

## 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<sup>3</sup> 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<sup>3</sup>
- 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](mailto:SaveEnergy@erp-power.com)*



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### 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:

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

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### 4 - PROTECTION FEATURES

	Units	Minimum	Typical	Maximum	Notes
<b>Undervoltage Lockout</b>	Vac	80			
<b>Over-Voltage Protection</b>	%	115		130	Latched shutdown
<b>Over-Current Protection</b>	%	110		150	<ul style="list-style-type: none"> <li>No single output exceeds 150% of its rated output for more than 1 minute under any loading condition and nominal input voltage ranges.</li> <li>The power supply auto recovers when the over load condition is removed.</li> </ul>
<b>Short-Circuit Protection</b>					Auto-recovery
<b>Over-Temperature</b>					Auto-recovery
<b>Input Fuse</b>	A		3		Line and Neutral
<b>Isolation Input/Output</b>	Vac	4000			For 1 minute
<b>Isolation Input/Ground</b>	Vac	1500			For 1 minute
<b>Isolation V1/V2</b>	Vdc	100			For 1 minute
<b>Isolation Output/Ground</b>	Vac	500			

### 5 - EMC COMPLIANCE AND SAFETY APPROVALS

EMC Compliance				
		Standard	Condition	Equipment / Criteria / Class
<b>Conducted EMI</b>		EN55022 (CISPR 22)	115 VRMS, 230 VRMS. Maximum load. 4 dB minimum margin	Class A
<b>Harmonic Current Emissions</b>		IEC61000-3-2	For Class D equipment	
<b>Voltage Fluctuations</b>		IEC61000-3-3		
<b>Immunity Compliance</b>	<b>ESD (Electrostatic Discharge)</b>	IEC61000-4-2	8 kV air discharge, 6 kV contact discharge	A
	<b>RF Electromagnetic Field Susceptibility</b>	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
	<b>Electrical Fast Transient</b>	IEC61000-4-4	± 2kV on AC and DC 5 kHz repetition for 1 minute; ± 1kV on I/O	A
	<b>Surge</b>	IEC61000-4-5	± 1kV line to line, ±2kV line to earth on AC power port; ±0.5kV for outdoor cables	A
	<b>Conducted RF Disturbances</b>	IEC61000-4-6	3 Vrms, 0.15-80 MHz, 1 kHz/2 Hz 80% AM modulation	A
	<b>Magnetic Field Disturbances</b>	IEC61000-4-8	50 and 60 Hz, 3 A/m	A
	<b>Voltage Dips &amp; Interruptions</b>	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	
<b>Agencies</b>	VDE, UL, cUL
<b>Standards</b>	EN60950, IEC60950, UL 60950, EN60601-1, IEC60601, UL 60601-1

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### 6 - ENVIRONMENTAL CONDITIONS

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

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### 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

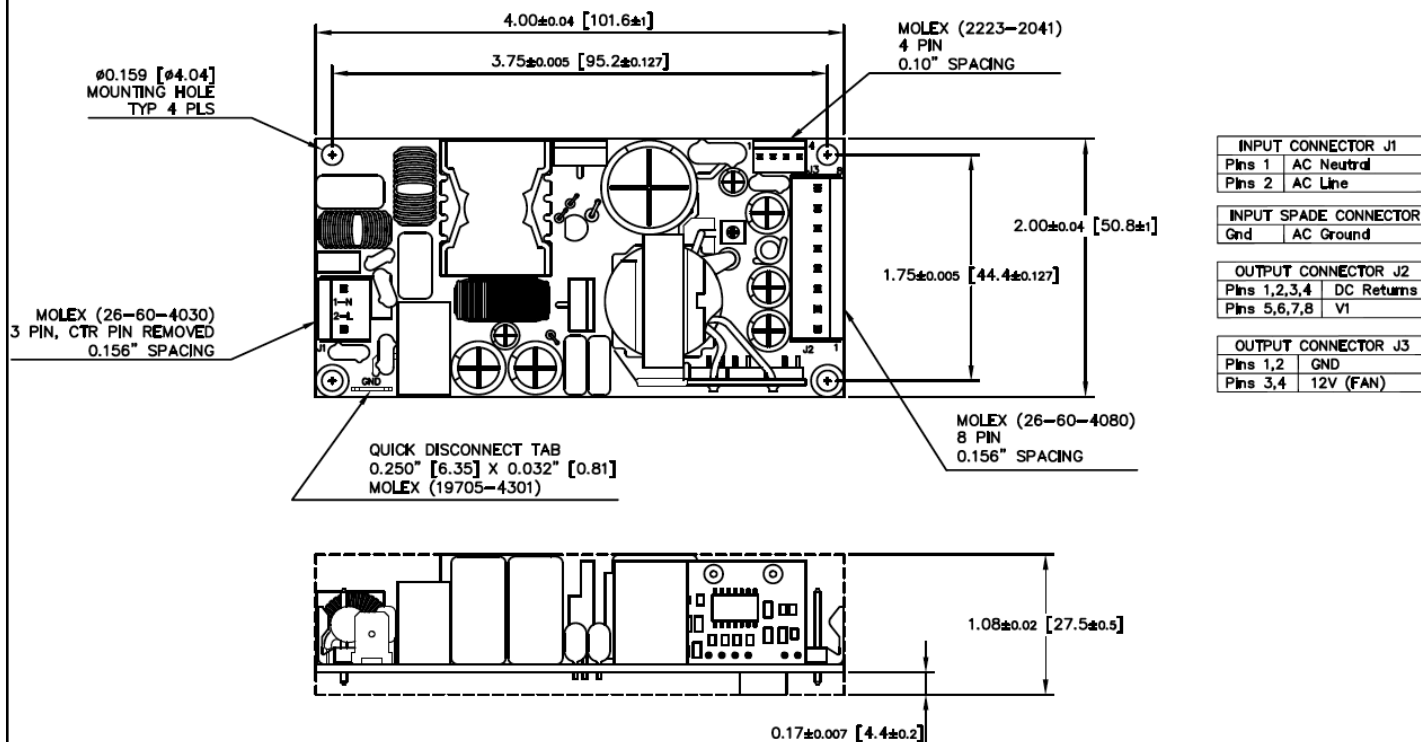


Figure 1



# UHD160 Series

## UHD160

### Ultra High Density 160 W AC-DC Power Supply

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