Hall-effect Position Sensors with Sealed Housing

103SR Series

Datasheet
Hall-effect Position Sensors with Sealed Housing

The 103SR Series Hall-effect position sensor assemblies are sealed in aluminum or stainless-steel threaded housings and meet NEMA 3, 3R, 3S, 4, 4X (stainless-steel housing), 12 and 13 requirements. They respond to the magnetic field from permanent magnets or electromagnets. These rugged non-contact sensing products use versatile, reliable Hall-effect sensor ICs that are operated by a magnetic field and are designed to respond to alternating North and South Poles or to South Pole only.

103SR Series Hall-effect position sensors include digital unipolar, latching, and linear magnetic types, available in a number of sensitivities to meet a variety of customers’ application requirements. The digital version of 103SR Series Hall-effect position sensors delivers stable output over -40 °C to 100 °C [-40 °F to 212 °F] temperature range with 20 mA current sinking capability, and can accept dc supply voltage from 4.5 Vdc to 24 Vdc. The linear version operates from -40 °C to 125 °C [-40 °F to 257 °F] across a supply voltage range of 4.5 Vdc to 10.5 Vdc.

The standard open-collector sinking output (digital devices) or push-pull output (linear device) of the 103SR Series Hall-effect position sensors can be easily interfaced with common electronic circuitry such as microprocessors, integrated logic, discrete transistors, and SCRs with compatible voltage specifications.

What makes our sensors better?

- Honeywell magnetic sensing experience
- Robust, sealed housing
- Multiple wire types and cable options
Features and Benefits

**SOLID STATE RELIABILITY**
Unlike electromechanical switches, the 103SR Series Hall-effect position sensors are not affected by contact bounce or wear. They are solid-state devices suitable for applications requiring reliable switching operations and long life.

**DIGITAL UNIPOLAR, LATCHING, AND LINEAR MAGNETICS**
Honeywell’s 103SR Series Hall-effect position sensors offer digital unipolar, latching, and linear magnetic options specifically designed and engineered to meet a number of industrial, transportation, and consumer application requirements.

**ELECTRICAL CHARACTERISTICS**
The 103SR Series offers current-sinking output (digital) and push-pull output (linear/analog) options to choose from that help address a wide range of applications.

**MEETS INDUSTRY STANDARD REQUIREMENTS**
The rugged, sealed threaded aluminum housing of the device meets NEMA 3, 3R, 3S, 4, 4X (stainless steel only), 12, and 13 requirements allowing them to be used in various environmental conditions.

**LEAD WIRE GAUGE AND LENGTH OPTIONS**
Lead wires of different gauges, lengths, and insulation allows the customer to choose the best-fit option per their application’s requirement.

**WIDE SUPPLY VOLTAGE RANGE**
The sensor operates over a wide supply voltage range from 4.5 Vdc to 24 Vdc (digital) or 4.5 Vdc to 10.5 Vdc (linear).

**OPERATING TEMPERATURE RANGE**
The 103SR Series Hall-effect sensors can operate over a broad operating temperature range from -40 °C to 100 °C [-40 °F to 212 °F] (digital) and from -40 °C to 125 °C [-40 °F to 257 °F] (linear). This reduces operating and installation issues and provides greater flexibility of design to engineers.

**RUGGED, SEALED, THREADED HOUSING**
The sensor ICs in the 103SR Series Hall-effect position sensors are potted and supplied in sealed aluminum or stainless steel housings, protecting them from dust, dirt, and liquid splashing or other harsh environmental operating conditions.

**ADJUSTABLE MOUNTING**
The 103SR Series Hall-effect position sensors come with threaded metal housings. When installed on a bracket, the relative position of the sensor and magnet can be easily adjusted for optimum performance. This provides the user with greater flexibility in integrating and mounting the 103SR Series Hall-effect position sensors into their system.
Honeywell Sensing and Control’s internal design capabilities and customized options allow use of these Hall-effect position sensors across a number of potential industrial, transportation, and medical applications.

