AKR-600-48-Y

48V Output, 600 Watts AC Front End

Features

- Wide input voltage range (90-264VAC) with active power factor correction
- 1U configuration
- Active current share with ORing oIODE
- Full protection; overvoltage, overcurrent and overtemperature
- 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 AKR-600-48-Y is a highly efficient power factor corrected AC-DC front end power supply. It provides 600W at 48VDC 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.

The AKR-600-48-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			50	A pk; excluding Xcap. Vin =264 VAC 25°C
Hold-up Time		22	24	ms; at 115VAC after last AC line peak at full power
Power Factor	0.98			W/VA; per EN61000-3-2.
Efficiency	83			%; with Vin at 115VAC and 50-100% load on V1
	85			%; with Vin at 230VAC and 50-100% load on V1
Input Protection			12	A; internal fuse for input protection

1111 Knox Street ■ Torrance ■ CA 90502 ■ USA ■ Tel: +1 310 542 8561 ■ sales@martekpower.com

Output Characteristics (AKR-600-48-Y) and Protection Definition

	Min	Typ	Max	Units / Comments
Maximum Output Power			600	Watts
Maximum Output Voltage			48	VDC
Maximum Output Current			12.5	A
Minimum Load	0			A; minimum loading required to maintain regulation.
Overshoot			1	%
Transient Response			3	ms; maximum recovery time to within 1% of initial set point due to a 25% load change, 1A/μs at 48V output
Transient Response max. deviation			1	%; 12V output
Turn-On Delay with PS_ON signal			1.1	sec; time required for initial output voltage stabilization after application of AC intput
OverCurrent Protection	14		16	A; latching style overcurrent protection
OverVoltage Protection			59	V; latching style overvoltage protection
Short Circuit Protection				Latching Mode.
OverTemperature				48V 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	79			degree; phase margin @ 0 gain crossover frequency
	12			dB, gain margin @ 0-phase crossover frequency
Regulation		±1		%
Ripple & Noise @ 20 MHz BW		240		mV

>> 2

Logics, Interface Signals and Internal Protection

Remote_ON/OFF	Output enable. Being pulled low allows 48V to be activated.
+48V Current Share	Third wire current sharing.
AC_OK/H	High signal indicates AC is within PSU limits.
Present/L	Internally connected to RTN allowing the PSU to be detected on insertion.
PWROK/H	High signal indicates both outputs are within regulation limits.
Logic Signals	AC Input OK DC Output OK PS_Present

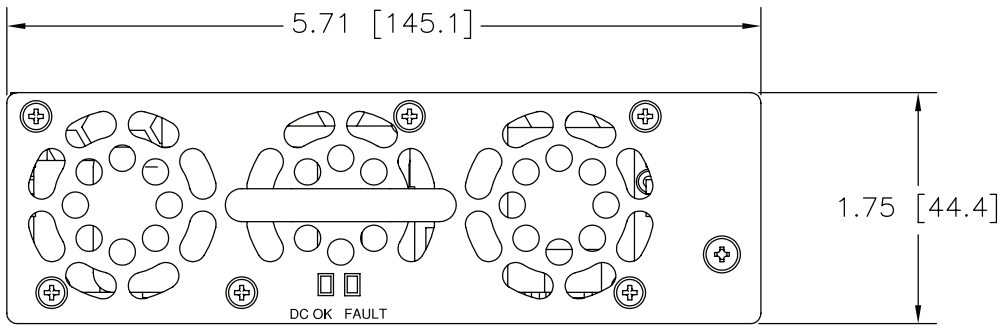
Safety, Regulatory, EMI and General Characteristics

	Min	Typ	Max	Units / Comments
Agency Approval				UL60950, (UL) CSA60950 (cUL), EN 60950 (TÜV), CE mark for LVD, CB compliant
Electromagnetic Interference				FCC CFR title 47 Part 15,
	A			Class; Sub-Part B; Conducted (with 6dB margin)
	A			Class; EN55022/CISPR22; Radiated (with 6dB margin)
Leakage Current			3.5	mA; Per EN60950 at 240 VAC.
Isolation Voltage	2121			VDC; input/case
	4242			VDC; input/output
Altitude: Operating			10K	ASL ft
Non-operating			40K	ASL ft
Operating Temp. Range	0		+50	°C; Ambient
Temp.Stability over time			30	minutes
Storage Temp. Range	-20		+85	° C
Temp. Coefficient	0		.01	%/ °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.

