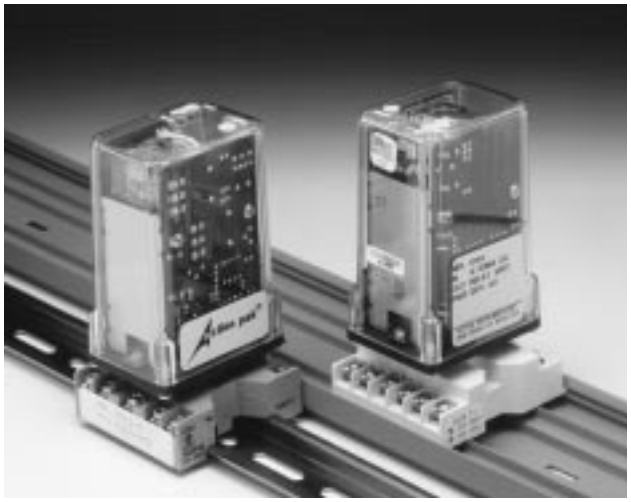
Action Pak®

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 ±10% zero and span adjustability. Calibration is refered 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
200KΩ , minimum
Current Input
500mV shunt, maximum

Linearizing Accuracy
10:1 improvement over non-linearized input, typical

Output Impedance
Voltage Output < 10Ω
Current Output > 100KΩ

Output Drive
Voltage Output
10mA, max.(1KΩ, min.)
Current Output
15V compliance @ 20 mA
(750Ω , max.)

Response Time
100 mSec., typical

Initial Calibration
±0.5% of span, typical

Stability
±0.05% of span/°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°C (32 to 140°F)
Storage:-20 to 85°C (-4 to 185°F)

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

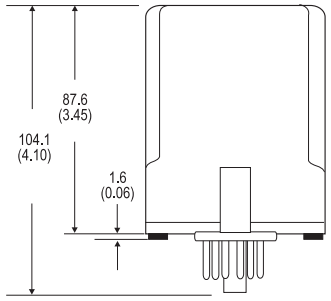
ORDERING INFORMATION

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)

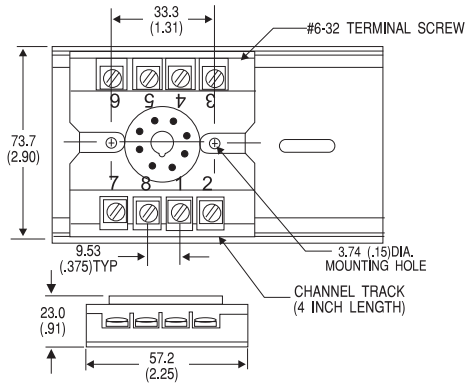
(All power supplies are transformer-isolated from the internal circuitry.)

DIMENSIONS

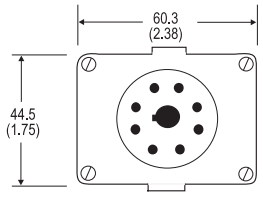
Dimensions in millimeters (inches).

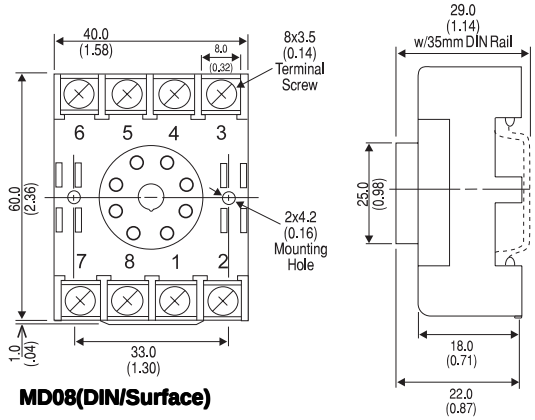


Retaining Spring
Available: Model M801



M008 (Track/Surface)





MD08(DIN/Surface)

All Prices and Specifications subject to change without notice