

# PowerPro™ EF300 Series

Three Phase Input & Output Online Transformerless UPS  
10kVA – 65kVA (Parallelable up to 5.2mVA)

VFI

» Eco-Friendly

» Intelligent

» Space Saving



The PowerPro Eco-Friendly 300 Series UPS is a combination of BPC's advanced Digital Signal Processor (DSP) control technology and a firm pursuit of a green manufacturing philosophy, resulting in a UPS design utilising the latest generation power components and improved conversion circuit topology in order to optimise maximum efficiency.

With minimum space, fewer components and controlled levels of noise pollution, it has a significantly reduced environmental impact. Therefore, with the Eco-Friendly UPS range it is feasible to design a UPS with reduced carbon footprint whilst achieving clean, continuous power for industrial and computing applications.

- » Data Centres
- » Financial services
- » Healthcare
- » Industrial
- » Telecommunications

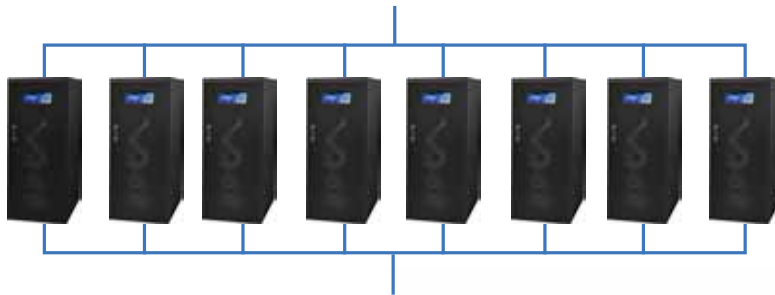
## PowerPro EF Features

### MODULAR DSP ARCHITECTURE

The PowerPro EF300 Series is designed with internal DSP architecture, with separate DSP for Rectifier, Inverter and display. With the use of a CAN Bus System, other modules can be added easily to update or configure the system for multiple use design.

The modular DSP design future proofs your UPS:

- Latest features can be easily upgraded
- Multiple applications for Lifts, Medical, Solar



### INCREASED RELIABILITY

Up to 8 PowerPro EF300 units can be connected in parallel, providing a total power capacity of 5.2mVA. The system can also be configured to provide N + 1 redundancy offering the highest reliability. This flexibility allows you to install a system that can grow with your business power requirements.

### ADVANCED COMMUNICATIONS

The PowerPro EF 300 Series comes with internal and external SNMP options with full environmental features. The UPS has a specially designed USB memory stick to record the internal history of the system, providing an easy solution for analysing performance and operation. This also provides an easy way to send the information of the UPS faults to the BPC Technical team for analysis if there are any concerns with the UPS operation.

- Four fully programmable dry port relays as standard upgradable to twelve, with over 65 selectable alarms
- Dedicated communication port for service engineer diagnosis and adjustment via laptop or notepad
- Emergency Power Off (EPO) connection for external switching control
- External temperature input monitoring

### INTELLIGENT BATTERY MANAGEMENT & PROTECTION

- Internal batteries in standard chassis up to 80kVA
- Deep discharge protection
- Low AC ripple
- Interactive external battery circuit breaker position sensing
- Interactive battery circuit breaker control
- Two stage battery self test, a short test and an intensive test with adjustable test intervals
- Adjustable battery charger system for short and long runtimes
- Battery temperature compensation option



## PowerPro EF Features

### LOW RUNNING COSTS

The PowerPro EF300 Series operates with low Total Harmonic Distortion (THDi) to less than 5% at full load. The low harmonics help to reduce overheating of input transformers and prevents over sizing input cables and protection devices.

The input power factor of the system runs close to unity at full load, helping to reduce operating costs from utility suppliers charging premium rates.

The low THDi and close to unity power factor mean better matching of generators and reduced costs due to oversizing.

### FLEXIBILITY

A fully protected system with the flexibility to meet all demands:

- Multiple operating modes including Online and ECO Mode
- Frequency converter with standard 50 Hz Input, adjustable output to 60 Hz.
- Adjustable 'walk in' time for generator friendly operation
- Dual feed inputs – separately feeding both the Rectifier and bypass lines
- Cold Start Feature – start up with no mains available.
- Input and output transformer options
- All major parameters, such as bypass synchronisation are fully programmable

### SPACE SAVING DESIGN

The PowerPro EF300 Series has been designed with class leading power density, maximising valuable floor space in your data centre. The range boasts small footprints of 0.32m<sup>2</sup> up to 30kVA, 0.44m<sup>2</sup> up to 160kVA, 0.68m<sup>2</sup> up to 250kVA and 0.97m<sup>2</sup> up to 500kVA.

