Precision Regulated, Low Ripple, High Voltage Power Supplies

0 to +/-200V thru 0 to +/-2000V @ 1 Watt
CA SERIES *PC or Chassis Mount*

New 5V Input Power Option

EMCO HIGH VOLTAGE CORPORATION

The CA Series of high performance, precision regulated, high voltage power supplies offers improved performance and added features. Improvements in stability and ripple, along with an on board precision reference, a voltage monitor and increased protection, enable these modules to replace much larger, more expensive power supplies in many applications. Each model is programmed from 0 to 100% of rated output via a 0 to +5 volt DAC compatible high impedance programming[*6] input. A voltage monitor is provided and is internally buffered to provide a low impedance (up to 1 mA) signal to external circuitry. The precision, on board reference can be used in conjunction with an external potentiometer or voltage divider to program the high voltage output. Each unit has an accessible potentiometer allowing for individual calibration after installation. A quasi-sinewave oscillator, internal transformer shielding, and an isolated steel case reduce EMI/RFI radiation to extremely low levels. Suitable for photomultiplier tubes, avalanche photodiodes, precision EO lenses, piezo devices and other applications requiring precision, low noise, high voltage in a miniature, pc or chassis mount, cost effective package.

FEATURES

Very Low Ripple, as low as 5PPM!
Precision Regulated
Miniature Shielded Case, 1 cubic inch
0 to 100% Programmable output
Voltage Monitor/ Readback
High Stability, <25ppm/°C
Wide Input Voltage Range
Arc, Overload & Short Circuit Protected
Very Low EMI/RFI
External Voltage or Potentiometer Programming
Precision On board Reference
Accessible Calibration Adjustment
Sealed To Withstand Immersion Cleaning Processes
Designed to meet the requirements of UL1950
Proven Reliability, MTBF: >2.10 million hrs per Bellcore TR-332
High Performance, Cost Effective

PHYSICAL CHARACTERISTICS

SIZE: 1.75 x 1.10 x 0.50 (44.45 x 27.94 x 12.70)mm
WEIGHT: 1.4 oz. (40.0 Grams)
PACKAGING: Epoxy Encapsulated
(Low Outgassing Epoxy option available)
CASE MATERIAL: Zinc Plated Steel
PINS: 0.04 (1.02mm) Diameter, 0.20 (5.08mm) Long

ELECTRICAL SPECIFICATIONS*[1]

PROGRAMMING VOLTAGE: 0 to +5V <150uA
5V Input models: 0 to +2.048V <150uA
VOLTAGE MONITOR: 0 TO +5V = 0 TO 100% Vout[*2]
5V Input models: 0 TO +2.048V = 0 TO 100% Vout[*2]
REFERENCE OUTPUT: +5V+/-1%, UP TO 1mA
5V Input models: +2.048V+/-1%, UP TO 1mA
STABILITY: <0.005%/hr*[3]
LINEARITY: <0.5% (15% to 100% Vout)*[3]
SET POINT ACCURACY: 1%, TRIM: 1%*[3]
TEMPERATURE COEFFICIENT: <25ppm/°C*[3]
OPERATING TEMP: -10° to +50°C
EXTENDED OPERATING TEMP: ***(-55° to +70°C)***
add T to end of model e.g. CA10P-T
STORAGE TEMP: -25° to +95°C
THERMAL SHOCK LIMIT: 1°C/10 sec.

