

Chloride® XP Range

DC & AC UPS rated for Hazardous Locations zone 1 & 2 using Ex d protection and natural cooling



Benefits

Fast and simple installation:

- Small weight & high Power/Footprint ratio
- Easy cabling in separate Ex e box

High reliability:

- From Industrial Switch Mode based Battery Charger especially designed and overrated for continuous operation at full power in Ex d enclosure under high ambient temperature and humidity

Fast Maintenance: and very low MTTR (<1h), thanks to optimized mechanical arrangement & easy replacement of power module

Simple, flexible and versatile configuration:

- Fully operated door closed from external Ex d certified MCCB handles
- Wide window on front door for instant local Monitoring
- Internal microprocessor based HMI (Quartz supervisor) for easy configuration &/or change at site
- Full remote control & monitoring from free of potential contacts
- Frozen hardware design for shorter lead time

Key Features

- **Ex d e zone 1 IIB+H2 T5** certified enclosure IP66
- 50 °C External Temperature
- **100% Relative Humidity** with two-step start-up, reinforced water protection, conformal coating on PCBs & VCI (Volatile Corrosion Inhibitions) for marine environment
- **Double output** with independent battery current control
- **Errors and malfunction protection** (overload, short circuit, reverse polarity, output overvoltage, overheating)
- **External loops** for remote monitoring of alarms and status
- **Charger & battery control** from external dry contact

Chloride® XP20R is an industrial rectifier / battery charger explosion proof Zone 1 & 2 developed specifically for offshore environment & tough operating conditions. It is the smallest DC UPS of XP range offering very compact design for a continuous 1500W operation.

Range Overview

Chloride® XP20R combines high frequency switch-mode technology with microprocessor control to bring a high performance level and exceptional output voltage stability in a very compact design.

Chloride® XP20R is supplied from a single-phase 230 / 240 Vac source and offers 2 output DC voltages : 24 V & 48 V nominal. For battery charger configuration, Float voltage can be up to 29 V & 58.5 V. Output current is respectively up to 50 A and 25 A.

To further ensure reliability of supply to the connected load, Chloride® XP20R is provided with natural convection cooling. This is eliminating the need to replace worn mechanical parts like fans. Components are also oversized to allow continuous operation inside the Ex d enclosure at full power under 50 °C external temperature.

Applications

- Oil & Gas unmanned Wellhead Platforms & Wellhead Towers
- Helidecks
- Pipelines
- Refineries & chemical industries



Exemple du Chloride® XP20R



Key Features

- **Ex d e zone 1 IIB+H2 T5 enclosure**, certified for zone 1&2, IIB+H2 Gas group, T5 Gas temperature class (100°C)
- **Ingress protection IP66 - C5 Marine-grade painting**, to suit outdoor permanent operation
- Continuous operation at full power from 0 °C to 50 °C of external ambient temperature
- **3 External padlockable MCCB** to operate the system operation without the need to open the enclosure (input, battery and output)
- **100% relative humidity**, with reinforced water protection:
 - Automatic internal pre-heating sequence before charger energization, to protect the unit from internal humidity
 - Conformal coating of the PCBs
 - VCI for marine environment
- Double DC output with **independent battery current control**
- Protections against errors and malfunctions : overload, short-circuit, reverse polarity, overvoltage, overheating)
- **Remote monitoring capability**: status and alarms on volt-free contacts, Modbus protocol
- **Remote control capability** from external contacts: charger on/off and battery MCCB trip

Technical Data

Input	
AC voltage	1 x 230 V (220, 240)
Voltage tolerance	+15% / -18% (187 V to 264 V)
Frequency	50 Hz (60 Hz)
Frequency range	From 47 Hz to 63 Hz
Total harmonic current distortion (THDi)	≤ 5%
Inrush current	≤ 10 x I _n ⁽⁴⁾
Input power factor	≥ 0.95

Output	
Nominal DC Voltage	24 V / 48 V
Output DC voltage range	+/-15 %
Static regulation	+/-1 %
Voltage ripple	≤ 0.1 % RMS (disconnected battery)
Current limitation	I nominal
Charging mode	With valve regulated lead acid: single charge mode With recombination nickel cadmium: single charge mode (recommended) or dual charge mode
Charging current	With valve regulated lead acid : 0.05C ₁₀ to 0.1C ₁₀ With recombination nickel cadmium: 0.1C ₅ (up to 0.2C ₅ subject to battery enclosure certification limits)

