

SIGNAL ISOLATOR

Type COM-3B

User Guide

Continuous development may necessitate
changes in these details without notice

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PROCESS MEASUREMENT, CONTROL & DISPLAY INSTRUMENTATION

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WARNING!

It is important that this guide is read and fully understood before attempting installation or commissioning of the instrument. Instructions appearing in this document, and current safety legislation, must be observed to ensure personal safety and to prevent damage to the instrument or equipment connected to it.

The instrument should be installed, commissioned and operated *only* by suitably qualified and authorised personnel.

Safety and EMC information

Safety: EN61010 -1

Immunity: EN50082-1

Emissions: EN50081-1

CE certified



The specifications for the instrument must not be exceeded. If the instrument is used in a manner not specified, the protection provided by the instrument may be compromised.



The instrument must be installed in an enclosure that provides adequate protection against electric shock.



Ensure that power to the instrument is switched off and signal wiring isolated from hazardous voltages before carrying out installation or maintenance.



The instrument is designed for installation in a clean, dry environment (Pollution degree 1).






Stroud Instruments Ltd strongly recommends that repairs and re-calibration work are done on a return to factory basis in order that our quality standards, product specifications and safety precautions are not compromised.



The instrument is double insulated

Note: Clean with a moist cloth - USE NO SOLVENTS.

Installation

-  **WARNING:** Installation should be conducted by appropriately skilled and authorised personnel only.
-  **WARNING:** Ensure that power to the instrument is switched off and signal wiring isolated from hazardous voltages before carrying out installation.
-  **WARNING:** The instrument must be installed in an enclosure that provides adequate protection against electric shock.

Location

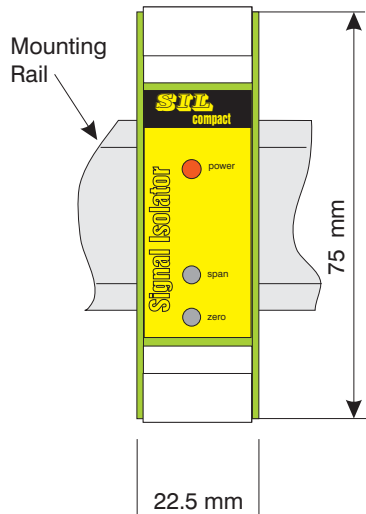
- The instrument is designed for installation in a clean, dry environment.
- Do not install near to switch gear, motor controllers or other sources of strong magnetic fields.
- Avoid exposure to direct sunlight and ensure the ambient temperature inside the enclosure that the unit is mounted in will not exceed our specification.

Fixing

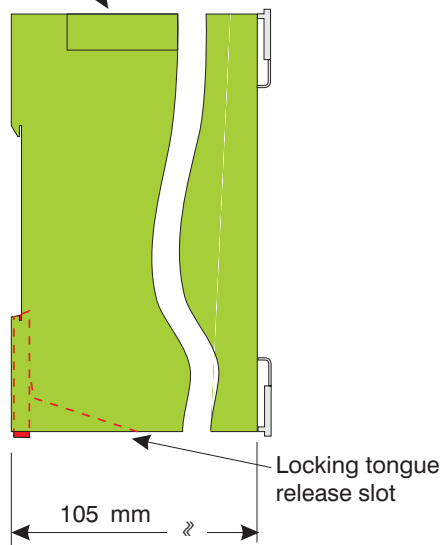
COM Series Modules are designed to be clipped to a mounting rail conforming to BS5584:1978, EN50 022, DIN46277-3. Hook the module onto the top edge of the mounting rail and push in to engage the clip onto the bottom of the rail.

The unit may be removed from the rail by inserting a small bladed screw driver into the release slot under the unit. Applying gentle upward pressure to the handle of the screwdriver will release the locking tongue and enable the unit to be pushed up and away from the mounting rail.

Dimensions




Access cover for switch settings



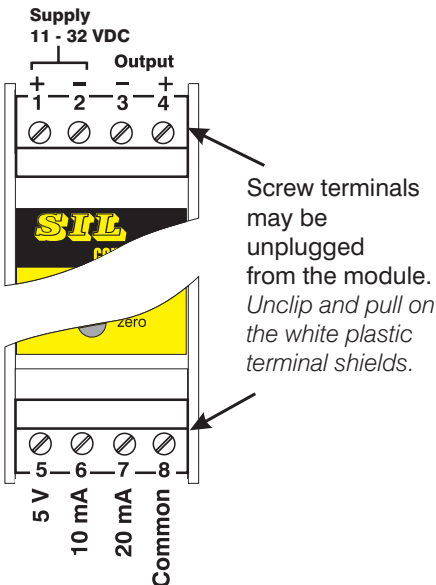
Wiring and connections

- Segregate power supply and signal wiring.
- Use screened cable for all signal wiring with the screen earthed at *one* end only.
- All connections should be made using ferrules.
- Screw terminals are provided with a maximum wire of capacity 2.5mm².

Access to Terminals


 **WARNING:** Ensure that power to the instrument is switched off and signal wiring isolated from hazardous voltages


Each set of screw terminals, top and bottom, is covered by a captive white plastic shield. These may be unclipped to gain access to the terminal screws.



Power supply and output connections are provided on the top of the module. Input connections are provided at the bottom of the module.

