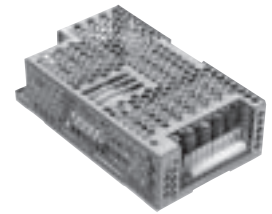


Description:

- High Efficiency
- Advanced SMT Design
- Universal 85-264VAC Input
- Compact 3" x 5" x 1.3" Size
- Fits 1U Applications
- Optional Chassis and Cover
- EMC Immunity Compliance to EN 61000-6-2, EN 60601-1-2
- EMC Emissions Compliance to EN 55011/22, Class B
- Safety Certified to EN 60950, EN 60601-1-2
- Harmonic Current per EN 61000-3-2



Open Frame



Chassis Cover

OUTPUT SPECIFICATIONS

Total Output Power at 50°C	80W	Convection Cooled
	110W	300 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: (4001-5 Models) (2001 Model) Output 3: Output 4:	0.5% 5.0% 8.0% 6.0% 5.0% 5.0%
Source Regulation	Outputs 1 – 4:	0.5%
Cross Regulation	Outputs 2 – 4:	5.0%
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	Output 1:	110% to 150%
Output Overpower Protection		110-160% rated Pout, cycle on/off, auto recovery
Hold Up Time		16 mS min., Full Power, 85V Input
Start Up Time		4 Seconds, 120 V Input

INPUT SPECIFICATIONS

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

ENVIRONMENTAL SPECIFICATIONS

Ambient Operating	0° C to + 70° C
Temperature Range	Derating: See Power Rating Chart
Ambient Storage Temp. 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	5656 VDC, Primary to Secondary, 1 Sec. 2121 VDC, Primary to Ground, 1 Sec. 707 VDC, Secondary to Ground, 1 Sec.
Leakage Current	<300µA Earth Leakage Current <100µA Patient Leakage Current
Power Fail Signal	Logic low with input power failure 10mS minimum prior to Output 1 dropping 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

MODEL LISTING

MODEL NO.	OUTPUT 1 (w)	OUTPUT 2 (w)	OUTPUT 3 (w)	OUTPUT 4 (w)
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			

ELECTROMAGNETIC COMPATIBILITY SPECIFICATIONS

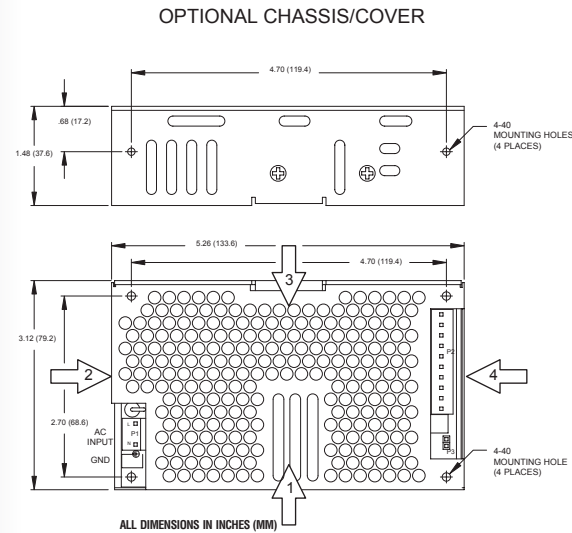
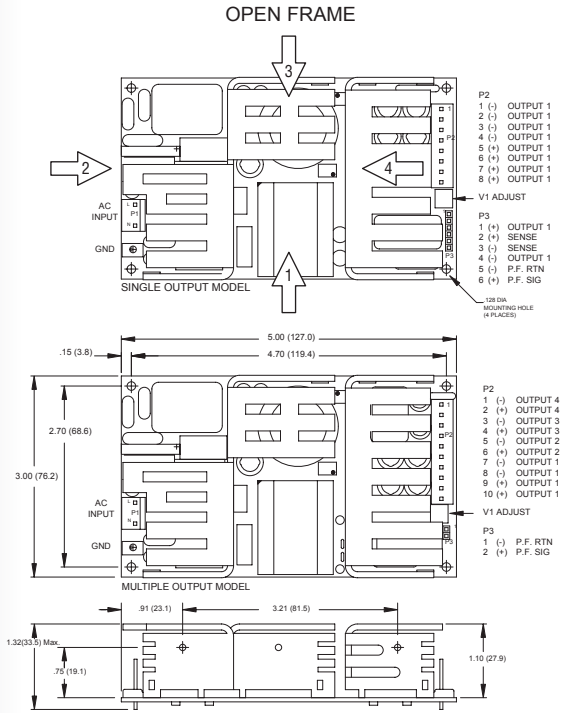
Electrostatic Discharge	EN 61000-4-2	± 4kV Contact Discharge ± 8kV Air Discharge
Radiated Electromagnetic Field	EN 61000-4-3	26–1000 MHz, 10V/M, 80% AM
EFT/Bursts	EN 61000-4-4	± 2 kV
Surges	EN 61000-4-5	± 2 kV Line to Earth ± 1 kV Line to Line
Conducted Immunity	EN 61000-4-6	.15 to 80MHz, 10V, 80% AM
Voltage Dips	EN 61000-4-11	95% Dip, 10ms 30% Dip, 500ms
Voltage Interruptions	EN 61000-4-11	95% Reduction, 5s
Radiated Emissions	EN 55022/11	Class B
Conducted Emissions	EN 55022/11	Class B
Harmonic Current Emissions	EN 61000-3-2	Class A
Voltage Fluctuations and Flicker	EN 61000-3-3	

