

The tables listed below show the required switch positions for the desired input and output. Re-assemble case ready for calibration.

#### 4.1.1 Voltage Input (Using input connections 11 & 12)

INPUT	SW1				SW2	
	1	2	3	4	1	2
0 - 100mV	off	off	off	off	off	off
20 - 100mV	off	off	off	on	off	off
0 - 1V	on	off	off	off	off	off
0.2 - 1V	on	off	off	on	off	off
0 - 5V	off	on	off	off	off	off
1 - 5V	off	on	off	on	off	off
0 - 10V	off	off	on	off	off	off
2 - 10V	off	off	on	on	off	off

#### 4.1.2 Current Input, Powered by Isolating Convertor (Using input connections 7 & 12)

INPUT	SW1				SW2	
	1	2	3	4	1	2
4 - 20mA	on	off	off	on	on	on
0 - 20mA	on	off	off	off	on	on

#### 4.1.3 Current Input, Powered Externally (Using input connections 11 & 12)

INPUT	SW1				SW2	
	1	2	3	4	1	2
4 - 20mA	on	off	off	on	on	off
0 - 20mA	on	off	off	off	on	off

#### 4.1.4 All Outputs

OUTPUT	SW3			
	1	2	3	4
0 - 1V & 0-20mA	off	off	off	off
0.2 - 1V & 4-20mA	off	off	off	on
0 - 5V & 0-20mA	off	on	off	off
1 - 5V & 4-20mA	off	on	off	on
0 - 10V & 0-20mA	off	on	on	off
2 - 10V & 4-20mA	off	on	on	on

#### 4.2 Calibration

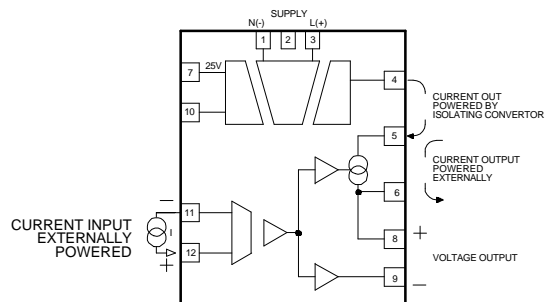
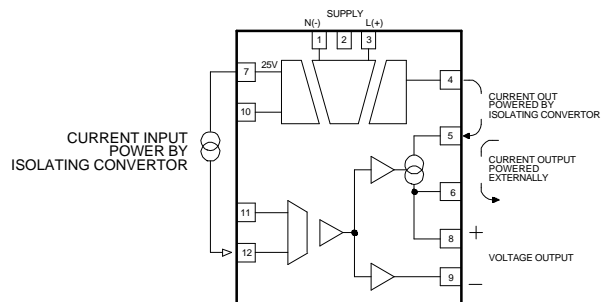
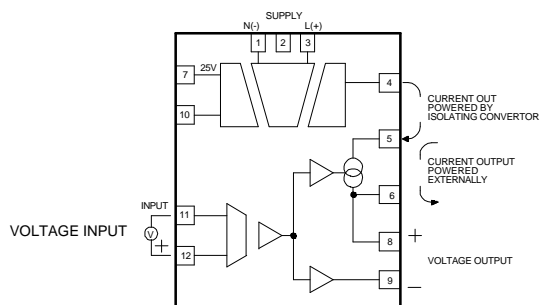
**WARNING!** For safety reasons NEVER calibrate with the case open. Mains power may be present

a. Refer to section 5.0 for connection details. Connect a suitable calibrator to the input to simulate the input signal. Monitor the output with either a digital volt or mA meter. Connect the isolator to a suitable supply. Turn power on and allow 2 minute warm-up period.

Note. Due to the current output stage not being capable of drawing negative currents, 0-20mA output must be calibrated at 1mA and 20mA scale points. This will ensure the correct setting of VR1.

