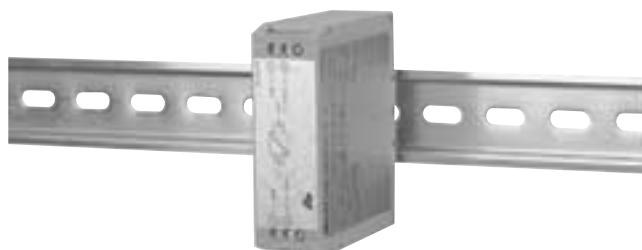


## MODEL AIMI - 0 (4) TO 20 MA PASSIVE LOOP POWERED ISOLATOR

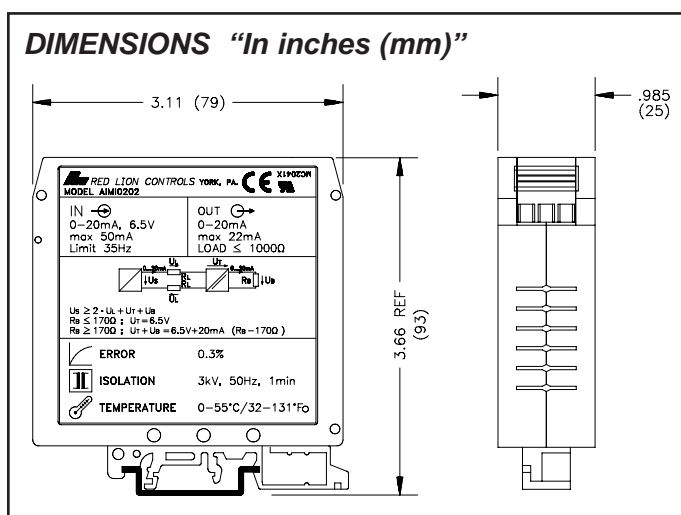


### SPECIFICATIONS

- INPUT RANGE:** 0(4) to 20 mA
- MAXIMUM INPUT CURRENT/VOLTAGE:** 50 mA/25 VDC
- MINIMUM INPUT CURRENT/VOLTAGE:** 0 mA/6.5 V
- INPUT RESISTANCE@ 20mA:** 325-1155  $\Omega$  (dependent on load)
- VOLTAGE DROP AT INPUT:** (See Chart at Right)
- MAXIMUM INPUT FREQUENCY:** 35 Hz
- RESPONSE TIME:** 0.029 sec. max.
- OUTPUT SIGNAL:** 0 to 20 mA  
**Load Resistance:**  $\leq 1000 \Omega$
- ISOLATION VOLTAGE:** 3 KV, 50 Hz, for 1 minute
- ACCURACY:**  $\leq 0.3\%$  of full scale
- OPERATING TEMPERATURE RANGE:** 0 to 55°C
- TEMPERATURE COEFFICIENT:**  $\leq 0.005\%/K$ , typ.  $\leq 0.002\%/K$
- CONSTRUCTION:** Case body is green, high impact plastic.
- MOUNTING:** Standard DIN style rail, including top hat (T) profile rail according to EN50022 - 35  $\times$  7.5 and 35  $\times$  15, and G profile rail according to EN50035 - G32.
- WEIGHT:** 2.976 oz (84.37 g)



UL Recognized Component,  
File #E171375



### DESCRIPTION

Compact passive loop powered isolator provides ground potential isolation of analog control circuits, 0 to 20 mA and 4 to 20 mA. The isolator ensures safe decoupling of the sensor signal from the control electronics.

The Model AIMI is powered by the input loop current. The input loop current is converted to an alternating current signal using a chopper circuit, isolated by a transformer, rectified, and filtered at the output loop.

If the output loop resistance is less than 170  $\Omega$ , the input voltage drop is 6.5 V. If the output loop resistance is between 170  $\Omega$  and 1000  $\Omega$ , the input voltage drop increases linearly from 6.5 to 23.1 V at a loop current of 20 mA.

The output signal is a current source, for a load connected between the (+) and (-) terminals.

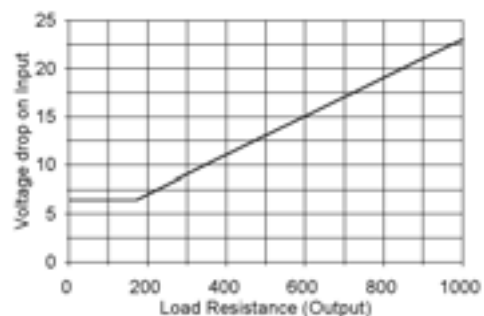
### VOLTAGE DROP AT INPUT

Voltage drop across the input is calculated by determining the load resistance of the output loop, drawing a vertical line to the curve, then horizontally to the voltage drop.

A load resistance of less than 170  $\Omega$  results in a 6.5 V drop. For loads from 170 to 1000  $\Omega$ , the formula is:

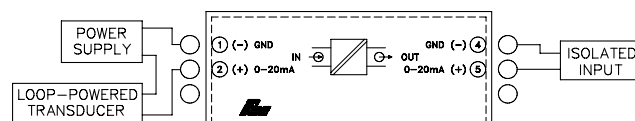
$$V_{drop} = 6.5 + [0.02 \times (R_{load} - 170)]$$

As an example, 400  $\Omega$  load resistance results in a voltage drop of 11.1 V on the input.



### WIRING CONNECTIONS

Connect transducer to input (Terminals 1 & 2), observing polarity. A power supply may be required for loop powered transducers.



The energy for the supply on the input side is taken from the analog input signal. Due to the dynamic input resistance, a voltage of approximately 6.5 V drops at the module input.

### ORDERING INFORMATION

| MODEL NO. | INPUT       | OUTPUT      | PART NUMBER |
|-----------|-------------|-------------|-------------|
| AIMI      | 0 (4)-20 mA | 0 (4)-20 mA | AIMI0202    |