

- \* 0.1% ACCURACY
- \* OUTPUT NOT AFFECTED BY LOAD (NO FIELD ADJUSTMENT NEEDED)
- \* COMPACT SIZE
- \* 1000V ISOLATION RATING



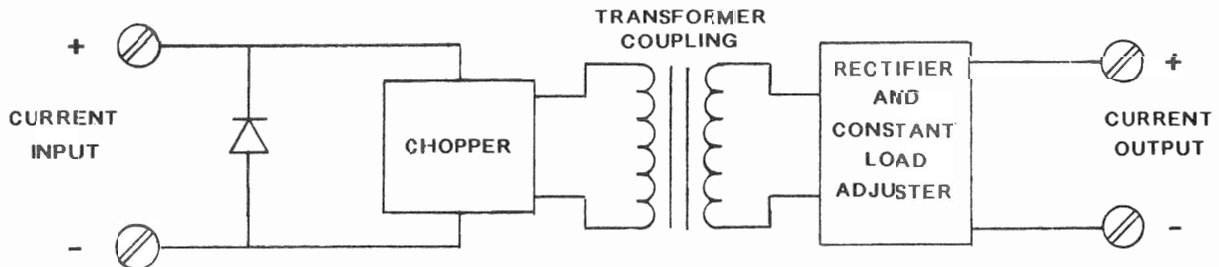
## DESCRIPTION

The Model SM269 provides a simple method for isolating input output signals in a standard 4 to 20 milliamp loop. Deriving its power directly from the transmitting current loop, the Model SM269 may be installed anywhere along the loop where an isolated current output is desired. The output current is an accurate reproduction of the input current which is not affected by the value of the load. There are two versions of the SM269, the SM269-1 and the SM269-3. The SM269-3, which drives loads ranging from 0 to 300 ohms will add a 9 volt drop to the primary loop at 20 milliamps. The SM269-1, which only adds a 5.6 volt drop to the primary loop at 20 milliamps, will drive loads ranging from 0 to 110 ohms. Because of the lower voltage drop, two SM269-1 isolators may be connected in series in the primary current loop, thus providing two isolated outputs while

maintaining a combined voltage drop of less than 12 volts.

## THEORY OF OPERATION

The SM269 functions by modulating the input current at 11,000 Hz for transformer coupling to rectifier diodes where the signal is demodulated back to a 4 to 20 milliamp signal. There is additional circuitry which senses the output current and voltage and adjusts the output impedance so that the output impedance plus the external load resistance will always equal 300 ohms (or 110 ohms). Because the total resistance remains a constant, the output signal is not affected by changes in the external load resistance.



**SPECIFICATIONS**

**INPUT:**

RANGE: 4 TO 20 MA  
 VOLTAGE DROP:  
 SM269-1: 3V(4MA) TO 5.6V(20MA)  
 SM269-3: 3V(4MA) TO 9.0V(20MA)

**OUTPUT:**

RANGE: 4 TO 20 MA  
 LOAD: SM269-1: 0 TO 110 OHMS  
 SM269-3: 0 TO 300 OHMS

**LOAD REGULATION: 0.01% OF SPAN**

**POWER SOURCE: INPUT SIGNAL**

**ACCURACY: 0.1%**

**MAX OPERATING RANGE: 2.5 TO 23 MA**

**MAX CONTINUOUS CURRENT: 40 MA**

**TEMPERATURE EFFECT:**  
 LESS THAN +/- 0.01% PER °C

**TEMPERATURE RANGE:**  
 - 40 °C TO +70 °C

**COMMON MODE REJECTION:**  
 120 DB AT 60 HZ

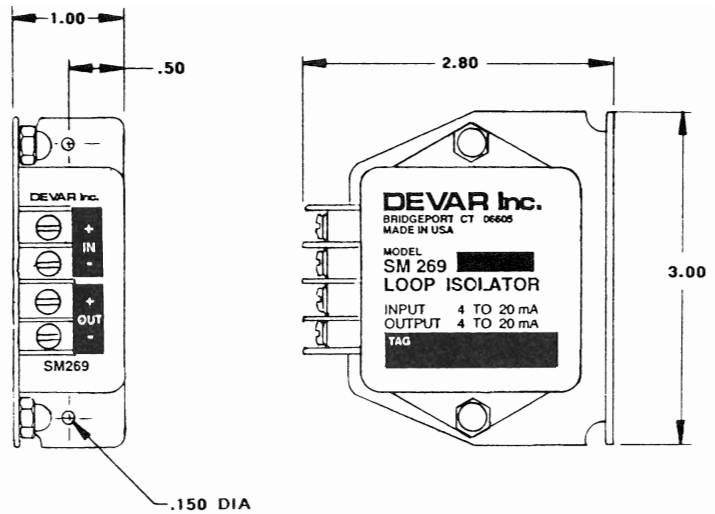
**ISOLATION RATING:**  
 1000 VOLTS RMS AT 60 HZ  
 (BETWEEN INPUT, OUTPUT AND CASE)

**FREQUENCY RESPONSE:**  
 TIME CONSTANT = 6MS  
 3 DB FREQ. = 20 HZ

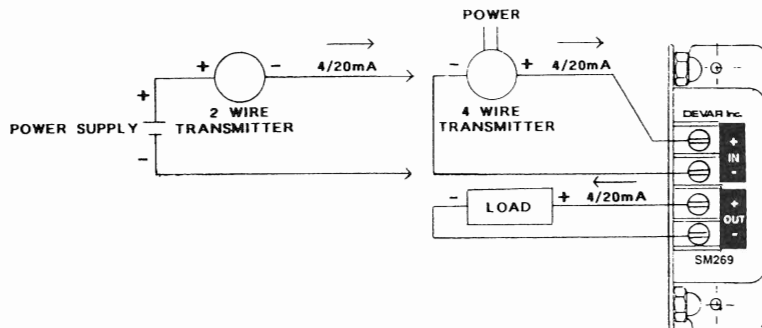
**RFI EFFECT: LESS THAN 0.2% SPAN FOR 5W**  
 470 MHZ TRANSMITTER AT 1 FT

**HOUSING: 3" HIGH X 1" WIDE X 2.8"DEEP**  
 PAINT OVER TIN PLATED STEEL,  
 SURFACE OR 3" SNAP TRACK  
 BRACKET INCLUDED, DIN RAIL  
 MOUNT OPTION -M31D

**WEIGHT: 3.5 OZ**



**MECHANICAL DIMENSIONS**



**TYPICAL FIELD WIRING**

**ORDERING INFORMATION:**

**BASIC MODEL SM269:**  
 SPECIFY DESIRED LOAD  
 110 OHM MAX -1  
 300 OHM MAX -3

**OPTIONS:**  
 NEMA 4 HOUSING -NE4  
 EXPLO PROOF HOUSING -M37A  
 DIN RAIL MOUNTING -M31D  
 STAINLESS STEEL TAG -M14S

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