



DTF-1500-12-YE

12V Output, 1500 Watts DC Front End

Preliminary



FEATURES

- DC input voltage range 36 VDC to 72 VDC
- 1U configuration
- Input Voltage Reversal Protection
- Active Input Inrush Protection
- Active current share with ORing FET
- 5.2V@ 2A auxiliary standby power
- Full protection; overvoltage, overcurrent and overtemperature
- I²C management bus to control power supply functions and report power supply status
- Front panel LEDs to visually report Input OK, Output OK and power supply's condition
- Ideal form factor for storage, datacom and distributed power architecture
- RoHS-6 / WEEE / NEBs compliant

DESCRIPTION

The DTF-1500-12-YE is a highly efficient power factor corrected DC-DC front end power supply. It provides 1500W at 12VDC output and is ideal for storage, datacom and distributed power architecture. Hot plug and active current sharing enables continuous operation without interruption and redundancy to the 12V bus.

In addition, I²C management bus enables user to access power supply's FRU (Power supply's serial #, date code...) record, power supply's temperature, fan status, output voltage and current. It also provides a warning before shutting down 12V output due to over temperature or fan failure.

The DTF-1500-12-YE meets NTRL and all international safety requirements. It is CE marked and SELV.

INPUT CHARACTERISTICS

	Min	Typ	Max	Units / Comments
DC Input Voltage	36	48	72	VDC
Input Current			37.6	A; full-rated load at 36 Vdc input
Inrush Current			20	A; 72 Vdc Input
Hold-up Time		1	1.2	mS
Efficiency	87			%; with Vin at 36V and 100% load
	88			%; with Vin at 72V and 100% load
Input Protection			12	A; internal fuse for input protection





OUTPUT CHARACTERISTICS (DTF-1500-12-YE) AND PROTECTION DEFINITION

	Min	Typ	Max	Units / Comments
Maximum Output Power			1500	Watts
Maximum Output Voltage			12	VDC
Maximum Output Current			125	A
Minimum Load	0			A; minimum loading required to maintain regulation.
Overshoot			0	%
Transient Response			5	ms; maximum recovery time to within 1% of initial set point due to a 50% load change, 1A/μs at 12V output
Transient Response max. deviation			3	%; 12V output
Turn-On Delay with PS_ON signal			1.5	sec; time required for initial output voltage stabilization after application of DC input
OverCurrent Protection		130	140	A; latching style overcurrent protection with adaptive delay
OverVoltage Protection			15	V; latching style overvoltage protection
Short Circuit Protection				Latching Mode.
OverTemperature/Fan Failure Warning				12V output will shut down in the event of an over temperature condition or blocked fan rotor. Power supply will recover when over temperature condition is removed.
Loop Stability	67			degree; phase margin @ 0 gain crossover frequency
	10	12		dB, gain margin @ 0-phase crossover frequency
Regulation		±3		%
Ripple & Noise @ 20 MHz BW		100		mV (0.1μf ceramic and 10 μf tantatum capacitors)

