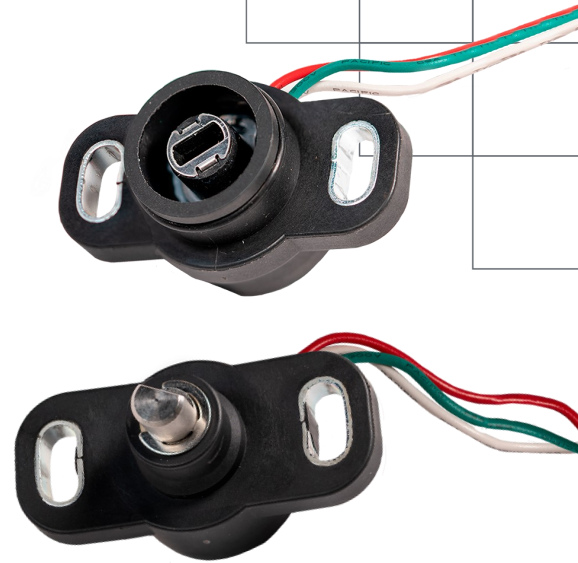


Introduction

Rotary position sensors are designed for applications that require frequent adjustment and long deployment. Applications include automotive, manufacturing automation, process automation, robotics, food and beverage processing, medical, and heavy off-road equipment. These applications typically require rotary sensors with high rotational life, compatibility with an extended temperature range, ingress seal from dust and moisture, and reliable performance in extreme conditions. Some applications may require the added performance of a non-contacting solution over a traditional contacting solution for extended life and minimal calibration or replacement. CTS Series 285 flange mount non-contacting rotary position sensor provides a non-contacting Hall-effect solution in a sealed package that meets



Background

Rotary position sensors are electro-mechanical devices used to measure the displacement and position of an object. Rotary sensors measure the rotation angles by providing feedback in the form of voltage or other types of outputs. These measuring devices can be constructed with contacting or non-contacting technologies. CTS Series 285 flange mount rotary position sensor uses “Hall-effect” non-contacting technology for high reliability and extended deployment.

Hall-effect technology offers a reliable and high-quality solution where contacting technology falls short. Discovered by Edwin Hall in 1879, Hall-effect refers to the potential difference on opposite sides of a bar-shaped conducting or semi-conducting material (Hall element). This potential difference (voltage) is produced by a magnetic field applied perpendicular to the Hall element through which electric current flows. Figure 1 is provided to illustrate this concept.

Hall-effect technology produces an analog output similar to contacting potentiometers without the aid of a physical wiper contact. There are no internal contacting parts subject to mechanical wear or failure, making this technology ideal for use in harsh environments where extreme levels of shock, vibration, temperature changes, moisture and dust particles are present. Figure 2 demonstrates the typical configuration for the Hall-effect sensor where a magnet is rotated over a pre-programmed integrated circuit (IC) thereby producing an analog signal output.

A Variety of Applications

There are a variety of applications in several markets where the Series 285 flange mount rotary position sensor can enhance end-product performance. Typical applications in the **Automotive and Off-Road Vehicle Market** include throttle-position sensor and throttle body for EFI, gate lifts, cranes, various construction, mining and agriculture machinery, and small engine applications. In the **Industrial Automation Market**, typical applications include valve controllers and valve actuators, material handling equipment, robotics, food and beverage processing, and automated assembly and packaging equipment. **Medical Market** applications include patient table positioning for laser, radiation or x-ray, dental chairs and dental 180° x-ray scan equipment, and patient chairs for eye laser surgery. **Transportation and Marine Market** applications include train seat positioning, door opening sensors, boat throttle controls, ship propulsion, and rudder position feedback.

Series 285 Flange Mount Non-Contacting Position Sensor

CTS Series 285 flange mount non-contacting rotary position sensor provides industrial grade performance in extreme environmental conditions. The wide operating temperature range of -40°C to +85°C with the IP67 seal ratings provide high performance and reliability in extreme temperatures and humidity. Extended life of 10 million cycles reduces service replacement cost and equipment down time. The Hall-effect technology eliminates the internal component wear and provides stable performance in applications subjected to constant or excess vibration and shock.

The output of the Series 285 is constant and stable over the life of the product unlike contacting potentiometers that require periodic calibration to maintain accuracy. By transitioning from contacting technology to non-contacting technology, the need for periodic calibration, maintenance and service checks are virtually eliminated. Additional benefits from this upgraded technology include cost savings from reduced maintenance and reduced equipment down time. Standard flying leads offered on this model eliminate the need for soldering wires to the unit, making installation a quick procedure.

Let CTS Series 285 be the optimal choice solution for your non-contacting rotary position sensor needs.

Custom configurations are also available on request. Contact an authorized CTS Sales Representative for additional details.

Contact us with any questions at <https://www.ctscorp.com/contact>.