**INDUSTRIAL**
- Position sensing
- Robotics control
- Linear or angular displacement sensing
- Speed and RPM (revolutions per minute) sensing
- Tachometer, counter pick-up
- Flow-rate sensing
- Motor and fan control

**TRANSPORTATION**
- Speed and RPM (revolutions per minute) sensing
- Tachometer, counter pick-up
- Motor and fan control
- Seat position

**MEDICAL**
- Motion detection in motorized medical equipment
- Position sensing in hospital beds
# Hall-effect Position Sensors with Sealed Housing

## Electrical and Magnetic Specifications - Digital Hall-effect Position Sensors (for reference only)

<table>
<thead>
<tr>
<th>Catalog Listing</th>
<th>Supply Voltage (Vdc)</th>
<th>Supply Current (mA max.) @ 25 °C [77 °F]</th>
<th>Output Type</th>
<th>Output Voltage (V max.)</th>
<th>Output Current (mA max.)</th>
<th>Magnetic Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>103SR13A-1</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>475</td>
<td>135 40 495 200 35</td>
<td>350 275 75</td>
<td></td>
</tr>
<tr>
<td>103SR13A-2</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>475</td>
<td>135 40 495 200 35</td>
<td>350 275 75</td>
<td></td>
</tr>
<tr>
<td>103SR13A-3</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>475</td>
<td>135 40 495 200 35</td>
<td>350 275 75</td>
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</tr>
<tr>
<td>103SR13A-4</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>475</td>
<td>135 40 495 200 35</td>
<td>350 275 75</td>
<td></td>
</tr>
<tr>
<td>103SR13A-6</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>475</td>
<td>135 40 495 200 35</td>
<td>350 275 75</td>
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</tr>
<tr>
<td>103SR13A-8</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>475</td>
<td>135 40 495 200 35</td>
<td>350 275 75</td>
<td></td>
</tr>
<tr>
<td>103SR13A-9</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>475</td>
<td>135 40 495 200 35</td>
<td>350 275 75</td>
<td></td>
</tr>
<tr>
<td>103SR13A-10</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>475</td>
<td>135 40 495 200 35</td>
<td>350 275 75</td>
<td></td>
</tr>
<tr>
<td>103SR13A-11</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>475</td>
<td>135 40 495 200 35</td>
<td>350 275 75</td>
<td></td>
</tr>
<tr>
<td>103SR13A-12</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>475</td>
<td>135 40 495 200 35</td>
<td>350 275 75</td>
<td></td>
</tr>
<tr>
<td>103SR13A-13</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>475</td>
<td>135 40 495 200 35</td>
<td>350 275 75</td>
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<tr>
<td>103SR13A-14</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>475</td>
<td>135 40 495 200 35</td>
<td>350 275 75</td>
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</tr>
<tr>
<td>103SR13A-16</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>475</td>
<td>135 40 495 200 35</td>
<td>350 275 75</td>
<td></td>
</tr>
<tr>
<td>103SR14A-1</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>- - - 160 5 8 85 58 27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103SR14A-2</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>- - - 160 5 8 85 58 27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103SR17A-1</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Unipolar</td>
<td>180 -180 80 205 -205 35 100 -100 200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103SR17A-2</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Latching</td>
<td>180 -180 80 205 -205 35 100 -100 200</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>103SR18-1</td>
<td>4.5 V to 24 V</td>
<td>10 Sink 0.4 20 Latching</td>
<td>90 -90 40 120 -120 40 50 -50 100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Unipolar digital Hall-effect position sensor has a positive maximum operate point (South Pole) and a positive minimum release point. One magnetic pole (South) is required to operate and release a unipolar digital Hall-effect position sensor.*

*Latching digital Hall-effect position sensor is guaranteed to switch on with positive (South Pole) Gauss only, and switch off with negative (North Pole) Gauss only.*

*Ring magnets with alternating North and South Poles are usually used with latching digital Hall-effect position sensors.*