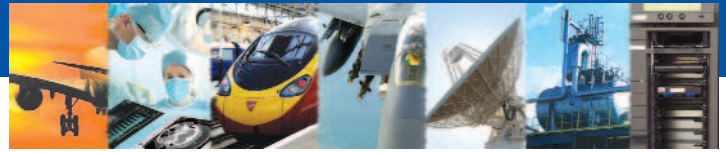


LOGIC, INTERFACE SIGNALS AND INTERNAL PROTECTION

Output Inhibit	Pulled low allows 12V to be activated.
12V Current Share	
PS A0 (ADDR0)	I ² C Address.
PSA1 (ADDR1)	I ² C Address.
PSA2 (ADDR2)	I ² C Address.
SDA (Data, I2C data line)	I ² C Data line (5V).
SCL (Clock, I2C clock line)	I ² C Clock line (5V).
AC_OK/L, AC FAIL/power down warning	High signal indicates AC is within PSU limits.
PS Present/L,	10 Ohm resistor internally connected to logic GND allowing the PSU to be detected on insertion. Open collector signal with 20 mA pull down capability. Will go low 100 mS before output go out of regulation.
Alert/L, Overtemperature/Fan Fail	Low signal indicates PSU fan is running below speed or an overtemperature limit was exceeded. Will go low before OT condition shut down the unit. Open collector signal with 20 mA pull down capability referenced to logic RTN.
PWROK/L (DC FAIL/Output voltage fault low)	Low signal indicates both output are within regulation limits. Open collector signal with 20 mA pull down capability referenced to logic RTN.
Static	Includes power supply information; part number, revision level, serial number, data code and manufacturing location.
Logic Signal	AC Input OK DC Output OK Overtemperature Overcurrent Fan OK Overvoltage Alert Undervoltage Alert
Real-Time Monitoring	Output voltage (main output). LSB = 20 mV. Output current (main output). LSB = 100 mA.

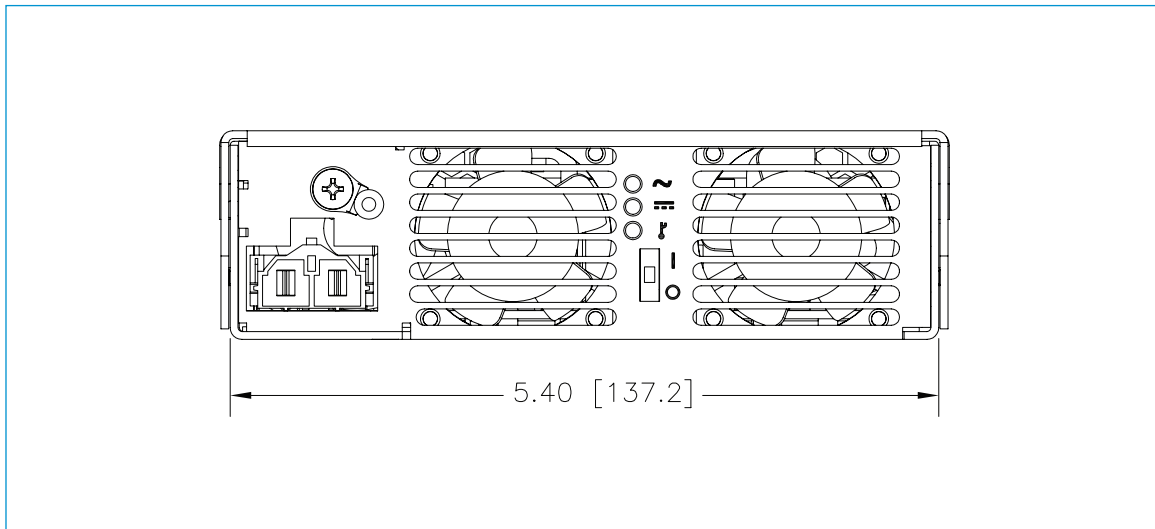
SAFETY, REGULATORY, EMI AND GENERAL CHARACTERISTICS

	Min	Typ	Max	Units / Comments
Agency Approval (pending)				PenUL60950, (UL) CSA60950 (cUL), EN 60950 (TÜV), CE mark for LVD, CB compliant
Electromagnetic Interference (pending)	A			FCC CFR title 47 Part 15, Class; Sub-Part A; Conducted (with 6dB margin)
	A			Class; EN55022/CISPR22; Radiated (with 6dB margin)
Leakage Current			2.5	mA; Per EN60950 at 240 VAC.
Isolation Voltage	1500			VDC; input/case
	2121			VDC; input/output
Altitude: Operating			10K	ASL ft
Non-operating			40K	ASL ft
Operating Temp. Range	-5		+55	°C; Ambient
Temp.Stability over time			30	minutes
Storage Temp. Range	-40		+85	° C
Temp. Coefficient	0		.02	%/ °C; 0 to 45°C
Relative Humidity			95	%; Non-condensing
Shock : Operating				Meets IPC 9592
Non-operating				Meets IPC 9592
Vibration: Operating				Meets IPC 9592
Non-operating				Meets IPC 9592
MTBF	100K			Hrs; MIL-HBK-217F Ground Benign
	200K			Hrs; demonstrated
	10			Yrs; Useful Life.

