

# CHLORIDE® FP60Z

AC UPS System

From 5 to 250kVA, 1-ph or 3-ph output



## 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 in real time, 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 colour LCD touch-pad for user interface
- Embedded event logger (up to 2000 events) and capability to export recorded events via 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

- **Bi-directional 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

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 1x110 V to 3x415 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
- Water and Wastewater
- Continuous manufacturing processes



Example of Chloride® FP60Z - 800 mm width

## Technical Data

OUTPUT POWER AT COS PHI 0.8 (kVA) VS BATTERY VOLTAGE (Vdc)										
	1-ph and 3-ph input			3-ph input only						
<b>110 Vdc</b>	5	10	20	-	-	-	-	-	-	-
<b>220 Vdc</b>	-	10	20	30	40	60	-	-	-	-
<b>400 Vdc</b>	-	-	-	-	40	60	80	100	120	160 250

INPUT	
Input Voltage	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	<ul style="list-style-type: none"> <li>AC input isolator switch</li> <li>Surge protection with MOV lightning arrestors</li> </ul>

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	I 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"> <li>Output switch</li> <li>Output isolation transformer class H</li> </ul>

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

BATTERY			
Type	Type Lead Acid or Nickel Cadmium, vented or recombination		
Recommended number of cells:	<b>110 Vdc</b>	<b>220 Vdc</b>	<b>400 Vdc</b>
<ul style="list-style-type: none"> <li>Lead Acid</li> <li>Nickel Cadmium</li> </ul>	54 to 72 88 to 98	108 to 144 176 to 200	192 to 228 320 to 323
Battery current limitation	0.1 C (Lead Acid) / 0.2 C (Nickel Cadmium)		
Embedded battery features	<ul style="list-style-type: none"> <li>Inbuilt battery circuit breaker with aux. contact</li> <li>Battery reverse polarity protection and indication</li> <li>Battery Low Voltage Disconnection (LVD)</li> <li>Battery test, automatic or manual mode</li> <li>Battery room temperature sensor for battery charge compensation</li> </ul>		

## Compliance

STANDARDS	
IEC/EN 62040-1: 2008	Uninterruptible power systems (UPS) - Part 1: General and safety requirements for UPS
IEC/EN 62040-2: 2006	Part 2: Electromagnetic compatibility (EMC) requirements
IEC/EN 62040-3: 2011	Part 3: Method of specifying the performance and test requirements
IEC/EN 60950-1: 2013 AMD2: 2014	Information technology equipment - Safety - Part 1: General requirements
Other	IEC 60529: 2013 / IEC 61439 / IEC 60076: 2015 / IEC 60332-1-2: 2015

GENERAL DATA	
Efficiency	Up to 92 % (according to rating and config.)
Operating temperature	From 0 °C to 40 °C (without system derating)
Storage temperature	From - 20 °C to + 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 IP 42
Noise (at 1 m in front of the unit)	62 to 72 dB (according to rating)
Input/output isolation	2500 Vac / 1 minute
Frame colour	RAL 7035
Feet	100 mm height with feet cover
Gland plate	Aluminum non-magnetic, 3 mm thickness
Dimensions	From 1 x 800 mm to 2 x 1200 mm width
Embedded system features	<ul style="list-style-type: none"> <li>Internal cabinet lighting</li> <li>Auxiliary power socket</li> <li>Lifting Eyes</li> <li>Display language: English, French, Spanish, Russian, Turkish (factory setting)</li> </ul>

OPTIONS	
Rectifier	<ul style="list-style-type: none"> <li>Input isolation transformer</li> <li>Special 1-ph or 3-ph input voltage (up to 3 x 690 Vac)</li> <li>Input voltage tolerance from -20% to +15%</li> <li>Input circuit breaker with aux. contact and breaking capacity up to 70kA</li> <li>Automatic reverse phase sequence correction</li> <li>Automatic input phase failure adaptation</li> </ul>
Battery	<ul style="list-style-type: none"> <li>Battery protection box (circuit breaker)</li> <li>Battery black start, automatic or manual mode</li> <li>DC earth fault detection</li> </ul>
Output	<ul style="list-style-type: none"> <li>Circuit breaker with aux. contact</li> <li>Emergency Power Off</li> </ul>
Reserve	<ul style="list-style-type: none"> <li>Circuit breaker with aux contact</li> <li>Reserve isolation transformer (H class)</li> <li>Reserve voltage stabilizer (servo-controlled)</li> <li>Stabilizer output isolator</li> </ul>
System	<ul style="list-style-type: none"> <li>Parallel configuration (distributed parallel)</li> <li>Operating temperature up to 50 °C with derating</li> <li>Operating altitude up to 3000 m with derating</li> <li>Redundant monitored fans</li> <li>G3 conformal coating on electronic cards against dust and humidity</li> <li>Space heater with thermostat or hygrostat</li> <li>Halogen free cabling</li> </ul>
Mechanical	<ul style="list-style-type: none"> <li>Top cable entry</li> <li>Special frame color (RAL paint standards)</li> <li>Special feet height 200 mm or base frame</li> <li>Antivibration pads</li> </ul>
Communication	<ul style="list-style-type: none"> <li>Additional volt-free contacts (up to 20 relays)</li> <li>Modbus RTU (RS232 or RS485)</li> <li>Modbus to TCP-IP / Profibus / SNMP</li> <li>PPVIS monitoring software</li> </ul>

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	

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