RoHS Compliant

Features

- RoHS lead free solder and lead solder exempted products are available
- Single-phase AC input
- Up to 9 W/in^3 power density
- 1U or 3U height configurations
- Power Factor Correction (PFC) Meets EN61000-3-2
- Current share with ORing diodes
- Overtemperature, overload, and overvoltage protection
- Power supply status indicators
- I^{2}C protocol alarms, status, & control
- Standby voltage - 12 VDC @ 500 mA with ORing diode
- Enable signal for each output

The PALS Series consists of 400 and 600 watt ac-dc power supplies designed specifically for use in power-over-ethernet applications. The supplies have dual outputs of 48 and 12 volts which provide LAN port and internal system power. A 500 mA standby output facilitates I^{2}C interface operations. The units are fully-enclosed, have 1500 VAC (2250 VDC) output isolation, and comply to IEEE802.3AF.

The PALS Series provides excellent protection against input voltage transients. Supply outputs are fully floating, meaning that users can use them for either positive or negative polarity needs.

Output voltage terminals and interface access is through a hot-swap connector at the rear of the supply. The AC input fans, handle, and LED indicator lights are located on the front panel of the supply. Airflow is from the front through the rear. Alarm, monitoring, and control signals are floating from the rear output and can be referenced.

The PALS Series meets international safety requirements and is CE Marked to the Low Voltage Directive.

Model Selection

MODEL	TOTAL OUTPUT POWER (WATTS)	OUTPUT VOLTAGE	MAXIMUM OUTPUT CURRENT	LINE REGULATION	LOAD REGULATION [1]	RIPPLE & NOISE mVp-p [2]	INITIAL SETTING ACCURACY
PALS400-2482	400	48V	8A	0.1%	0.2%	120	0.2%
		12V	16A	0.1%	0.2%	120	0.2%
PALS600-2482	600	48V	9A	0.1%	0.2%	120	0.2%
		12V	16A	0.1%	0.2%	120	0.2%

NOTES:

[1] With Remote Sense connected.

[2] Maximum peak-to-peak noise expressed as a percentage of output voltage, 20 MHz bandwidth.

Input Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Input Voltage - AC	Single-phase continuous input range.		85		264	VAC
Input Frequency	AC input.		47		63	Hz
Hold-up Time	After last AC line peak at full power.	At 115 VAC.	20			ms
Input Current	At full rated load.	At 85 VAC. PALS400: At 85 VAC. PALS600:			6.5 10	Arms
Inrush Surge Current	Internally limited by thermistor.	Vin = 115VAC (one cycle). 25° C.			17	Apk
Power Factor	Per EN61000-3-2		0.98			W/VA
Operating Frequencies	Boost frequency Forward converter frequency			95 125		kHz

Output Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Efficiency	Full rated load.		82	85		%
Minimum Loads	Minimum loading required to maintain regulation.		0			A
Output Power	(Does not include standby output power)	PALS400: PALS600:			400 600	Watts
Overshoot / Undershoot	Output voltage overshoot/undershoot at turn-on.				3	%
Transient Response	Maximum recovery time, to within 1% of initial set point due to a 50% load change, 1A/µs, 2% max. deviation.				400	µs
Turn-On Delay	Time required for initial output voltage stabilization.			1		Sec
Turn-on Rise Time	Time required for output voltage to rise from 10% to 90%.			100		ms

Interface Signals and Internal Protection

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Overvoltage Protection	Latch style overvoltage protection.	Vo1 Vo2	55.2 13.8		60.0 15.0	V
Overcurrent Protection	Straight line current limit, as a percentage of maximum rated load.		110		120	%
Short Circuit Protection	Enabled during overcurrent conditions.		25			%
Overtemperature/ Fan Failure Warning	Time to shutdown due to excessive internal temperature or fan failure. Latching shutdown. (Note 1)		TBD			ms
Output Good	TTL open collector signal. Percent of output voltage when V1 output is within nominal range. Signal high indicates out of tolerance output. (Note 1)		3		5	%
Input Power Fail Warning	TTL open collector signal. Time before VOUT drops to 95% due to loss of input power. (Note 1)		5			ms
Power Supply Present Signal	Resistance of connection to logic ground to allow user to determine if power supply is present. (Note 1)			100		Ohms
Current Share	Active current share on Vo1 & Vo2 for load current >10% of full load share within:				5	%
Remote Sense	Total voltage compensation for cable losses with respect to the main output.			1.0		V
Enable	TTL compatible logic signal. Logic "low" required to enable each output. (Note 1)		2			mA
Auxiliary Power	Rated current of isolated 12 VDC power source.				500	mA

I²C Bus Management Interface

STATIC
Includes static information such as: part number and revision level, output rating, serial number, date code, and manufacturing location.

