4002A
96-W Power Supply for NIM Bins

- **Regulated DC power of ±12 V @ 2 A, and ±24 V @ 1.0 A; 117 V AC @ 0.4 A**
- **96 W of DC output up to 50°C**
- **Short-circuit and overload protected**
- **Operates from 100, 120, 220, or 240 V AC at 47 to 63 Hz**
- **Attaches to 4001A or 4001C NIM Bins**

The ORTEC Model 4002A Power Supply is designed to supply DC power to a NIM bin when the application requires ±12 V and ±24 V power. The 4002A Power Supply can be purchased separately for use with existing NIM bins, or it can be ordered attached to either a 4001A NIM Bin or a 4001C NIM Bin. The Model 4002A Power Supply is compatible with all ORTEC NIM bins, and with most standard NIM bins from other manufacturers. The 4002A Power Supply is designed to exceed recommended power supply specifications for Type 1 Class A supplies as defined in DOE/ER- 0457T.

Regulated DC power supplied to the attached bin by the 4002A is rated at +12 V @ 2 A, –12 V @ 2 A, +24 V @ 1 A, and –24 V @ 1 A. The maximum output power is 96 W at ambient temperatures up to 50°C. In addition, 117 V AC is available up to 0.43 A.

Protection against overload is provided in several ways. When the heat sink temperature exceeds 82°C, the red warning indicator is illuminated on the attached bin control panel. When the heat sink temperature exceeds 95°C, the power supply is automatically shut down, causing both the power and temperature indicator lights to turn off. Recovery from thermal overload is automatic when the thermal load is reduced. Output currents from the DC supplies are internally limited to 120% of their rated values by foldback circuits. This provides overload and short-circuit protection. Fuses protect the AC inputs to the power supply.

Designed for international use, the 4002A Power Supply can accept input voltages of 100, 120, 220, or 240 V AC at 47–63 Hz. A connector block at the rear of the 4002A is used to select the intended voltage range. The connector block also functions as a fuse holder and power cord connector. An international standard IEC power connector (CEE-22*) permits power cords and plugs that meet local electrical standards to be used for the input power. Control of the primary power is provided by the On/Off switch on the NIM bin control panel.

Connection of power and control lines to the NIM bin is provided by the standard interface connector specified in DOE/ER-0457T. Mechanical mounting of the power supply to the bin is with bolts utilizing the standard bolt pattern specified in DOE/ER-0457T.

Specifications

INPUT

Nominal Voltage (AC)	Regulation Range (V AC)
100	88–110
120	103–129
220	191–239
240	206–258

Frequency Range 47–63 Hz.

Input Current At 120 V AC is typically 1.8 A rms with a 96-W load (43% efficiency).

DC OUTPUT +12 V at 2 A, –12 V at 2 A, +24 V at 1 A, –24 V at 1 A. Combined maximum output power 96 W at +50°C. Derates to 72 W at +60°C.

117-VOLT AC OUTPUT Limited only by the supply fuse when operating from 100 or 120 V AC. Output is limited to 50 VA at 96-W DC load while operating from 220 or 240 V AC.

REGULATION <±0.05% over combined range of zero to full load and input voltage of 88% to 110% of rated input over any 24-hour period at constant ambient temperature after a 60-minute warmup.

INSTABILITY <±0.3% over a 6-month period at constant line, load, and ambient temperature after a 24-hour warmup.

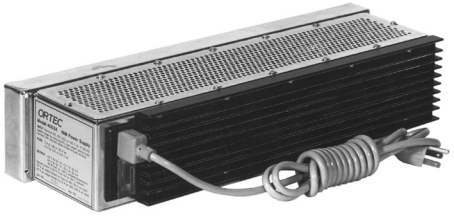
OUTPUT IMPEDANCE <0.3 Ω at any frequency up to 100 kHz.

TEMPERATURE COEFFICIENT <0.01%/°C from 0 to 60°C.

NOISE AND RIPPLE <3 mV peak-to-peak, as observed on 50-MHz bandwidth oscilloscope.

VOLTAGE ADJUSTMENT ±0.5% minimum range; resettability ±0.05% of supply voltage (typical ±1 V).





RECOVERY TIME <50 µs to return to within ±0.1% of rated voltage for any change in rated input voltage and load current from 10% to 100% of full load.

CIRCUIT PROTECTION Input power line fused. Power supply is automatically cut off by an internal switch if the temperature exceeds a maximum safe limit. Output current foldback limiting with automatic recovery when demand is removed.

Ordering Information

The Model 4002A Power Supply may be ordered separately or assembled with a NIM bin, using the model numbers shown below.

Model	Description
4001A/4002A	NIM Bin and 96-W Power Supply (with ±12 V, ±24 V)
4002A	96-W Power Supply (with ±12 V, ±24 V)

*International Commission on Rules for the Approval of Electrical Equipment, standard number 22.

DIMENSIONS AND WEIGHT

	Dimensions			Weight (approx.)	
Model	**Height**	**Width**	**Depth**	**Shipping**	**Net**
4002A Power Supply (with ±12V, ±24 V)	8.6 cm 3-3/8 in	42.9 cm 16-7/8 in	14 cm 5-1/2 in	10 kg 22 lb	6.8 kg 15 lb
4001A/4002A (Assembled)	2.22 cm 8-3/4 in	48.3 cm 19 in	40.6 cm 16 in	15.9 kg 34 lb	11.8 kg 26 lb

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Specifications subject to change
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