

Reed Switch Theory FAQ

What is a reed switch?

The basic reed switch consists of two identical flattened ferromagnetic reeds, sealed in a dry inert-gas atmosphere within a glass capsule, thereby protecting the contact from contamination. The reeds are sealed in the capsule in cantilever form so that their free ends overlap and are separated by a small air gap.

What is a reed sensor?

A reed sensor is a device built using a reed switch with additional functionality like ability to withstand higher shock, easier mounting, additional intelligent circuitry, etc.

How does a reed switch work?

When a magnetic force is generated parallel to the reed switch, the reeds become flux carriers in the magnetic circuit. The overlapping ends of the reeds become opposite magnetic poles, which attract each other. If the magnetic force between the poles is strong enough to overcome the restoring force of the reeds, the reeds will be drawn together.

What magnetic force is required to close a reed switch?

Minimum force - expressed in ampere-turns, which will cause the reeds to close, is called the just-operate force. Since the force between the poles increases as the gap decreases, a force of approximately half the just-operate force will maintain the operated state. Speed of operation of the reed switch is determined by the excess of operating force over the just-operate force.

What are the advantages in using reed switches?

They are hermetically sealed in glass environment, free from contamination, and are safe to use in harsh industrial and explosive environments. Reed switches are immune to electrostatic discharge (ESD) and do not require any external ESD protection circuits. The isolation resistance between the contacts is as high as 10^{15} ohms, and contact resistance is as low as 50 milliohms. Reed switches can directly switch loads as low as a few micro-watts without needing external amplification circuits, to as high as 120W. When used in combination with magnets and coils, they can be used to form many different types of relays.

What are the advantages in RRE reed switches?

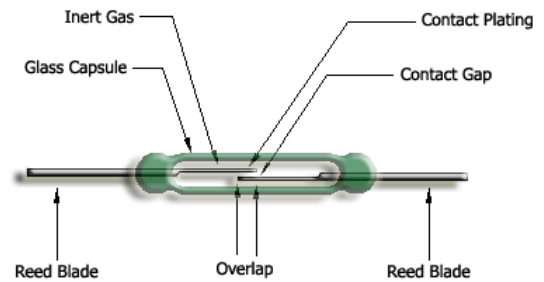
RRE's reed switches are manufactured with flattened leads. This makes it easier for orienting and mounting for maximum in-group sensitivity, and no extra force is required while SMD forming and flattening. Ruthenium plating provides low, stable contact resistance, long life, and prevents cold welding.

What are the different types of reed switches available?

The basic reed switch is a normally open, form A contact. A normally closed, form B contact is provided by biasing the form A with a permanent magnet. A form C or a form D contact can be made by combining a form A contact and a form B contact in the same operating coil. The form B, C and D contacts made in this manner have the same characteristics as the basic form A.

Are single capsule change-over reed switches available?

Single capsule Form C reed switches are available in many configurations depending on the manufacturer. All configurations fall into two main categories, those which use a magnet bias to hold the armature against one pole, and those which have the armature mechanically preloaded against one pole. The former is polarity sensitive, while the latter has a higher contact resistance on the closed contact.



Please contact us for more information

www.reed-sensor.com

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