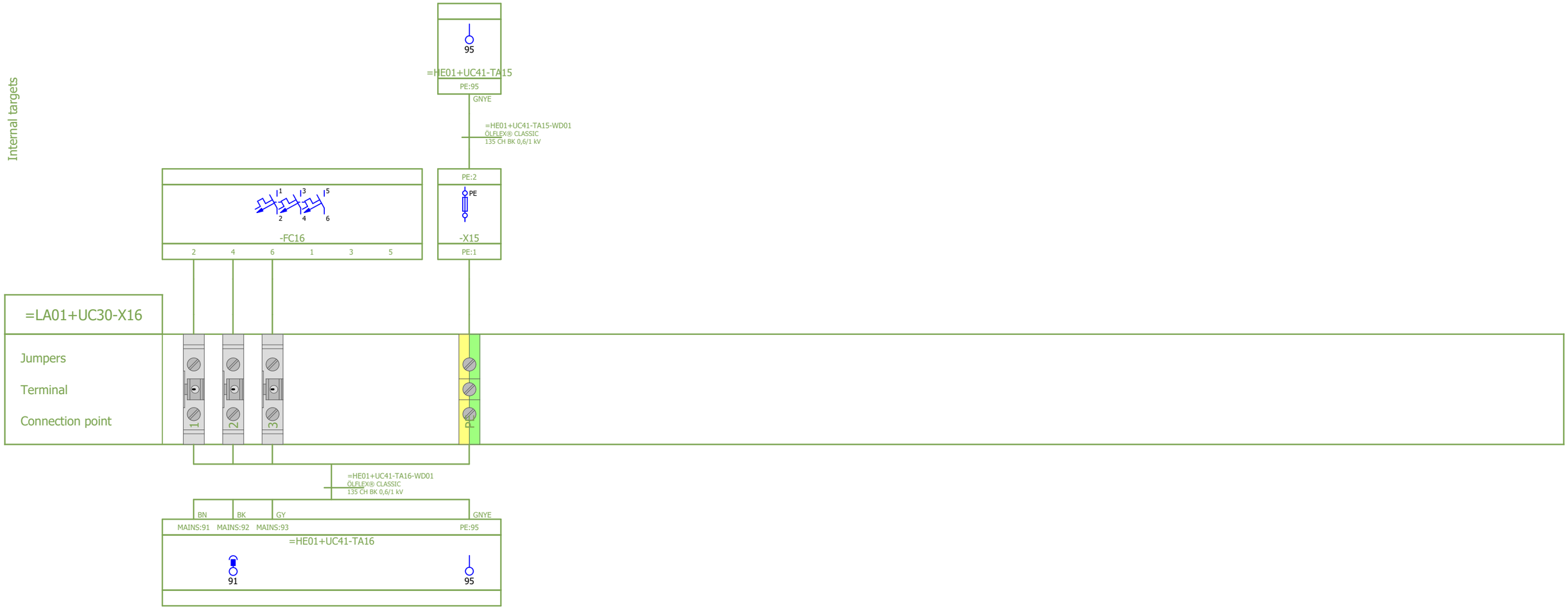
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X15		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 9 /

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Terminal-connection diagram

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Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
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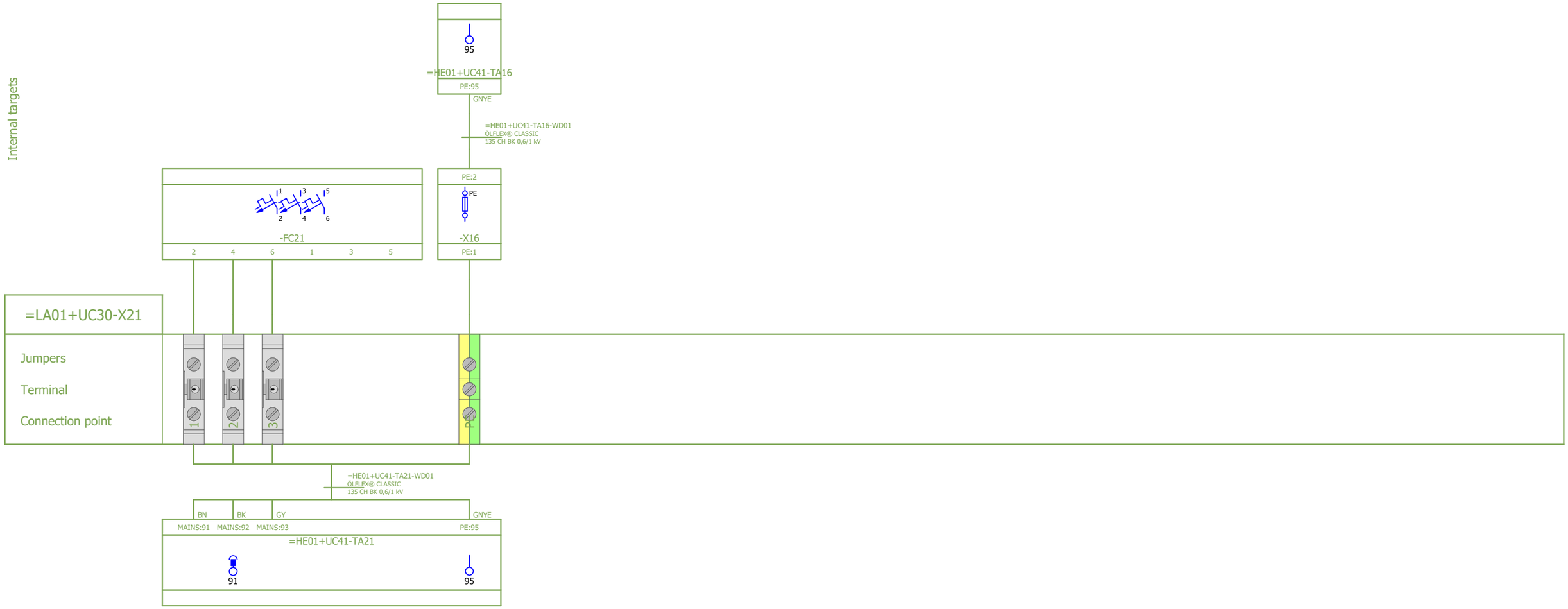
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X16		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 10 /

Terminal-connection diagram

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Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X21		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 11 /