STATUS (Logic 1 or 0)
Power Supply OK
AC Input OK
DC Output OK
Power Supply Seated
Overtemperature.

CONTROL SIGNAL
Inhibit

Safety, Regulatory, and EMI Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Agency Approvals	UL60950-1/CSA 22.2 No. 60950-1, EN60950-1 (TUV), and IEC60950-1.					
Electromagnetic Interference	FCC CFR title 47 Part 15 Sub-Part B - Conducted. EN55022 / CISPR 22 Conducted.		B B			Class
ESD Susceptibility	Per EN61000-4-2, level 4.		8			kV
Radiated Susceptibility	Per EN61000-4-3, level 3.		10			V/M
EFT/Burst	Per EN61000-4-4, level 4.		±4			kV
Surge	Per EN61000-4-5, level 3.	Line-to-Line Line-to-Ground	1 2			kV
Leakage Current	Per EN60950.	at 265 VAC, 60 Hz			2.6	mA

NOTE: 1) Also available on I²C data line.

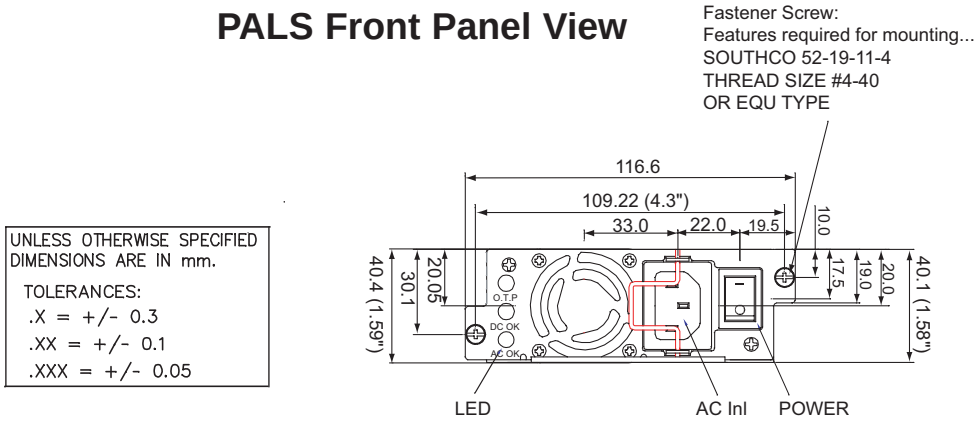
Environmental Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Altitude	Operating. Non-Operating.				10k 40k	ASL Ft. ASL Ft.
Operating Temperature		At 100% load: At 50% load:	0		50 70	°C °C
Storage Temperature			-40		85	°C
Temperature Coefficient	0 °C to 70 °C (after 15-minute warm-up).				.02	%/°C
Relative Humidity	Non-Condensing.				95	%RH
Shock	Operating: half-sine 10ms, 3 axis Non-operating: half-sine 10ms, 3 axis				+20 +40	GPK
Vibration	Operating: swept sine 5-2000-5 Hz, 5-32 Hz, 0.02îDA, 32-2000 Hz Non-operating: random 10-2000 Hz				1 6.15	GPK Grms

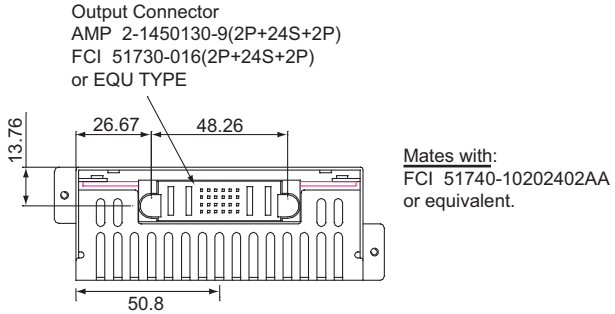
Ordering Information:

OPTIONS	SUFFIXES TO ADD TO PART NUMBER
RoHS lead solder exemption	No RoHS character required.
RoHS compliant for all 6 substances	Add “G” as the last character of the part number.

