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PRODUCT BROCHURE

VOLTAGE CONVERTERS
POWER SUPPLIES
BATTERY CHARGERS
LOW VOLTAGE DISCONNECTS
USB CHARGERS

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INTRODUCTION

Welcome to the brand new Alfatronix catalogue. Alfatronix has been manufacturing power conversion products since 1979 including the very popular PowerVerter range of 24V-12V DC-DC converters, supplemented by the DD Series stabilisers, isolators and up converters. Most configurations are now available up to 600W.

Our most recent introduction is our range of USB chargers for use on vehicles. These are compatible with all popular Apple and Android mobile devices such as iPhones, iPads, Galaxy etc., allowing these to be charged easily and safely on board buses and other vehicles. Operating at 5V, this system offers a safe and cost effective alternative to expensive and often unreliable mains systems on board vehicles, covering all popular applications.

On the mains voltage side, our AD Series range of power supplies accept both 115Vac and 230Vac without adjustment and offer three standard outputs of 12V, 24V and 48V (nominal). Since 2014, our casings have been re-tooled to further utilise plastic injection mouldings, which provide a higher quality finish at lower cost. Our AD Series Desktop Versions are now compatible with most radios on the market and still offer the most attractive solution for using mobile radios in fixed environments.

All products are manufactured at our factory in Poole, England and are available for fast despatch, usually within a day or two. We have distributors throughout Europe and beyond for fast delivery within your local area and our engineering team is always available to assist with any issues relating to application or installation. Here at Alfatronix, we make every effort to maintain the very highest of quality standards backed by a return to base lifetime guarantee.

Whether you are involved in the communications, automotive or marine markets, are specifying original fit components at OEM level or require power conversion as part of a system integration, we have a wide range of products to suit your needs.

Keith Reilly

Managing Director

Voltage Converters

Power Supplies

Low Voltage Disconnects

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POWERVERTER & DD SERIES SELECTION TABLE

The following table provides an overview of our DC-DC products. Simply choose the input/output voltage configurations on the left against the continuous power rating (expressed in Watts) across the top.

INPUT & OUTPUT	WATT RATING							
	36W	72W	108/144W	168/216W	240/288W	400W	600W	1200W
24V–12V NON-ISOLATED Converters	PV3s 3Amp ◆	PV6s 6Amp ◆	PV12s 12Amp ◆	PV18s 18Amp ◆	PV24s 24Amp ◆		PV50s 50Amp	
24V–12V ISOLATED Converters	PV3i 3Amp ◆	PV6i 6Amp ◆	PV12i 12Amp ◆	PV18i 18Amp ◆	PV24i 24Amp ◆			
24V–12V Dual Output Switched NON-ISOLATED	PV3s-A 3Amp ◆	PV6s-A 6Amp ◆	PV12s-A 12Amp ◆					
12V–24V NON-ISOLATED Converters		DD12-24 072 3Amp ◆	DD12-24 108 4.5Amp ◆	DD12-24 168 7Amp ◆	DD12-24 240 10Amp ◆	DD12-24 400 17Amp ◆	DD12-24 600 25Amp ◆	
12V–12V ISOLATED Converters	DDi12-12 036 3Amp ◆	DDi12-12 072 6Amp ◆	DDi12-12 108 9Amp ◆					
24V–24V ISOLATED Converters	DDi24-24 036 1.5Amp ◆	DDi24-24 072 3Amp ◆	DDi24-24 108 4.5Amp ◆	DDi24-24 168 7Amp ◆	DDi24-24 240 10Amp ■			
48V–12V NON-ISOLATED Converters		DD48-12 072 6Amp ◆	DD48-12 108 9Amp					
48V–12V ISOLATED Converters	DDi48-12 036 3Amp	DDi48-12 072 6Amp ◆	DDi48-12 108 9Amp ◆					

Denotes non-isolated common earth products.

Denotes isolated products. These provide isolation betwen input and output and are often used for marine applications or for petrochemical applications to prevent sparking. They can also help to reduce the effects of EMC interference. They can always be used in place of non-isolated products but not vice versa.

◆ Denotes product is also available in IP65 versions. *Please add the suffix **-RU** to the part number when ordering.*

■ Denotes product is IP20 force air fan cooled.

Many products have an intermittent current rating, so occasional short periods above the continuous ratings are permissable. Intermittent ratings are normally 25% above the continuous ratings, though often greater on smaller units. Permissable max usage cycle is 2 minutes, followed by 8 minutes rest.

In addition to the standard products tabled, a number of wide input products are also available. These are configured to operate from both 12V and 24V systems. *For further information, please see page 10: Bespoke and Variant Options.*

Output voltages are generally set to typify normal battery output voltages as follows: 12V nominal = 13.6V, 24V nominal = 27.2V, 48V nominal = 54.4V.

Most products are available with alternative output voltage options at extra cost, for example 12V instead of 13.6V.

Most products are IP53 as standard. Many products are also available as IP65 versions. Part numbers will have **-RU** suffix. *Please see data sheet for clarification.*

POWERVERTER
24VDC TO 12VDC VOLTAGE CONVERTERS

24VDC TO 12VDC VOLTAGE CONVERTERS

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

A COMPREHENSIVE RANGE

There are 14 products in the range from 3A to 50A 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, forestry and agricultural vehicles, as well as commercial and leisure marine vehicles.

TAMPER PROOF

These units are IP53, so there are no ventilation holes to permit stray objects, dust or water droplets to enter the case, there are 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.

PRODUCT VARIANTS

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

Galvanically isolated units are suitable for marine applications and come complete with the green tamperproof label for petrochemical applications.

New PV50s, 50Amp converter

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 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 fixing kit for din rail installation is also available (*see page 24*).

A green LED indicates when there is output from the converter. This gives reassurance to the installation engineer and speeds fault finding.

Many units in the PowerVerter range are also available as IP65 Versions. *Please add the suffix -RU to the part number when ordering.*

CHOOSE YOUR POWERVERTER PRODUCT

Part Number	Cont/Int Power	Nominal Voltage	Dimensions	Weight
PV3s	3A/6A non-isolated	24Vdc input, 12Vdc output	67 x 87 x 50mm	200g
PV6s	6A/10A non-isolated	24Vdc input, 12Vdc output	89 x 87 x 50mm	250g
PV12s	12A/18A non-isolated	24Vdc input, 12Vdc output	127 x 87 x 50mm	405g
PV18s	18A/22A non-isolated	24Vdc input, 12Vdc output	167 x 87 x 50mm	605g
PV24s	24A/30A non-isolated	24Vdc input, 12Vdc output	167 x 87 x 50mm	620g
*PV50s	50A/60A non-isolated	24Vdc input, 12Vdc output	283 x 125 x 74mm	1775g
PV3i	3A/6A isolated	24Vdc input, 12Vdc output	89 x 87 x 50mm	280g
PV6i	6A/10A isolated	24Vdc input, 12Vdc output	127 x 87 x 50mm	505g
PV12i	12A/18A isolated	24Vdc input, 12Vdc output	167 x 87 x 50mm	590g
PV18i	18A/22A isolated	24Vdc input, 12Vdc output	217 x 87 x 50mm	775g
PV24i	24A isolated	24Vdc input, 12Vdc output	217 x 87 x 50mm	785g
PV3s-A	3A/6A non-isolated	24Vdc-12Vdc dual output	67 x 87 x 50mm	200g
PV6s-A	6A/10A non-isolated	24Vdc-12Vdc dual output	89 x 87 x 50mm	250g
PV12s-A	12A/18A non-isolated	24Vdc-12Vdc dual output	123 x 87 x 50mm	425g