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Terminal-connection diagram

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PBL 05-Jun-24

Internal targets



External targets

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EPLAN Project Name	601456B - Shell Baseload Power Hub		
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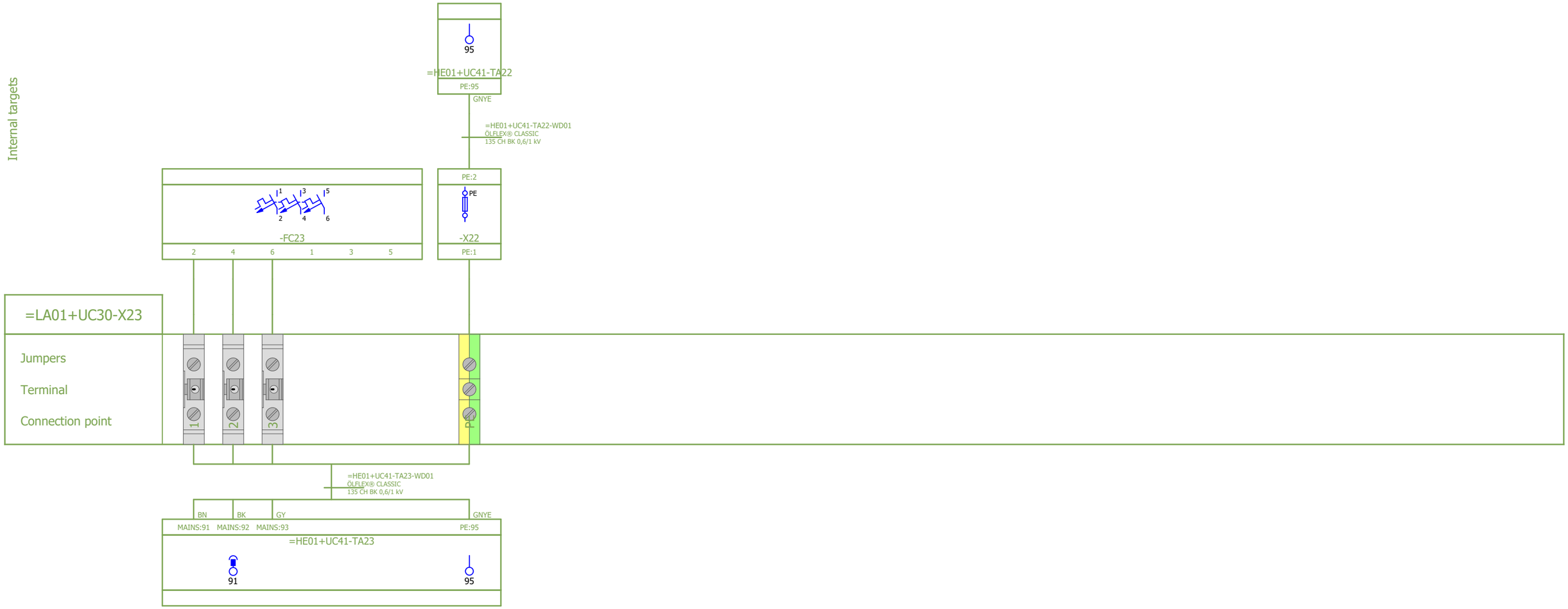
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X22		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 12 /

Terminal-connection diagram

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Internal targets



External targets

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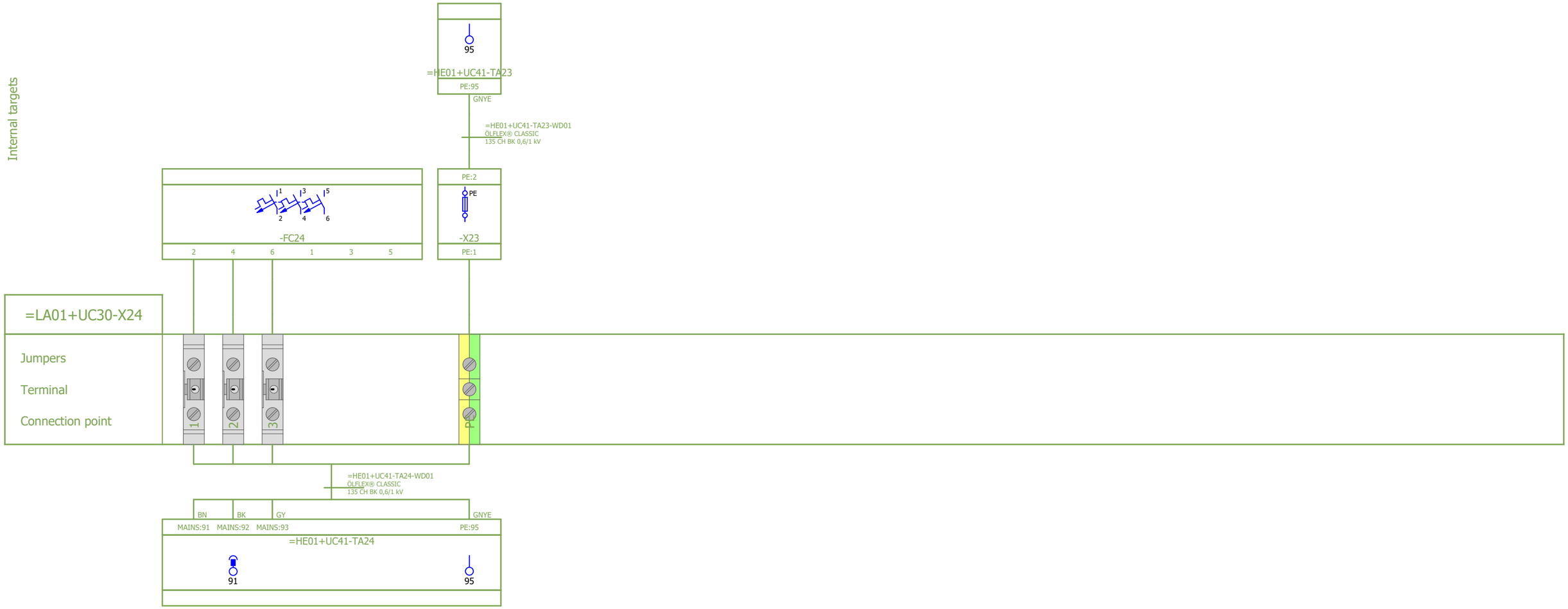
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X23		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 13 /

