

Action Pak®

Dual Slope DC-Input Voltage Isolator

Model 4380-5000



Provides a Fully Isolated DC Voltage Output in Proportion to a DC Voltage Input.

- Eliminates Ground Loops
- Dual Output Slope Operation: 0-8VDC at 1:1 Input/Output Transfer Ratio, and 8 - 10VDC at 1:0.0217 ratio
- Diagnostic LED
- Protects equipment with 3000VAC Input to Output Isolation
- Easy Plug-In Installation
- AC Line Powered
- Three-Year Warranty

DESCRIPTION

The Action Pak Model 4380-5000 isolating signal conditioner offers a dual slope operation with two distinct output regions.

The 4380-5000 accepts a voltage input of up to 100VDC and, depending on the magnitude of the input, provides a signal ranging either from 0 to 8VDC, or 8 to 10VDC.

For inputs ranging from 0 to 8VDC the unit outputs linear signals from 0 to 8 VDC.

For inputs in the 8 to 100VDC range the units provides an output ranging from 8 to 10VDC. This operation is shown on Figure 1.

The output is optically isolated from the input to 3000 volts DC. Both input and output circuits are also transformer isolated from the AC supply power.

DIAGNOSTIC LEDES

The AP4380-5000 is equipped with top-mounted LED monitors. One LED indicates the status of the line power.

Line power status is indicated by an illuminated green LED. If the LED is off, check line power and the wiring connections.

The LED labeled BKPT indicates the signal has transitioned from Slope 1 to Slope 2 (Slope 1 - OFF, Slope 2 - ON).

CALIBRATION

Equipment Required:

1. Calibrated Voltage Source, 0-100VDC, accurate to $\pm 1\text{mV}$ or better from 0-10VDC.
2. Calibrated Voltmeter, 0-100VDC, accurate to $\pm 1\text{mV}$ or better from 0-10VDC.

Procedure:

1. Prepare a socket for the AP4380-5000. Connect a source of AC power (de-energized) to pins 1 (hot) and 3 (neutral). Connect the voltage source to pins 5 (+) and 6 (-), and the voltmeter to pins 7 (+) and 8 (-).

Note: If the accuracy of the voltage source is unknown, a second voltmeter of suitable accuracy should be used to monitor the input.

2. Plug the AP4380-5000 into the socket and apply AC power. For maximum accuracy allow the module to warm up for 15 minutes prior to making adjustments. Before calibration set all potentiometers to 50% of rotation. The 4380-5000 uses 25 turn potentiometers.

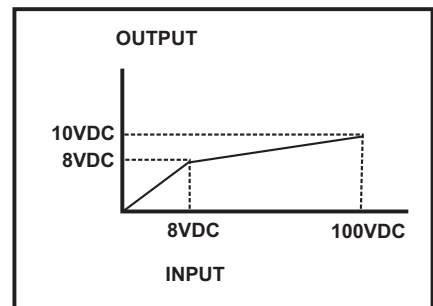


Figure 1: Dual Slope Operation

3. Refer to Figure 3 for potentiometer locations.

4. Set the voltage source to $0.000 \pm 0.001\text{VDC}$. Adjust the SPAN potentiometer for a reading of $0.000 \pm 0.001\text{VDC}$ on the voltmeter.

5. Set the voltage source to $7.000 \pm 0.001\text{VDC}$. Adjust the ZERO potentiometer for a reading of $7.000 \pm 0.001\text{VDC}$ on the voltmeter.

Note: See an alternative method of calibrating Zero and Span potentiometers at the end of this procedure.

6. Repeat steps 4 and 5 until no further improvement is noted.

7. Set the voltage source to 9.000 ±0.01VDC. Adjust the BKPT potentiometer for a reading of 8.022 ± 0.001VDC on the voltmeter.

8. Set the voltage source to 100.000 ± 0.01VDC. Adjust the Gain potentiometer for a reading of 10.000 ±0.001VDC on the voltmeter.

9. Repeat steps 7 and 8 until no further improvement is noted.

10. Repeat steps 4-8 until no further improvement is obtained.

11. Remove AC power from the unit and remove from socket.

12. Repeat steps 1 through 10 for additional units to be calibrated.

Note: these adjustments interact - use care in adjustment.

