

# 110 - 130W, Rugged, Triple-output, Industrial Quality DC/DC Converter with Wide Input Range DCW 153-F1 Series



- Triple output with common RTN
- V2 semi-regulated
- Rugged industrial quality
- Conduction/convection cooled
- Full electronic protection
- Field-proven design in a wide range of applications
- Wide input range

This rugged, industrial quality, wide input range DC/DC converter uses field-proven technology to generate the specified output power. The unit has two fully regulated and one tracking output. It is a mature design with a track record in numerous applications. Cooling is via baseplate to a heat-sinking surface and by natural convection. Additional ruggedizing and conformal coating are available for applications that require higher immunity to shock, vibration and humidity. Low component count, large design headroom, and the use of components with established reliability result in a high MTBF. The unit is manufactured at our plant under strict quality control. Railway grade versions of this design that meet EN 50155 are also available.

## SPECIFICATIONS

### Input Voltage

Two standard input ranges are available:  
20 - 60Vdc or 65 - 160Vdc  
Consult factory for other input voltages and ranges

### Input Protection

Inrush current limiting  
Varistor  
Reverse polarity protection  
Internal safety fuse  
Lower voltage than the specified minimum input will not damage the unit.

### Isolation

1500VDC input to chassis  
2250VDC input to output  
500VDC output to chassis

### Standards

Designed to meet EN 60950-1 and related standards

### EMI

EN55022 Class A conducted and radiated with margins

### Switching Frequency

47KHz  $\pm$ 2KHz

### Output Voltages

V1: 5.1V  $\pm$  0.05V/10A  
V2: +12V  $\pm$  0.5V/3A  
V3: -12V  $\pm$  0.2V/1A (common return)  
Above is one possible output configuration.  
Please discuss the required output parameters with factory.

### Redundancy diode

None

### Line/Load Regulation

V1, V3:  $\pm$  1% combined from 10% load to full load  
V2:  $\pm$  5% with min 10% load on V1

### Dynamic Response

Max 5% voltage deviation for 10% to 50% load step, with better than 1msec recovery time

### Output Ripple / Noise

Better than 1% of output voltage peak to peak or 0.2% Vrms (20MHz BW)

### Output Overload Protection

Rectangular current limiting with hiccup mode short-circuit protection.

### Output Overvoltage Protection

V1: Double regulator loop  
OVP setting: 5.6V  $\pm$  0.2V  
V2: Transzorb clamp  
V3: Transzorb clamp

### Efficiency

Typ.78% at full load depending on output voltages

### Operating Temperature Range

0 to + 50°C full specification  
Extended temperature ranges available

### Temperature Drift

0.03% per °C, over operating temperature range

### Cooling

Conduction via base plate and additional natural air convection

### Environmental Protection

Basic ruggedizing  
Optional heavy ruggedizing and conformal coating is available

### Shock/Vibration

IEC 61373 Cat 1 A&B

### Humidity

5 - 95% non-condensing

### MTBF

130,000 hours @ 45°C  
Demonstrated MTBF is significantly higher

### Indicators

None

### Control Input

None

### Alarm Output

None

### Package/Dimensions (WxHxD)

F1: 114 x 51 x 201mm  
(4.5" x 2" x 7.9") including terminal block and flanges  
Mounting holes are clear

### Weight

0.8kg (1.8 lbs)

### Connections

9-pole barrier-type terminal block, 3/8" spacing

### RoHS Compliance

Fully compliant

### Warranty

Two years subject to application within good engineering practice

### Standard Terminal Block Pin-Out

DC OUTPUTS						GND		DC INPUT
V1		V2		V3				
+	-	+	-	-	+	⊕	-	+
1	2	3	4	5	6	7	8	9

Please note that the above specifications set only generic guidelines for the design. Customizing and enhancements are possible. Please contact us with your specific requirements.

Designer and manufacturer of quality converters, inverters, DC-output UPS systems, complete rack mount systems and DC-input fluorescent lamp inverters since 1982. Custom or standard. Absopulse is a BAPT-approved Facility.



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