



OPERATING INSTRUCTIONS

SAFETY WARNINGS

This switching power supply has hazardous external and internal voltages. It should be handled, tested and installed only by qualified technical persons trained in the use of power supplies and well aware of the hazards involved. AC input terminals are at hazardous voltage potentials. Do not touch them when AC power is applied. Internal voltages are at hazardous potentials; the power supply cover should not be removed.

UNPACKING AND INSPECTION

This power supply was carefully tested, inspected and packaged for shipment from our factory. Upon receipt of the unit it should be carefully unpacked and inspected for any damage in shipment. The final acceptance test report is included with each power supply. If there is evidence of damage, do not attempt to test the unit. The freight carrier should be notified immediately and a claim for the cost of the power system filed with the carrier for direct reimbursement. Be sure to include model and serial number of the damaged unit in all correspondence with the freight carrier. Also, save the shipping carton and packing materials as evidence of damage for the freight carrier's inspection. UNIPOWER Corporation will cooperate fully in case of a shipping damage investigation.

INSTALLATION

Mounting and Cooling. The power supply is mounted by means of threaded mounting inserts in the mounting surface. For location, see the mechanical diagram. To insure proper cooling, the power supply requires a minimum clearance of 1 inch (25mm) between all air intakes and outlets, and other surfaces.

Input Connections. Connect AC power input leads to the input barrier terminal strip with proper connection made to line, neutral and safety ground terminals. The ground terminal must be connected to safety ground to minimize electrical shock hazard and ensure low EMI (electromagnetic interference). For units without autorange input, make sure the 120/220-240 VAC jumper is in the proper position for the input voltage used. Operating with the jumper in the wrong position may damage the supply, and this damage is not covered by the warranty.

Output Connections. Connections to the outputs must be secure with clean wires or lugs to reduce contact resistance. The wires must be sized to carry rated output current plus 30%.

POWER SUPPLY SETUP AND TESTING

Connect AC power input leads to the AC input barrier terminal strip but do not plug in yet. Connect remote sense leads, with proper polarity, to each output on the front panel of the power supply. Make sure the Inhibit input and any Margin inputs are all open or TTL HI. For models without No Load Operation feature, make sure there is a minimum 10% load on the output. Plug the AC power cord into the wall socket and measure each output voltage with a digital voltmeter to see that it is the correct value, within $\pm 1\%$ of nominal value. Unplug the AC power cord. With the AC input unplugged, connect the desired load to each output and connect the remote sense leads to the load points. Plug in the AC power cord and re-check the output voltages at the sense points with a digital voltmeter. These readings should be nearly the same as before, within the regulation specification for the outputs.

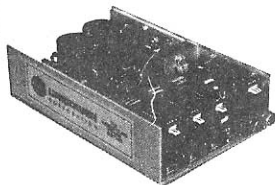
IMPORTANT INFORMATION

Input rating is 120/220-240 VAC, 50-60 Hz. Input protection is provided by an internal fuse. This fuse is not intended to be replaced in the field. Input terminals are not to be used as field wiring terminals. Clockwise rotation of the potentiometer increases output voltage. The power supply is not intended to be serviced in the field and should be returned to the manufacturer for service and repair. **CAUTION:** Do not connect the DC outputs in such a manner to provide voltages in excess of 42.4V peak, or 60 VDC. For further detailed information, refer to the Operating Manual.