Terminal-connection diagram

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PBL 05-Jun-24

Internal targets



External targets

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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
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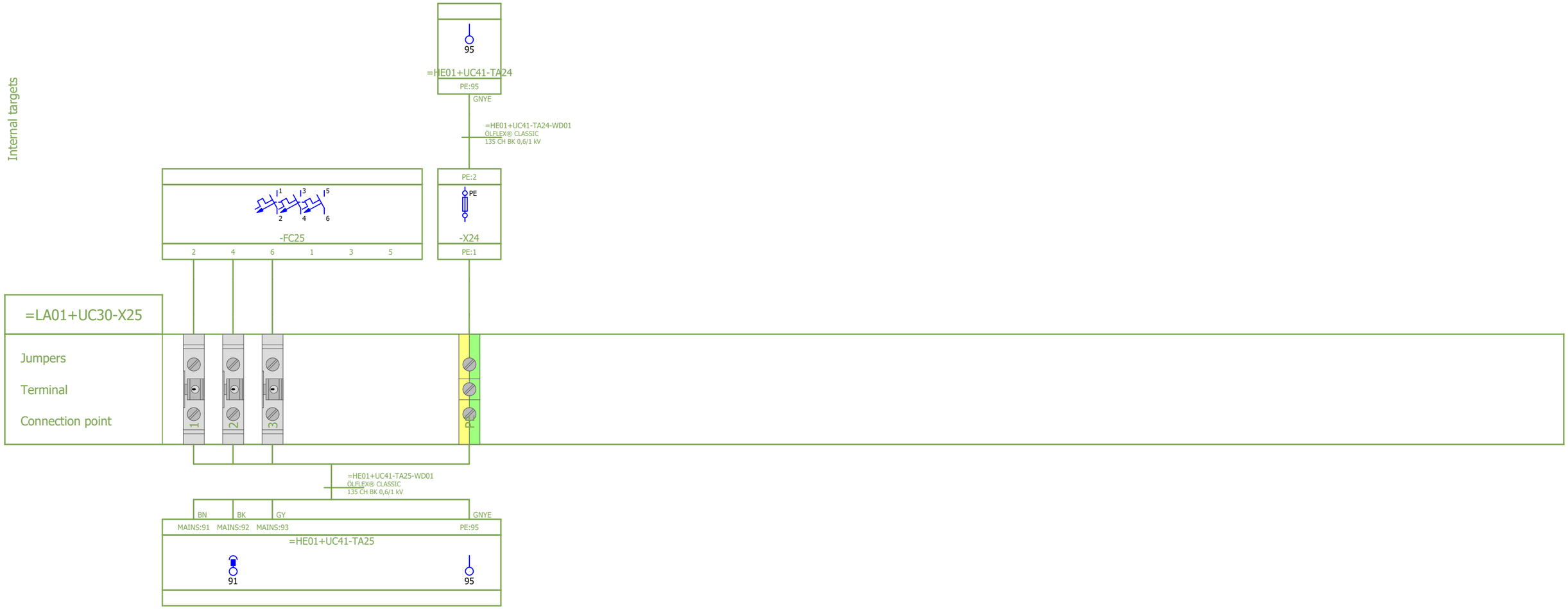
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Terminal-connection diagram

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Internal targets



External targets

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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
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ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 15 /

Terminal-connection diagram

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Internal targets



External targets

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X26		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 16 /

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

REVISION INFORMATION
DESCRIPTION
DATE
05-Jun-24

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X31		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 17 /

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets

95
=HE01+UC41-TA31
PE:95
GNYE
=HE01+UC41-TA31-WD01
ÖLFLEX® CLASSIC
135 CH BK 0,6/1 kV

PE:2
PE
-X31
PE:1

1 3 5
2 4 6
-FC40
2 4 6 1 3 5

=LA01+UC30-X40

Jumpers
Terminal
Connection point

1 2 3 PE

=HE01+UC41-EA40-WD01
ÖLFLEX® CLASSIC
135 CH BK 0,6/1 kV

BN BK GY GNYE
1:2 2:1 3:2 PE:2
=HE01+UC41-XD40
1
1:3 2:5 3:3 PE:3

External targets

L1 L2 L3 PE
=HE01+UC41-EA40
L1

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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DESCRIPTION
DATE
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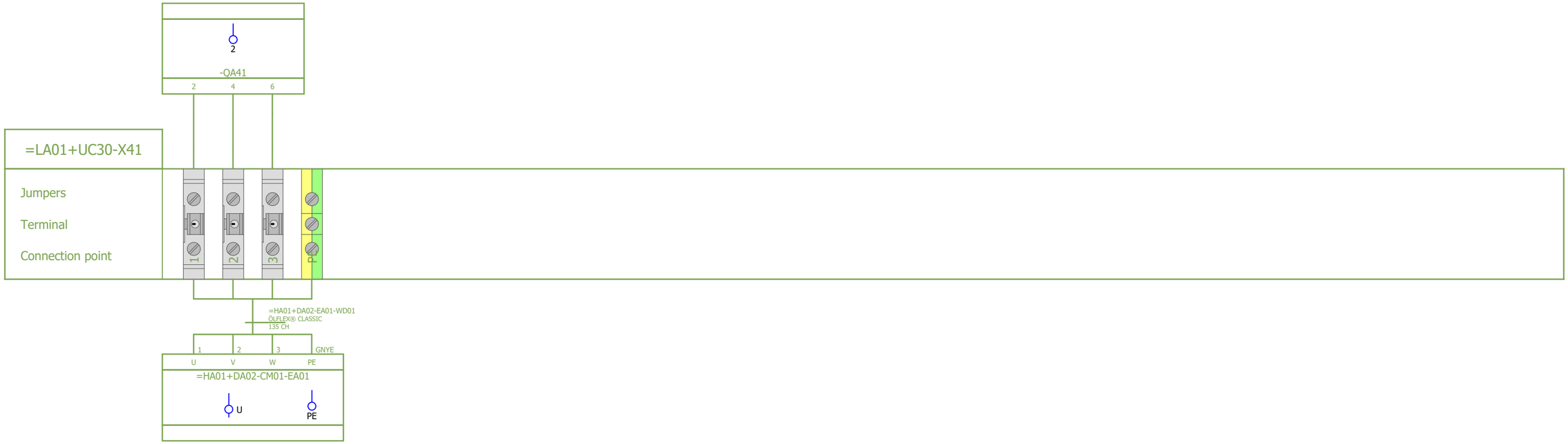
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X40		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 18 /

FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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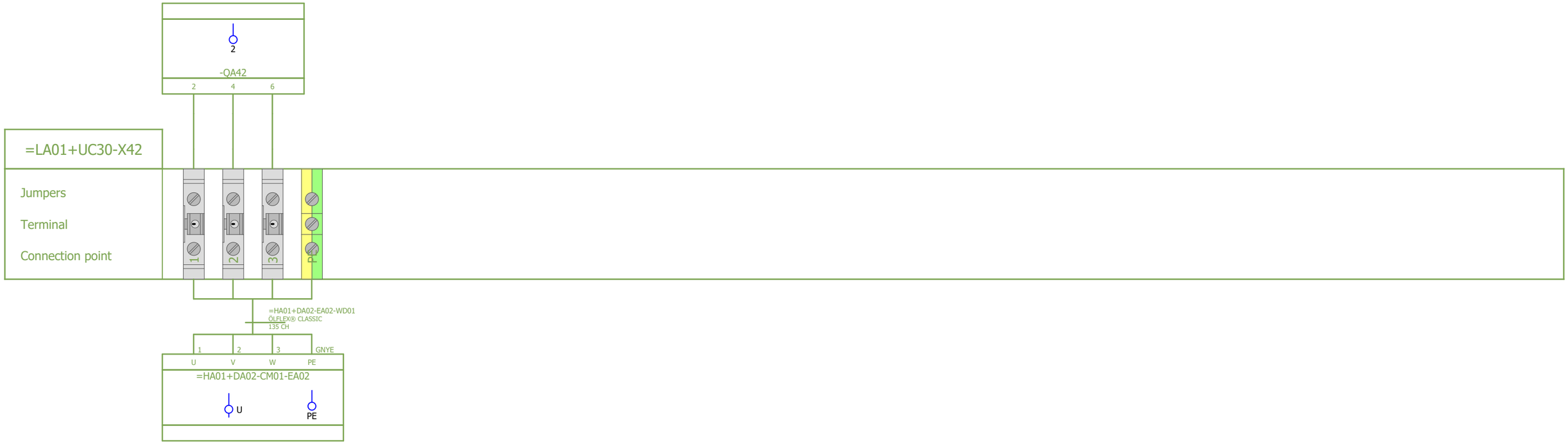
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X41		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 19 /

