PowerGem™ Plus RT – LFP Series

Single Phase Input & Output – True On-Line Double Conversion UPS
1kVA – 10kVA with LiFePo4 Battery Technology

VFI

- Arduous Applications
- Excellent Deep Discharge Cycling
- High Temperature Versatility
- Green Concept Design

The BPC PowerGem Plus RT - LFP is a unique range of high-density UPS Systems designed to be used with Lithium Ferro Phosphate battery technology (also known as LFP or LiFePO4) which are combined to offer standby power systems suitable for a wide range of arduous applications.

The PowerGem UPS and LFP battery system combine to give an ultra-efficient system resulting in improved operational performance up to 99% in ECO mode, 95.5% in inverter mode. Also, providing greater reliability in arduous applications requiring frequent deep discharges.

The PowerGem UPS is equipped with the latest digital signal processor (DSP) technology and the LFP battery has BMS design controls ensuring adaptive equalization for each cell maximising energy storage and availability performance while protecting the safety of the battery system at all times.

- Data Centres
- Financial Services
- Healthcare
- Networking
- Telecommunications
- Mission Critical

PowerGemPlus RT LFP UPS Features

RACK / TOWER CONFIGURATION

The PowerGem Plus RT range is extremely versatile and designed to have the flexibility to use as a floor standing tower type UPS or to be integrated into the client's 19" rack cabinet. The enhanced programmable LCD display can be manually positioned to suit both modes of operation by simply removing and rotating the display panel.

ADVANCED FUNCTIONAL LCD DISPLAY

The PowerGem Plus RT DSP controlled UPS provides an intelligent high-density system suitable for powering a wide range of devices both simply and accurately. A precise backlit comprehensive LCD display with schematic operation status of the UPS, LED indicators and function keys allowing all the key parameters, alarms and indications to be shown.

ENVIRONMENTALLY FRIENDLY ENERGY SAVING

The intelligent microprocessor-based control system allows for the very low power consumption offered by the interactive ECO mode which provides efficiencies as high as 97%. PowerGem Plus RT switches instantaneously to online double conversion operation automatically when the mains becomes unstable and fluctuates outside the normal frequency and voltage parameters.

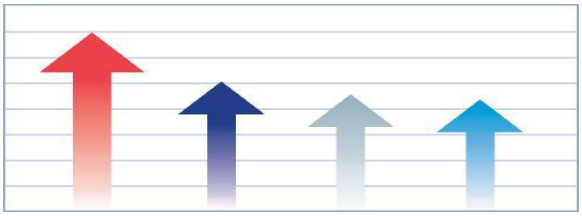
WIDE INPUT VOLTAGE

Part of the unique design of the PowerGem Plus RT is to improve the performance in extreme site conditions with a wide input voltage window, ranging from 110 volts to 300 volts, without the need for the system to transfer into Battery Mode.

- **True On-Line Double Conversion**
- **Digital Signal Processor (DSP) technology**
- **Wide input voltage (110V – 300V)**
- **Tower or Rackmount convertible design**
- **Unity power factor**
- **Intelligent self-diagnostics**
- **Pure sinewave output**
- **Multiple communication ports**
- **Emergency power off (EPO) function**
- **ECO mode operation for energy saving**
- **Optional dust filter for hazardous environments**

UNITY POWER FACTOR

The PowerGem Plus RT range adopts DSP and highly efficient electronic IGBT inverter technology providing one of the highest power density ratios in the UPS industry. Advanced inverter circuitry delivers unity power factor maximising power output.



COMMUNICATION INTERFACE

This feature will allow either the USB or RS232 communication port to work with an SNMP simultaneously. The internal slot is provided for remote control and monitoring agents like SNMP or relay cards.

LOW NOISE LEVEL

More often the PowerGem Plus RT range will be installed in an office workspace and the environment will be an important factor in the design. Therefore, by using modern high frequency technology the noise dissipation is reduced to less than 50dBA for smaller units.

PowerGemPlus RT LFP UPS Features

Several BPC LFP batteries are available for the PowerGem UPS range, manufactured with safety as the primary objective and these high-discharge range LFP batteries achieve both well-defined performance and long-term stability.

The core of each system is a high-power module which consists of prismatic Lithium Ferro Phosphate cells configured using a fully-automated production technique delivering a high-quality product.

