

# Reed Switch Environmental Considerations



Reed Switch Application Notes

# APPLICATION NOTES: Reed Switch Environmental Considerations

Several environmental factors should be taken into consideration when choosing or working with a reed switch. These various environments can have an impact on how the reed switch performs.

## Shock and Vibration

Reed switches are most susceptible to shock and vibration in the direction the armature moves. The armature is the flexing member inside the reed switch. Center-gap switches are slightly more resistant to shock and vibration than offset-gap switches. Severe shock or vibration can change the magnetic sensitivity of the reed switch or render it non-functional. In severe cases a crack in the glass capsule may occur. Dropping a reed switch may cause shock damage.

Care should be taken when considering how to mount a reed switch. Please review the Application Notes: How to Handle a Reed Switch on the proper methods for mounting.

Contact HSI Sensing for mounting guidance to minimize the effects of shock and vibration.

## Thermal

By design, the glass and metal of the reed switch have the same coefficient of expansion. Caution should be taken in each application to avoid thermal shock when changing from extreme heat to extreme cold. If operating near or above the recommended maximum temperature, power and current ratings should be evaluated as they may diminish. Review reed switch specification sheets for recommended storage and operating temperatures.

The coefficient of expansion of other components surrounding the reed switch should also be considered. Incompatible components could cause stress, affecting magnetic function or damaging the reed switch.

## Temperature Cycling and Temperature Shock

Temperature changes creating movement of materials due to their coefficients of thermal expansion will stress and possibly damage a reed switch. Careful consideration should be given to the location of the reed switch to avoid interference from temperature cycling and temperature shock. Mismatch of coefficient of expansion between the switch and encapsulating materials can cause damage or affect operation.

## Magnetic Interference

Reed switches are designed to react to a specific magnetic signal. If another magnetic field enters the activation zone, the response of the reed switch will change, causing false activation, de-activation, or no activation. Careful consideration should be given to the location of the reed switch to avoid interference by other magnetic sources. Examples of these sources include but are not limited to other magnets, coils, motors, weld joints, capacitors, resistors, batteries, and relays.

## Ferrous Components

Components containing ferrous materials in the immediate proximity of the reed switch can increase or decrease the magnetic flux required to activate the reed switch. These components can interfere with the reed switch function. Careful consideration should be given to the location of the reed switch to avoid interference by other ferrous sources. Examples of these sources include but are not limited to resistors, capacitors, inductors, screws, bolts, nuts, brackets and housings.