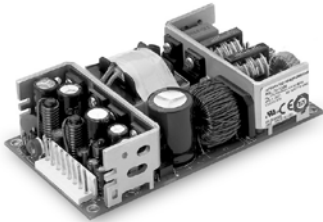


70 WATTS

REL-70 SERIES AC-DC

FEATURES:

- RoHS Compliant
- Universal 85-264 VAC Input
- High Efficiency
- Advanced SMT Design
- Compact 2.5 x 4.5" x 1.2" Size
- 2 Year Warranty
- Fits 1U Applications
- EN 60950-1 ITE Certification
- EN 60601-1 Medical Certification
- Class B Emissions per EN 55011/22
- Harmonic Current per EN 61000-3-2
- EMC to EN 61000-6-2 & EN 60601-1-2
- Optional Chassis and Cover
- One to Four Outputs



OPEN FRAME



CHASSIS/COVER

SAFETY SPECIFICATIONS

| | |
|---------|--|
| General | Protection Class: I |
| | Overvoltage Category: II |
| | Pollution Degree: 2 |
| | Underwriters Laboratories File E137708/E140259 |
| | UL 60950-1 2 nd Edition, 2007 UL 60601-1 1 st Edition, 2006 AAMI/ANSI ES 60601-1, 2005 |
| | UL Recognition Mark for Canada File E137708/E140259 |
| | TUV |
| | Low Voltage Directive (2006/95/EC of December 2006) RoHS Directive (Recast) (2011/65/EU of June 2011) |

MODEL LISTING

| MODEL NO. | OUTPUT 1 | OUTPUT 2 | OUTPUT 3 | OUTPUT 4 |
|-------------|-------------------------|----------|------------------------|-------------------------|
| REL-70-4001 | +3.3V/6A | +5V/5A | +12V/2A ₍₇₎ | -12V/2A ₍₇₎ |
| REL-70-4002 | +5V/6A | +3.3V/5A | +12V/2A ₍₇₎ | -12V/2A ₍₇₎ |
| REL-70-4003 | +5V/6A | +3.3V/5A | +15V/2A ₍₇₎ | -15V/2A ₍₇₎ |
| REL-70-4004 | +5V/6A | -5V/5A | +12V/2A ₍₇₎ | -12V/2A ₍₇₎ |
| REL-70-4005 | +5V/6A | -5V/5A | +15V/2A ₍₇₎ | -15V/2A ₍₇₎ |
| REL-70-4006 | +5V/6A | +24V/2A | +12V/2A ₍₇₎ | -12V/2A ₍₇₎ |
| REL-70-4007 | +5V/6A | +24V/2A | +15V/2A ₍₇₎ | -15V/2A ₍₇₎ |
| REL-70-4009 | 6.7V/5A | 5V/4A | +15V/2A ₍₇₎ | -15V/2A ₍₇₎ |
| REL-70-3001 | +5V/6A | +12V/2A | | -12V/2A ₍₇₎ |
| REL-70-3002 | +5V/6A | +15V/2A | | -15V/2A ₍₇₎ |
| REL-70-3003 | +5.1V/6A | +7.5V/2A | | -7.5V/2A ₍₇₎ |
| REL-70-3004 | +3.3V/6A | +7V/5A | +12V/2A ₍₇₎ | |
| REL-70-2001 | +3.3V/6A | +5V/5A | | |
| REL-70-2002 | +5V/6A | +12V/4A | | |
| REL-70-2003 | +5V/6A | +24V/2A | | |
| REL-70-2004 | +12V/3A | -12V/3A | | |
| REL-70-2005 | +15V/3A | -15V/2A | | |
| REL-70-2006 | +5.5V/6A | -5.5V/5A | | |
| REL-70-1001 | 2.5V/14A ₍₁₎ | | | |
| REL-70-1002 | 3.3V/14A ₍₁₎ | | | |
| REL-70-1003 | 5V/14A ₍₁₎ | | | |
| REL-70-1004 | 12V/5.8A | | | |
| REL-70-1005 | 15V/4.7A | | | |
| REL-70-1006 | 24V/2.9A | | | |
| REL-70-1007 | 28V/2.5A | | | |
| REL-70-1008 | 48V/1.5A | | | |

