

# FLUXPOWER HPS

400-500-600-800 KVA

3-phase UPS

High power solution for large,  
mission-critical systems



## Flexible and smart

The innovation and design of the Fluxpower HPS high power UPS has resulted in the unit being the most technologically advanced in its class.

It delivers an incredible combination of low input current distortion, unity input power factor and high overall efficiency. These advances in design offer numerous benefits, including lower running costs and substantially increased reliability.

## Low THDi and power factor performance

The Fluxpower HPS model UPS uses a completely new IGBT input rectifier design, encompassing an advanced PFC (Power Factor Control) which is capable of keeping input current THDi (Total Harmonic Distortion) at a level of less than 3% and input power factor within 1% of unity, even when only small loads are applied.

The key benefits are that the UPS is compatible with the upstream source, the mains or any kind of generator and the transfer of power between source and load is more efficient. This results in a saving in terms of scale of sources, cables and protective devices.

## High efficiency reduces overall cost of ownership

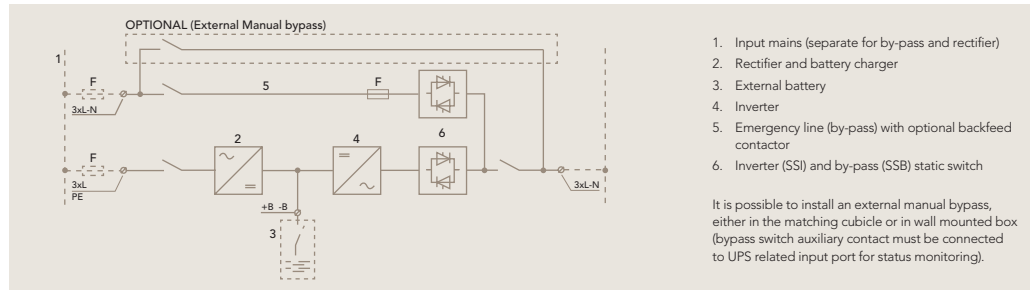
Fluxpower HPS has a new Wise ECO function which enables a total operating efficiency of between 95% and 98%. This mode, referred to as "Intelligent ECO mode", significantly reduces the utility costs associated with operating a device of this type. Moreover, this increase in efficiency results in the production of less waste heat, minimizing cooling / air-conditioning costs. This represents a double saving to the energy conscious user.

The Wise ECO function uses continual monitoring techniques to review the input characteristics of the supply. This means that if the supply line drops or fluctuates outside of acceptable conditions the UPS uses the internal inverter to support the load. This is achieved through a fast, fully static transition from VFD to VFI mode.

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POWER SOLUTIONS

## FLUXPOWER HPS

3-PHASE UPS



### “Green” double protection for every application

VFI online double conversion topology in this equipment offers built-in inverter galvanic protection completely isolating the output power from all input power anomalies, delivering fully conditioned pure sine-wave output.

In pure on-line mode the unit delivers an excellent certified 96 % efficiency. Because of the technology and topology used, no additional losses are generated to achieve low input harmonics or input / output galvanic isolation.

The Fluxpower HPS unit is designed to provide excellent output voltages suited to very demanding applications with either 100 % step load, unbalanced, non-linear or modern IT loads. It also provides exceptional performance: with a power factor of up to 0.9 (lagging or leading), there is no requirement to de-rate the unit.

### Triple Intelligence

If the application requires extremely flexible and reliable UPS protection, the Fluxpower HPS is ideal. It delivers advanced features based on state-of-the-art total digital control. This control incorporates dual DSP (Digital Signal Processing) and  $\mu$ C (Micro controller) technologies.

The system design ensures that auxiliary power supplies and processors are no longer single points of failure which could compromise the availability of clean power to the load.

The Fluxpower HPS is designed to overcome the limitations imposed by other older, designs. With its distributed control architecture, Fluxpower HPS will always have a UPS circuit protecting the load; furthermore, the status of most critical components is constantly monitored, allowing predictive maintenance and avoiding unexpected breakdowns.

Fluxpower HPS' working state can be easily monitored by any Building Management System and via LAN / WAN.

### Life-prolonging Battery Management

Batteries are electro-chemical devices, which store charge chemically; as such their performance degrades with time. The Fluxpower HPS owns a Battery Anti-Aging Control (BAAC) according to battery manufacturers' requirements.

Following a UI characteristic curve, the charger charges at a constant current appropriate for the battery type used, preventing detrimental excess charging. In addition to the float voltage level, boost charge can be set, optimizing the recharge time when there is the possibility of consecutive power outages within a short period.

BAAC also reduces the residual ripple current (one of the causes of premature battery wear), as well as protecting the battery from damaging deep discharges.

Automatic battery temperature compensation charge voltage may be implemented, charging the battery more appropriately and increasing battery life. By means of DCM (Dynamic Charging Mode) very long battery autonomies can be achieved without increasing total charge time. This is achieved through the implementation of an intelligent increase in maximum battery charge current when the maximum inverter power is not being drawn by the load.

An integrated periodical battery testing function tests and monitors battery health, providing advanced warning to guide the application of preventive maintenance.

### Parallel systems with “hot swap” modularity

Fluxpower HPS UPS offers parallel options in both redundancy and capacity modes, providing the possibility for both extra system resilience and increased capacity.

The parallel control circuitry associated with these units is fully digital and acts on both active and reactive power on each of the three output phases. This allows accurate load current sharing among the UPS units even during transient conditions.

