

- **0.1% Accuracy**
- **2-Wire Operation**
- **Low 7.0 VDC Drop**
- **Intrinsically Safe Operation**
- **Fits Standard Connection Heads**
- **Optional DIN Rail Or Snaptrack<sup>®</sup> Mounting**
- **RFI Protected**



The DEVAR SM822 Signal Transmitters accept a resistance input from potentiometers and rheostats and provide a 4 to 20 mA output signal proportional to the measured variable. Because the SM822 is a 2-wire device, only a single pair of twisted copper wires is required to carry both the output signal from and the input power to the transmitter.

These transmitters feature a calibration accuracy of 0.1% of span and an operating voltage ranging from 7 to 35 VDC. Their small size allows for easy, high-density, surface, SNAPTRACK<sup>®</sup> or DIN rail mounting. They are also designed to mount in most standard (thermocouple) connection heads, which provide a rugged, compact enclosure that can be located close to the point of measurement.

The SM822P receives its input from a 3-wire potentiometer. Because the input is potentiometric, the specific resistance value of the potentiometer is not important. The SM822P-0001 can be connected to potentiometers

ranging from 1k $\Omega$  to 100k $\Omega$  and the SM822P-0002 can be connected to potentiometers ranging from 70 $\Omega$  to 2k $\Omega$ . The multi-turn trim pots provide an offset adjustment of  $\pm 10\%$  and a span adjustment of  $\pm 25\%$  of the nominal range.

The SM822R receives its input from a 2-wire rheostat. The SM822R-0102 connects to a 1K $\Omega$  rheostat and SM822R-0103 connects to a 10K $\Omega$  rheostat. The output of the rheostat transmitter is reverse acting with respect to the resistance input. For example, the SM822R-0103 outputs 20 mA for a 0 $\Omega$  input and 4 mA for a 10K $\Omega$  input.

These transmitters carry Factory Mutual Approval for use in hazardous locations. They are rated Intrinsically Safe for Class I, Division 1, Groups A, B, C and D and Noninsensitive, Class I, Division 2, Groups A, B, C and D.

**SPECIFICATIONS**

**Accuracy:** ± 0.1% of span includes effects of linearity, hysteresis, and repeatability relative to sensor input.  
**Thermal Effect:** Zero Shift of ± 0.02%/Span/°F, Span Shift of ± 0.02%/Span/°F  
**Power Supply:** Working Voltage of 7 to 35VDC  
 Supply Voltage Effect < ± 0.001%/Span/Volt  
**Loop Resistance Load Effect:** < ± 0.002%/Span/300Ω  
**Maximum Loop Resistance =** (V Supply - 7V) / 20mA  
**RFI Immunity:** Rated class 3-C: 0.25% of span per SAMA PMC 33.1-1987-2abc  
**Frequency Response:** -3dB @ 3Hz

**ENVIRONMENT**

**Temperature Range:** Ambient -13° to 185°F, Storage -85° to 257°F  
**Humidity:** 0 to 90% non-condensing

**OUTPUT**

**Standard Signal Range:** 4 to 20 mADC  
**Absolute Limit:** 2 to 22 mA  
**Open Sensor Indication:** SM822R: Output > 20mA

**CALIBRATION**

**Calibration Range Adjustability:** Zero ±10% of nominal span, Span ±25% of nominal span

**Standard Ranges:**

SM822P: (Potentiometer)  
 -0001 Sensor from 1KΩ to 100KΩ  
 -0002 Sensor from 70Ω to 2000Ω  
 -0011 Sensor from 1KΩ to 100KΩ, w/Reversed Terminal Block

SM822R: (Rheostat)

-0103 for a 10KΩ ±10% Sensor.  
 -0102 for a 1KΩ ±10% Sensor

**FM APPROVALS**

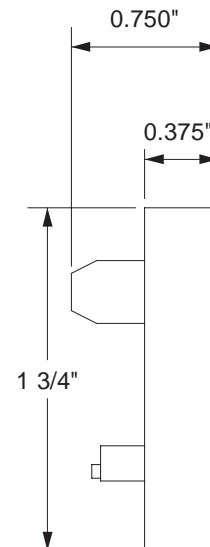
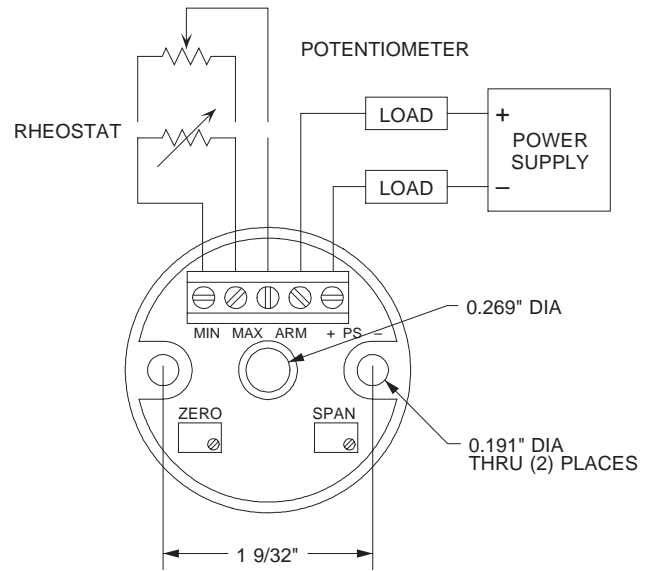
Intrinsically Safe: Class I, Division 1, Groups A, B, C & D  
 Noninsendive: Class I, Division 2, Groups A, B, C & D  
 Entity Parameters: Vmax = 32V, Imax = 150mA, Ci = 0μfd, Li = 0mH

**OPTIONS**

- M31S SNAPTRACK® Mounting Bracket
- M31D DIN Rail Mount
- CHA Aluminum Connection Head
- CHN Nylon Connection Head
- CHX Explosion Proof Connection Head

**ORDERING INFORMATION**

SM822P - <resistance range> - <option>  
 SM822R - <resistance range> - <option>



**DEVAR Inc.**

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