Ballard Power Systems Europe A/S
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Revision history		
Rev.	**Date.**	**Description**
001	01/04/2025	First Issue

Document Title:	**BLPH Project - Panel Cabinet Layout: UC42 Ex Barrier Box**
Document Number:	K559-2254-CWIWP4202202-E03-008
Revision:	Rev001
Sequence Number:	008
File Name:	K559-2254-CWIWP4202202-E03-008Rev001
Purchaser Job:	K559-2254
Purchase Order:	CWIWP4202202
Code:	E03
Requsition Number:	n/a
Customer:	CrossWind C.V., Rotterdam, The Netherlands

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+UC42

Ballard Power Systems Europe - Technology Solutions

Cabinet: Ex Barrier Box
Location: Outside 40ft Container, Right of H2 Manifold

Refer to K559-2254-CWIWP4202202-K02-003 ATEX Design Journal for ATEX Information

Vin = 24VDC

IP65

Reference Item Number	Ballard Part # TBD		
EPLAN Project Name	601456B - Shell Baseload Power Hub		
EPLAN Revision	06		
EPLAN Project Pages	628		
=	++	+ UC42	& A01

REVISION INFORMATION
DESCRIPTION
DATE
28-Mar-25

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DRAWING	601456B UC42 Ex Barrier Box			REVISION	06
DRAWING TITLE	Crosswind UC20 40ft 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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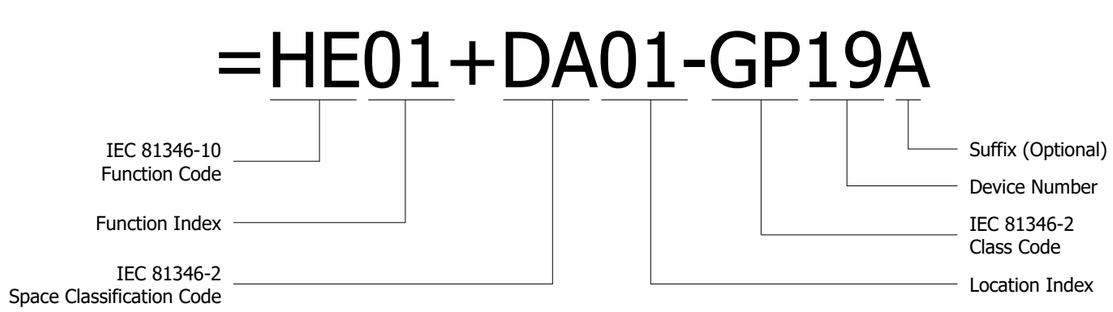
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DRAWING	601456B UC42 Ex Barrier Box	REVISION	06
DRAWING TITLE	Crosswind UC20 40ft Control Cabinet		
SHEET TYPE/DESC	Standard Wire Colors		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 2 / 18

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	06
EPLAN Project Pages	628
= ++ + UC42 & A01	

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DRAWING	601456B UC42 Ex Barrier Box	REVISION	06
DRAWING TITLE	Crosswind UC20 40ft Control Cabinet		
SHEET TYPE/DESC	Tagging Standard		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 3 / 18

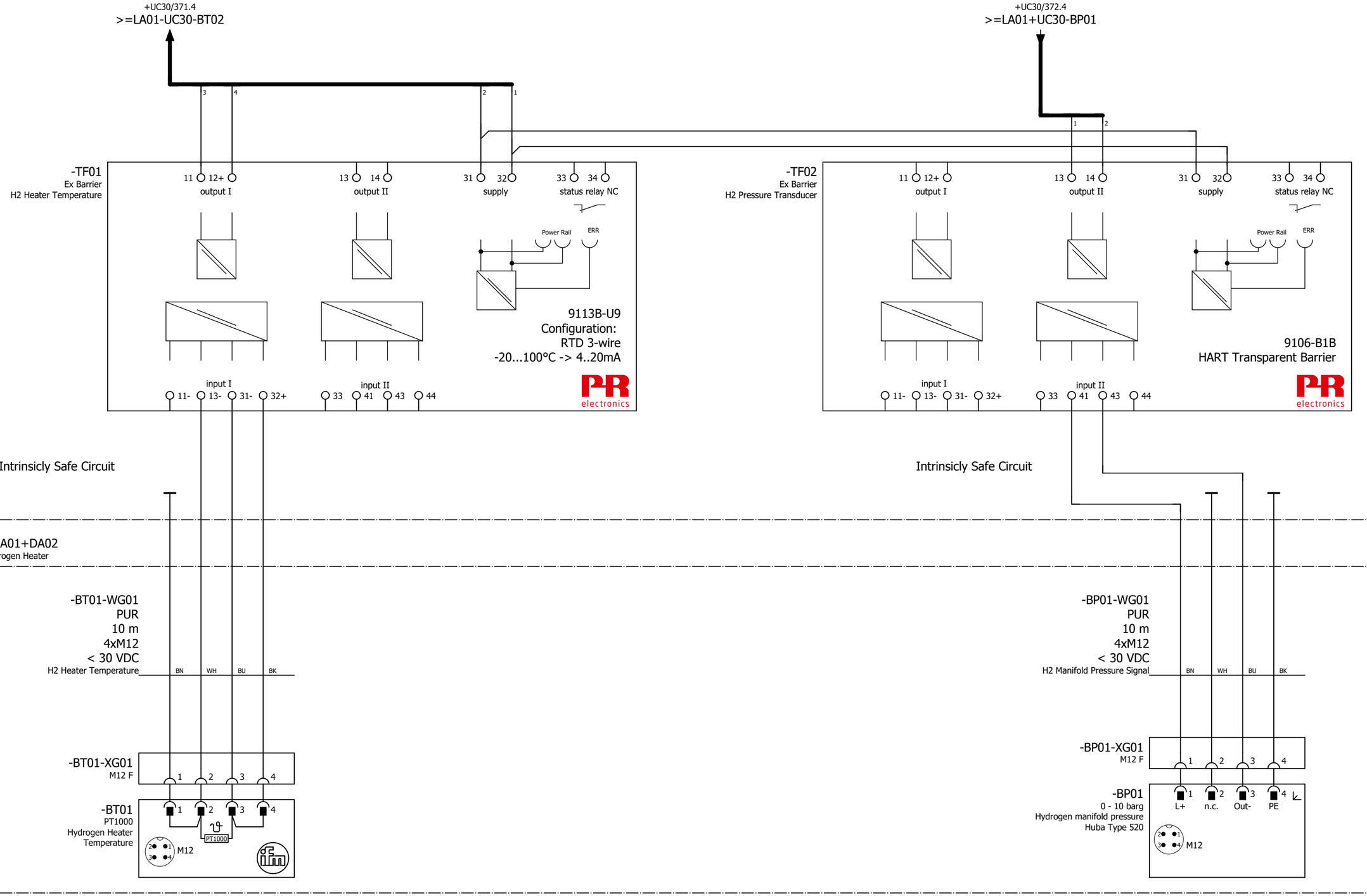
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Refer to K559-2254-CWIWP4202202-K02-003 ATEX Design Journal for ATEX Information

=LA01
Ex Barrier Box

+UC30/371.4
>=LA01-UC30-BT02

+UC30/372.4
>=LA01+UC30-BP01



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DRAWING	601456B UC42 Ex Barrier Box	REVISION	06
DRAWING TITLE	40ft Container - DCDC Cabinets		
SHEET TYPE/DESC	EX Barrier Box		
ALL SHEETS ARE THE SAME REVISION STATUS	SIZE A3	LANGUAGE EN	SHEET/TOTAL 1 / 2