



# TRIP-AMPLIFIERS

Single Point • Dual Point

B12 SERIES

- \* Provide Low Cost Solutions
- \* Wide Range of Input Signals
- \* Single and Dual Versions
- \* User Selectable High / Low and Interlock Functions
- \* Optional 10 Turn Dial Versions
- \* Wall or DIN rail mounting

The B12 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.



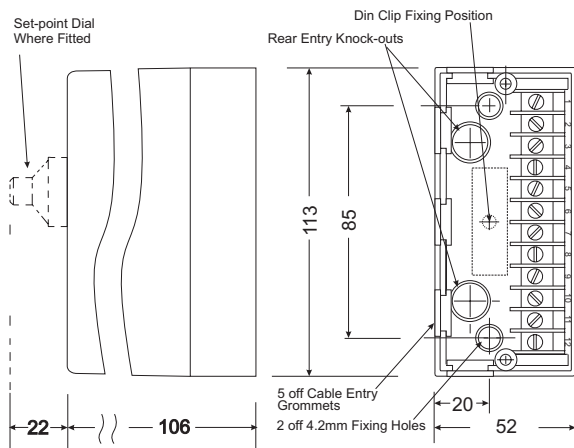
## TRIP AMPLIFIERS Types B12-ST, B12-DT

These are low-cost versions where the set-point is set by a multi-turn trim pot accessed through the front panel.

## TRIP AMPLIFIERS Types B12-ST/K, B12-DT/K

These versions provide a front panel mounted ten-turn precision control knob(s) scaled 0 - 100% of the input signal. Locking mechanisms are provided to prevent accidental movement of the knob setting.

## DIMENSIONS



## 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 trip version).
- With an input signal from a pH monitor; provide control of a dosing pump.
- Replacement for vane type switches.

## Information required when ordering

- Input Signal
- Trip Type i.e.  
**B12-ST** Single Trip  
**B12-ST/K** Single Trip with Ten-turn Dial  
**B12-DT** Dual Trip  
**B12-DT/K** Dual Trip with Ten-turn Dials
- Whether Interlock is Required (Dual version)
- Whether High or Low Type
- Supply Voltage and Frequency
- Wall or DIN rail mounting

## SPECIFICATION

### INPUTS *(other inputs available to order)*

#### **B12-ST & B12-DT Current Input Types**

Universal input accepts any signal within the range 0-20mA.  
Input Impedance 50 ohms.

#### **B12-ST & B12-DT Voltage Input Types**

Universal input accepts any signal within the range 0-5V.  
Input impedance greater than 200 k ohms

#### **B12-ST/K & B12-DT/K**

*(calibrated to specified Input Range)*

0-10 mA into 100 ohms

0-20 mA into 50 ohms

4-20 mA into 62.5 ohms

0-5v into greater than 200 k ohms

1-5v into greater than 200 k ohms

### OUTPUT

Relay with single pole change-over 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

B12-ST Single Trip

B12-DT Dual Trip

B12-ST/K Single Trip

B12-DT/K Dual Trip

} Set by multi-turn trim pots through the front panel

} Set by ten-turn precision dial(s) scaled 0 - 100%

### ISOLATION

The outputs are isolated from the supply and input.

### REPEATABILITY

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

### INTERFERENCE REJECTION

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

### SERIES MODE AC REJECTION

<0.2% error is caused in the set point for 50/60 Hz series mode signals of peak to peak amplitude equal to  $2\frac{1}{2}$  times full scale.

### COMMON MODE REJECTION

<0.2% error is caused in the set point for 250V RMS 50/60 Hz, or 400V DC, common mode signals.

### INPUT OVERRANGE PROTECTION

Voltage Inputs: 240 volts RMS or DC

Current Inputs: 50mA

### TEMPERATURE COEFFICIENTS

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

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

### TEMPERATURE RANGE

Operating:  $-10^{\circ}$ C to  $+60^{\circ}$ C

Storage:  $-20^{\circ}$ C to  $+70^{\circ}$ C

### SUPPLY VOLTAGE REJECTION

Span change: <0.1% span / % supply change.

### POWER SUPPLY

Standard AC: 110, 200, 220 or 240V  $\pm 10\%$  50/60Hz 5VA

Fuse: 100mA quick-blow

Optional DC: 12V, 24V or 48V DC  $-10\%$  to  $+20\%$  @ 3.5 W

Fuse: 250mA anti-surge

### INDICATORS

A 'power on' indicator is provided and also an indicator for each trip point which illuminate when the associated output relay is energised.

### ENCLOSURE DETAILS

Material

Base - ABS (glass fibre reinforced), Colour: black

Cover - Polystyrene, Colour: light grey

### PROTECTION

The module offers protection to IP 40

### WEIGHT

Approx. 0.5kg

### ELECTRICAL CONNECTIONS

Inputs

- |   |                               |
|---|-------------------------------|
| 1 | <i>no internal connection</i> |
| 2 | Input Signal (+)              |
| 3 | Input Signal (-)              |

Relays

- |   |                 |                     |
|---|-----------------|---------------------|
| 4 | Normally Closed |                     |
| 5 | Relay A Common  | Trip A Relay        |
| 6 | Normally Open   |                     |
| 7 | Normally Open   | Trip B Relay        |
| 8 | Relay B Common  | (Dual Version Only) |
| 9 | Normally Closed |                     |

Supply

- |    |         |        |
|----|---------|--------|
| 10 | Earth   | AC     |
| 11 | Neutral | Mains  |
| 12 | Line    | Supply |

Earth	DC
Negative (-)	Supply
Positive(+)	Option

Please Note:

Supply options are only available at time of order

### 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

# SIL

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