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

TECHNICAL DATA

Input voltage range	17-32Vdc
Output voltage	13.6Vdc +15% -20% at extremes of temperature, load, input tolerance, etc.
Intermittent output power	As stated, 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, ISO14982, >8kV contact, 15kV discharge
Output noise	<50mV pk-pk at continuous load. Meets CISPR25.
Off load current (quiescent current)	<15mA
Power conversion efficiency	Typically: 90% for non-isolated units, 85% for isolated units, *95%
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 to IP533
Connections	Four 6.3mm push-on flat blade connectors *(5 way Phoenix connector including enable on/off terminal and mating half)
Output indicator	Green LED adjacent to output terminals
Mounting method	Click 'n' fit mounting clip, fitted separately using three hole fixture (see page 24) * 4 hole cradle
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 protection	Protected by internal input and output fuses
Approvals	2004/108/EC The general EMC directive 2009/19/EC & Reg 10 The automotive directive 93/68/EEC The CE marking directive
Designed to	Reg 10, EN50498, ISO 7637-2, ISO 11452-1, ISO 14892, EN12895, ISO TR10605, EN60945, EN55022, FCC15B.
Markings	CE and E marked

POWERVERTER
12/24VDC USB CHARGERS

FOR MOBILES AND TABLETS – THE SAFE ALTERNATIVE FOR ON BOARD POWER

The widespread use of smartphones and computer tablets has created an increasing need for user accessible, on the move charging systems. The PowerVerter USB Chargers can be easily installed onto any vehicle and allow both drivers and passengers to readily access power to charge any device connected via a USB lead.

This type of system has the distinct advantage of largely negating the need for mains electricity on vehicles. The 5Volt DC power is much safer than mains, so installation is quick and simple. Passengers can access the charging facility directly and power their equipment simply through the USB charging lead which is supplied with all such products.

All versions in the range can be connected directly to both 12Vdc and 24Vdc systems without adjustment. The advanced electronic design will also automatically detect if the device is an Apple or Android configuration and alter the charging process accordingly. This ensures that whatever device is connected, be it Apple, Android, iPad, phone or tablet, it will always be charged as fully as time and capacity allow. This avoids the confusion of providing dual outputs which can often appear to be charging when in fact they are doing little more than lighting the LED.

- 12Vdc and 24Vdc systems
- Up to 2.1A output
- Apple and Android auto-detect
- Dashboard or slim-line seat back configurations
- LED output indicator
- CE and E Marked

PV USB-1

PV USB-1: Mounted USB Charger. Retaining plate and dust cover supplied (USB-1 and USB-3), but need not be installed if not required.

PV USB-2: Charger only, no interface. For under-dash use.

PV USB-3: Slim-line version. Requires only 20mm rear space.

THE RANGE

The product is available in three configurations. The PV USB-1 can be installed in a dashboard or fascia display, connected invisibly from behind and retained with the threaded securing ring provided. Where there is limited rear access, a front retaining plate is supplied as an alternative. In each case, an attractive professional finish is achieved.

PV USB-2 provides the same performance but is designed to be installed out of the way with other wiring, while USB-3 offers a slim-line socket with a 30cm cable. This allows the user interface to be installed in positions where there is limited depth available such as seat backs or armrests, while the actual charger can be located out of the way along with other wiring.

Both PV USB-1 and USB-3 have a subtle blue LED to highlight their location on the vehicle and include an optional dust cover for when not in use.

COMMERCIAL INSTALLATIONS

The PowerVerter USB Chargers are designed to BS EN50498 and ISO 7637-2 and are both CE and E marked for commercial, on board vehicle installations. The casings and mounting components are manufactured in high quality impact resistant V-0 rated polycarbonate and the electronic assembly is entirely by computer controlled SMT for maximum reliability.

CHOOSE YOUR POWERVERTER USB PRODUCT

Part Number	Power	Nominal Voltage	Dimensions	Weight
PV USB-1	2.1A	12Vdc/24Vdc input, 5Vdc output	Diameter (max) 35mm; Hole 30mm; Depth 55mm	33g
PV USB-2	2.1A	12Vdc/24Vdc input, 5Vdc output	85 x 24 x 14mm	30g
PV USB-3	2.1A	12Vdc/24Vdc input, 5Vdc output	Diameter (max) 35mm; Hole 30mm; Depth 20mm	60g

TECHNICAL DATA

Input voltage range	9-32Vdc
Output voltage	5Vdc
Output Power	2.1A
Application	Charges all USB devices including Apple and Android
Transient voltage protection	Meets ISO7637-2 International standard for 24V vehicles
Electrostatic voltage protection	Meets ISO10605, ISO14982, >8kV contact, 15kV discharge
Output noise	<50mV pk-pk
Off load current (quiescent current)	<1.5mA
Power conversion efficiency	86%
Operating temperature	-25°C to +60°C to meet this specification table
Storage temperature	-25°C to +100°C
Operating humidity	95% max., non-condensing
Casework	Black polycarbonate body
Connections	Input: 6.3mm push-in flat blade connectors Output: USB type A single socket
Output indicator	Blue LED output indication
Mounting method	30mm diameter hole with or without bezel
Dimensions	58mm overall length (including cover and connectors x Ø37mm) (excluding optional face plate)
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 protection	Internal fuse
Approvals	2004/108/EC The general EMC directive Regulation 10 The automotive directive 93/68/EEC The CE marking directive AESP5
Designed to	EN50498, ISO 7637-2
Markings	CE and E marked
IP Ratings: PV USB-1 Closed Cover	IP65
PV USB-1 Open/No Cover	IP30
PV USB-2	IP30
PV USB-3	IP60
PV USB-Socket Closed Cover	IP65
PV USB-Socket Open/No Cover	IP30

DD SERIES AND DDi SERIES
VOLTAGE CONVERTERS

12V–12V, 24V–24V & 48V–12V CONVERTERS FOR A WIDE RANGE OF APPLICATIONS

The sensitivities of modern electronic equipment to variable input voltages, susceptibility to EMC interference and in some cases, the need to isolate the supply has made voltage stabilisation an important section of our product range. Start/Stop technology on motor vehicles has added to this problem. The DDi Series offers a wide range of 12V-12V and 24V-24V isolated products that ensure a stable and reliable voltage can be delivered to important equipment, even when the electrical system is under duress, such as during engine cranking. Units are available from 36-240W. The range now also offers 48V-12V units, suitable for the telecoms and forklift truck markets. *For 12V-24V converters, see DD Series 'Up' Voltage Converters*

A COMPREHENSIVE PRODUCT RANGE

There are three products in the 12V-12V isolator range from 36W to 108W and a further four products in the 24V-24V range from 72W to 240W. There are also three 48V-12V products from 36W to 108W. All products use modern switchmode designs and are built using the same concepts and technologies as the successful PowerVerter range, which will of course meet your 24V–12V requirements.

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.

