

PowerGem™ Plus RT – LFP Series

Single Phase Input & Output – True On-Line Double Conversion UPS
1kVA – 10kVA with LiFePO₄ Battery Technology

- » Arduous Applications
- » High Temperature Versatility
- » Excellent Deep Discharge Cycling
- » 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 97% in ECO mode, 92% in inverter mode and over 90% in LFP battery mode with an operational environmental range from -20°C to 55°C. 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.

HIGH TEMPERATURE APPLICATIONS

Designed for arduous outdoor applications requiring extreme temperature variations or continuous operation in either low or high ambient temperatures. Software control to ensure the battery charger is isolated and charge current terminated when temperature raises over 50°C.

| Temperature / Capacity | -20 | -10 | 0 - 40°C Normal Operation | 45°C | 50°C | 65°C |
|------------------------|-----|-----|---------------------------|------|------|------|
| 1-3kVA | 75% | 80% | 100% | 80% | 60% | 30% |
| 6-10kVA | 75% | 80% | 100% | 88% | 75% | 30% |

- 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
- Scalable redundancy parallel ready (6-10kVA)
- Dust filter for hazardous environments
- Wide temperature variation -20°C +55°C

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.

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, with rated capacities from 12Ah – 100Ah, 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 density 48 Volt module which consists of prismatic LiFePO₄ 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. LFP BMS system detects failures and communicates information unlike normal VRLA batteries which have no reporting. Certified to UN38.3 for safe transportation and installation.



The BPC BCRT48VLFP battery options are designed to operate with the PowerGem Plus RT – LFP UPS 1-3kVA range and all operate from 48 VDC nominal battery voltage with options for 50Ah and 100Ah capacity.



The larger BPC BCRT96VLFP options are designed to operate with the PowerGem Plus RT – LFP UPS 6kVA and 10kVA range and all operate from ± 96 Volts nominal battery voltage with options for 12Ah, 50Ah and 100Ah.



- 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
- Wide temperature variation -20°C +60°C
- 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.



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.

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.



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 | 200 / 208 / 220 / 230 / 240 Vac | | |
| Voltage Range | 110 - 300 Vac (load dependent) | | |
| Frequency Range | 40 - 70 Hz | | |
| Power Factor | >0.99 @ 100% Load | | |
| OUTPUT | | | |
| Nominal Voltage | >200 / 208 / 220 / 230 / 240 Vac | | |
| Frequency Range (Synchronised Range) | 47 - 53 Hz or 57 - 63 Hz | | |
| Frequency Range (Battery Mode) | 50/60 Hz \pm 0.1% Hz | | |
| Crest Factor | 3:1 | | |
| Harmonic Distortion (Linear Mode) | \leq 3% THD | | |
| Transfer Time (AC to Battery) | Zero | | |
| Waveform | Pure Sinewave | | |
| EFFICIENCY | | | |
| AC Mode | >88% | >92% | >92% |
| ECO Mode | >95% | >97% | >97% |
| Battery Mode | >86% | >88% | >90% |



| MODEL - BATTERY | BCRT48VLP50 | BCRT48VLP100 |
|-----------------------|--|-----------------|
| Battery Type | Lithium Ferro Phosphate (LiFePO4) | |
| Nominal Voltage (Vdc) | 48 | |
| Nominal Capacity (Ah) | 50 | 100 |
| Nominal Power (WH) | 2400 | 4800 |
| Operating Temperature | Charging 0°C - 50°C; discharging -20°C - +55°C | |
| Dimensions (mm) WxDxH | 440 x 460 x 131 | 440 x 460 x 131 |
| Net Weight (kg's) | 28 | 43 |

PowerGemPlus RT LFP UPS

Technical Specification for the 6-10kVA



| MODEL - UPS | | PGPRT 6000LFP | PGPRT 10LFP |
|--------------------------------------|---------------------|--|--------------|
| Power Rating VA / Watts | | 6kVA / 6kW | 10kVA / 10kW |
| INPUT | | | |
| Nominal Voltage | | 220 / 230 / 240 Vac | |
| Voltage Range | | 120 - 276 Vac (load dependent) | |
| Frequency Range | | 42 - 55 Hz at 50 Hz / 54 - 66 Hz at 60 Hz (auto sensing) | |
| Power Factor | | >0.99 @ 100% Load | |
| OUTPUT | | | |
| Nominal Voltage | | 220 / 230 / 240 Vac | |
| Frequency Range (Synchronised Range) | | 45 - 65 Hz (auto select) | |
| Frequency Range (Battery Mode) | | 50/60 Hz ±0.1 Hz | |
| Crest Factor | | 3:1 | |
| Harmonic Distortion (Linear Mode) | | ≤3% THD | |
| Transfer Time (AC to Battery) | | Zero | |
| Waveform | | Pure Sinewave | |
| EFFICIENCY | | | |
| AC Mode | | >92.5% | |
| ECO Mode | | >97.3% | |
| Battery Mode | | >89% | >88% |
| BATTERY | | | |
| Battery DC Voltage Nominal | | ±96 Volts | |
| Charging Current (max.) | | 10A adjustable by LCD display | |
| GENERAL | | | |
| Operating Humidity | | 20 - 90% RH @ 0 - 40°C (non-condensing) | |
| Acoustic Noise Level | | <55 dB @ 1 metre | |
| Management Software | | Included | |
| UPS Module | Dimensions(mm)WxDxH | 438 x 725 x 88 | |
| | Net Weight (kgs) | 15 | 16 |

