

## TRANSPORTATION AND INDUSTRIAL APPLICATIONS

## Application Note

### RTY Series Hall-Effect Rotary Position Sensors

#### INTRODUCTION

The RTY Series Hall-Effect Rotary Position Sensors provide angle monitoring in harsh transportation and industrial applications at a competitive cost.

These products use a magnetically biased, Hall-effect integrated circuit (IC) to sense rotary movement of the actuator shaft over a set operating range. Rotation of the actuator shaft changes a magnet's position relative to the IC. The resulting flux density change is converted to a linear output.

The IC, together with conditioning and protection circuitry, and the permanent magnet, is sealed in an IP67-qualified rugged package for durability in most harsh environments.

Eight operating ranges (50°, 60°, 70°, 90°, 120°, 180°, 270° and 360°) are tolerant to over-travel and allow use in most common applications. Low voltage and high voltage versions cover an input voltage range of 4.5 Vdc to 30 Vdc.

Most applications require no lever, and no brackets are necessary.

Buy from a proven partner and supplier in the transportation and industrial fields. Honeywell's industry-leading capabilities in research and development provide the customer with known quality and support.

Figure 1. RTY Series Hall-Effect Rotary Position Sensor



#### FEATURES AND BENEFITS (★=competitive differentiator)

- ★ **35 M cycle product life:** Provides long life in the application
- **Solid-state Hall-effect technology:** Provides non-contact operation, long service life, low torque actuation and reduces worn-out mechanisms
- **Rugged IP67-sealed package with integral connector:** Allows for use in harsh environments
- **Automotive-grade EMI/EMC testing, integrated reverse polarity, and short circuit:** Provides protection against installation errors and frequencies in the environment
- **Industry-standard AMP termination, 32 mm mounting pitch, North American and European pinout styles, and compact package:** Provide drop-in replacement
- **Eight operating ranges up to 360°:** Provides flexibility in multiple applications, allowing OEMs the range of travel needed for the application

#### POTENTIAL APPLICATIONS

Figures 2 through 5 show specific transportation and industrial applications in which these sensors may be used.

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## TRANSPORTATION:

Figure 2. Boat Engine Tilt/Trim Position



**Function:** May be used to sense boat engine tilt/trim position.  
**Customer Benefits:** Accurate position reporting helps the operator to maintain peak performance of the boat and protects against propeller damage. The IP67 rating, EMC testing, and AMP seal connector protect against marine conditions. The 35 M life cycle helps reduce end user replacement requirements.

Figure 3. Throttle Position (trucks, buses, off-road vehicles, industrial/construction/agricultural vehicles and equipment, cranes)



**Function:** May be used to sense throttle plate angle.  
**Customer Benefits:** Accurate throttle position can enhance fuel economy and engine performance. The IP67 rating and EMC testing meet customer requirements. The 35 M life cycle helps reduce warranty concerns.

Figure 4. Bus/Truck Suspension/Kneeling Position



**Function:** May be used to sense angular travel of the suspension system.  
**Customer Benefits:** Accurate sensing validates the correct height for the application's system requirements, potentially aiding vehicle ingress/egress (liability), trailer height for warehouse docking (faster turns and liability), and suspension performance monitoring (diagnostic check). The IP67 rating and EMC testing meet customer requirements. The 35 M life cycle helps reduce warranty concerns.

## INDUSTRIAL:

Figure 5. Irrigation Pivot Control



**Function:** May be used to sense irrigation equipment steering angle.  
**Customer Benefits:** Accurate positioning delivers water where it is needed, potentially reducing water consumption and increasing crop yield. The IP67 rating, EMC testing, and AMP seal connector protect against dust and wet conditions. The 35 M life cycle helps reduce end user replacement requirements and OEM warranty exposure. The wide temperature range (-40 °C to 125 °C [-40 °F to 257 °F]) of the sensor allows for use in hot and cold environments.

# RTY Series Hall-Effect Rotary Position Sensors

## WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

## SALES AND SERVICE

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

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