

SINGLE TRIP AMPLIFIER

Type 112-2S-1

User Guide

Document Ref: UD112-2S-1.vp Rev 0

Continuous development may necessitate changes in these details without notice

Installation

112 Series Modules are designed to be fitted to any flat dry surface using two 4mm screws. Alternatively, by fitting an optional DIN clip, they may be clipped to a rail conforming to BS5584:1978, EN50 022, DIN46277-3.

Grommets are provided on three sides of the base section and there are two rear entry knock outs in the bottom.

Wiring

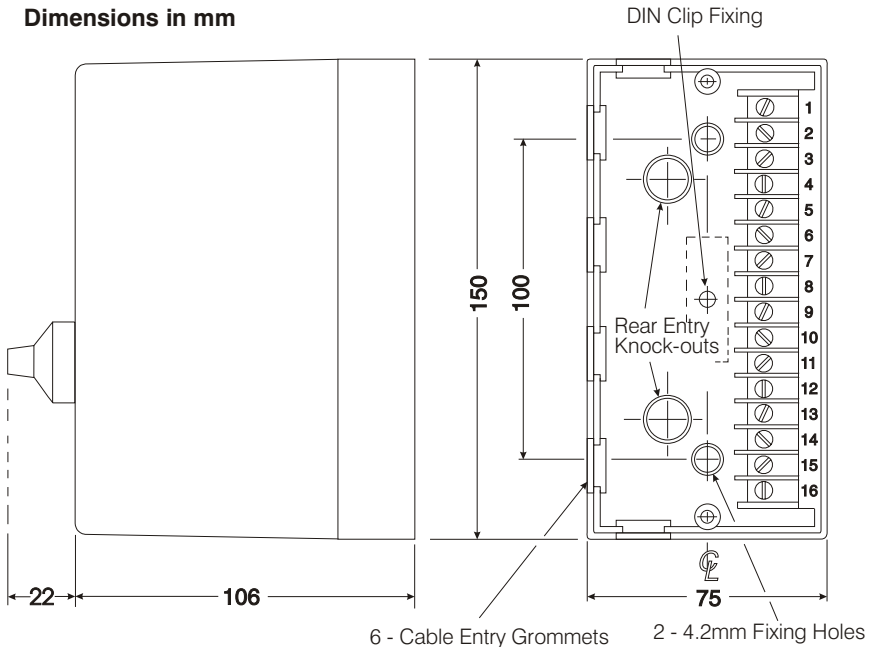
Good instrumentation practice must be observed when wiring to the unit to ensure segregation of supply and signal wiring, and the use of suitably screened signal cabling.

WARNING! This unit can be mains powered. All inputs must be isolated from dangerous voltages before the plug in module is removed from the base section for maintenance or adjustment. Live terminals will be exposed.

Plug in Module Securing Screws Screw Retaining Washers

Optional Din Clip

Dimensions in mm



Terminal Connections

Input

- 1 Transducer supply (+)
- 2 Input Signal (+)
- 3 Input Signal Common (-)

Relay 1*

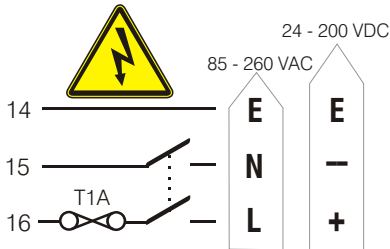
- 4 SPCO Normally Closed
- 5 SPCO Common
- 6 SPCO Normally Open
- 7 SP Common
- 8 SP Normally Open

Relay 2*

- 9 SP Normally Open
- 10 SP Common
- 11 SPCO Normally Open
- 12 SPCO Common
- 13 SPCO Normally Closed

***Note** The relays operate as one relay

Supply



Operation

The output relays of the single trip amplifier change state when the input signal passes the point set on the front panel mounted 'Trip Point' control.

Single Input

The unit is connected internally to be driven from one input signal.

Current Inputs

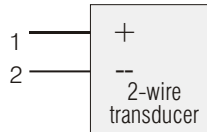
For current inputs, when the plug-in module is removed, signal loops are maintained via 5V zener diode between terminals 2 and 3 in the base section of the module.

Front Panel Control

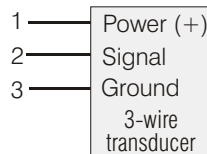
The front panel control is scaled 0-100% of the full scale input signal. The LED indicator illuminates when the relays are energised.

Transducer Supply

(i) Two wire transmitter connections



(ii) Three wire transmitter connections



Access to settings

Facilities for all configuration settings are to be found on the printed circuit board.

Opening the module

- (i) Isolate all supplies to the unit.
- (ii) Unscrew two module retaining screws and separate the plug-in module from the base section.
- (iii) With the fingers, ease apart the longer sides of the cover releasing the interlocking tongue and groove fastenings to remove the plastic plate with the connections label.
- (iv) Slide out the printed circuit board (pcb) noting the location and orientation of the pcb.

NB the pcb will remain attached to the front panel controls but may be disconnected from the cover by unplugging the connector.

