Reed Switch Basics

HSI SENSING™
HERMETIC SWITCH INC.

Reed Switch Application Notes

APPLICATION NOTES: Reed Switch Basics

What is a Reed Switch?

A reed switch consists of two or three metal reed contacts (blades) that are hermetically sealed inside a glass tube containing an inert atmosphere. Reed switches come in various sizes, magnetic sensitivities, high power capabilities, high voltage capability, contact configurations, and lead configurations.

Basic Function

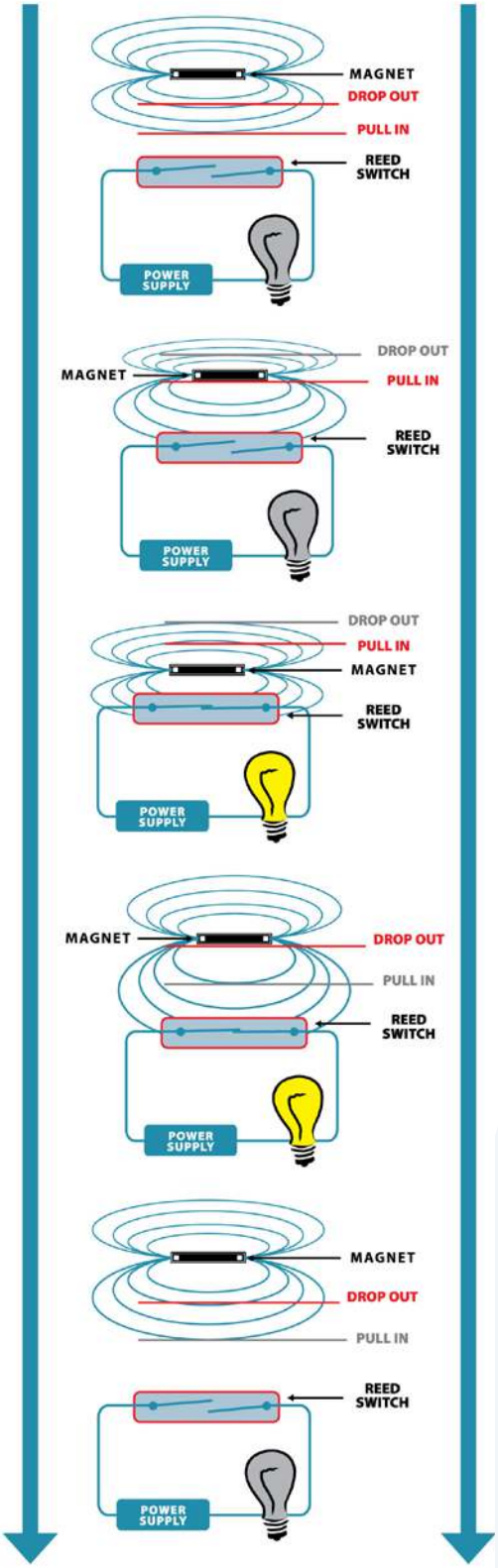
Reed switches have three basic configurations: Normally Open (NO), Normally Closed (NC) and Form C which has both NO and NC. Depending on this original contact configuration, the contacts will either complete or interrupt a circuit when actuated by a magnetic field.

The reed blades act as magnetic flux conductors or a "magnetic antennae." When exposed to an external magnetic field from a magnet or an electromagnetic coil, poles of opposite polarity are created across the open contact. When the magnetic force exceeds the spring force of the reed blades the contacts will close (Pull-In). When the magnetic force of the magnetic field is less than the spring force of the reed blades the contacts will open (Drop-Out).

From top to bottom in the illustration, step 1 to 3 shows a magnet coming close to a Normally Open switch, actuating it, and completing the circuit (turning on the light). When the magnet moves away, illustrated in steps 4 and 5, the switch's contacts open, and the circuit is interrupted (turning off the light).

The normally closed contact functions in the opposite mode. The light is on, magnetic moves near the switch and the circuit opens turning off the light. Magnet is withdrawn and the light comes back on.

The Form C switch can work two lights.



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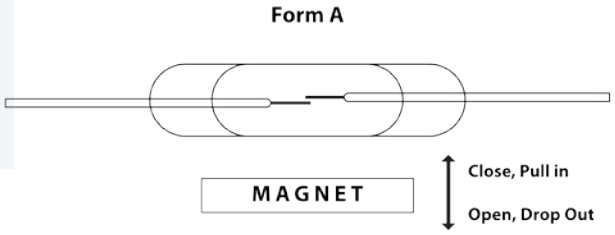
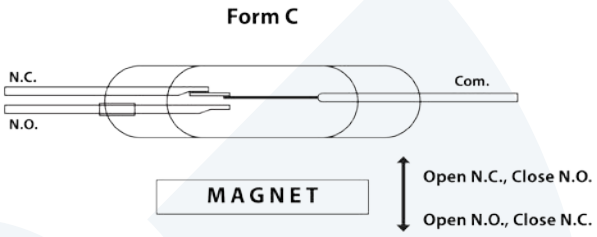
Basic Types

Form A
SPST (Single pole, single throw).
Normally open reed switch contacts close in the presence of a magnetic field.



Form B
SPST (Single pole, single throw).
Normally closed reed switch contacts open in the presence of a magnetic field (no picture reference).

Form C
SPDT (Single pole, double throw).
Break-before-make reed, the normally closed contact opens and then the normally open contact closes in the presence of a magnetic field.



Latch
Reed Switch contacts lock into either position until reset by the reversal of the magnetic field. Available in SPST and SPDT.