

Signal Conditioners

Resistance and PRT Inputs
Type B12-1

Installation Guide



Document Ref: UDB12-1.vp Rev 1



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.

- 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 only with a dry soft cloth.

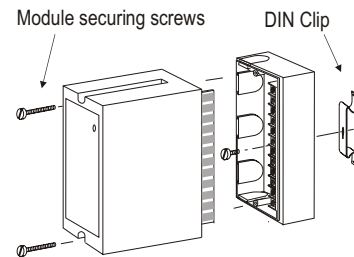
Safety and EMC information

Safety: EN61010 -1
Immunity: EN50082-1
Emissions: EN50081-1
CE certified

Installation

Location

- The instrument is designed for installation in a clean, dry environment, fixed to a flat surface using two 4mm screws, or clipped to a TS35 / TS35D DIN rail using the clip supplied.
- Do not install near to switchgear, 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.



Access to fixing points and terminals

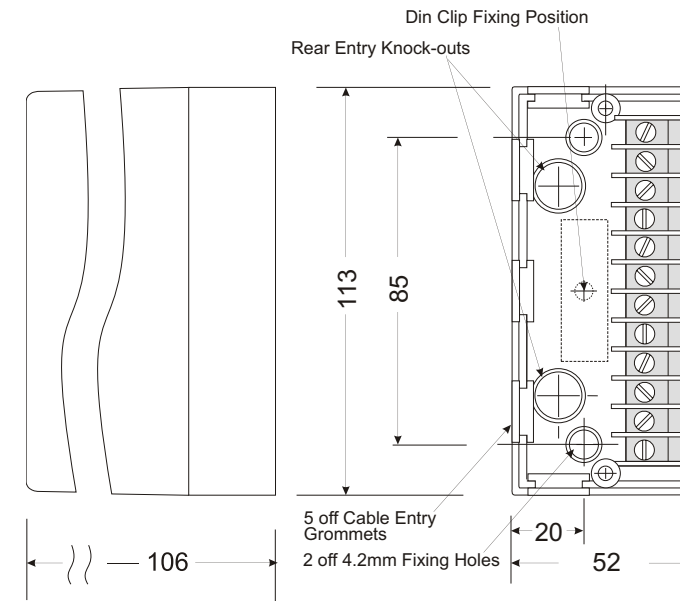
Removal / refitting of plug-in module

To gain access to fixing points, terminals and User adjustments:

- (i) Remove the plug-in module securing screws.
- (ii) Gently pull away the plug-in module from the base section.
- (iii) To refit the module, align the module edge connectors with the socket in the base and carefully press home.

NB To avoid damage to the plug-in module, do not overtighten the securing screws.

Dimensions and fixing positions

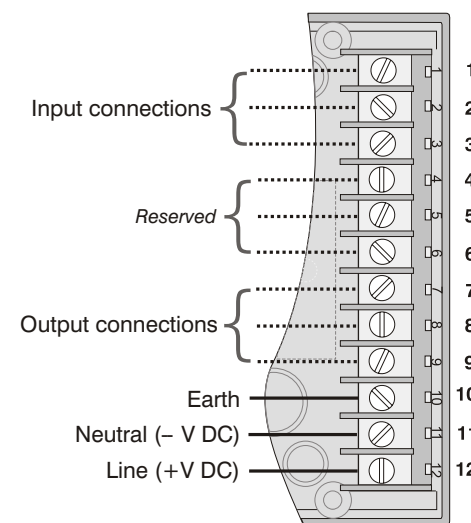


Wiring and connections

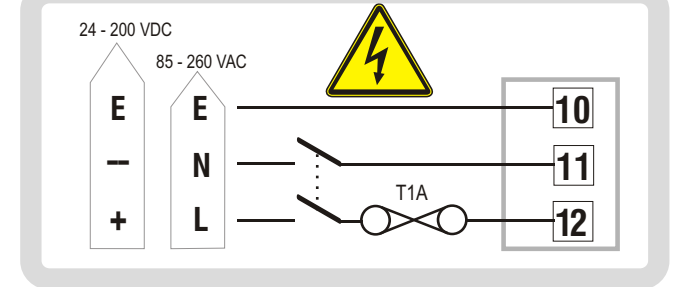
- Segregate power supply and signal wiring.
- Use screened cable for all signal wiring with the screen earthed at one end only.
- All connections should be made using ferrules to avoid short-circuits between adjacent terminals.
- This instrument is equipped with a universal power supply and may be operated from either of the following supply ranges:
DC supplies: 24 VDC to 200 VDC or AC supplies: 85 VAC to 260VAC
- Power supply wiring to the instrument should be protected by a 1A time-delay fuse fuse and double pole switch - *see below*. The switch should be clearly marked as the isolating switch for the instrument.

