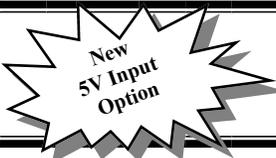


Precision Regulated, Low Ripple, High Voltage Power Supplies

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



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, typically <25ppm/°C
- Wide Input Voltage Range
- Arc, Short Circuit Protected
- 12 Vin; indefinite
- 5 Vin; short duration, up to 1 minute
- Very Low EMI/RFI
- Precision On board Reference
- External Voltage or Potentiometer Programming
- 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

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 DAC compatible high impedance programming 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.

APPLICATIONS

- Photomultiplier Tubes
- Avalanche Photodiodes
- Solid State Detectors
- Electrophoresis
- EO Lenses
- Piezo Devices
- Capacitor Charging



ELECTRICAL SPECIFICATIONS*1

INPUT VOLTAGE: +11.5 to +15.5V

5V Input models: +4.75 to +5.25V

INPUT CURRENT *4

- 12V Input, No Load, <80mA
- 12V Input, Full Load, <220mA
- 5V Input, No Load, <65mA (CA02-CA12)
- CA20x-5, No Load, <165mA
- 5V Input, Full Load, <420mA (CA02-CA12)
- CA20x-5, Full Load, <550mA

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

LINEARITY: <0.5% (15% to 100% Vout)*3

SET POINT ACCURACY: 1%, TRIM: 1%*3

TEMPCO: <25ppm/°C*3

STABILITY: <0.005%/hr*3

THERMAL SHOCK LIMIT: 1°C/10 sec.

STANDBY POWER: <25mW *3

OPERATING TEMP: -10° to +50°C

STORAGE TEMP: -25° to +95°C

OPTIONS

- RoHS Compliant: i.e CA02PR
- Extended OPERATING TEMP: (-55° to +70°C) *see drawing*
- Low Out-Gassing Epoxy: *Consult factory for model number.*
- UL V0 Rated Epoxy *Consult factory for model number.*

- *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: At maximum rated output voltage

MODEL	OUTPUT VOLTAGE	OUTPUT CURRENT	REGULATION*3		RIPPLE*3 (FULL LOAD P-P)
			LINE	LOAD	
12 VDC INPUT MODELS					
CA02P	0 to +200V	0 to 5mA	<0.01%	<0.05%	<0.01%
CA02N	0 to -200V	0 to 5mA	<0.01%	<0.05%	<0.01%
CA05P	0 to +500V	0 to 2mA	<0.01%	<0.01%	<0.01%
CA05N	0 to -500V	0 to 2mA	<0.01%	<0.01%	<0.01%
CA10P	0 to +1000V	0 to 1mA	<0.001%	<0.005%	<0.001%
CA10N	0 to -1000V	0 to 1mA	<0.001%	<0.005%	<0.001%
CA12P	0 to +1250V	0 to 0.8mA	<0.001%	<0.005%	<0.0005%
CA12N	0 to -1250V	0 to 0.8mA	<0.001%	<0.005%	<0.0005%
CA20P	0 to +2000V	0 to 0.5mA	<0.01%	<0.01%	<0.001%
CA20N	0 to -2000V	0 to 0.5mA	<0.01%	<0.01%	<0.001%
5 VDC INPUT MODELS					
CA02P-5	0 to +200V	0 to 5mA	<0.01%	<0.01%	<0.01%
CA02N-5	0 to -200V	0 to 5mA	<0.003%	<0.005%	<0.01%
CA05P-5	0 to +500V	0 to 2mA	<0.002%	<0.003%	<0.005%
CA05N-5	0 to -500V	0 to 2mA	<0.002%	<0.005%	<0.005%
CA10P-5	0 to +1000V	0 to 1mA	<0.001%	<0.005%	<0.001%
CA10N-5	0 to -1000V	0 to 1mA	<0.001%	<0.005%	<0.001%
CA12P-5	0 to +1250V	0 to 0.8mA	<0.001%	<0.005%	<0.001%
CA12N-5	0 to -1250V	0 to 0.8mA	<0.001%	<0.005%	<0.001%
CA20P-5	0 to +2000V	0 to 0.5mA	<0.003%	<0.005%	<0.001%
CA20N-5	0 to -2000V	0 to 0.5mA	<0.001%	<0.001%	<0.001%

