



TRIP-AMPLIFIERS

Single Point • Dual Point

112-2-1 Single Trip, 112-2A-2 Dual Trip

- * **Wide range of input signals**
- * **Single and dual versions**
- * **Transducer supply on dual trip**
- * **Remote set-point option on single trip**
- * **10 turn precision set-point dials**
- * **Wall or DIN rail mounting**

The 112 Single and Dual Trip Amplifiers provide voltage free contacts that change state when the input signal passes an adjustable reference set-point. These trip amplifiers can be applied to numerous applications including detection of high/low alarm conditions and duty-standby pump control.

A front panel mounted ten-turn precision control is provided for each set-point. Control dials are scaled 0 - 100% of the input signal. Locking mechanisms are provided to prevent accidental movement of the knob setting. The single trip version may be optionally supplied for operation with a remote set-point.

Each alarm relay may be set to energise either when the input signal is higher than the reference set-point ('High' type) or to energise when the input signal is lower than the set-point ('Low' type).

The dual version is normally supplied as a single input device and provides a transducer/current loop power supply. As an option however, the dual unit can be supplied with a second input instead of the transducer supply.

An 'interlock' function is provided on the dual trip version. When selected, Channel 'B' relay is energised and latched on when the input signal reaches one set point and will not switch off until the other set point is reached.

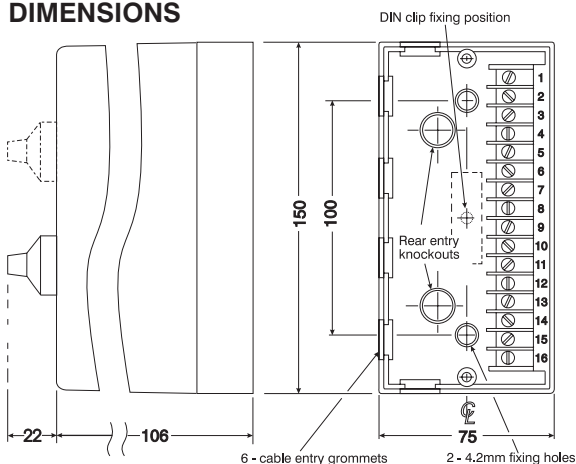


For current inputs, when the plug-in module is removed, signal loops are maintained via a base section mounted shunt resistor. This resistor is matched to the unit for optimum accuracy.

TYPICAL APPLICATIONS

- Detection of high or low alarm conditions.
- With an input from a level sensor; provide pump control to maintain a level between the high and low set points (dual version with interlock).
- With an input from a flow sensor and cycling on-off timer, control the position of a penstock or motorised valve to maintain a fixed flow rate.
- With an input from a temperature or pressure transducer; start a process at one set point, with shut down if the high point is reached (dual version).
- With an input signal from a pH monitor; provide control of a dosing pump.
- Replacement for vane type switches.

DIMENSIONS



Information required when ordering

- Input Signal
- Trip Type i.e.
112-2-1 Single Trip
112-2A-2 Dual Trip
- Whether interlock is required (dual version)
- Whether 'High' or 'Low' type
- Supply voltage and frequency
- Whether DIN rail mounting clip is required

INPUTS

others available to order

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

NB see note regarding second input option in Terminal Connections

OUTPUTS

Single trip type 112-2-1

Relay with double pole change-over contacts

Dual trip type 112-2-2

Each trip channel is provided with a relay with a single pole change-over contact plus a single pole contact
Contact rating: 5A @ 250V AC resistive; 2.5A @ 24V DC resistive

HYSTERESIS

Approximately $\pm 1\%$ of span.

HIGH / LOW SELECTION

Set by internal programming links. One link for each trip point.

INTERLOCK OPERATION (dual version only)

Enabled by internal programming link.

Interlock modes are set by the High / Low programming links and initiated by the input signal reaching one of two conditions:-

- (i) High set-point - released by the Low set-point
- (ii) Low set-point - released by the High set-point

SET POINTS

10 turn potentiometer with precision dial scaled 0-100

INDICATORS

Output relay energised - one for each each trip

HYSTERESIS

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

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. Input 'A' is not isolated from Input 'B' (dual version).

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

AC 110/220/240V $\pm 10\%$ 50/60Hz 5VA

DC 12/24v -10% $+20\%$ 3.5W

TRANSDUCER SUPPLY (dual version only)

24 VDC @ 20mA max.

WEIGHT

Approximately 750g

SAFETY & EMC

Safety: EN61010-1

Immunity: EN50082-1

Emissions: EN50081-1

CE certified

TERMINAL CONNECTIONS

Inputs

Note: The dual trip is available with a second input on terminal 1 instead of a transducer supply. This option must be specified at time of placing order.

112-2-1 Single

- 1 reserved
- 2 Input Signal 'B' (+)
- 3 Input Signal (-)

112-2A-2 Dual

- 1 Transducer supply (+)
[or second input option*]
- 2 Input Signal (+)
- 3 Input Common (-)

Outputs

Remote set-point (option*)

- 4 Pot (span)
- 5 Pot (wiper)
- 6 Pot (zero)
- 7 Earth

Channel A

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

Channel B

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

Relay A

- 8 SPCO Normally Closed
- 9 SPCO Common
- 10 SPCO Normally Open

Relay B

- 11 SPCO Normally Open
- 12 SPCO Common
- 13 SPCO Normally Closed

Supply

- 14 Earth
- 15 Neutral
- 16 Line

DC versions only*

- Earth
- Negative (-)
- Positive (+)

*Options are only available if specified at time of ordering



WARNING: THIS UNIT CAN BE MAINS POWERED, AND ALL INPUTS TO IT MUST BE ISOLATED FROM DANGEROUS VOLTAGES BEFORE THE FRONT COVER IS REMOVED. LIVE TERMINALS WILL BE EXPOSED.

Continuous development may necessitate changes in these details without notice

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