

**Proven  
Reliability**

# H SERIES

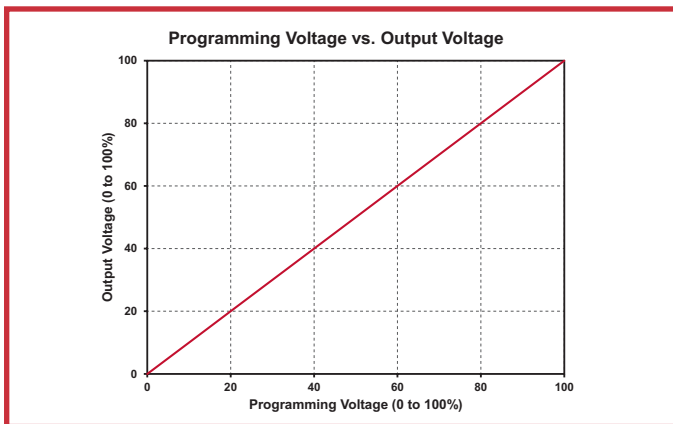
REGULATED HIGH VOLTAGE DC TO DC CONVERTERS

0 to 300V through 0 to 10,000VDC @ 15 Watts



## PRODUCT DESCRIPTION

The H Series is a line of compact, regulated power supplies featuring 15 watts of continuous output power.\*1 This line features 0 to 100% programmability via a 0 to 5 volt DAC compatible high impedance programming input voltage. A 0 to 5 volt output voltage monitor is provided. Short circuit, arc, and reverse polarity protection are standard. Technical assistance is readily available.



## PRODUCT SELECTION TABLE

MODEL	OUTPUT VOLTAGE	MAXIMUM OUTPUT CURRENT*1
H03P	0 to +300 V	50 mA
H03N	0 to -300 V	50 mA
H05P	0 to +500 V	30 mA
H05N	0 to -500 V	30 mA
H10P	0 to +1000 V	15 mA
H10N	0 to -1000 V	15 mA
H15P	0 to +1,500 V	10 mA
H15N	0 to -1,500 V	10 mA
H20P	0 to +2000 V	7.5 mA
H20N	0 to -2,000 V	7.5 mA
H30P	0 to +3,000 V	5 mA
H30N	0 to -3,000 V	5 mA
H40P	0 to +4,000 V	3.75 mA
H40N	0 to -4,000 V	3.75 mA
H50P	0 to +5,000 V	3 mA
H50N	0 to -5,000 V	3 mA
H60P	0 to +6,000 V	2.5 mA
H60N	0 to -6,000 V	2.5 mA
H101P	0 to +10,000 V	1.5 mA

## APPLICATIONS

Piezo devices  
HV op amp rails  
Ultrasonic transducers  
Lamp ignition & drive  
Electrophoresis  
Capacitor Charging  
Lasers  
General Lab Use

## FEATURES

- 0 to 100% Programmability
- Output Voltage Monitor
- Short Circuit Protection – short duration, 1 minute minimum
- Reverse Polarity Protection
- Arc Protection
- Low EMI / RFI
- MTBF:>790K hours per Bellcore TR-332
- Shielded Metal Case
- Input/Output Filtering

## OPTIONS

Mounting Holes (Up to 6kV) (H suffix)  
RoHS versions available (R suffix)  
Epoxy: Low Outgassing (NASA approved per ASTM E-595-93)

ISO 9001:2008  
CERTIFIED

ISO 14001:2004  
CERTIFIED

RoHS  
COMPLIANT

IPC  
Certified J-STD-001  
Application Specialist



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## ELECTRICAL SPECIFICATIONS\*2 H03 – H101