## Electrical and Magnetic Specifications - Linear Hall-effect Position Sensor (for reference only)

<table>
<thead>
<tr>
<th>Catalog Listing</th>
<th>Supply Voltage (Vdc)</th>
<th>Supply Current (mA max.) @ 25 °C [77 °F]</th>
<th>Output Type</th>
<th>Output Voltage Span (V)</th>
<th>Output Current (mA max., sink or source, Vs &gt;5 Vdc)</th>
<th>Magnetic Type</th>
<th>Magnetic Characteristics [Gauss]** and Temperature °C [°F]</th>
</tr>
</thead>
<tbody>
<tr>
<td>103SR19A-1</td>
<td>4.5 V to 10.5 V</td>
<td>10 Push -Pull 0.4 V to Vs -0.4 V (min.); 0.2 V to Vs -0.2 V (typ.)</td>
<td>1 Linear</td>
<td>-1.5 % ±600 3.031 3.125 3.219 2.425 2.500 2.575</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Refer to 103SR19A-1 engineering drawing for sensitivity and null drift vs temperature specifications.
103SR Series

Table 3. Absolute Maximum Ratings*

<table>
<thead>
<tr>
<th>Parameters</th>
<th>4.5 Vdc to 24 Vdc</th>
<th>-1.0 Vdc to 25 Vdc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage (Vs)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage Externally Applied to Output</td>
<td>25 Vdc max. (OFF only)</td>
<td>25 Vdc max. (OFF only)</td>
</tr>
<tr>
<td></td>
<td>-0.5 Vdc min. (ON or OFF)</td>
<td>-0.5 Vdc min. (ON or OFF)</td>
</tr>
<tr>
<td>Output Current</td>
<td>20 mA max.</td>
<td></td>
</tr>
<tr>
<td>Temperature Operate and Storage</td>
<td>-40 °C to 100 °C [-40 °F to 212 °F]</td>
<td>-40 °C to 100 °C [-40 °F to 212 °F]</td>
</tr>
</tbody>
</table>

*Absolute maximum ratings are the extreme limits that the device will withstand without damage to the device. Electrical and magnetic characteristics are not guaranteed as the maximum limits (above recommended operating conditions) are approached, nor will the device necessarily operate at absolute maximum rating

**Vs is the unregulated supply voltage

DIMENSIONAL DRAWINGS

Unipolar Digital Hall-effect Position Sensors

Figure 1. 103SR13A-1

Figure 2. 103SR13A-2
Hall-effect Position Sensors with Sealed Housing

Unipolar Digital Hall-effect Position Sensors

Figure 3. 103SR13A-3

Figure 4. 103SR13A-4

Figure 5. 103SR13A-6

Figure 6. 103SR13A-8

3 x 6.01 mm ±0.76 mm
[3 x 0.24 in ±0.03 in]

25.4 mm ±1.02 mm
[1.0 in ±0.04 in]

Sensitive area is located
1.27 mm [0.05 in] behind
the sensing face

Catalog listing

Sensor will be
located anywhere within
0.64 mm [0.025 in]

Date code

15/32-32 UNS-2A

2X hex nut

3X 24 gauge conductor
wire leads (individual wires)

3 x 419.1 mm ±7.62 mm
[3 x 16.50 in ±0.30 in]

3 x 6,01 mm ±0.76 mm
[3 x 0.24 in ±0.03 in]

25.4 mm ±1.02 mm
[1.0 in ±0.04 in]

Sensitive area is located
1.27 mm [0.05 in] behind
the sensing face

Catalog listing

Sensor will be
located anywhere within
0.64 mm [0.025 in]

Date code

15/32-32 UNS-2A

2X hex nut

3X 24 gauge conductor
wire leads (individual wires)

3 x 1000 mm ±7.62 mm
[3 x 40.0 in ±0.30 in]

25.4 mm ±1.02 mm
[1.0 in ±0.04 in]

Sensitive area is located
1.27 mm [0.05 in] behind
the sensing face

Catalog listing

Sensor will be
located anywhere within
0.64 mm [0.025 in]

Date code

15/32-32 UNS-2A

2X hex nut

3X 24 gauge conductor
cable

1000 mm ±7.62 mm
[40 in ±0.30 in]

25.4 mm ±1.02 mm
[1.0 in ±0.04 in]

Sensitive area is located
1.27 mm [0.05 in] behind
the sensing face

Catalog listing

Sensor will be
located anywhere within
0.64 mm [0.025 in]