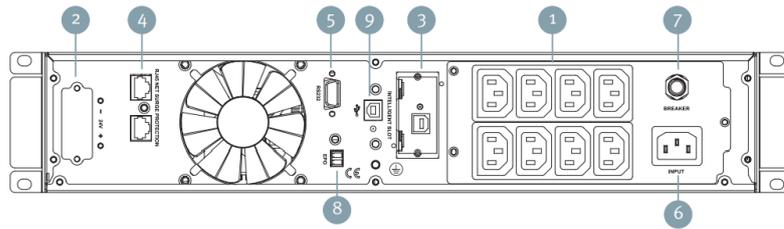


| MODEL - BATTERY | BCRT96VLF12 | BCRT96VLF50 | BCRT96VLF100 | BCRT96VLF150 |
|-----------------------|--|-----------------|-----------------|-----------------|
| Battery Type | Lithium Ferro Phosphate (LiFePO4) | | | |
| Nominal Voltage (Vdc) | ±96 Volts | | | |
| Nominal Capacity (Ah) | 12 | 50 | 100 | 150 |
| Nominal Power (WH) | 2304 | 9600 | 19200 | 28800 |
| Operating Temperature | Charging 0°C - 50°C; discharging -20°C - +55°C | | | |
| Dimensions (mm) WxDxH | 440 x 550 x 220 | 440 x 570 x 444 | 440 x 460 x 800 | 440 x 460 x 978 |
| Net Weight (kg's) | 46.5 | 110 | 186 | 270 |

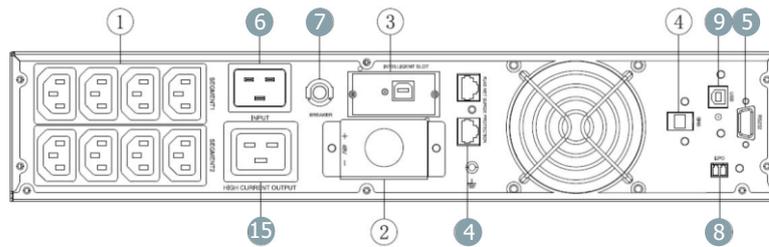
PowerGemPlus RT LFP UPS System Layout



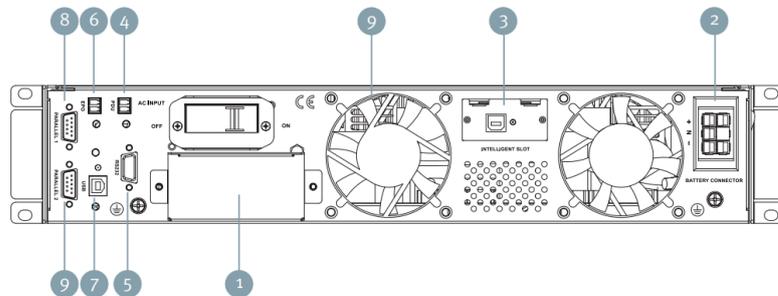
- 1 Output Receptacles (10A)
- 2 Battery Terminal
- 3 SNMP Intelligent Slot
- 4 Network/Fax/Modem Surge Protection
- 5 RS-232 Communication Port
- 6 AC Input
- 7 Input Circuit Breaker
- 8 EPO
- 9 USB Communication Port
- 10 Output Receptacle (16A)
- 11 Input and Output Terminals
- 12 PDU Communication
- 13 Parallel Port 1
- 14 Parallel Port 2
- 15 High Current Output



