



GAMATRONIC™

Our Power Your Confidence



# POWER+

**Modular UPS System  
3 x 208V  
10kVA to 100kVA  
Hot Swap Plug-In Module**

- ▶ True On-line
- ▶ Parallel
- ▶ Redundant
- ▶ Double-conversion
- ▶ Modular
- ▶ Green and clean power
- ▶ High efficiency



## The Next Generation UPS System



Power+ is a state-of-the-art modular UPS system based on the *true on-line battery* topology. The Power+'s modular design makes scalability simple; its high power density provides the benefits of a small footprint and low heat dissipation. The Power+'s rich management and communication capabilities include remote monitoring and control over the Internet or via cellphone. Its hybrid static switch ensures high reliability and compliance with IEC standards.



**RoHS  
Compliant**





## The UPS That Grows With Your Business

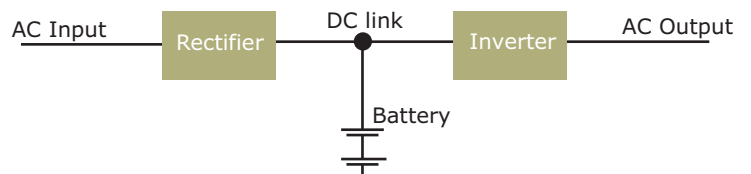
Power+ is a true modular, user-upgradeable system. As load increases you can insert up to a total of ten 10 kVA hot-swap plug-in modules, each weighing only 9 kg. The Power+ can be configured in parallel for N+1 or N+2 redundancy.

## True On-Line Battery

The Power+ inverter complies with the IEC-62040-3 standard by its ability to take its input power from either the ac input (via the rectifier) or the battery, and supply power to the load. The battery is galvanically connected between the rectifier output and the inverter input on a common DC link (see diagram on the right).

### Double Conversion True On-Line Battery (VFI)

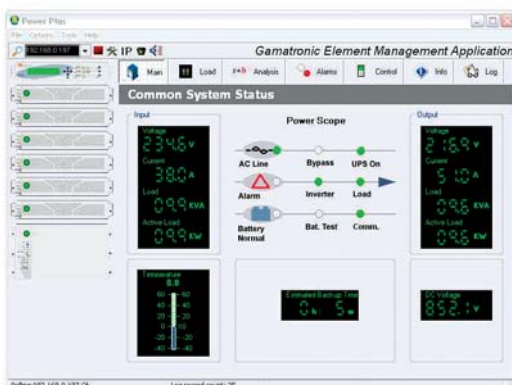
According to IEC 62040-3



## Parallel POWER+ Systems

Connecting two or more POWER+ units in a parallel configuration provides increased reliability and/or greater output power capacity. POWER+ units equipped with the optional parallel kit share the load equally.

PSM-POWER+ main screen



## Applications

- ▶ Local Area Networks
- ▶ Servers
- ▶ Data centers
- ▶ Industrial PLCs
- ▶ Industrial Processes
- ▶ Cash registers
- ▶ Emergency Devices (lights/alerts)
- ▶ Telecom facilities
- ▶ E-business