Terminal assignments

For further details see the following connection details.



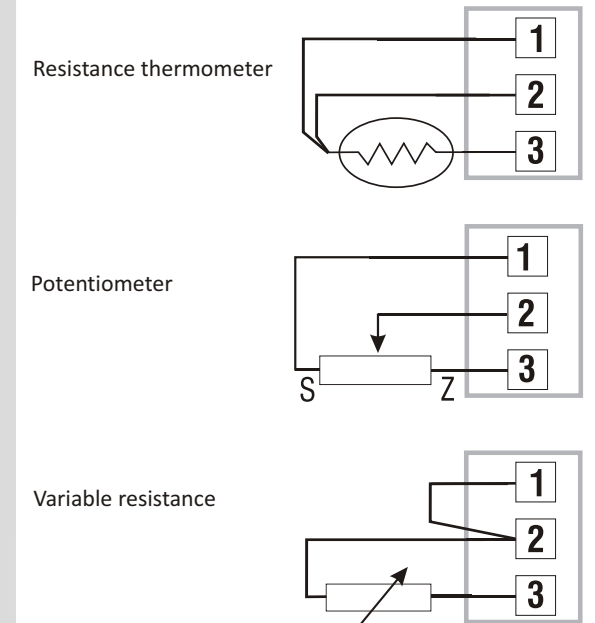
Supply



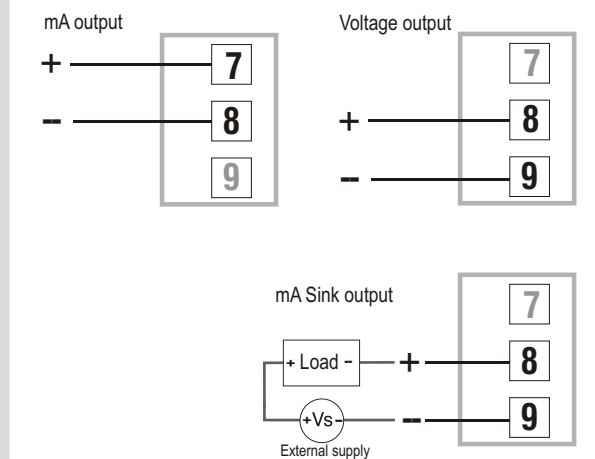
NB

Input and Outputs are factory configured for one type of signal only - and are not user configurable (*see data label on the enclosure for details of the type fitted*).

Input



Output



Span and Zero Adjustment

Not applicable to resistance input

The Span and Zero controls, accessed through the holes in the front panel, will enable small adjustments to the calibration to be made.

- (i) **Set output Zero:** with the input signal at its zero setting, monitor the output signal with a suitable instrument and adjust the zero control.
- (ii) **Set output Span:** with the input at full scale adjust the span control.
- (iii) Repeat steps (i) and (ii) readjusting if necessary.

Specifications

Note: Input and output ranges are factory calibrated for one type of signal and not user configurable.

Resistance inputs

Minimum change 50 ohms, Maximum change 10k ohms

Resistance thermometer inputs

PT100 or PT130 (100 or 130 ohms at 0°C)
Minimum span 40°C, Maximum span 500°C

Sensor Excitation Supply

Constant current, typically 5mA, set during manufacture to suit input resistance change

Outputs

0-10mA (2000R), 0-20 mA (1000R), 4-20 mA (1000R)
High impedance output drive options: 0-10mA (5000R), 0-20 mA (2500R), 4-20 mA (2500R)

Max. output impedances in ohms in brackets.

0-5v, 1-5V, 0-10V, 2-10V (500R minimum)

Current sink 4-20mA @ 50 volts max.

Response Time

1 sec as standard.

Isolation

The input and output are not isolated from each other but are isolated from the power supply.

Calibrated Accuracy

± 0.1% FSD at 100%

Linearity Error

± 0.1% FSD

Output Ripple

0.2% RMS of FSD

Load Resistance Effect

0.001% of span / 100 ohm change

Interference Rejection

Filtering is incorporated to attenuate R.F. and other industrial noise.

Temperature Coefficients

Zero: ± 0.02% span / °C, Span: ± 0.02% span / °C

Environmental

Temperature: operating -10 to +60°C,
storage -20 to +70°C

Humidity: 0 – 95% RH non-condensing

Power Supply

85 - 260 VAC 50/60 Hz; 24 - 200 VDC (3W nominal)

Supply Voltage Rejection

Span change: <0.02% span / % supply change.

Mechanical

Weight: approx. 0.5kg

Enclosure: Fire retardent materials -
PPO base, ABS cover

Screw terminal wire capacity: 2 x 1.5mm²