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X42		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 20 /

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets

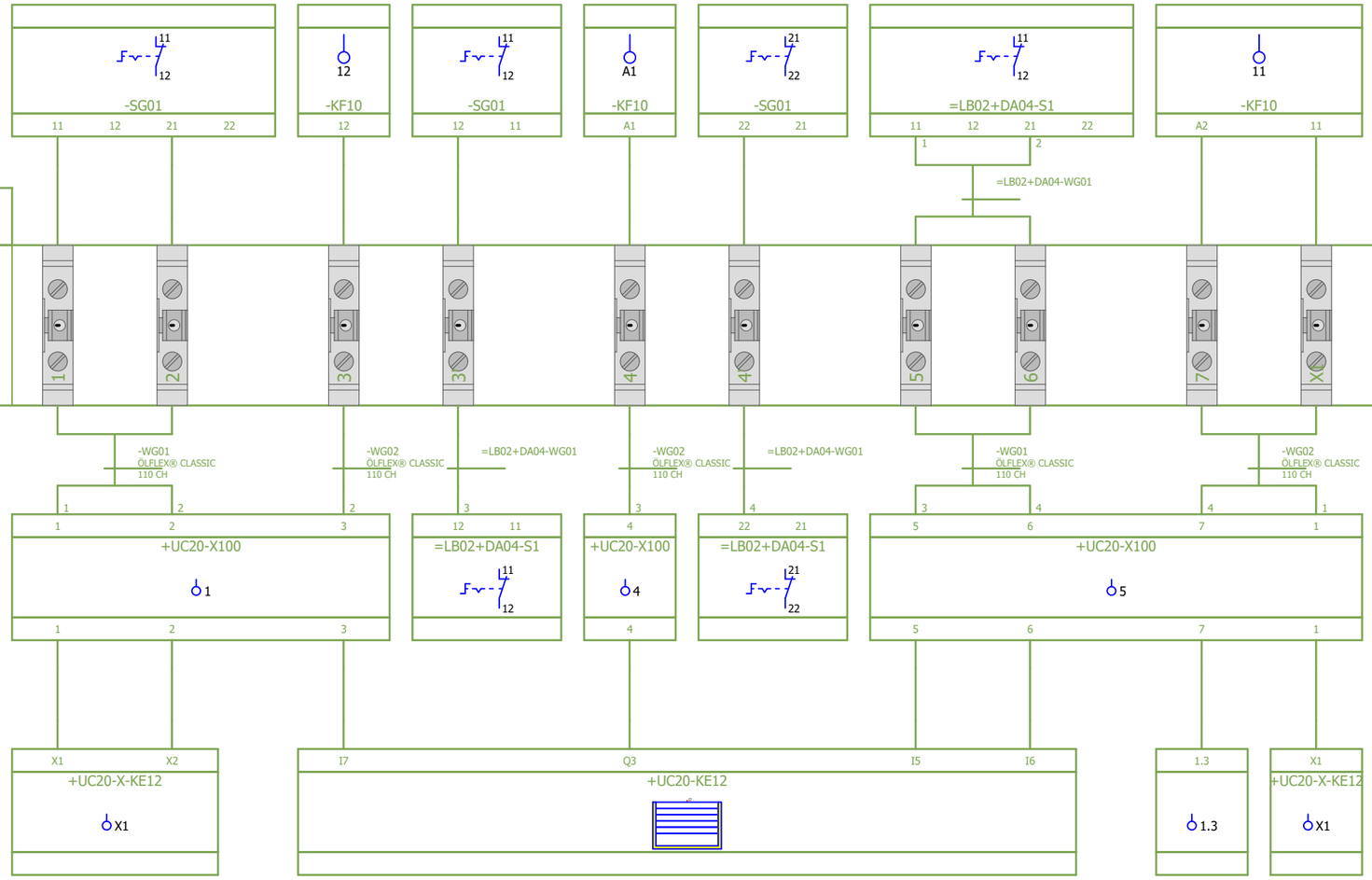
External targets

=LA01+UC30-X100

Jumpers

Terminal

Connection point



Reference Item Number	Ballard Part # TBD
EPLAN Project Name	601456B - Shell Baseload Power Hub
EPLAN Revision	01.P15
EPLAN Project Pages	478
=	++ | + UC30 | & C04

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X100		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 21 /

FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets

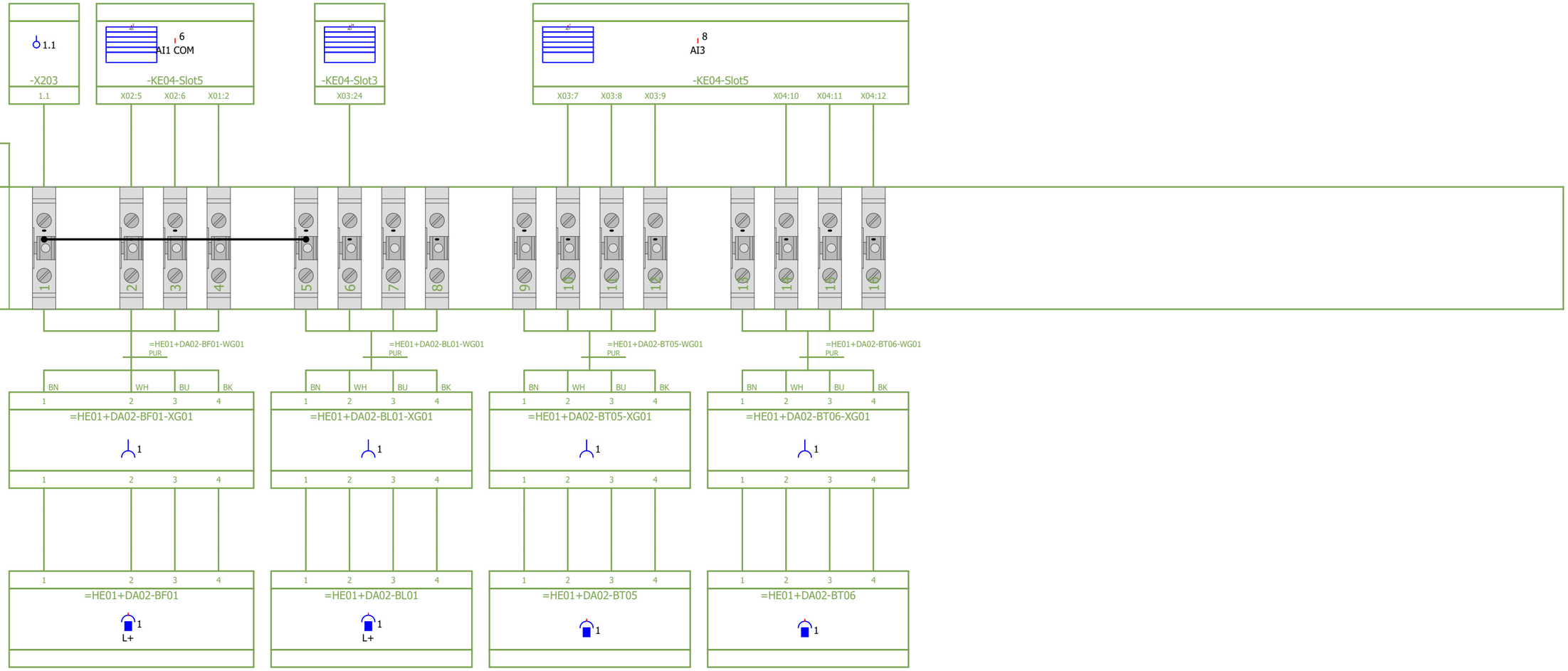
External targets

=LA01+UC30-X110

Jumpers

Terminal

Connection point



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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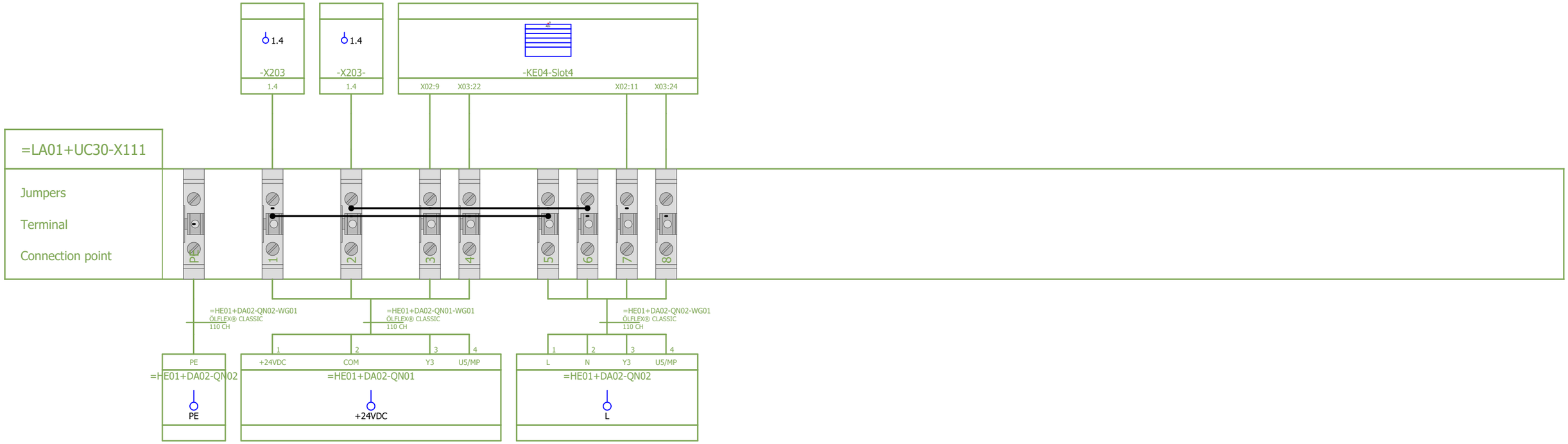
DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X110		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 22 /

FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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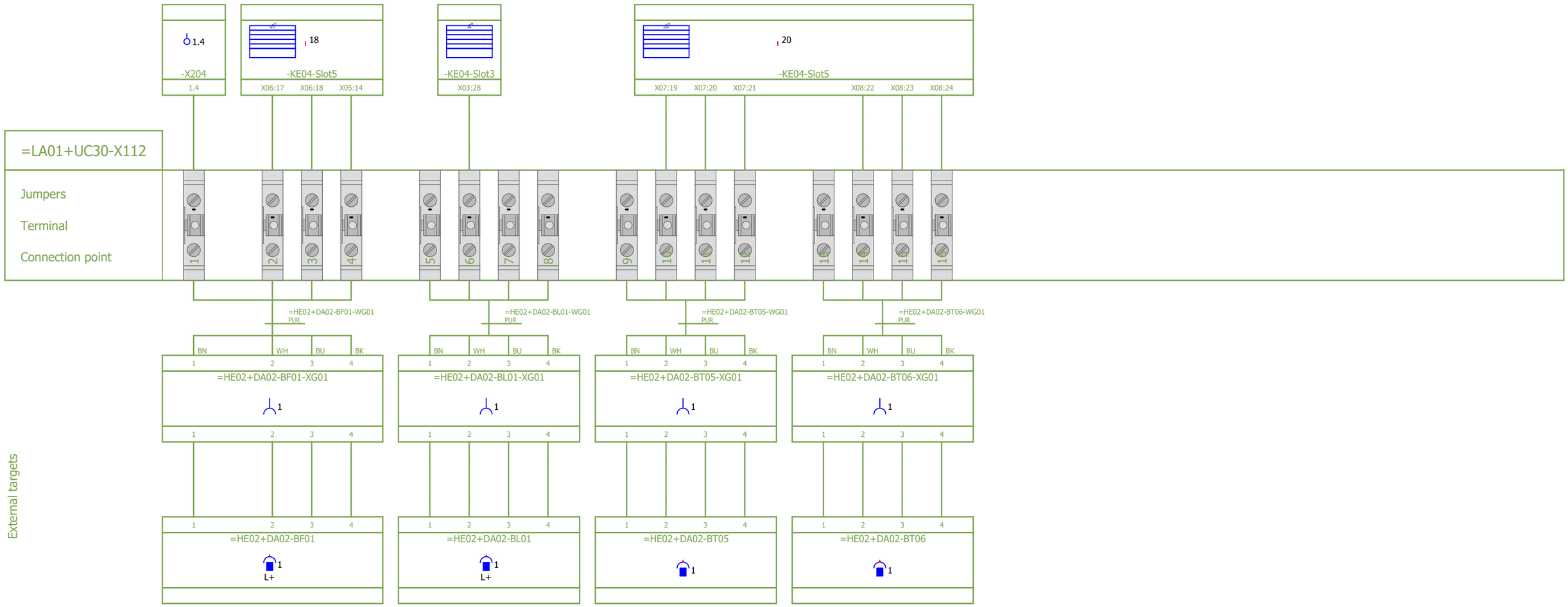
DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X111		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 23 /

FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
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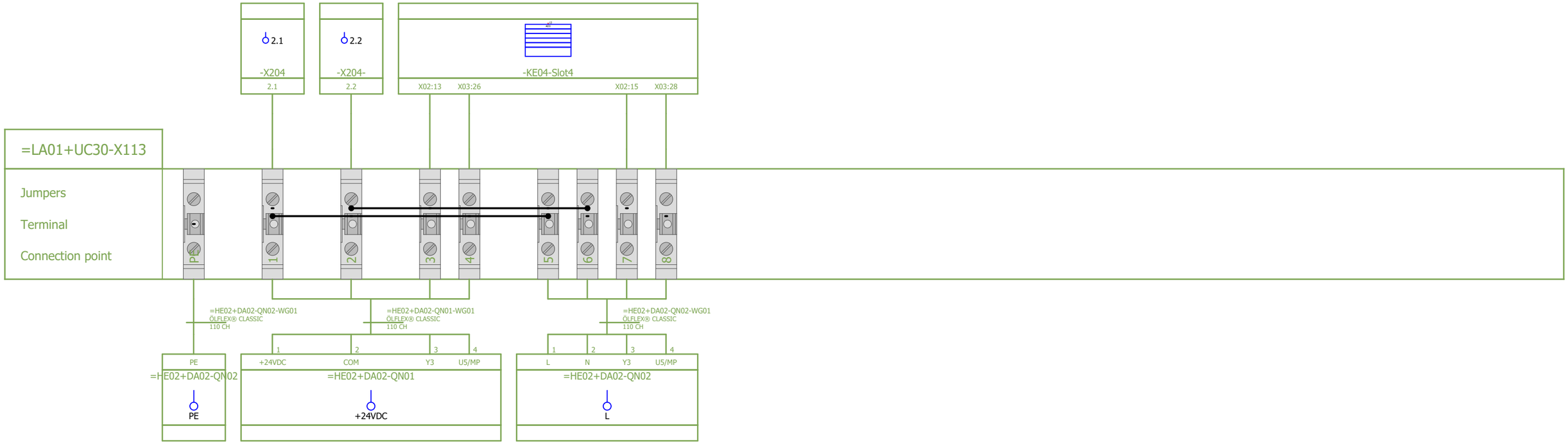
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X112		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 24 /

FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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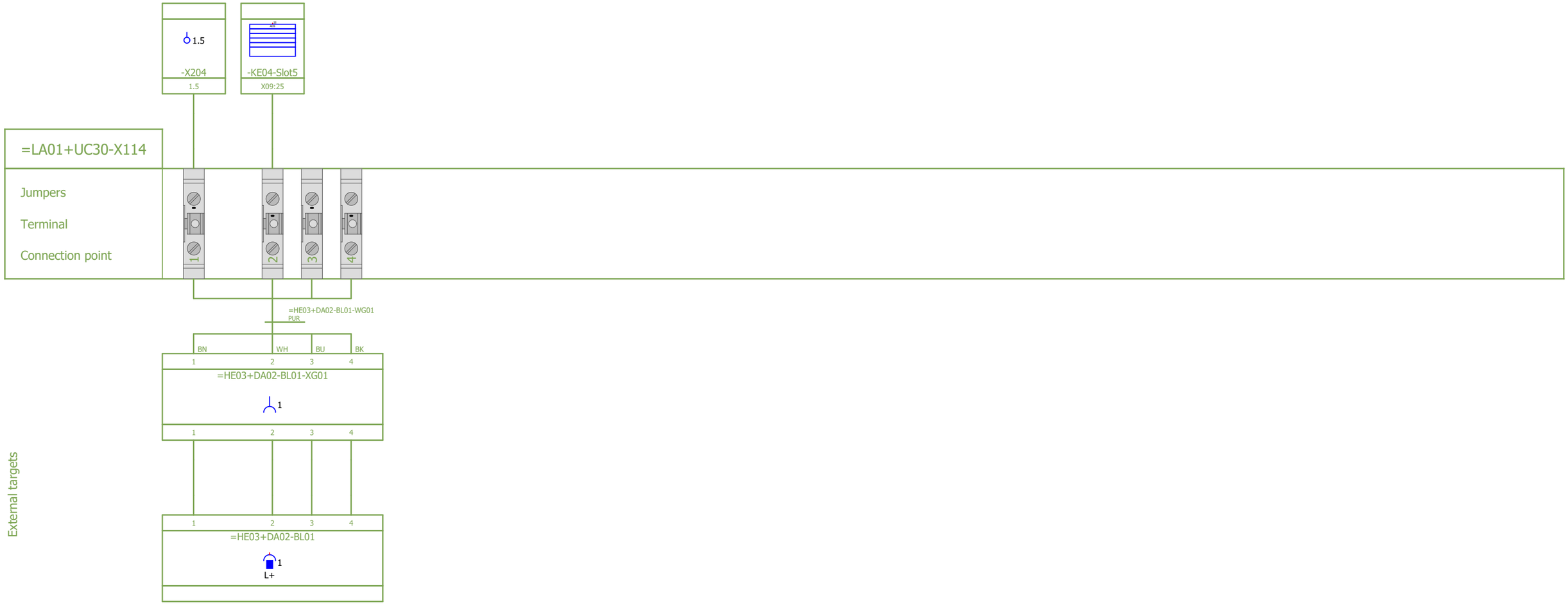
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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X113		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 25 /

FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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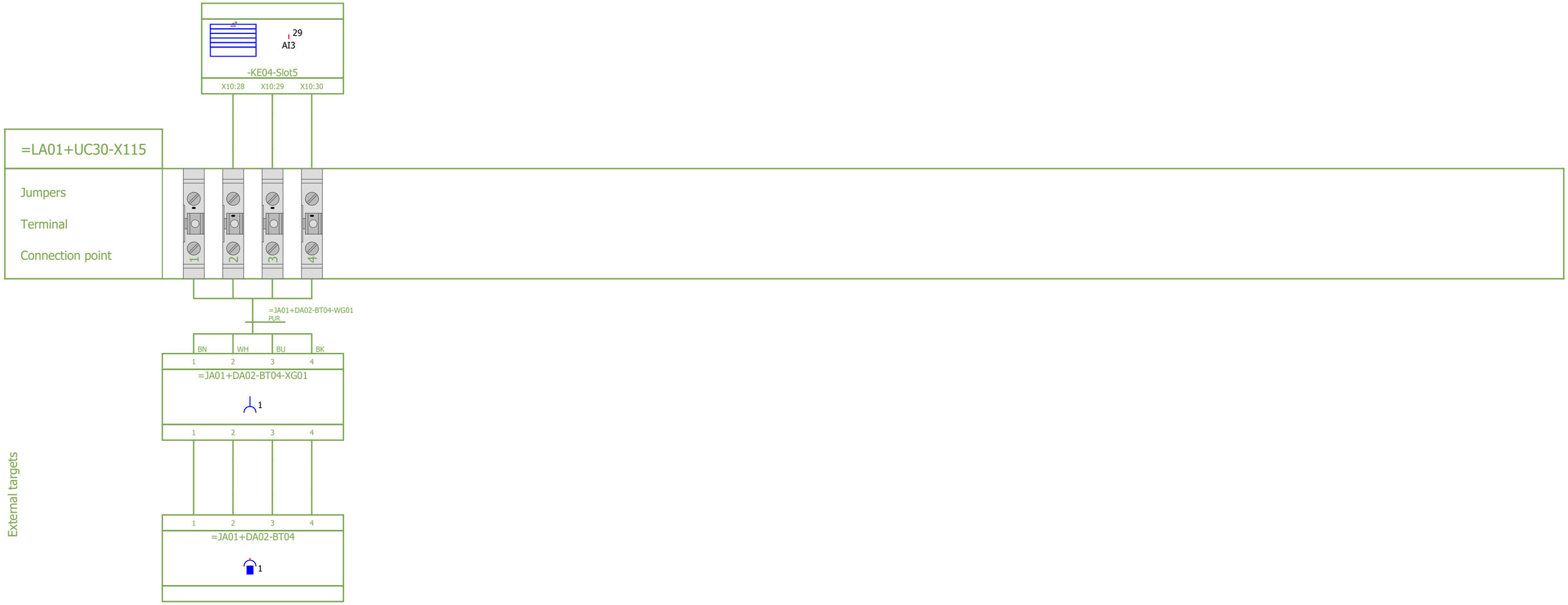
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X114		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 26 /

