

POWERVERTER RAIL USB CHARGERS

12/24VDC USB TYPE A & C CHARGER IP65 PROTECTED

A & C PORT USB CHARGING FOR 12V AND 24VDC APPLICATIONS TESTED TO EN45545-2, EN50121-3-2 AND EN61373 (ROLLING STOCK)

The widespread use of smart phones and computer tablets has created an increasing need for user accessible, on the move charging systems. The PowerVerter PR65R Railway Range is specifically designed to meet all requirements for rolling stock applications. These units can easily be installed into seat backs (space permitting), under the seat, directly into carriage walls, or tabletops using the suitable mounting pods available.

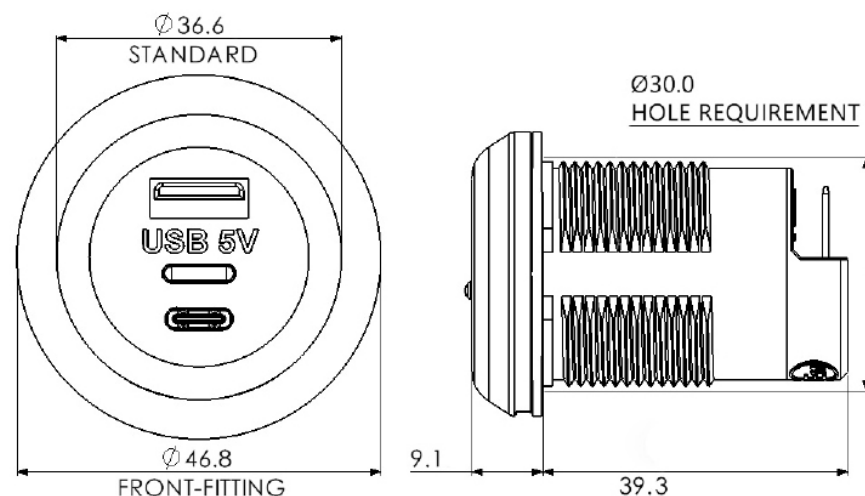
These chargers are available in both standard (secured from the rear with a nut) or front fitting, secured by three screws, covered with a discreet cover ring. Ingress protection is to IP65 (not connectors).

Installations can be carried out two ways:

For systems already galvanically isolated, the PR65R can be connected directly to the electrical system (either 12V or 24V). These units have been tested according to the requirements of EN50155 Annex G, including EMC EN50121-3-2, Fire EN45545-2 and Shock and Vibration EN61373.

If the system specification requires galvanic isolation, then the PR65R range units can be used in conjunction with the Alfatronix DC-DC Railway isolated converters such as PRI24-12 072 or PRI110-12 108. These units have also been tested according to the requirements of EN50155 Annex G. We recommend this option.

Please consult the PowerVerter Railway DC-DC Voltage Converters leaflet for more information and the full range of products available.



All dimensions in mm.

THE RANGE

All units are installed through a 30mm hole. Standard format units are retained by a rear nut while the front fit versions include a bezel with tamperproof cover ring. Input power is by way of two 6.3mm push-on flat fit automotive terminals.

Electronically the designs include reverse polarity protection and the output withstands short circuit current and will return back to full operation when the short is removed.

SAFETY

A requirement of the USB standard is that the metal cage around the USB plugs and sockets is connected to

ground (zero volts). If a USB charger is to be used in an application with a positive ground, i.e. battery/supply positive terminal is connected to the vehicle chassis, then there is a risk that the exposed metal cage of any USB cable could come in contact with the positive connected chassis, causing uncontrolled heating of the USB cable and USB charger and potentially creating a hazard.

In positive ground applications, the use of an isolated Alfatronix Converter is required to be installed between the positive ground supply and the input of the USB charger. Please refer to the PRI DC-DC datasheet.



PR65R-AC, standard fit AC USB charger secured into place with locking nut.