TABLE 1

MODEL	OUTPUT VOLTAGE	OUTPUT *[5] CURRENT	REGULATION*[3] LINE	REGULATION*[3] LOAD	RIPPLE*[3] (FULL LOAD P-P)	INPUT VOLTAGE	INPUT CURRENT *[5] NO LOAD	INPUT CURRENT *[5] FULL LOAD
CA02P	0 to +200V	0 to 5mA	<0.01%	<0.05%	<0.01%	11.5 to 15.5V	<80mA	<220mA
CA02P-5	0 to +200V	0 to 5mA	<0.01%	<0.01%	<0.01%	4.75 to 5.25V	<65mA	<420mA
CA02N	0 to -200V	0 to 5mA	<0.01%	<0.05%	<0.01%	11.5 to 15.5V	<80mA	<220mA
CA02N-5	0 to –200V	0 to 5mA	<0.003%	<0.005%	<0.01%	4.75 to 5.25V	<65mA	<420mA
CA05P	0 to +500V	0 to 2mA	<0.01%	<0.01%	<0.01%	11.5 to 15.5V	<80mA	<220mA
CA05P-5	0 to +500V	0 to 2mA	<0.002%	<0.003%	<0.005%	4.75 to 5.25V	<65mA	<420mA
CA05N	0 to -500V	0 to 2mA	<0.01%	<0.01%	<0.01%	11.5 to 15.5V	<80mA	<220mA
CA05N-5	0 to -500V	0 to 2mA	<0.002%	<0.005%	<0.005%	4.75 to 5.25V	<65mA	<420mA
CA10P	0 to +1000V	0 to 1mA	<0.001%	<0.005%	<0.001%	11.5 to 15.5V	<80mA	<220mA
CA10P-5	0 to +1000V	0 to 1mA	<0.001%	<0.005%	<0.001%	4.75 to 5.25V	<65mA	<420mA
CA10N	0 to -1000V	0 to 1mA	<0.001%	<0.005%	<0.001%	11.5 to 15.5V	<80mA	<220mA
CA10N-5	0 to -1000V	0 to 1mA	<0.001%	<0.005%	<0.001%	4.75 to 5.25V	<65mA	<420mA
CA12P	0 to +1250V	0 to 0.8mA	<0.001%	<0.005%	<0.0005%	11.5 to 15.5V	<80mA	<220mA
CA12P-5	0 to +1250V	0 to 0.8mA	<0.001%	<0.005%	<0.001%	4.75 to 5.25V	<65mA	<420mA
CA12N	0 to -1250V	0 to 0.8mA	<0.001%	<0.005%	<0.0005%	11.5 to 15.5V	<80mA	<220mA
CA12N-5	0 to -1250V	0 to 0.8mA	<0.001%	<0.005%	<0.001%	4.75 to 5.25V	<65mA	<420mA
CA20P	0 to +2000V	0 to 0.5mA	<0.01%	<0.01%	<0.001%	11.5 to 15.5V	<80mA	<220mA
CA20P-5	0 to +2000V	0 to 0.5mA	<0.003%	<0.005%	<0.001%	4.75 to 5.25V	<185mA	<500mA
CA20N	0 to -2000V	0 to 0.5mA	<0.01%	<0.01%	<0.001%	11.5 to 15.5V	<80mA	<220mA
CA20N-5	0 to -2000V	0 to 0.5mA	<0.001%	<0.001%	<0.001%	4.75 to 5.25V	<185mA	<450mA

***Notes**

1: Specifications after 1 hour warm-up, full load, +25°C unless otherwise noted.
2: On negative output models, voltage monitor output is a buffered representation of the programming voltage.
3: Typical performance.
4: All grounds internally connected, except case.
5: At maximum rated output voltage
6: 5V Input Power option, programming and voltage monitor are 0 to +2.048V.

