

## 600Vdc Input, Rugged 300W Industrial Quality DC/DC Converter HVI 300-F3 Series



- Rugged industrial quality
- Wide DC-input voltage range
- Field-proven design
- Full electronic protection
- Conduction/convection cooled (no fans)
- N+1 redundancy available

This rugged, industrial quality DC/DC converter series uses field proven design topology to generate the specified output power. Higher output power is possible by using forced air-cooling. The unit accepts an input voltage of 600Vdc. An optional built-in redundancy diode would allow for a number of units to be connected in parallel to achieve higher output power or N+1 redundancy. The output separation diode also makes the unit suitable for battery charging applications. To ensure high reliability and long operating life, all critical components on the primary side are designed and tested for corona inception levels, which are significantly higher than the operating voltages. The unit is cooled by natural air convection and requires no fans. Full electronic protection, 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.

### SPECIFICATIONS

#### Input Voltage

600Vdc nominal  
450 - 800Vdc operating range  
Other input range on request

#### Input Protection

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

#### Isolation

3000Vdc input to chassis  
3000Vdc input to output  
5600Vdc type test  
1000Vdc output to chassis

#### Standards

Designed to meet EN 60950-1 and related standards

#### EMI

EN55022 Class A with margins

#### Switching Frequency

55kHz  $\pm$ 3kHz

#### Output Voltage/Current

12V/20A, 24V/12A, 48V/6A or 110V/2.5A  
Output is floating; either terminal can be grounded  
Other outputs on request

#### Redundancy Diode

Available as option

#### Line/Load Regulation

$\pm$ 1.5% combined from zero load to full load

#### Dynamic Response

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

#### Output Ripple/Noise

Better than 0.2% rms or 1% pp of the output voltage (20MHz BW)

#### Output Overload Protection

Rectangular current limiting with short-circuit protection (no hiccup)  
Thermal shutdown in case of insufficient airflow (self-resetting)

#### Output Overvoltage Protection

Second regulator loop, completely stable and independent of main regulator loop

#### Efficiency

Typically 80% at full load

#### Operating Temperature Range

0°C to 50°C cold plate temperature for full specification without derating  
Extended temperature ranges available

#### Temperature Drift

0.03% per °C over operating temperature range

#### Cooling

Conduction to customer heatsink or chassis and natural convection

#### Environmental Protection

Ruggedizing  
Conformal coating  
Heavy ruggedizing available on request

#### Shock/Vibration

IEC 61373 Cat 1 A&B

#### Humidity

5 – 95%, non condensing

#### MTBF

150,000 hours at 45 °C  
Demonstrated MTBF is significantly higher.

#### Indicators

Green "Output ON" LED visible through cooling slots

#### Control Input

None on standard version  
Available as option

#### Alarm Outputs

None.  
Available as option

#### Package/Dimensions (W x H x L)

F3: 132mm x 64mm x 300mm (5.2" x 2.5" 11.8") including terminal block and mounting flanges  
Mounting holes are clear

#### Weight

2 kg (4.4 lbs)

#### Connections

12-pole barrier type terminal block with 3/8" spacing

#### RoHS Compliance

Fully compliant

#### Warranty

Two years subject to application within good engineering practice

#### Terminal Block Pin Out

| DC OUTPUT |   |    |    | DC INPUT |          |          |          |     |          |    |          |
|-----------|---|----|----|----------|----------|----------|----------|-----|----------|----|----------|
| +         | + | 0V | 0V | NOT USED | NOT USED | NOT USED | NOT USED | RTN | NOT USED | +  | NOT USED |
| 1         | 2 | 3  | 4  | 5        | 6        | 7        | 8        | 9   | 10       | 11 | 12       |

**Enhancements to these general specifications can be accommodated upon request. Designed to meet common approval requirements**

*Designer and manufacturer of quality converters, inverters, UPS systems, complete rack mount systems and DC-input fluorescent lamp inverters since 1982. Custom or standard.*