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

The green 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, taking the DDi 12-12 036 as an example:

DD	DC input and output
i	Denotes isolated converter
12-12	Nominal 12V input/output
036	36W capacity unit

12V–12V and 24V–24V units can provide a stable output voltage as well as providing galvanic isolation for a variety of applications

CHOOSE YOUR DD SERIES PRODUCT

Part Number	Power	Nominal Voltage	Dimensions	Weight
DDi12-12 036	36W (3A) Isolated	12Vdc input, 12Vdc output	89 x 87 x 50mm	280g
DDi12-12 072	72W (6A) Isolated	12Vdc input, 12Vdc output	167 x 87 x 50mm	540g
DDi12-12 108	108W (9A) Isolated	12Vdc input, 12Vdc output	217 x 87 x 50mm	780g
DDi24-24 072	72W (3A) Isolated	24Vdc input, 24Vdc output	127 x 87 x 50mm	440g
DDi24-24 108	108W (4.5A) Isolated	24Vdc input, 24Vdc output	167 x 87 x 50mm	540g
DDi24-24 168	168W (7A) Isolated	24Vdc input, 24Vdc output	217 x 87 x 50mm	780g
DDi24-24 240	240W (10A) Isolated	24Vdc input, 24Vdc output	217 x 87 x 62mm	870g
DD48-12 072	72W (6A) Non-Isolated	48Vdc input, 12Vdc output	89 x 87 x 50mm	270g
DD48-12 108	108W (9A) Non-Isolated	48Vdc input, 12Vdc output	127 x 87 x 50mm	370g
DD48-12 240	240W (20A) Non-Isolated	48Vdc input, 12Vdc output	217 x 87 x 50mm	770g
DDi48-12 036	36W (3A) Isolated	48Vdc input, 12Vdc output	89 x 87 x 50mm	290g
DDi48-12 072	72W (6A) Isolated	48Vdc input, 12Vdc output	127 x 87 x 50mm	405g
DDi48-12 108	108W (9A) Isolated	48Vdc input, 12Vdc output	167 x 87 x 50mm	560g

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

For DIN Rail Mounting - see page 24.

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, ISO14982, >8kV contact, 15kV discharge
Output noise	<50mV pk-pk (100mV on 24V units) at continuous load. Meets CISPR25.
Off load current (quiescent current)	<15mA
Power conversion efficiency	Typically: 90% for non-isolated units, 85% for 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 to IP533 (excludes DDi 24-24 240 which is ventilated and fitted with a cooling fan to IP20).
Connections	Four 6.3mm push-on flat blade connectors
Output indicator	Green LED adjacent to output terminals
Mounting method	Click 'n' fit mounting clip, fitted separately using three hole fixture
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 2009/19/EC The automotive directive 93/68/EEC The CE marking directive
Designed to	EN50498, ISO 7637-2.
Markings	CE and E (e) marked

DD SERIES
12–24V "UP" VOLTAGE CONVERTERS

12V–24V "UP" CONVERTERS FOR A WIDE RANGE OF APPLICATIONS

If you need to fit 24V equipment onto a 12V electrical system, then an "up" converter from the DD Series offers a fast and easy way to configure your system. Now with a range from 72W (3A output) to 600W (25A output), these products offer state of the art designs for fast installation and long term reliable operation. Typical applications include the installation of 24V equipment on 12V vehicles and installation of specialist equipment requiring higher operating voltages.

400W AND 600W 12–24V UNITS

The latest addition to the range includes two high current (17 and 25 Amps output) units. These use state of the art designs with efficiency up to 93% and practically all components are mounted using computer controlled surface mount technology (SMT). The result is a robust product with low component mass. The mechanical aspects include a brand new casing profile designed for maximum heat dissipation as well as a new design of our highly successful mounting cradle that allows the unit to be fully wired before being "clicked" into place. This provides for a faster installation time with mechanics capable of withstanding long term vibration with no risk of screws falling out.

CASING FORMATS

12V–24V converters are available in two casing formats. Units from 72-240W use the standard Alfatronix aluminium casings with polycarbonate endcaps and three point mounting cradle. The larger 400W and 600W units occupy a larger heatsink casing and utilise the heavy duty Phoenix connector. Installation is by way of the larger four point 'I' shaped mounting cradle.

ALSO AVAILABLE IN IP65 FORMAT

The DD Series 12–24V products are available in either standard IP53 format (like most Alfatronix converters) or the ruggedised IP65 versions. Just add –RU to the part number. These are suitable where the installation is in a particularly hostile environment and subject to increased water and dirt exposure.

PRODUCT CODING

The product code is derived as follows, taking the DD 12-24 072-RU as an example:

DD	DC input and output
12-24	Denotes 12V input, 24V output
072	Denotes wattage
-RU	Denotes IP65 version

CHOOSE YOUR DD SERIES PRODUCT

Part Number	Power	Nominal Voltage	Dimensions	Weight
DD12-24 072	72W (3A) Non-Isolated	12Vdc input, 24Vdc output	89 x 87 x 50mm	300g
DD12-24 168	168W (7A) Non-Isolated	12Vdc input, 24Vdc output	167 x 87 x 50mm	640g
DD12-24 240	240W (10A) Non-Isolated	12Vdc input, 24Vdc output	217 x 87 x 50mm	800g
DD12-24 400	400W (16A) Non-Isolated	12Vdc input, 24Vdc output	233 x 125 x 74mm	1510g
DD12-24 600	600W (25A) Non-Isolated	12Vdc input, 24Vdc output	283 x 125 x 74mm	1800g
Other output voltage configurations are available as special orders, please ask our sales team				

TECHNICAL DATA

Input voltage range	12Vdc +/- 30%
Output voltage	27.2Vdc +/-5% at extremes of temperature, load, input tolerance etc
Continuous current rating	3A – 25A depending on model
Intermittent rating	Continuous rating +20%, taken for a maximum of 2 minutes followed by 8 minutes rest
Transient voltage protection	Meets ISO7637-2 International standard for 12V and 24Vdc commercial vehicles
Electrostatic voltage protection	Meets ISO10605
Output noise	<100mV pk-pk at continuous load
Off load current (quiescent current)	<20mA (400W and 600W enable off), less than 100mA (72 – 240W units)
Power conversion efficiency	Typically 93%
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 +70°C
Operating humidity	95% max., non-condensing
Casework	Anodised aluminium, glass-filled polycarbonate, dust, water and impact resistance to IP53. Ruggedised versions also available to IP65.
Connections	Four 6.3mm push on flat blade connectors (72W – 240W) Five terminal connector with screw tightening with mating half supplied (400W and 600W units)
Output indicator	Green LED adjacent to output terminals
Mounting method	“Click ‘n’ fit” mounting clip, fitted separately using 3 hole fixing (4 hole on 400W and 600W)
Safe area protection: **Over current** **Over heat** **Transients** **Input/Output over voltage protection** **Catastrophic failure**	Limited by current sensing circuit Limited by temperature sensing circuit Protected by filters and rugged component selection Controlled by internal circuitry Protected by internal input and output fuses
Approvals	2004/108/EC The general EMC directive 2009/19/EC The automotive directive 93/68/EEC The CE marking directive
Designed to	EN50498, ISO 7637-2
Markings	CE and E/e marked

FROM 9V TO 110V DC INPUT WITH A RANGE OF OUTPUTS TO SUIT YOUR NEEDS

From our comprehensive range of DC–DC converters, we can design bespoke solutions to your power needs. Input voltages from 9Vdc – 110Vdc are available with output voltages set to suit your needs. Products can also be upgraded, for example, to higher IP ratings or for high temperature performance. With specialist engineering skills in Switchmode DC–DC power conversion, we can undertake complete bespoke design projects to suit your requirements.

- A variety of mounting methods are available including the Alfatronix Click 'n' Fit system.
- Like all Alfatronix products, the variant units are covered by our No Quibble Lifetime Warranty.

