Precision Regulated, Low Ripple, High Voltage Power Supplies

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

New 5V Input 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 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.

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

APPLICATIONS

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

New Optional Extended Temperature Range -55 to +70°C

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

MODEL	OUTPUT VOLTAGE	OUTPUT *[4] CURRENT	REGULATION*[3] LINE	REGULATION*[3] LOAD	RIPPLE*[3] (FULL LOAD P-P)
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%

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

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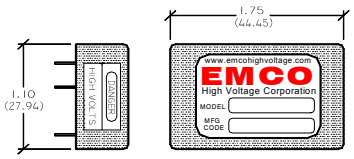
4709BK

CA SERIES

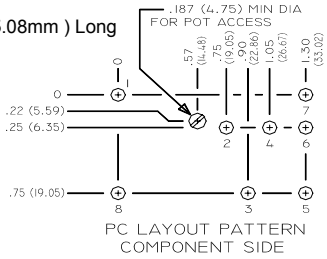
Operating Temp. –10 to +50^{0}C

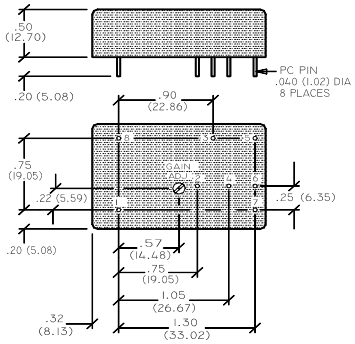
PHYSICAL CHARACTERISTICS

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)

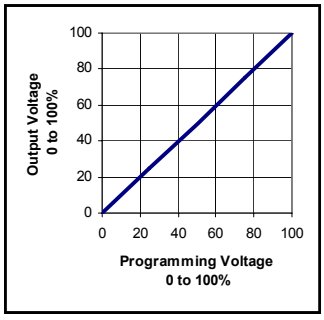




PIN #	FUNCTION
1	Output Voltage
2	Programming: 0 to +5V ***5V Input models: 0 to +2.048V***
3	Ground *1,2
4	Voltage Reference: +5V ***5V Input models: +2.048V***
5	Case Ground *1,2
6	Input: +11.5 to 15.5V ***5V Input models: +4.75 to +5.25V***
7	Voltage Monitor: 0 to +5V ***5V Input models: 0 to +2.048V***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

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

Programming Voltage vs Output Voltage



CA-T SERIES

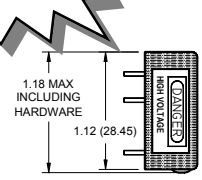
Extended Operating Temp. –55 to +70^{0}C

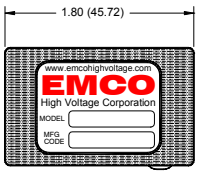
Extended Operating Temperature

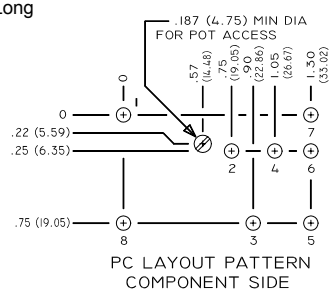
***Model # add (–T) ie**
1: CA20P-T
2: CA20P-5T

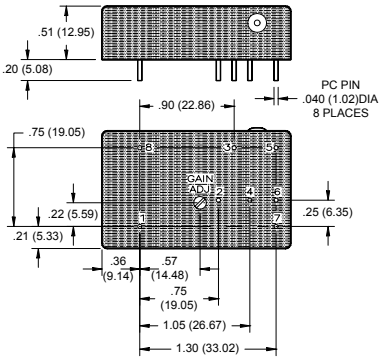
PHYSICAL CHARACTERISTICS

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)