Advanced BMS design control system ensures adaptive equalization for each cell maximizing energy storage and discharge / charge performance while protecting the safety of the battery system at all times.

The BMS system detects failures and communicates information unlike normal VRLA batteries which have no standard reporting functions.

Certified to UN38.3 for safe transportation and installation.

ENERGY DENSITY

BPC LFP batteries have high energy density which is equivalent to one third of valve regulated lead acid batteries.

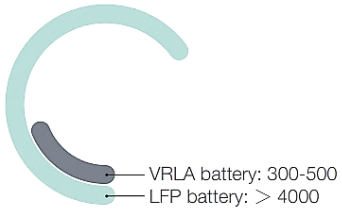
HIGH AMBIENT TEMPERATURES

BPC LFP cells have a better temperature coefficient of resistance and can resist thermal runaway unlike VRLA products which have problems with high temperature and over-charging. LFP cells have less heat dissipation and no gas emissions, so they can easily operate in sealed cabinets without the need for air conditioning.

- **Longer life expectancy >15 years**
- **High-rate discharge and fast charging**
- **High energy efficiency**
- **Long cycle life and DOD capability**
- **Power Security – battery management included**
- **Lower cost thermal management – no air conditioning**
- **No gas emission – can operate in sealed container**
- **Non-toxic with no recycling restrictions**

HIGHER CYCLE LIFE

BPC LFP battery options have the capability to perform numerous deep discharge cycles which would normally damage or create permanent failure to other types of batteries. Under normal circumstances, this battery can be considered to achieve 10 times better Cycling performance than conventional lead acid batteries.



LONGER LIFE EXPECTANCY

Each BPC LFP cell is fully protected by a sophisticated specially designed management system that constantly monitors to ensure the battery is always optimized for best performance and longevity.

ARDUOUS APPLICATIONS AND ULTRA RELIABILITY

LFP technology is used on the International Space Station, Boeing 787 Dreamliner's, and the growing industrial standards for Electric Vehicles, Utility Scale standby and power back-up in general. The optimal design for these applications require ultra reliability, high energy density, unparalleled cycling ability and long life.

International Space Station

SAFETY

BPC LFP batteries are intrinsically safer because they are fully protected by a sophisticated BMS system and the natural use of synthetic materials, excellent thermal and chemical stability improves the overall battery safety. All BPC LFP battery products are UN subsection 38.3 certified.

PowerGemPlus RT LFP UPS

Technical Specification for the 1-3kVA

MODEL - UPS	PGPRT 1000LFP	PGPRT 2000LFP	PGPRT 3000LFP
Power Rating VA / Watts	1000VA / 1000W	2000VA / 2000W	3000VA / 3000W
INPUT			
Nominal Voltage	208 / 220 / 230 / 240 Vac		
Voltage Range	110 - 300 Vac (load dependent)		
Bypass Frequency Range	40 - 70 Hz (50/60 Auto-Sensing)		
Power Factor	›0.99 @ 100% Load		
OUTPUT			
Nominal Voltage	208 / 220 / 230 / 240 Vac		
Voltage Regulation	± 1%		
Power Factor	1.0		
Output Frequency	Line mode: 46-54/ 56-64, synchronise with input; Bat. Mode: 50/60 ± 0.1		
Crest Factor	3:1		
Harmonic Distortion (THDv)	≤3% Linear load; ≤ 5% Non linear mode		
Transfer Time (ms)	Zero		
Waveform	Pure Sinewave		
EFFICIENCY			
AC Mode	≤ 90.5%	≤ 92%	≤ 92%
ECO Mode	≤ 95%	≤ 96%	≤ 96.5%
BATTERY			
Battery Type	Lithium Ferro Phosphate (LFP/ LiFePO4)		
Battery Voltage	25.6	76.8	76.8
Battery Capacity (Ah)	9	6	9
Backup Time (Full Load) (mins)	9	9	9
Charging Current (Max.) A	2		
MANAGEMENT			
LED/ LCD Display	Line mode, Bat.mode, ECO mode, Bypass mode, Battery low voltage, Overload & UPS fault		
ENVIRONMENTAL			
Operating Temperature (°C)	0 - 40		
Storage Temperature (°C)	-25 - 55		
Humidity Range	20-95% RH @ 0-40°C (Non condensing)		
Altitude (m)	<1000, derating required between 1000 to 3000		
Noise Level (dB)	< 50		
PHYSICAL			
Dimensions WxDxH (mm)	438×325×88	438×500×88	438×640×88
Weight (kg)	10	16.5	23
STANDARDS			
Safety	IEC/EN 62040-1, IEC/EN 62477-1, IEC 62133 (Cell), IEC 62619 (Pack)		
EMC	IEC/EN 62040-2		
Transportation	UN38.3		

