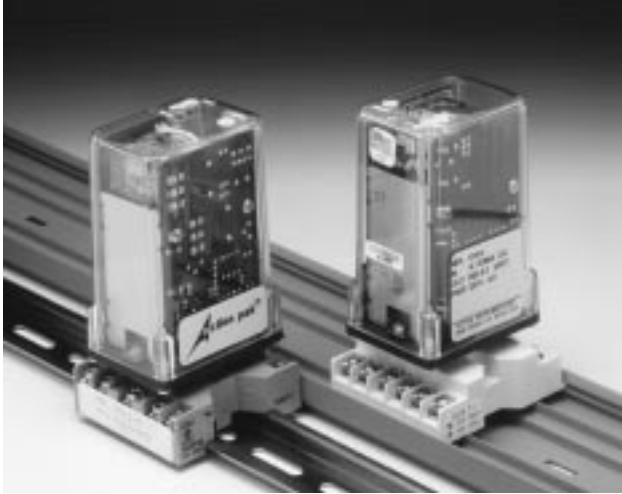


# Action Pak®

## DC-Input Linearizing Signal Conditioner

### Model AP4155



#### Provides a Linearized DC Output in Response to a Non-Linear DC Input

- **12-Segment Linearization**
- **I/O Curve Computer-Optimized**
- **Liquid Level, Gas Flow Applications**
- **Easy Plug-in Installation/Low Mean-Time-to Repair**
- **AC Line Powered**
- **Three Year Warranty**

#### APPLICATION

The AP4155 is used to perform a variety of linearization functions, such as liquid level to volume conversion in tapered or curved tanks and linearizing the output of non-linear gas flow and temperature sensors. The AP4155 can also provide a non-linear output in response to a linear input, if desired.

#### OPERATION

The DC input signal is fed to the input amplifier which drives a series of twelve gain stages. The gain stages are activated in turn at DC input levels predetermined at the factory for best 12-segment linearization; the segments are more closely grouped at the most non-linear portions of the input curve. Each stage adds to or subtracts from the gain of the preceding stage as necessary to correct the input non-linearity. The linearization stage allows adjustment of zero, and drives an output buffer stage which allows adjustment of span.

In units having a current output (e.g. 4-20mA), the output is a constant-current source controlled by the buffer stage. With voltage output units (e.g. 0-10V), the output is taken directly from the discrete driver transistor of the buffer stage.

The AP4155 is built to user defined curve information. A maximum of 14 points are used to design a computer optimized I/O response.

You will need to define your curve at the time of ordering. A call to Action's Technical Service Group is required before placing an order.

#### 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 and span adjustability. Calibration is referred to input in that adjustments are to correct for input/sensor variations.

Zero is adjusted for the specified minimum output with the input at the desired minimum.

Span is adjusted for the specified maximum output with the input at the desired maximum.

Repeat adjustments for best accuracy. The zero and span adjustments are placed in the output stages so that they do not affect the placement of the linearization points with respect to the input.

#### FACTORY ASSISTANCE:

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

**800-767-5726**

## Output Ranges

Table 1: AP4155 Standard Output

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

Standard Inputs: Any Range  
>200mV or 1mA and < 250V or 1A.

Table 2: AP4155 Input Limits

Minimum Span		Maximum Input	
Voltage	Current	Voltage	Current
200mV	1mA	250V	1A

Table 3: AP4155 Output Limits

Minimum Span		Maximum Input	
Voltage	Current	Voltage	Current
100mV	1mA	10V	20mA

## SPECIFICATIONS

### Input Impedance

Voltage Input  
200K $\Omega$ , minimum  
Current Input  
500mV shunt, maximum

### Linearizing Accuracy

10:1 improvement  
over non-linearized input,  
typical

### Output Impedance

Voltage Output < 10 $\Omega$   
Current Output > 100K $\Omega$

### Output Drive

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

### Response Time

100 mSec., typical

### Initial Calibration

$\pm 0.5\%$  of span, typical

### Stability

$\pm 0.05\%$  of span/ $^{\circ}\text{C}$ , typical

### Output Ripple

0.25% of span

### Common Mode Rejection

60 Hz: > 80dB

DC: >120dB

### Common Mode Voltage

500V DC or peak AC, max.

### Temperature Range

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

### Power

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

### Weight

AP4151 0.52lbs

## PIN CONNECTIONS

### AP4155

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

## MOUNTING

All Action Paks feature plug-in  
installation. Model 4155 uses an 8-pin  
base and either molded socket M008  
or DIN socket MD08.

## ORDERING INFORMATION

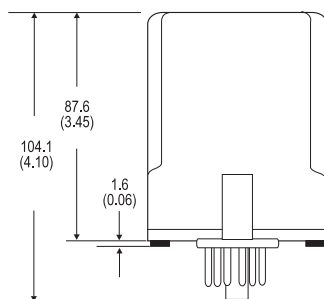
### Specify



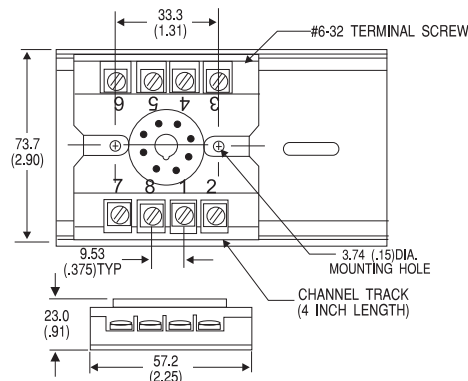
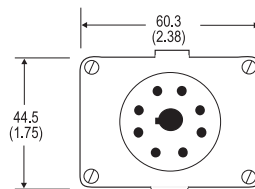
1. Model: AP4155
2. Input range (see Table 2)
3. Output range (see Table 1,3)
4. Specify up to 14 input to output  
points for curve definition.
5. Options: CS, U (see text)
6. Line Power (see specifications)  
(All power supplies are  
transformer-isolated from the internal  
circuitry.)

## DIMENSIONS

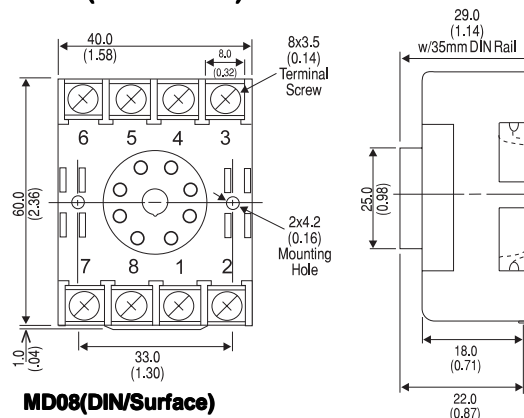
Dimensions in millimeters (inches).



Retaining Spring  
Available: Model M801



### M008 (Track/Surface)



### MD08(DIN/Surface)

All Prices and Specifications subject to change without notice

# 大连爱克新仪器有限公司

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**ACTION INSTRUMENTS**  
...the Industrial I/O Company