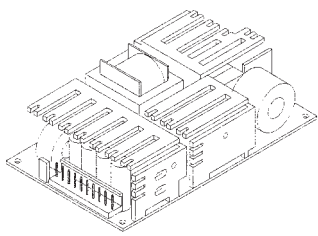


110 Watts

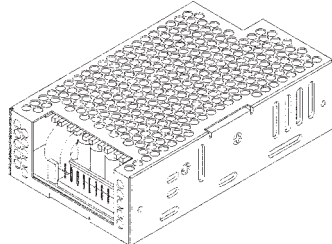
REL-110 Series

Features

- High Efficiency
- Advanced SMT Design
- Universal 85-264 VAC Input
- Compact 3" x 5" x 1.25" Size
- Fits IU Applications
- Optional Chassis and Cover
- Medical Version Available
- EMC Immunity Compliance to EN 61000-6-2
- EMC Emissions Compliance to EN 55022, Class B
- Safety Certified to EN 60950
- Harmonic Current per EN 61000-3-2, Class D







OPEN FRAME



CHASSIS/COVER

Safety Specifications

	Underwriters Laboratories File E137708	Pending UL 60950 Third Edition CB Report per IEC 60950 (1999) Second Edition, A1, A2, A3, A4 All EN 60950 Deviations First Edition A1, A2
	UL Recognition Mark For Canada File E137708	Pending CAN/CSA-C22.2 No. 60950-00
	TUV License X XX XX XXXXX XXX	Pending EN 60950/A11:1997
		Pending Low Voltage Directive

Model Listing

MODEL NO.	OUTPUT 1 ₍₈₎	OUTPUT 2 ₍₈₎	OUTPUT 3 ₍₇₎	OUTPUT 4 ₍₇₎
REL-110-4001	+3.3V/10A(1)	+5V/6A	+12V/2A	-12V/2A
REL-110-4002	+5V/10A(1)	+3.3V/6A	+12V/2A	-12V/2A
REL-110-4003	+5V/10A(1)	+3.3V/6A	+15V/2A	-15V/2A
REL-110-4004	+5V/10A(1)	-5V/6A	+12V/2A	-12V/2A
REL-110-4005	+5V/10A(1)	-5V/6A	+15V/2A	-15V/2A
REL-110-4006	+5V/10A(1)	+24V/2A	+12V/2A	-12V/2A
REL-110-4007	+5V/10A(1)	+24V/2A	+15V/2A	-15V/2A
REL-110-3001	+5V/10A(1)	+12V/3A		-12V/3A
REL-110-3002	+5V/10A(1)	+15V/2A		-15V/2A
REL-110-2001	+3.3V/10A(1)	+5V/6A		
REL-110-2002	+5V/10A(1)	+12V/5A		
REL-110-2003	+5V/10A(1)	+24V/3A		
REL-110-2004	+12V/5A	-12V/4A		
REL-110-2005	+15V/4A	-15V/3A		
REL-110-1001	2.5V/22A(2)			
REL-110-1002	3.3V/22A(2)			
REL-110-1003	5V/22A(2)			
REL-110-1004	12V/9.2A			
REL-110-1005	15V/7.3A			
REL-110-1006	24V/4.6A			
REL-110-1007	28V/3.9A			
REL-110-1008	48V/2.3A			

Consult factory for alternate output configurations.

Specify optional power fail, overvoltage protection, chassis and cover when ordering.

Refer to Applications Information for complete output power ratings.

Output Specifications

Total Output Power at 50°C	80W 110W 300	Convection Cooled LFM Forced Air
Output Voltage Centering (50% load)	Output 1: Output 2: Output 3: Output 4:	± 1.0% ± 5.0% ± 5.0% ± 5.0%
Output Voltage Adjust Range	Output 1:	95-105%
Load Regulation (10-100% load change)	Output 1: Output 2: (4006, 7 Models) (4002, 3 Models) Output 3: Output 4:	0.5% 6.0% 5.0% 10.0% 5.0% 5.0%
Source Regulation	Outputs 1 – 4:	0.5%
Cross Regulation	Outputs 2 – 4:	4.0%
Output Noise		
Source Freq.	Outputs 1 – 4:	0.5%
Switching Freq.	Outputs 1 – 4:	1.0%
Total (20MHz)	Outputs 1 – 4:	1.0%
Turn On Overshoot		None
Transient Response	Outputs 1 – 4	
Voltage Deviation		5.0%
Recovery time		500µS
Load change		50% to 100%
Output Overvoltage Protection (optional)	Output 1:	110% to 150%
Output Overpower Protection		135 Watts min. outputs cycle on/off, auto recovery
Hold Up Time		16 mS min., 110W Output, 85V Input
Start Up Time		4 Seconds