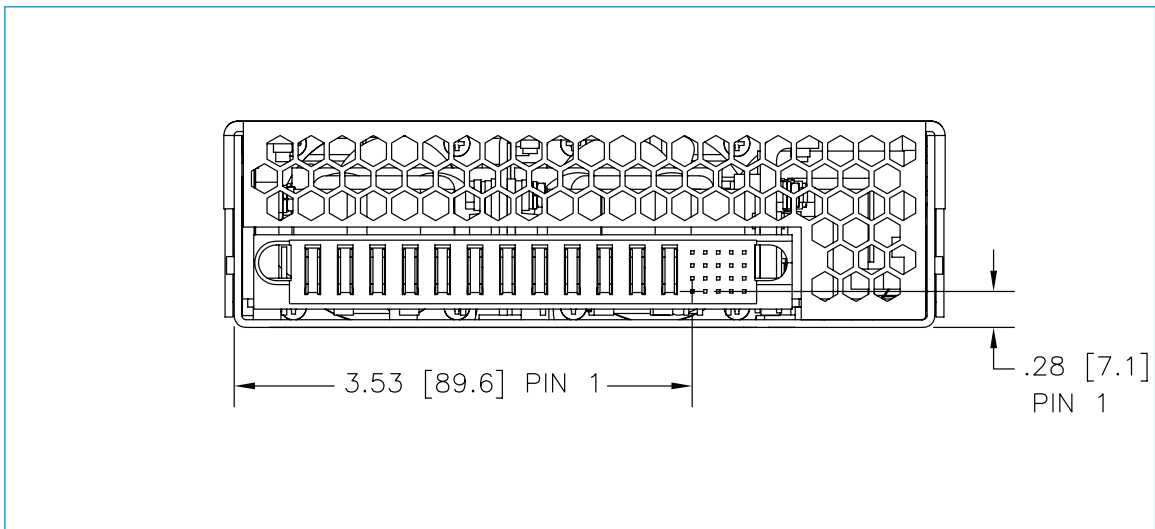


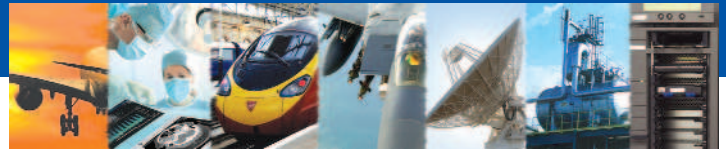
OUTLINE DRAWING (DTF-1200-12-YE)

