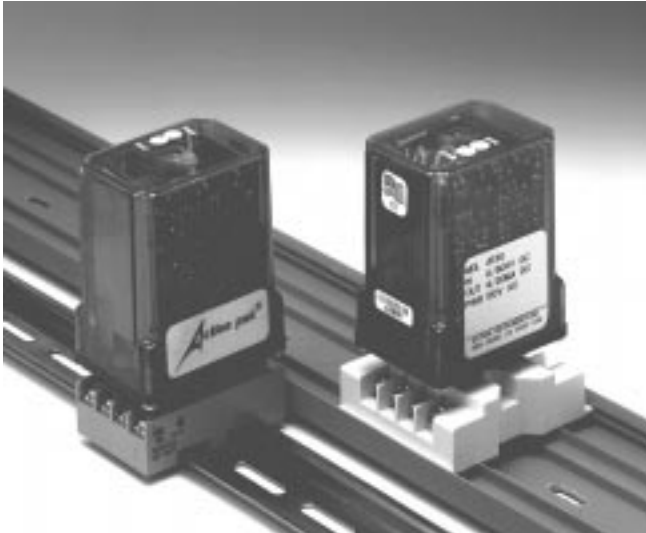


# Action Pak<sup>®</sup>

## Rate-of-Change Limiter

### Model AP4580



**Provides an Electronically Dampened DC Output in Proportion to a DC Input.**

- **Adjustable Rate (0.1 Second to 1 Minute) Protects Equipment from Abrupt Changes**
- **Adds Control Loop Stability and Filtering.**
- **Easy Plug-in Installation/Low Mean-Time-to-Repair**
- **AC Line Powered (DC optional)**
- **Three Year Warranty**

#### APPLICATION

Model AP4580 is useful in smoothing out abrupt process changes and helps to protect control equipment, such as valves or motors, from severe control changes. The AP4580 also aides in control-loop stability.

#### OPERATION

The AP4580 provides a DC output that ramps from a previous input level to a subsequent input level at a linear rate determined by the user. Whenever the input variations are slower than the ramp rate, the output follows, otherwise, the output is the ramp. The sharp changes of a step-function input, for example, are buffered as shown in Figure 1.

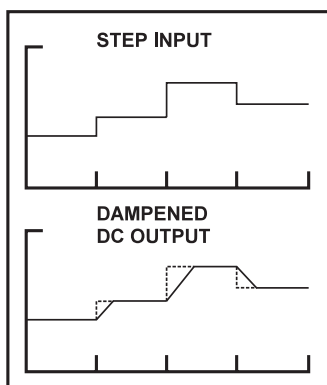


Figure 1: Dampened Step Input

#### OPTIONS

- CS** Canadian Standards Association Certification.
- U** Urethane coating of internal circuitry for protection from corrosive atmospheres.

#### CALIBRATION

Top-accessed screwdriver adjustments provide typical  $\pm 10\%$  zero span adjustability. Calibration is referred to input in that adjustments are to correct for input/sensor variations. With RATE fully clockwise (fastest response), Zero is adjusted for the specified minimum output with the input at its minimum. Span is adjusted likewise, with the input at its maximum. Repeat adjustments for maximum accuracy.

*Rate:* Turn the rate adjustment CCW until unwanted transients are eliminated. Turn rate CW for improved response time.

Table 1: AP4580 Standard Inputs

|        |         |           |
|--------|---------|-----------|
| 0 - 1V | 1 - 5V  | 4 - 20mA  |
| 0 - 5V | 0 - 10V | 10 - 50mA |

#### FACTORY ASSISTANCE:

For additional information on calibration, operation and installation please contact Action's Technical Services Group. Call toll-free:

**800-767-5726**

Table 2: AP4580 Standard Outputs

|        |         |           |
|--------|---------|-----------|
| 0 - 1V | 1 - 5V  | 4 - 20mA  |
| 0 - 5V | 0 - 10V | 10 - 50mA |

Table 3: AP4580 Input limits

| Minimum Span |         | Maximum Input |         |
|--------------|---------|---------------|---------|
| Voltage      | Current | Voltage       | Current |
| 100mV        | 1mA     | 200V          | 1A      |

Table 4 AP4580 Output Limits

| Minimum Span |         | Maximum Output |         |
|--------------|---------|----------------|---------|
| Voltage      | Current | Voltage        | Current |
| 100mV        | 1mA     | 10V            | 50mA    |

## SPECIFICATIONS

### Input Impedance

Voltage Input  
> 200K $\Omega$

### Current Input

20 $\Omega$  shunt

### Output Impedance

Voltage  
< 10 $\Omega$

Current  
> 100K $\Omega$

### Output Drive

Voltage Output  
10mA, max. (1K $\Omega$ , min.  
@ 10V)  
Current Output  
15V compliance @ 20mA  
(750 $\Omega$ , max.)