## FLUXPOWER HPS

FEATURE RICH INTELLIGENCE



Parallel control is distributed between all units and communication is achieved through the use of a CAN bus connection loop. This has the effect of producing a highly reliable system with "no single points of failure".

Intelligent design of the system connections allow for easy installation and easy future upgrades, this allows for upgrading in the field without difficulty.

In modular arrangement, units can be added or removed "hot" without load disturbances or the need to switch to bypass.

Smart Parallel functions facilitate the automatic switching off of units where the total power requirements of the load is provided by fewer than the total number of UPS units attached. This is commonly known as "load based shutdown" and maximizes the efficiency of the complete system by keeping the load on each module at an optimum level.

Two independent paralleled systems can be synchronized (Sync Control) in order to feed downstream STS' for seamless transfers.

### Easy installation, operation and maintenance

Fluxpower HPS can easily be sited within areas no wider than 1200 mm, and can be installed close to walls or other cabinets as cooling air is expelled through vents on the top of the unit. This new design also gives the user significant savings in floor utilization and is an ideal solution where space is at a premium.

Despite the modern, compact design, all critical components, are accessible from the front of the unit; this improves accessibility to allow regular maintenance and reduced Mean Time to Repair (MTTR).

Fluxpower HPS also incorporates a unique back-feed power protection system. If the output of the UPS is fed back into the mains, the unit will immediately isolate itself. This removes the need for additional MCBs or other similar safety devices.

### User interface and accessories

- » User-friendly interface
- » Monitoring, managing and shutdown software
- » Bypass and switchgear section
- » Power conversion section
- » Removable blowers
- » Front access

### Communication

- » RS232 serial port
- » USB port
- » Remote EPO
- » External manual bypass status
- » Battery Switch status
- » Diesel Mode

### Optional

- » Web / SNMP
- » Modbus
- » Relays
- » Modem
- » Remote panel

### Options

- » Parallel capacity / redundancy
- » Sync control for dual feed systems
- » Isolation transformer
- » External bypass
- » External battery cabinets
- » Battery switch box
- » Battery thermal probe
- » Transformers / autotransformers for voltage adaption
- » Top cable entry

### Information and communication technology

- » Large data centers
- » Server farms
- » Telecommunication installations
- » Broadcasting and entertainment
- » Internet Service Providers (ISP)

### Critical electrical engineering

- » Industrial systems
- » Financial and banking
- » Security operations
- » Transportation systems
- » Medical / Healthcare

# FLUXPOWER HPS

SPECIFICATION

<b>Model (kVA)</b>	400	500	600	800
<b>Capacity rating (kVA)</b>	400	500	600	800
<b>Dimensions W x H x D (mm)</b>	1990 x 1920 x 990	2440 x 2020 x 990	2440 x 2020 x 990	3640 x 1920 x 990
<b>Weight (kg)</b>	1820	2220	2400	3600
<b>Input / output connection</b>	Hard wired (dual input)			
<b>Battery</b>	External, 300-312 cells			
<b>INPUT</b>				
<b>Nominal voltage</b>	220 / 380, 230 / 400, 240 / 415 VAC single / 3-phase			
<b>Voltage range</b>	-20 %, +15 % at 400 V nominal			
<b>Frequency</b>	50 / 60 Hz (45 – 65 Hz)			
<b>Power factor</b>	0.99			
<b>Current distortion (THDi)</b>	<3.5 %			
<b>OUTPUT</b>				
<b>Nominal voltage</b>	220 / 380, 230 / 400, 240 / 415 V AC three phase			
<b>Frequency</b>	50 / 60 Hz			
<b>Voltage regulation</b>	±1 % static; ±5 % dynamic 100 % load change			
<b>PF acceptable without de-rating</b>	Lagging to leading 0.9			
<b>Overload capacity</b>	101 – 125 % for 10 min (on-line), 126 – 150 % for 1 min (on-line), 1000 % for 1 cycle (bypass)			
<b>Efficiency; VFI, double-conversion</b>	≤94.8 %			
<b>Efficiency; Wise ECO mode</b>	95 – 98 % (>98 %)			
<b>OPTIONS</b>				
<b>General</b>	8 x parallel capacity/redundancy, sync control, isolation transformer, external bypass, external battery cabinets, battery switch box, battery thermal probe, transformers / autotransformers for voltage adaption, top cable entry			
<b>USER INTERFACE</b>				
<b>Front panel</b>	Graphical LCD display, mimic with LED's and keyboard			
<b>Standard communication ports</b>	RS232 serial, USB, Remote Emergency Power Off input, Battery Switch status monitoring, External Manual Bypass status monitoring, Diesel Mode			
<b>Optional communication</b>	Web / SNMP, ModBus, Relay, Modem cards; Remote panel; Monitoring, Managing and shutdown software			
<b>ENVIRONMENTAL</b>				
<b>Operating temperature</b>	0 °C – +40 °C			
<b>Storage temperature</b>	-10 °C – +70 °C			
<b>Altitude</b>	<1000 m; 1 % power derating each 100 m above, max. 2000 m			
<b>Audible noise at 1 meter dB(A)</b>	<60			
<b>STANDARDS AND CERTIFICATION</b>				
<b>Marking and certification</b>	CE, GOST, ECA ETL			
<b>Safety</b>	IEC EN 62040-1			
<b>EMC</b>	IEC EN 62040-2			
<b>Test and Performance</b>	IEC EN 62040-3			
<b>Quality, environment, health and safety</b>	ISO9001:2008, ISO 14001:2004, BS OHSAS 18001:2007			

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