Input Specifications

Source Voltage	85 – 264 Volts AC
Frequency Range	47 – 63 Hz
Peak Inrush Current	40A
Efficiency	82% Typical, 110W, 230V, varies by model
Power Factor	0.95 (110 W, 230 V)

Environmental Specifications

Ambient Operating Temperature Range	0° C to +70° C Derating: See Power Rating Chart
Ambient Storage Temperature Range	-40° C to +85° C
Temperature Coefficient	Outputs 1 – 4: 0.02%/°C
Vibration	MIL-STD-810E, Method 514.4, Category 1
Shock	Transit Drop per MIL-STD-810E, Method 516.4, Procedure IV

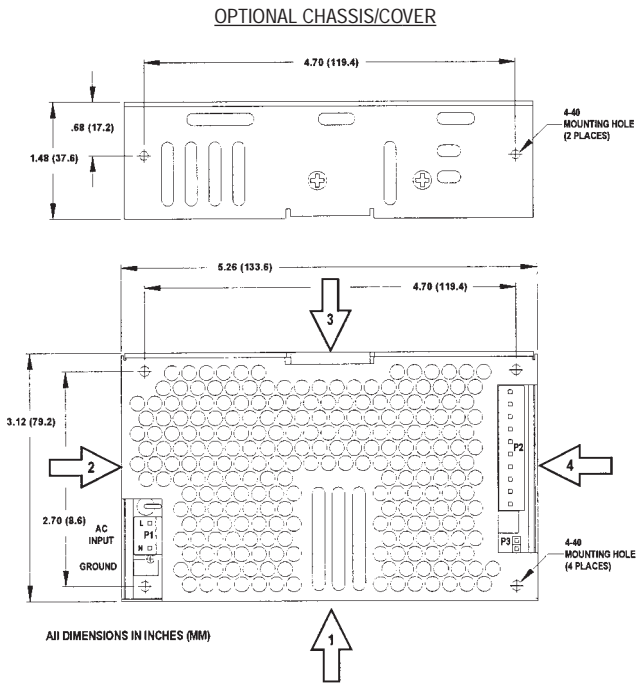
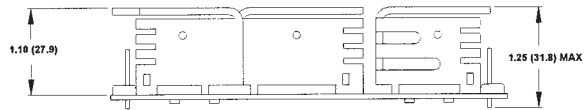
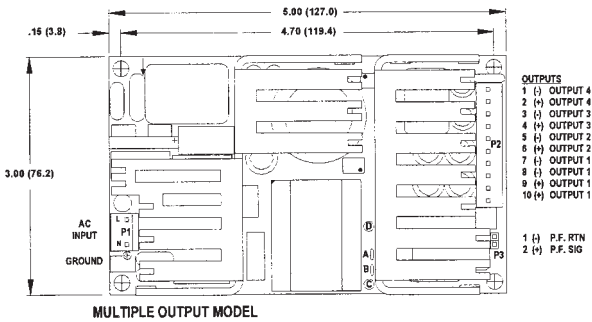
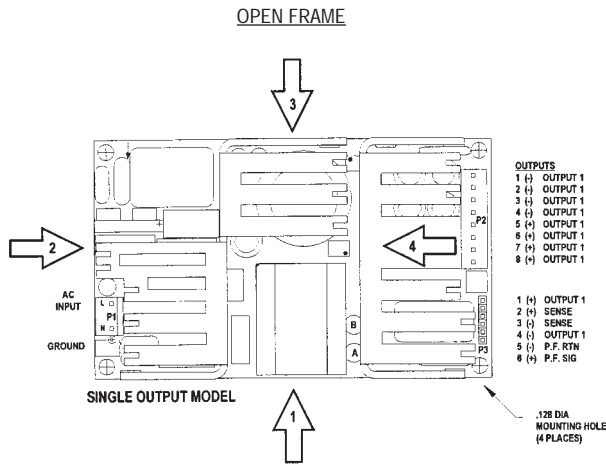
General Specifications

Dielectric Strength	4250 VDC, Primary to Secondary, 1 Sec. 2150 VDC, Primary to Ground, 1 Sec. 500 VDC, Secondary to Ground, 1 Sec.
Leakage Current	<1.0mA Earth Leakage Current, N.C.
Power Fail Signal (optional)	Logic low with input power failure 10 mS minimum prior to Output 1 drooping 1%
Remote Sense (singles only)	250mV compensation of output cable losses
Mean-Time Between Failures	100,000 Hours min., MIL-HDBK-217F, 25° C, GB
Weight	0.80 Lbs. Open Frame 1.28 Lbs. Chassis and Cover

