

AFE1200 SERIES

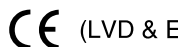
Single output



- **Approved to EN61000, IEC-1000, UL1950, CSA 22.2 No. 950-95**
- **Operating ambient temperature of 0°C to +50°C**
- **Complies with ETS300 132-1 and EN61000-3-2**
- **Hot-swap capability**
- **11.5 x 6.75 x 3.35 inch size**
- **N+1 redundancy capability**
- **Extensive features available**
- **Compatible with AFS standard shelves for configuring rack-mounted power systems**

The AFE1200 power module is a rack mountable single phase AC to DC power supply, designed to be a cost-competitive front-end power supply for distributed power systems. It is particularly suitable for use in data processing, datacom and telecom applications. The outputs are fully floating, enabling users to adopt whatever rail reference configuration they require. The AFE1200 power modules are designed for hot-swap operation and can be mounted into AFS2400/4800 power shelves for redundant-mode operation.

[2 YEAR WARRANTY]



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SPECIFICATION

All specifications are typical at nominal input, full load at 25°C unless otherwise stated

OUTPUT SPECIFICATIONS		
Output voltage	Main: 24/48Vdc Auxiliary: 12Vdc	±1.5% ±1.0%
Output power	Main Auxiliary	1200W 12W
Regulation	Line, load, IT, ageing	±3.0%
Turn-on	Output rise time Turn-on (AC applied) Turn-on (inhibit removed)	100 to 400ms 4s max. 1.5s max.
Ripple and noise	<50MHz	480mV pk-pk
Transmission noise	100 to 3kHz	35dBmC
Overvoltage protection		60VDC max.
Undervoltage protection	>44.5VDC <42VDC for >5s	Delivers full power Latch-off
Short circuit protection	<30s >30s	Automatic recovery Latch-off
Current sharing	Active current share (50% to 100% loading)	±10%
Remote sense	1.0V max. distribution line loss	
INPUT SPECIFICATIONS		
Input voltage range	115/230VAC nom.	85 to 264VAC
Input frequency range	50/60Hz nom.	47Hz to 63Hz
Input inrush current	25°C cold start	12A typical
Safety ground leakage current	254VAC @ 60Hz	1.5mA max. 1.1mA typ.
Input current	220VAC, 1200W	7.0A rms
Power factor		0.99 min.

EMC CHARACTERISTICS		
Conducted emissions	FCC-CFR, part 15, subpart A CISPR 22	Class A Class A
Radiated emissions	FCC-CFR, part 15, subpart A CISPR 22	(Note 8) (Note 8)
Immunity - radiated	IEC1000-3	Level 3
Immunity - ESD	IEC1000-2	Level 3
Line harmonics	per EN61000-3-2	Compliant
GENERAL SPECIFICATIONS		
Hold-up time (See Note 2)	75 to 85VAC 0 to 75VAC	500ms 20ms
Efficiency	120VAC 220VAC	83% 86%
Isolation voltage	Input/output Input/chassis Output/chassis	3000VAC 1500VAC 100VAC
Switching frequency		200kHz
Approvals and standards	EN60950, IEC950, UL1950 CSA C22.2 No. 950	
Case material	Electrolytic zinc coated CRS, ASTM A591, light beige paint	
Weight		4.0kg (8lbs)
MTBF	MIL-HDBK-217E Demonstrated	150,000 hours 300,000 hours
ENVIRONMENTAL SPECIFICATIONS		
Thermal performance	Operating ambient Non-operating	0°C to +50°C -40°C to +100°C
Cooling		Forced air
Relative humidity	Operating	5% to 95% RH
Altitude	Operating	13,000 feet max.
Vibration	5Hz to 500Hz	0.75G rms peak
Shock		15G, 1/2 Sine, 11ms

1200 Watt AC/DC PFC front-end for distributed power architectures

OUTPUT VOLTAGE	OUTPUT CURRENT		RIPPLE	TOTAL REGULATION	REMOTE ON/OFF	PARALLEL INTERFACES	MODEL NUMBER
	MIN	MAX					
48VDC	0A	25A	480mV	±3.0%	Inhibit	All	AFE1200-96S48NA
24VDC	0A	50A	240mV	±3.0%	Inhibit	All	AFE1200-96S24NA

Parallel interface specifications

All signals are referenced to ISO_GND unless otherwise indicated.

Isolated signal ground (ISO_GND)
May be connected to any voltage in the range from +Vout+5VDC to -Vout-5VDC.