MODEL	OUTPUT VOLTAGE	OUTPUT CURRENT*1	RIPPLE P-P <sup>3</sup>	REGULATION (LOAD) <sup>3</sup>	FREQUENCY <sup>3</sup>
H03P	0 to +300 V	50 mA	<1.0%	<0.75%	80 - 140 kHz
H03N	0 to -300 V	50 mA	<1.0%	<0.75%	80 - 140 kHz
H05P	0 to +500 V	30 mA	<0.5%	<0.20%	70 - 100 kHz
H05N	0 to -500 V	30 mA	<0.5%	<0.20%	70 - 100 kHz
H10P	0 to +1000 V	15 mA	<0.2%	<0.20%	80 - 140 kHz
H10N	0 to -1000 V	15 mA	<0.2%	<0.20%	80 - 140 kHz
H15P	0 to +1,500 V	10 mA	<0.2%	<0.20%	70 - 100 kHz
H15N	0 to -1,500 V	10 mA	<0.2%	<0.20%	70 - 100 kHz
H20P	0 to +2000 V	7.5 mA	<0.3%	<0.20%	60 - 90 kHz
H20N	0 to -2,000 V	7.5 mA	<0.3%	<0.20%	60 - 90 kHz
H30P	0 to +3,000 V	5 mA	<0.75%	<0.20%	60 - 90 kHz
H30N	0 to -3,000 V	5 mA	<1.0%	<0.20%	60 - 90 kHz
H40P	0 to +4,000 V	3.75 mA	<0.75%	<0.20%	70 - 100 kHz
H40N	0 to -4,000 V	3.75 mA	<0.75%	<0.20%	70 - 100 kHz
H50P	0 to +5,000 V	3 mA	<0.75%	<0.20%	60 - 90 kHz
H50N	0 to -5,000 V	3 mA	<0.75%	<0.20%	60 - 90 kHz
H60P	0 to +6,000 V	2.5 mA	<0.75%	<0.20%	50 - 85 kHz
H60N	0 to -6,000 V	2.5 mA	<0.75%	<0.20%	50 - 85 kHz
H101P	0 to +10,000 V	1.5 mA	<1.0%	<0.20%	50 - 85 kHz

## ELECTRICAL SPECIFICATIONS\*2 H03 – H101

PARAMETER	VALUE
INPUT VOLTAGE	24 Volts (+/-0.5 Volt)
OUTPUT VOLTAGE	See Table on page 2
OUTPUT CURRENT	See Table on page 2
PROGRAMMING VOLTAGE	0 to +5 Volts, <100 $\mu$ A
REGULATION	Line: < 0.2%
	Load: See Table
INPUT CURRENT	No Load: <0.5 Amps
	Full Load: <1.5 Amps
GAIN ADJUST <sup>5</sup>	5 to 15%
LINEARITY <sup>5</sup>	<1% (15 to 100% Vout)
SET POINT ACCURACY <sup>5</sup>	+/- 0.5%
TEMPERATURE COEFFICIENT	< 200ppm/ $^{\circ}$ C
OPERATING TEMPERATURE	-10 $^{\circ}$ to +50 $^{\circ}$ C <sup>4</sup>
STORAGE TEMPERATURE	-20 $^{\circ}$ to +90 $^{\circ}$ C
MAXIMUM CASE TEMPERATURE	+85 $^{\circ}$ C
VOLTAGE MONITOR	0 to +5V for positive output models
	0 to -5V for negative output models

