

- HIGH ACCURACY / 0.05%
- SMALL SIZE / HIGH PACKING DENSITY
- INPUT AND OUTPUT POWER VERSION
- VERY LOW COST VERSION
- SIGNAL SPLITTING VERSION
- LOOP BOOSTERS FROM A SINGLE SUPPLY



## PROCESS SIGNAL ISOLATORS SEM1000 Series

### DESCRIPTION

The **SEM1000** series of loop powered analogue signal isolators comprises versions that are suitable for most applications, regardless of whether the loop power is available at the input or output side of the isolator. There is also a loop 'splitter' which produces two completely isolated outputs from a single input.

Various special applications can be realised such as loop boosting and driving into 900 ohms from a barrier protected IS circuit, using the SEM1020 low cost version.

The small size of the SEM1000 series enables many more units to now be installed in the same physical space.

Their high accuracy permits the addition of isolation to systems without significantly degrading the overall system performance. The zero and span adjustment potentiometers can be used to remove any system errors.

### SPECIFICATION @ 68°F

#### GENERAL

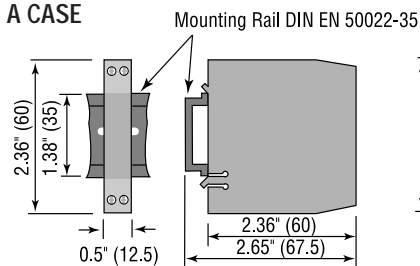
<b>Isolation</b>	1000V AC RMS (Flash tested to 3KV)
<b>Accuracy</b>	0.05% (Including Hysteresis and Linearity)
<b>Stability</b>	60 ppm/°F
<b>Ambient</b>	32 - 158°F; 10 to 95% RH Non-condensing
<b>Time Constant</b>	0.1Sec (to 63% of final value)
<b>Cable Size</b>	4mm <sup>2</sup> Solid / 2.5mm <sup>2</sup> Stranded
<b>Material</b>	Polyamide (Grey)
<b>Flammability</b>	To UL94-VO VDE 0304 Part 3 Level IIIA
<b>Mounting</b>	Top Hat rail to DIN EN 50022-35
<b>Adjustments</b>	Front entry Zero and Span potentiometers

#### APPROVALS

<b>EMC</b>	<b>All versions are tested to:</b>
<b>IEC 801-2</b>	Susceptibility to electrostatic discharge
<b>IEC 801-3</b>	Radiated Susceptibility
<b>IEC 801-4</b>	Susceptibility to conducted interference
<b>EN 55022</b>	Radiated emissions

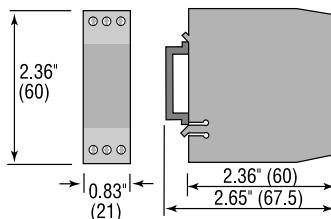
### MECHANICAL DETAILS

#### A CASE



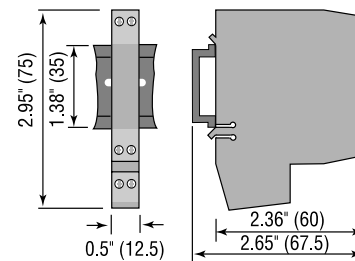
**SEM1000  
SEM1015  
SEM1020**  
Weight approx. 1.8 oz (50 g)

#### B CASE



**SEM1010**  
Weight approx. 3.6 oz (60 g)

#### C CASE



**SEM1200**  
Weight approx. 2.5 oz (70 g)



## STATUS INSTRUMENTS INC.

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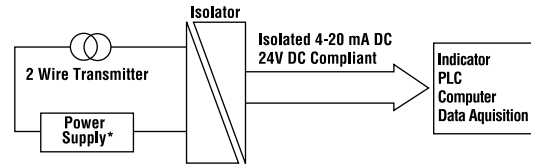
SEM1000 6.02/PDF

**SEM1000** Provides Isolated 4-20 mA DC – 24V DC Compliant Output

The SEM1000 is designed to be inserted in an existing 4-20 mA loop and provides an isolated 4-20 mA signal driving into a load up to 500 ohms.

Loop volt drop = 5V Typical 5.5V Max (plus load)

If output LOAD = 250 ohms VOLT DROP =  $5 + (0.02 \times 250\Omega) = 10V$

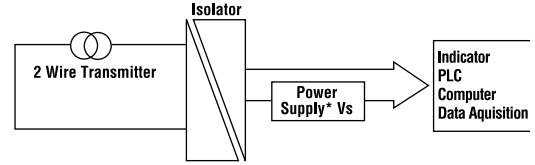


**SEM1010** Isolates Transmitter from P.S./Readout – Powers Transmitter

The SEM1010 provides isolated power for a field transmitter from the 4-20 mA output. It requires a single DC power supply (Vs) on the output.

$$(\text{Max Load}) = \frac{Vs - 5 - Tx \text{ Volts}}{20} \text{ K ohm}$$

Vs is 24V nominal or 30 Max. Loop volt drop @ 24V = 5V



**SEM1015** Isolates & Converts Existing Voltage Output to 4-20 mA DC Transmitter Signal

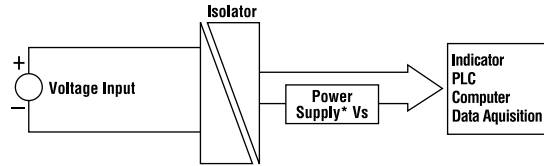
This unit provides an isolated 4-20 mA output from a voltage input. It requires a single DC power supply (Vs) on the output.

$$(\text{Max Load R1}) = \frac{Vs - 8}{20} \text{ K ohm}$$

Vs is 24V nominal or 30 Max.

SEM1015 Vin = ±0.1V to 100V (user selectable)

(Note: Current inputs can be monitored by use of external resistors)

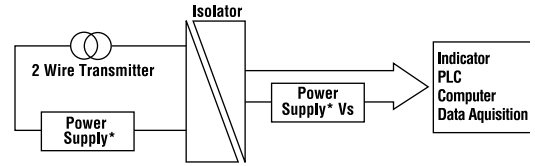


**SEM1020** Low Cost – Loop Power Required on Both Sides

The SEM1020 is a low cost isolator that requires power on both sides of the isolation barrier. This must of course be provided by two supplies isolated from each other to maintain isolation.

Loop volt drop = 2.7V Load = 900 ohm @ Vs = 24V  
= 1200 ohm @ Vs = 30V

Vs is 24V nominal or 30 Max



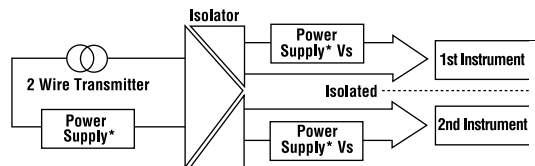
**SEM1200** Signal Splitter – One Input - Two Isolated Outputs

The SEM1200 is an isolator that provides **two** isolated 4-20 mA outputs from a single 4-20 mA input. It requires power for all loops.

Loop volt drop = 5V Load = 900 ohm @ Vs = 24V  
= 1200 ohm @ Vs 30V

Vs is 24V nominal or 30 Max

Loads must be >250R for ambients >122°F



\*Some Instruments have the power supply built in (ie Status DM4000)

LOCAL REPRESENTATION



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