

Chloride® FP Range

Configured to order with industrial options
Pre-defined blocks for shorter lead time



Benefits

Best-in-class performance to optimize expenses:

- Reduced CAPEX - Upstream transformer, switchgear and cables are downsized thanks to high input power factor, low THDi rejection and low inrush current
- Controlled OPEX - Lower power consumption thanks to high efficiency
- Proven digital Vector Control technology to control the output waveform, even on non linear loads

Industrial-grade maintainability:

- Innovative design without heavy power modules and allowing an easy front access to all components
- Removable ID Cards which safeguard the UPS parameters and facilitate control board replacement

Smart access to UPS data:

- Large color LCD touch-pad for user interface
- Configurable active mimic diagram
- Embedded event logger (up to 2000 events) and capability to export recorded via USB memory stick

Industrial flexibility:

- Fit-for-purpose battery selection
- Galvanic isolation: either output or input and output transformers
- Wide range of electrical and mechanical options

Key Features

Bidirectional rectifier to perform battery deep discharging tests into the mains

Ingress Protection IP42 as standard for harsh environmental conditions

Robust design to continuously operate at full load at 40 °C

Continuous operation on input phase failure as optional feature

The Chloride® FP60Z Uninterruptible Power Supply (UPS) is a true industrial UPS system offering a full-IGBT innovative design and embedding all the latest technologies in power protection.

Range Overview

Chloride® FP60Z is available in standard range from 5 to 160 kVA in single-phase or three-phase output configurations and can be adapted to reach up to 250 kVA output power. It offers a wide choice of DC battery voltages (110 V, 220 V or 400 V) and of output voltages (from 1 x 110 V to 3 x 415 V).

The UPS uses patented digital Vector Control technology which increases the UPS performances, enables active conditioning of the load and allows adaptability to different application needs.

Chloride® FP60Z features a wide input voltage tolerance, which makes the system compatible with the harshest industrial power grids.

To further improve load availability and process reliability, Chloride® FP60Z is able to operate in dual distributed parallel configuration, with one or two reserve supplies, with single or dual batteries, and can include an AC bus-tie.

Applications

- Petrochemical and Chemical
- Minings/Metals
- Power generation plants
- Oil & Gas
- Water and Wastewater
- Transportation (rail, metro, tramway)
- Continuous manufacturing processes



Example of Chloride® FP60Z - 800 mm width

Technical Data

Input	
Input voltage	1-ph x 230 Vac (220, 240) 3-ph+N x 400 Vac (380, 415) ± 10 % (other voltages and tolerances on request)
Inrush current	≤ 1 In (without input transformer) ≤ 8 In (with input transformer)
Power factor	Up to 0.98
Frequency range	50 Hz (60 Hz factory setting) ± 5 %
Embedded input features	AC input isolator switch Surge protection with MOV lightning arrestors

Output									
1-ph and 3-ph input		3-ph input only							
110 Vdc	5 10 20	-	-	-	-	-	-	-	-
220 Vdc	- 10 20	30	40	60	-	-	-	-	-
400 Vdc	- - -	-	40	60	80	100	120	160	250

Intermediate DC Circuit	
Nominal DC Voltage	110 / 220 / 400 Vdc
Voltage stability in steady state	≤ 1 % in float mode (input within tolerance)
Voltage ripple	≤ 1 % RMS (with and without battery connected)
Current limitation	1 nominal
Charging characteristic	IU according to DIN 41773

Output	
AC voltage	1-ph: 230 Vac (208, 220, 240) ; 110 Vac (115, 120, 127) 3-ph: 400 Vac (380, 415) ; 208 Vac (190, 200, 220)
Frequency stability	With internal oscillator ± 0.1 % With reserve synchronism ± 1 % (1 to 4 % adjustable)
Voltage stability (0-100% load variation)	Static ± 1 % Dynamic VFI SS 111 as per IEC62040-3, class 1
Overload inverter (in % of nominal power)	150 %/1 min - 125 %/10 min at nominal output voltage
Short-circuit clearance (in % of nominal current)	1-ph and 3-ph: 250 %/100 ms - 150 %/5 s
Voltage distortion	With 100 % linear load < 2 % With 100 % non linear load < 5 % as per IEC62040-3
Allowable power factor	0.5 lagging to 0.5 leading
Allowable crest factor	3/1
Embedded output features	<ul style="list-style-type: none"> Output switch Output isolation transformer class H