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X115		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 27 /

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets

OUT1
-FC201
OUT1

=LA01+UC30-X201

Jumpers
Terminal
Connection point



24
-KF10
24

External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X201		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 28 /

FRM5103656/0B

Terminal-connection diagram

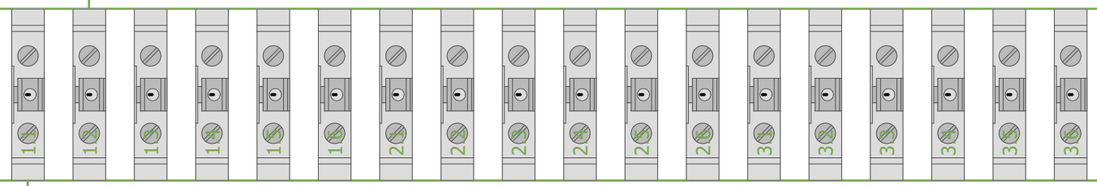
F11_001
PBL 05-Jun-24

Internal targets

0V1
-FC201
0V1

=LA01+UC30-X201-

Jumpers
Terminal
Connection point



34
-KF10
34

External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X201-		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 29 /

FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets

=LA01+UC30-X202

Jumpers

Terminal

Connection point

-FC202 (OUT1 / 0V1)

-FC200 (14 / 13)

-FC11 (11 / 12 / 14)

-RB30 (1)

-KF110-U1 (U1:2 / U1:1)

-XD01 (2:V1+ / 1:V1-)

-TF03 (33 / 31)

-TF02 (32+ / 31-)

External targets

-FC31 (11 / 12 / 14)

=HE01-KE04-Slot3 (X03:21)

-FC21 (11 / 12 / 14)

-TA19 (6 / 7)

-TA29 (6 / 7)

-KF120 (X01:3 / X01:2)

-TF01 (12+)

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X202		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 30 /

FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 05-Jun-24

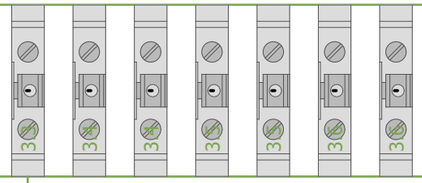
Internal targets

=LA01+UC30-X202

Jumpers

Terminal

Connection point



A2 A1

-QA10

A1

A2

External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X202		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 31 /

FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets

+24VDC
=HE01+DA02-QN01
+24VDC
1

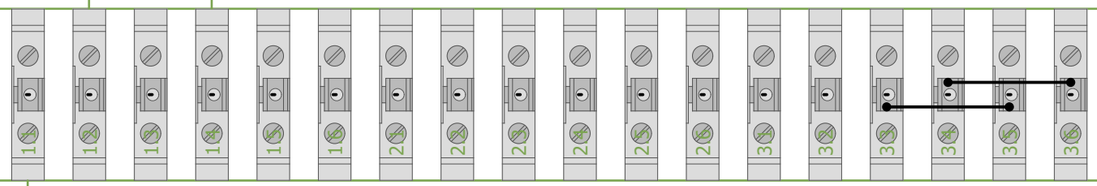
=HE01+DA02-QN01-WG01
ÖLFLEX® CLASSIC
110 CH

OUT1
-FC203
OUT1

1:3
1
-X111
1:2

=LA01+UC30-X203

Jumpers
Terminal
Connection point



External targets

1:2
-X110
1
1:3

=HE01+DA02-BF01-WG01
PUR
BN

1
=HE01+DA02-BF01-XG01
1
1

1
=HE01+DA02-BF01
1
L+

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

REVISION INFORMATION	
DESCRIPTION	
DATE	
05-Jun-24	

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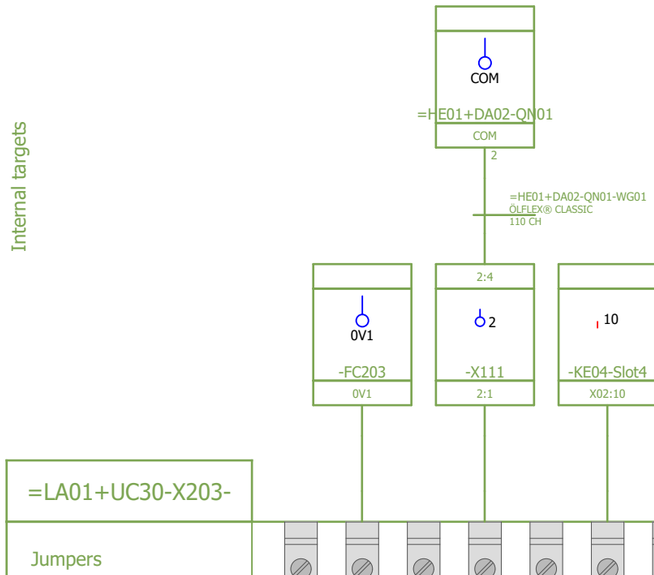
DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X203		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 32 /

FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets



=LA01+UC30-X203-

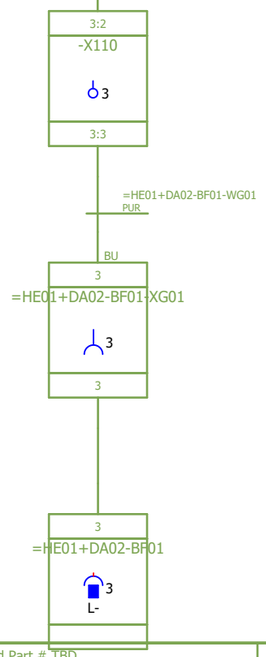
Jumpers

Terminal

Connection point



External targets



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X203-		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 33 /

