

Hall Effect Switches / Reed Switches

ELE-0145 Hall Effect Switch:

The Hall Effect Switch is potentially different (voltage) on opposite sides of a thin sheet of conducting or semi-conducting material (the Hall element) through which an electric current is flowing (created by a magnetic field applied perpendicular to the Hall element).

One important feature of the Hall Effect Switch (Figure 1) is that it differentiates between positive charges moving in one direction and negative charges moving in the opposite. By measuring the Hall voltage across the element, one can determine the strength of the magnetic field.

We use Hall Effect sensors that are analog (or linear), which outputs a voltage that is proportional to the applied magnetic field. The Hall Effect Switches generally consist of a Hall Effect sensor, one or more logic gates, and a transistor used to switch the electric current on or off.

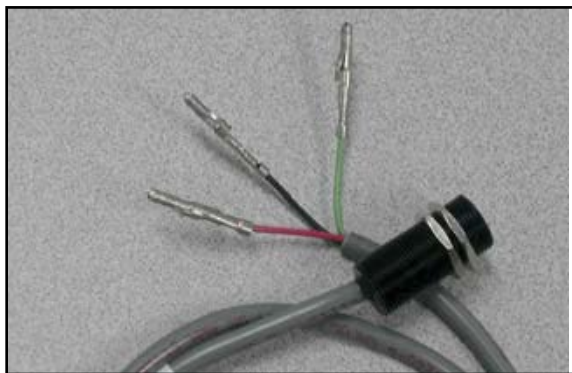


Figure 1: ELE-0145 Hall Effect Switch

Alternately, by applying a known magnetic field (permanent magnet), you can use the Hall voltage to measure the current through the element (3 wire connector) instead.

ELE-1202 Magnetic Reed Switch:

A Reed Switch (Figure 2) is an electric switch that consists of a pair of metal contacts in a sealed glass envelope. A permanent magnet placed in close proximity to the switch will cause the contacts to pull together, thus completing an electrical circuit (2 wire connector).



Figure 2: ELE-1202 Magnetic Reed switch

A Hall Effect sensor switch is a faster acting switch than the Reed Switch. In Fadal VMC's, the Reed Switch can replace the Hall Effect Switch on the Drawbar Cylinder position, ATC Home/Extend, Hi-Range Idlers, Pallet Changer Arm, and A Pallet/B Pallet. The orientation sensor requires a faster acting switch and the Low-Range Reed sensor hits the idler bell crank, so the Hall Effect switch should be used.

Installation: If you are replacing an existing Hall Effect Switch (Figure 3) with the magnetic Reed Switch, then they should be installed on the Shield and Black wires as shown below (not polarity sensitive) since the Reed switch has only 2 wires (Figure 4).

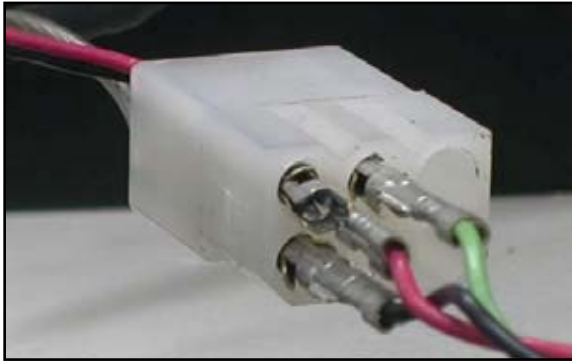


Figure 3: Hall Effect Switch Install
Open/Red, Black, Green/Shield and Black

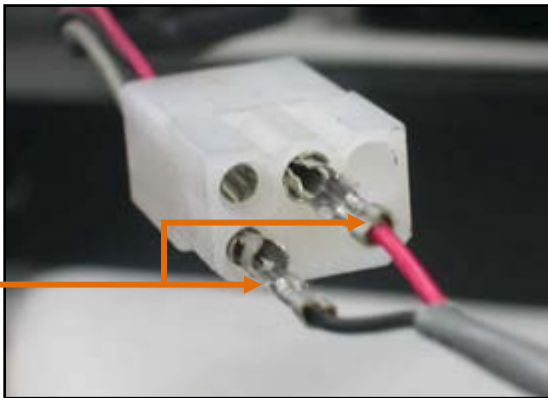


Figure 4: Magnetic Reed Install
1) New Reed Switch Wires
Note: Shield + Black are on the rear side of the above connector (not visible).