

# SEM1020 LOOP ISOLATOR/BOOSTER

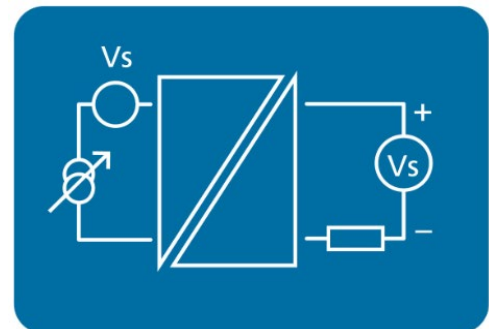
- > **(4 to 20) mA INPUT AND OUTPUT**
- > **MULTI-FUNCTION ISOLATE, BOOST AND TRIM**
- > **GALVANIC ISOLATION 500 VDC, 1 KV FLASH TESTED**
- > **HIGH ACCURACY, BETTER THAN 0.1% OF RANGE**
- > **12.5 mm WIDE**

## > INTRODUCTION

The SEM1020 isolator is designed for use when power is available at both sides of the isolation barrier.

This isolator requires no user-adjustment during commissioning, apart from an initial test to ensure it operates correctly over its full working range. Minor adjustments can be made to the calibration of the device by means of the 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  $\pm 10$   $\mu$ A error between the input and output signals ensures confidence in the SEM1020 product's performance.

### GALVANIC ISOLATION

With 500 Vdc isolation between input and output circuits, the SEM1020 is an ideal solution for removing ground loops between (4 to 20) mA loop equipment.

### JOINS POWERED INPUT AND OUTPUT (4 to 20) mA LOOPS

The SEM1020 requires powered loop supplies on both input and output connections, enabling it to safely join two active supplies where there is a conflict with more than one piece of equipment powering a control loop.

### BOOST A (4 to 20) mA LOOP

The SEM1020 can be used to extend the range of a weak (4 to 20) mA control loop by allowing an additional loop power supply to be added, isolated from the primary loop supply.

### LOOP TRIM FUNCTION

The SEM1020 can be used to add a (4 and 20) mA fine trim function to a sensor with no trim options.

### LOOP TAP

The SEM1020 can be used to add an additional secondary (4 to 20) mA loop to an existing circuit with minimal effect on the primary loop.

# SEM1020 LOOP ISOLATOR/BOOSTER

ELECTRICAL INPUT (Channel mA)		SPECIFICATIONS @20°C
Type	Range/value	Accuracy/stability/notes
Current loop 2 wire externally powered	(4 to 20) mA 30 mA maximum	Included in output error
Protection		Reverse protected
Loop voltage	35 Vdc	Maximum
Loop volt drop	2.7 Vdc	Maximum
Thermal drift		Included in output error

ELECTRICAL OUTPUT mA		SPECIFICATIONS @20°C
Type/function	Range/value	Accuracy/stability/notes
Current loop 2 wire externally powered	(4 to 20) mA	± 10 uA Combined input output error
Protection		Reverse protected
Loop voltage	(5 to 32) Vdc	
Loop volt drop	2.7 Vdc	Load = 900 ohm @ Vs = 24 Vdc Load = 1200 ohm @ Vs = 30 Vdc
Thermal drift		± 2 uA /°C Combined input output error
Output load must be > 250 Ohms when SEM1020 is used in ambient temperature > 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

GENERAL	
Function	Description
Galvanic isolation	500 Vdc (flash tested @ 1 kV)
Isolation method	Opto-coupler
Response time	Less than 10 ms to reach 70 % of final value

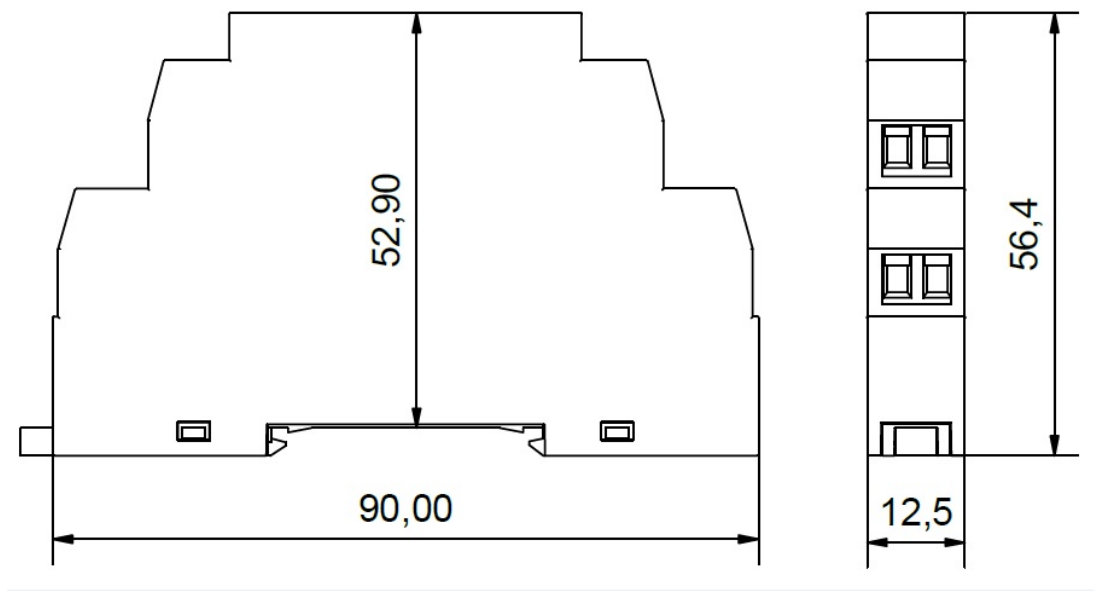
MECHANICAL	
Function	Description
Connection	Captive clamp screws
Cable size	Maximum recommended 2.5 mm <sup>2</sup> stranded
Case material	Grey Polyoxymethylene, ABS back clip
Flammability	UL94-HB
Mounting	DIN EN 50022-35
Dimensions (H x D x W)	(90 x 56.4 x 12.5) mm

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

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APPROVALS	
EMC	BS EN 61326: Note - Sensor input wires less than 30 m to comply
Class	BS EN 61010-1 Pollution degree II class I
Ingress protection	BS EN 60529
RoHS	Directive 2011/65/EU, incorporating Amendment Directive EU2015/863

Mechanical. Dimensions in mm



<b>ORDER CODE0</b>	<b>SEM1020</b>
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ACCESSORIES	
Loop powered display	Refer to <a href="mailto:sales@status.co.uk">sales@status.co.uk</a>
Loop power supply	Refer to <a href="mailto:sales@status.co.uk">sales@status.co.uk</a>

ADDITIONAL INFORMATION	
For SEM1020 Application Notes	Refer to <a href="http://www.status.co.uk">www.status.co.uk</a>
For SEM1020 User Guide	Refer to <a href="http://www.status.co.uk">www.status.co.uk</a>
For full range of loop isolators refer to <a href="mailto:sales@status.co.uk">sales@status.co.uk</a>	

To maintain full accuracy, annual calibration is required: contact [support@status.co.uk](mailto:support@status.co.uk) for details  
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