

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/in³ 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/in³
- Active power factor correction (PFC)
- Auxiliary fan +12V output
- Full ITE and medical approvals
- Compliant to worldwide safety and EMC standards

APPLICATIONS

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

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



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)	%		±1		
V2 (12 V auxiliary)			±5		
Cross Regulation					
V1 (Main output)	%		±1		
V2 (12 V auxiliary)			±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

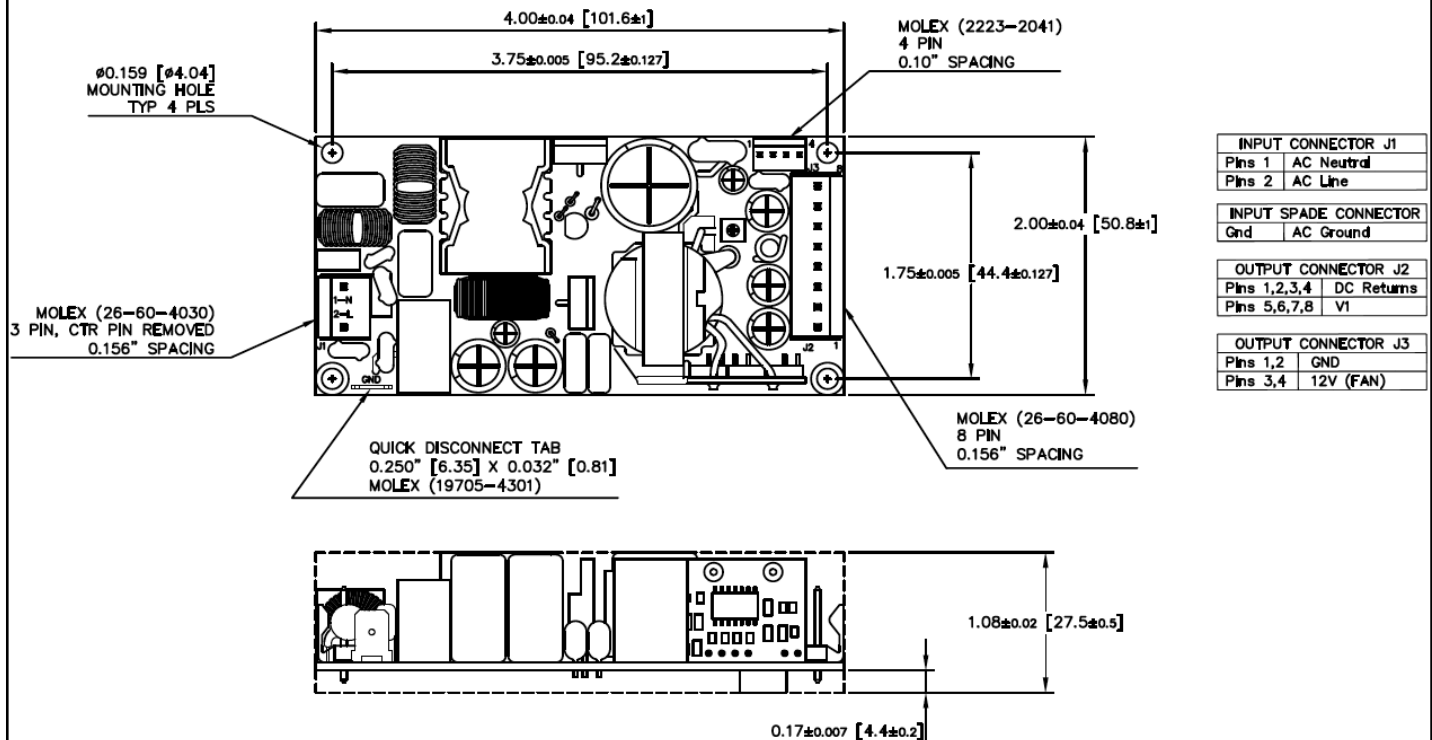


Figure 1



UHD160 Series

UHD160

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

ERP Power, LLC (ERP) reserves the right to make changes without further notice to any products herein. ERP makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ERP assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in ERP data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ERP does not convey any license under its patent rights nor the rights of others. ERP products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the ERP product could create a situation where personal injury or death may occur. Should Buyer purchase or use ERP products for any such unintended or unauthorized application, Buyer shall indemnify and hold ERP and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ERP was negligent regarding the design or manufacture of the part. ERP is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.