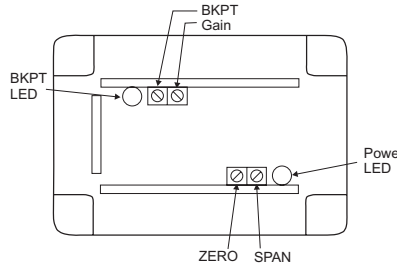


Figure 3: AP4380-5000 (Top View)

13. End of calibration procedure.

Alternative method of setting Zero and Span Potentiometers.

4. Set the voltage source to 0.000 ±0.001VDC. Adjust the ZERO potentiometer for a reading of 0.000 ±0.001VDC on the voltmeter.

5. Set the voltage source to 7.000 ±0.001V and note the output. Adjust the SPAN potentiometer by approximately 33% of the difference between noted output and the desired output of 7V.

Example: Input is 7V and noted output is 7.6V. Adjust SPAN pot until output is 7.4V. (7.6V - 7V = 0.6V. 33% of 0.6V = 0.2V. 7.6V - 0.2V = 7.4V)

6. Repeat steps 4 and 5 until no further improvement is noted.

SPECIFICATIONS

Input

Voltage
0-100VDC
Impedance
>100K ohms

Outputs

Region 1: 0-8VDC
Region 2: 8-10VDC
Drive: 10mA max.

Accuracy

Region 1(0-8VDC): ±0.1% FS
Region 2(8-10VDC): ±0.2%FS

Output Noise (Maximum)
3mV RMS

Response Time

2mSec typical

Stability

±0.01% of region 1 span/°C
±0.02% of total span/°C

Common Mode Rejection (minimum)

DC to 60Hz: 90dB

Isolation

Input to Output, and
Input/Output/Line
Power: 3000VDC

Temperature Range

Operating: 0 to 70°C
Storage: -25 to 75°C

Power

Consumption: 1.5W typical
Standard: 120VAC±10%,
1-phase, 60Hz

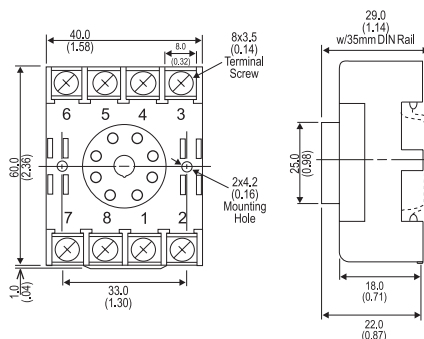
PIN CONNECTIONS

1. AC Power (Hot)
2. Shield (Gnd)
3. AC Power (Neutral)
4. Spare
5. Input (+)
6. Input (-)
7. Output (+)
8. Output (-)

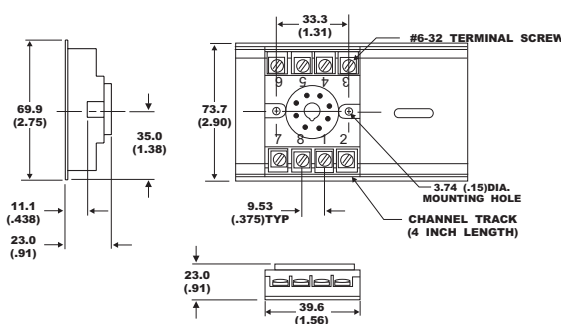
MOUNTING

All Action Paks feature plug-in installation using either molded sockets (M008) or DIN rail (MD08).

MD08 (DIN rail)

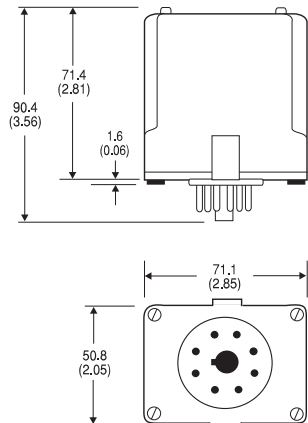


M008 (Track/Surface)



DIMENSIONS

Dimensions are in Millimeters (Inches)



All Prices and Specifications subject to change without notice.

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