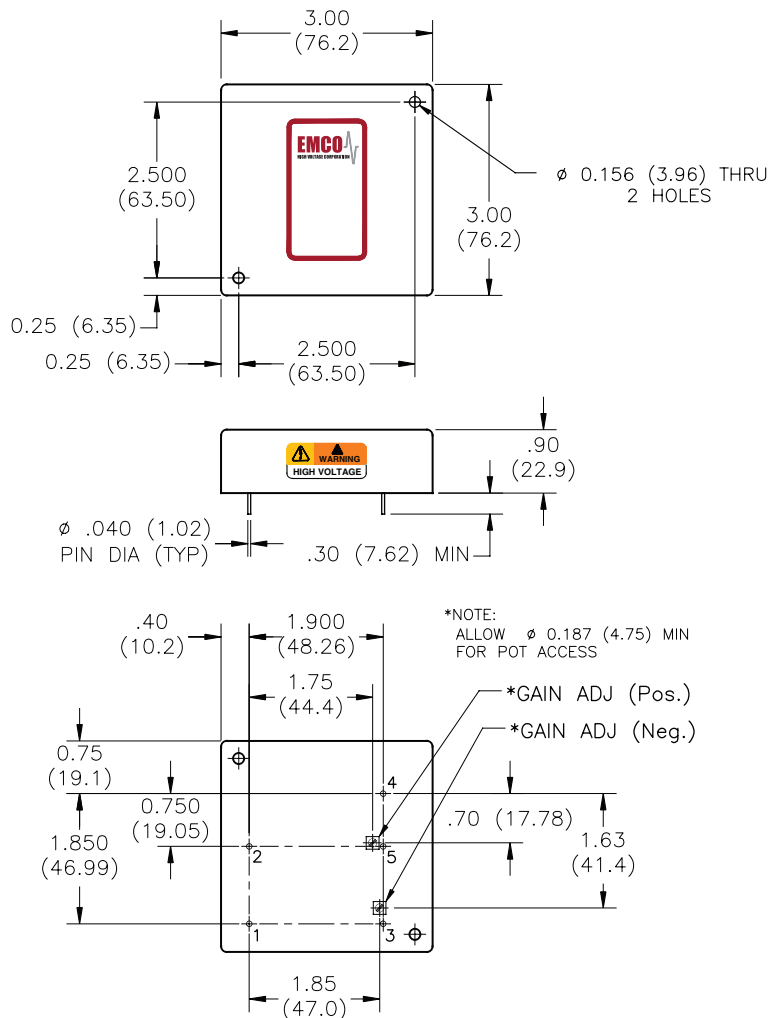
## DETAILED PRODUCT DESCRIPTION

The H Series is a line of compact, high-reliability, regulated high voltage power supplies capable of delivering 15W of continuous power at maximum output voltages ranging from 300V up to 10,000V.

H Series models are programmable from 0 to 100% of rated output voltage via a 0 to 5 volt DAC-compatible high impedance input programming pin. A 0 to 5 volt output voltage monitor is provided. The H Series operates from a 24V input. The product line has input reverse-polarity protection. It also has output short-circuit and arc protection. An aluminum enclosure aids in EMI/RFI reduction. An externally accessible potentiometer provides adjustable gain trim allowing for individual calibration of units. A proprietary encapsulation process and a custom 94V-0 listed, high performance potting compound are used to achieve excellent high voltage and thermal properties. Standard models come in either positive or negative polarity.

Small quantities are available from factory stock or our stocking distributor in Switzerland, Condatas AG. For large quantity requests, please consult our factory or our stocking distributor in Switzerland, Condatas AG.

MECHANICAL SPECIFICATIONS (300V – 6kV)



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

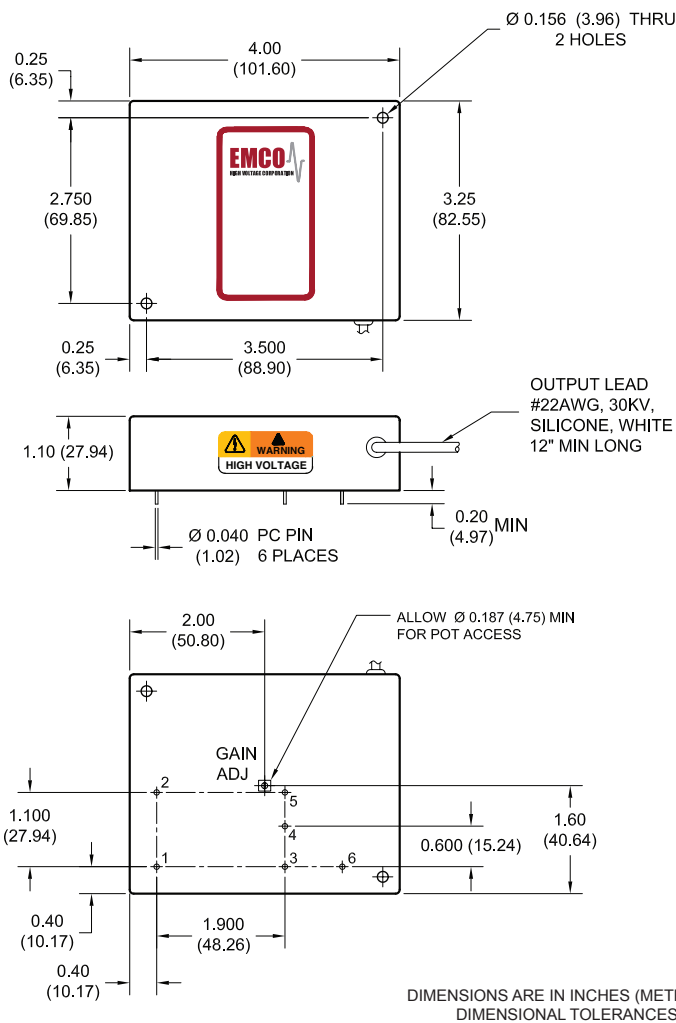
PARAMETER	VALUE
WEIGHT	10 OUNCES (283.5 GRAMS)
PINS	0.04 (1.02) Dia., 0.30 (7.62) min length
DIMENSIONS	3.0 (76.2) X 3.0 (76.2) X 0.90 (22.9)
PACKAGING	Fully Encapsulated
CASE MATERIAL	Black Anodized Aluminum

