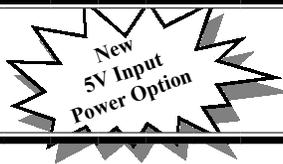


Precision Regulated, Low Ripple, High Voltage Power Supplies

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



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 programming⁶ 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 SPECIFICATIONS¹

- PROGRAMMING VOLTAGE: 0 to +5V <150uA
- 5V Input models: 0 to +2.048V <150uA**
- VOLTAGE MONITOR: 0 TO +5V = 0 TO 100% Vout²
- 5V Input models: 0 TO +2.048V = 0 TO 100% Vout²**
- REFERENCE OUTPUT: +5V+/-1%, UP TO 1mA
- 5V Input models: +2.048V+/-1%, UP TO 1mA**
- STABILITY: <0.005%/hr³
- LINEARITY: <0.5% (15% to 100% Vout)³
- SET POINT ACCURACY: 1%, TRIM: 1%³
- TEMPERATURE COEFFICIENT: <25ppm/°C³
- 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 CURRENT ⁴ | REGULATION ³ | | RIPPLE ³ (FULL LOAD P-P) | INPUT VOLTAGE | INPUT CURRENT ⁵ | |
|---------|----------------|-----------------------------|-------------------------|---------|--|---------------|----------------------------|-----------|
| | | | LINE | LOAD | | | NO LOAD | 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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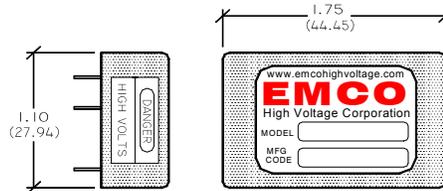
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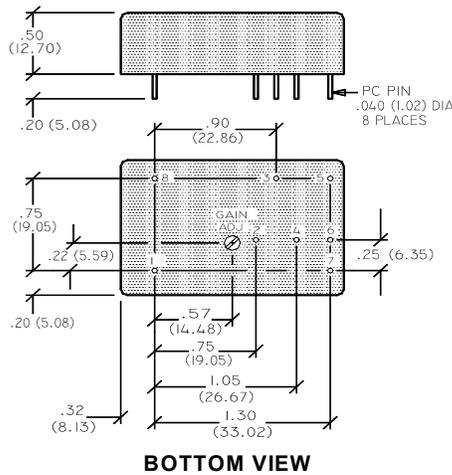
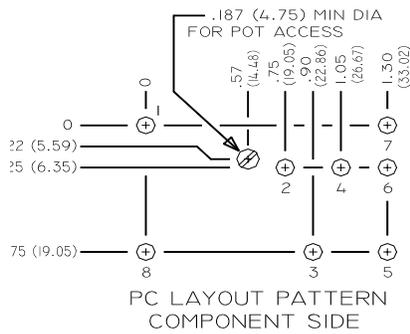
CA SERIES

APPLICATIONS

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



| 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} |

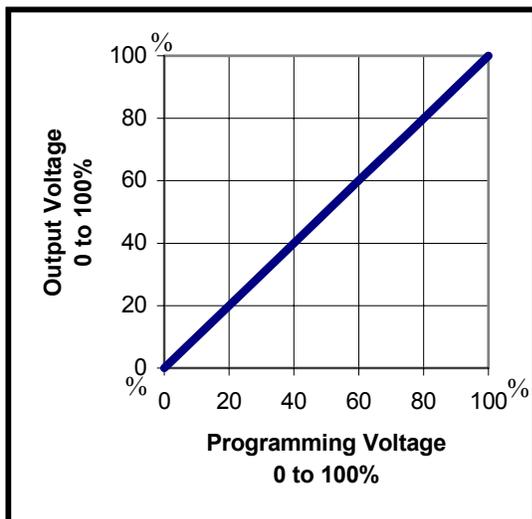


*Notes

- 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).

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.



CA Series Chassis Mount Kit



CA SERIES CHASSIS MOUNT KIT MODEL CM1

FITS ALL CA SERIES MODELS



APPLICATIONS:

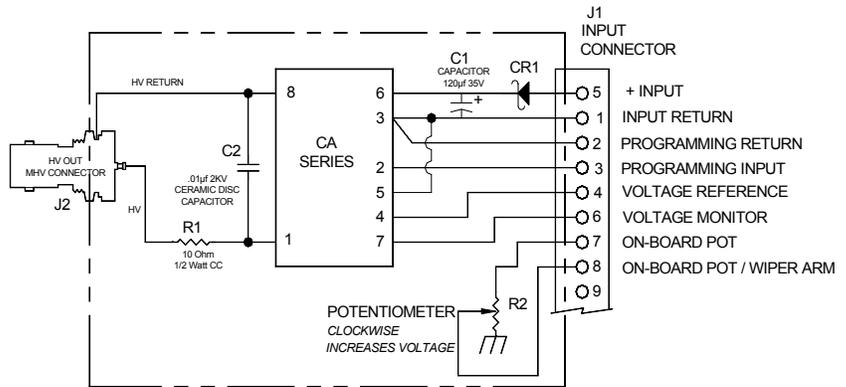
Chassis mounting for the CA Series High Voltage Power Supplies
Easy Prototyping and Evaluation

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 and output is via an MHV style coaxial connector.



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)

