

# Powerstar

POWERFUL. SMART. ROBUST

The Powerstar inverter range is designed to be a robust & reliable hybrid energy storage platform. It is ideal for applications as varied as off-grid farms and lodges to urban houses and factories. It provides a smart & seamless interface between the grid, generators, renewable energy and storage.

The Powerstar is unique in the storage inverter market for its ability to clean incoming power & regulate the output voltage.

- ✓ Designed for harsh environments
- ✓ 6 to 24 kVA units, able to parallel up to 96kVA
- ✓ 1 and 3-phase transformer-based
- ✓ Low-voltage DC (48 V)



## Features

### Voltage & Power Quality Regulation

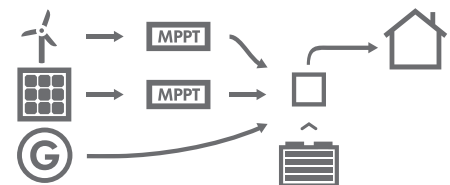
The Powerstar inverter can optionally “clean” the incoming grid/generator voltage of any distortion to ensure that the output voltage is a pure, voltage-regulated sine wave.



**Automatic Generator Start**  
 In off-grid systems, the Powerstar will automatically start the generator when the battery voltage is low. The inverter synchronises with the generator and connects seamlessly. When the charge cycle is complete the inverter will turn off the generator and transition back to stand-alone mode with no power interruption to the load.

### Source Monitoring

The Powerstar will monitor the available power sources (e.g. grid, generator, solar PV, or wind) and the rate at which they charge your batteries. The inverter dynamically adjusts the rate of charge to ensure that the batteries are protected and are never overcharged.



**Export Power Control**  
 The Powerstar has advanced export power control that prevents power from flowing back into the grid and tripping pre-paid meters.

### SmartLoad Load Prioritization

The Powerstar features SmartLoad, a programmable three priority level load-shedding system. The inverter will automatically connect/disconnect user-defined loads based on the current state of charge of your batteries. For example, SmartLoad can allow non-critical loads such as air-con systems to run when the batteries are full and grid power is available but to shed these loads when running off batteries so that critical loads such as fridges & lights can be powered for longer.



# Specifications

## SYSTEM RATINGS

|   | 8H/10H   | 15H/18H   | 21H/27H  |
|---|--|---|--|
| Phases / Rated Voltage / Frequency                      | 1 $\phi$ / 230 V / 50 Hz,<br>1 $\phi$ / 277V / 60Hz (VRB <sup>1</sup> )                          | 1 $\phi$ , 230 V / 50 Hz                                  | 1 $\phi$ / 230 V / 50 Hz or<br>3 $\phi$ / 400 V / 50 Hz,<br>3 $\phi$ / 480V / 60Hz (VRB <sup>1</sup> ) |
| Input Voltage Range                                     | Up to +/- 19% of nominal V   | Up to +/- 19% of nominal V                                | Up to +/- 19% of nominal V   |
| Input Frequency Range                                   | 48..58 Hz, 58..68 Hz (VRB)   | 48..58 Hz   | 48..58 Hz, 58..68 Hz (VRB)   |
| Rated Input Power                                       | 6 / 8 kVA, 16 kVA (VRB)  | 12 / 16 kVA   | 18 / 24 kVA, 48 kVA (VRB)  |
| Half-hour Rated Output Power                            | 8 / 10 kVA   | 15 / 18 kVA   | 21 / 27 kVA  |
| Continuous Rated Output Power                           | 6 / 8 kVA  | 12 / 16 kVA   | 18 / 24 kVA  |
| Maximum Input Current per 6 / 8kVA module <sup>2</sup>  | 26 / 35 A, 70A (VRB)   | 26 / 35 A   | 26 / 35 A, 70 A (VRB)  |
| Maximum Output Current per 6 / 8kVA module <sup>2</sup> | 34 / 43 A (for 30 mins),<br>52 / 70 A (for 5s), 70 A (VRB)                                       | 34 / 43 A (for 30 mins),<br>52 / 70 A (for 5s), 70A (VRB) | 34 / 43 A (for 30 mins),<br>52 / 70 A (for 5s), 70A (VRB)  |
| THD I (at rated power)                                  | < 3 %  |   |  |
| Protection  | Overload, Overcurrent, Short Circuit, Over Temperature, Under/Over Voltage, Under/Over Frequency |   |  |