Power supply connections

 **WARNING:** Check that the supply voltage on the data label (on side of instrument) is suitable for the application.

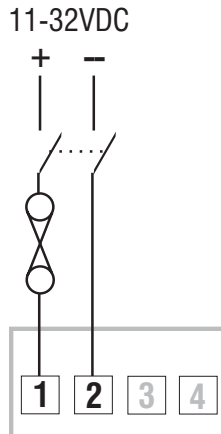
 **WARNING:** Ferrules should be used for power supply wiring

The COM-3B may be powered from a DC supply in the range 11-32 VDC, 1.6W.

This unit is protected by an internal thermal self-resetting fuse.

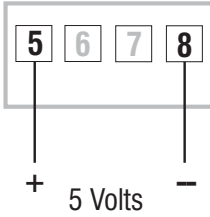
Power supply wiring to the instrument should be protected by a suitable fuse and double pole switch - see Power supply connections diagram. The switch should be clearly marked as the isolating switch for the instrument.

Power supply connections

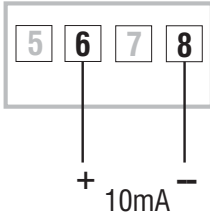


Input connections

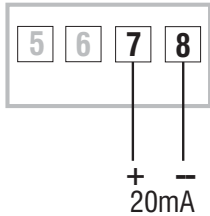
0 - 5 Volts and 1 - 5 Volts



0 - 10mA

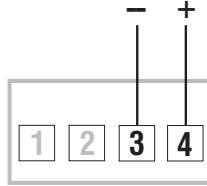


0 - 20mA and 4 - 20mA



Output connections

Connections for 0-10mA, 0-20mA, 4-20mA, 0-10V and 2-10V.



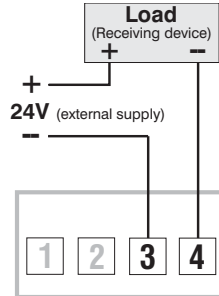
Output connections - current sink



WARNING: Current sink output is available only to order. It is not available on the standard unit.

The data label on the side of the module will state whether this connection is present on your unit.

Current-sink connections



Input and output configuration

Gain access to the switches by removing the cover on the top of the unit; a slot is provided to insert a suitable lever such as a small screwdriver blade.

Please note: Span and Zero (front panel adjustments) should be checked and trimmed as required after range changing. Typical error without trimming will be in the order of 1%.

Setting Input options

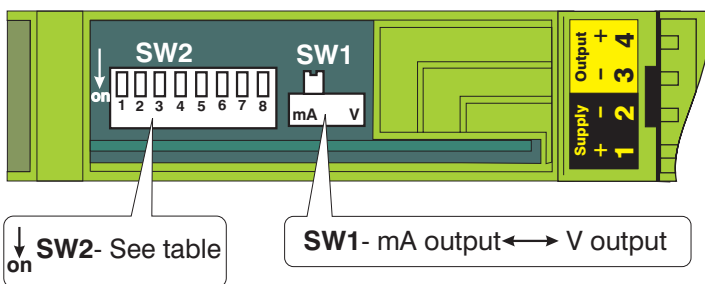
The input signal must be connected to the appropriate input terminals (see *Input Connections*).

Refer to the table and set switches SW2-1 and SW2-2 as appropriate for the input signal i.e. *true zero* or *raised zero*.

Setting output options

Output signal Type: Refer to the illustration and set SW1 to either *mA output* or *Voltage output*.

Output signal range: Refer to the table and set switches SW2-3 to SW2-8 as required.



Input options		
SW2	1	2
True zero	1	0
Raised zero	0	1

0 = switch off

1 = switch on

Output options						
SW2	3	4	5	6	7	8
0-10mA	1	0	0	1	0	0
0-20mA	1	0	1	0	0	0
4-20mA	0	1	1	0	0	0
0-10V	1	0	0	0	1	1
2-10V	0	1	0	0	1	1

Specification

GENERAL NOTE

The standard unit has field programmable inputs and outputs which are detailed below. Other ranges for the Compact Isolator may be available, please contact our sales department with your requirements.

INPUTS

Field programmable input ranges:

0 - 10 mA }
0 - 20 mA } 100 ohms input
4 - 20 mA } impedance

0 - 5 Volts }
1 - 5 Volts } 300 k ohms input
impedance

OUTPUTS

mA Ranges	Max. load (ohms)
0 - 10 mA	1500
0 - 20 mA	1000
4 - 20 mA	1000
4 - 20 mA current sink*	

(50 Volts supply max.)

* factory-set option only

Voltage Ranges	Min. load (ohms)
0 - 10 V	1000
2 - 10 V	1000

LINEARITY ERROR

≤ ± 0.1% of full scale

LOAD RESISTANCE EFFECT

≤ 0.001% of span / 100 ohms change

RESPONSE TIME

200 ms

ISOLATION

The input and output are isolated from each other and from the power supply. Maximum voltage 250 V RMS or 400V DC Resistance between any port (input, output or power supply) ≥ 50 x 10⁶ ohms @ 1000V DC Capacitance between output and power supply 1000pF

SUPPLY VOLTAGE REJECTION

Output change < 0.01 % span / % supply change

TEMPERATURE RANGE

Operating: - 10°C to + 50°C

Storage: - 20°C to + 70°C

TEMPERATURE COEFFICIENTS

Zero: ± 0.02% span / °C

Span: ± 0.02% span / °C

POWER SUPPLY

11—32 VDC 1.6 W max.

This unit is protected by a thermal self-resetting fuse. 'Power on' indication is provided by a red LED indicator.