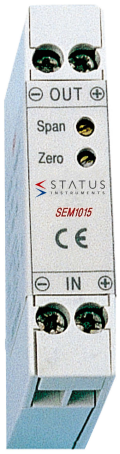
PROCESS SIGNAL ISOLATORS

SEM1015 VOLTAGE / CURRENT CONVERTOR

- Accepts DC Voltage Input between (-10 and 100) V DC
- (4 to 20) mA Output Loop Powered
- Galvanic Isolation 500 V DC Flash Tested 1 KV
- High Accuracy 0.05%
- 12.5 mm Wide



INTRODUCTION

This (4 to 20) mA isolator can be configured to accept most of the common voltage ranges found in both commercial and industrial applications. The input is fully isolated from the output circuit. The isolator range can be specified at the time of order, but if required the user may re-range the transmitter to a new range. The Isolator is housed inside a plastic enclosure, suitable for DIN rail mounting. Screw terminals are provided for wire connections. The enclosure provides side entry access to coarse offset and span adjusters and a range selector switch.

SPECIFICATIONS @ 20 °C

Output

TYPE	Passive 2 wire current output
RANGE	(4 to 20) mA (30 mA MAX)
PROTECTION	Reverse connection plus overvoltage
VOLTAGE	(10 to 30) VDC
STABILITY	Typical 0.01 % / °C
RIPPLE	Less than 40 µA / V (Measured at 1 V ripple 50 Hz)
RESPONSE	200 ms to reach 70 % of final value

Input

TYPE — Isolated DC Voltage covered by six ranges;

Range	Span	Offset
A	(20 to 200) mV	(-20 to 80) mV
B	(0.2 to 1.0) V	(-0.1 to 0.4) V
C	(1.0 to 5.0) V	(-0.5 to 2.0) V
D	(5.0 to 25) V	(-2.5 to 10) V
E	(25 to 48) V	(-5 to 25) V
F	(20 to 100) V	(-10 to 40) V

The above settings are capable of covering most standard industrial ranges. Range F is provided to allow for (-10 to 10) V inputs.

Note: VMAX IN is limited to 48 VDC for BS EN61010-1 compliance.

ISOLATION	500 V DC (Flash tested to 1 kV)
IMPEDANCE	> 1 MΩ
ACCURACY	Typical linearity ± 0.01 % (0.05 % maximum)

RANGE SELECT — Coarse Settings, by side entry 16 setting position rotary screw adjustment switches. Fine by front access potentiometers. Range setting by side entry rotary switch.

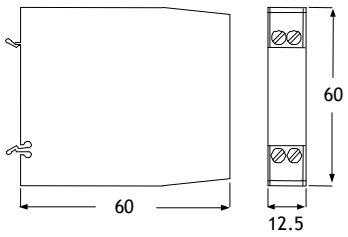
General

AMBIENT	(0 to 50) °C, (10 to 95) % RH non condensing
EMC Tested to	BS EN 61326

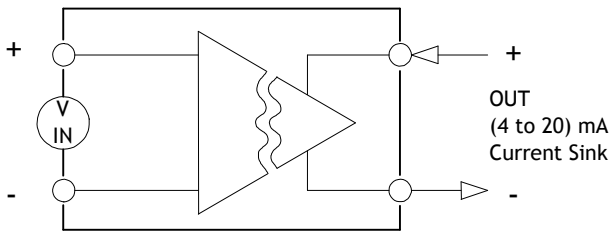
MECHANICAL DETAILS

CONNECTION	Captive clamp screws
CABLE SIZE	4 mm² solid / 2.5 mm² stranded
FLAMMABILITY	To UL94-VO VDE 0304 Part 3, Level IIIA
CASE MATERIAL	Grey Polyamide
DIMENSIONS	(60 x 60 x 11.5) mm (67.5 Above Rail)
MOUNTING	Snap on top hat (DIN EN50022-35)

(All dimensions in mm)



SCHEMATIC



SEM1015

STATUS INSTRUMENTS

PROCESS SIGNAL ISOLATORS

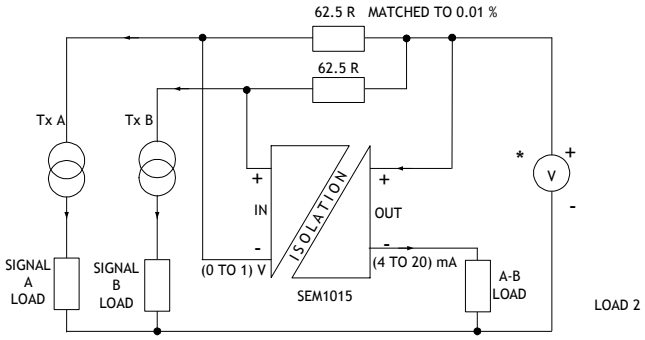
OTHER APPLICATIONS

SEM1015 subtractor (Non-isolated)

It is a frequent requirement to provide a different output from two (4 to 20) mA transmitters. The circuit shown enables each transmitter to be used independently and at the same time produce a (4 to 20) mA output signal proportional to the difference between the two signals.

(4 to 20) mA = A – B

*NOTE: Input and output loads can be driven from separate supplies to maintain isolation.

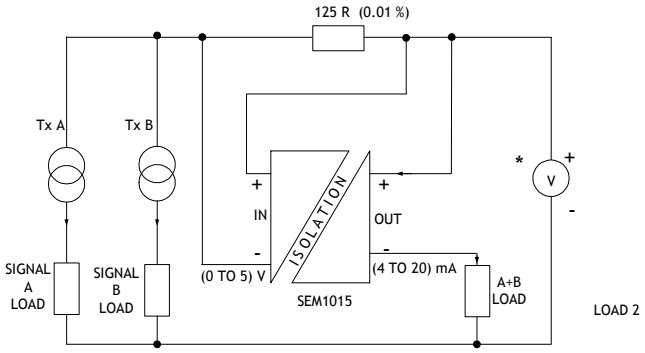


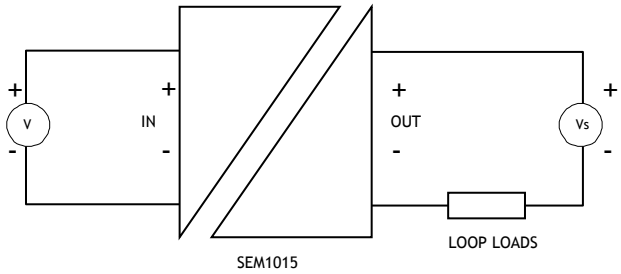
SEM1015 - adder (Non-isolated)

In a similar way to the Subtractor outlined above, the adder circuit enables the outputs from two (4 to 20) mA transmitters to be used independently whilst providing an isolated output proportional to the sum of the two signals.

(4 to 20) mA = A + B

NOTE: Input and output loads can be driven from separate supplies to maintain isolation.





V = Monitored Voltage
Vs = Loop Supply
Loop Load represents Equipment connected in loop such as an indicator, data logger, etc.

ORDER CODE: SEM1015