Proximity Sensor Handling

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Proximity Sensor Application Notes

Proximity Sensor Handling

Proper handling, mounting, and storage of a proximity sensor is critical to effective operation. A proximity sensor can be damaged by improper mounting, dropping or other impact. HSI Sensing has years of experience handling proximity sensors and has developed several best practices.

Handling, Drop, Shock, Vibration Warnings

Excessive physical shock can alter the sensitivity of the proximity sensor. It can also damage the glass capsule of the reed switch inside the proximity sensor, causing a loss of the hermetic seal and thus decreasing the useful life of the proximity sensor. Excessive vibration can also cause glass damage or changes to the magnetic sensitivity.

After a proximity sensor has been dropped or has been subject to excessive physical shock or vibration, always test the sensor. Make sure all characteristics are within the acceptable limits.

Many sensors feature dual potting compounds. One is silicone-based to improve shock and vibration performance, and the other is designed for strength and sealing out the environment. Consult HSI Sensing if your application requires extreme performance.

Printed Circuit Board Mounting

HSI Sensing pioneered the methodology for mounting reed switch assemblies to printed circuit boards (patent number 5,796,254).

When mounting on a printed circuit board, attention should be given to flexing and thermal expansion characteristics. Using epoxy to secure a proximity sensor to a printed circuit board may cause stress on the sensor. This stress can be transferred to the proximity sensor, causing the internal reed switch to break, chip, crack, or change magnetic sensitivity. In typical applications it is better for the mounted proximity sensor to rely on its own strength.

HSI Sensing has multiple options for mounting proximity sensors to a printed circuit board. These options include overmold, housing, trilobular bars, multiple diameter round bars, through-hole, and J-bend.

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Storage

When storing proximity sensors, avoid areas that experience a rapid thermal change. Also avoid storing near magnetic fields. An oscillating field, such as a transformer, could activate the proximity sensor and wear it out prematurely. A large, fixed magnetic field holding normally-open durel contacts of a proximity sensor closed for extended periods of time may prevent the internal contacts from releasing properly. See HSI Sensing specification sheets for proper storage temperature recommendations.