

Types of Applications

Overview



In a reed switch application, a magnet is used to "change" the state of the reed switch. The Sanskrit inscription on the painting is pronounced "parivartan" and means "switch" or "change".

Usage of reed switches and reed sensors is fairly straightforward provided certain guidelines and precautions listed in our usage notes are followed. Although reed switch applications are immense, we have broadly classified them into four categories. Most applications do fall under one of these.

- ◆ Position sensing
- ◆ Pulse counting
- ◆ Coil applications
- ◆ Temperature sensing

Position sensing

When an application requires proximity sensing, end position sensing, or moving part sensing, a reed switch or a reed sensor fixed to the stationary surface and a magnet fixed to the moving surface can be used. When the moving part is away from the stationary part, the reed sensor remains un-actuated. As the moving part comes near the stationary part, the reed sensor gets actuated. This actuating distance is highly repeatable. Shock sensors, vibration sensors, inclination sensors, pressure sensors, flow sensors etc. use the basic position sensing principles to function.

As reed sensors are hermetically sealed, they are immune to dust and moisture. Therefore, reed sensors can safely be used in liquid level position sensing applications. Apart from top and bottom level sensing, the actual volume of a liquid present can also be determined by combining sensors with a simple resistance matrix to give a potentiometric, two-wire feedback. Although this can be achieved by using active devices like Hall Effect sensors, reed sensors, which are passive, have the imperative advantage of using no power at all and have no leakage current across the contacts.

Pulse Counting

Reed switches have a very high operating frequency and this feature lends itself to high speed pulse counting applications. Mounting a magnet to a rotating wheel or an object which moves back and forth repeatedly, and a reed sensor to a stationary part will generate the pulses required. The reed sensor used for sensing the pulses can be connected to a counter. If a magnet cannot be used in an application, special packages of reed switches which sense ferro-magnetic parts are available. Liquid and gas flow meters, electricity meters, automobile ABS, and speedometers use this principle of pulse counting.

Coil Applications

Producing a relay using a reed switch is simple compared to conventional electromechanical relays which require many moving parts. Reed switch based reed relays, made by inserting a single or multiple reed switches into a wound bobbin, are available in very small sizes and can go on for millions of operations. Current sensors find applications in almost every electronic circuit for overload protection.

Temperature Sensing

Due to their sharp cut in, cut out bandwidth and high reliability, thermal reed switches are find applications in place of bimetallic strips, thermistors and thermostats for over-heat protection or precise temperature switching. The cut in temperature is differentiated from the cut out temperature by an abrupt and huge change in the resistance of the reed switch contact resistance of a few milli-ohms to an open circuit resistance of a few mega-ohms. In other words, a total galvanic separation occurs. Thermal reed switches can sense subzero temperatures as low as -30°C too.

Due to continual improvement, specifications are subject to change without notice

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