Email sales@emcohighvoltage.com
 Web site www.emcohighvoltage.com

Phone (209) 267-1630 Fax (209) 267-0282
 70 Forest Products Road, Sutter Creek CA USA 95685

0 to +/-200V thru 0 to +/-2000V @ 1 Watt
CA SERIES



CA SERIES

Operating Temp. -10 to +50°C

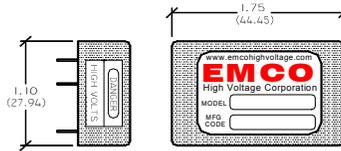
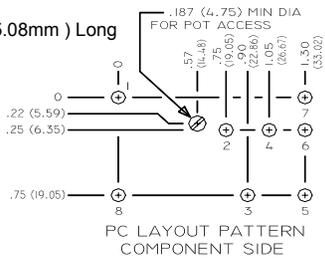
PHYSICAL CHARACTERISTICS

SIZE: 1.75 x 1.10 x 0.50 (44.45 x 27.94 x 12.70)mm

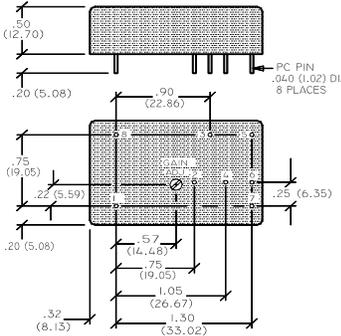
WEIGHT: 1.4 oz. (40.0 Grams)

CASE MATERIAL: Zinc Plated Steel

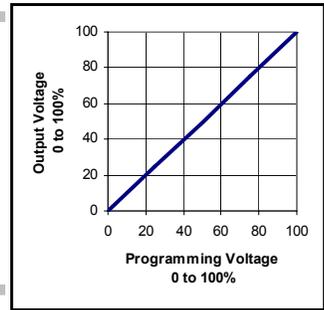
PINS: 0.04 (1.02mm) Diameter, 0.20 (5.08mm) Long



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



Programming Voltage vs Output Voltage



- *Notes**
- All grounds internally connected, except case.
 - There should not be more than 50 volts potential between the case ground (pin 5) and the circuit ground (pins 3 and 8).

PIN #	FUNCTION
1	Output Voltage
2	Programming: 0 to +5V 5V Input models: 0 to +2.048V
3	Ground ^{+1,2}
4	Voltage Reference: +5V 5V Input models: +2.048V
5	Case Ground ^{+1,2}
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 ^{+1,2}

CA-T SERIES

Extended Operating Temp. -55 to +70°C



*Model # add (-T) ie

1: CA20P-T

2: CA20P-5T

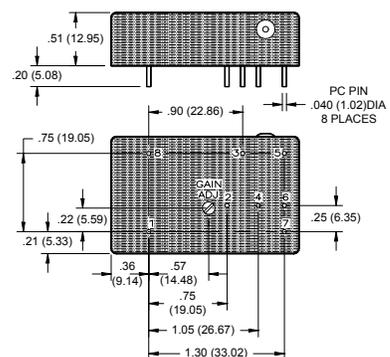
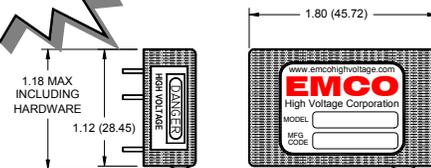
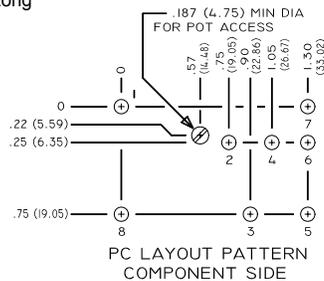
PHYSICAL CHARACTERISTICS

SIZE: 1.80x 1.12x 0.51 (45.72 x 28.45 x 12.70)mm

WEIGHT: 1.4 oz. (40.0 Grams)

CASE MATERIAL: Aluminium

PINS: 0.04 (1.02mm) Diameter, 0.20 (5.08mm) Long



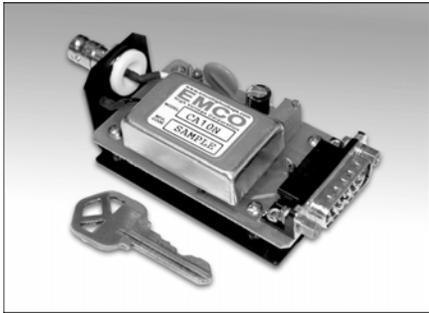
Dimensions are in inches
Dimensional Tolerances: ± 0.03 (.76mm)
(Metric equivalents in parenthesis)