- Set input to low scale, adjust ZERO potentiometer for correct low scale output  $\pm 0.02\%$ .
- Set input to high scale, adjust SPAN potentiometer for correct high scale output  $\pm 0.02\%$
- Repeat steps b. and c. until both points are in scale.
- If transmitter will not calibrate correctly, turn off power, open case and check internal switches
- End of calibration, turn off power and remove calibration equipment.

#### 5.0 CONNECTIONS



# SEM1100 POWERED ISOLATING CONVERTOR

Designed, manufactured and supported by :

**STATUS INSTRUMENTS LTD**

Green Lane, Tewkesbury

Glos. GL20 8HD, UK

Sales : 01684 853300, Support : 01684 853301

Fax : 01684 293746, Email: support@status.co.uk

Every effort has been taken to ensure the accuracy of this specification, however we do not accept responsibility for damage, injury, loss or expense resulting from errors and omissions, and we reserve the right of amendment without notice.

Stock code : 52-214-2167-02

Issue : 01

#### 1.0 INTRODUCTION

The isolator provides isolated re-transmission of the input signal, which can (by internal selection switches), be set to accept and re-transmit most common process signals. The isolator can either be DIN rail or surface mounted.

#### 2.0 SPECIFICATION

**WARNING!** Operation outside the stated maximum values may result in the failure of the transmitter.

<b>SUPPLY Range</b>	Option <b>S1</b>	90 - 253	V AC 50/60 Hz
	Option <b>S2</b>	20 - 35	V DC
<b>Power Consumption</b>	4 Watts maximum		
	Protection	Internal Fuse Rating	500mA (T)
<b>INPUT</b>	Current	0-20mA	4-20mA (40mA max)
	Voltage	0-100mV	20-100mV } 20v max
		0-1V	2-1V }
		0-5V	1-5V }
		0-10V	2-10V }
<b>Selection</b>	Internal switches		
<b>Input Impedance</b>	Current	<50 ohm	
	Voltage	>1MΩ	
<b>Protection</b>	Reverse connection, over voltage		
	<b>Loop Supply</b>	25 V DC @ 25 mA maximum (27V maximum)	

## 2.0 SPECIFICATION, continued

### OUTPUT

Type	Current <sup>1</sup> 0-20mA / 4-20mA
	Powered externally, Vloop 30V max
	Voltage <sup>1</sup> 0-1V <sup>2</sup> ; 0.2-1V <sup>3</sup>
	0-5V <sup>2</sup> ; 1-5V <sup>3</sup>
	0-10V <sup>2</sup> ; 2-10V <sup>3</sup>

Load	0 to 1kΩ Current output
	5mA max current drive Voltage output
Linearity	0.05%
Stability	150 ppm/°C
Response time	<100mS to reach 70% of final value

<sup>1</sup> Current and voltage outputs are not isolated from each other

<sup>2</sup> Available simultaneously with 0-20mA output

<sup>3</sup> Available simultaneously with 4-20mA output

### GENERAL

Isolation/ Input/ Output	500 V DC (flash tested @ 1 kV) input to output
Isolation/ Supply	3 kV DC to input or output
Mounting	DIN - EN 50022-35 or surface mount
Ambient	0 - 50 °C; 10-95% RH non condensing
Connection	Captive terminal screws
Cable size	1mm <sup>2</sup> diameter wire
Flammability	UL 94: V-0 ; VDE 0304 STEP 11b
Dimensions	82 x 22.5 x 99 mm
EMC	Emissions BS EN 50081-1
	Susceptibility BS EN 50082-1
Electrical Safety	BS EN 61010-1
	Installation overvoltage category II
	Pollution Degree II

## 3.0 INSTALLATION

### THIS SECTION FOR USE BY COMPETENT PERSONNEL ONLY

### WARNING - READ SAFETY INFORMATION BELOW BEFORE WIRING

**WARNING** Hazardous voltages may be present on the terminals - the equipment must be installed by suitably qualified personnel and mounted in an enclosure providing protection to at least IP20.