Re-assembly

- (i) Slide the printed circuit board into the correct slot in the cover (i.e. ensuring the LED indicators align with their windows in the front panel).
- (iii) Replace the plastic plate by first engaging the side with the two tongues into their slots in the case then press the plate home to engage the single tongue.
- (iv) Insert the plug-in module into the base section and secure with the retaining screws. NB do not over tighten.

Internal Controls and Links

Note: All available adjustments are described below. Do not attempt to adjust any trimpots or link positions other than those shown in Fig. 1.

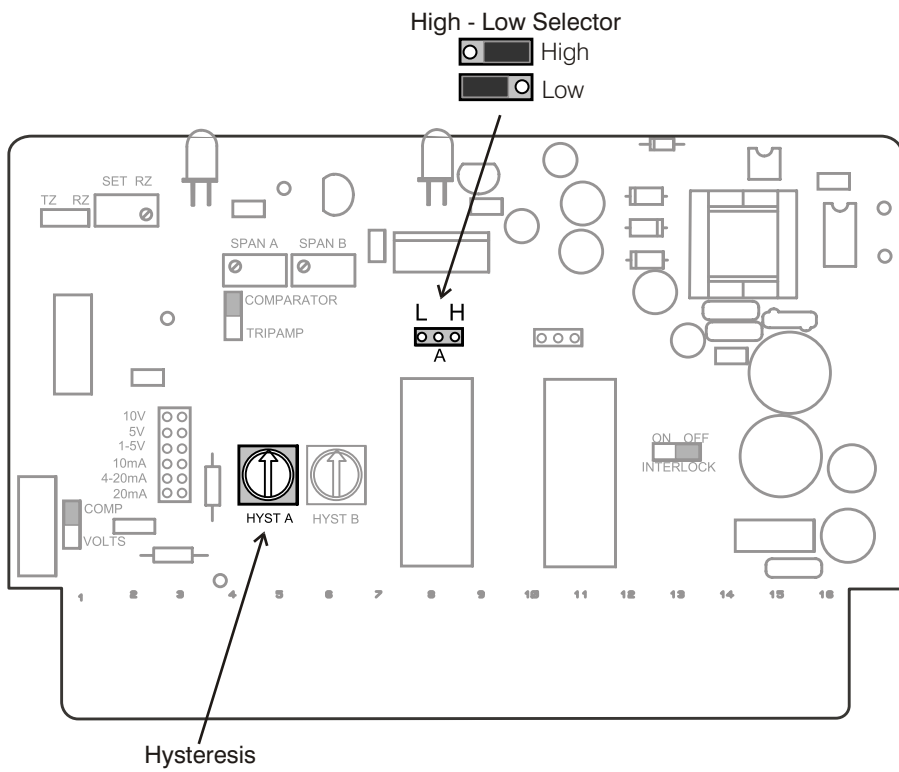
High - Low Selection

The High - Low Selector jumper link determines whether the output relay energises when the input signal is below the trip point (LOW setting) or above the trip point (HIGH setting).

Hysteresis

Hysteresis is set during calibration at $\pm 1\%$ of span as standard. The amount of adjustment on the hysteresis control gives a maximum hysteresis of $\pm 5\%$. See Fig 1 for the location of the hysteresis control.
NB Turn the controls in clockwise direction for increasing hysteresis.

Fig 1 Location of adjustments



Specification Summary

Inputs

others available to order

0 - 10 mA	into	100
0 - 20 mA	into	50
4 - 20 mA	into	62.5
0 - 5 volts	into	>200k
1 - 5 volts	into	>200k
0-10 volts	into	>200K

Outputs

Two relays with single pole change-over contacts and a single pole normally open contact rated at:-

5A @ 250 volts AC resistive or
2.5A @ 24 volts DC resistive

The two relays operate as one relay.

Hysteresis

Set during calibration at $\pm 1\%$ of span as standard. The amount of adjustment on the internal controls give a maximum hysteresis of $\pm 5\%$.

High - Low Selection

Internal links select whether relays energise when the input signal is higher or lower than the set point.

Interference Rejection

Filtering is incorporated to reject RF and other industrial noise.

Supply Voltage Rejection

Span change $< 0.01\%$ span /% supply change

Series Mode AC Rejection

A hysteresis setting of $\pm 1\%$ will reject 50/60Hz series mode signals with peak to peak amplitude equal to 5 x full scale.

Common Mode AC Rejection

$< 0.2\%$ error is caused in the set point for 250v RMS 50/60 Hz or 400v DC common mode inputs.

Repeatability

The switching point will repeat within $\pm 0.1\%$ span.

Input Over-range Protection

240 volts RMS or DC (*voltage inputs only*).

Isolation

The output contacts are isolated from the supply and the inputs.

Temperature Coefficients

Zero: $\pm 0.02\%$ span/ $^{\circ}\text{C}$
Span: $\pm 0.02\%$ span/ $^{\circ}\text{C}$

Temperature Range

Operating: -10°C to $+60^{\circ}\text{C}$
Storage: -20°C to $+70^{\circ}\text{C}$

Power Supply

85 - 260 VAC 50/60Hz
24 - 200 VDC (3.5W nominal)

Weight

Approximately 0.5 kg