UHD160 Series

UHD160

Ultra High Density 160 W AC-DC Power Supply

PRODUCT DESCRIPTION

This single-output, ultra high density AC-DC power supply series is designed for mission-critical operations in medical, IT and industrial applications. It features a power density of 18W/in^3 and a typical efficiency of 90%. At an output power of 160 W, in an industry standard 2”x4” footprint, the UHD160 series offers equipment designers a way to reduce system form factor and increase performance.

FOOTPRINT:
W 51 x L 102 mm (W 2 x L 4 in)

FEATURES

- 3.3 V to 48 V outputs available
- Universal 90 to 264 Vac input
- Typical efficiency of 90%
- Industry standard 2" x 4” footprint
- OVP, OTP and short-circuit protection
- Fanless, convection-cooled operation up to 100 W
- Power density up to 18W/in^3
- Active power factor correction (PFC)
- Auxiliary fan +12V output
- Full ITE and medical approvals
- Compliant to worldwide safety and EMC standards

MODEL SELECTION GUIDE

ERP Part Number	Main Output V1		12 V Auxiliary Output V2 (A)	Maximum Power (W)	
	V1 (V)	Max. Current (A)		With Fan	No Fan
UHD160-1000	5	20	0.5	100	70
UHD160-1001	12	13.3	0.5	160	100
UHD160-1002	24	6.66	0.5	160	100
UHD160-1003	48	3.33	0.5	160	100

For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@erp-power.com

APPLICATIONS

- Medical & dental electronics
- Diagnostic & imaging equipment
- LED displays
- Networking, telecom and automation equipment
- Point of sale products

3 Year Warranty - 3 Year Warranty - 3

Ultra High Density 160 W AC-DC Power Supply

1 - ORDERING INFORMATION - MODEL DESCRIPTION

ERP Part Number	Main Output V1				Auxiliary Output V2			Maximum Power (W)	
	V1 (V)	Current without Air Flow (A)	Current with Air Flow (A)	V1 Ripple Pk-Pk (mV)	V2 (V)	Current without Air Flow (A)	Current with Air Flow (A)	With Fan	No Fan
UHD160-1001	12	8.3	13.3	120	12	0.5	0.5	160	100
UHD160-1002	24	4.16	6.66	240	12	0.5	0.5	160	100
UHD160-1003	48	2.08	3.33	480	12	0.5	0.5	160	100

Notes:
1. *Total continuous output power shall not exceed 160 W with forced air, or 100W without a fan.*
2. *Air flow must be sufficient to keep heatsink temperatures below 110°C at 50°C ambient operation. Total power must not exceed 160 W.*
3. *For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@erp-power.com*

2 - INPUT SPECIFICATION

	Units	Minimum	Typical	Maximum	Notes
AC Input Voltage Range (Vin)	Vac	90	115/230	264	
Input Frequency Range	Hz	47	50/60	63	
Power Factor (PF)			0.98		At 90 Vac
Input Current	A	-	-	2.3	At 90 Vac
Leakage Current	µA			110 µA @ 115 Vac 200 µA @ 230 Vac	
Efficiency		-	90%	-	At full load

3 - OUTPUT SPECIFICATION

	Units	Minimum	Typical	Maximum	Notes
Output Voltage Set-Point Accuracy	%		±1		
Line Regulation	%		±1		From 90 to 264 Vac
Load Regulation **V1 (Main output)** **V2 (12 V auxiliary)**	%		 ±1 ±5		
Cross Regulation **V1 (Main output)** **V2 (12 V auxiliary)**	%		 ±1 ±15		
Transient Response	%			10	50% load change, recovery to regulation band within 1 msec
Output Ripple Voltage	%		±1		•±1.0% of nominal output voltage •Peak-to-peak value, measured at 20 MHz Bandwidth
Rise Time	ms	0.2		20	
Startup Time	s		1		
Holdup Time	ms		16		At 115 Vac and 230 Vac, at at full load
Minimum Load	A	0			
Temperature Drift	mV/°C		±0.25		