OUTPUT SPECIFICATIONS

| | | |
|-------------------------------|--|---------------------------|
| Total Output Power at 50°C | 50W | Convection Cooled |
| | 70W | Forced Air Cooled |
| Output Voltage Centering | Output 1: ± 0.5% | (All outputs at 50% load) |
| | Output 2,3,4: ± 5.0% | |
| Output Voltage Adjust Range | Output 1: 95 - 105% | |
| Load Regulation | Output 1: 0.5% | (10-100% load change) |
| | Output 2: 5.0% | |
| | (4001-5) 8.0% | |
| | (2001) 8.0% | |
| | Output 3: 5.0% | |
| | Output 4: 5.0% | |
| Source Regulation | Outputs 1 - 4: 0.5% | |
| Cross Regulation | Outputs 2 - 4: 5.0% | |
| Output Noise | 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, 120V Input | |

INPUT SPECIFICATIONS

| | |
|---------------------|---|
| Source Voltage | 85 - 264 Volts AC |
| Frequency Range | 47 - 63 Hz |
| Peak Inrush Current | 40A |
| Efficiency | 78% 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 |

GENERAL SPECIFICATIONS

| | |
|-------------------------------------|--|
| Means of Protection | |
| Primary to Secondary | 2MOPP (Means of Patient Protection) |
| Primary to Ground | 1MOPP (Means of Patient Protection) |
| Secondary to Ground | Operational Insulation(Consult factor for 1MOOP or 1 MOPP) |
| Dielectric Strength ₍₁₄₎ | |
| Reinforced Insulation | 5656 VDC, Primary to Secondary, 1 Sec. |
| Basic Insulation | 2545 VDC, Primary to Ground, 1 Sec. |
| Operational Insulation | 707 VDC, Secondary to Ground, 1 Sec. |
| Leakage Current | |
| Earth Leakage | <300uA NC, <1000uA SFC |
| Touch Current | <100uA NC, <500uA SFC |
| Power Fail Signal | Logic low with input power failure 10 mS 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 | 0.60 Lbs. Open Frame 1.00 Lbs. Chassis and Cover |

ELECTROMAGNETIC COMPATIBILITY SPECIFICATIONS

| | | |
|----------------------------------|---------------|---|
| Electrostatic Discharge | EN 61000-4-2 | +/-8kV Contact Discharge +/-8kV Air Discharge |
| Radiated Electromagnetic Field | EN 61000-4-3 | 80MHz-2.5GHz, 10/m, 80% AM |
| EFT/Bursts | EN 61000-4-4 | +/-2 kV |
| Surges | EN 61000-4-5 | +/- 1 kV Common Mode +/- 2 kV Differential Mode |
| Conducted Immunity | EN 61000-4-6 | .15 to 80MHz, 10V, 80% AM |
| Voltage Dips and Interruptions | EN 61000-4-11 | 30% Reduction, 500ms 95% Reduction, 10ms 60% Reduction, 1s (Criteria B) 95% Reductions, 5000ms |
| Voltage Interruptions | EN 61000-4-11 | 95% Reduction, 5s |
| Radiated Emissions | EN 55011/22 | Class B |
| Conducted Emissions | EN 55011/22 | Class B |
| Harmonic Current Emissions | EN 61000-3-2 | |
| Voltage Fluctuations and Flicker | EN 61000-3-3 | |

NOTES

Consult factory for alternate output configurations.
 Consult factory for positive, negative or floating outputs.
 Refer to Applications Information for complete output power ratings.
 All specifications are maximum at 25° C, 110W unless otherwise stated, may vary by model and are subject to change without notice.
 Specify optional chassis and cover when ordering.

