PowerVerter 24Vdc to 12Vdc Converters

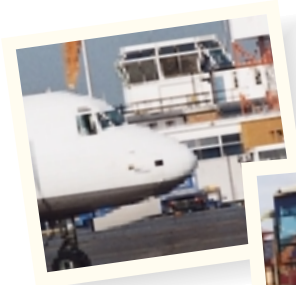
24Vdc to 12Vdc Converters

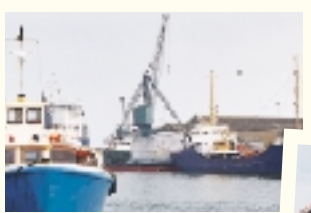
These products offer a convenient way to operate mass produced 12Vdc equipment, such as cell phones, in car entertainment equipment, professional communication equipment, refrigerators, televisions, etc. from the 24Vdc mobile electrical systems found on diesel engined vehicles and vessels and the 28Vdc systems found on aircraft.

A Comprehensive 24Vdc to 12Vdc Converter Range

The PowerVerter converter series, is a sub group of our PowerSelecter range of converters that offer a wide range of input and output voltages between 12Vdc and 48Vdc (*see the PowerSelecter leaflet*). For voltages above 48Vdc see our PowerMaster Converter leaflet.

This leaflet covers the PowerVerter series, ten products from 3 Amps to 30 Amps in isolated or common earth configurations. They have been optimised for high volume 24Vdc to 12Vdc applications such as on heavy goods vehicles, coaches, buses, construction, forestry and agricultural vehicles and commercial vessels, yachts and all types of aircraft. Consequently they are manufactured at low cost and offer excellent value for money. All the products may also be used for constant voltage lead-acid battery charging providing the battery manufacturers guidelines are followed.





All the PowerVerter products are CE marked, e marked and meet the requirements of FCC Class B.

Secure Isolation

It's your choice. The PowerVerter range offers an isolated option at every power rating. Some vehicle manufacturers, such as Scania, require that 'the converter shall be ground loss protected'. This means that the output voltage shall not exceed the specification if the supply ground connection or/and the load ground connection is lost. This requires an isolated converter. Isolated converters also prevent a direct connection between the 24Vdc input and the 12Vdc appliance in the case of a semiconductor failure.

Cool Running

The converters operate with a power conversion efficiency as high as 93%. This results in very little heat being generated. The reliability of semiconductors is inversely proportional to temperature so high efficiency leads to high reliability. The Mean Time Between Failure figure is around 160 years!

Also, the low heat dissipation allows them to be mounted in less well-ventilated positions which makes installation easier.

Rugged and Compact

The converters are enclosed in a rugged aluminium extrusion. The low mass Surface Mount Technology components are also less prone to vibration damage, further increasing the reliability of the units. The use of SMT results in very compact unit, making it easier for the installer to find a convenient location.

Tamper Proof

There are no ventilation holes to permit stray objects, dust or water droplets to enter the case. No external fuses to be tampered with. Fuses will only blow if there is a fault so there is no need to make them accessible.

Fast Installation

All the units consume an off load current of less than 15mA, which is probably less than the self discharge current of the vehicle's battery. In most cases this can be ignored, speeding the installation by removing the need to fit a remote switch.

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 and then simply click the unit into position.
A red LED indicates when there is output from the converter, this gives reassurance to the installation engineer and speeds fault finding.

Product Coding

The product code is developed as follows, take PV3i as an example:

PV	PowerVerter 24Vdc to 12Vdc converter
3	3 amps continuous output (12 Vdc output at 3 amps)
i	Isolated between input and output (s indicates switchmode, non-isolated)

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for use on **vehicles, vessels** *and* **aircraft**

Choose *your* PowerVerter

All PowerVerters convert 24Vdc to 12Vdc		Isolation	
		Non-Isolated Common Negative	**Isolated** Input to Output
Load Continuous/ intermittent	**3/6A**	PV3s	PV3i
	6/10A	PV6s	PV6i
	12/18A	PV12s	PV12i
	18/21A	PV18s	PV18i
	24/30A	PV24s	PV24i

The intermittent current may be drawn for a maximum of 2 minutes followed by 8 minutes rest.

Technical *data*

Model	Size	Weight	Model	Size	Weight
PV3s	66x87x50mm	256g	**PV18s, PV24s,**		
PV6s, PV3i	88x87x50mm	318g	**PV12i**	166x87x50mm	610g
PV12s, PV6i	126x87x50mm	455g	**PV18i, PV24i**	216x87x50mm	750g

Common Characteristics	
Input Voltage Range	17 to 32Vdc
Transient Voltage Protection	Meets ISO7637-2 International Standard for 24Vdc Commercial Vehicles
Electro Static Voltage Protection	Meets ISO10605, ISO14892, >8kV contact, 15kV discharge
Output Voltage	13.6Vdc. Worst case limits are +15% and -20%
Output Noise	<50mV pk-pk at continuous load. Meets CISPR25 and VDE0879-3
Off Load Current	<15mA
Power Conversion Efficiency	Typically: 85% for isolated units, 90% for non-isolated units
Isolation	>400Vrms between input, output and case, on isolated products only
Mean Time Between Failures	>162 years (HRD4)
Operating Temperature	-25°C to +30°C to meet this specification table +30°C to +80°C de-rate linearly to 0A
Storage Temperature	-25°C to +100°C
Operating Humidity	95% max, non condensing
Casework	Anodised Aluminium, Glass Filled Polycarbonate. Dust water and impact resistance IP533
Connections	Four 6.3mm push-on connectors
Output Indicator	Red LED adjacent to the output terminals
Mounting Method	"Click 'n' Fit" Mounting clip, fitted separately using three hole fixing
Safe Area Protection: Over Current Over Heat Transients Catastrophic failure	 Limited by current sensing circuit Limited by temperature sensing circuit Protected by filters and rugged component selection Protected by internal input and output fuses
Approvals	89/336/EEC The EMC Directive 95/54/EC The Automotive EMC Directive 93/68/EEC The CE Marking Directive VIDG5 For use on Police and Fire Vehicles
Tested to	ISO7637, ISO10605, ISO14892, ISO14893, ISO11451, ISO11452, CISPR 25, VDE0879-3, EN60945 Annex A
Markings	'CE' Marked and 'e' Marked

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