### HARSH ENVIRONMENTS

Some applications can have severe surroundings where higher internal protection might be required.

The PowerPro EF300 Series can be offered with IP31 or IP42 options (others on request) to safeguard against unstable environments where the need to counter ingress of harmful particles and liquids is essential.



### ADVANCED GRAPHIC DISPLAY

A precise graphic backlit display providing real time status and parameter readings via its own DSP controller. The EF home screen shows all modular elements of the UPS in a clear and precise manner as well as an overview of the system operation.

An easy to navigate control pad allows for a complete and comprehensive overview of measurements, controls and settings with comprehensive event logging up to 192 event memory record system (total 7000 alarms or warnings).

### INTELLIGENT MANAGEMENT & MAINTENANCE SYSTEM

The PowerPro EF300 Series has the most advanced built in management and maintenance system (MMS). The MMS has dynamic self-diagnostics and analyses all the internal sub assemblies, providing the engineer with recommendations on what settings need adjustment and calibration.

Fast PCB replacement with all settings and adjustments are easily uploaded via the engineer's laptop. The MMS system built into the UPS reduces the mean time to repair (MTTR) by almost half compared to other UPS systems.

Four service meters track critical areas within the UPS alerting that maintenance is required.



2x 80kVA High Internal Protection IP42 UPS supporting residential lifts in the UK



## POWERPRO EF LIFT

The PowerPro EF300 LIFT Series has been specially designed for use with the operation of lift systems.

With new BS 999 regulations now stating that lifts used for an evacuation are required by law to have their own independent back up supply, the EF300 LIFT UPS has become the ideal solution.

The UPS incorporates an intelligent braking system, using IGBT controllers to electronically absorb any regenerative back feed energy from the lift.



## POWERPRO EF MEDICAL

The PowerPro EF300 MEDICAL Series has been specially developed for use on MRI Scanners and medical environments.

With specially designed DSP software, the EF MEDICAL provides better operation against MRI loads that have transformers at their input.

The MEDICAL UPS also has better operation against short circuits and provides higher current inrush capacity to prevent problems caused by IGBT saturation.

The system has the capability to accommodate an Internal Galvanic Isolation Transformer up to 60kVA whilst systems up to 650kVA have the Isolation Transformer provided in a matching battery cabinet design.



## POWERPRO EF HYBRID

The PowerPro EF300 HYBRID Series senses the availability of solar power, grid power and the battery power for supplying the connected loads, using the most economical and ecological combination of these energy sources. The system primarily works from solar energy to return your investment.

**MPPT** algorithm provides maximum energy available in the PV panels to the load connected at the output of the solar converter which arranges power redundancy automatically.

The battery bank stores the unused clean energy and protects against power failures.

The different energy flows can be setup according to weather data and/or customer profiles.

As a conventional online UPS, it always offers full protection against any kind of power problem without any internal switching.