X SERIES: FLEXIBLE/MODULAR

1-4 Outputs, 140-500 Watts

NEW



KEY FEATURES

- Power Density To 6W/Cu. Inch
- UNIFLEX™ Modular Construction
- Ultra-Compact: 2.1 × 5 × 8 Inches
- Wide Range Adjust. Aux. Outputs
- Two Week Prototype Delivery
- Redundant N + 1 Capability
- 12V Main Avail. On Multi Outputs
- Open Frame Or Cased Versions

OPTIONS

- Worldwide Autorange
- Class B EMI Filter
- Top-Mounted Fan With Cover
- End-Mounted Fan With Case

OTHER FEATURES

- Outputs From 2VDC To 36VDC
- Full Output Power To 50°C
- Fully Isolated Outputs
- Special Output Configurations
- Current Sharing Parallel Operation
- 130 kHz MOSFET Switching
- 70% Efficiency
- Soft Start
- Inrush Current Limiting
- Tight Regulation & Low Noise
- Overload And Overvoltage Protection
- Thermal Protection
- EMI Input Filter
- Remote Sense And Inhibit
- AC Power Fail Signal
- 24 Hour Power-Cycle Burn-In At 50°C
- Full Test Data With Each Unit
- Safety Agency Approvals
- Manufactured In U.S.A.
- Two Year Warranty

SPECIFICATIONS

Typical at Nominal Line, Full Load and 25°C Unless Otherwise Noted.

OUTPUT SPECIFICATIONS

| | |
|--------------------------------------|----------------|
| Aux. Output Voltage Adjustment | Wide Range |
| Line Regulation ¹ | ±0.2% |
| Load Regulation ² , NL-FL | 0.2% |
| Ripple and Noise ³ | 1.0% or 50mV |
| Hold-Up Time | 20 msec. |
| Dynamic Response ⁴ | 300 µsec. max. |
| Temperature Coefficient | 0.02%/°C |
| Overvoltage Protection, All Outputs | Power Shutdown |
| Remote Sense ⁵ | All Outputs |

INPUT SPECIFICATIONS

| | |
|---------------------------------------|------------------------|
| Voltage Range, (Jumper Or Auto Range) | 90 to 132 VAC |
| | 180 to 264 VAC |
| Input Frequency | 47 to 63 Hz |
| Inrush Current, Cold Start | 68A Peak, max. |
| Input EMI Filter, Conducted | FCC & VDE Class A or B |
| Input Protection | Internal Fuse |

GENERAL SPECIFICATIONS

| | |
|--|-----------|
| Efficiency ⁶ | 70%, min. |
| Switching Frequency | 130 kHz |
| Output Isolation, To Gnd & Other Outputs | ±700VDC |

ENVIRONMENTAL SPECIFICATIONS

| | |
|--------------------------------------|---|
| Operating Temp. Range, Rated Load | 0°C to 50°C |
| Derating 50°C To 70°C | 2.5%/°C |
| Storage Temperature Range | -40°C to +85°C |
| Cooling Required ⁷ , 400W | 400 LFM min. |
| 500W | 500 LFM min. |
| Vibration | Per MIL-STD 810D, Method 514-3, Cat-I, Proc I |
| Shock | Per MIL-STD 810D, Method 516-3, Proc II, IV, VI |

PHYSICAL SPECIFICATIONS

| | |
|-------------------|-------------------|
| Case Material | Aluminum |
| Dimensions | See Case Drawings |
| Weight, Standard | 3.5 lbs. (1.6kg) |
| Top Fan Cooled | 3.7 lbs. (1.7kg) |
| End Fan With Case | 4.2 lbs. (1.9kg) |

NOTES:

1. Measured over AC input range.
2. Remote sense must be connected.
3. Whichever is greater, 20MHz bandwidth.
4. 4% maximum deviation with recovery to within 1% for 25% step change at 75% rated load.
5. 0.25V maximum load cable voltage drop on all outputs.
6. For models with 5V or higher output voltages.
7. Two options with fan are available. See "Option" table.

All specifications subject to change without notice.

NOTE ON COOLING: All standard models (not Option M or N) are open frame units that require external cooling. The cooling must be 400 LFM (linear feet per minute) minimum for models rated at 400W output power or less and 500 LFM minimum for models rated at 500W output power. The direction of air flow must be from the input terminal end, through the unit, and exiting at the output terminal end of the unit. **CAUTION:** Before attempting to change the input voltage by means of the jumper, the AC power to the unit must be turned off.