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets

1
1
=HE02+DA02-BF01-XG01
1
BN
=HE02+DA02-BF01-WG01
PUR

1
OUT1
-FC204
OUT1

1:3
1
-X112
1:2

=LA01+UC30-X204

Jumpers
Terminal
Connection point

1:2
-X114
1
1:3

1:2
-X113
1
1:3

External targets

=HE03+DA02-BL01-WG01
PUR
=HE02+DA02-QN01-WG01
ÖLFLEX® CLASSIC
110 CH

BN
1
=HE03+DA02-BL01-XG01
1
1

1
+24VDC
=HE02+DA02-QN01
+24VDC

1
=HE03+DA02-BL01
1
L+

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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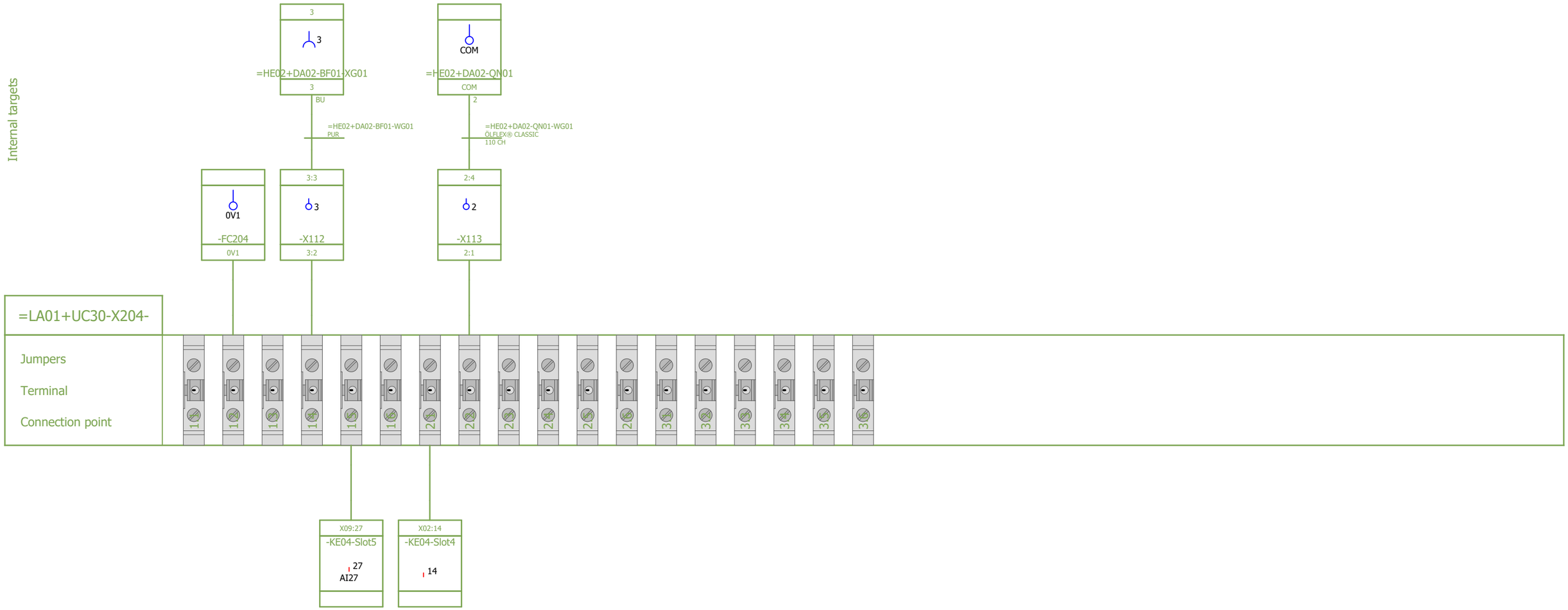
DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
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SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X204		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 34 /

FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets



External targets

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
=	++	+ UC30	& C04

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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X204-		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 35 /

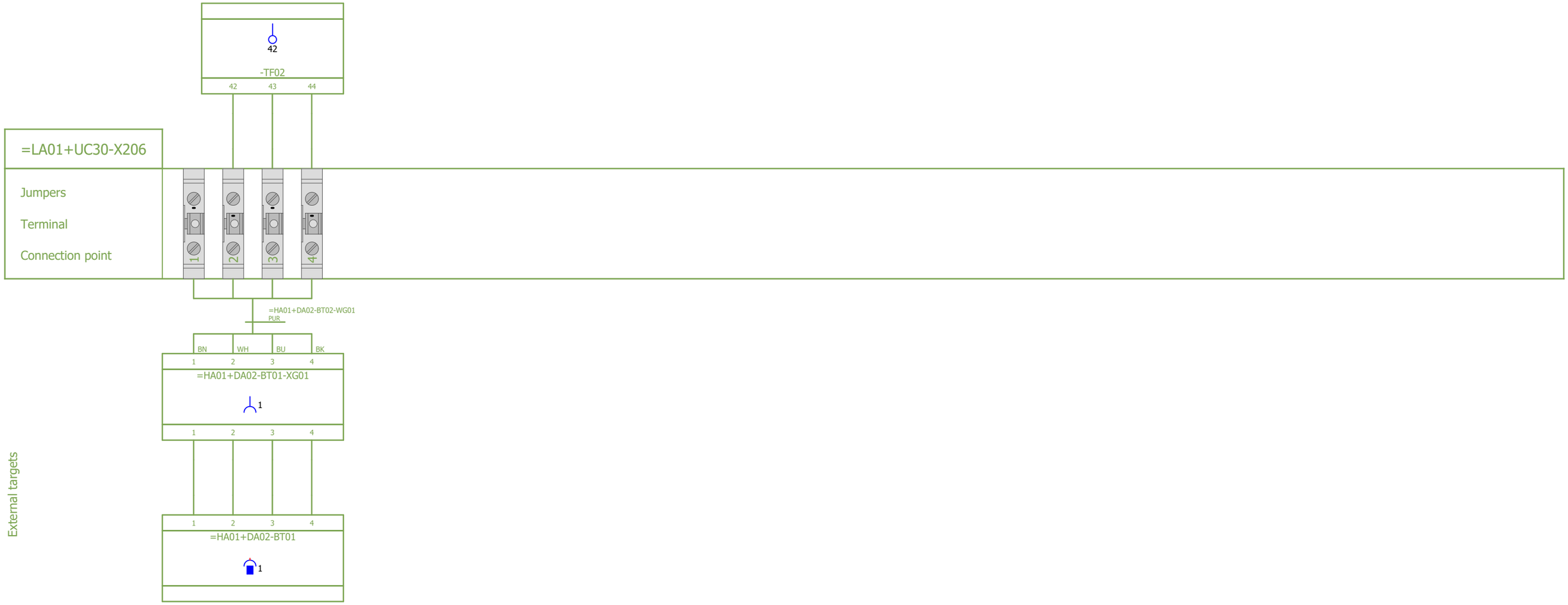
FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets

External targets



Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	01.P15		
EPLAN Project Pages	478		
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DRAWING	601456B UC30 Coolant Skid Control Cabinet	REVISION	01.P15
DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
SHEET TYPE/DESC	Terminal-connection diagram =LA01+UC30-X206		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 36 /

FRM5103656/0B

Terminal-connection diagram

F11_001
PBL 05-Jun-24

Internal targets



=HKN70-WG03

=LB02+UC30-XD03

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 UC30 Coolant Skid Control Cabinet	REVISION	01.P15
EPLAN Project Name	601456B - Shell Baseload Power Hub			DESCRIPTION			DRAWING TITLE	Crosswind UC30 Coolant Skid Control Cabinet		
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=	++	+ UC30	& C04	05-Jun-24						

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