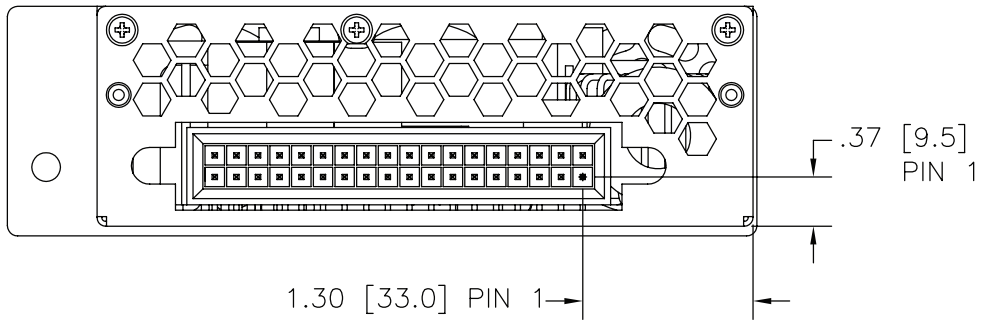
1111 Knox Street ■ Torrance ■ CA 90502 ■ USA ■ Tel: +1 310 542 8561 ■ sales@martekpower.com

Outline Drawing (AKR-600-48-Y)

