



## Tachometer Relay

**TR1**  
**TR1-R**

- Monitor speed of machinery
- Variable 'start up' delay
- Proximity switch or contact input
- Relay output—8 amp @ 230 vac
- DC or AC powered versions
- Analogue output for rate meter
- Plug in or panel mounting 48 x 48 DIN case
- 12 VDC output to power sensors etc.
- PNP or NPN type inputs



### DESCRIPTION

The TR1 tachometer relay can be used to monitor any rotating or reciprocating machinery by using a sensor or switch and will provide an alarm output when the signal rate is below or above the set point which can be in the range of 250 to 10000 pulses per minute. To prevent false alarms being generated as the machine is running up to speed an adjustable start up delay is provided.

Also provided is an analogue output that can be used to drive an external meter to display the input pulse rate.

The TR1 may be panel mounted using the supplied clamp or plugged into a standard 11 pin socket

### MODE OF OPERATION

#### **TR1**

The TR1 powers a sensor that is used to provides pulses to the input of the instrument. The rate of these pulses is measured and compared with the selected set value. While the pulse rate exceeds the set value the relay will be energised and will be de-energised when below.

When power is applied the relay energises and the start up time period starts. If the input pulse rate has not exceed the set point within the set delay time (Adjusted through the side of the instrument) the relay de-energises giving an alarm condition. This start up delay allows time for machinery to reach operational speed before the TR1 starts to monitor the speed.

#### **TR1-R (Reverse Operation)**

A version of the TR1 is available in which the relay operation is reversed, this being energised below set point and de-energised above. The start up delay leaves the relay de-energised during the time period.

#### Options

**DC Supply:** 12—30 VDC power (order code— add suffix DC)

**Reverse operation:** (order code—add suffix R)

**NPN input type:** 1000 ohm pull up to +12V (order code— add suffix N)

#### Signal Sources

The TR1 Can be used with any signal source that provides pulses of 5—30 volts amplitude. These include:-

Inductive or capacitive proximity sensors

Photoelectric sensors

Micro switches

Rotary shaft encoders