

## 200W, Rugged, Industrial Quality, Convection Cooled DC-DC Converter LTH-65-F3TH Series

- Rugged industrial quality
- Field-proven design
- Regulated and adjustable output
- Pure convection cooling by heat-sink fins
- Full electronic protection
- N+1 redundancy available as option



This rugged, industrial quality DC-DC converter uses field proven topology to generate up to 200W output power. Cooling is via heat-sink fins on the top of the unit for installations where surface mounting is not possible. The unit can also be installed on thermally non-conductive surfaces, such as plastic, or on curved, uneven surfaces. An optional built-in redundancy diode allows for paralleling and N+1 operation or back-up battery connected. Ruggedizing and conformal coating ensure higher immunity to shock, vibration and humidity. Full electronic protection, low component count, large design headroom, and the use of components with established reliability result in a high MTBF. It is manufactured at our plant under strict quality control. A railway quality version of this design, the LTH-65R-F3TH, is also available.

### SPECIFICATIONS

#### Input Voltage

12dc (10.5-16V)  
Other inputs upon request

#### Input Protection

Varistor  
Reverse polarity protection  
Internal safety fuse  
Lower voltage than specified minimum input will not damage unit

#### Isolation

According to input and output voltage minimum of:  
500Vdc input to chassis  
10000Vdc input to output,  
500VDC output to chassis

#### Standards

Designed to meet EN60950-1 and corresponding standards

#### EMI

EN55022 Class A with margins

#### Switching Frequency

55kHz ±3kHz

#### Output Voltage

Any voltage in the 12V to 125V range  
12V, 24V, 48V or corresponding float voltages are standard  
Output is floating; either terminal can be grounded  
Other outputs on request

#### Redundancy diode

Not included  
Available as option

#### Line/Load Regulation

± 1% 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 1% of output voltage peak to peak or 0.2% RMS of the output voltage (20MHZ BW)

#### Overload Protection

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

#### Output Overvoltage Protection

Double regulator loop. Second loop completely stable and independent of main regulator loop

#### Efficiency

Typically 80% at full load depending on input/output combination

#### Operating Temperature

0°C to 50°C for full specification  
Extended temperature ranges with derating

#### Temperature Drift

0.03% per °C over operating temperature range

#### Cooling

Convection by heat-sink fins on top of unit

#### Environmental Protection

Ruggedizing  
Conformal coating

#### Shock/Vibration

IEC 61373 Cat 1 A&B

#### Humidity

5 – 95% non-condensing

#### MTBF

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

#### Indicators

Green 'Output ON' LED visible through cooling slots

#### Control Input

None  
Available as option

#### Alarm Output

None on standard version  
Optional output fail, Form C contacts

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

F3TH: 132 x 91 x 300mm  
(5.2" x 3.6" x 11.8")  
Mounting holes are clear

#### Weight

2.8 kg (6.2lbs)

#### Connections

Barrier type terminal block with 9.5mm spacing, 12 poles

#### RoHS Compliance

Compliant

#### Warranty

Two years subject to application within good engineering practice

12	11	10	9	8	7	6	5	4	3	2	1
+	+	-	-	GND	GND	-	-	+	+	NOT USED	NOT USED
DC INPUT						DC OUTPUT					



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