# Specifications

|   |  |       |       |       |       |       |       |       |       |        |     |
|---|--|-------|-------|-------|-------|-------|-------|-------|-------|--------|-----|
| Topology  | True Online Battery, Double Conversion VFI   |       |       |       |       |       |       |       |       |        |     |
| Construction  | Modular parallel hot-plugged modules, continuous operation                                       |       |       |       |       |       |       |       |       |        |     |
| <b>INPUT</b>  |  |       |       |       |       |       |       |       |       |        |     |
| Voltage   | 3 X 208V+N+G (5 wires system)  |       |       |       |       |       |       |       |       |        |     |
| Voltage Range   | -25%÷ +15%   |       |       |       |       |       |       |       |       |        |     |
| Current   | Max. 28A per phase for a single module, no inrush current at startup                             |       |       |       |       |       |       |       |       |        |     |
| Frequency   | 47-63Hz  |       |       |       |       |       |       |       |       |        |     |
| Power Factor  | 1  |       |       |       |       |       |       |       |       |        |     |
| THDI  | <5% at full load   |       |       |       |       |       |       |       |       |        |     |
| <b>OUTPUT</b>   |  |       |       |       |       |       |       |       |       |        |     |
| Rated Power   | 10kVA/8kW to 100kVA/80kW   |       |       |       |       |       |       |       |       |        |     |
| Frequency Tracking Range                                      | ± 0.5,±1,±2,±3,±4Hz (selectable)   |       |       |       |       |       |       |       |       |        |     |
| Frequency (in free-running mode)                              | 50/60Hz ±0.1%  |       |       |       |       |       |       |       |       |        |     |
| Slew Rate   | 1Hz/sec  |       |       |       |       |       |       |       |       |        |     |
| Voltage   | 3 X 208V+N (adjustable)  |       |       |       |       |       |       |       |       |        |     |
| Static Regulation   | ± 1%   |       |       |       |       |       |       |       |       |        |     |
| Regulation for Unbalanced Load                                | ±1% for 100% unbalanced load   |       |       |       |       |       |       |       |       |        |     |
| Dynamic Response to 100% Load Step                            | ± 2%   |       |       |       |       |       |       |       |       |        |     |
| Overload  | 110% for 10 min.;125% for 60 sec.;1000% for 1 cycle  |       |       |       |       |       |       |       |       |        |     |
| Waveform  | Sinusoidal   |       |       |       |       |       |       |       |       |        |     |
| THD   | Less than 2% for linear load   |       |       |       |       |       |       |       |       |        |     |
| Load CF (max)   | 4:1  |       |       |       |       |       |       |       |       |        |     |
| AC-AC Efficiency (nominal)                                    | Up to 94%  |       |       |       |       |       |       |       |       |        |     |
| DC-AC Efficiency (nominal)                                    | Up to 97%  |       |       |       |       |       |       |       |       |        |     |
| <b>BATTERIES</b>  |  |       |       |       |       |       |       |       |       |        |     |
| DC-Link Voltage   | ± 216V   |       |       |       |       |       |       |       |       |        |     |
| Number of Batteries   | 32 x 12V   |       |       |       |       |       |       |       |       |        |     |
| <b>GENERAL</b>  |  |       |       |       |       |       |       |       |       |        |     |
| Maximum Power Dissipation (Po=8KW)                            | 510W (1740 BTU/h) for a single module  |       |       |       |       |       |       |       |       |        |     |
| Ambient Temperature   | -10 <sup>0</sup> to +40 <sup>0</sup> (operating); -20 <sup>0</sup> to +60 <sup>0</sup> (storage) |       |       |       |       |       |       |       |       |        |     |
| Relative Humidity   | 95% max non-condensing   |       |       |       |       |       |       |       |       |        |     |
| Altitude  | 1500m w/o derating   |       |       |       |       |       |       |       |       |        |     |
| Enclosure   | IP20   |       |       |       |       |       |       |       |       |        |     |
| Cooling   | Forced - multi-fan with speed control  |       |       |       |       |       |       |       |       |        |     |
| <b>STANDARDS</b>  |  |       |       |       |       |       |       |       |       |        |     |
| EMC   | IEC 62040-2, FCC part 15-B   |       |       |       |       |       |       |       |       |        |     |
| Safety  | UL 1778; IEC 62040-1-1   |       |       |       |       |       |       |       |       |        |     |
| Design  | IEC 62040-3  |       |       |       |       |       |       |       |       |        |     |
| Low Magnetic Field Radiation                                  | EMF as per ICNIRP  |       |       |       |       |       |       |       |       |        |     |
| <b>DIMENSIONS</b>   |  |       |       |       |       |       |       |       |       |        |     |
| <b>10kVA Module</b> (H x W x D)                               | 88mm (2U) x 483mm (19") x 470mm  |       |       |       |       |       |       |       |       |        |     |
| Weight  | 9.8kg  |       |       |       |       |       |       |       |       |        |     |
| <b>POWER<sup>+</sup> System</b> (incl. STSW and base modules) |  |       |       |       |       |       |       |       |       |        |     |
| Model   | 10kVA  | 20kVA | 30kVA | 40kVA | 50kVA | 60kVA | 70kVA | 80kVA | 90kVA | 100kVA |     |
| Dimensions (cm)   | H  | 69    | 78    | 88    | 97    | 106   | 125   | 135   | 144   | 153    | 163 |
|   | W  | 60    |       |       |       |       |       |       |       |        |     |
| Weight (kg)   | D  | 71    |       |       |       |       | 109   |       |       |        |     |
|   |  | 84    | 99    | 114   | 129   | 144   | 164   | 179   | 194   | 209    | 224 |
| <b>ACOUSTIC NOISE</b> (@1.5m from front of unit)              |  |       |       |       |       |       |       |       |       |        |     |
| Noise (dBA) half load   | 48   | 52    | 53    | 54    | 55    | 55.8  | 56.4  | 57    | 57.5  | 58     |     |
| Noise (dBA) full load   | 51   | 54    | 55    | 57    | 58    | 58.8  | 59.4  | 60    | 60.5  | 61     |     |