Overtemperature (OTW)
Output bi-level signal. Bi-level signals with a 5mA sink capability and maximum voltage stand-off of 60VDC.
Logic 0 : Signal precedes OT shutdown by 5ms.
Logic 1 : Normal operation.

Remote On/Off (INHIBIT)
Input bi-level signals. Bi-level input signals shall be no greater than 5VDC.
Logic 0 : Output inhibit.
Logic 1 : Normal operation.

Voltage margin down (DOWN)
Input bi-level signals. Bi-level input signals shall be no greater than 5VDC.
Logic 0 : Nominal output voltage.
Logic 1 : 44.5 to 45.5VDC output.

Power good signal (PWR_GOOD)
Output bi-level signal. Bi-level signals are open-collector (drain) with a 5mA sink capability and maximum voltage stand-off of 60VDC.
Logic 0 : Output undervoltage.
Logic 1 : Output voltage normal.

Fault fail signal (F/F ±)
Differential relay contact, isolated from all outputs and returns within the power module.
Relay closed : Power supply failure
Relay open : Normal operation.

Power fail warning signal (PFW)
Output bi-level signal. Bi-level signals are open-collector (drain) with a 5mA sink capability and maximum voltage stand-off of 60VDC.
Logic 0 : Signal precedes loss of output power by 5ms.
Logic 1 : Normal operation.

Module Missing Pin (MM)
Provision for detection of unseated or removed module. MM pins are common internal to the power supply. Internal pull-up resistor to +5VDC logic bias, referenced to isolated GND

Auxiliary Output (AUX ±)
12VDC auxiliary output. Isolated from the main output. May be utilized for external housekeeping supply and connected to either main output.

Current Monitor (IMON)
Current source which mirrors magnitude of the output current. Signal return is referenced to RS-.

Current Limit (CL)
Output bi-level signal. Bi-level output signal with a 5mA sink capability and maximum voltage stand-off of 60VDC.
Logic 0 : Output is in current mode control and is current limiting.
Logic 1 : Normal operation.

Reset (RESET)
Input bi-level signal. Bi-level input signal shall be no greater than 5VDC.
Logic 0 : Normal operation.
Logic 1 : Resets fault indicators without unit shut-down.

AC Good (AC OK)
Output bi-level signal. Bi-level output signal is open-collector (drain) with a 5mA sink capability and maximum voltage stand-off of 60VDC.
Logic 0 : AC input below normal operating range.
Logic 1 : AC input within steady-state operating range.

Voltage monitoring (VMARG)
Input analog signal referenced to RS-. Adjusts output up to 4VDC higher than the nominal set point.

Features

Live insertion and removal
OR-ing diodes provided on output.

Voltage monitoring jacks
Located on front panel.

LED's (located on front panel)

Power Good	-	Green
Power Fail	-	Red
AC Good	-	Green

Protection
Thermal protection - automatic shut-off for fan failure or internal overtemperature.

Output Overload and Short Circuit - automatic shut-down after 30 seconds. Current regulated output down to less than 1VDC.

Output Overvoltage - automatic shut-down for both main (60VDC max.) and auxiliary (15.6VDC max.) outputs.

Output Undervoltage - automatic shut-down below 42VDC.

Current Share
Active current sharing for up to 9 AFE1200 power modules.

Short Pin
Short pin located in the output connector initiates shut down of the power supply output when the power supply is removed from the host power shelf.