ALL PSU LTD

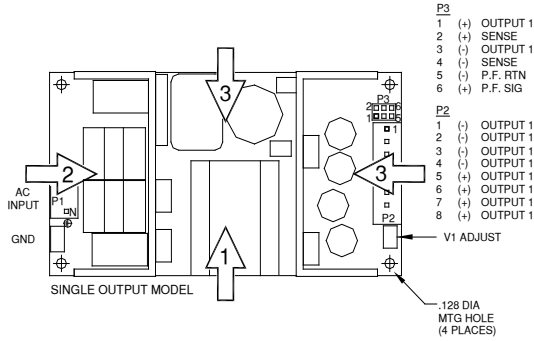
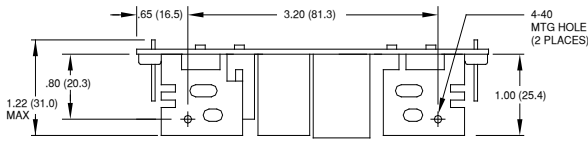
Unit D6 Laser Quay | Culpeper Close | Medway City Estate | Rochester | Kent

ME2 4HU Tel : 01634 725527 | Fax : 01634 739111

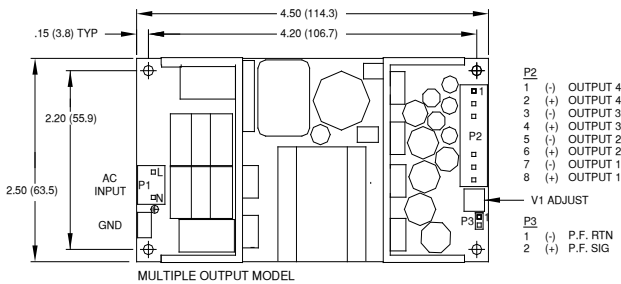
Email : sales@allpsu.co.uk | Web : www.allpsu.co.uk

REL-70 MECHANICAL SPECIFICATIONS

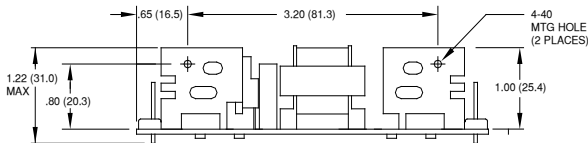
OPEN FRAME



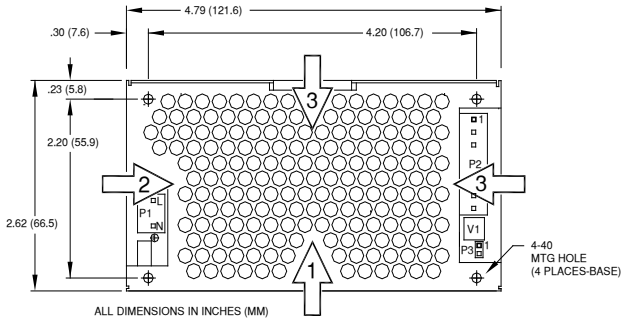
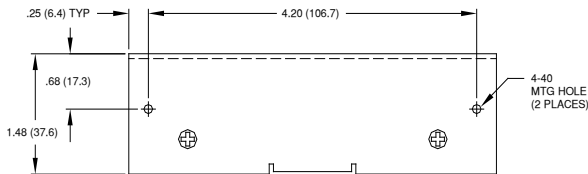
- P3**
- 1 (-) OUTPUT 1
 - 2 (+) SENSE
 - 3 (-) OUTPUT 1
 - 4 (-) SENSE
 - 5 (-) P.F. RTN
 - 6 (+) P.F. SIG
- P2**
- 1 (-) OUTPUT 1
 - 2 (-) OUTPUT 1
 - 3 (-) OUTPUT 1
 - 4 (-) OUTPUT 1
 - 5 (+) OUTPUT 1
 - 6 (+) OUTPUT 1
 - 7 (-) OUTPUT 1
 - 8 (+) OUTPUT 1
- V1 ADJUST