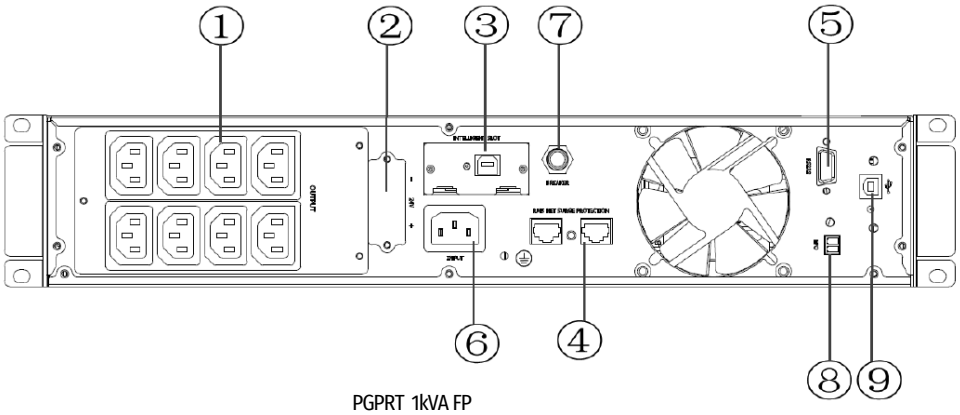
PowerGemPlus RT LFP UPS

Technical Specification for the 6-10kVA

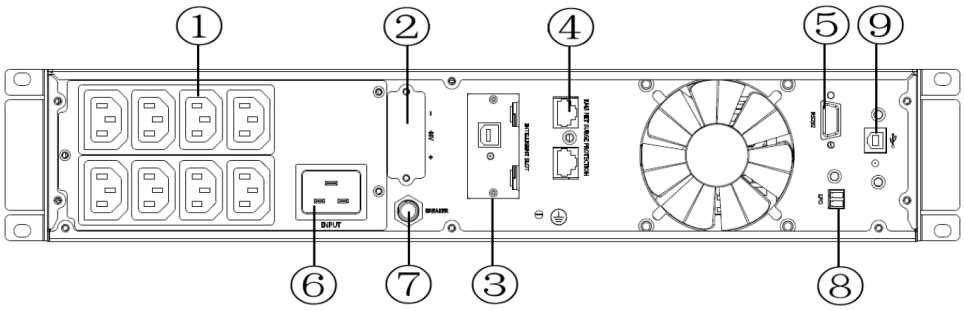
MODEL – UPS		PGPRT 5000LFP	PGPRT 6000LFP	PGPRT 10k LFP
Power Rating VA / Watts		5kVA / 5kW	6kVA / 6kW	10kVA / 10kW
INPUT				
Nominal Voltage		208/220/230/240		
Voltage Range		110~300 (110~300@50% load/176~300@100% load)		
Power Factor		≥0.99		
Input Connection		NEMA L6-30P	HW terminal (L+L+G)	
Harmonic Distortion (THDi)		<2%		
Bypass Voltage Range (Vac)		Max.voltage: 208/220: +25% (Optional +10%, +15%, +20%) 230: +20% (Optional +10%, +15%) 240: +15% (Optional +10%). Min.voltage: −45% (Optional -10%, −20%, −30%)		
OUTPUT				
Nominal Voltage		208/220/230/240		
Voltage Regulation		±1%		
Power Factor		1.0		
Output Connection	Programmable	NEMA L6-20R*1	NEMA L6-30R*2	
	Non-programmable	NEMA L6-30R*2	Hard wire terminal (L+L+G)	
Output Frequency (Hz)		Online mode: ±1%/±2%/±4%/±5%/±10% of the rated frequency (Optional); Battery mode: (50/60±0.1%)		
Crest Factor		3:1		
Harmonic Distortion (Linear Mode)		<1% Linear load ; <3% Non linear load		
Transfer Time (ms)		Zero		
Waveform		Pure Sinewave		
EFFICIENCY				
AC Mode		≤ 95%		≤ 95.5%
ECO Mode		≤ 98.8%		≤ 99%
BATTERY				
Charging Current (Max.) Amps	VRLA Battery	192/216/240		
	Lithium battery	192		
Charging Current (Max.) Amps		12 (15 Optional)		15
		Charging current adapts to the battery type and battery capacity		
MANAGEMENT				
LED Display		Online mode, Bat.mode, ECO mode, Bypass mode, Battery low voltage, Overload & UPS fault		
LCD Display		Input voltage, Input frequency, Input current, Output voltage, Output frequency, Output current, Load percentage, Battery voltage, Battery charging/discharging current, Ambient temperature & Remaining battery backup time		
ENVIRONMENTAL				
Operating Temperature (°C)		0~40		
Storage Temperature (°C)		-25~55		
Humidity Range		0~95%RH @ 0~40°C (Non condensing)		
Altitude (m)		<1000, derating required between 1000 to 3000		
Noise Level (dB)		<45		<50
PHYSICAL				
UPS Dimension WxDxH (mm)		438×684×88 (2U)		
UPS Weight (kg)		16.5	15.5	17
LFP Batt Dimensions (mm)		438×621.5×88 (2U)		
LFP Batt Weight (kg)		34	34	34
STANDARDS				
Safety		IEC/EN 62040-1, IEC/EN 62477-1, IEC 62133 (Cell), IEC 62619 (Pack)		
EMC		IEC/EN 62040-2		

