

## HRS100 Series

---

### Hall-Effect Rotary Position Sensors



#### DESCRIPTION

The HRS100 Series uses Hall-effect technology to provide angular position information. The use of magnetically coupled information, in place of a mechanical wiper assembly, provides long life and a cost-effective solution for harsh environments that include temperature, vibration, dither, moisture and dirt.

#### FEATURES AND BENEFITS

---

- **Solid-state Hall-effect technology:** Provides non-contact operation, long service life, low torque actuation and reduces worn-out mechanisms
- **Choice of termination:** Provides application flexibility
- **10 M cycle product life (typical):** Provides long life in the application

The HRS100 Series is packaged in a metal housing with a 9,5 mm [0.375 in] diameter bushing and a 6,35 mm [0.25 in] diameter slotted shaft. Termination is either solder lug or flying wire leads.

#### POTENTIAL APPLICATIONS

---

##### Transportation:

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

##### Industrial:

- Material handling equipment (forklifts, robotics)

# HRS100 Series

**Table 1. Electrical Specifications**

Characteristic	Parameter
Electrical angle	90° ±2°, 180° ±2°
Output voltage	5% to 95% of applied Vdd, approx. (programmable)
Linearity (% of span)	±2%
Output current	2 mA max.
Output type	sink/source
Overvoltage protection	18 Vdc max.
Supply voltage	5 Vdc ±10% (output ratiometric to supply)
Supply current	5 mA typ.

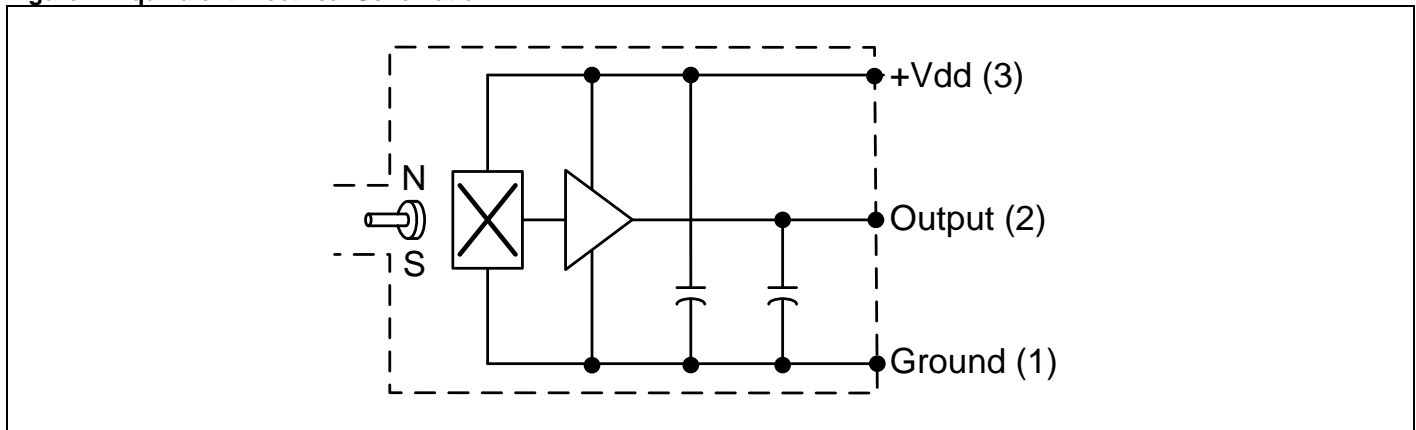
**Table 2. Mechanical Specifications**

Characteristic	Parameter
Material: shaft bushing	stainless steel brass
Bushing	9,52 mm [0.375 in] FMS (excludes C-ring)
Mechanical angle of rotation	90° ±2°, 180° ±2°
Rotational cycles	10 million typical
Rotational torque	0.014 N m [2.0 in oz] (max. at 25 °C)
Stop torque	0.56 N m [5 in lb]
Push out	9.1 kg [20 lb] min.
Pull out	4.5 kg [10 lb] min.

**Table 3. Environmental Specifications**

Characteristic	Parameter
Operating temperature	-40 °C to 85 °C [-40 °F to 185 °F]
Storage temperature	105 °C [221 °F] max.
Shock	50 g, 11 ms
Vibration	15 G, 10 Hz to 2000 Hz
ESD sensitivity	±7 kV max. (human body model)
EMI	30 V/m, 10 kHz to 1000 MHz at 3 m

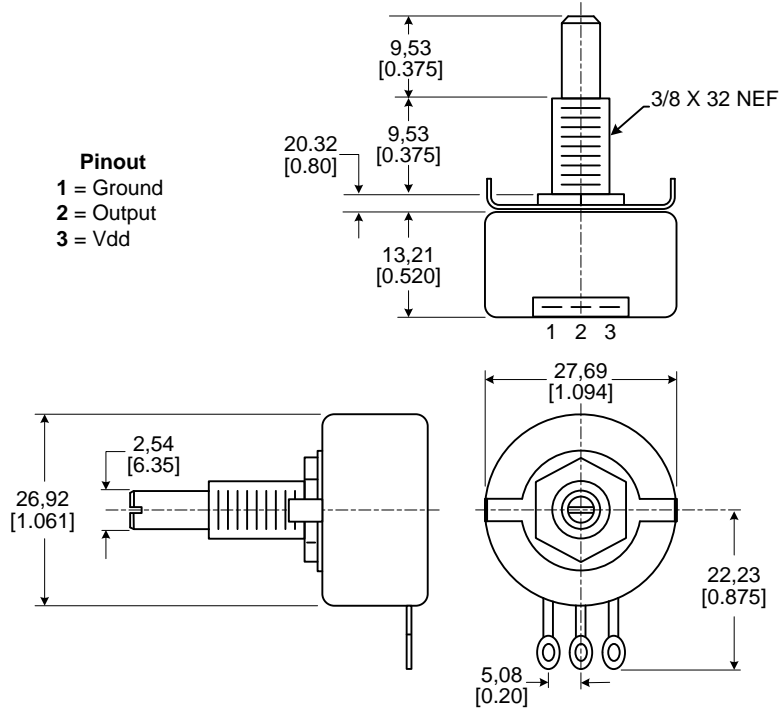
**Figure 1. Equivalent Electrical Schematic**