CA Series Chassis Mount Kit

CA SERIES CHASSIS MOUNT KIT MODEL CM1



FITS ALL CA SERIES MODELS



APPLICATIONS:

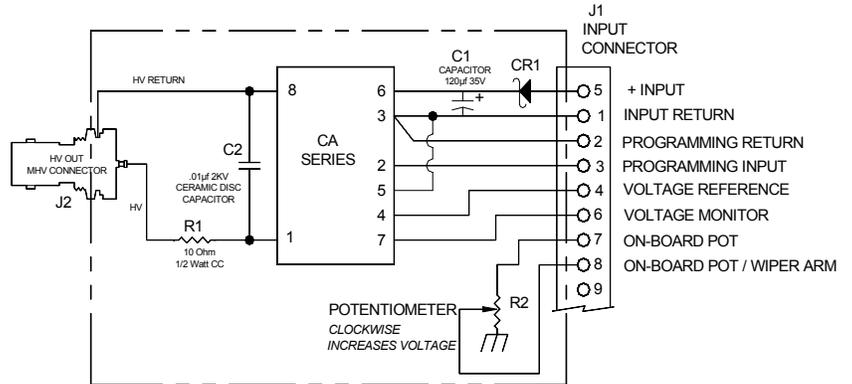
Chassis mounting for the CA Series High Voltage Power Supplies
Easy Prototyping and Evaluation

FEATURES

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

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 plug (mate supplied) and output is via an MHV style coaxial connector (mate supplied).

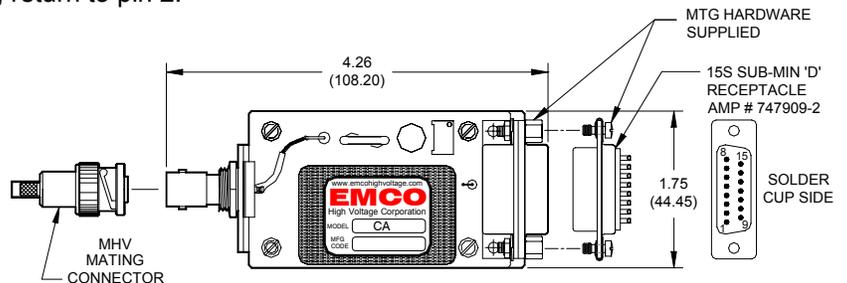


PROGRAMMING OPTIONS / INSTRUCTIONS

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.

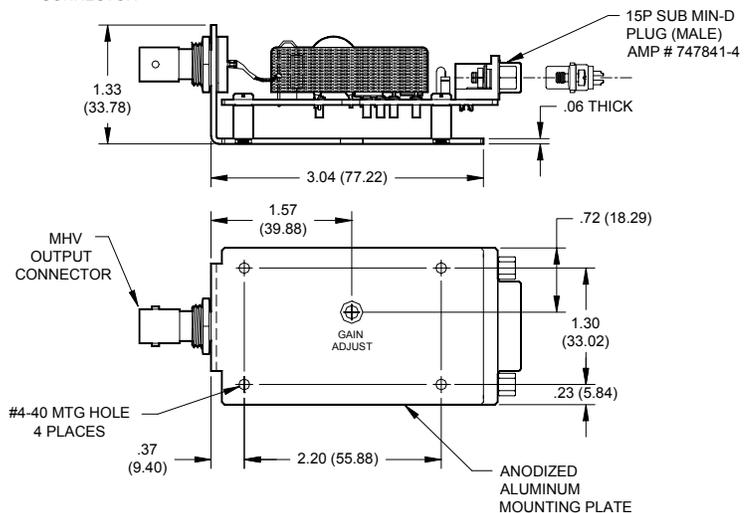
PHYSICAL SPECIFICATION:

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: $\pm .03$ (.76mm)
(Metric equivalents in parenthesis)

e-mail sales@emcohighvoltage.com
Web site www.emcohighvoltage.com

Phone (209) 267-1630 Fax (209) 267-0282
70 Forest Products Road, Sutter Creek CA 95685