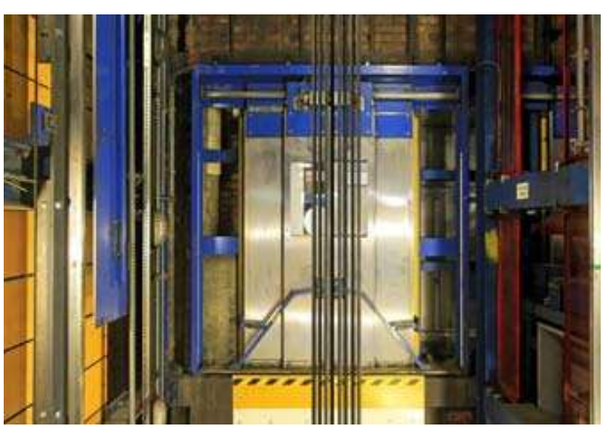
Incremental Encoders

An incremental encoder can be used in positioning and motor speed feedback applications which includes servo/light-, industrial- or heavy-duty applications.

Incremental encoders provide speed, direction and relative position feedback by generating a stream of pulses proportional to the rotation of a motor or driven shaft. Single channel incremental encoders can measure speed while dual channel or quadrature encoders (AB) can interpret direction based on the phase relationship between the 2 channels. Since there are few sensors involved, the systems are both simple and inexpensive. An incremental encoder is limited by only providing change information, so the encoder requires a reference device to calculate motion used.



Incremental Encoder Highlights

HS35R PAGE 1.101

KEY FEATURES:
- Phased Array Sensor for Reliable Signal Output
- Unbreakable Code Disc up to 5000 PPR
- Rugged Design Withstands up to 400g Shock and 20g Vibration
- Heavy Duty Design Rated for IP67
- Customizable Mounting Options including Torque Arm with Optional Grounding Strap

SLIM Tach ST56 PAGE 1.163

KEY FEATURES:
- Redesigned Using Our Revolutionary Sensor Technology to Provide a Large Air Gap of 0.060"
- Redesigned Circuitry for On-Board Diagnostics with LED and Alarm Output
- Bearingless Design Mounts to 56 and 140 C-Face Motors
- Thin 3/4" Profile Saves Space and Can be "Sandwiched" Between Motor & Reducer

HSD44M PAGE 1.85

KEY FEATURES:
- Extremely Heavy Duty Magnetic Encoder with Nema 6/ IP67 Rating
- Designed and Built Specifically for Traction Drives in Rail Applications
- Phased-Array Sensor Technology to Provide High Shock and Vibration Resistance
- Optimized for Ease of Installation and Survival in Harsh Environments

RIM Tach RT8 PAGE 1.177

KEY FEATURES:
- New Sensor Provides up to 0.075" of Air Gap, Over 50% More Than Competitive Models
- Expanded Resolution up to 2400PPR
- Redesigned Circuitry for On-Board Diagnostics with LED and Alarm Output
- Wide -40° to +100°C Temperature Range
- Optimized Pulse Wheel for Greater Shaft Holding Force and Ease of Assembly

HSD35M PAGE 1.123

KEY FEATURES:
- Rugged Magnetic Design Resists up to 400G Shock
- Stainless Steel Clamp and Hub Shaft for Mill Duty
- Compact Design with Field Serviceable Connector for Solder-Less Connections
- Accommodates Shaft Sizes up to 1.25" (Electrically Isolated up to 1.125")
- Dual Isolated Output Option for Redundancy

HD25 PAGE 1.27

KEY FEATURES:
- New Sensor Provides up to 0.075" of Air Gap, Over 50% More Than Competitive Models
- Expanded Resolution up to 2400PPR
- Redesigned Circuitry for On-Board Diagnostics with LED and Alarm Output
- Wide -40° to +100°C Temperature Range
- Optimized Pulse Wheel for Greater Shaft Holding Force and Ease of Assembly

Hazardous Duty

Hazardous Areas or Hazardous Locations relate to areas where flammable liquids, vapors, gases or combustible dusts are likely to occur in quantities ample to cause a fi re or explosion. If your encoder is going into an environment where explosive gas or dust may be present, determine what level of protection is required and then look for an encoder that carries at the least the minimum requirement.

There are several methods of designing encoders for hazardous environments and all have varying degrees of Zone and Class & Division ratings. There are 4 major types of hazardous location encoders. There are Intrinsically Safe encoders, Flame Proof encoders, Encapsulated Encoders and Non Incendiary Encoders. Typical industries where hazardous location encoders are used are Paper and Steel, Oil and Gas, Mining, Power, Chemical, Aerospace and Food and Beverage.