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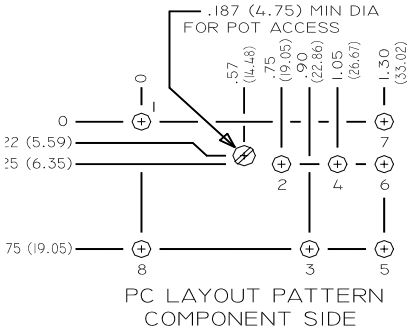
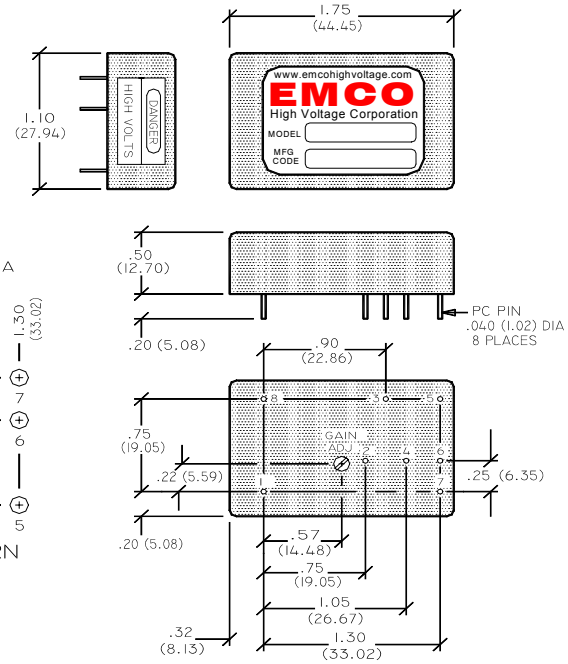
CA SERIES

APPLICATIONS

Photomultiplier Tubes
Avalanche Photodiodes
Solid State Detectors
EO Lenses
Piezo Devices





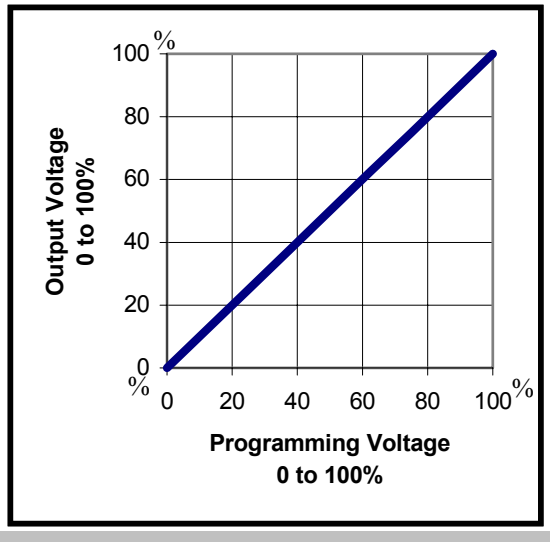
BOTTOM VIEW

PIN #	FUNCTION
1	Output Voltage
2	Programming: 0 to +5V ***5V Input models: 0 to +2.048V***
3	Ground *1
4	Voltage Reference: +5V ***5V Input models: +2.048V***
5	Case Ground *1
6	Input: +11.5 to 15.5V ***5V Input models: +4.75 to +5.25V***
7	Voltage Monitor: 0 to +5V ***5V Input models: 0 to +2.048V***
8	Output Return *1

***Notes**
1: All grounds internally connected, except case.

Dimensions are in inches
Dimensional Tolerances: ± 0.03 (.76mm)
(Metric equivalents in parenthesis)

Programming Voltage vs Output Voltage



5V Input models are programmed from 0 to 100% of rated output via a 0 to +2.048V programming voltage.

All other CA models are programmed from 0 to 100% of rated output via a 0 to +5V programming voltage.

