

## RTY Series

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### Hall-Effect Rotary Position Sensors



#### DESCRIPTION

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.

#### 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

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.

Honeywell's industry-leading capabilities in research and development provide the customer with known quality and support.

#### POTENTIAL APPLICATIONS

##### Transportation:

- Position and movement detection of pedals, throttles, gear shift, levers, steering, linkages, and hitches (trucks, buses, off-road vehicles, industrial/construction/agricultural vehicles and equipment, cranes)
- Suspension displacement/kneeling (buses, trucks)
- Tilt/trim position (boat engines, tilling equipment)

##### Industrial:

- Valve control
- HVAC damper control
- Irrigation pivot control

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**Table 1. Specifications**

Characteristic	Parameter	
	LV (Low Voltage)	HV (High Voltage)
Supply voltage	5 ±0.5 Vdc	10 Vdc to 30 Vdc
Supply current	20 mA max.	32 mA max.
Supply current (during output to ground short)	25 mA max.	47 mA max.
Output	0.5 V to 4.5 V ratiometric	0.5 V to 4.5 V non-ratiometric
Output signal delay	4 ms typ.	
Overvoltage protection	10 Vdc	–
Reverse polarity protection	-10 Vdc	-30 Vdc
Output to ground short circuit protection	continuous	
Output load resistance (pull down to ground)	10 kOhm	
EMI:	100 V/m from 200 MHz to 1000 MHz per ISO11452-2	
radiated immunity	100 mA BCI per ISO11452-4	
conducted immunity	from 1 MHz to 200 MHz	100 mA BCI per ISO11452-4 from 1 MHz to 400 MHz
EMC	exceeds CE requirements	
Operating temperature range	-40 °C to 125 °C [-40 °F to 257 °F]	
Storage temperature range	-40 °C to 125 °C [-40 °F to 257 °F]	
Ingress protection	IP67 according to DIN 40050	
Expected life	35 M cycles	
Media compatibility	heavy transportation fluids	
Housing material	PBT plastic	
Shock	50 G peak	
Vibration	20 G peak tested from 10 Hz to 2000 Hz	
Salt fog	concentration 5% ±1% for 240 hr per SAE M1455 Section 4.3.3.1 (at 5.0 Vdc. 38 °C [100 F °])	
Resolution	12 bit	
Mating connector	AMP Superseal 282087-1	
Mechanical end stop	no	
Approvals	CE	

# Hall-Effect Rotary Position Sensors

Figure 1. Mounting Dimensions (For Reference Only: mm/[in.] )



Figure 2. Functional Characteristics



**Figure 3. Nomenclature and Order Guide**



**⚠ WARNING**  
**PERSONAL INJURY**  
 DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.  
**Failure to comply with these instructions could result in death or serious injury.**

**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.

**⚠ WARNING**  
**MISUSE OF DOCUMENTATION**

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

**Failure to comply with these instructions could result in death or serious injury.**

**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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