- P2**
- 1 (-) OUTPUT 4
 - 2 (+) OUTPUT 4
 - 3 (-) OUTPUT 3
 - 4 (+) OUTPUT 3
 - 5 (-) OUTPUT 2
 - 6 (+) OUTPUT 2
 - 7 (-) OUTPUT 1
 - 8 (+) OUTPUT 1
- V1 ADJUST
- P3**
- 1 (-) P.F. RTN
 - 2 (+) P.F. SIG



OPTIONAL CHASSIS/COVER



ALL DIMENSIONS IN INCHES (MM)

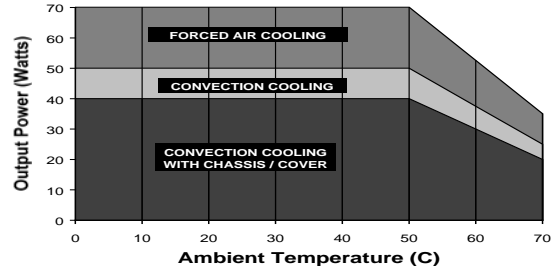
Recommended Air Flow Direction

- 1 - Optimum
- 2 - Good
- 3 - Fair

APPLICATIONS INFORMATION

1. Rated 10A with convection cooling.
2. Total power must not exceed 50 watts with convection cooling on open frame models.
3. Total power must not exceed 70 watts with 300LFM forced air cooling on open frame models.
4. Total power must not exceed 40 watts with convection cooling and chassis/cover option.
5. Total power must not exceed 70 watts with 300LFM forced air cooling and chassis/cover option.
6. Each output can deliver its rated current but total output power must not exceed maximum power as determined by the cooling method stated above.
7. Rated 1.5 A with convection cooling.
8. Sufficient area must be provided around convection cooled power supplies to allow natural movement of air to develop.
9. 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.
10. This product is intended for use as a professionally installed component within information technology and medical equipment.
11. A minimum load of 10% is required on output one to ensure proper regulation of remaining outputs.
12. 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.
13. 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.
14. This product was type tested and safety certified using the dielectric strength test voltages listed in Table 6 of IEC 60601-1:2005. In consideration of Clause 8.8.3, care must be taken to insure that the voltage applied to a reinforced insulation does not overstress different types and levels of insulation. Primary and secondary to ground capacitors may need to be disconnected prior to performing a dielectric strength test on the power supply or the end product. It is highly recommended that the DC test voltages listed in DVB.1, Annex DVB of UL 60601-1 1st Edition are not exceeded during a production-line dielectric strength test of the assembled end product. Please consult factory for further information.
15. 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.
16. Maximum screw penetration into bottom chassis mounting holes is .100 inches.
17. Maximum screw penetration into side chassis mounting holes is .250 inches.
18. To meet emissions specifications, all four mounting hole pads must be electrically connected to a common metal chassis. Chassis/cover option recommended.
19. This product includes only one fuse in the input circuit. In consideration of Clause 8.11.5 of IEC 60601-1:2005, a second fuse may be required in the end product.

MAXIMUM Output Power vs. Ambient Temperature



Connector Specifications

| | | |
|----|-----------------------|--|
| P1 | AC Input | .156 friction lock header mates with Tyco 640250-3 or equivalent crimp terminal housing with Tyco 3-640706-1 or equivalent crimp terminal. |
| P2 | DC Output (Single) | .156 friction lock header mates with Tyco 770849-8 or equivalent crimp terminal housing with Tyco 3-640707-1 or equivalent crimp terminal. |
| P2 | DC Output (Multiple) | .156 friction lock header mates with Tyco 770849-8 or equivalent crimp terminal housing with Tyco 3-640707-1 or equivalent crimp terminal. |
| G | Ground | .187 quick disconnect terminal. |
| P3 | P.F./Sense (Single) | .100 breakaway header mates with Molex 22-55-2061 or equivalent crimp terminal housing with Molex type 71851 or equivalent crimp terminal. |
| P3 | Power Fail (Multiple) | .100 breakaway header mates with Molex 50-57-9002 or equivalent crimp terminal housing with Molex type 71851 or equivalent crimp terminal. |