



AHF-650-12-Y

12V Output, 650 Watts AC Front End



FEATURES

- Wide input voltage range (90-264VAC) with active power factor correction
- 1U configuration
- Active current share with ORing FET
- 3.3 VDC @ 3A 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 AC 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 AHF-650-12-Y is a highly efficient power factor corrected AC-DC front end power supply. It provides 650W at 12VDC output ideal for storage, datacom and distributed power architecture. Hot plug and active current sharing scheme enable 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 warning before shutting down 12V output due to over temperature or fan fail.

The AHF-650-12-Y meets UL and all international safety requirements. It is CE marked and SELV.

INPUT CHARACTERISTICS

	Min	Typ	Max	Units / Comments
AC Input Voltage	90		264	VAC; 47-63 Hz Single-phase continuous input range.
Input Current			9	A rms at full-rated load at 90Vrms
Inrush Current			15	A pk; excluding Xcap. Vin =264 VAC 25°C
Hold-up Time		16	20	ms; at 115VAC after last AC line peak at full power
Power Factor	0.95			W/VA; per EN61000-3-2.
Efficiency	89		92	%; with Vin at 230 VAC and 50-100% load on V1
	88		90	%; with Vin at 110 VAC and 50-100% load on V1
Input Protection			12	A; internal fuse for input protection





OUTPUT CHARACTERISTICS (AHF-650-12-Y) AND PROTECTION DEFINITION

	Min	Typ	Max	Units / Comments
Maximum Output Power			650	Watts
Maximum Output Voltage			12	VDC
Maximum Output Current			53.3	A
Minimum Load	0			A; minimum loading required to maintain regulation.
Overshoot			3	%
Transient Response			5	ms; maximum recovery time to within 1% of initial set point due to a 25% 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 AC input
OverCurrent Protection	56		69	A; latching style overcurrent protection
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. Amber LED will turn ON to indicate fault condition.
Loop Stability	60			degree; phase margin @ 0 gain crossover frequency
	10			dB, gain margin @ 0-phase crossover frequency
Regulation		±3		%
Ripple & Noise @ 20 MHz BW		100		mV

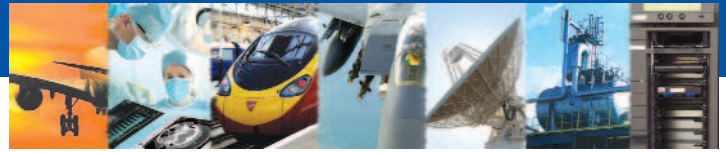


LOGICS, INTERFACE SIGNALS AND INTERNAL PROTECTION

PS_KILL	Output enable. Pulled low on conjunction with PS_ON being pulled low allows 12V to be activated.
+12V Current Share	0 to 8V range used for current sharing.
PS A0	I ² C Address.
SDA	I ² C Data line (3.3V).
SCL	I ² C Clock line (3.3V).
Tach	Two pulses per fan revolution.
AC_OK/H	High signal indicates AC is within PSU limits.
Present/L	100 Ohm resistor internally connected to RTN allowing the PSU to be detected on insertion.
Alert/L	Low signal indicates PSU fan is running below speed or an overtemperature limit was exceeded.
PWROK/H	High signal indicates both outputs are within regulation limits.
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.