# PowerPro EF300 Series

## Technical Specification

PowerPro EF300 Series

MODEL	EF 310	EF 315	EF 320	EF 330	EF 340	EF 360	EF 380	EF 3100	EF 3120	EF 3160
Power Rating kVA / kW	10 / 9	15 / 13.5	20 / 18	30 / 27	40 / 36	60 / 54	80 / 72	100 / 90	120 / 108	160 / 144
<b>INPUT</b>										
Nominal Voltage	380 / 400 / 415 Vac (3Ph + N + PE)									
Voltage Range	±20%									
Frequency	50 Hz / 60 Hz, ±5%									
Power Factor	0.99 @ full load									
Harmonic Distortion*	<3% @ 100%									
<b>OUTPUT</b>										
Nominal Voltage	380 / 400 / 415 Vac (3Ph + N + PE)									
AC Voltage Regulation	±1%									
Frequency Range	50 Hz or 60 Hz, ±2%									
Power Factor	0.9									
Crest Factor	3:1									
Harmonic Distortion (Linear Load)	<3% @ 100% load									
Transfer Time	Zero									
Waveform	Sinewave									
<b>EFFICIENCY</b>										
On-Line Mode	Up to 94%									
ECO Mode	Up to 98%									
<b>BATTERY</b>										
Battery Type	VRLA Sealed Lead Acid Maintenance Free Batteries, Nickel Cadmium Batteries									
Battery Numbers	±30 blocks internal						±30 blocks external			
<b>GENERAL</b>										
Operating Temperature	0 - 40°C									
Operating Humidity	90% (non-condensed)									
Acoustic Noise	<57 dB @ 1 metre	<62 dB @ 1 metre			<64 dB @ 1 metre			<68 dB @ 1 metre		
Protection Degree	IP20 (other on request)									
Management Software	Included									
Standard Model	Dimensions (mm) WxDxH	400 x 815 x 1040				515 x 855 x 1440				
	Net Weight (kg)	87	91	100	173	197	209	220	232	265
Transformer	Galvanic Isolation Transformer at input and output (optional)									
Comms. Adaptors	SNMP, MODBUS, RS485, Remote Panel									

\*Depending on power and input/output conditions



## PowerPro EF300 Series Technical Specification

MODEL	EF 3200	EF 3250	EF 3300	EF 3350	EF 3400	EF 3500	EF 3650	
Power Rating kVA / kW	200 / 180	250 / 225	300 / 270	350 / 315	400 / 360	500 / 400	650 / 585	
<b>INPUT</b>								
Nominal Voltage	380 / 400 / 415 Vac (3Ph + N + PE)							
Voltage Range	±20%							
Frequency	50 Hz / 60 Hz selectable, ±5 Hz							
Power Factor	0.99 @ full load							
Harmonic Distortion*	<3% @ 100%							
<b>OUTPUT</b>								
Nominal Voltage	380 / 400 / 415 Vac (3Ph + N + PE)							
AC Voltage Regulation	±1%							
Frequency Range	50 Hz / 60 Hz, ±2%							
Power Factor	0.9					0.8	0.9	
Crest Factor	3:1							
Harmonic Distortion (Linear Load)	<3% @ 100% load							
Transfer Time	Zero							
Waveform	Sinewave							
<b>EFFICIENCY</b>								
On-Line Mode	Up to 94%					Up to 95%		
ECO Mode	Up to 98%							
<b>BATTERY</b>								
Battery Type	VRLA Sealed Lead Acid Maintenance Free Batteries, Nickel Cadmium Batteries, Gel Batteries							
Battery Numbers	±30 blocks external							
<b>GENERAL</b>								
Operating Temperature	0 - 40°C							
Operating Humidity	90% (non-condensed)							
Acoustic Noise	<68 dB @ 1 metre		<72 dB @ 1 metre			<73 dB @ 1 metre		
Protection Degree	IP20 (other on request)							
Management Software	Included							
Standard Model	Dimensions (mm) WxDxH	880 x 775 x 1900		1250 x 775 x 1900		1250 x 840 x 1900		1500 x 1020 x 1900
	Net Weight (kg)	482	550	638	638	737	780	925
Transformer	Galvanic Isolation Transformer at input and output (optional)							
Comms. Adaptors	SNMP, MODBUS, RS485, Remote Panel							

\*Depending on power and input/output conditions

# Advanced Power Conversion Solutions

## The BPC Group

BPC is an international company operating for 20 years globally, with partners and distributors located around the world.

These regions include:

### EUROPE

UK, France, Germany, Gibraltar, Ireland, Netherlands, Malta, Norway, Portugal.

### MIDDLE EAST

Bahrain, Jordan, Kuwait, KSA, Lebanon, Oman, Qatar, UAE, Yemen.

### AFRICA

Burkina Faso, Democratic Republic of the Congo, Egypt, Ethiopia, Kenya, Ghana, Libya, Nigeria, Rwanda, Sierra Leone, Sudan, Tanzania, Uganda, Zambia.

### FAR EAST & ASIA

India, Pakistan, Sri Lanka.

To ensure a high level of pre and post-sales support is offered, BPC work closely with distributors, providing key commercial and technical training whilst providing competitive costing structures tailored to specific region markets, ensuring the most suitable BPC products are offered. We pride ourselves on long standing relationships with our partners which is reflected in the ongoing support provided locally.



The British Power Conversion Company

Authorised Distributor