Date code

15/32-32 UNS-2A

Stainless steel

2X hex nut

15/32-32 UNS-2A

2X hex nut

15/32-32 UNS-2A

15/32-32 UNS-2A

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Unipolar Digital Hall-effect Position Sensors

Figure 7. 103SR13A-9

Figure 8. 103SR13A-10

Figure 9. 103SR13A-11

Figure 10. 103SR13A-12
Hall-effect Position Sensors with Sealed Housing

Unipolar Digital Hall-effect Position Sensors

Figure 11. 103SR13A-13

Figure 12. 103SR13A-14

Figure 13. 103SR13A-16

Figure 14. 103SR14A-1

Sensing face

Sensitive area is located 1,27 mm [0.05 in] behind the sensing face

3X lock hex nut

2X hex nut

3X 24 gauge conductor wire leads (individual wires)

3X 24 gauge conductor wire leads (individual wires)

Sensor will be located anywhere within 1.27 mm [0.05 in] behind the sensing face

Sensor will be located anywhere within 0.64 mm [0.025 in]

Catalog listing

Date code

Catalog listing

Date code

Catalog listing

Date code

Catalog listing

Date code

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103SR Series

Unipolar Digital Hall-effect Position Sensors

Figure 15. 103SR14A-2

3 x 6.01 mm ±0.76 mm
[3 x 0.24 in ±0.03 in]

1000 mm ±7.62 mm
[40 in ±0.30 in]

25.4 mm ±1.02 mm
[1.0 in ±0.04 in]

Sensitive area is located
1.27 mm [0.05 in] behind
the sensing face

Sensing face

Catalog listing

Date code

Sensor will be
located anywhere within
a 1.27 mm [0.05 in]

Latching Digital Hall-effect Position Sensors

Figure 16. 103SR17A-1

3 x 6.01 mm ±0.76 mm
[3 x 0.24 in ±0.03 in]

3 x 152.4 mm ±7.62 mm
[3 x 6.0 in ±0.30 in]

25.4 mm ±1.02 mm
[1.0 in ±0.04 in]

Sensitive area is located
1.27 mm [0.05 in] behind
the sensing face

Sensing face

Catalog listing

Date code

Sensor will be
located anywhere within
a 0.64 mm [0.025 in]

Figure 17. 103SR17A-1

3 x 6.01 mm ±0.76 mm
[3 x 0.24 in ±0.03 in]

1000 mm ±7.62 mm
[40 in ±0.30 in]

25.4 mm ±1.02 mm
[1.0 in ±0.04 in]

Sensitive area is located
1.27 mm [0.05 in] behind
the sensing face

Sensing face

Catalog listing

Date code

Sensor will be
located anywhere within
a 0.64 mm [0.025 in]

Figure 18. 103SR18-1

3 x 6.35 mm ±0.76 mm
[3 x 0.25 in ±0.03 in]

3 x 152.4 mm ±7.62 mm
[3 x 6.0 in ±0.30 in]

25.4 mm ±1.02 mm
[1.0 in ±0.04 in]

Sensitive area is located
8.13 mm [0.32 in] nominal
behind the sensing face

Sensing face

Catalog listing

Date code

Sensor will be
located anywhere within
a 0.64 mm [0.025 in]
Hall-effect Position Sensors with Sealed Housing

Unipolar Ratiometric/Analog Hall-effect Position Sensors

Figure 19. 103SR19A-1

Sensor will be located anywhere within 0.84 mm ±0.025 in.

Date code

Catalog listing

Sensitive area is located 1.27 mm [0.05 in] behind the sensing face.

3x 24 gauge conductor wire leads (individual wires)

15/32-32 UNS-2A

2x hex nut

Sensing face

3 x 6.01 mm ±0.76 mm
[3 x 0.24 in ±0.03 in]

3 x 152.4 mm ±7.62 mm
[3 x 6.0 in ±0.30 in]

25.4 mm ±1.02 mm
[1.0 in ±0.04 in]
103SR Series

OPERATING MODE

Figure 20. Unipolar Digital Hall-effect Position Sensors


Note: Flux entering to the South Pole of the magnet will operate the sensor when magnet is positioned as shown in above drawing. This assumes the convention that the direction of the external flux of a magnet is from the North to the South Pole of the magnet.