Protections	
Input	type : MCCB Breaking capacity : 18 kA Lightning arrester / spike suppressor
Battery	pre-heating start-up type : MCCB Breaking capacity : 18 kA Battery reverse polarity protection Low Voltage Disconnection (LVD) device External battery cut-off
Output	type : MCCB Breaking capacity : 18 kA
Isolation Voltage	Input / output: 4200 Vdc / 1 min Input / ground: 2300 Vdc / 1 min Output / ground: 1500 Vdc / 1 min
System	Internal anti-condensation paint Conformal coating of Printed Circuit Boards (PCB) Volatile Corrosion Inhibitor (VCI) for 2 years

Battery			
Type	Valve regulated lead acid Recombination nickel cadminum		
Configuration		24 Vdc	48 Vdc
	Lead Acid :	12 cells ⁽¹⁾	24 cells
	Nickel cadmium :	19-20 cells	38-40 cells
Autonomy ¹ cells upon request	from few minutes to several hours, upon requirement		

Ratings		
Output voltage	24 Vdc	48 Vdc
Output current	15, 25 , 50A	15, 25 A

General Data	
Execution	II 2 G Ex db eb IIB+H2 T5 Gb IP66
External ingress protection	IP 66
Rectifier efficiency	From 86 % (24 V) to 89 % (48 V)
Operating temperature	From 0 °C to 50 °C (external temperature, without derating)
Storage temperature	From -20 °C to +70 °C (battery excluded)
Relative Humidity	100 %, condensing
Operating Altitude	1000 m (without system derating)
Cooling	Natural convection
Noise	≤ 30 dB (at 1m in front of the unit)
Dimensions	W: 490 mm / D: 491 mm / H: 1200 mm
Weight	Varying according to ratings and options
Installation	Vertically wall-mounted
Design life	20 years
Materials	Charger enclosure: Ex d, copper-free marine grade aluminum Customer terminal box: Ex e, stainless steel 316L Supporting frame: C35 steel
Painting	External: C5 marine-grade painting, RAL 7035 or 7032 Internal: Hygroscopic orange RAL 2004
Customer connection	Through pre-dilled gland plate, 1.5mm thickness

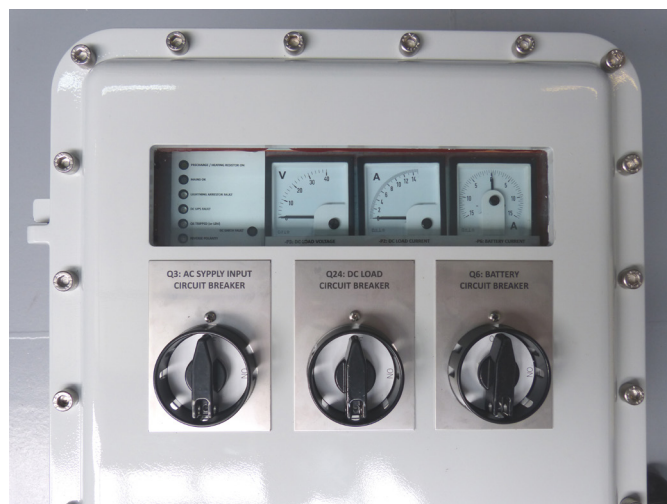
Standards	
IEC EN 60146-1-1:2009	Semiconductor converters - Part 1-1: Specification of basic requirements
IEC EN 61000-6-2:2006	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
IEC EN 61000-6-4:2007 AMD1:2011	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standards for industrial environments
IEC EN 61439-1:2011	Low voltage switchgear and controlgear assemblies - Part1: General rules
IEC EN 60529:1989 AMD1:1999	Degrees of protection provided by enclosures (IP Code)(IP Code)
NFC 58-311:1990	Procedure for type tests for rectifier-battery charger and batteries
IEC EN 60079-0	Explosive Atmospheres Part 0: Equipment - General Requirements
IEC EN 60079-1	Part 1: Equipment protection by flameproof enclosures "d" Explosive atmospheres
IEC EN 60079-7	Part 7: Equipment protection by increased safety "e"

