

**Proven
Reliability**

4000 SERIES

REGULATED HIGH VOLTAGE DC TO DC CONVERTERS

1,000 V to 33,000 VDC @ 10 Watts



PRODUCT DESCRIPTION

The 4000 Series is a line of fully adjustable DC to DC converters providing an economical source of high voltage that is ideal for CRT's, lasers, Q switches, PMT's, detectors, electron and ion guns, capacitor charging, test equipment, and many other applications. These units feature remote voltage programming, resistance programming, or manual adjustability via an externally accessible potentiometer. Short circuit protection, arc protection, and reverse polarity protection are standard as well as remote on/off and a 0 to 10 volt output voltage monitor.⁴ The 4000 Series has a built-in 10V precision reference output available. These units also feature excellent EMI/RFI shielding. Two #6-32 studs mount the supply in a three inch mounting pattern.

PRODUCT SELECTION TABLE

MODEL	OUTPUT VOLTAGE	MAXIMUM OUTPUT CURRENT*1
4010	0 to 1,000V	10 mA
4020	0 to 2,000V	5 mA
4030	0 to 3,000V	3.3 mA
4050	0 to 5,000V	2 mA
4070	0 to 7,000V	1.4 mA
4100	0 to 10,000V	1 mA
4120	0 to 12,000V	.8 mA
4150	0 to 15,000V	.67 mA
4200	0 to 20,000V	.5 mA
4300 ⁴	0 to 30,000V	.33 mA
4330 ⁴	0 to 33,000V	.30 mA

FEATURES

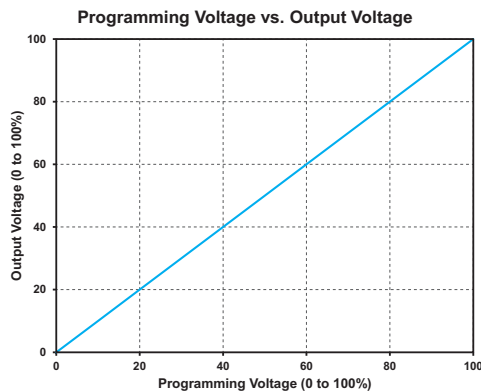
- 0 to 100% Adjustability
- Voltage Programmable: high impedance input, >100K ohm
- Voltage Monitor⁴
- Remote On/Off Control
- EMI/RFI Shielding
- Short Circuit Protection
- Reverse Polarity Protection
- Arc Protection
- RoHS Compliant

OPTIONS

- Output Connector (AMP#861753-1): Available for models 4010 – 4150

APPLICATIONS

Cathode Ray Tubes
Lasers and Q Switches
Capacitor Charging
Test Instrumentation
Electrostatic Field Generators
Electrophoresis