Figure 21. Unipolar Ratiometric/Analog Hall-effect Position Sensors

103SR19A-1

Note: In the above drawing the magnet field direction is defined as follows:
(+): Positive Gauss represents the South Pole of the magnet facing the sensing area.
(-): Negative Gauss represents the North Pole of the magnet facing the sensing area.

Figure 22. Latching Digital Hall-effect Position Sensors

103SR17A-1, 103SR17A-2

Note: Flux entering to the South Pole of the magnet will operate the sensor when magnet is positioned as shown in above drawing. This assumes the convention that the direction of the external flux of a magnet is from the North to the South Pole of the magnet. Latching devices requires both South and North Poles in order to ensure sensors operate and release respectively.

Figure 23. Latching Digital Hall-effect Position Sensors

103SR18-1

Note: Flux entering to the South Pole of the magnet will operate the sensor when magnet is positioned as shown in above drawing. This assumes the convention that the direction of the external flux of a magnet is from the North to the South Pole of the magnet. Latching devices requires both South and North Poles in order to ensure sensors operate and release respectively.
Hall-effect Position Sensors with Sealed Housing

TROUBLESHOOTING

If sensor does not operate, follow these steps:
1. Assure wiring is correct. Load must be connected.
2. Measure supply voltage across red (+) and black (-) leads to verify presence of proper voltage.
3. Connect positive voltmeter lead to green, white, or brown (output) lead, and negative voltmeter lead to black (ground).

Table 4. With magnet removed (or North Pole present), reading should be:

<table>
<thead>
<tr>
<th>Catalog Listing</th>
<th>Voltage Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>103SR13A-1</td>
<td>Vs</td>
</tr>
<tr>
<td>103SR14A-1</td>
<td>Vs</td>
</tr>
<tr>
<td>103SR17A-1*</td>
<td>Vs</td>
</tr>
</tbody>
</table>

Table 5. When magnet (South Pole) moves toward sensor face (beyond operating point), output should change state and read:

<table>
<thead>
<tr>
<th>Catalog Listing</th>
<th>Voltage Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>103SR13A-1</td>
<td>0.4 V max.</td>
</tr>
<tr>
<td>103SR14A-1</td>
<td>0.4 V max.</td>
</tr>
<tr>
<td>103SR17A-1*</td>
<td>0.4 V max.</td>
</tr>
</tbody>
</table>

*North magnetic pole must be present to ensure device is OFF due to bipolar magnetic operation

LEADWIRE COLOR CODE

Table 6. Leadwire Color Code - Stranded

<table>
<thead>
<tr>
<th>Catalog Listing</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
</table>

Table 7. Leadwire Color Code - Cable

<table>
<thead>
<tr>
<th>Catalog Listing</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>103SR13A-8, 103SR13A-12, 103SR14A-2, 103SR17A-2</td>
<td>Red</td>
<td>Vs (+)</td>
</tr>
<tr>
<td>103SR13A-8, 103SR13A-12, 103SR14A-2, 103SR17A-2</td>
<td>Black</td>
<td>Ground (-)</td>
</tr>
<tr>
<td>103SR13A-8, 103SR13A-12, 103SR14A-2, 103SR17A-2</td>
<td>White (Type 2)</td>
<td>Output (digital)</td>
</tr>
<tr>
<td>103SR13A-9, 103SR13A-11</td>
<td>Red</td>
<td>Vs (+)</td>
</tr>
<tr>
<td>103SR13A-9, 103SR13A-11</td>
<td>Black</td>
<td>Ground (-)</td>
</tr>
<tr>
<td>103SR13A-9, 103SR13A-11</td>
<td>Brown (Type 3)</td>
<td>Output (digital)</td>
</tr>
</tbody>
</table>

BLOCK DIAGRAM

Figure 24. Digital Hall-effect Position Sensors: Current Sinking Output

*Refer Table 6 and Table 7 for output wire color
**INTERFACING SENSING AND CONTROL HALL-EFFECT SENSORS**

The schematics shown are typical of the outputs with which Honeywell Sensing and Control Hall-effect position sensors can be interfaced. Values shown are representative only.

