



# 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.



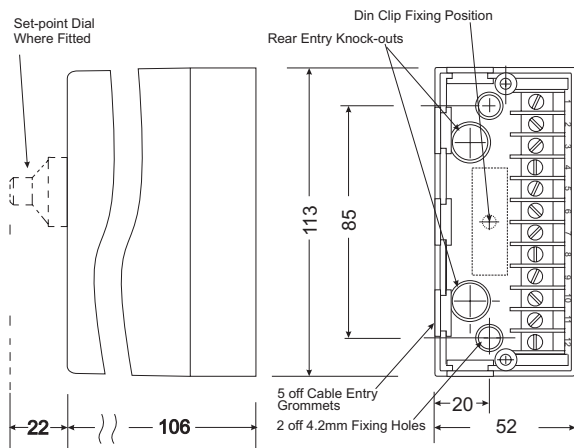
## TRIP AMPLIFIERS Types B12-ST, B12-DT

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 *no internal connection*

2 Input Signal (+)

3 Input Signal (-)

Relays

4 Normally Closed

5 Relay A Common Trip A Relay

6 Normally Open

7 Normally Open

8 Relay B Common Trip B Relay  
(Dual Version Only)

9 Normally Closed

Supply

10 Earth

11 Neutral

12 Line

AC  
Mains  
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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