Ultra High Density 160 W AC-DC Power Supply

4 - PROTECTION FEATURES

	Units	Minimum	Typical	Maximum	Notes
Undervoltage Lockout	Vac	80			
Over-Voltage Protection	%	115		130	Latched shutdown
Over-Current Protection	%	110		150	• No single output exceeds 150% of its rated output for more than 1 minute under any loading condition and nominal input voltage ranges. • The power supply auto recovers when the over load condition is removed.
Short-Circuit Protection					Auto-recovery
Over-Temperature					Auto-recovery
Input Fuse	A		3		Line and Neutral
Isolation Input/Output	Vac	4000			For 1 minute
Isolation Input/Ground	Vac	1500			For 1 minute
Isolation V1/V2	Vdc	100			For 1 minute
Isolation Output/Ground	Vac	500			

5 - EMC COMPLIANCE AND SAFETY APPROVALS

EMC Compliance				
		Standard	**Condition**	**Equipment / Criteria / Class**
Conducted EMI		EN55022 (CISPR 22)	115 VRMS, 230 VRMS. Maximum load. 4 dB minimum margin	Class A
Harmonic Current Emissions		IEC61000-3-2	For Class D equipment	
Voltage Fluctuations		IEC61000-3-3		
Immunity Compliance	**ESD (Electrostatic Discharge)**	IEC61000-4-2	8 kV air discharge, 6 kV contact discharge	A
	RF Electromagnetic Field Susceptibility	IEC61000-4-3	3 V/m, 80-2500 MHz, 1 kHz/2 Hz 80% AM modulation Dwell time 3 sec for 2 Hz modulation Dwell time 1 sec for 1kHz modulation	A
	Electrical Fast Transient	IEC61000-4-4	± 2kV on AC and DC 5 kHz repetition for 1 minute; ± 1kV on I/O	A
	Surge	IEC61000-4-5	± 1kV line to line, ±2kV line to earth on AC power port; ±0.5kV for outdoor cables	A
	Conducted RF Disturbances	IEC61000-4-6	3 Vrms, 0.15-80 MHz, 1 kHz/2 Hz 80% AM modulation	A
	Magnetic Field Disturbances	IEC61000-4-8	50 and 60 Hz, 3 A/m	A
	Voltage Dips & Interruptions	IEC61000-4-11	Dip to 40% for 5 cycles (100 msec) Dip to 70% for 25 cycles (500 msec) Dropout to 5% for 10 msec Interrupts > 95% for 5 s	B B B C

Safety Agency Approvals		
Agencies	VDE, UL, cUL	
Standards	EN60950, IEC60950, UL 60950, EN60601-1, IEC60601, UL 60601-1	

Ultra High Density 160 W AC-DC Power Supply

6 - ENVIRONMENTAL CONDITIONS

	Units	Minimum	Typical	Maximum	Notes
Operating Temperature	°C	-20		+70	50% of max power at 70°C, linearly derated over 50°C
Storage Temperature	°C	-40		+80	
Cooling	LFM	200			Above 100 W of output power
Relative Humidity	%	8		90	Operating, non-condensing
Operating Altitude	m			3000	
Shock	G			10	Half-sine 6 axis, operating
Vibration	G			0.5 pk-pk	10 to 300 Hz, 3 axis, operating
MTBF	Hours				
Convection cooling		100,000			
With air flow		300,000			

Ultra High Density 160 W AC-DC Power Supply

7 - MECHANICAL SPECIFICATION

Connector	Manufacturer and Part Number
Input Connector J1	Molex 26-60-4030 or equivalent
J1 Mating Connector	Molex 09-91-0300 (crimp terminal housing) Molex 08-50-0105 (crimp terminal, 18-24 AWG)
Ground Connector GND	Molex 19705-4301 or equivalent
Ground Mating Connector	Molex 0190030001 or equivalent
Output Connector J2	Molex 26-60-4080 or equivalent
J2 Mating Connector	Molex 09-91-0800 (crimp terminal housing) Molex 08-50-0105 (crimp terminal, 18-24 AWG)
Output Connector J3	Molex 22-23-2041 or equivalent
J3 Mating Connector	Molex 22-01-2047 (crimp terminal housing) Molex 08-50-0113 (crimp terminal, 22-30 AWG)