\*All specifications are subject to change without prior notice

## POWER+ UL 208V Operation Modes

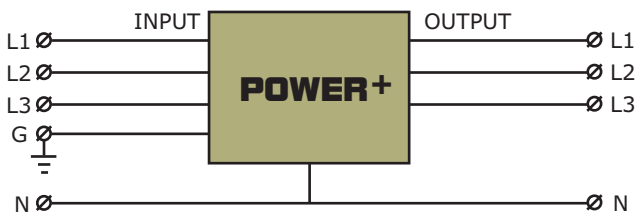
Every **POWER+** UPS module can operate in the following modes.  
Switching from mode to mode is made through the controller menus and wiring.

|          | Phases (in/out) | Input/Output voltage | Input current | Output power | Input wiring      | Output Current @PF=0.8 |
|----------|-----------------|----------------------|---------------|--------------|-------------------|------------------------|
| Option 1 | 3/3             | 3x120V+N (3x 208V)   | 3x23.6A       | 10kVA/8kW    | L1, L2, L3, N + G | 3x28A                  |
| Option 2 | 2/2             | 2x120V+N (1x208V)    | 2x26.5A       | 7.5kVA/6kW   | L1, L2, N + G     | 2x31A                  |
| Option 3 | 2/2             | 2x120V+N (1x240V)    | 2x26.5A       | 7.5kVA/6kW   | L1, L2, N + G     | 2x31A                  |

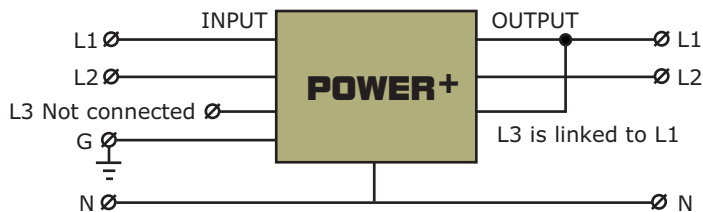
\* Ph to Ph voltage (Ph to N is 120v)

\*\* In two phase configurations L1 is linked with L3 for phase one on input, while L2 is the second input phase. For output it's L1 linked with L3, and L2 is the second phase. Both output phases [L1+L3]out and [L2]out provide same current, while two input phases [L1+L3]in and [L2]in will have different currents.

Option 1



Options 2,3



### Remarks

- ▶ Several 120 and 180 degrees in/out phase angle configurations available
- ▶ Two or three phase in/out operation modes
- ▶ Symmetrical or non-symmetrical input phase currents configurations
- ▶ Output currents are symmetrical in all modes
- ▶ In some configurations the total UPS module power is de-rated
- ▶ Options 4 and 5 have the same output current, but different power, because of different phase to phase voltage at 120 and 180 degrees phase angles
- ▶ Provided power and current values should be multiplied by the number of UPS modules in P+ unit, i.e. 30kVA P+ 3/3 will provide 28A\*3=84A per phase



# POWER+ VERSIONS

## POWER+ RM

### True On-line double-conversion modular UPS for a 19" rack, 50kVA-100kVA

This is a 19" variant of the Power+ UPS, which can be inserted in any standard 19" rack, available in two configurations: 50kVA (5 Power+ modules), with a height of 20U and 100kVA (10 Power+ modules), with a height of 30U.



## POWER+ SA

### Stand-alone True On-Line double-conversion UPS

A stand-alone 10kVA version of the Power+ UPS, in a unique light and compact design, weighing only 21 kg.



## POWER+ Battery Cabinets



Our new standard battery cabinet combines safety and flexibility with easy battery access. The cabinet can be ordered assembled, or in kit format to reduce shipping costs.

| Battery Capacity | No. of Cabinets for POWER+*                | Dimensions (DxWxH) mm of each cabinet |
|------------------|--|---------------------------------------|
| 32x17/20Ah       | 1 Pcs                                      | 243x740x1300                          |
| 32x24/26/38/40Ah | 1 Pcs                                      | 300x970x1700                          |
| 32x65/90Ah       | 2 Pcs (each cabinet includes 16 batteries) | 420x800x1100                          |

\*Cabinets can be installed side by side or back to back

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