



REED SWITCH - INTERRUPTOR DE LÁMINAS

Technical Information - Magnetic reed switches for actuators



Glass reed switches are very fragile so please take note:

If you apply heat to the wire it will expand and shatter the glass. What you must do is to hold the wire near to the glass (but NOT touching the glass!) with a pair of "needle-nose" pliers. This will suck heat away from the wire before it reaches the wire in the glass. You can then use a very hot iron to quickly "tin" the end of the wire with solder.

Then tinned copper wire can be soldered to the reed switch wires, still using the pliers.

If you need to bend or shorten the reed switch wires you must again grip the wire close to the glass with pliers and bend or cut the wire furthest from the glass. The pliers will prevent any strain on the glass.

Once it's prepared, the reed switch can be glued in place using hot-melt adhesive or similar. If you use Evo-Stick DO NOT let it touch any connections because it corrodes.

Some Jacks use an encapsulated reed switch which is not soldered. The wires simply plug into tiny sockets. In this case it's simply a matter of holding each wire with pliers, bending it at right-angles then snipping off the excess length. Be very careful to ensure that the wire ends are the right distance apart so they fit in the sockets.

How to test a reed switch

Connect a multimeter to the reed switch with the lowest resistance (Ohms) range selected. The meter should indicate infinity. Now bring a magnet close to the reed switch. The meter should indicate zero Ohms as the switch reeds click together. The orientation of the magnet is important. Hold it so that its North pole is close to one wire and its South pole is close to the other.

IMPORTANT

When you reconnect the dish motor, make sure that you have NOT connected the motor wires to the reed switch by mistake! If you do, then the instant the rotating magnet closes the contacts, the reed switch will explode or blow the fuse or both. You can protect the reed switch by connecting a very low current fuse in series with one of the wires connected to it. About 100mA should be fine.

For most reliable operation, the wires connecting the positioner equipment to the reed switch should be shielded to prevent electrical "noise spikes" from the motor from confusing the counting circuit inside the positioner.

Reed switches for fun and security

These handy devices are used with magnets to detect doors and windows opening. They can also be used for amusement in conjunction with electronic counters, lights, LEDs and other devices.

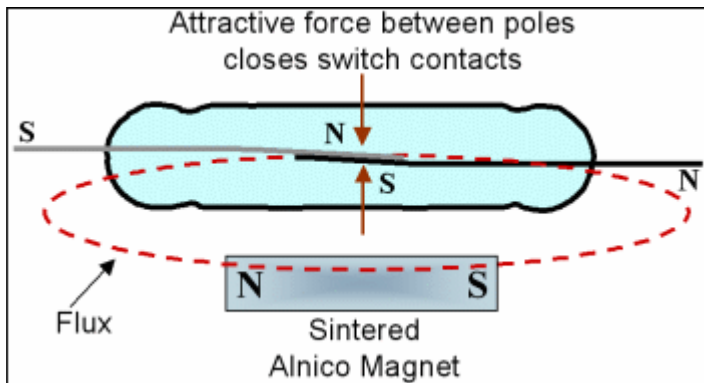
Approximate dimensions of glass envelope:

Length = 13mm

Diameter = 2mm

Applications in the cellular phones

Magnetic materials serve several purposes in the Telecommunications Market. For example, with the advent of cellular telephones came the need for high volume manufacture of small magnets for miniature microphones and speakers. These are economically manufactured of sintered alnico.



A popular style of phone uses a "flip" cover over the keys. When the cover is opened, the phone turns on - - automatically. This is usually accomplished with a non-contact switching system using a sintered alnico magnet and a reed switch. The presence of the magnetic field passing through the conductors of the switch causes them to "pull" together, closing the circuit. When the magnet is moved away from the switch, the circuit opens.

Applications in the Automotive Industry

❖ Impact sensors for triggering airbags

Statistics say almost 80% of automobiles use reed switch based crash sensors for triggering airbags. A ring magnet is mounted on a very precise tension spring and this assembly is slid over a reed switch. Depending on the impact which is required to trigger the reed switch, different tension springs are...



❖ Anti-lock braking system (ABS)

In ABS control, the onboard electronics needs to apply differential hydraulic pressure to each brake to prevent the car from fishtailing and skidding. Four reed sensors are mounted near the wheels and magnets are mounted on the wheels themselves. This way, the individual rotational speed of each wheel is fed back to the onboard computer, as braking takes place, and if certain wheels are spinning faster, more hydraulic oil pressure is fed into those brakes.

❖ Door, window and cap position sensing

Driver information. Instrument panel dashboards need to show more and more information for the safety of the driver and passengers. Special reed sensors which can withstand shock and vibration can be used to sense closing positions of doors, electric windows, sun roofs, trunks, engine hoods, radiator and fuel caps. Reed sensors have the added advantage of withstanding temperatures of up to 150°C.