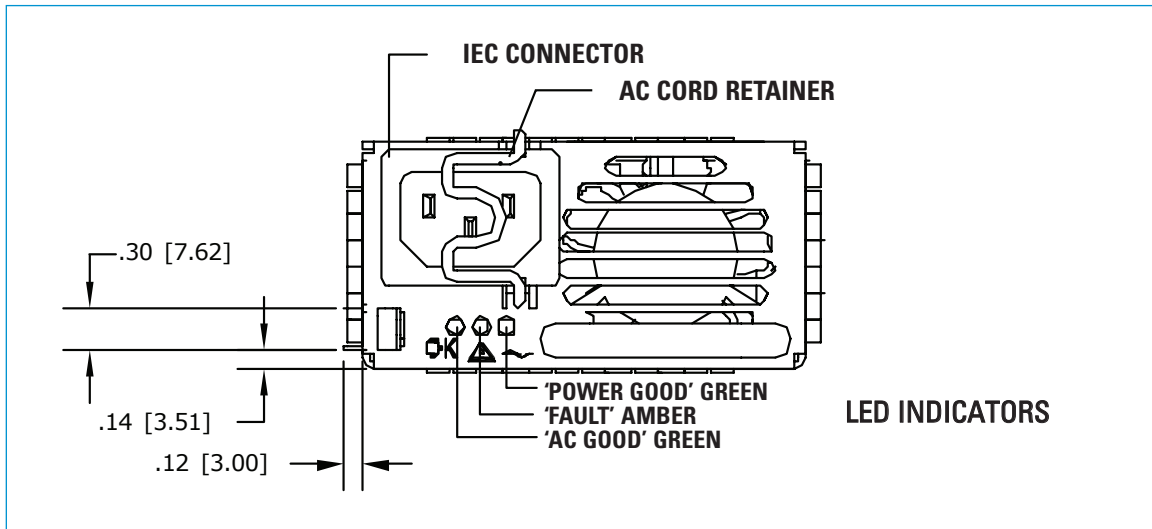
SAFETY, REGULATORY, EMI AND GENERAL CHARACTERISTICS

	Min	Typ	Max	Units / Comments
Agency Approval				UL60950, (UL) CSA60950 (cUL), EN 60950 (TÜV), CE mark for LVD, CB compliant
Electromagnetic Interference	A			FCC CFR title 47 Part 15, Class; Sub-Part B; Conducted (with 6dB margin)
	A			Class; EN55022/CISPR22; Radiated (with 6dB margin)
Leakage Current			2.5	mA; Per EN60950 at 240 VAC.
Isolation Voltage	2121			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	Shock :		95	%; Non-condensing
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.

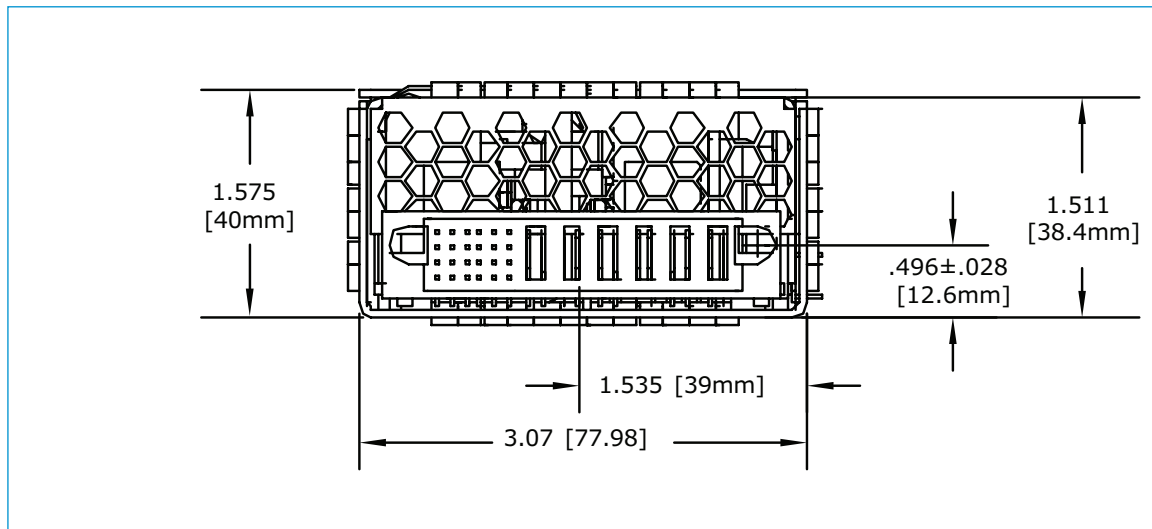


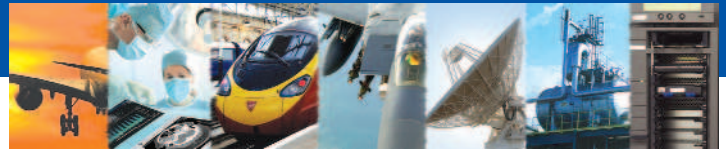
OUTLINE DRAWING (AHF-650-12-Y)