**WARNING** If not installed and used in accordance with these instructions, protection against hazards may be impaired.

- The mains power supply to the equipment must be protected by a suitable fuse and switch ( or circuit breaker ) which should be near the equipment.
- The equipment contains no user serviceable parts

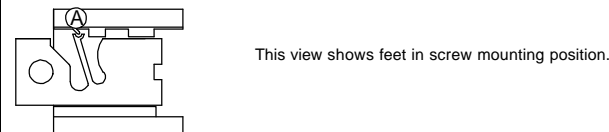
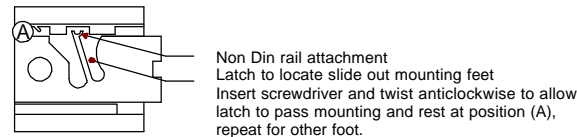
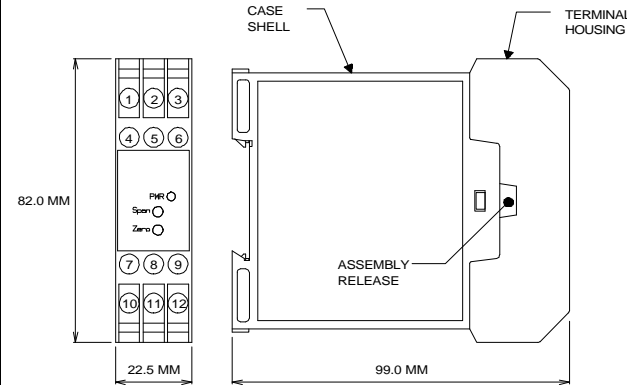
## ISOLATION

The power supply terminals and associated internal circuitry are isolated from all other parts of the equipment in accordance with BS EN61010-1 for connection to a Category II supply.

Functional isolation ( 500V DC max ) is provided between input and output circuits

Any terminals or wiring connected to the input or output terminals which are **accessible in normal operation** must **ONLY** be connected to signals complying with the requirements for safety extra low voltage (SELV) circuits.

### 3.1 Mechanical



This transmitter must be housed within an enclosure that will provide suitable protection against the external environment, ensuring that the stated operational ambient temperature, humidity and pollution levels are not exceeded. It is good practice to mount the transmitter away from sources of electrical noise, such as switch gear and large transformers. Although the transmitter has an excellent temperature stability, best performance will be maintained with a stable ambient temperature. The transmitter can be mounted in any orientation and stacked side by side. (Note. Each transmitter can dissipate up to 4 watts of power in the form of heat, dependent on external loading. If a number of transmitter are to be mounted inside an enclosure, adequate ventilation must be provided).

## 3.2 Electrical

Connections to the transmitter are made via screw terminals, with wire protection plates provided on each terminal. To maintain CE compliance twisted pair (screened) cables are recommended for the signal connections. It is good practice to ensure all signal loops are grounded at one point. Care must be taken when designing a 4-20 mA circuit to ensure that the total burden of the loop (that is the total voltage requirement of all the equipment connected in the loop at 20mA) does not exceed the loop power supply voltage. The transmitter is protected against reverse connection and over voltage.

## 4.0 CONFIGURATION

The Isolator leaves the factory calibrated for the input output ranges specified at time of order, if no ranges have been specified then the isolator range will be 4-20mA in and out. If required the isolator ranges may be changed by the installer, provided access is available to suitable calibration equipment in order to simulate the required input / output signals. Configuration and calibration are best carried out prior to installation. The isolator is configured by means of internal switches.

**WARNING!** Extreme caution must be exercised when replacing the terminal housing.

Align holes in front panel with trim pots and LED within. Failure to do so may cause the installer to wire the unit incorrectly.

### 4.1 Configuration

**WARNING!** Mains power may be present. NEVER open the isolator case when powered. Follow steps 1-4 to gain access to the internal configuration switches.

Refer to 5.0 diagram.

1. Disconnect from all power sources.
2. Insert screwdriver to release clips either side of case.
3. Slide terminal housing assembly forward to reveal circuit board and configuration switches.
4. To identify switches read PCB copper text for SW1, SW2 and SW3
5. To reassemble push circuit card back into shell (using clips provided) and clip into place.