### Stability

< 0.02% /  $^{\circ}$  C

### Output Noise

0.25% of span or 5mV rms,  
whichever is greater

### Accuracy

0.05% of span typical

### Output Rate

Adjustable: 0.1 sec. to 1 min.  
(full scale)

### Common Mode Voltage

500V DC or peak AC, max.

### Common Mode Rejection

60Hz: 80dB  
DC: 100dB

### Temperature Range

Operating: 0 to 60 $^{\circ}$ C (32 to 140 $^{\circ}$ F)  
Storage: -20 to 85 $^{\circ}$ C (-4 to 185 $^{\circ}$ F)

### Power

Consumption: 3W typical, 5W  
max.  
Standard: 120VAC  
( $\pm$  10%, 50 to 400 Hz)  
Available: 240VAC  
( $\pm$ 10%, 50 to 400Hz)

### Weight

0.52lbs

## PIN CONNECTIONS

### AP4580

- 1 AC Power (Hot)
- 2 Shield (Gnd)
- 3 AC power (Neu)
- 4 No Connection
- 5 Input (+)
- 6 Input (-)
- 7 Output (+)
- 8 Output (-)

*Note: Input and output do not have an internal common. Do not ground both.*

## MOUNTING

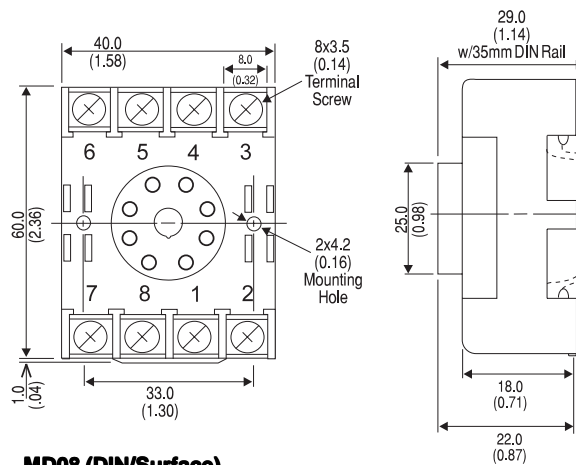
All Action Paks feature plug-in installation. Model AP4580 uses an 8-pin base and either molded socket M008 or DIN rail MD08 sockets.

## Ordering Information:

### Specify:



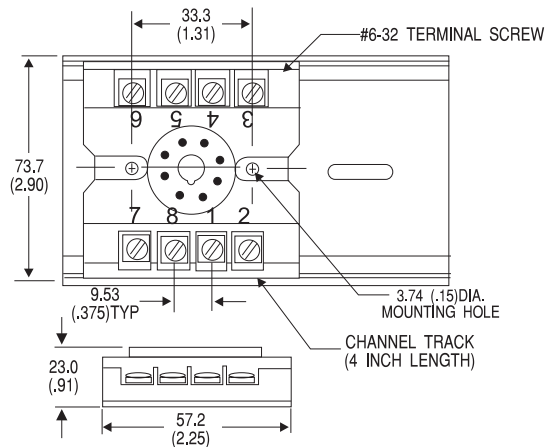
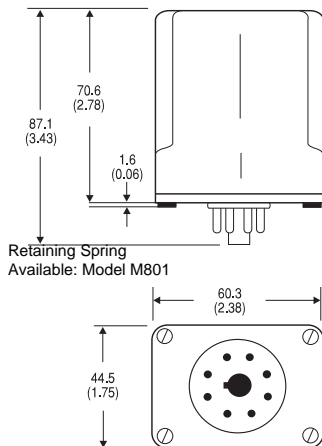
1. Model AP4580
  2. Input Range (see Tables 1,3)
  3. Output Range (see Tables 2,4)
  4. Options: CS, U
  5. Line Power (see specs)
- (All power supplies are transformer-isolate from the internal circuitry).



MD08 (DIN/Surface)

## DIMENSIONS

Dimensions are in Millimeters (Inches)



M008 (Track/Surface)

All Prices and Specifications subject to change without notice

United States

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