RECENT EXAMPLES

- Wide input (11V–32V) unit with 10V output to power GPS systems on waste disposal trucks.
- Wide input (9V–32V) unit with 9V output to power thermal printers.
- Wide input (9V–32V) unit with 5V output for data logging systems on buses.
- Wide input (9V–32V) unit for motorway information signs.

Power solutions for forklift trucks, combine harvesters, trams and other specialist vehicles can all be served, as well as a variety of general industrial applications.

DC-DC VOLTAGE CONVERTERS

For annual volumes of over 10,000 units, Alfatronix can offer a bespoke design solution for OEM customers wishing to integrate DC-DC conversion into their vehicle electronics assembly. This enables the use of dedicated connectors and package dimensions to suit vehicle drawings and offers the opportunity to maximise performance within a given power conversion application.

Operating at the forefront of technology in DC-DC conversion, our engineers can offer advanced technological solutions with unparalleled reliability and performance. Features and benefits can be designed in line with dedicated needs to optimise benefits in assembly.

Some of the latest electronic designs can be assembled entirely using robotic Surface Mount Technology (SMT) providing excellent build repeatability. Quality is controlled entirely by process and the high capacity automated production equipment means assembly costs can be competitive against low cost off shore locations. Using these methods Alfatronix can maximise price to performance ratios while offering outstanding supply chain efficiency.

Please contact our sales team for more information.

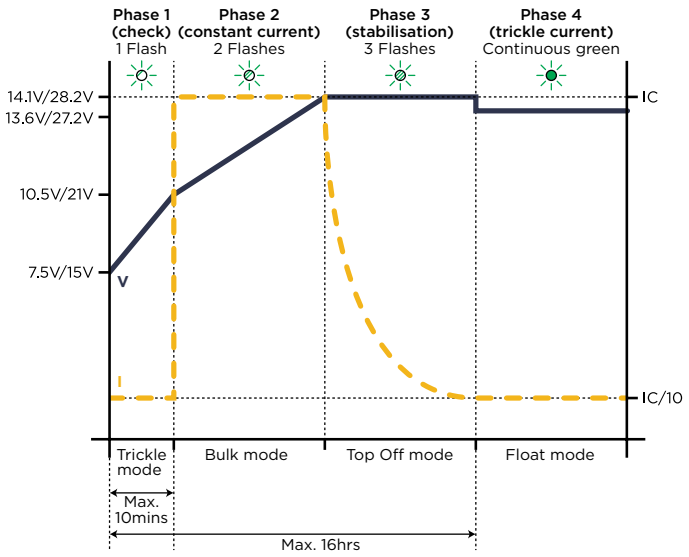
DC-DC INTELLIGENT BATTERY CHARGERS

While many applications can be supplied using a standard voltage converter or stabiliser, sometimes there can be a requirement to charge one DC battery from another in order to provide independent power. The Alfatronix range of DC-DC chargers are based on the very successful PowerVerter range but configured to offer a four stage charging program that will ensure that batteries are charged to a maximum capacity providing long term reliable power.

These products come with many of the same safety and protection features as the PowerVerters, but are also additionally designed to detect faulty batteries and dead cells. They will also ensure that they will not operate unless the source battery is attached to a charging source such as a vehicle alternator or mains unit. In this way, you can ensure that the charger will not allow unintentional draining of the source battery.

MANY KEY FEATURES

These intelligent battery chargers operate a four stage charging cycle. The first stage monitors the battery to establish that the battery is in good condition before starting the three stage process. This feature is of key importance in ensuring that faulty batteries are not inadvertently charged causing overheating and potential system failure. The units are also reverse polarity protected and when re-connected correctly will operate normally without reset. The Alfatronix three point mounting cradle is also supplied for fast and easy installation.



- These intelligent DC-DC battery chargers offer a comprehensive 4 stage charging programme as well as protection against battery source drainage. A fifth terminal is also available to allow the unit to be installed as a float-mode charger if required as an alternative.
- All the battery chargers are galvanically isolated so can be used on any application including automotive, marine, petrochemical or off road applications.
- DC-DC chargers are suitable for providing auxiliary power on a wide variety of vehicles including fire, police and ambulance, as well as farming, forestry, commercial and leisure marine.

CHOOSE YOUR BATTERY CHARGER

Part Number	Cont/Int Power	Input Voltage	Dimensions	Weight
ICi24-12 144	12A Isolated	24Vdc input, 12Vdc output (variable charge voltage)	167 x 87 x 50mm	600g
ICi24-24 144	6A Isolated	24Vdc input, 24Vdc output (variable charge voltage)	167 x 87 x 50mm	600g
ICi12-12 072	6A Isolated	12Vdc input, 12Vdc output (variable charge voltage)	167 x 87 x 50mm	600g
ICi12-24 072	3A Isolated	12Vdc input, 24Vdc output (variable charge voltage)	167 x 87 x 50mm	600g

For AC-DC Battery Chargers, please see our IC Series AC-DC Intelligent Battery Chargers on page 12

TECHNICAL DATA

Input voltage range	24-32Vdc, 12-16Vdc. Configured to prevent depletion of source battery.
Output voltage	12V or 24V nominal through the intelligent battery charging curve. Please see charge graph for further information.
Transient voltage protection	Meets ISO7637-2 International standard for 24Vdc commercial vehicles
Electrostatic voltage protection	Meets ISO10605, ISO14982, >8kV contact, 15kV discharge
Output noise	<50mV pk-pk (100mV on 24V units) at continuous load. Meets CISPR25.
Off load current (quiescent current)	Typically <5mA. Unit will shut down when source battery is not being charged.
Power conversion efficiency	Typically 85%
Isolation	>400Vrms between input, output and case, on isolated products only
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 to IP533
Connections	Five 6.3mm push-on flat blade connectors
Output indicator	Multicolour LED adjacent to output terminals indicating power and charging mode
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	2004/108/EC The general EMC directive 2006/96/EC Regulation 10 The automotive directive 93/68/EEC The CE marking directive
Designed to	EN50498, EN55022, ISO 7637-2, EN61204-3
Markings	CE and E marked

POWERTECTOR
LOW VOLTAGE DISCONNECT

SOLID STATE BATTERY GUARDS

The PowerTector Battery Guard is a solid state battery device that will monitor the source voltage and disconnect the equipment from the battery if the voltage falls below a pre-determined level. This can work to ensure that there is always sufficient voltage remaining in the battery to start a vehicle engine or ensure power is available for other critical applications. The total discharge of a lead acid battery can also cause damage to the cells significantly shortening the life of the battery. The PowerTector unit can also be set to disconnect equipment at a lower voltage that will still protect the battery from total discharge, while allowing for maximum battery usage. A timed version is also available which will disconnect automatically a set period after the ignition has been switched off.

- All PowerTectors from 40A upwards are mounted in a rugged die cast aluminium casing with glass filled polycarbonate cover providing terminal protection and insulation.
- Smaller units; 10A and 20A, are available in a lightweight, polycarbonate casing that can be simply fitted in the wiring, like an inline fuse without the need to drill the vehicle chassis.

A WIDE RANGE OF FEATURES

There are six units in the range from 10A to 200A. The 10A and 20A unit offer a simple inline system, usually wired to a specific piece of equipment. These units do not require chassis mounting and simply connect and tie wrap neatly within the wiring system.

The 40A and 60A units are connected by M6 brass bolts, the 100A and 200A by M10 brass bolts and use a three point mounting system to avoid rocking or stress to the electronics when mounted on uneven surfaces. Heat is dissipated into our custom manufactured die cast casing and all units will operate at full power without additional heatsink dissipation.

