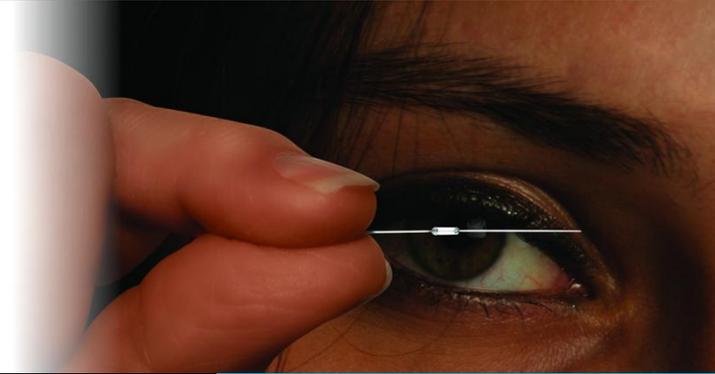


Reed Switch Structure and Operation



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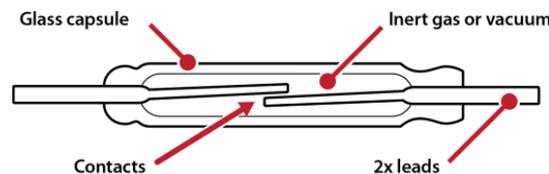
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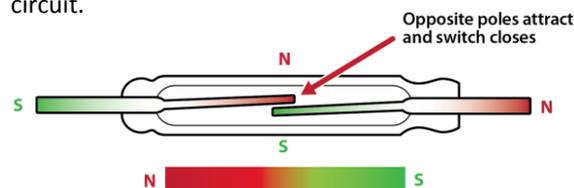
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Reed switch structure and operation:

The form A reed switch comprises of two ferromagnetic reeds placed with a gap in between and hermetically sealed in a glass tube. The glass tube is filled with an inert gas, (nitrogen), or a vacuum to prevent the oxidation of the contacts. The surfaces of the reed contacts are plated with metals from the platinum group such as rhodium, ruthenium, palladium or iridium either by electroplating or sputtering.



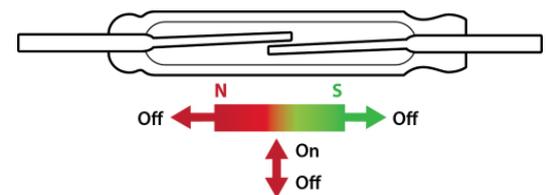
The reed switch is operated by the magnetic field of an energized coil or a permanent magnet which induces north (N) and south (S) poles on the reeds. The reed contacts are closed by this magnetic attractive force. When the magnetic field is removed, the reed elasticity causes the contacts to open the circuit.



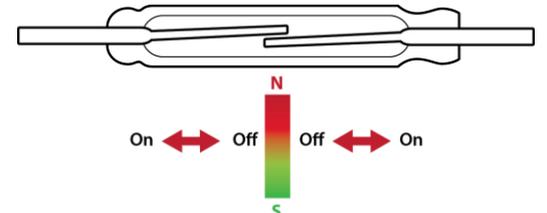
Reed switch actuation:

In all systems, magnet and reed switch must be brought to within a specific proximity of each other. This distance will vary in accordance with the sensitivity of the reed switch, the amount of lead that is cropped and the strength of the magnet. As the lead is cut the switch sensitivity decreases as there is less ferromagnetic material to attract the magnet flux. When the magnet is close enough, the normally open contacts will close, when the magnet is removed the contacts will open. The relative distance for operation is always less than that for a release. Examples of proximity motion switching are shown below.

Provides only one closure with maximum magnet travel:

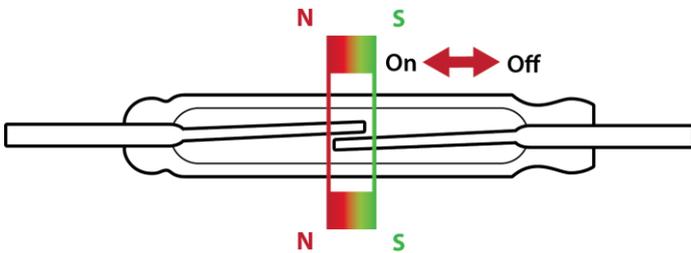


Provides only one closure with maximum magnet travel:

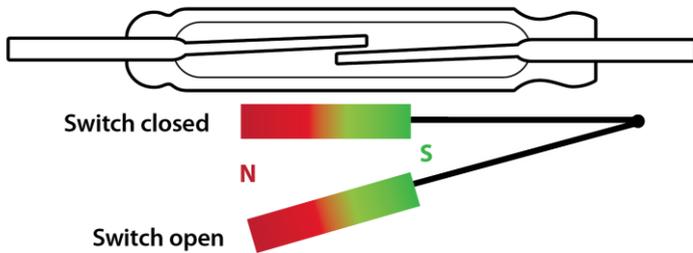


Product Solutions

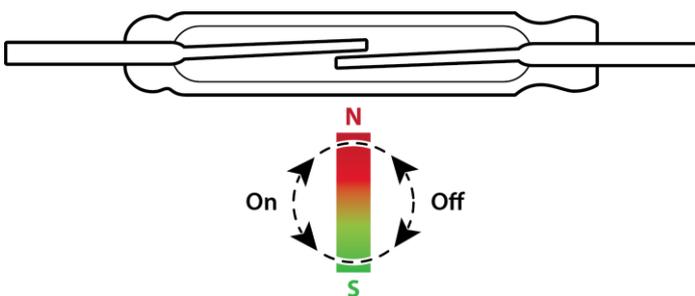
Ring magnet actuation allows one closure with minimum magnet travel.



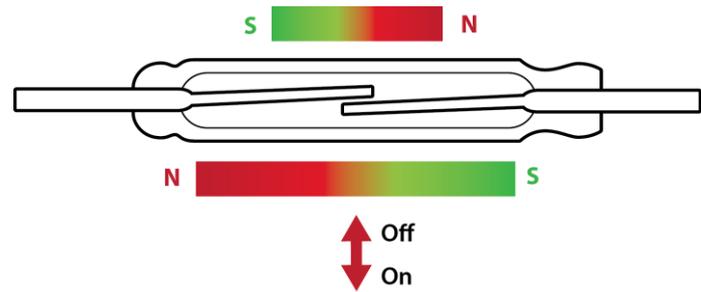
Large angular magnet travel necessary to achieve one switch closure.



Rotating the magnet or reed switch, normal to their axes, reverses magnetic polarity resulting in two closures per revolution. When these axes are parallel, the switch closes. When the axes are perpendicular, the switch opens. Although the poles reverse, they still induce the opposite poles that close the reed switch.



A biasing effect is produced by placing a stationary magnet near the reed switch, to keep it normally closed. The approach of another magnet with reversed polarity cancels the magnetic lines of force, and the reed switch opens. Care should be taken not to bring the actuating magnet too close to the biased reed switch, as it could close again. The same effect can be achieved using only two leads of a form C switch.



In this type of actuation, magnet and reed switch are permanently fixed in such a position that the reed switch contacts are closed. A piece of ferromagnetic material is passed between the magnet and the reed switch, to cause drop out. The magnetic field is shunted, eliminating the attraction between the reeds. When the shield is removed, the reed switch closes.