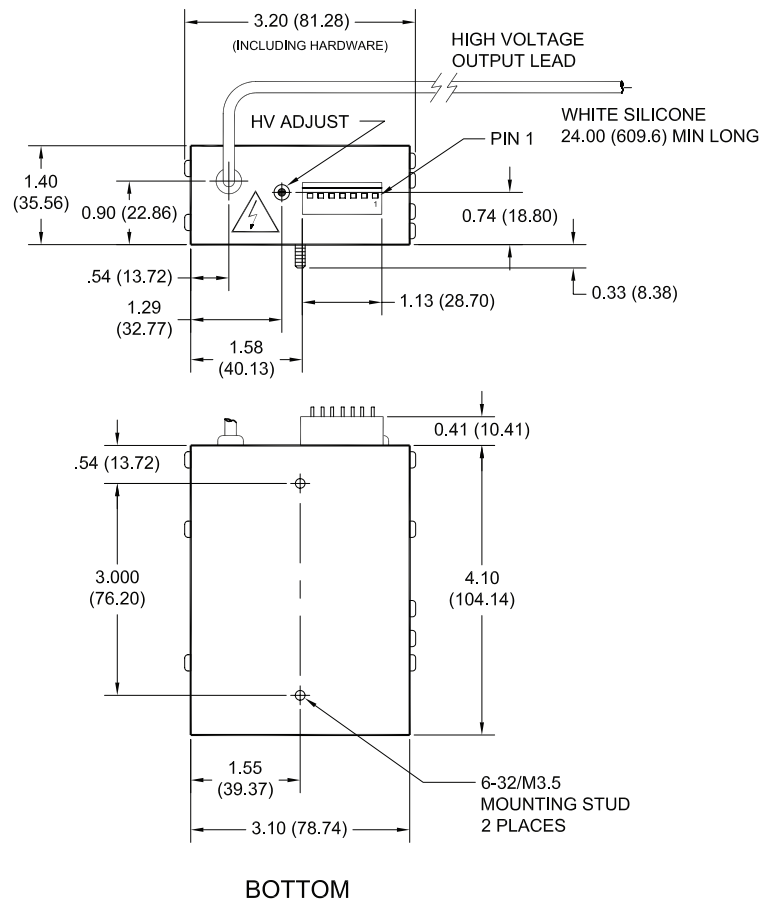
ELECTRICAL SPECIFICATIONS*2

OUTPUT VOLTAGE	MODEL	MAXIMUM OUTPUT CURRENT ¹	RIPPLE P-P ³	INPUT CURRENT	
				NO LOAD	FULL LOAD
0 to +1,000V	4010	10 mA	0.1%	<100 mA	<1.0 A
0 to -1,000V	4010N	10 mA	0.1%	<100 mA	<1.0 A
0 to +2,000V	4020	5 mA	0.1%	<100 mA	<1.0 A
0 to -2,000V	4020N	5 mA	0.1%	<100 mA	<1.0 A
0 to +3,000V	4030	3.3 mA	0.2%	<130 mA	<1.0 A
0 to -3,000V	4030N	3.3 mA	0.2%	<130 mA	<1.0 A
0 to +5,000V	4050	2 mA	0.1%	<150 mA	<1.0 A
0 to -5,000V	4050N	2 mA	0.1%	<150 mA	<1.0 A
0 to +7,000V	4070	1.4 mA	0.1%	<160 mA	<1.0 A
0 to -7,000V	4070N	1.4 mA	0.1%	<160 mA	<1.0 A
0 to +10,000V	4100	1 mA	0.1%	<175 mA	<1.0 A
0 to -10,000V	4100N	1 mA	0.1%	<175 mA	<1.0 A
0 to +12,000V	4120	.8 mA	0.1%	<190 mA	<1.0 A
0 to -12,000V	4120N	.8 mA	0.1%	<190 mA	<1.0 A
0 to +15,000V	4150	.67 mA	0.1%	<190 mA	<1.0 A
0 to -15,000V	4150N	.67 mA	0.1%	<190 mA	<1.0 A
0 to +20,000V	4200	.5 mA	0.2%	<230 mA	<1.0 A
0 to -20,000V	4200N	.5 mA	0.2%	<230 mA	<1.0 A
0 to +30,000V	4300	.33 mA	0.4%	<270 mA	<1.0 A
0 to -30,000V	4300N	.33 mA	0.4%	<270 mA	<1.0 A
0 to +33,000V	4330	.30 mA	0.2%	<400 mA	<1.0 A
0 to -33,000V	4330N	.30 mA	0.2%	<400 mA	<1.0 A

ELECTRICAL SPECIFICATIONS*2

PARAMETER	VALUE
INPUT VOLTAGE	+24 Volts (+20%- 5%)
OUTPUT VOLTAGE	See Table
OUTPUT CURRENT	See Table
PROGRAMMING VOLTAGE	0 to 10 Volts=0 to 100% Output=(+/-1%)
VOLTAGE MONITOR ⁴	0 to 10 Volts=0 to 100% Output=(+/-3%)
ON/OFF CONTROL	On=0 Volts
	Off=5 Volts
REFERENCE OUTPUT	10 Volts ($\pm 0.5\%$)
OPERATING TEMPERATURE	-10 to +60°C ⁵ (Case)
STORAGE TEMPERATURE	-20 to +90°C
LOAD REGULATION	<1.0%
LINE REGULATION	<0.50%
FREQUENCY	25-100kHz
TEMPCO	<200ppm/degC

MECHANICAL SPECIFICATIONS 4010-4200 (1,000 V to 20,000 V)