1. VRB model is available in 8 kVA / 1 $\phi$  & 24 kVA / 3 $\phi$

2. Current decreases by 17% for 277V models

## BATTERY INPUT

|  |  |             |             |
|--|--|-------------|-------------|
| Nominal Battery Voltage                  | 48 V   | 48 V        | 48 V        |
| Maximum Battery Charge Current (Adj.)    | 100 / 150 A  | 200 / 300 A | 300 / 450 A |
| Recommended Minimum Pb-acid Battery Size | 200 Ah   | 350 Ah      | 500 Ah      |
| Battery Technology                       | Pb-Acid / Lithium Ion <sup>3</sup> / Vanadium Redox (VRB) <sup>3</sup> |             |             |

3. Please contact MLT Inverters for details on supported technologies

## EFFICIENCY

|                                |  |               |                 |
|--------------------------------|--|---------------|-----------------|
| Efficiency (peak)              | Up to 92% stand-alone, Up to 95% with source connected |               |                 |
| Tare Losses in Standby (Night) | < 40 W / 50 W  | < 70 W / 90 W | < 105 W / 140 W |
| Standby Losses (Load Sensing)  | < 8 W  |               |                 |

## CONNECTORS

|                             |   |   |   |
|-----------------------------|---|---|---|
| DC Input Lug (per module)   | 50 x 10 mm <sup>2</sup> / 70 x 10 mm <sup>2</sup> | 50 x 10 mm <sup>2</sup> / 70 x 10 mm <sup>2</sup> | 50 x 10 mm <sup>2</sup> / 70 x 10 mm <sup>2</sup> |
| AC Input cable (per module) | 10/16 mm <sup>2</sup> Terminal Blocks             | 10/16 mm <sup>2</sup> Terminal Blocks             | 10/16 mm <sup>2</sup> Terminal Blocks             |

## GENERAL SPECIFICATIONS

|                        |                     |                    |                     |
|------------------------|---------------------|--------------------|---------------------|
| Mounting Method        | Floor Standing      |                    |                     |
| Dimensions (W x H x D) | 550 x 640 x 500 mm  | 550 x 945 x 500 mm | 550 x 1270 x 500 mm |
| Weight                 | 77 / 81 kg          | 145 / 150 kg       | 209 / 221 kg        |
| IP/NEMA Rating         | IP30 / NEMA1        |                    |                     |
| Colour                 | RAL7032             |                    |                     |
| Cooling Method         | Forced Air          |                    |                     |
| Standards              | NRS097-2-1, G83/1-1 |                    |                     |

## CLIMATIC CONDITIONS

|   |   |
|---|---|
| Ambient Temperature / Relative Humidity | -5 .. 45 °C (25 °C Max Ambient for Rated Power) / 5 .. 85 % |
| Maximum Altitude for Rated Power        | 1000 m above sea level (Power derated for Higher Altitudes) |

## OPERATOR PANEL

|                |   |
|----------------|---|
| Display Type   | 40 x 4 LCD with membrane keypad                   |
| Communications | RS232 MODBUS RTU Slave (Ethernet / GPRS optional) |

## Accessories:

- Remote monitoring & control via MLT Bridge (FG-RC-AA)
- Battery temp. sensors (FG-PS-CA)
- Parallel configuration (FG-PS-CC)
- Demo display unit (FG-PS-CF/G)
- Solar DC sensors (FG-PS-CB/D/E)
- Nomad MPPT (FG-MP-AA)
- Bypass box (FG-AO-AA/B/C)



Distributor / Installer

Contact Details

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