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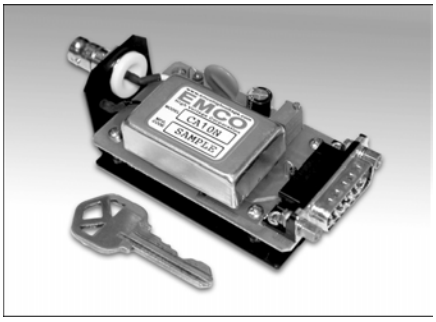
CA Series Chassis Mount Kit

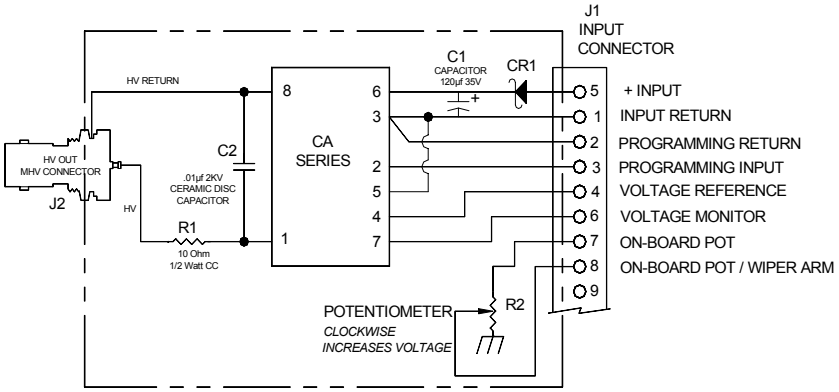
CA SERIES CHASSIS MOUNT KIT
MODEL CM1

EMCO HIGH VOLTAGE CORPORATION

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

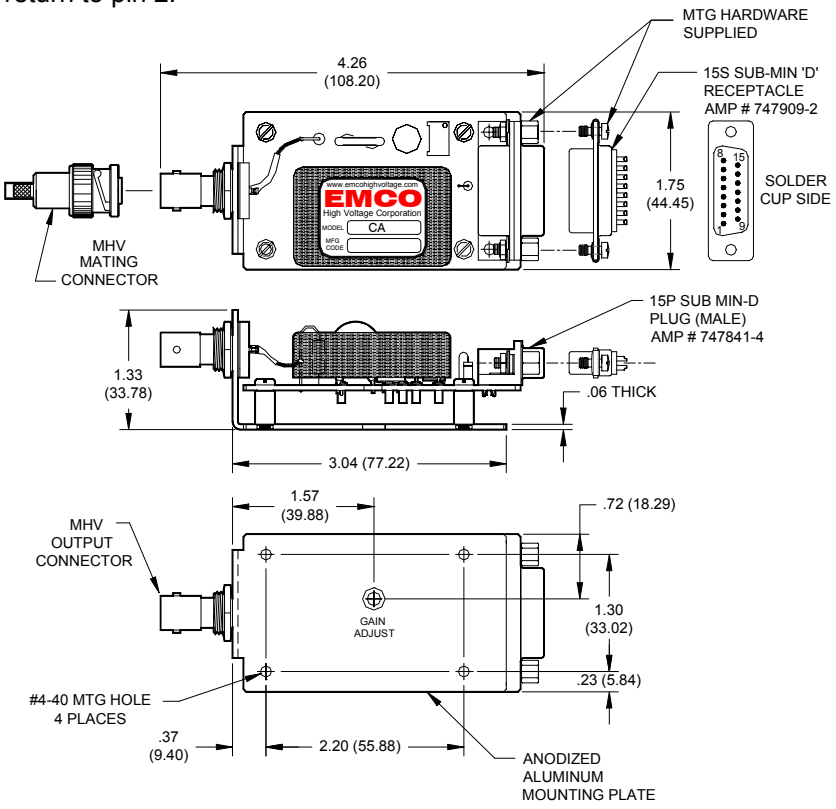


APPLICATIONS:
Chassis mounting *for the CA Series High Voltage Power Supplies*
Easy Prototyping and Evaluation

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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