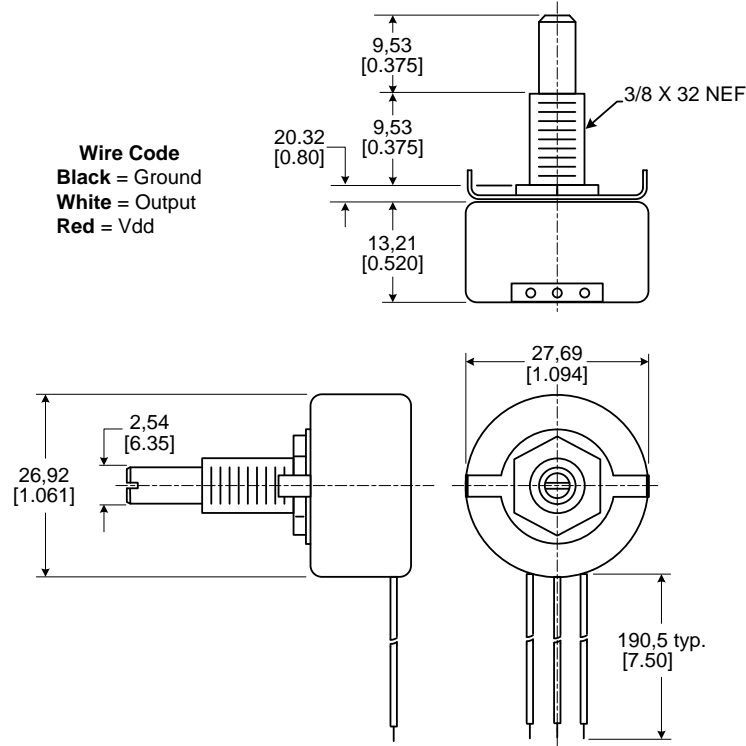
# Hall-Effect Rotary Position Sensor

Figure 2. Mounting Dimensions (For reference only: mm [in.])

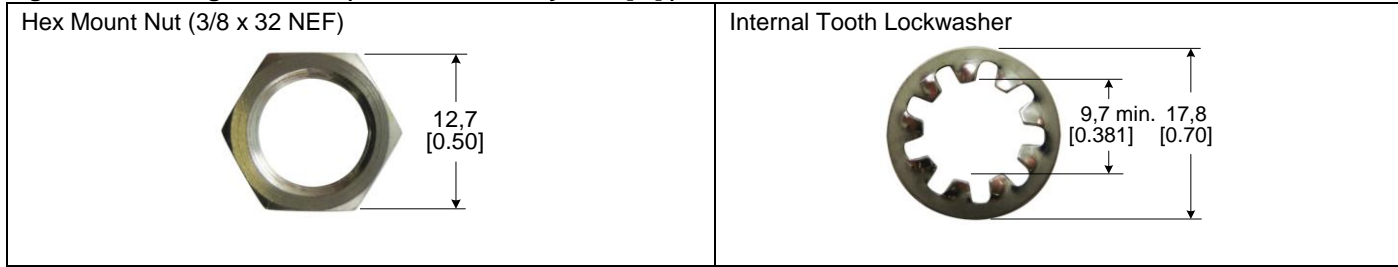
**HRS100SSAB090, HRS100SSAB180: Straight Solder Lug**



**HRS100SWAB090: Flying Wire Leads**



**Figure 3. Mounting Hardware (For reference only: mm [in].)**



**Order Guide**

Catalog Listing	Description
HRS100SSAB090	HRS100 Series Hall-effect rotary position sensor, slotted shaft, straight solder lug, 90° electrical angle
HRS100SSAB180	HRS100 Series Hall-effect rotary position sensor, slotted shaft, straight solder lug, 180° electrical angle
HRS100SWAB090	HRS100 Series Hall-effect rotary position sensor, slotted shaft, flying wire leads, 90° electrical angle

**⚠ 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:

**E-mail:** [info.sc@honeywell.com](mailto:info.sc@honeywell.com)

**Internet:** [www.honeywell.com/sensing](http://www.honeywell.com/sensing)

**Phone and Fax:**

- |               |                         |
|---------------|-------------------------|
| Asia Pacific  | +65 6355-2828           |
|               | +65 6445-3033 Fax       |
| Europe        | +44 (0) 1698 481481     |
|               | +44 (0) 1698 481676 Fax |
| Latin America | +1-305-805-8188         |
|               | +1-305-883-8257 Fax     |
| USA/Canada    | +1-800-537-6945         |
|               | +1-815-235-6847         |
|               | +1-815-235-6545 Fax     |

Sensing and Control  
 Honeywell  
 1985 Douglas Drive North  
 Golden Valley, MN 55422  
[www.honeywell.com/sensing](http://www.honeywell.com/sensing)

005946-1-EN  
 January 2012  
 © 2012 Honeywell International Inc. All rights reserved.