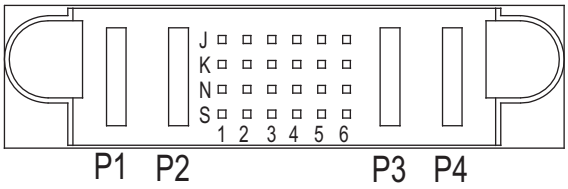
PALS Front Panel View



PALS Rear Connector Panel View



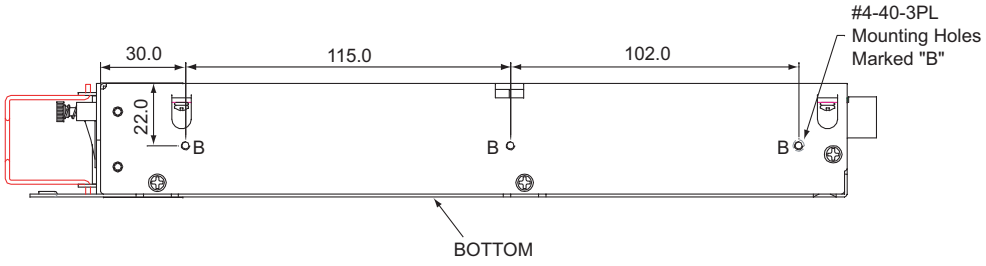
Output Connector Pin Assignments



P1	P2	1J	2J	3J	4J	5J	6J	P3	P4
Vo2	Vo2 RTN	Vo2+S	SDA	VauxRTN	Vaux	N/C	Vo1+S	Vo1 RTN	Vo1
		1K	2K	3K	4K	5K	6K		
		Vo2-S	SCL	Vo2 ENA	OGOOD	N/C	Vo1-S		
		1N	2N	3N	4N	5N	6N		
		Vo2CS	A0	Vo1 ENA	PF	N/C	Vo1CS		
		1S	2S	3S	4S	5S	6S		
		PSUP	A1	A2	OTF	N/C	N/C		

*References to the center of guide pin on blind mate connector.

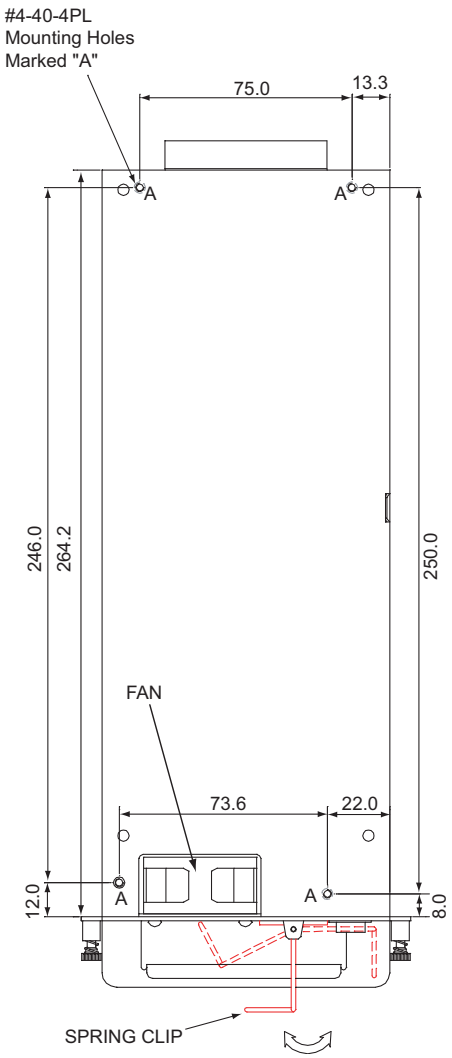
PALS Right Side View



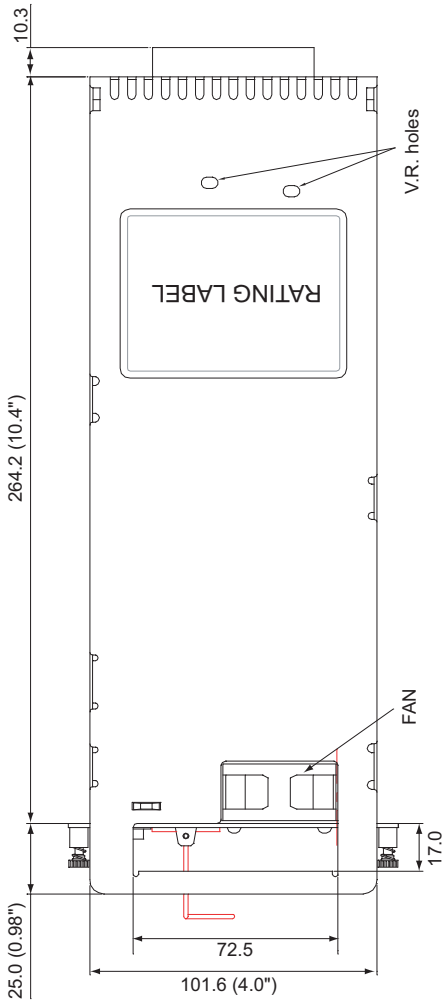
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN mm.

TOLERANCES:
.X = +/- 0.3
.XX = +/- 0.1
.XXX = +/- 0.05

PALS Top View



PALS Bottom View



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN mm.
TOLERANCES:
.X = +/- 0.3
.XX = +/- 0.1
.XXX = +/- 0.05