Reserve line	
Embedded reserve line features	<ul style="list-style-type: none"> Integrated manual bypass switch Inbuilt input reserve line switch

Battery										
Type	Lead acid or nickel cadmium, vented or recombination									
Recommended nb of cells:	<table border="1"> <thead> <tr> <th>110 Vdc</th> <th>220 Vdc</th> <th>400 Vdc</th> </tr> </thead> <tbody> <tr> <td>• Lead Acid</td> <td>54 to 72</td> <td>108 to 144</td> </tr> <tr> <td>• Nickel Cadmium</td> <td>88 to 98</td> <td>176 to 200</td> </tr> </tbody> </table>	110 Vdc	220 Vdc	400 Vdc	• Lead Acid	54 to 72	108 to 144	• Nickel Cadmium	88 to 98	176 to 200
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• Lead Acid	54 to 72	108 to 144								
• Nickel Cadmium	88 to 98	176 to 200								
Battery current limitation	0.1 C (Lead Acid) / 0.2 C (Nickel Cadmium)									
Embedded battery features	<ul style="list-style-type: none"> Inbuilt battery circuit breaker with aux. contact Battery reverse polarity protection and indication Battery Low Voltage Disconnection (LVD) Battery test, automatic or manual mode Battery room temperature sensor for battery charge compensation 									

Compliance

Standards	
IEC/EN 62040-1: 2008	Semiconductor converters - Part 1-1: Specification of basic requirements
IEC/EN 62040-2: 2006	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industry
IEC/EN 62040-3: 2011	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission for industry
IEC/EN 60950-1: 2013 AMD2: 2014	Low voltage switchgear and controlgear assemblies - Part1: General rules
Other	Type tests for rectifier-battery charger and batteries

General data	
Efficiency	Up to 92 % (according to rating and config.)
Operating temperature	From 0 to 40 °C (without system derating)
T°C operating / Storage	0...40 °C without derat. syst. / -20...70 °C battery excluded
Relative humidity	< 95 % non condensing at 20 °C
Operating altitude	1000 m (without system derating)
Cooling	Fan assisted
Ingress protection	Internal IP20 - external IP42
Noise (at 1m in front of the unit)	62 to 72 dB (according to rating)
Input/output isolation	2500 VAC / 1 minute
Feet	100 mm height with feet cover
Gland plate	Aluminium non-magnetic, 3 mm thickness
Dimensions & colour	From 1 x 800 mm to 2 x 1200 mm width / RAL 7035
Embedded system features	<ul style="list-style-type: none"> Internal cabinet lighting / Lifting Eyes Auxiliary power socket Display language: EN, FR, SP, RU, TR (factory setting)

Options	
Rectifier	Input isolation transformer Special 1-ph or 3-ph input voltage (up to 3 x 690 Vac) Input voltage tolerance from - 20 % to + 15 % Input circuit breaker with aux. contact and breaking capacity up to 70 kA Automatic reverse phase sequence correction Automatic input phase failure adaptation
Battery	Protection box (circuit breaker), black start, automatic or manual mode ; DC earth fault detection
Output	Circuit breaker with aux. contact Emergency Power Off
Reserve	Circuit breaker with aux contact Reserve isolation transformer (H class) Reserve voltage stabilizer (servo-controlled) Stabilizer output isolator
System	Parallel configuration (distributed parallel) Operating temperature up to 50 °C with derating Operating altitude up to 3000 m with derating Redundant monitored fans G3 conformal coating on elec. cards against dust, humidity / Halogen free cabling Space heater with thermostat or hygrostat
Mechanical	Top cable entry - Antivibration pads Special frame color (RAL paint standards) Special feet height 200 mm or base frame
Communication	Additional volt-free contacts (up to 20 relays) Modbus RTU (RS232 or RS485) ; TCP-IP / Profibus / SNMP PPVIS monitoring software

Conformity	
Low Voltage Directive (LVD)	2006/95/EC (before April 2016) 2014/35/EU (after April 2016)
EMC Directive	2004/108/EC (before April 2016) 2014/30/EU (after April 2016)
CE Mark	