FRONT VIEW



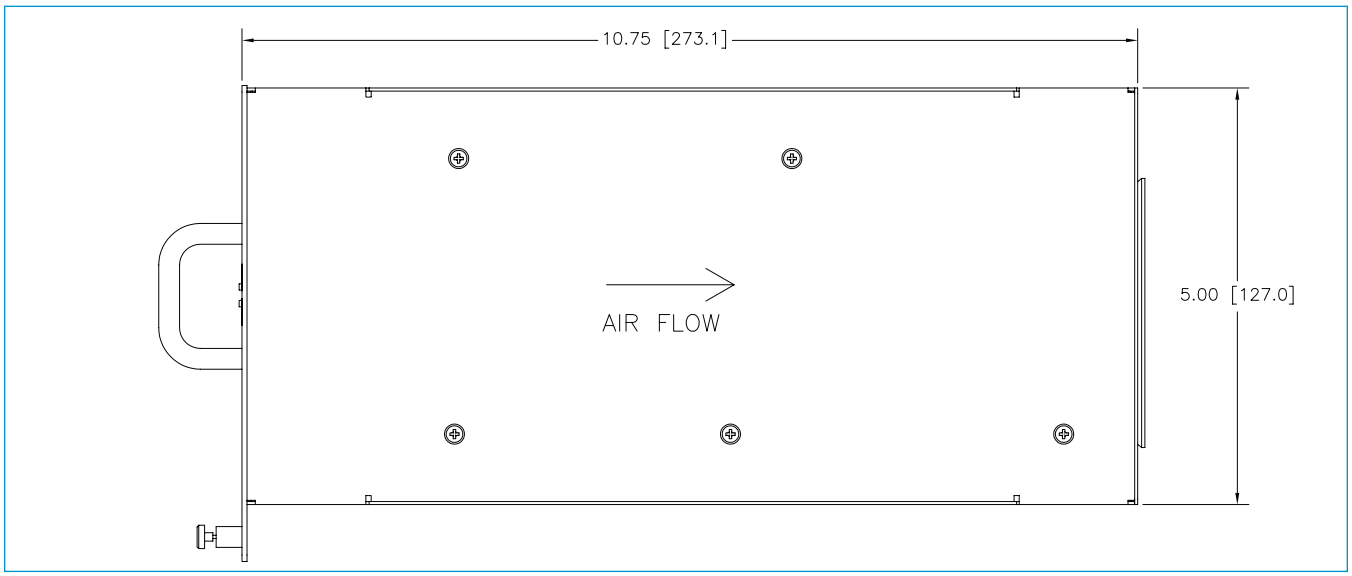
REAR VIEW



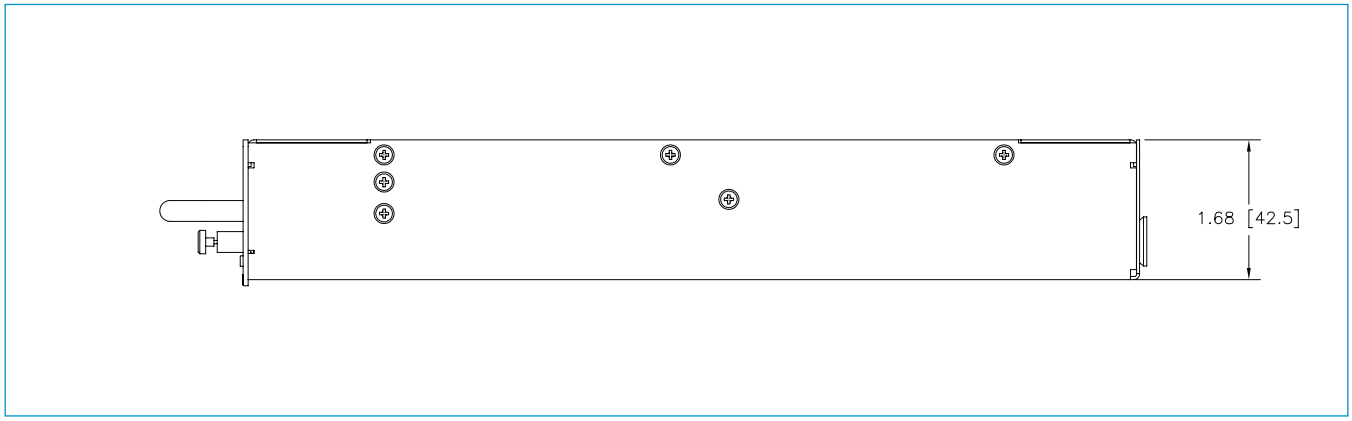
>> 4

Outline Drawing

TOP VIEW



SIDE VIEW



Connector Information

Power Supply:
Input /Output: P/N MOLEX 43759-0001

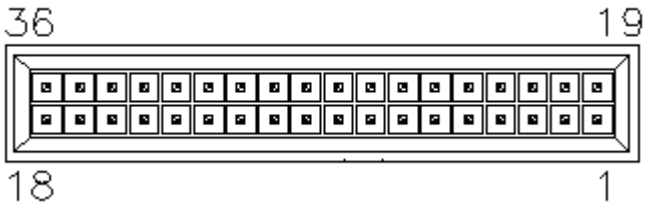
Mating Connections:
Input / Output: P/N MOLEX 43760-0001

Input IEC Connector:

Input	Location
Chassis (Safety) Ground	1, 19
Line 1	5, 23
Line 2	3, 21

Pins Assignment

Pins	Functions
1, 19	Line Ground
5, 23	Line
3, 21	Neutral
15,16,17,18,34,35,36	+24V
12,13,14,30,31,32,33	+24 RTN
27	AC FAIL
29	DC OK
28	PS Present
11	Remote On/Off
10	System GND
26	Share PIN
9	24VS+
8	Sense RTN
2,4,6,7,20,22,24,25	N.U.



>> 6