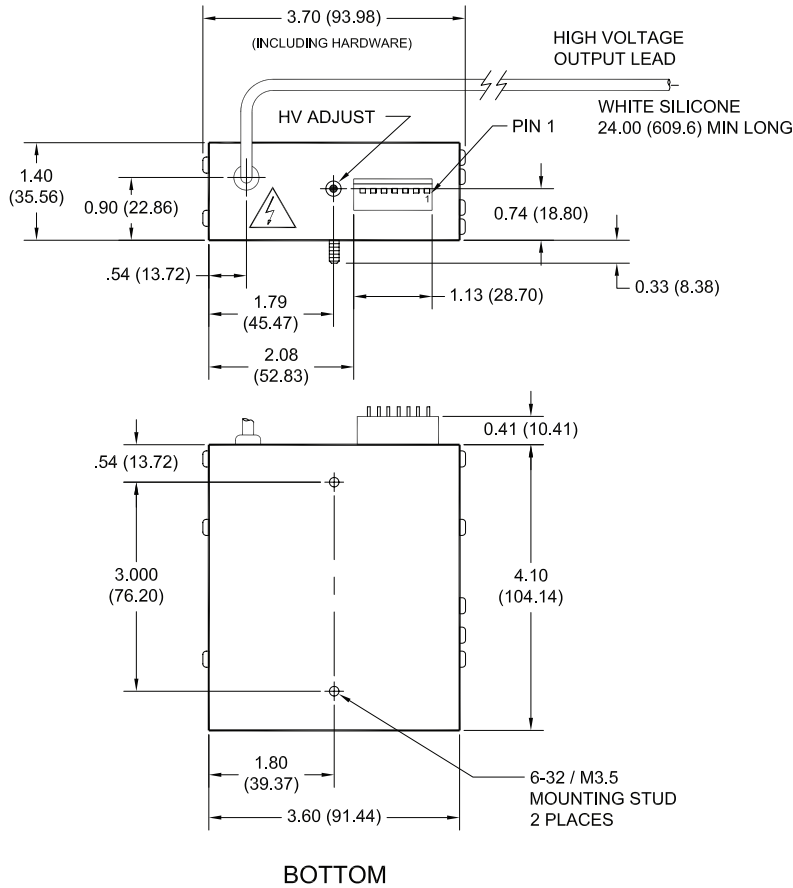


DIMENSIONS ARE IN INCHES (METRIC EQUIVALENTS ARE IN PARENTHESIS)
 DIMENSIONAL TOLERANCES: .XX = ± 0.02 (0.51), .XXX = ± 0.005 (0.127)

PARAMETER	VALUE
WEIGHT	1.5 POUND (0.675 KG.) APPROX.
VOLUME	2.25 IN ³ (36.87 CM ³)
DIMENSIONS	4.1 IN (104CM) X 3.1 IN (78.7CM) X 1.4 IN (35.56CM)
CASE MATERIAL	BLACK ANODIZED ALUMINUM
INPUT CONNECTOR	MOLEX HEADER 09-75-2074
MATING CONNECTOR	MOLEX CRIMP TERMINAL HOUSING 09-50-3071 (SUPPLIED)
MOLEX CRIMP TERMINALS	08-50-0106 (SUPPLIED)
HV LEAD	30KV 22 AWG

PIN #	FUNCTION
1	ON-OFF CONTROL
2	GROUND/CASE
3	+24 VOLT INPUT
4	10 VOLT REFERENCE OUTPUT
5	PROGRAMMING VOLTAGE
6	INTERNAL POTENTIOMETER
7	VOLTAGE MONITOR

MECHANICAL SPECIFICATIONS 4300-4330 (30,000 V to 33,000 V)

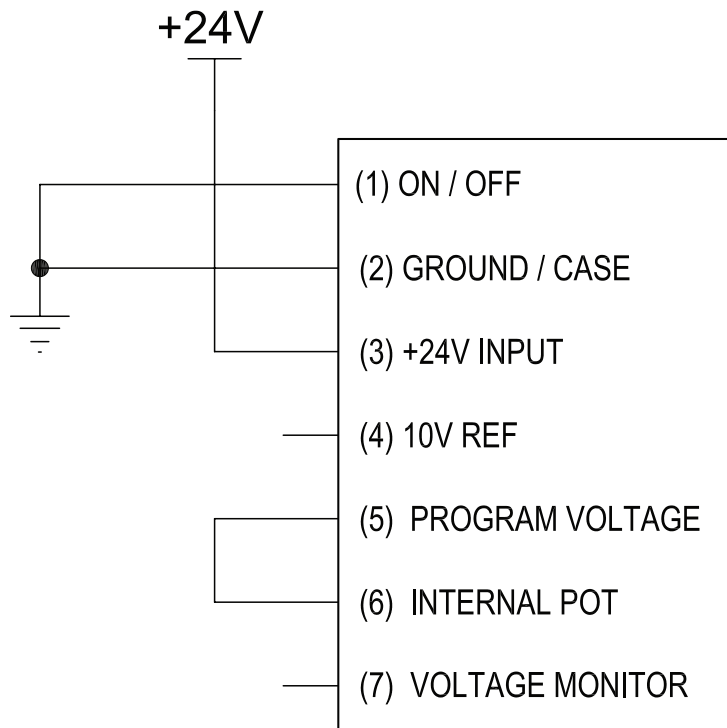


DIMENSIONS ARE IN INCHES (METRIC EQUIVALENTS ARE IN PARENTHESIS)
 DIMENSIONAL TOLERANCES: .XX = ± 0.02 (0.51), .XXX = ± 0.005 (0.127)

PARAMETER	VALUE
WEIGHT	1.5 POUND (.675 KG.) APPROX.
VOLUME	2.25 IN ³ (36.87 CM ³)
DIMENSIONS	4.1 IN (104CM) X 3.6 IN (91.4CM) X 1.4 IN (35.56CM)
CASE MATERIAL	BLACK ANODIZED ALUMINUM
INPUT CONNECTOR	MOLEX HEADER 09-75-2074
MATING CONNECTOR	MOLEX CRIMP TERMINAL HOUSING 09-50-3071 (SUPPLIED)
MOLEX CRIMP TERMINALS	08-50-0106 (SUPPLIED)
HV LEAD	40KV 20 AWG

