

Single Level Adjustable Speed Switch: P/N R4901A

Determine if your application can use the R4901A. The R4901A is available standard for 12 VDC, unlatched, 100-5,000 Hertz, Sensor or Generator applications. R4901A will not function on ignition sensing applications. Unlatched means that one the unit is tripped, it will remain tripped only as long as the input frequency exceeds the trip point setting.

1. Calculate or estimate your set point to determine if it falls within the 100-5,000 Hertz adjustment range:

a.) For Cable Driven Applications such as Speedometers:

$$\text{Turns per mile} \times \text{Pulses per Turn}/60 = \text{Pulses per second or Hertz at 60 mph}$$

For example:

If you wanted to set off an alarm in a truck when speed exceeded 55 mph and you were using an R8970 ISSPRO Sender.

$$1,000 \text{ turns per mile} \times 30 \text{ pulses per turn}/60 = 500 \text{ Hertz at 60 mph}$$

$$55 \text{ mph alarm point}/60 \text{ mph reference} = 0.917 \text{ scaling factor}$$

$$0.917 \text{ scale factor} \times 500 \text{ (60 mph Hertz)} = 459 \text{ Hertz (Actual set point)}$$

The R4901A will work for this application.

b.) For Sensor Driven Speedometer Applications:

$$\text{Tire Revs per Mile} \times \text{Rear Axle Ratio} \times \text{\# Sensor Teeth per Rev}/60 = \text{Hertz per mile}$$

For example:

$$500 \text{ Revs} \times 3.77 \text{ Rear Axle Ratio} \times 16 \text{ teeth}/60 = 503 \text{ Hertz per mile}$$

$$\text{Alarm at 55 calculated by } 55/60 = 0.917 \text{ scale factor}$$

$$0.917 \times 503 = 461 \text{ Hertz set point}$$

The R4901A will work for this application.

c.) For Sensor Drive Tachometers:

$$\text{Flywheel Teeth} \times \text{RPM set point}/60 = \text{Set Point hertz}$$

$$103 \text{ Teeth} \times 1800 \text{ RPM}/60 = 3090 \text{ Hertz}$$

The R4901A can be set at 1800 RPM on this application.

These are a few typical examples. Many others are possible. Contact ISSPRO if you need assistance.

2. Follow the wiring diagram to complete your installation. Adjustment directions are shown below and on the back page:

General Information:

Output Relay contacts- normally open (N/O), normally closed (N/C), and common (COM): The common contact switches from the normally closed to the normally open contact at and above trip point.

Output Rating (maximum): 1 amp @ 24 VDC resistive, 0.3 amp @ 24 VDC inductive (coil load)

IMPORTANT: *If amp load exceeds the above amperage, an optional relay such as the R7021 is necessary.*

Operating Voltage:

12 V units: 10-16 VDC

24 V units: 16-30 VDC

Reverse Voltage Protection:

12 V units: -12 VDC indefinitely, -400 V transients

24 V units: -24 VDC indefinitely, -400 V transients

All units are unlatched.

Adjusting the Trip Point:

The R4901A can be adjusted with a small screwdriver. Remove the cover to access the adjustment. See diagram for location of adjustment screw. **PLEASE NOTE:** There is a 20 turn multi-turn pot. Turning counter clockwise (CCW) increases the speed setting (Hertz Trip Point). The best method is to use a signal generator (if available) to supply the desired number of pulses and then adjust until the relay trips. You can tell if the relay trips by using an ohmmeter, a test light or just listening for it. In many cases, a signal generator is not available. In these cases, simply install the unit and run the vehicle or engine at the desired trip point. Then adjust the screw until the relay trips, using one of the three methods shown on page one, to detect when the relay trips. Close the unit and complete your installation. Test for correct set point and operation.

Adjusting the reset point (Hysteresis):

In some applications, a very tight reset band width (Hysteresis) is needed. For example, if your switch is set to go off at 59 mph on a vehicle alarm and after testing you find that the relay doesn't reset until the vehicle slows to 55 mph. To adjust the rest to a higher point (closer to 59 mph), you will need to turn the reset point trim pot. (See diagram for location) Turn counter clockwise (CCW). Carefully adjust the pot (about 1/4 turn at a time) and re-test to check your adjustment.

Installation Hints:

- (1) Unit is not sealed...mount in cab, away from harsh environments.
- (2) Ground enclosure to help shield against CB or other radio interference.