PowerGemPlus RT 1-3kVA LFP UPS System Layout

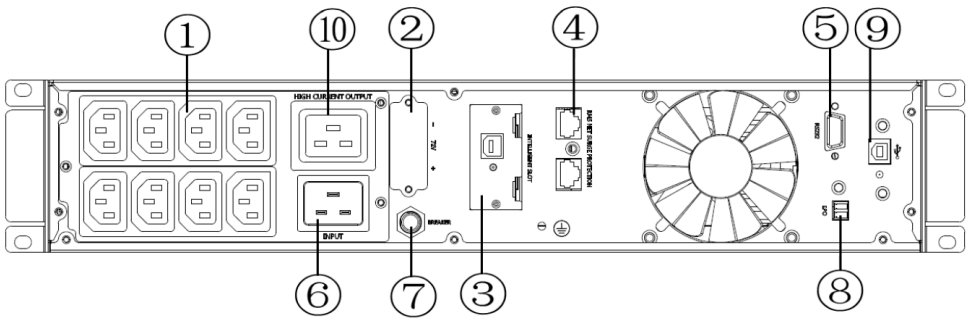
1. Output Receptacles (10A)
2. Battery Terminal
3. SNMP Intelligent Slot
4. Network/Fax/Modem Surge Protection
5. RS-232 Communication Port
6. AC Input
7. Input Circuit Breaker
8. EPO
9. USB Communication Port
10. Output Receptacle (16A)