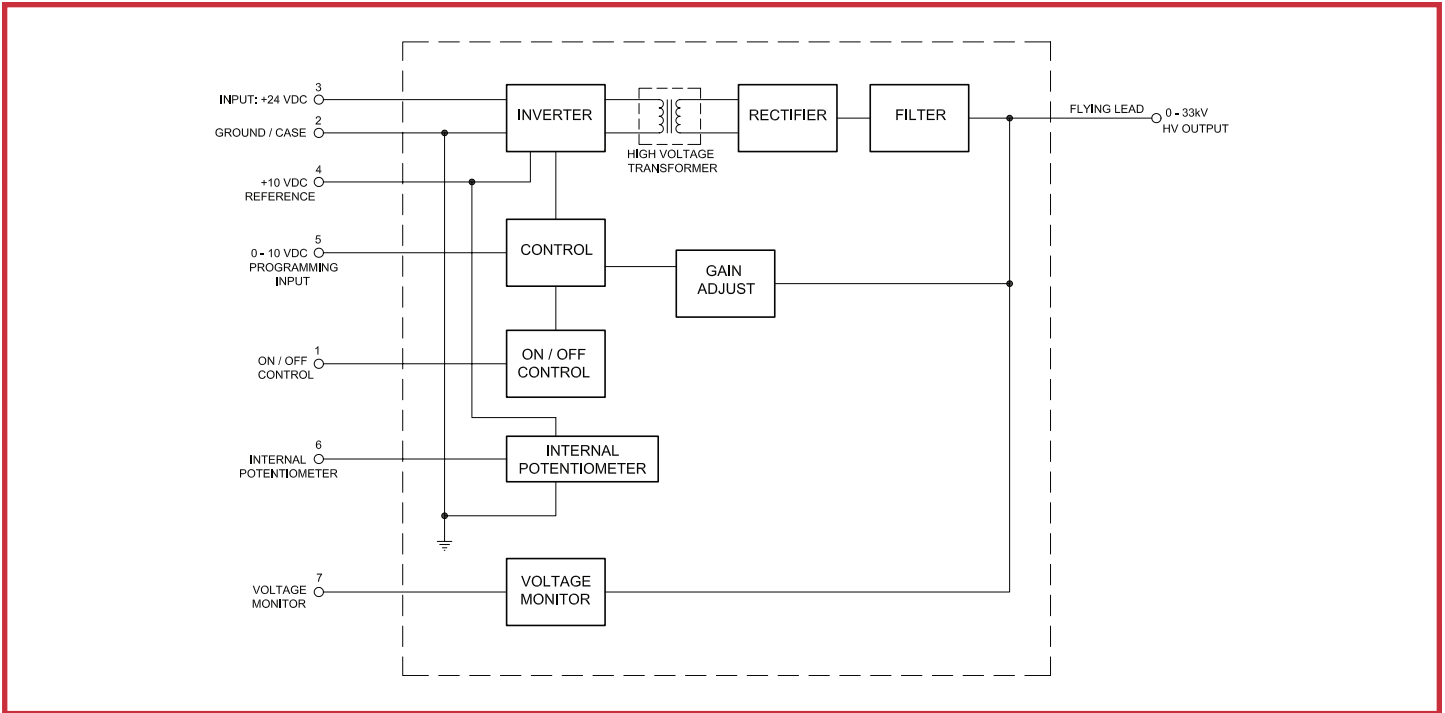
PIN #	FUNCTION
1	ON-OFF CONTROL
2	GROUND/CASE
3	+24 VOLT INPUT
4	10 VOLT REFERENCE OUTPUT
5	PROGRAMMING VOLTAGE
6	INTERNAL POTENTIOMETER
7	NO CONNECTION

TYPICAL APPLICATION



TURN FRONT-PANEL POT TO ADJUST OUTPUT

BLOCK DIAGRAM



HOW TO ORDER

PART NUMBER SELECTOR:

Model Number:

4 010 N

Model _____ Polarity Designator (**Blank or N**)
 Output Voltage (See table) _____

EXAMPLE: **4010N** (**4** - 4000 Series Model, **010** - Output Voltage, **N** - Polarity Designator)

* Notes:

1. At Maximum Rated Output Voltage.
2. Specifications after 1 hour warm-up, full load, at 25°C unless other wise indicated.
3. Typical Performance.
4. No Voltage Monitor for 30kV and 33kV Models.
5. Proper thermal management techniques are required to maintain safe case temperature at maximum power output.

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