PIN #	FUNCTION
1	(+) INPUT
2	GROUND
3	PROGRAMMING VOLTAGE INPUT
4	HV OUTPUT
5	VOLTAGE MONITOR OUTPUT

NOTE: RUN SEPARATE GROUND PATHS TO PIN 2 FOR POWER AND SIGNAL GROUNDS.



MECHANICAL SPECIFICATIONS (10kV)

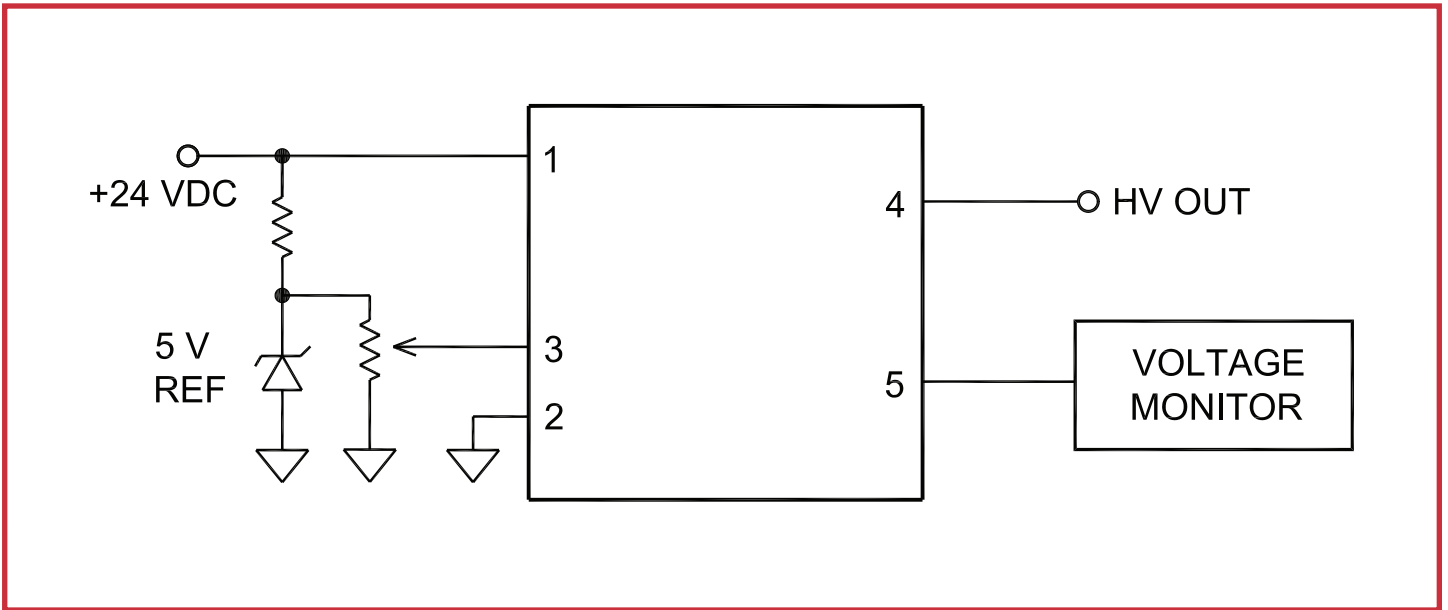


PARAMETER	VALUE
WEIGHT	18 OUNCES (510.3 GRAMS)
PINS	0.04 (1.02) Dia., 0.20 (5.08) min length
DIMENSIONS	3.25 (82.6) x 4.0 (101.6) x 1.10 (27.9)
PACKAGING	Fully Encapsulated
CASE MATERIAL	Black Anodized Aluminum