FRONT VIEW



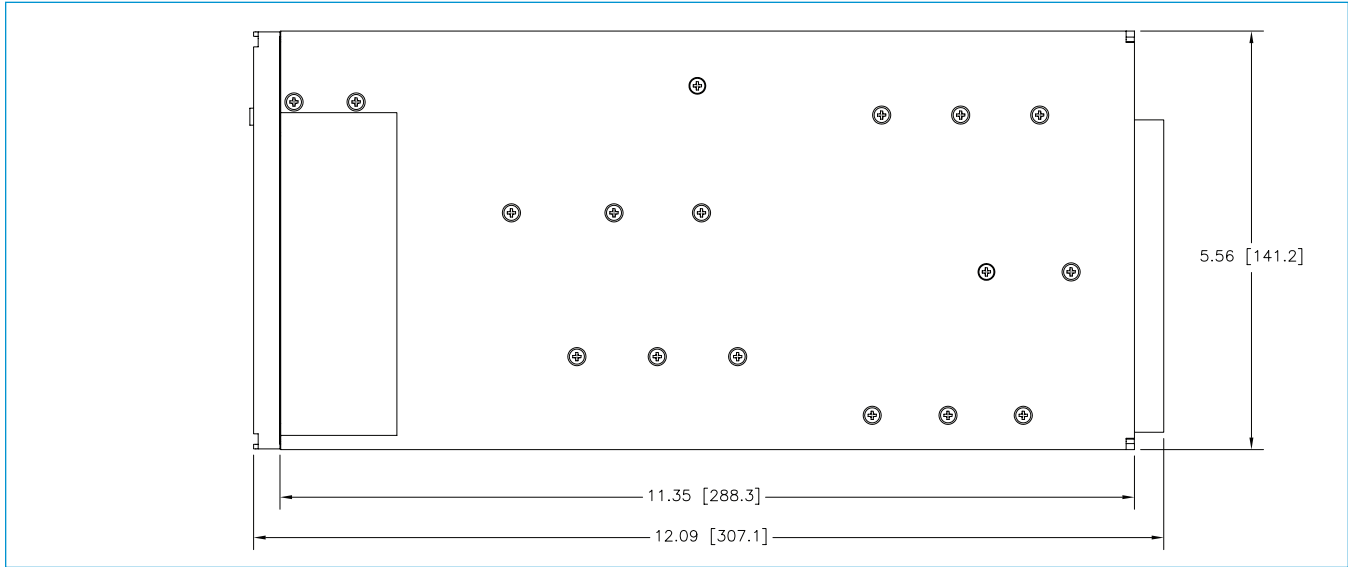
REAR VIEW



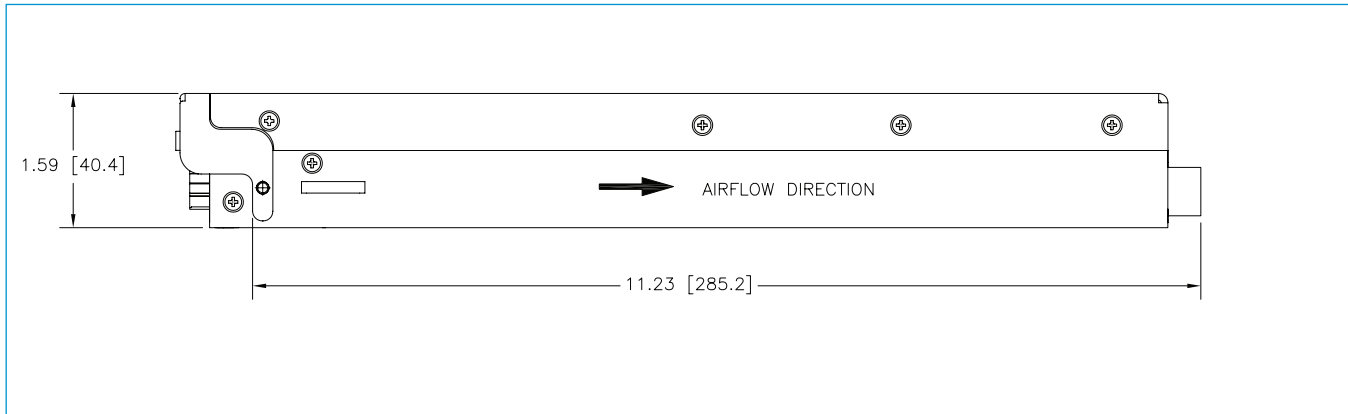


OUTLINE DRAWING

TOP VIEW



SIDE VIEW



CONNECTOR INFORMATION

Power Supply:

Input - Molex, Header right angle, Mini fit 42820-2222
 Output - FCI, Header right angle power blade 12P+20SPO3
 57132-026LF or equivalent

Mating Connections:

Input - Molex, 42816-212, receptacle 2POS Mini fit
 Output - PCI right angle power blade 12+20SPOS
 51762-11202000AALE or equivalent

Input IEC Connector:

Input	Location
Chassis (Safety) Ground	Ground
Line 1	L
Line 2	N



PINS ASSIGNMENT

Pins	Functions
U1	Over Temp/Fan Fail
U2	DC Fail/ Power down Warning
U3	PS Present
U4	DC Fail/Output Voltage Fault (DC OK)
U5	Internal GND
T1	ADDRO, I2C Address Bus
T2	ADDRO, I2C Address Bus
T3	ADDRO, I2C Address Bus
T4	N.U.
T5	N.U.
S1	DATA, I2C Data line
S2	Clock, I2C clock line
S3	Aux. Power +5V
S4	Aux. Power GND
S5	Logic GND
E1	Output Inhibit
R2	N.U.
R3	V Sense -
R4	N.U.
R5	Current Share
P1,P3,P5,P7,P9,P11	Vo1 -
P2,P4,P6,P8,P10,P12	Vo1 +