Hazardous Duty Highlights

ISD37 PAGE 4.21

KEY FEATURES:

- Triple certified U.S./Canadian, ATEX and IECEx in hazardous locations to create a Class 1 Div. 1, Zone 0 Solution
- Dual Isolated Outputs Available for Redundancy
- Unbreakable Code Disc up to 5000 PPR
- Coupled with the IS Barrier to create a complete Intrinsically Safe Solutions
- 300g Shock and 20g Vibration Resistance and IP67 Sealing

X25 PAGE 4.07

KEY FEATURES:

- For Hazardous Location Applications
- Approved for NEC Class 1&2, Div 1&2, Groups C,D,E,F,G
- Rugged Enclosure with 1/2" Conduit Entry
- High 5000 PPR Capability

EN44 PAGE 4.13

KEY FEATURES:

- Triple Certified Encoder for Hazardous Locations
- Hub-shaft Design with Isolated Coupling to Compensate for Shaft Endplay
- Encapsulated Electronics with Increased Safety Interface for Zone 1 Use Eliminates Need for I.S. Barrier
- Industry Leading -50 to +100°C Temperature Range
- High Current Line Driver for Long Cable Runs

AX65 PAGE 4.35

KEY FEATURES:

- Explosion Proof Absolute
- 12 bit of Singleturn, 12 or 16 bit of True Multiturn Absolute Positioning
- ATEX and IECEX certification for Mining, Gas and Dust
- Extreme corrosion resistance: high grade stainless steel housing
- Protection class up IP66/ IP67
- CANopen or SSI Communications

ISW38 PAGE 4.31

KEY FEATURES:

- Draw Works Threaded Shaft with Field Replaceable Adapters for Reduced Downtime
- ATEX and CSA Certified for Hazardous Duty Applications
- Dual Isolated Outputs Available for Redundancy
- Anodized Aluminum or Stainless Steel Housing
- NAMUR Sensor Output Available

AX73 PAGE 4.43

KEY FEATURES:

- Brushless Construction is Ideal for Brushless Servo Motors
- Shortest Mounting Depth in the Industry for Easy Mounting
- Up to 125°C Temperature Range
- Radiation-Hardened Models Available

Resolvers

A Resolver is an electromagnetic transducer that can be used in a wide variety of position and velocity feedback applications which includes light duty/servo, light industrial or heavy duty applications. Because the resolver is an analog device and the electrical outputs are continuous through one complete mechanical revolution, the theoretical resolution of a single speed resolver is infinite. Because of its simple transformer design and lack of any on board electronics, the resolver is a much more rugged device than most any other feedback device and is the best choice for those applications where reliable performance is required in those high temperature, high shock and vibration, radiation and contamination environments which makes the resolver the sensible design alternative for shaft angle encoding.

A resolver can be used in a wide range of demanding applications, from wood processing to semiconductor fabrication, from radiation treatment machines to steel mills. They can be frameless or housed and are used in applications that are environmentally demanding. This mean extreme temperatures, shock and vibration. These applications can be aerospace, military, CNC, off highway vehicles and radioactive (for example nuclear reactors and medical).

Resolver Highlights

RH25 PAGE 3.21

KEY FEATURES:

- Rugged, Housed Resolver now available in a Hub-shaft Design
- Spaced Bearings for up to 10x the Life of Traditional Duplex Bearings
- High Temperature Rating of 125°C Continuous Duty
- Rugged Housing with IP54 Rating
- Various Connector Options

R56 PAGE 3.25

KEY FEATURES:

- Harowe Resolver in NorthStar Housing
- Large Outer Bearings Isolate Shaft Loads
- Foot Mount or 56 C-Face Mount
- Excellent Zero-Speed Output
- Suitable Replacement for the Reliance Automax Resolvers 800123-R, 800123-S, 800123-1R and 800123-1S*

RF25 PAGE 3.19

KEY FEATURES:

- Flange Mount Rugged Housing Immune to Oil, Salt, Water & Dust
- Spaced Bearings for up to 10x the Life of Traditional Duplex Bearings
- Withstands 200g Shock and 40g Vibration
- Shaft Seal Standard
- Suitable Replacement for the Reliance Automax Resolvers 800123-2R and 800123-2S* RoHS CERTIFIED

SIZE 15 FRAMELESS PAGE 3.03

KEY FEATURES:

- Options include Multi-Speed, Radiation Hardened, High Temperature and Flux Shielding Technology
- Resistant to noise and impervious to most industrial contaminants
- Up to 200°C Temperature Range
- Stainless Steel or Aluminum Housing

R25 PAGE 3.17

KEY FEATURES:

- Rugged Housing with IP65 Rating
- Spaced Bearings for up to 10x the Life of Traditional Duplex Bearings
- Withstands 200G Shock and 40G Vibration
- High Temperature Rating of 125°C Continuous Duty
- Available in Square and Servo Mount

SERIES 11/R11 PAGE 3.15

KEY FEATURES:

- Brushless Construction is Ideal for Brushless Servo Motors
- Shortest Mounting Depth in the Industry for Easy Mounting
- Up to 125°C Temperature Range
- Radiation-Hardened Models Available