Human-machine Interface / Remote Monitoring

From front of the unit through glass window on Ex d box	<ul style="list-style-type: none"> 7 LEDs for charger status and alarms: <ul style="list-style-type: none"> Pre Charge / Heating Resistor ON Mains Ok Lightning Arrestor Fault DC UPS Fault Q6 tripped (or LVD) DC Earth Fault Battery Reverse Polarity 3 output analogue meters, (accuracy class 1.5): <ul style="list-style-type: none"> DC load voltage DC load current Battery current
Inside the Ex d box From terminals (inside Ex e box)	<ul style="list-style-type: none"> Charger settings via digital control unit 8 volt-free contacts for monitoring : <ul style="list-style-type: none"> System Ok Battery discharging General alarm DC Earth fault DC UPS fault Q3 (AC input MCCB) opened / tripped Q6 (battery MCCB) tripped (or Low Voltage Disconnection-LVD) Q24 (DC output MCCB) opened / tripped 2 inputs for remote control from external contacts: <ul style="list-style-type: none"> Charger on/off Battery MCCB trip Serial communication port Modbus RTU on RS485
From front of the unit	<ul style="list-style-type: none"> 3 padlockable MCCB Reset push-button to reset latched status and alarms

Options

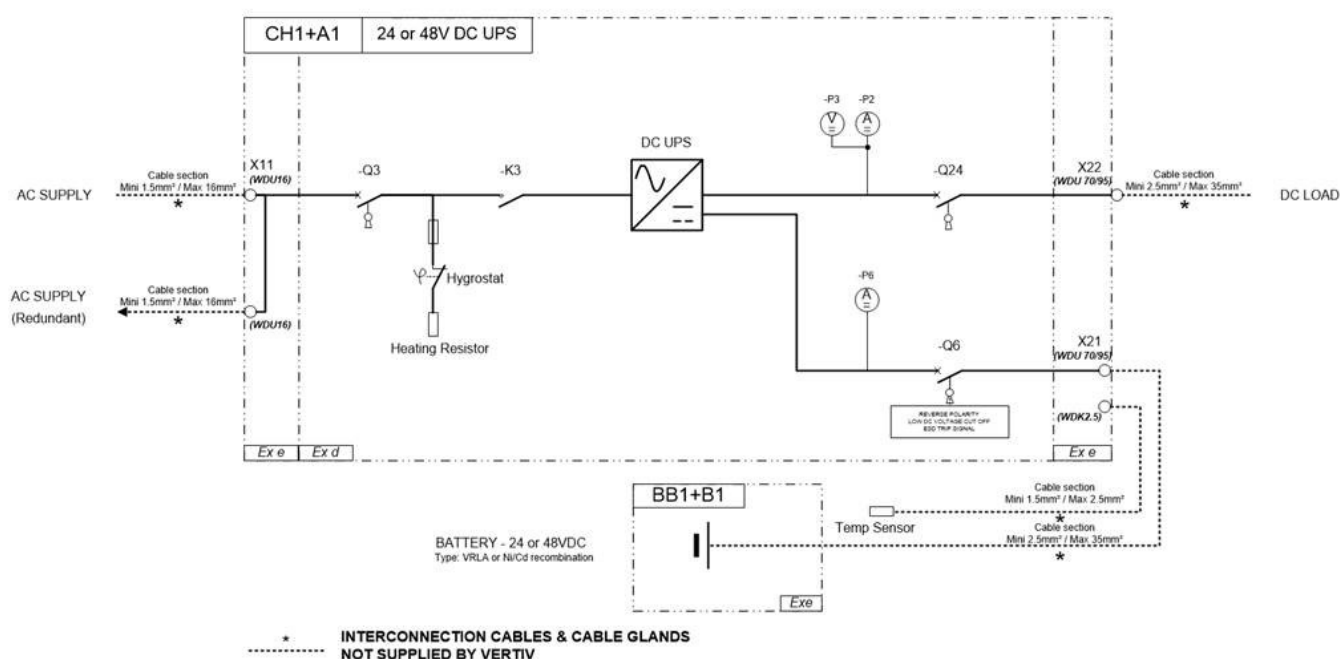
- Dual output cable configuration
- Dual battery cable configuration
- Ex e battery enclosure, floor mounted
- External battery isolator switch
- Sunshade canopy



