SENSATA POSITION SENSORS

Sensata-BEI specializes in speed and position sensors for extreme applications. Serving the industrial, military, aerospace and off-highway markets, Sensata-BEI provides an extensive range of products from standard off-the-shelf to completely customized solutions for any challenging application. Backed by decades of experience, Sensata-BEI designs sensors offer uncompromising quality, performance, and reliability. The comprehensive product line includes optical and magnetic encoders, Hall effect sensors, potentiometers (wirewound, conductive plastic and hybrid), electronic interface modules, wireless modules, and a variety of product accessories. Specialized products for extreme applications include those for wash-down and corrosive environments, extended operating temperatures, high shock and vibration, wet and dirty operations and products certified for hazardous area use.

WHAT ARE INDUSTRIAL POSITION SENSORS

Position sensors measure physical parameters known as position in an application and provide feedback to a control system or end user. They can provide position feedback for a number of different systems including motors and pinions. Industrial position sensors are different than their "on board" counter parts by allowing for sensing in environmentally demanding applications that are dirty, have extreme temperatures, or are susceptible to high shock. Here are the main types of Position Sensors:

- Encoders convert motion or position into a series of electronic pulse that are used for either rotary speed feedback or measurements. They typically use rotary motion from a mechanical device like a shaft.
- Hall Effect Sensors are similar to encoders but they use magnetic fields to generate proximate position, speed, or rotational information applications. They run at slower speeds and are less accurate than encoders.
- Potentiometers use a partially conductive sensing element in conjunction with a wiper to determine where an object is. They are mainly used for providing feedback when there is a human operator involved.
- Inclinometers use an artificially generated horizon to provide angle, elevation, or depression readings of an applications.

WHICH ENCODER FITS YOUR APPLICATION NEEDS - INCREMENTAL OR ABSOLUTE

There are two main forms of encoders that provide position information - Incremental or Absolute. Both provide different information so it is important to understand the needs of your application before deciding what kind of encoder you need.

Incremental Encoders provide instantaneous feedback for relative speed or position measurements.

Absolute Encoders provide a "whole word" output with a unique code pattern representing each degree of shaft position. Absolute encoders know where they are at all times.

INDUSTRIAL POSITION SENSOR APPLICATIONS

- Factory Automation Machinery
- Elevators & Escalators
- Oil & Gas Machinery
- Food Processing Machinery
- Agriculture Equipment
- Mining & Construction Equipment
- Robotics
- Automated Guided Vehicles
- Packaging Machinery
- HVOR
- Web Process Control
- Material Handling
- Motor Feedback and Vector Control

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Sensata Technologies
BEI Sensors

Encoders

H25 Series

The H25 Series is the flasgship of the Sensata-BEI product line and was designed from the ground-up for the industrial marketplace. The H25 series offers features such as EMI shielding, 40 lb. ABEC 7 bearings, matched thermal coefficients on critical components, and custom high-efficiency optics. The encoder meets NEMA 4 and 13 requirements when ordered with the shaft seal. The H25 encoders are available in absolute or incremental versions, in addition to an incremental programmable option, Model H25 Omnicoder®, which allows for virtually unlimited resolution variations up to 10,000 PPR.

- Matched thermal coefficients on critical components
- 40 Lb ABEC 7 bearings
- EMI shielding
- Meets NEMA 4 and 13 requirements when ordered with shaft seal

H20 Series

The H20 is an extremely rugged encoder designed to economically fill the resolution range up to 4096 cycles per turn. This compact unit features a shock resistant disc, heavy-duty bearings, and EMI shielding. The H20 conforms to NEMA 4 and 13 requirements. The H20 is also available in a hub shaft style with a flexmount for easy mounting directly to small motors.

- Die cast aluminum with iridite finish housing and 303 stainless steel shaft
- Shaft loading up to 40lbs. axial and 40 lbs radial
- Meets NEMA 4 and 13 requirements
- EMI Shielding

HS35 Series

The HS35 combines the rugged, heavy-duty features usually associated with shafted encoders into a hollow shaft style. Its design includes dual bearings and shaft seals for NEMA 4, 13 and IP65 environmental ratings, a rugged metal housing, and a sealed connector or cable gland. The HS35 accommodates shafts up to 1" in diameter. With optional insulating inserts, it can be mounted on smaller diameter shafts. It can be mounted on a through shaft or a blind shaft with a closed cover to maintain its environmental rating. The HS35 is also available with a dual output option (inset) to provide redundant encoder signals, dual resolutions, or to supply two separate controllers from a single encoder.

- Dual Output Option
- NEMA 4 and 13 ratings available
- IP65 environmental rating
- Custom High-Efficiency Optics

Functional Safety Series

Sensata has four lines of Functional Safety Encoders that were designed for applications that require a higher level of safety or require more control over their application. Functional Safety Encoders lower the risk of failure and help reach higher SIL levels with greater ease. They also offer greater control opportunities over speed, direction, and torque, through the usage of a safety controller.

- Usable up to SIL3 and Cat. 4/Ple according to IEC 61508 / EN ISO 13849
- Suitable for safe motor feedback according to IEC 61800-5-2
- High temperature performance -20°C to 85°C
- IP 65 /66 /69 / 69k Options Available

Potentiometers

9850 Series

The 9850 series offers a highly reliable rotary potentiometer sensor module that can be easily integrated into a wide variety of space-conscious applications requiring installation simplicity, long service life and repeatable accuracy. These sensors are offered in 120° mechanical rotation, single (3-pin) or dual (6-pin) output, CW rotation with round mounting holes.

- Dual-output offers the added functionality of two sensors in a single package
- Sealed integral interface accepts industry-standard Packard Electric METRI-Pack™ connectors
- Low-profile design answers space-conscious applications

9600 Series

The 9600 series spring return linear position sensor is designed for a variety of space-limited feedback applications that require high repeatability. This sensor is available in three standard sizes and provides excellent life at 1 million full cycles. Industrial, vehicular, appliance, machine tool and robotic applications benefit from the unit's high temperature stability.

- Solderable terminal tabs suitable for use with .110' (2.8mm) PDQ style crimped wiring lugs
- Durable spring-loaded plunger
- Lifetime time of 1,000,000 full cycles or 5,000,000 dither cycles

Electric & Broadcaster Modules

Sensata-BEI Sensors offers a variety of electronic interface and converter modules for encoders. These modules can help solve a multitude of interface issues including mismatched data voltages, incorrect output types, incorrect resolution, or poor signal compatibility.

Optical Isolator Interface Module

Isolates the incoming encoder signal, so it can cleanly re-broadcast and/or level shift the output.

Anti-Dither Module

Prevents overcounting of digital signals caused by vibration, using internal logic to verify when a count is valid.

Dual Encoder Module

Captures encoder signals for data analysis, through the USB 2.0 format.

Divide-By Module

Divides the encoder resolution by an integer value, to synchronize multiple devices that operate at some direct ratio of the master encoder.

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