PGPRT 1000/2000 LFP



PGPRT 3000 LFP



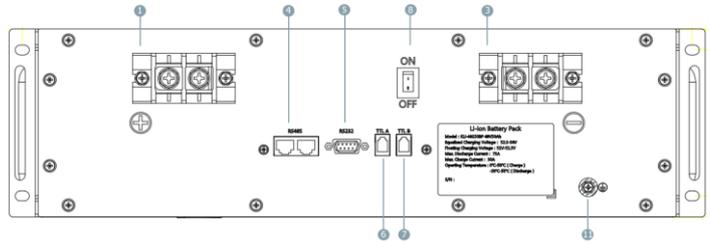
PGPRT 6000LFP/10KLFP

PowerGemPlus RT LFP UPS Battery Layout

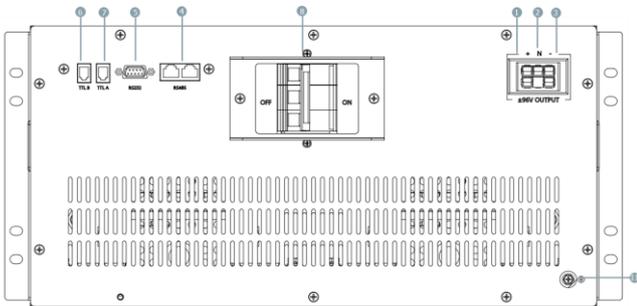


Battery System

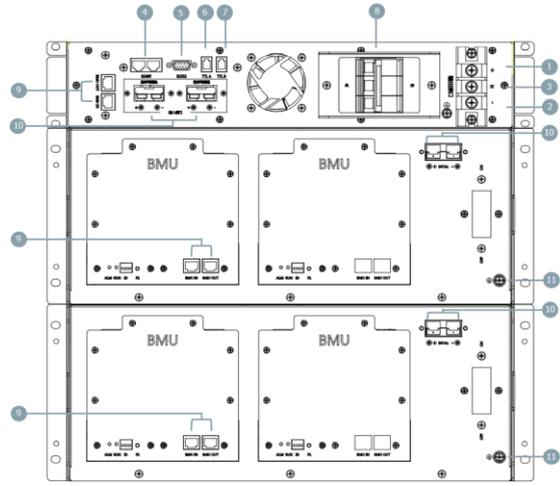
- 1 Positive Output Terminal
- 2 Neutral Output Terminal
- 3 Negative Output Terminal
- 4 RS485
- 5 RS232
- 6 TTL A
- 7 TTL B
- 8 On/Off Switch
- 9 BMU Connection
- 10 Internal Parallel Battery Connection
- 11 Ground Screw



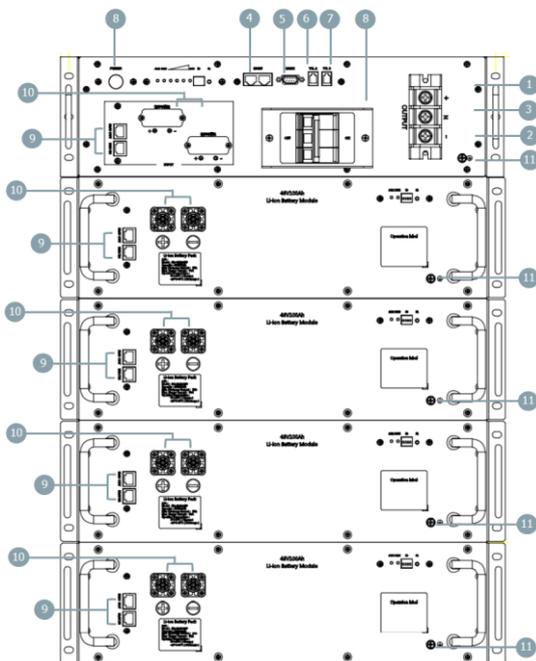
BCRT48VLP50 / BCRT48VLP100



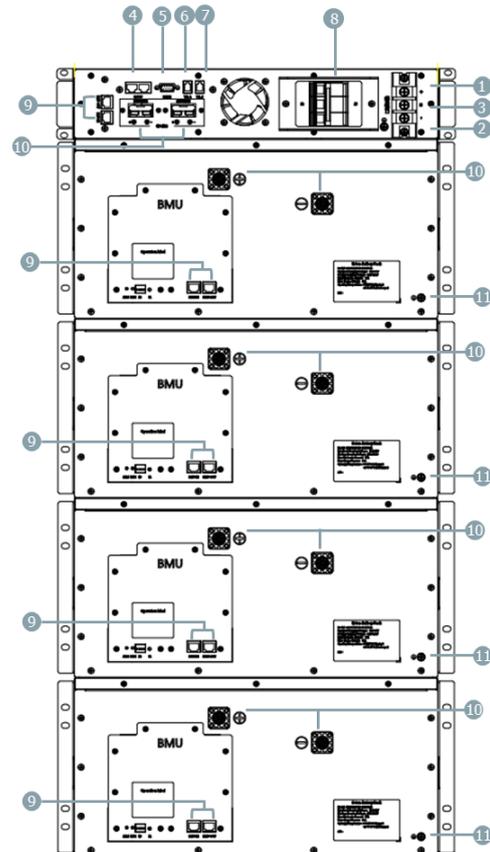
BCRT96VLP12



BCRT96VLP50



BCRT96VLP100



BCRT96VLP150

The BPC Group

BPC is an internationally recognised UK company trading globally for almost 25 years, 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, Saudi Arabia, 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.



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