XP20R Front view

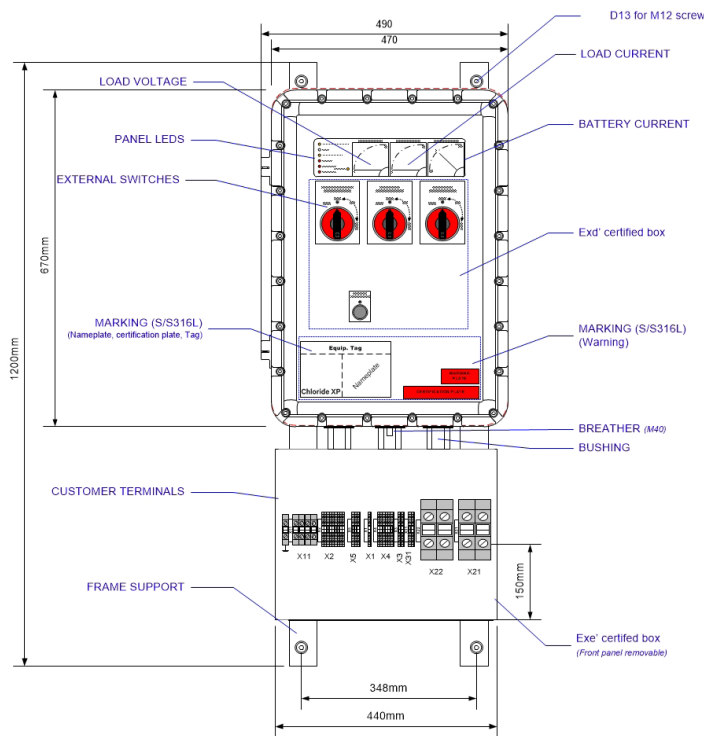
Directives

Low voltage directive	2014/35/EU (after April 2016)
EMC directive	2014/30/EU (after April 2016)
ATEX directive	2014/34/EU
ATEX 'workplace' directive	1999/92/EC

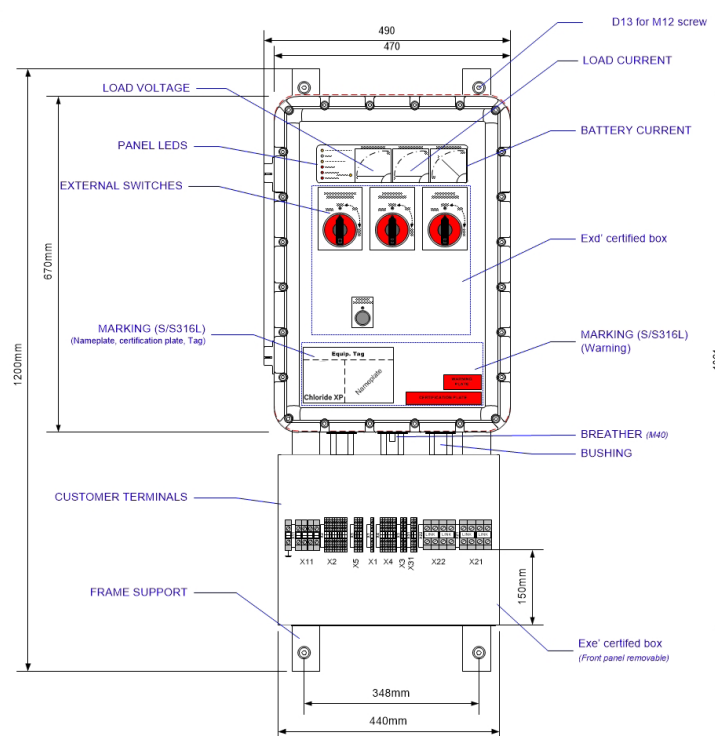


Single line diagram for Rectifier / Battery Charger XP20R

Configuration SINGLE CORE



Configuration DUAL CORE



DUAL CORE GLAND PLATE