MANUAL SHUTDOWN FACILITY

From 40A upwards, the units have the facility to be manually shutdown either through the ignition or a dedicated switch. In addition, from 100A upwards the units can have an override switch fittted. This allows the units to be reactivated for four minutes to allow emergency actions to be performed.

ALARM & DISCONNECT DELAY FEATURE

An alarm output is supplied which, once the threshold has been reached for 10 seconds, will activate, sounding an alarm or other indicating device for a further 50 seconds prior to disconnection. This allows the operator to restart the engine or take other action to maintain continuous power.

TIMED VERSIONS

In addition to the standard PowerTectors, the PT-T versions offer a timed facility. This will disconnect the output after a set time after the ignition has been turned off. If required, during this time period, the voltage can still be monitored and disconnected if it falls below a set level to protect the battery power and system. The unit will reactivate when the ignition has been turned on again and the battery voltage has reached 8.5Vdc (12V systems), 17Vdc (24V systems).

FULLY PROGRAMMABLE

All units in the range are supplied pre-programmed for a variety of scenarios offering higher or lower disconnect voltages and it is quick and simple to select the correct programme to suit your needs.

- Using the simple programming terminal, select the pre-set disconnect voltage according to your requirements.
- LED indicates operational status.
- Audible alarm and/or visual indicator can be installed in the dashboard or cockpit to alert operator of a potential problem.
- Switch terminal allows the unit to be operated via the ignition or a manual switch.
- The PowerTector battery guards offer excellent protection for communication and other mission critical applications

CHOOSE YOUR POWERTECTOR PRODUCT

Part Number	Power	Input Voltage	Dimensions	Weight
PT10	10A continuous	9Vdc-32Vdc (Automatic Referencing)	155 x 30 x 15mm	45g
PT10-T	10A continuous	9Vdc-32Vdc (Auto Ref) Timed	155 x 30 x 15mm	45g
PT20	20A continuous	9Vdc-32Vdc (Automatic Referencing)	155 x 30 x 15mm	45g
PT20-T	20A continuous	9Vdc-32Vdc (Auto Ref) Timed	155 x 30 x 15mm	45g
PT40	40A continuous	9Vdc-32Vdc (Automatic Referencing)	76 x 78 x 33mm	155g
PT40-T	40A continuous	9Vdc-32Vdc (Auto Ref) Timed	76 x 78 x 33mm	155g
PT60	60A continuous	9Vdc-32Vdc (Automatic Referencing)	76 x 78 x 33mm	155g
PT60-T	60A continuous	9Vdc-32Vdc (Auto Ref) Timed	76 x 78 x 33mm	155g
PT100	100A continuous	9Vdc-32Vdc (Automatic Referencing)	124 x 97 x 51mm	530g
PT100-T	100A continuous	9Vdc-32Vdc (Auto Ref) Timed	124 x 97 x 51mm	530g
PT200	200A continuous	9Vdc-32Vdc (Automatic Referencing)	124 x 97 x 51mm	530g
PT200-T	200A continuous	9Vdc-32Vdc (Auto Ref) Timed	124 x 97 x 51mm	530g

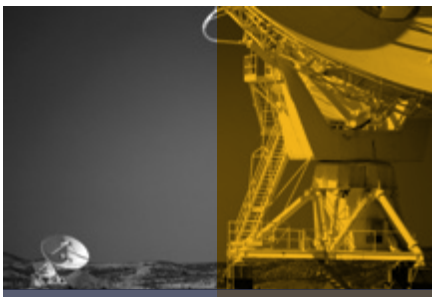
TECHNICAL DATA

Input voltage range	9-32Vdc (Automatic Referencing)
Output voltage	Equal to input voltage when operating (maximum of 100mV drop across terminals)
Transient over current rating (% of continuous value)	110% for 10s 200% for 1s 300% for <0.5ms On over current shutdown there is a retry every 30s
Quiescent current when shutdown (while running)	Typ 2mA @ 13.6V, (PT40/60 Typ 4mA @ 13.6V), (PT100/200 Typ 6mA @ 13.6V)
Isolation	>400Vrms between input, output and case
Transient voltage protection	Meets ISO7637-2 International standard for 24V vehicles
Electrostatic voltage protection	Meets ISO10605, ISO14982, >8kV contact, 15kV discharge
Operating temperature	-25°C to +60°C to meet this specification table
Storage temperature	-25°C to +100°C
Ingress protection	IP65
Casework	Silver anodised aluminium, glass filled polycarbonate
Connections	PT10/20 Insulated 6.3mm push-on flat blade connectors PT40/60 M6 ring tongues PT100/200 M10 ring tongues 6.3mm push-in flat blade connectors for earth, switch, override and alarm Programming lead with 2.8mm blade connector provided
Output indicator	Green LED for programming and output indication
Mounting method	PT10/20 tie wrap to wiring (supplied) PT40/60/100/200 3off half inch No8 pozi pan head screws (supplied)
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 protection	Set by external input fuse (set by application demands) and ground line fuse max 1A
Approvals	2004/108/EC The general EMC directive Regulation 10 The automotive directive 93/68/EEC The CE marking directive AESP5
Designed to	EN50498, ISO 7637-2
Markings	CE and E marked

AD SERIES
115/230VAC MAINS POWER SUPPLIES

MAINS POWER SUPPLIES IN 12V, 24V & 48V CONFIGURATIONS

The AD Series units may be used to supply mobile radios and other appliances from AC mains used in offices, portable site cabins, communication cabins, telephone exchanges, remote antennae sites, ships, oil rigs etc. The units will accept either European 230Vac or US 115Vac inputs and are available as standard in 12V, 24V and 48V output configurations. Input is via a standard IEC-320 C13/14 power cord with UK, European or US mains plugs - *please state your requirement*.



AD Series Power supplies can also be fitted with DIN rail clips for rack mounted applications: *see page 24*.

FAST INSTALLATION

There's nothing worse than a power supply lying around on the floor. The T-shaped mounting clip, common to many Alfatronix products, allows the power supplies to be installed quickly and simply in many out of the way locations, such as underneath desks or on walls. The 3 point 'T' clip can be fitted securely, even on uneven surfaces, quickly and simply, and then the power supply simply 'clips' in place.

BATTERY CHARGING REQUIRED?

A fixed voltage battery charging facility is also available with the supplementary loom; P/N AD BB loom. For dedicated battery charging units, *please check out our IC Series Intelligent Battery Chargers (page 12)*.

FULL CIRCUIT PROTECTION

The AD Series supplies have transient, overload and overheat protection for reliable operation even in the toughest environments.

RUGGED AND COMPACT

These units, often referred to as 'brick in the lead' supplies are housed in a rugged, corrosion resistant anodised aluminium extrusion. The low mass surface mount technology components offer excellent resistance to shock and vibration, thus further increasing the reliability of these products.

A green LED indicates when there is output from the converter. This gives reassurance to the installation engineer and speeds fault finding.

DESKTOP VERSIONS ALSO AVAILABLE

While the brick power supplies offer a versatile solution, if you are powering a mobile radio, try our *Desktop Versions (page 18)*. These are configured to attach to the radio forming one dedicated unit and are available for a variety of radios including Motorola, Hytera, Tait, Kenwood, Icom, Maxon and Vertex.