Extended Operating Temperature Option *available!*

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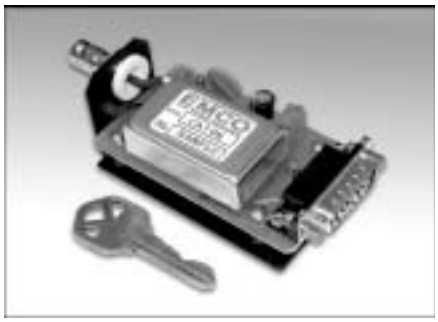
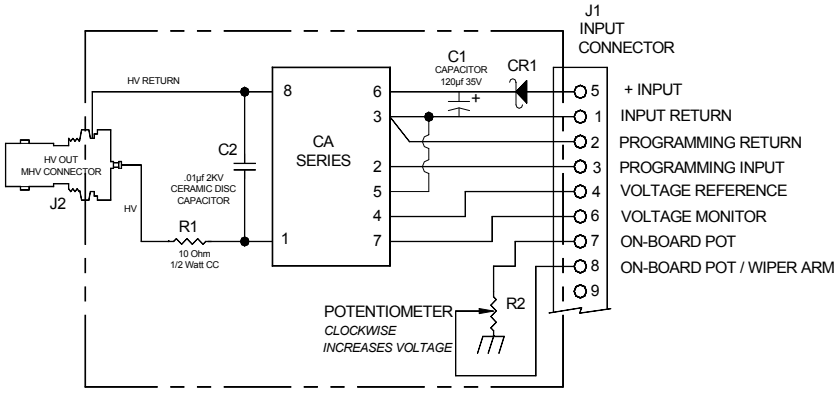
CA Series Chassis Mount Kit

CA SERIES CHASSIS MOUNT KIT
MODEL CM1

FITS ALL CA SERIES MODELS



This Chassis Mount Kit provides a convenient package to use any CA Series precision high voltage power supply without having to fit it onto a PC board. The Kit also provides for easy prototyping and evaluation. Extra filtering on the input and output improves performance. A schottky diode on the input provides reverse polarity protection. Input connector is via a 15P SUB MIN-D and output is via an MHV style coaxial connector.

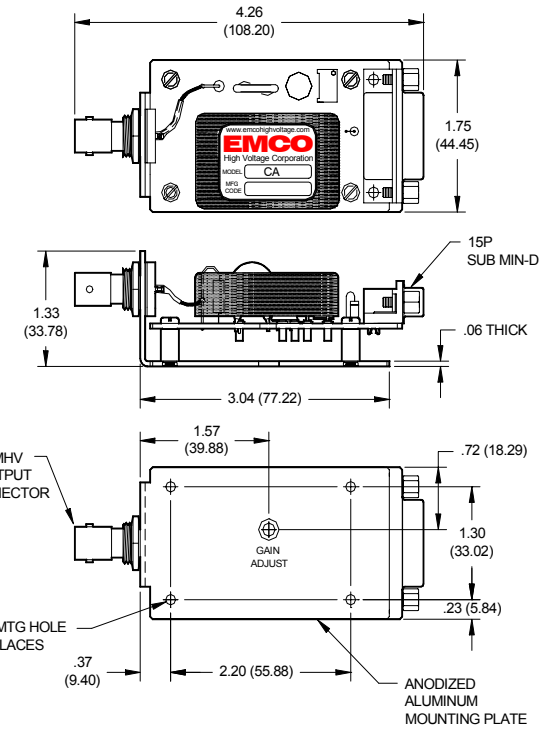


APPLICATIONS:
Chassis mounting *for the CA Series High Voltage Power Supplies*
Easy Prototyping and Evaluation

FEATURES
Open Frame Design
On Board Potentiometer for easy control
Remote Control Capabilities

PROGRAMMING OPTIONS / INSTRUCTIONS
1. Onboard Potentiometer: connect pins 7 to 4 and 8 to 3, turn potentiometer to adjust high voltage.
2. Remote Potentiometer: connect wiper arm to pin 3, other sides to pins 4 and 2.
3. Remote Analog Signal: apply 0 to +5v to pin 3, return to pin 2.

PHYSICAL SPECIFICATION:
SIZE: 4.26 x 1.75 x 1.33 (108.20 x 44.45 x 33.78)



ORDERING INFORMATION:
Please note when ordering a CA Series Chassis Mount Kit the CA Module is not included and must be ordered separately.

Dimensions are in inches
Dimensional Tolerances: ± .03 (.76mm)
(Metric equivalents in parenthesis)

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