

# PowerVerter & DD Series IP65 Ruggedised Converters



## Harsh Environments

These products offer the same great electrical characteristics as our PowerVerter and DD Series, but are provided in 'Ruggedised' casings for use in harsh environments. Using the well known Ingress Protection System, the product range has been tested and subjected to demanding environmental conditions and awarded a rating of IP65.



All Ruggedised PowerVerter are enclosed in a durable aluminium extrusion. The low mass Surface Mount Technology components are also less prone to damage from vibration and shock, further increasing the reliability of the units.

## Innovative Technology

Utilising the same GORE-TEX® technology that is used in extreme outdoor clothing, the Ruggedised range is able to breathe freely, without compromising the water tight and dust tight seal. This free-flow of air ensures that the pressure remains equal inside and outside the unit thus allowing it to operate within a large temperature range and at varying altitudes safely.

## Fast Installation

All the products fit onto a 'Click 'n' Fit' mounting clip which is fixed in three points allowing it to be mounted on uneven surfaces. It is easy to fit the clip into awkward places, then simply click the unit into position.



## Anti-Vibration

As well as being dust and water tight to IP65 the units are vibration resistant. They have an anti-vibration cable gland fitted into a hexagonal recess to prevent unwanted knocks from loosening it, so they can be fitted into rugged environments care-free.

## Additional Features

The RU range has the same features as the standard PV & DD range, but in addition, they also offer the following benefits:

- Dust, water and impact resistant to IP65.
- Breathable vent to prevent unwanted build up of pressure.
- Anti-vibration cable gland.
- Supplied with 1m of cable as standard.

## Product Variants

Many PowerVerter-RU and DD-RU Series products can be configured with alternative output voltages etc, for specialist applications. Please call our sales team to discuss your requirements.

# Choose your RU Series Product

| Part Number      | Power                   | Nominal Voltage           | Dimensions       | Weight |
|------------------|-------------------------|---------------------------|------------------|--------|
| PV3s-RU          | 36W (3A) non-isolated   | 24Vdc input, 12Vdc output | 86 x 91 x 52mm   | 325g   |
| PV6s-RU          | 72W (6A) non-isolated   | 24Vdc input, 12Vdc output | 108 x 91 x 52mm  | 370g   |
| PV12s-RU         | 144W (12A) non-isolated | 24Vdc input, 12Vdc output | 146 x 91 x 52mm  | 505g   |
| PV18s-RU         | 216W (18A) non-isolated | 24Vdc input, 12Vdc output | 186 x 91 x 52mm  | 820g   |
| PV24s-RU         | 288W (24A) non-isolated | 24Vdc input, 12Vdc output | 186 x 91 x 52mm  | 835g   |
| PV3i-RU          | 36W (3A) isolated       | 24Vdc input, 12Vdc output | 108 x 91 x 52mm  | 390g   |
| PV6i-RU          | 72W (6A) isolated       | 24Vdc input, 12Vdc output | 146 x 91 x 52mm  | 510g   |
| PV12i-RU         | 144W (12A) isolated     | 24Vdc input, 12Vdc output | 186 x 91 x 52mm  | 690g   |
| PV18i-RU         | 216W (18A) isolated     | 24Vdc input, 12Vdc output | 236 x 91 x 52mm  | 1035g  |
| PV24i-RU         | 288W (24A) isolated     | 24Vdc input, 12Vdc output | 236 x 91 x 52mm  | 1050g  |
| DDi 12-12 036-RU | 36W (3A) isolated       | 12Vdc input, 12Vdc output | 108 x 91 x 52mm  | 390g   |
| DDi 24-24 072-RU | 72W (3A) isolated       | 24Vdc input, 24Vdc output | 146 x 91 x 52mm  | 540g   |
| DDi 12-12 108-RU | 108W (9A) isolated      | 12Vdc input, 12Vdc output | 236 x 91 x 52mm  | 1050g  |
| DDi 24-24 108-RU | 108W (4.5A) isolated    | 24Vdc input, 24Vdc output | 186 x 91 x 52mm  | 640g   |
| DDi 24-24 168-RU | 168W (7A) isolated      | 24Vdc input, 24Vdc output | 236 x 91 x 52mm  | 880g   |
| DD 12-24 072-RU  | 72W (3A) non-isolated   | 12Vdc input, 24Vdc output | 108 x 91 x 52mm  | 400g   |
| DD 12-24 168-RU  | 168W (7A) non-isolated  | 12Vdc input, 24Vdc output | 186 x 91 x 52mm  | 740g   |
| DD 12-24 240-RU  | 240W (10A) non-isolated | 12Vdc input, 24Vdc output | 236 x 91 x 52mm  | 920g   |
| DD 12-24 400 RU  | 400W (16A) non-isolated | 12Vdc input, 24Vdc output | 221 x 125 x 74mm | 2080g  |
| DD 12-24 600 RU  | 600W (25A) non-isolated | 12Vdc input, 24Vdc output | 271 x 125 x 74mm | 2340g  |
| DD 48-12 072-RU  | 72W (6A) non-isolated   | 48Vdc input, 12Vdc output | 108 x 91 x 52mm  | 360g   |
| DD 48-12 108-RU  | 108W (9A) non-isolated  | 48Vdc input, 12Vdc output | 146 x 91 x 52mm  | 460g   |

**Other input and output voltage configurations are also available as special orders, please ask our sales team**

## Technical Data

|                                      |  |
|--------------------------------------|--|
| Input voltage range                  | 12Vdc, 24Vdc or 48Vdc +/- 30%  |
| Output voltage                       | 13.6Vdc or 27.2Vdc +15% -20% at extremes of temperature, load, input tolerance, etc.                               |
| Intermittent output power            | Continuous rating +25%, taken for a maximum of 2 minutes followed by 8 minutes rest.                               |
| Transient voltage protection         | Meets ISO7637-2 International standard for 24Vdc commercial vehicles   |
| Electrostatic voltage protection     | Meets ISO10605, ISO14892, >8kV contact, 15kV discharge   |
| Output noise                         | <50mV pk-pk (100mV on 24V units) at continuous load. Meets CISPR25 and VDE0879-3                                   |
| Off load current (quiescent current) | <15mA (PowerVerter), <15mA (DD Series exc 12-24) <100mA (DD Series 12-24 units)                                    |
| Power conversion efficiency          | Typically: 90% for non-isolated units, 85% for isolated units  |
| Isolation                            | >400Vrms between input, output and case, on isolated products only   |
| Operating temperature                | -25°C to +30°C, de rate output current linearly from +30°C to 0A at +80°C  |
| Storage temperature                  | -25°C to +100°C  |
| Operating humidity                   | 100%   |
| Casework                             | Anodised aluminium, polycarbonate, dust water and impact resistance to IP655                                       |
| Connections                          | 4 wires (1m in length) stripped and tinned for individual connection   |
| Voltage drop in 1m supplied cable    | 60mV per amp @ 25°C on units with output current < 18A<br>10mV per amp @ 25°C on units with output current ≥ 18A   |
| Output indicator                     | Green LED adjacent to cable gland  |
| Mounting method                      | 'Click 'n' fit' mounting clip, fitted separately using three hole fixing   |
| Safe area protection: Over current   | Limited by current sensing circuit   |
| Over heat                            | Limited by temperature sensing circuit   |
| Transients                           | Protected by filters and rugged component selection  |
| Catastrophic failure                 | Protected by internal input and output fuses   |
| Approvals                            | 2004/108/EC The general EMC directive<br>2006/96/EC The automotive directive<br>93/68/EEC The CE marking directive |
| Markings                             | CE and e marked  |



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