8 - MECHANICAL DRAWING

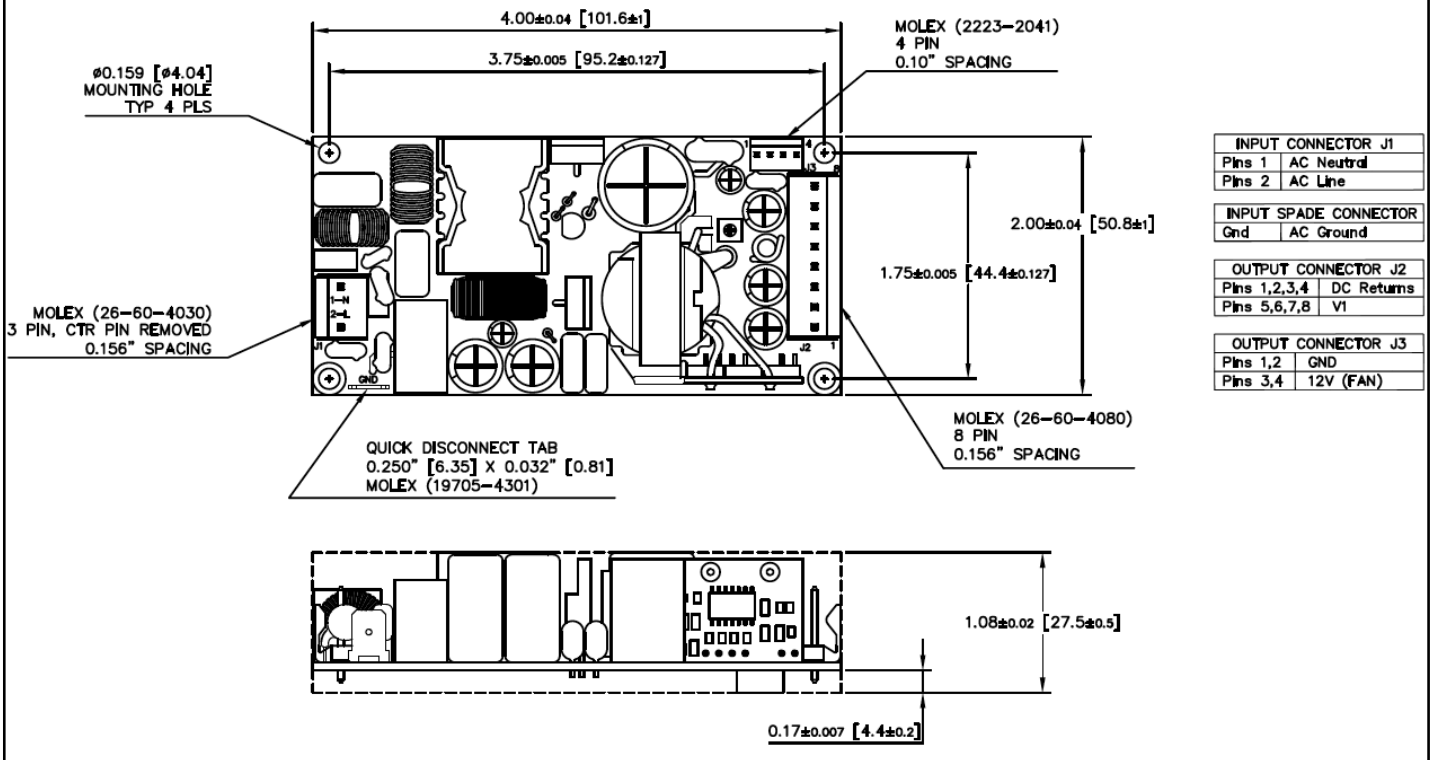

Figure 1

Ultra High Density 160 W AC-DC Power Supply

USA Headquarters
Tel: +1-805-517-1300
Fax: +1-805-517-1411
893 Patriot Drive, Suite E,
Moorpark, CA 93021, USA

CHINA Operations
Tel: +86-756-6266298
Fax: +86-756-6266299
No. 8 Pingdong Road 2
Zhuhai, Guangdong, China 519060