SAFETY SPECIFICATIONS

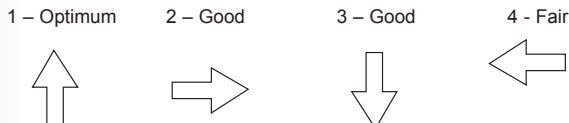
Underwriters Laboratories File E137708	UL 60950 Third Edition UL 2601-1 Second Edition CB Report per IEC 60950(1999) Third Edition including all National Deviations CB Report per IEC 60601-1(1988) Second Edition A1, A2
UL Recognition Mark For Canada File E137708	CAN/CSA-C22.2 No. 60950-00 CAN/CSA-C22.2 No. 601-1-M90
TUV	EN 60950/2000 EN 60601-1/A2:1995
	Low Voltage Directive

- 110 Watt Medical / ITE Approved Power Supply
- 1-4 Outputs ranging from 3.3-48 VDC

REL-110 SERIES MECHANICAL SPECIFICATIONS



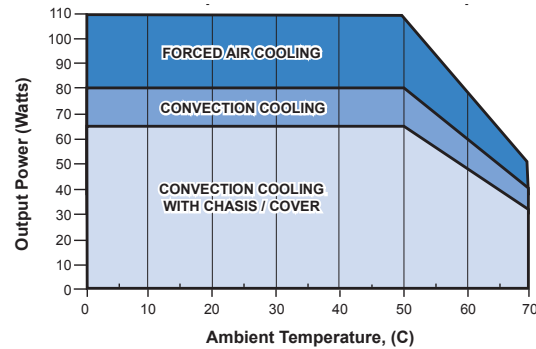
RECOMMENDED AIR FLOW DIRECTION



APPLICATIONS INFORMATION

1. Rated 8A maximum with convection cooling.
2. Rated 16A maximum with convection cooling.
3. Total power must not exceed 80 watts with convection cooling on open frame models except where noted.
4. Total power must not exceed 110 watts with 300 LFM forced air cooling on open frame models.
5. Total power must not exceed 65 watts with convection cooling and chassis/cover option.
6. Total power must not exceed 110 watts with 300 LFM forced air cooling and chassis/cover option.
7. Total current from Outputs 3 & 4 must not exceed 3 amps with convection cooling.
8. Total current from Outputs 1 & 2 must not exceed 12 amps with convection cooling.
9. Semiconductor case temperatures must not exceed 110°C.
10. Each output can deliver its rated current but total output power must not exceed maximum power as determined by the cooling method stated above.
11. Sufficient area must be provided around convection cooled power supplies to allow natural movement of air to develop.
12. 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.
13. This product is intended for use as a professionally installed component within information technology and medical equipment.
14. A minimum load of 10% is required on output one to ensure proper regulation of remaining outputs.
15. 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.
16. 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.
17. 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.
18. Maximum screw penetration into bottom chassis mounting holes is .100 inches.
19. Maximum screw penetration into side chassis mounting holes is .250 inches.
20. To meet emissions specifications, all four mounting hole ground pads must be electrically connected to a common metal chassis. Chassis/cover option recommended.

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	P.F./Sense (Single)	.100 breakaway header mates with Molex 50-57-9006 or equivalent crimp terminal housing with Molex type 71851 or equivalent crimp terminal.
P3	P.F./Sense (Multiple)	.100 breakaway header mates with Molex 50-57-9002 or equivalent crimp terminal housing with Molex type 71851 or equivalent crimp terminal.