PGPRT 1kVA FP



PGPRT 2kVA LFP

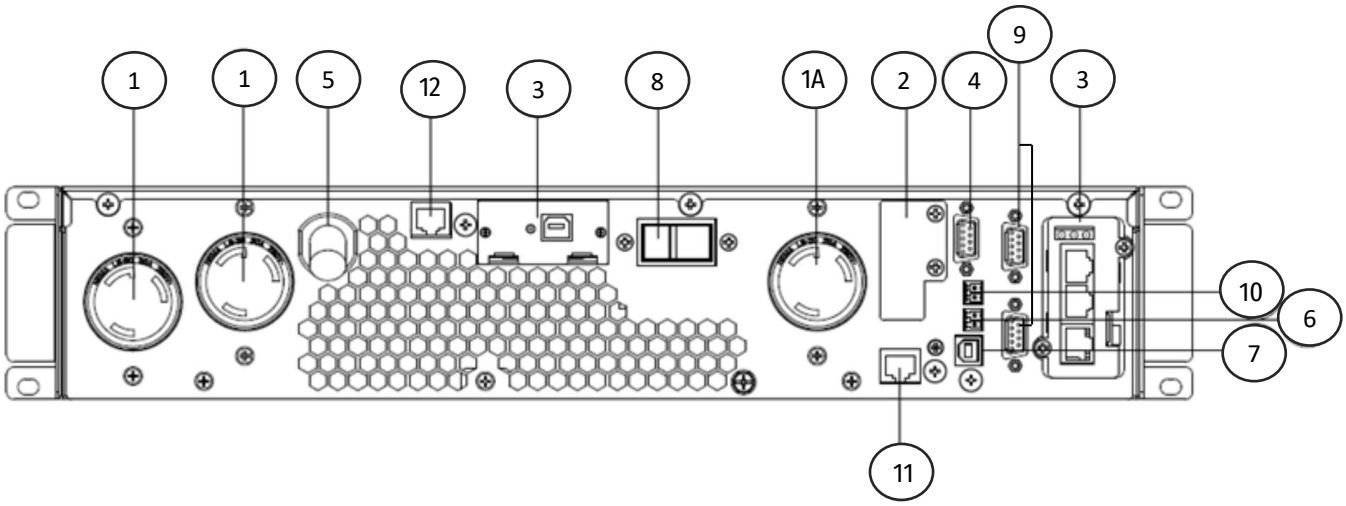


PGPRT 3kVA LFP

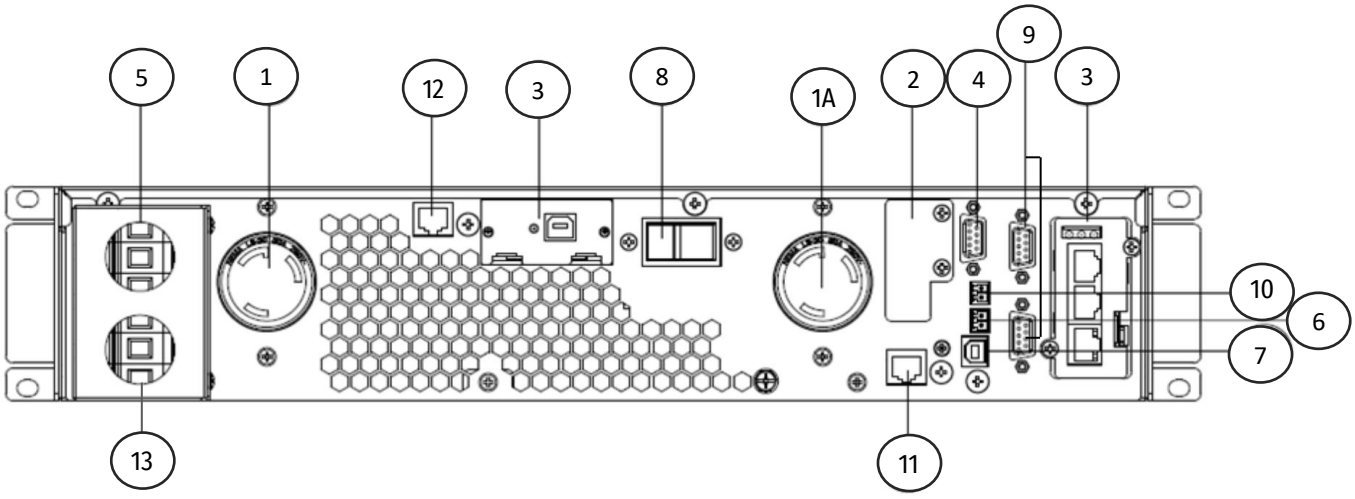
PowerGemPlus RT 5-10kVALFP UPS Battery Layout

1. Output Receptacles L6-30
2. Battery Terminal
3. SNMP Intelligent Slot
4. RS-232 Communication Port
5. AC Input/ Terminal
6. EPO
7. USB Communication Port
8. Output Circuit Breaker for 1A
9. Parallel Ports
10. Maintain – Aux SWS Port
11. RS485 Port
12. Communication Port
13. Output Terminal

5kVA Rear View



6kVA & 10kVA Rear View



The BPC Group

BPC is an international company operating for over 28 years globally, with partners and distributors located around the world.

These regions include:

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

MIDDLE EAST
Bahrain, Georgia, Iraq, Jordan, Kuwait, KSA, Lebanon, Oman, Qatar, Syria, Turkey, UAE, Yemen.

AFRICA
Algeria, Botswana, Burkina Faso, Democratic Republic of the Congo, Egypt, Ethiopia, Ghana, Kenya, Libya, Mozambique, Nigeria, Rwanda, Sierra Leone, South Africa, Sudan, Tanzania, Uganda, Zambia.

FAR EAST & ASIA
India, Pakistan, Sri Lanka, Indonesia.

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.

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