STANDARD MODELS (Consult factory for non-standard configurations).

| MAX WATTS ¹ | MODEL NUMBER | MAIN OUTPUT V1 | AUX. ² OUTPUT V2 | AUX. ² OUTPUT V3 | AUX. ² OUTPUT V4 |
|------------------------|--------------|--------------------|-----------------------------|-----------------------------|-----------------------------|
| 140 | XB1000 | 2V70A | | | |
| 230 | XE9000 | 3.3V70A | | | |
| 350 | XE2000 | 5V70A | | | |
| 400 | XF3000 | 12V34A | | | |
| | XF4000 | 15V27A | | | |
| | XF5000 | 24V17A | | | |
| | XF7000 | 48V8.5A | | | |
| 400 | XF2330 | 5V60A ³ | 12V12A (5-15V) | 12V12A (5-15V) | |
| | XF2440 | 5V60A ³ | 15V10A (5-15V) | 15V10A (5-15V) | |
| 500 | XG2330 | 5V70A ³ | 12V12A (5-15V) | 12V12A (5-15V) | |
| | XG2440 | 5V70A ³ | 15V10A (5-15V) | 15V10A (5-15V) | |
| 400 | XF2332 | 5V60A ³ | 12V12A (5-15V) | 12V12A (5-15V) | 5V15A (2-6V) |
| | XF2442 | 5V60A ³ | 15V10A (5-15V) | 15V10A (5-15V) | 5V15A (2-6V) |
| | XF2335 | 5V60A ³ | 12V12A (5-15V) | 12V12A (5-15V) | 24V6A (15-36V) |
| | XF2445 | 5V60A ³ | 15V10A (5-15V) | 15V10A (5-15V) | 24V6A (15-36V) |
| 500 | XG2332 | 5V70A ³ | 12V12A (5-15V) | 12V12A (5-15V) | 5V15A (2-6V) |
| | XG2442 | 5V70A ³ | 15V10A (5-15V) | 15V10A (5-15V) | 5V15A (2-6V) |
| | XG2335 | 5V70A ³ | 12V12A (5-15V) | 12V12A (5-15V) | 24V6A (15-36V) |
| | XG2445 | 5V70A ³ | 15V10A (5-15V) | 15V10A (5-15V) | 24V6A (15-36V) |

UNIFLEX™ WIDE RANGE FIELD ADJUSTABLE OUTPUTS

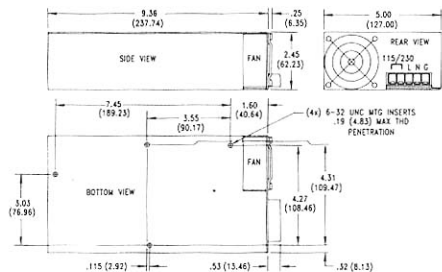
| AVAILABLE AUXILIARY OUTPUT MODELS | | |
|-----------------------------------|-----------------|------------|
| VOLTAGE RANGE, ADJ. | MAXIMUM CURRENT | MAX. WATTS |
| 2V TO 6V | 15A | 90W |
| 5V TO 15V | 12A | 150W |
| 15V TO 36V | 7A | 150W |

| OPTIONS ⁴ | |
|----------------------|---------------------------------|
| A | Autorange (115/230VAC) |
| C | Class B EMI Filter ⁴ |
| F | Current Share (All Outputs) |
| M | Top-Mounted Fan with Cover |
| N | End-Mounted Fan with Case |

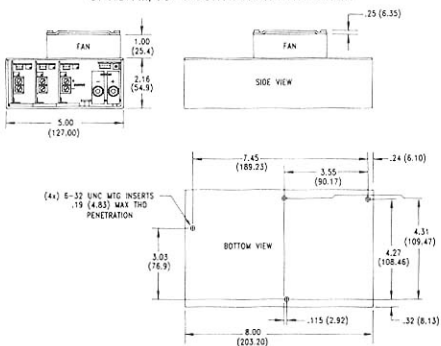
NOTES:

- Maximum continuous total output power must not exceed the maximum power rating.
- Maximum continuous auxiliary output power must not exceed the maximum power rating shown for each auxiliary output module.
- Add suffix letters to model for options.
- Available only with option N.
5. 12V main available (consult factory).