The PR65R range has the following key benefits:

- Both type-A and type-C outputs
- Apple and Android compatible
- Carriage wall, seat back or underseat and tabletop pod configurations
- LED output indicator
- IP65 ingress protection
- CE and UKCA marked



PR65R-ACFf, front fitting version can be screwed in place from the front, then covered with the attractive ring to avoid tampering.

WARRANTY

The PR65R range of chargers are manufactured using rugged components to provide years of service in demanding commercial environments and are covered by a three year return to base guarantee.

POWERVERTER RAIL USB CHARGERS

Part Number	Description	Dimensions (mm)	Weight
PR65R-AC	USB 'A' & 'C' Dual output rugged, IP65 12/24-5V, 3.6A	Ø37 x 49; Hole Ø30; Rearspace typ.36	38g
PR65R-C	USB 'C' Single output rugged, IP65 12/24-5V, 3.0A	Ø37 x 49; Hole Ø30; Rearspace typ.36	28g
PR65R-CC	USB 'C' & 'C' Dual output rugged, IP65 12/24-5V, 3.0A	Ø37 x 49; Hole Ø30; Rearspace typ.36	30g
PR65R-ACFf	USB 'A' & 'C' Dual output rugged, IP65 12/24-5V, 3.6A, front fit	Ø47 x 49; Hole Ø30; Rearspace typ.36	40g
PR65R-CFf	USB 'C' Single output rugged, IP65 12/24-5V, 3.0A, front fit	Ø47 x 49; Hole Ø30; Rearspace typ.36	30g
PR65R-CCFf	USB 'C' & 'C' Dual output rugged, IP65 12/24-5V, 3.0A, front fit	Ø47 x 49; Hole Ø30; Rearspace typ.36	32g
Accessories			
USB-POD	Under-seat mounting pod for USB chargers	W 60, H 52, D 80	69g
USB-TPOD	Table mounting pod for 2x USB chargers	W 103, H 44.5, D 88	73g

The USB 'A' & 'C' dual output or 'C' single output can also be installed with the USB-POD or USB-TPOD. Please ask our sales team.

TECHNICAL DATA

Input voltage range	24Vdc +/-30% according to IEC EN 50155	
Output voltage	5.Vdc +/- 0.2V	
Max output current	Dual A & C: 3.6A, Single C: 3.0A, Dual C: 3.0A	
Application	Charging of USB devices including Apple and Android	
Output noise	Typically: 1%	
Off load current (quiescent current)	<2.5mA	
Isolation	Non-isolated >400Vrms between casing and terminals	
Power conversion efficiency	90%	
Operating temperature	-25°C to +55°C, to meet this specification table	
Storage temperature	-40°C to +100°C	
Operating humidity	95% max., non-condensing	
Casework	Dark grey polycarbonate body, contrasting trim ring	
Connections	Input: 6.3mm push-in flat blade connectors Output: USB type-C single/double socket, USB type-C socket + USB type-A socket	
Output indicator	Blue LED output indication	
Mounting method	30mm diameter hole, with rear nut or front fit bezel	
Safe area protection:	Over Current	Output current limit
	Over heat	Temperature sensing with automatic output de-rating
	Over voltage	Protected against over-voltage surges according to EN 501201-3-2:2016 + A1:2019
	Under voltage	Protected against under-voltage by sensing circuits
	Reverse Polarity	Protected against reverse polarity of the input
	Catastrophic Protection	Internally fused, external fusing required on input wires
Declarations	2014/30/EU - The EMC Directive 1907/2006 - The REACH Directive 2011/65/EU and 2015/863/EU - The RoHS Directive	
Tested to	EN50121-3-2:2016 + A1:2019 - Rail EMC EN45545-2:2020 + A1:2023 - Rail Fire EN61373:2010 - Rail shock and vibration EN 60068-2-1:2007 [test Ad], EN 60068-2-2:2007 [test Bd], EN 60068-2-30:2005 [test Db variant 2] - Environmental Testing	
Designed to	EN50155:2021 Annex G - Railway applications - Rolling stock - Electronic equipment	
Markings	CE and UKCA Marked	
IP Rating	IP65 - Tested according to EN 60529:1992 + A2:2013	