Electromagnetic Compatibility Specifications

Electrostatic Discharge	EN 61000-4-2	6kV Contact Discharge 8kV Air Discharge
Radiated Electromagnetic Field	EN 61000-4-3	3V/m, 26-1000 MHz, 80% AM
EFT/Bursts	EN 61000-4-4	2kV, 5kHz
Surges	EN 61000-4-5	1kV Differential Mode 2kV Common Mode
Conducted Immunity	EN 61000-4-6	3V/m, 150KHz-80MHz, 80% AM
Voltage Dips	EN 61000-4-11	30% Reduction, 10 Periods >95% Reduction, 0.50 periods
Voltage Interruptions	EN 61000-4-11	95% Reduction, 250 Periods
Radiated Emissions	EN 55022	Class B
Conducted Emissions	EN 55022	Class B
Harmonic Current Emissions	EN 61000-3-2	Class D
Voltage Fluctuations and Flicker	EN 61000-3-3	

All specifications are maximum at 25° C unless otherwise stated and are subject to change without notice.

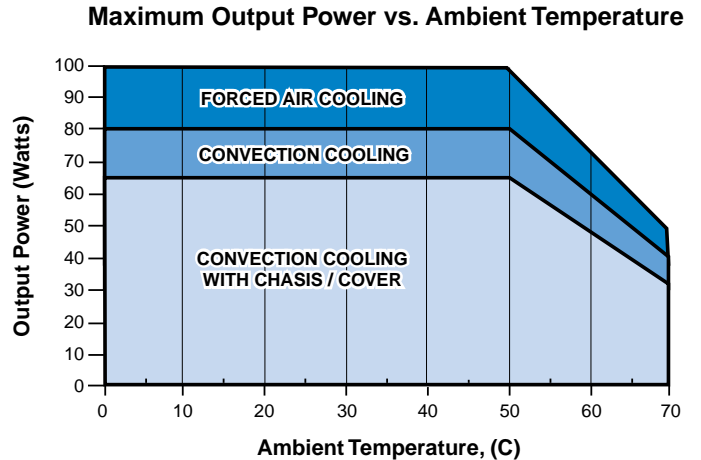


Recommended Air Flow Direction



- Rated 8A maximum with convection cooling.
- Rated 16A maximum with convection cooling.
- Total power must not exceed 80 watts with convection cooling on open frame models except where noted.
- Total power must not exceed 110 watts with 300 LFM forced air cooling on open frame models.
- Total power must not exceed 65 watts with convection cooling and chassis/cover option.
- Total power must not exceed 110 watts with 300 LFM forced air cooling and chassis/cover option.
- Total current from Outputs 3 & 4 must not exceed 3 amps with convection cooling.
- Total current from Outputs 1 & 2 must not exceed 12 amps with convection cooling.
- Semiconductor cases temperature must not exceed 110°C.
- Each output can deliver its rated current but total output power must not exceed maximum power as determined by the cooling method as stated above.
- Sufficient area must be provided around convection cooled power supplies to allow natural movement of air to develop.
- 300 linear feet per minute of airflow must be maintained one inch above any point of the heatsink in the direction shown when forced air cooling is required.
- This product is intended for use as a professionally installed component within information technology equipment.
- A minimum load of 10% is required on output one to ensure proper regulation of remaining outputs.
- Remote sense terminals may be used to compensate for cable losses up to 250mV (single output models only). The use of a twisted pair is recommended as well as a decoupling capacitor (0.1 - 10µF) and a capacitor of 100µF/amp connected across the load side.
- Peak to peak output ripple and noise is measured directly at the output terminals of the power supply, without the use of the probe ground lead or retractable tip, 20 MHz bandwidth.
- This power supply has been safety approved and final tested using a DC dielectric strength test. Please consult factory before performing an AC dielectric strength test.
- Maximum screw penetration into bottom chassis mounting holes is .100 inches.
- Maximum screw penetration into side chassis mounting holes is .250 inches.
- To meet emissions specifications, all four mounting hole ground pads must be electrically connected to a common metal chassis.

Maximum Output Power vs. Ambient Temperature



Connector Specifications

P1	AC Input	.156 friction lock header mates with Molex 09-50-3031 or equivalent crimp terminal housing with Molex 2478 or equivalent crimp terminal.
P2	DC Output (Single)	.156 friction lock header mates with Molex 09-50-3081 or equivalent crimp terminal housing with Molex 2478 or equivalent crimp terminal.
P2	DC Output (Multiple)	.156 friction lock header mates with Molex 09-50-3101 or equivalent crimp terminal housing with Molex 2478 or equivalent crimp terminal.
G	Ground	.187 quick disconnect terminal.
P3	Option/Sense (Single)	.100 breakaway header mates with Molex 50-57-9002 or equivalent crimp terminal housing with Molex type 71851 or equivalent crimp terminal.
P3	Option/Sense (Multiple)	.100 breakaway header mates with Molex 50-57-9006 or equivalent crimp terminal housing with Molex type 71851 or equivalent crimp terminal.