International Safety Standard Approvals

AFE1200-96S24NA safety approval is pending



EN60950/IEC950 File No. E9972397



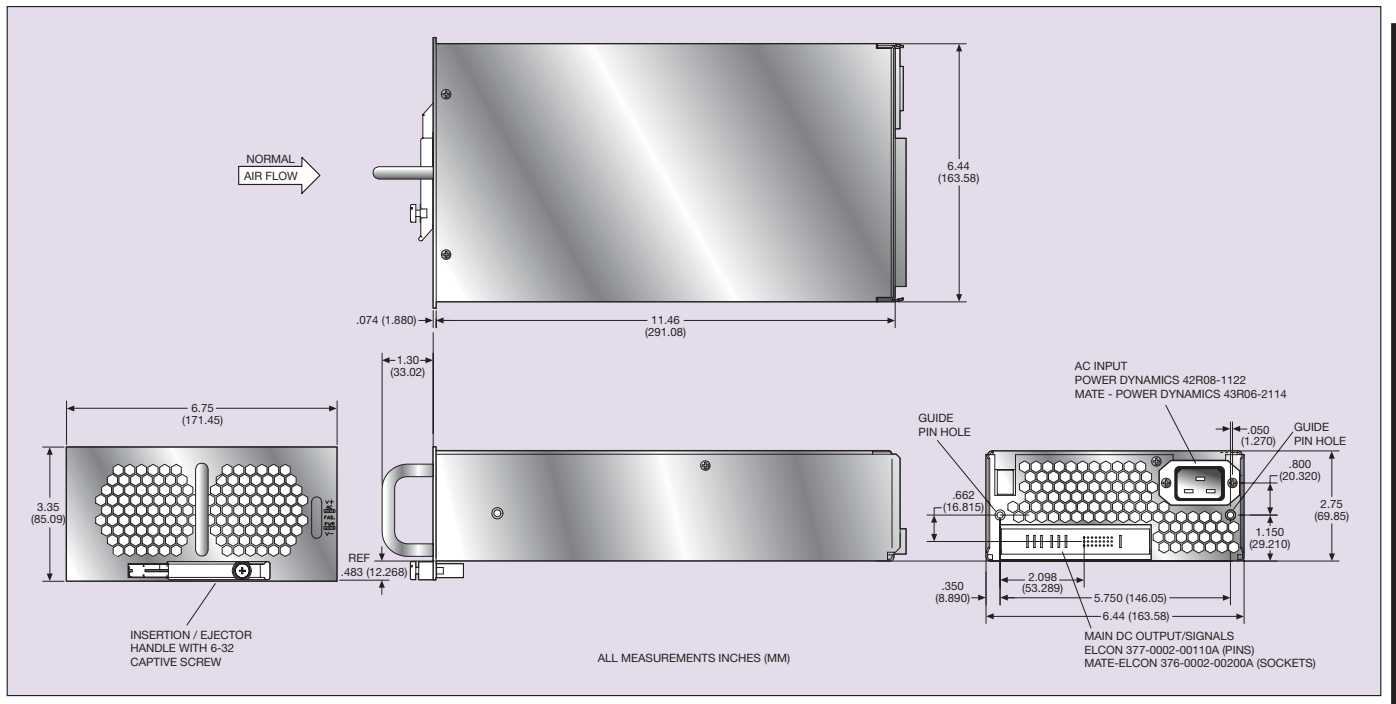
UL1950 File No. E135734

1200 Watt AC/DC PFC front-end for distributed power architectures

PIN CONNECTIONS							
PIN NO.	FUNCTION	PIN NO.	FUNCTION	PIN NO.	FUNCTION	PIN NO.	FUNCTION
1	Not Used	10	SGND ⁽⁴⁾	19	PFW ⁽¹⁾	27	VMARG
2	Not Used	11	RS- ⁽⁴⁾	20	ISO GND ⁽³⁾	28	EXT VCC+
3	PWR RTN	12	RS+	21	IMON	29	AUX-
4	PWR RTN	13	F/F-	22	Power Good	30	I SHR
5	PWR RTN	14	CL	23	F/F+	31	OTW
6	+Vout	15	N/U	24	MM	32	AUX+
7	+Vout	16	MM	25	DOWN	33	SHORT PIN
8	+Vout	17	AC OK	26	INHIBIT	34	CGND ⁽²⁾
9	Not Used	18	RESET				

Notes

- 1 PFW signal warning issued 5 msec prior to shutdown.
- 2 Chassis or safety ground.
- 3 Isolated signal ground.
- 4 Secondary return and RS- are common and tied together internally.
- 5 Refer to Application Note 110 for installation of the AFE1200 power modules into the AFS2400/AFS4800 power shelf.
- 6 Refer to Application Note 110 for description of outputs and signals available with AFE1200 power modules installed in Artesyn standard front-end power shelf.
- 7 Class A for power module, Class B when installed in AFS2400/4800 power shelf (subject to cable/system configuration).
- 8 NOTICE: Some models do not support all options. Please contact your local Artesyn representative or use the on-line model number search tool at <http://www.artesyn.com/powergroup/products.htm> to find a suitable alternative.



(J2) DC connector

Elcon 377-0002-00100A or equivalent.

(J1) AC connector

Power Dynamics 42R08-1122 or equivalent.

(J2) DC mating connector

Elcon 376-0002-00200A or equivalent.

(J1) AC mating connector

Power Dynamics 43R06-2114 or equivalent.