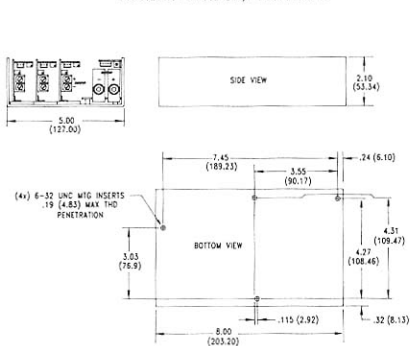
OPTION N, END-MOUNTED FAN WITH CASE



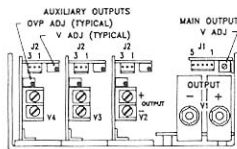
OPTION M, TOP-MOUNTED FAN WITH COVER

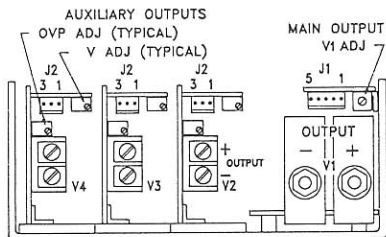


STANDARD VERSION, OPEN FRAME



| MATING PLUGS |
|---|
| All connectors have standard 25 mil. (0.6mm) square, 0.1 inch (2.5mm) center, pins. |



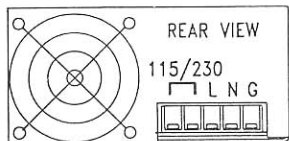


| MAIN OUTPUT CONNECTORS, J1 | |
|----------------------------|--------------------|
| PIN | FUNCTION |
| 1 | + Sense |
| 2 | - Sense |
| 3 | Power Fail |
| 4 | Current Share (CS) |
| 5 | Logic Inhibit |

| AUXILIARY OUTPUT CONNECTORS, J2 | |
|---------------------------------|--------------------|
| PIN | FUNCTION |
| 1 | + Sense |
| 2 | - Sense |
| 3 | Current Share (CS) |

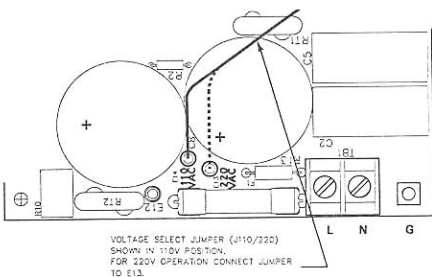
NOTE:

All Control and Supervisory Signal connectors have standard 25 mil. (0.6mm) square, 0.1 inch (2.5mm) center pins.



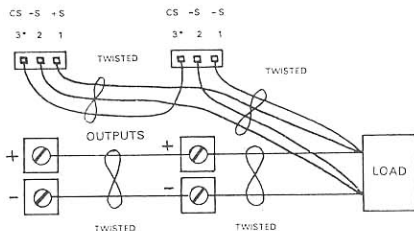
Note: For 115VAC, jumper is in. For 220-240VAC, jumper is out.

Option N



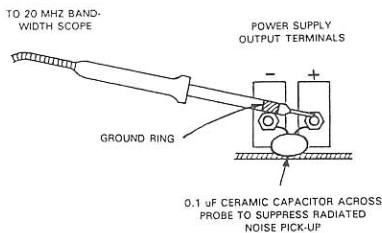
Standard Model and Option M

AC Input Connections



• Pin 3 for aux. outputs; Pin 4 for main output. Label shows correct current share pin.

Connections for Current Sharing



Output Ripple and Noise Measurement