FRONT VIEW



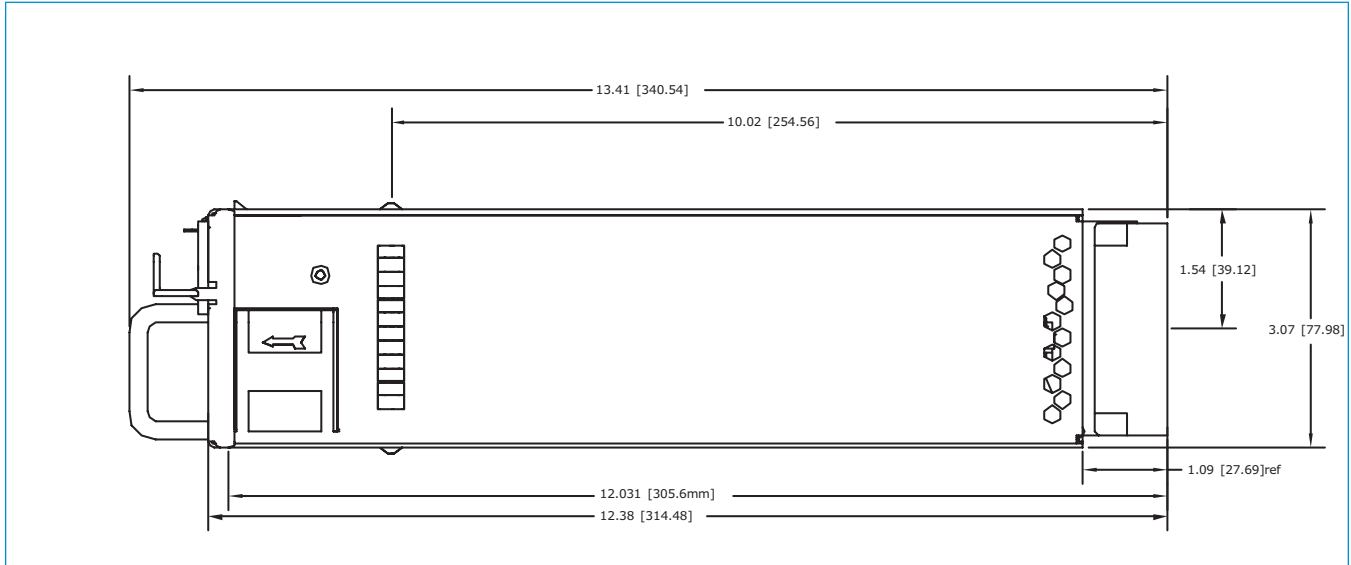
REAR VIEW



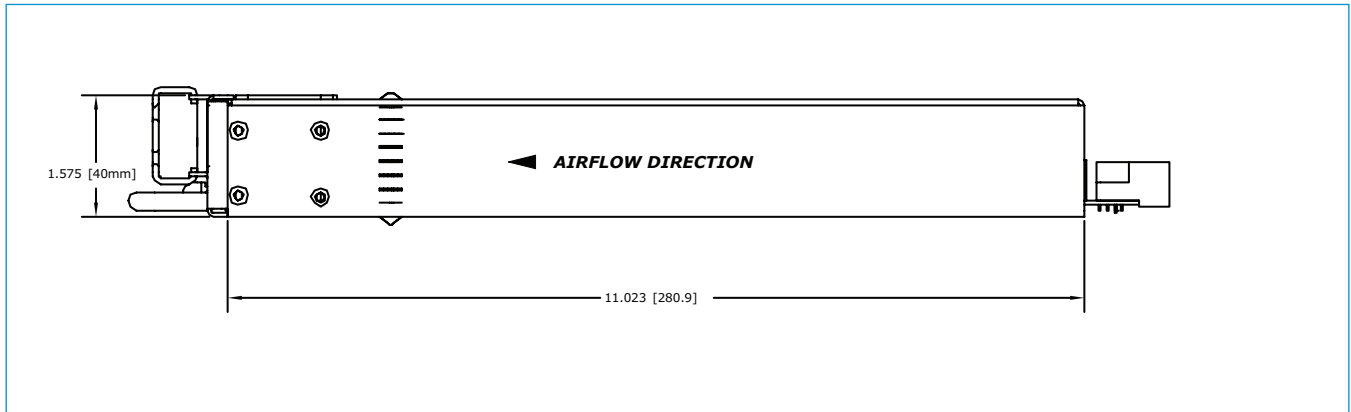


OUTLINE DRAWING

TOP VIEW



SIDE VIEW



CONNECTOR INFORMATION

Power Supply:

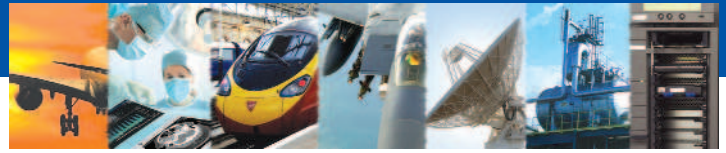
Input - IEC 320 input (Male) standard line cord connection
 Output - P/N FCI 51721-10002406AA or equivalent

Mating Connections:

Input - IEC 320 output(Socket) standard line cord
 Output - P/N FCI 51721-10002406CC or equivalent

Input IEC Connector:

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



PINS ASSIGNMENT

Pins	Functions
RH1	+12 RTN
RH2	+12 RTN
RH3	+12 RTN
RH4	+12 V OUT
RH5	+12 V OUT
RH6	+12 V OUT
A1	PS KILL
A2	+12V Current share
A3	RTN
A4	Write Protect
A5	PS A0
A6	+3.3V H.S.
B1	RTN
B2	N.U.
B3	RTN
B4	+3.3V H.S.
B5	SDA
B6	PSON/L
C1	RTN
C2	Tach1
C3	RTN
C4	+3.3V H.S.
C5	SCL
C6	ACOK/H
D1	PS Present/L
D2	N.U.
D3	RTN
D4	+3.3V H.S.
D5	Alert/L
D6	PWROK/H

