## 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

An 25A depending on model  Continuous current rating  A ~ 25A depending on model  Continuous rating +20%, taken for a maximum of 2 minutes followed by 8 minutes rest  Meets ISO7637-2 International standard for 12V and 24Vdc commercial vehicles  Meets ISO10605  Coutput noise  C100mV pk-pk at continuous load  C100mV pk-pk at continuous load  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  C25°C to +30°C to +80°C to enable off), less tha	Input voltage range	12Vdc +/- 30%		
Continuous rating 420%, taken for a maximum of 2 minutes followed by 8 minutes rest  Meets ISO7637-2 International standard for 12V and 24Vdc commercial vehicles  Meets ISO10605  Cluturut noise	Output voltage	27.2Vdc +/-5% at extremes of temperature, load, input tolerance etc		
Meets ISO7637-2 International standard for 12V and 24Vdc commercial vehicles  Meets ISO10605  Output noise <input of="" of<="" price="" process="" th="" the=""/> <th>Continuous current rating</th> <th colspan="2">3A - 25A depending on model</th>	Continuous current rating	3A - 25A depending on model		
Meets ISO10605  Output noise  ClomV pk-pk at continuous load  ClomV perating temperature  Clov perating temperature  Clov perating temperature  ClomV perating temperature  ClomV perating temperature  ClomV pk-pk at continuous load  ClomV perating temperature  ClomV pk-pk at continuous load  ClomV pk-pk at continuous load  ClomV perating temperature  ClomV perating temperature  ClomV perating temperature  ClomV pk-pk at continuous load  ClomV perating temperature  ClomV perating temperature	Intermittent rating	Continuous rating +20%, taken for a maximum of 2 minutes followed by 8 minutes rest		
Council provided to the continuous load   Council provided to the council pr	Transient voltage protection	Meets ISO7637-2 International standard for 12V and 24Vdc commercial vehicles		
20mA (400W and 600W enable off), less than 100mA (72 - 240W units)  Typically 93%  225°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  25°C to +70°C  240W)  25°C to +70°C	Electrostatic voltage protection	Meets ISO10605		
Power conversion efficiency  Typically 93%  25°C to +30°C to meet this specification table +30°C to +80°C de rate linearly to OA  Storage temperature  -25°C to +70°C  Operating humidity  95% max., non-condensing  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  "Click 'n' fit" mounting clip, fitted separately using 3 hole fixing (4 hole on 400W and 600W)  Limited by current sensing circuit Limited by current sensing circuit Protected by filters and rugged component selection  Controlled by internal circuitry Protected by internal circuitry Protected by internal input and output fuses  Approvals  2014/30/EU The general EMC directive Regulation 10 The automotive directive 93/68/EEC The CE marking directive  ENSO498, ISO 7637-2	Output noise	<100mV pk-pk at continuous load		
Departing temperature  -25°C to +30°C to meet this specification table +30°C to +80°C de rate linearly to OA  -25°C to +70°C  Departing humidity  95% max., non-condensing  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)  Dutput indicator  Green LED adjacent to output terminals  "Click 'n' fit" mounting clip, fitted separately using 3 hole fixing (4 hole on 400W and 600W)  Limited by current sensing circuit  Over heat Transients nput/Output over voltage protection Catastrophic faillure  Approvals  2014/30/EU The general EMC directive Regulation 10 The automotive directive Regulation 10 The automotive directive 93/68/EEC The CE marking directive EN50498, ISO 7637-2	Off load current (quiescent current)	<20mA (400W and 600W enable off), less than 100mA (72 - 240W units)		
+30°C to +80°C de rate linearly to OA  25°C to +80°C de rate linearly to OA  25°C to +70°C  25°C to +70°C  25°C to +70°C  25°C max., non-condensing  Anodised aluminium, glass-filled polycarbonate, dust, water and impact resistance to IP53. Ruggedised versions also available to IP65.  20nnections  20nnections  30nut indicator  40nutling method  30nut indicator  40nutling method  30nut indicator  40nutling method  30nut indicator  40nutling method  40nutling method  50nut indicator  50nut indicator  50nut indicator  60nut indicat	Power conversion efficiency	Typically 93%		
Deparating humidity  95% max., non-condensing  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  "Click 'n' fit" mounting clip, fitted separately using 3 hole fixing (4 hole on 400W and 600W)  Limited by current sensing circuit Limited by temperature sensing circuit Protected by filters and rugged component selection  Controlled by internal circuitry Protected by internal circuitry Protected by internal input and output fuses  2014/30/EU The general EMC directive Regulation 10 The automotive directive 93/68/EEC The CE marking directive  EN50498, ISO 7637-2	Operating temperature	·		
Anodised aluminium, glass-filled polycarbonate, dust, water and impact resistance to IP53. Ruggedised versions also available to IP65.  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  "Click 'n' fit" mounting clip, fitted separately using 3 hole fixing (4 hole on 400W and 600W)  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  2014/30/EU The general EMC directive Regulation 10 The automotive directive 93/68/EEC The CE marking directive  EN50498, ISO 7637-2	Storage temperature	-25°C to +70°C		
Ruggedised versions also available to IP65.  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  "Click 'n' fit" mounting clip, fitted separately using 3 hole fixing (4 hole on 400W and 600W)  Limited by current sensing circuit Limited by temperature sensing circuit Protected by filters and rugged component selection Controlled by internal circuitry Protected by internal circuitry Protected by internal input and output fuses  2014/30/EU The general EMC directive Regulation 10 The automotive directive 93/68/EEC The CE marking directive  Designed to  EN50498, ISO 7637-2	Operating humidity	95% max., non-condensing		
Five terminal connector with screw tightening with mating half supplied (400W and 600W units)  Green LED adjacent to output terminals  "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  Over current Limited by current sensing circuit Protected by filters and rugged component selection Controlled by internal circuitry Protected by internal input and output fuses  2014/30/EU The general EMC directive Regulation 10 The automotive directive 93/68/EEC The CE marking directive  Designed to  EN50498, ISO 7637-2	Casework			
"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 nput/Output over voltage protection Catastrophic failure  Approvals  Over heat Transients Protected by filters and rugged component selection Controlled by internal circuitry Protected by internal input and output fuses  2014/30/EU The general EMC directive Regulation 10 The automotive directive 93/68/EEC The CE marking directive  EN50498, ISO 7637-2	Connections			
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  2014/30/EU The general EMC directive Regulation 10 The automotive directive 93/68/EEC The CE marking directive EN50498, ISO 7637-2	Output indicator	Green LED adjacent to output terminals		
Over heat Transients nput/Output over voltage protection Catastrophic failure  Approvals  2014/30/EU The general EMC directive Regulation 10 The automotive directive 93/68/EEC The CE marking directive  EN50498, ISO 7637-2	Mounting method	"Click 'n' fit" mounting clip, fitted separately using 3 hole fixing (4 hole on 400W and 600W)		
Regulation 10 The automotive directive 93/68/EEC The CE marking directive  EN50498, ISO 7637-2	Over heat Transients Input/Output over voltage protection	Limited by temperature sensing circuit Protected by filters and rugged component selection Controlled by internal circuitry		
	Approvals	Regulation 10 The automotive directive		
CE and E (automotive) marked	Designed to	EN50498, ISO 7637-2		
	Markings	CE and E (automotive) marked		