PRODUCT CODING

The product code is derived as follows, taking the AD 115/230-12 108 as an example:

AD	AC input and DC output
115/230	Denotes auto select US or European AC input voltage
-12	Nominal 12Vdc output
108	108W capacity unit

CHOOSE YOUR AD SERIES PRODUCT

	Output Voltage					
	12Vdc	24Vdc	48Vdc	Power	Dimensions	Weight
Product Codes	AD 115/230-**12** 036	AD 115/230-**24** 036	AD 115/230-**48** 036	36W	174 x 87 x 62mm	675g
	AD 115/230-**12** 072	AD 115/230-**24** 072	AD 115/230-**48** 072	72W	174 x 87 x 62mm	675g
	AD 115/230-**12** 108	AD 115/230-**24** 108	AD 115/230-**48** 108	108W	174 x 87 x 62mm	675g
	AD 115/230-**12** 168	AD 115/230-**24** 168	AD 115/230-**48** 168	168W	225 x 87 x 62mm	900g
	AD 115/230-**12** 240	AD 115/230-**24** 240	AD 115/230-**48** 240	240W	264 x 87 x 62mm	1150g
	Additional Loom for battery charging - P/N: AD BB Loom					

TECHNICAL DATA

Input voltage range	Auto-Select, 85–135Vac and 170–265Vac, 47–440Hz
Output voltage options	13.6Vdc, 27.2Vdc or 54.4Vdc, as ordered. Worst case limits are +/– 4%
Output Noise	<50mV pk-pk at continuous load (100mV on 24V versions, 200mV on 48V versions)
Power Conversion Efficiency	Typically 83%
Isolation between input and case/output Isolation between casework to ground	1.5kVac/3.0kVac rms Connected directly to mains input ground
Normal operating temperature	–25°C to +30°C to meet this specification table +30°C to +70°C de rate linearly to 0A
Storage temperature	-25°C to +100°C
Max case temperature	70°C at full load with 25°C ambient
Operating humidity	95% max, non-condensing
Casework	Anodized aluminum, glass-filled polycarbonate
Connections: Input Output Ground	IEC-320 C14 socket, C13 terminated cordset 6.3mm push-on blade terminals Stud with crimp eyelet, adjacent to input (additional external ground if required)
Output indicator	Green LED adjacent to output terminals
Mounting method	'Click 'n' fit' mounting clip or rubber feet. DIN rail clips available if required (*see page 24*).
Safe area protection: Over current Over heat Transients Catastrophic protection	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	2004/108/EC The general EMC directive 2006/95/EEC The low voltage directive 93/68/EEC The CE marking directive
Designed to	EN60950, EN55022, EN61204-3
Markings	CE

DESKTOP POWER SUPPLIES

The desktop power supplies, popularly called the "wedge" due to its distinctive, ergonomically friendly shape, offer a convenient way to convert 12Vdc mobile radio transceivers for use as desktop base stations. They will operate from AC supplies, either 115V or 230V without manual adjustment and output up to 108W (9Amps).

- We started making these for Motorola radios 12 years ago, now we have 24 varieties for 9 manufacturers.
- The desktop units are supplied with endplates configured to fit with your radio – see complete list on page 20.
- For a complete system, order our fully compatible battery back up box – P/N AD BBB (to include a 7Ah battery) or AD BBB NB (excluding the battery).

Radio Transceiver + Alfatronix Desktop Power Supply + Alfatronix Battery Back Up Box

BATTERY BACK UP BOX

The AD Series Desktop Power Supplies include a battery back up output as standard. This can be connected to maintain charge in a lead acid battery to supply power in the event of a mains failure. As a neat alternative to a loose battery, Alfatronix also supply a battery back up box, *P/N AD BBB*. This is designed to fit underneath the desktop supply and radio assembly and includes a 7Ah lead acid gel battery, presenting all three components as one tidy desktop assembly.

The battery back up box also includes a speaker (mounted on the front of the unit) for those wishing to use hands free radio operation.

CAN'T FIND WHAT YOU'RE LOOKING FOR?

Alfatronix Desktop "wedge" power supplies are configured to suit a wide range of radio transceivers from many manufacturers – *see list on Page 20*. However, if you use a variety of radio not listed, or cannot find a compatible unit, try our UNIVERSAL unit (P/N AD UN UNI). This uses a mechanical interlocking fixing system (3M "Dual Lock") to fix the transceiver securely to the power supply.

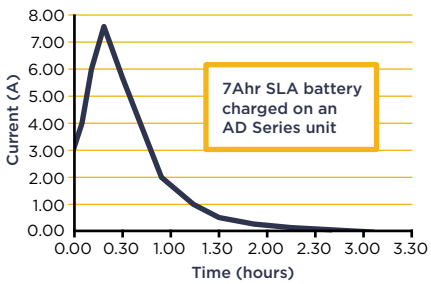
PRODUCT CODING

The product codes are developed to be as intuitive as possible. Taking the Motorola AD MT CM as an example:

AD	AC input & DC output
MT	Denotes the radio manufacturer, in this case Motorola
CM	Denotes a popular radio compatible with this unit

Please note: Like most part numbers, the CM fits a *range* of radios, not just the CM. *See page 20 for a complete list.*

BATTERY CHARGING CURVE



TECHNICAL DATA

Input voltage range	Auto-select, 85-135Vac and 170-265Vac, 50Hz/60Hz
Output voltage options	13.6Vdc. Worst case limits are +/– 4%
Output Noise	<50mV pk-pk at continuous load
Power Conversion Efficiency	Typically 83%
Isolation between input and case/output Isolation between casework to ground	1.5kVac/3.0kVac rms Connected directly to mains input ground
Normal operating temperature	–25°C to +30°C to meet this specification table +30°C to +70°C de rate linearly to 0A
Storage temperature	-25°C to +100°C
Max case temperature	70°C at full load with 25°C ambient
Operating humidity	95% max, non-condensing
Casework	Anodized aluminum, glass-filled polycarbonate
Connections: Input Output Ground	IEC-320 C14 socket, C13 terminated cordset 6.3mm push-on blade terminals Stud with crimp eyelet, adjacent to output (additional external ground if required)
Output indicator	Green LED adjacent to output terminals
Mounting method	'Click 'n' fit' mounting clip or rubber feet. DIN rail clips available as a special order
Safe area protection: Over current Over heat Transients Catastrophic protection	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	2004/108/EC The general EMC directive 2006/95/EEC The low voltage directive 93/68/EEC The CE marking directive
Designed to	EN60950, EN55022, EN61204-3
Markings	CE

	Weights and Dimensions			
	Width	Depth	Height	Weight
AD UN UNI	168mm	125mm	58mm	800g
AD BBB	163mm	145mm	70mm	2810g
AD BBB NB	163mm	145mm	70mm	318g

Note: The general body of all wedges measure as above. The endplates protrude further to allow fixing to the radio.

