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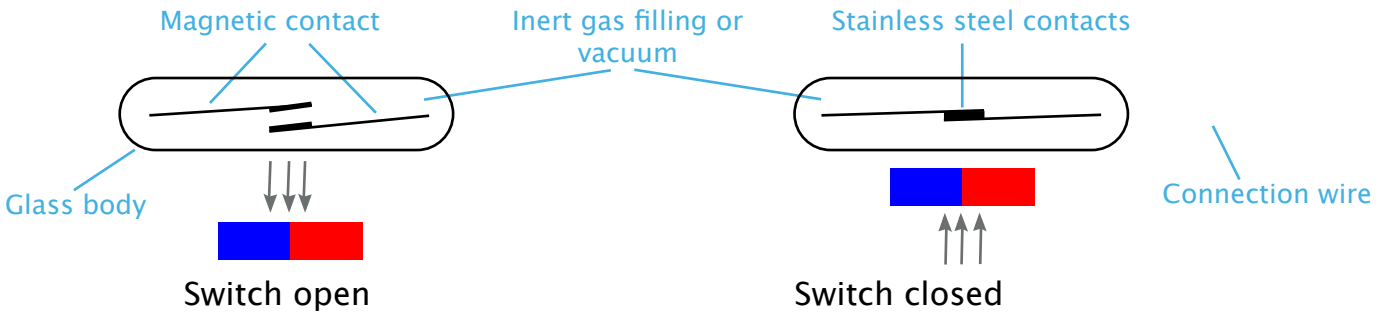
Hallsensor vs Reedsensor

Goal: Use of Hall and Reed sensors

Content: Function of both sensors
Comparison
Different applications

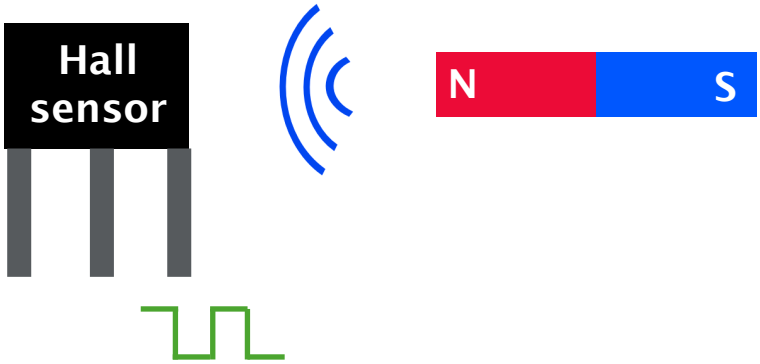
Reed sensor function

A reed sensor, also referred to as reed switch, consists of 2 overlapping magnetic switching contacts sealed into a glass tube. If a magnetic field acts on these switching contacts, they move towards each other and the switch is closed.



Hall sensor function

A Hall sensor is an electronic component for connection to a voltage source. As soon as the Hall sensor is introduced into a magnetic field, it supplies an output current at the output pin.



Comparison

	Hall sensor	Reed switch
Switching distance:	Up to 20mm	Up to 40mm
Required current source:	Direct current	None
Evaluation electronics:	Yes	No
Direct load switching:	No (e.g. relay)	Yes (up to 2A / 1000V)
Switching power:	A few mW	Up to 100Watt
Hermetically closed:	No	Yes

Both sensors (Hall sensor and Reed sensor) are controlled by an external magnetic field. While the Hall sensor must be supplied with power, the Reed sensor is a magnetic switch. This main difference makes the sensors interesting for different applications.

Examples of use

Recognition of rotary and linear motion. By means of a permanent magnet attached at the rotor of the motor, the revolutions per minute or speed can be determined. At a pump, this enables determination of the flow or displacement.
At a servo, the angular position can be determined.

At current clamps, installation of Hall sensors enables contactless measurement of currents.

As proximity switch, the position of machine components like milling cutters can be determined.
At switching frequencies exceeding 1kHz, Hall sensors are the better choice as the mechanical Reed switches may reach their limits.