**Current-Sinking outputs**

Current flows through load into sensor. Output terminal is open collector. In the un-operated condition ($I_L = 0$), the output voltage is normally high.

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**Figure 25. Linear Hall-effect Position Sensors: Push-Pull (Sink Source) Output**

**Figure 26. Interface Circuit - ac Load**

**Figure 27. Interface Circuit - dc Load 50 mA**

**Figure 28. Interface Circuit - dc Load 150 mA**

**Figure 29. Interface Circuit - dc Load 200 mA**
## Hall-effect Position Sensors with Sealed Housing

### Order Guide (Measurements for reference only)

<table>
<thead>
<tr>
<th>Image</th>
<th>Catalog Listing</th>
<th>Description</th>
<th>Cable/Leadwire Type*</th>
<th>Magnetic Characteristics</th>
<th>Cable Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>103SR13A-1</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 1</td>
<td>Unipolar</td>
<td>152 mm [6.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR13A-2</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 2</td>
<td>Unipolar</td>
<td>1000 mm [40.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR13A-3</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 1</td>
<td>Unipolar</td>
<td>419 mm [16.5 in]</td>
<td></td>
</tr>
<tr>
<td>103SR13A-4</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 1</td>
<td>Unipolar</td>
<td>1000 mm [40.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR13A-6</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 1</td>
<td>Unipolar</td>
<td>3048 mm [120.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR13A-8</td>
<td>Sealed, 15/32-32 UNS-2A in cylindrical stainless steel housing; two hex nuts</td>
<td>Type 2</td>
<td>Unipolar</td>
<td>1000 mm [40.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR13A-9</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 3</td>
<td>Unipolar</td>
<td>2997 mm [118.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR13A-10</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 2</td>
<td>Unipolar</td>
<td>142 mm [5.6 in]</td>
<td></td>
</tr>
<tr>
<td>103SR13A-11</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 3</td>
<td>Unipolar</td>
<td>1000 mm [40.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR13A-12</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 2</td>
<td>Unipolar</td>
<td>2006 mm [79 in]</td>
<td></td>
</tr>
<tr>
<td>103SR13A-13</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; three hex nuts</td>
<td>Type 1</td>
<td>Unipolar</td>
<td>152 mm [6.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR13A-14</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 1</td>
<td>Unipolar</td>
<td>305 mm [12.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR13A-16</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 1</td>
<td>Unipolar</td>
<td>356 mm [14.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR14A-1</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 1</td>
<td>Unipolar</td>
<td>152 mm [6.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR14A-2</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 2</td>
<td>Unipolar</td>
<td>1000 mm [40.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR17A-1</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 1</td>
<td>Latching</td>
<td>152 mm [6.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR17A-2</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 2</td>
<td>Latching</td>
<td>1000 mm [40.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR18-1</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 4</td>
<td>Latching</td>
<td>152 mm [6.0 in]</td>
<td></td>
</tr>
<tr>
<td>103SR19A-1</td>
<td>Sealed, 15/32-32 UNS-2A cylindrical aluminum threaded housing; two hex nuts</td>
<td>Type 1</td>
<td>Linear</td>
<td>152 mm [6.0 in]</td>
<td></td>
</tr>
</tbody>
</table>

*Cable/Leadwire type*
- **Type 1** - 24 gauge stranded, irradiated polyethylene insulated
- **Type 2** - 22 gauge PVC insulated conductor with black molded PVC jacket
- **Type 3** - 22 gauge insulated conductors with yellow thermoplastic polyurethane jacket
- **Type 4** - 24 gauge irradiated polyethylene
**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 website, 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.

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**ADDITIONAL INFORMATION**

The following associated literature is available on the Honeywell website at sensing.honeywell.com:

- Product line guide
- Product range guide
- Product installation instructions
- Application Notes:
  - Sensors and Switches in Front Loaders
  - Sensors and Switches in Mobile Cranes
  - Blood Recovery System
- Technical Notes:
  - Solid-State Sensors Glossary of Terms
  - Interpreting Operating Characteristics for Solid-State Sensors

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**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.

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**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.

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**ESD SENSITIVITY:**

CLASS 3
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