FULL PRODUCT LIST

Brand	Alfatronix Part Number	Model	Width (mm)	Height (mm)	Depth (mm)
Motorola	AD MT-3100/DM	MTM5400 Tetra	170	49	155
		MTM800 Tetra	170	49	155
		PRO3100	177	56	176
		PRO5100	168	48	
		PRO7100	168	48	
		GM340	168	48	187
		GM640	168	48	187
		GM350	168	48	183
		GM360	168	48	183
		GM660	168	48	199
		GM380	168	48	199
		DM 1400/DM 1600	169	44	134
		DM2600	169	44	134
		DM 3400/DM 3401	175	51	206
		DM 3600/DM 3601	175	51	206
		DM 4400/DM 4401	175	51	206
		DM 4600/DM 4601	175	51	206
Motorola	AD MT-CM	CM-140	169	44	118
		CM-160	169	44	118
		CM-340	169	44	118
		CM-360	169	44	118
Kenwood	AD KW TK-762	TK-760	140	40	145
		TK-860	140	40	145
		TK-762	140	40	145
		TK-780	140	40	145
		TK-880	140	40	145
		TK-980	140	40	145
		TK-981	140	45	145
Kenwood	AD KW TK-7102H	NX-700/800	160	45	157
		TK-7302/8302	160	43	137
		TK-7180	160	45	157
		TK-7189E	160	45	157
		TK-8180	160	45	157
		TK-8189E	160	45	157
		TK-7360/8360	160	43	160
Kenwood	AD KW TK-7160	TK-7160	160	43	107
		TK-7162	160	43	107
		TK-8160	160	43	107
		TK-8162	160	43	107
		TK-7102	160	43	107
		TK-8102	160	43	107
Icom	AD IC IC-F310	IC-F310s	140	40	170
		IC-F410s	140	40	170
		IC-F310	140	40	170
		IC-F410	140	40	170
		IC-F510	140	40	170
		IC-F610	140	40	170
		IC-F320s	140	40	170
		IC-F420s	140	40	170
		IC-F320	140	40	170
		IC-F420	140	40	170
		IC-F520	140	40	170
Icom	AD IC IC-F1700	IC-F1710	175	45	170
		IC-F2710	175	45	170
		IC-F1810	175	45	170
		IC-F2810	175	45	170
Icom	AD IC IC-F1010	IC-F1010	150	50	180
		IC-F2010	150	50	180
		IC-F1020	150	50	180
		IC-F2020	150	50	180
		IC-F1610	150	50	180
		IC-F2610	150	50	180
		IC-A110 Euro	150	50	180
Icom	AD IC IC-F110	IC-F110	150	40	117.5
		IC-F110S	150	40	117.5
		IC-F210	150	40	117.5
		IC-F210S	150	40	117.5
		IC-F5022	150	40	117.5
		IC-F6022	150	40	117.5
		IC-F121/IC-F121S	150	40	167.5
		IC-F221/ICF221S	150	40	167.5
		IC-F111/IC-F111S	150	40	167.5
		IC-F211/IC-F211S	150	40	167.5
		IC-F5122	150	40	167.5
		IC-F6122	150	40	167.5
		IC-F5012	150	40	167.5
		IC-F6012	150	40	167.5
Icom	AD IC IC-F5062	IC-F5062	160	45	150
		IC-F6062	160	45	150
Tait	AD TA-8000	TM8105	160	50	175
		TM8110	160	50	175
		TM8105	160	50	175
		TM8250	160	50	175
		TM8255	160	50	175
		TM9300	160	50	175
		TM9400	160	50	175

Brand	Alfatronix Part Number	Model	Width (mm)	Height (mm)	Depth (mm)
Yaesu/Vertex	AD VS VX-2200	VX2200E/2100E	165	46	155
Yaesu/Vertex	AD VS VX-4500	VX-4500/4600 EVX-5300/5400/5600	165 165	45 45	155 155
Yaesu/Vertex	AD VS FP-2500	VX-2000V VX-2000U FP-2500E	160 160 160	40 40 40	105 105 110
Yaesu/Vertex	AD VS VX-4104	VS-4104-0-50 VX4100E VX4200E	165 165 165	43 43 43	155 155 155
Maxon	AD MX PM160	PM100 PM160	174 174	58 58	167 167
Universal	AD UN UNI	Cleartone Hytera TM 800 Simoco Sepura			
Nokia EADS	AD NK EA-TMR880	TMR880	190	58	130
Nokia EADS	AD NK EA-TMR880i	TMR880i TMR880i remote head	182 190	60 72	125 36
Novel	AD NR-M400	NM-60-100 NM-60-400	225 225	47 47	180 180
Hytera	AD HYT TM 600	TM 600 TM 610	152 152	43 43	125 125
Hytera	AD HYT 785 Different screw kits AD HYT MD655	MD 785 MT 680 MD652/MD652G	170 180 165	60 60 46	180 180 140
Sepura	AD SP 8000	SBM800/SCM8000/SEM8000	177	60	184

The Alfatronix range of Desktop Power Supplies provide bespoke solutions for radios from a wide range of manufacturers. For any not listed the *AD UNI version* can be used with any radio.

Motorola
1400/1600

Motorola
MTM800 TETRA

Motorola
DM3400

Hytera
MD785

Tait
TM8105

Hytera
TM600

INTELLIGENT BATTERY CHARGERS

The IC Series Intelligent Battery Chargers offer an ideal way of charging any type of lead acid battery safely and reliably. The rugged, fully protected unit (IP65) can be used in a variety of applications including on trucks, off road vehicles, boats, caravans and in depots and workshops.

A WIDE RANGE OF PRODUCTS

There are four products in the range, all accepting the standard European 230Vac inputs. The products are available for charging either 12Vdc or 24Vdc systems. They use the latest manufacturing techniques and are cool running with high efficiency. Like the other products in our range, they use switchmode technology.

PRODUCT CODING

The product coding is derived as follows, taking the IC 230-12 108 as an example.

IC	Intelligent Charger
230	230Vac input
-12	12V nominal – suitable for charging 12V lead acid batteries
108	108W capacity unit

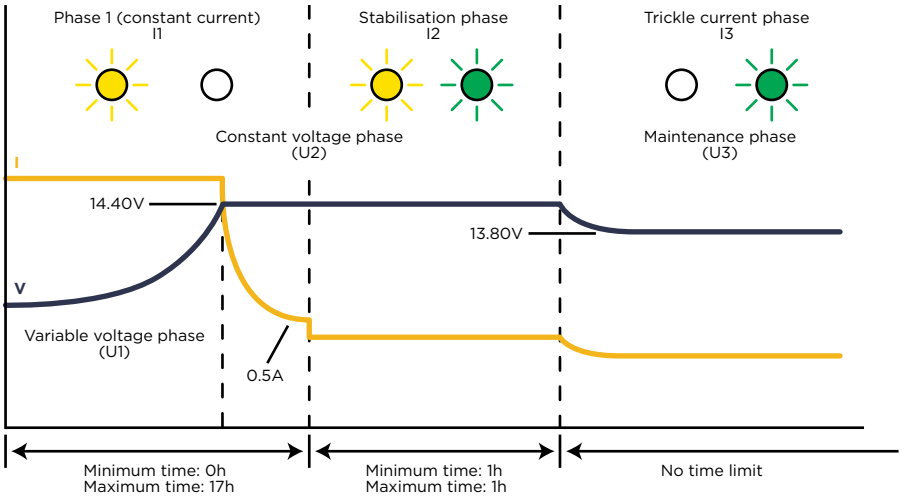
RUGGED & COMPACT

The chargers are enclosed in a rugged, anodised aluminium extrusion protected from dust, damp and impact to IP65. The units can be installed practically anywhere, on boats or vehicles, on road and off, at depots and garages.

- 12V units are ideal for small vehicle applications such as cars, minibuses, small marine craft, caravans and motorhomes, and a variety of industrial uses.
- 24V units are ideal for heavy vehicle applications such as HGVs, fire service vehicles, larger marine craft, off road and forestry vehicles, and for use in depots and workshops.

