

## Quadrature Speed and Direction Sensors, SNG-Q Series

### An Application Note

#### Background

Honeywell's SNG-Q Series Quadrature Speed and Direction Sensors are designed to provide both speed and direction information. Speed information is provided from digital square wave outputs; direction is provided using a quadrature output with signals 90° phase shifted from each other. With the quadrature output, target direction is determined by output lead/lag phase shifting.

The product is designed for applications where dual differential Hall-effect sensor IC technology allows an enhanced ability to detect small target features. This accuracy is enabled by dual differential Hall-effect sensor IC technology. The SNG-Q Series is designed for a wide operating temperature range, robust electrical noise immunity and industry leading environmental sealing capability.

#### Potential Applications

##### INDUSTRIAL

- AC induction motors in material handling, agriculture, and construction machines: May be used to help control power delivered by the ac induction motor
- Escalators and elevators: May be used to help control speed and position







##### TRANSPORTATION

- Hybrid electric transmissions in heavy duty trucks, buses, agriculture and construction machines: May be used to help control power regulation of the hybrid system
- Wheel speed detection in material handling, agriculture, and construction machines: May be used to detect the speed and direction of the wheels, which translates to the speed and direction
- Hybrid engines in heavy duty trucks, buses, agriculture and construction machines: May be used to help control power regulation of the hybrid system

#### Customer Benefits

Provides enhanced reliability in:

- High electrical noise (EMC) environments
- High temperature environments
- High moisture environments

SNG-Q SERIES		KEY FEATURES
 <p>SNG-QPLA-000</p>	 <p>SNG-QPMB-000</p>	<ul style="list-style-type: none"> <li>• Direction information: From phase-shifted dual output signals</li> <li>• Sensing air gap: 0,0 mm to 2,0 mm [0.0 in to 0.08 in]</li> <li>• Wide operating temperature range: -40°C to 150°C [-40°F to 302°F]</li> <li>• Enhanced frequency switching capability: 3 Hz to 20 kHz</li> <li>• Supply voltage range: 4.5 V to 26 V</li> <li>• Robust electrical noise immunity: Electrical noise radiated immunity (EMC) rated to 100 V/m</li> <li>• Environmental sealing: Moisture ingress protection rated to IP69K</li> <li>• O-ring seal: Enables environmental sealing to mounting surface</li> <li>• Fixed mounting flange allows for a simpler installation process, using one fastener</li> <li>• Radial or axial mounting: Depending on the geometry envelope in which it fits, can simplify design-in</li> </ul>
 <p>SNG-QPRA-000</p>	 <p>SNG-QPDB-000</p>	
 <p>SNG-QPCA-001</p>	 <p>SNG-QPDB-002</p>	

## Order Guide

Catalog Listing	Description
SNG-QPLA-000	SNG-Q Series, quadrature speed and direction sensor, plastic housing, 35 mm [1.38 in] housing length, 500 mm [19.7 in] cable, right angle exit,
SNG-QPCA-001	SNG-Q Series, quadrature speed and direction sensor, plastic housing, 35 mm [1.38 in] housing length, Deutsch DTM04-4P connector with 1250 mm [49.2 in] cable, right angle exit
SNG-QPRA-000	SNG-Q Series, quadrature speed and direction sensor, plastic housing, 35 mm [1.38 in] housing length, integral Amp Superseal 1.5 connector, right angle exit
SNG-QPMB-000	SNG-Q Series, quadrature speed and direction sensor, plastic housing, 45 mm [1.77 in] housing length, 500 mm [19.7 in] cable, straight exit
SNG-QPDB-000	SNG-Q Series, quadrature speed and direction sensor, plastic housing, 45 mm [1.77 in] housing length, Amp Superseal 1.5 connector 282106 with 145 mm [5.71 in] cable, straight exit
SNG-QPDB-002	SNG-Q Series, quadrature speed and direction sensor, plastic housing, 45 mm [1.77 in] housing length, Deutsch DTM04-4P connector with 1250 mm [49.2 in] cable, straight exit

### Warranty/Remedy

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. 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 that Honeywell, in its sole discretion, 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 Honeywell may provide application assistance personally, through our literature and the Honeywell web site, it is buyer's sole responsibility 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 writing. However, Honeywell assumes no responsibility for its use.

### For more information

To learn more about Honeywell's sensing and switching products, call 1.800.537.6945, visit [sensing.honeywell.com](http://sensing.honeywell.com), or e-mail inquiries to [info.sc@honeywell.com](mailto:info.sc@honeywell.com)

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