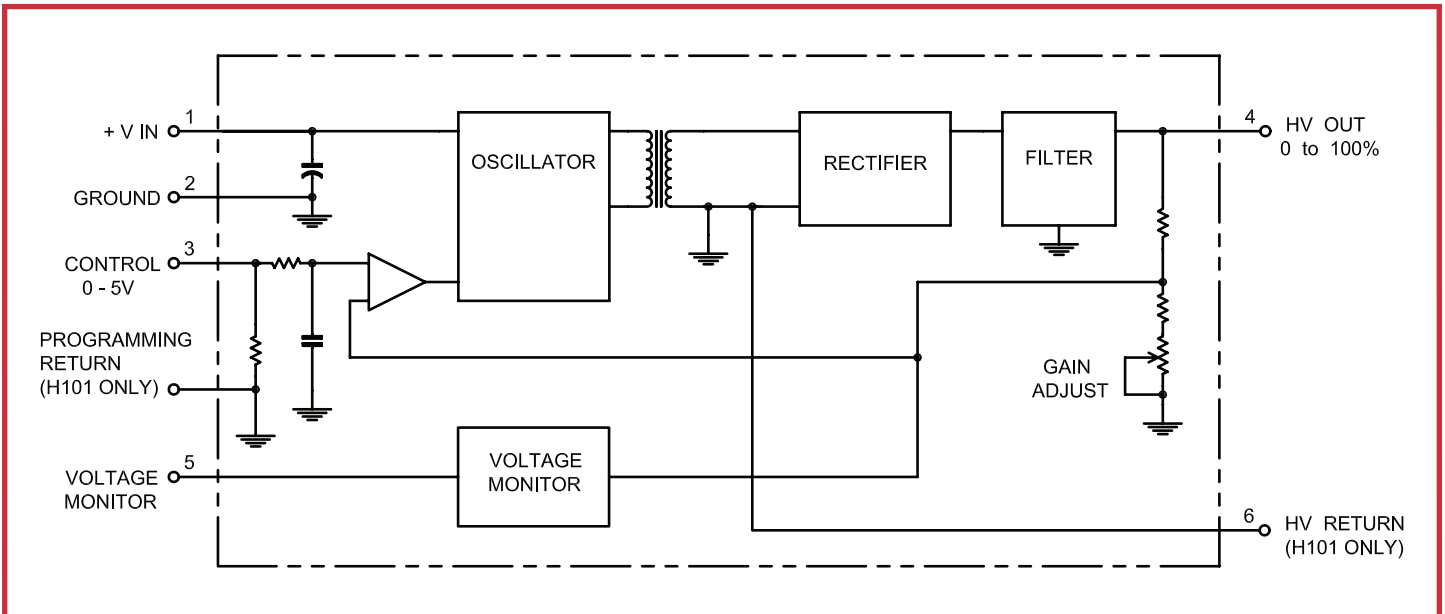
PIN #	FUNCTION
1	(+) INPUT
2	INPUT GROUND
3	PROGRAMMING VOLTAGE INPUT
4	PROGRAMMING RETURN
5	VOLTAGE MONITOR OUTPUT
6	HV RTN
WIRE LEAD	HV OUTPUT

NOTE: RUN SEPARATE GROUND PATHS FOR POWER AND SIGNAL GROUNDS.

TYPICAL APPLICATION



**BLOCK DIAGRAM**



**HOW TO ORDER**

**PART NUMBER SELECTOR:**

Model Number:  
**H10PRH**



EXAMPLE: **H10PRH** (**H**-Model, **10**-Output Voltage, **P**-Positive, **R**-RoHS, **H**-Holes)

- \* Notes:
1. At Maximum Rated Output Voltage.
  2. Specifications after 1 hour warm-up, full load, at 25°C unless otherwise indicated.
  3. Typical Performance.
  4. Proper thermal management techniques are required to maintain safe case temperature at maximum power output.
  5. SET POINT ACCURACY refers to the ability of the unit to accurately deliver the voltage intended by the applied programming. The resultant output voltage will be within +/-1% of that programmed.  
GAIN ADJUSTMENT refers to the ability to alter the gain of the circuit to bring the resultant output voltage to the programmed set point. This is intended to allow compensation for set point accuracy error.  
LINEARITY refers to how much the transfer function can deviate from a straight line in the absence of any set point error.

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