INTELLIGENT CHARGING SYSTEM

The Alfatronix IC Series is suitable for all types of lead acid batteries. Charging is through a 3 stage system. The first stage is the bulk charging phase. This state is indicated when the yellow LED is illuminated and continues through stage 2 of the process. When the current is below 10% of maximum output, the charger automatically adjusts to reduce the output voltage to reliably top up the battery. At this stage the green LED is illuminated indicating that the battery is fully charged. Should the voltage level fall below the nominal values during the maintenance stage, the charger will go back to step one and repeat the process.



CHOOSE YOUR IC SERIES PRODUCT

Max Load	Nominal Voltage	Part Number	Size (mm)	Weight (g)
7A	12	IC230-12 108	155 x 80 x 43	1100
3A	24	IC230-24 108	155 x 80 x 43	1100
17A	12	IC230-12 240	192 x 98 x 47	1750
12A	24	IC230-24 300	192 x 98 x 47	1750

TECHNICAL DATA

Input voltage range	180Vac – 270Vac
Input over voltage	285Vac
Output voltage (12V units)	13.5Vdc – 14.4Vdc according to charge cycle (STD 14.4)
Output voltage (24V units)	26.8Vdc – 29.0Vdc according to charge cycle (STD 28.8)
Power conversion efficiency	Typically 88 – 91%
Off load current	<2mA
Operating temperature	-30°C – +55°C
Storage temperature	-55°C – +85°C
Casework	Anodised aluminium, dust, water and impact protected to IP65
Connections	Input – IEC lead, Output – flying lead
Output indicators	Yellow and green LEDs according to cycle
Mounting method	By 4 screws
Safe area protection: Over current Over heat Transients Catastrophic failure	Current limited to maximum ratings of each model Internal control to reduce output in over temperature situations Protection both on input and output With fuse on output
Approvals	2004/108/EC General EMC 206/95 Low Voltage Directive 93/68/EEC CE Mark
Designed to	EN61204-3, EN60335-2-29, EN 55022B
Markings	CE

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 Ruggesdised PowerVerters 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 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, ISO14982, >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, glass filled polycarbonate, dust water and impact resistance to IP65
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 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 fixture (see page 24)
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 protection	Protected by internal input and output fuses
Approvals	2004/108/EC The general EMC directive 2009/19/EC & Reg 10 The automotive directive 93/68/EEC The CE marking directive
Markings	CE and E marked

'T' SHAPED MOUNTING CRADLE

Many Alfatronix products are installed using our 'T' shaped mounting cradle. This is manufactured from V0 rated (self-extinguishing) glass filled polycarbonate material and exhibits excellent strength and durability characteristics. The three point design allows for flat installation, even on uneven surfaces and it is both quick and easy to install as the bracket itself can be used as a template for accurate drilling before being screwed firmly into position. The converter can be fully wired before being clipped securely onto the bracket. The clip design is entirely vibration proof and, as the body of the converter covers the screw heads, once installed it is virtually impossible for any of the screws to vibrate loose, a potential long term problem on a diesel vehicle.

This bracket is supplied as standard with all PowerVerter DC-DC converters up to 240W (24A), DD Series converters (up to 240W) and Brick in the lead AD Series mains power supplies.

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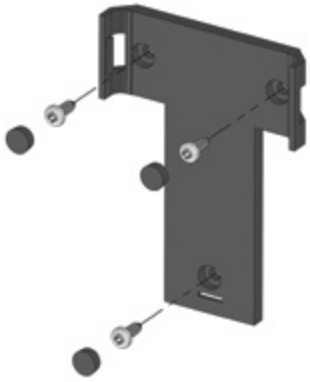

3.

DIN RAIL MOUNTING CLIP

Many customers wish to install our products onto standard din rails found in 19" racks or other fixed systems.

The din rail mounting pack is sold separately as an alternative to the 'T' shaped bracket and is supplied in a pack of two. Please order part number: DIN - DIN RAIL CLIP Pack (2). These are compatible with all units supplied with a 'T' bracket (which should be discarded). For PV3s units, only one clip is sufficient. A pair of clips should be used for all other installations.

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POWERTECTOR INSTALLATION METHODS

Depending on the size of the units, the PowerTector battery guards use two different mounting methods.

For any units up to 20A, it is not necessary to drill into the vehicle chassis as these small, lightweight units can be wired in place, then simply tie-wrapped in position in a similar way as an in line fuse.

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Units from 40–200A use a die cast aluminium body configured with three mounting holes. These are offset slightly from the heatsink structure to allow installation onto uneven surfaces and provide for airflow beneath the unit.

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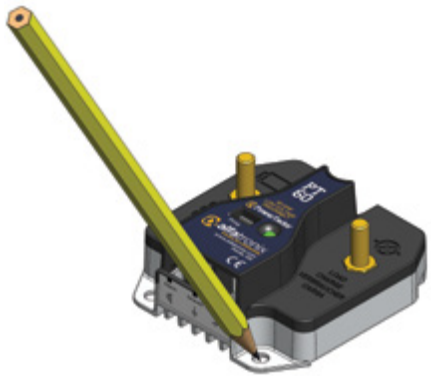

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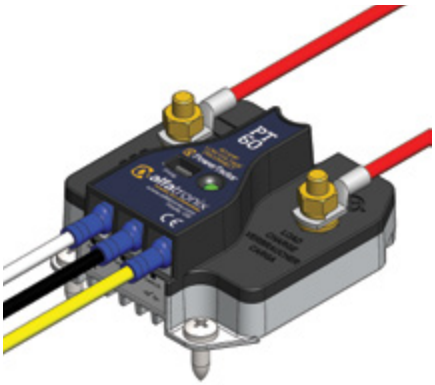

'I' SHAPED MOUNTING CRADLE

This cradle is supplied as standard and used for the more powerful, heavier units from 400W upwards. Examples include DD 12-24 400, DD 12-24 600 and PV50s. It is manufactured from V0 rated (self-extinguishing) glass filled polycarbonate material and exhibits excellent strength and durability characteristics. The four point design includes spacer washers to allow for flat installation, even on uneven surfaces and it is both quick and easy to install as the bracket itself can be used as a template for accurate drilling before being screwed firmly in position. The converter can be fully wired before being clipped securely onto the bracket. The clip design is entirely vibration proof and as the body of the converter covers the screw heads, once installed it is virtually impossible for any of the screws to vibrate loose, a potential long term problem on a diesel vehicle.

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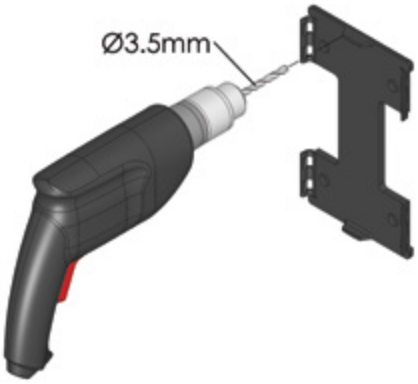

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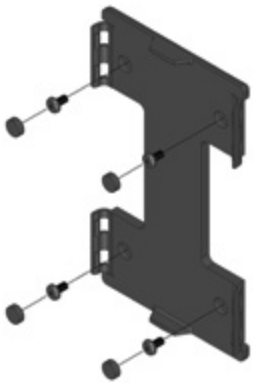

3.

Power conversion and battery management products for communications, marine and automotive applications

Produits de conversion d'énergie et de gestion de batterie pour les applications des secteurs communications, marine et automotive

Spannungswandler und Batterie-Management Produkte für Kommunikations-, Marine- und Fahrzeuganwendungen

Productos de conversión de energía y gestión de baterías para aplicaciones en los campos de la comunicación, marítimo y de la automoción

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