

## Application Note

# RPN Series Hall-Effect Rotary Position Sensors in Gear Shift Rotation Applications

### BACKGROUND

Gear shift lever position and movement in a variety of rugged duty vehicles, such as agricultural and construction vehicles (see Figure 1), needs to be accurately and reliably measured.

**Figure 1. Agricultural Vehicle**



### SOLUTION

RPN Series Rotary Position Sensors (see Figure 2) 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 the IC's position relative to the magnets. The resulting flux density change is converted to a linear output.

When used in potential gear shift applications, rotation of the gearstick rotates the sensor shaft to set a position corresponding to the selected gear. The RPNS sensor measures the gearshift lever position and allows the electronic control unit to calculate and display which gear is selected.

**Figure 2. Product Used in this Application**



### BENEFITS

- Solid state technology for non-contact operation
- Eight operating ranges, up to 360°, for use in most common applications
- Variety of supply voltages and output configurations for application flexibility
- Rugged package, integral connector and IP67 sealing or greater for harsh duty applications
- Integrated reverse polarity, short circuit and EMI protection
- Industry-standard AMP or Deutsch termination

# RPN Sensors in Gear Shift Rotation Applications

## **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. We assume no responsibility for its use.

## **WARNING**

### **MISUSE OF DOCUMENTATION**

- The information presented in this application note 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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