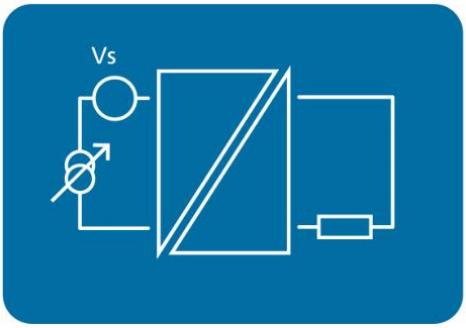
SEM1000 PROCESS SIGNAL/LOOP ISOLATOR

- **INPUT LOOP POWERED**
- **(4 to 20) mA INPUT AND OUTPUT**
- **GALVANIC ISOLATION 500 Vdc, 1 kV FLASH TESTED**
- **HIGH ACCURACY, BETTER THAN 0.05% OF RANGE**
- **12.5 mm WIDE**



INTRODUCTION

The SEM1000 isolator is designed to be series connected into a new or existing (4 to 20) mA current loop and provide an isolated (4 to 20) mA signal capable of driving into 300 Ω maximum load. The output is powered from the input loop. This isolator requires no user-adjustment during commissioning. Minor adjustments can be made to the calibration of the device by means of the two front-panel accessible calibration potentiometers.
Incorrect connection in the loop will not damage the device as long as the specified maximum currents/voltages are not exceeded.

FEATURE HIGHLIGHTS

HIGH ACCURACY
Only ± 10 uA error between the input and output signals ensures confidence in the SEM1000 product's performance.

GALVANIC ISOLATION
With 500 Vdc isolation between input and output circuits, the SEM1000 is an ideal solution for removing ground loops between (4 to 20) mA loop equipment.

LOOP TRIM FUNCTION
The SEM1000 can be used to add a (4 and 20) mA fine trim function to a (4 to 20) mA sensor signal with no existing trim options.

LOOP TAP OR DUPLICATION
The SEM1000 can be used to add an additional secondary (4 to 20) mA loop to an existing primary loop circuit, powered by the primary loop, requiring no additional power supply.

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ELECTRICAL INPUT **mA**		**SPECIFICATIONS @20°C**
Type	**Range/value**	**Accuracy/stability/notes**
Current loop 2 wire externally powered	(4 to 20) mA > 2 mA minimum < 30 mA maximum	Included in output error
Protection		Reverse protected
Loop voltage	35 Vdc maximum	
Loop volt drop	5.0 V typical, (5.5 V maximum) plus output load volt drop *1	
Thermal drift		Included in output thermal drift error
*1 Example with 250 Ohm load, 5 + (250 * 0.02) = 10 V		

OUTPUT **mA**		**SPECIFICATIONS @20°C**
Type/function	**Range/value**	**Accuracy/stability/notes**
Current loop 2 wire internally powered	(4 to 20) mA > 2 mA minimum < 30 mA maximum	± 0.05 % Combined input/output error
Protection		Reverse protected
Load	(0 to 300) Ohms	Open circuit limits at approximately 15 V
Thermal drift Combined input output error		Less than ± 2 uA /°C
Output load must be above 250 Ohms when SEM1000 is used in ambient temperature greater than 50 °C		

USER-INTERFACE **Adjustment**		
Function	**Description**	**Notes**
Zero	Trim pot via front of unit	Calibrate @ 4 mA
Span	Trim pot via front of unit	Calibrate @ 20 mA
Suitable input source and meter required		

GENERAL	
Function	**Description**
Galvanic isolation	500 Vdc (flash tested @ 1 kV)
Galvanic isolation method	Opto-coupler/transformer
Response time	Typically, less than 10 ms to reach 70 % of final value

MECHANICAL	
Function	**Description**
Connections	Captive clamp screws
Cable size	Maximum recommended 2.5 mm^2 stranded
Case material	Grey Polyoxymethylene, ABS back clip
Flammability	UL94-HB
Mounting	DIN EN 50022-35
Dimensions (H x D x W)	(90 x 56.4 x 12.5) mm

ENVIRONMENTAL	
Function	**Description**
Ambient temperature	Operating/storage (0 to 70) °C
Ambient humidity	Operating/storage (10 to 95) %RH non-condensing
Protection requirement	Device must be installed in an enclosure offering >IP65 Protection

APPROVALS	
EMC	BS EN 61326: Note- Sensor input wires less than 30 m to comply
Class	BS EN 61010-1 Pollution Degree 2; Installation CAT II; CLASS I
Ingress protection	BS EN 60529
RoHS	Directive 2011/65/EU, incorporating amended directive 2015/863/EU

Mechanical. Dimensions in mm