

SMART Position Sensor, 75 mm Linear Configuration Superior Measurement. Accurate. Reliable. Thinking.



DESCRIPTION

The SMART Position Sensor, 75 mm linear configuration, is a non-contacting sensing solution for linear absolute position sensing with enhanced speed and accuracy. It senses the position of a magnet relative to the sensor from 0 mm to 75 mm [0 in to 3.0 in].

Why is the SMART Position Sensor smart? SMART means that this is a sensor that can essentially think for itself. The SMART Position Sensor has the ability to self-calibrate because it uses a patented combination of an ASIC (Application-Specific Integrated Circuit) and an array of MR (magneto-resistive) sensors to accurately and reliably determine the position of a magnet attached to a moving object (e.g., elevator, valve, machinery, etc.) so that the object's position can be determined.

FEATURES

- Resolution of up to 16 bits provides enhanced accuracy
- Non-contacting technology can provide enhanced product life and durability with less downtime
- Combined patented MR sensor and ASIC technology provide enhanced differentiation and performance
- Air gap of up to $3,0 \pm 2,5$ mm [0.118 ± 0.098 in] between sensor and magnet expands application opportunities
- Other output options (CAN bus, RS232) available upon request
- Self-diagnostics feature can reduce equipment downtime
- Small size, taking up less space than most competitive technologies, allows for use where space is at a premium
- IP67 and IP69K sealing allow use in a variety of harsh applications
- RoHS-compliant materials meet Directive 2002/95/EC

The MR array measures the output of the MR sensors mounted along the magnet's direction of travel. The output and the MR sensor sequence determine the nearest pair of MR sensors to the center of the magnet location. The output of these two MR sensors is then used to determine the position of the magnet between them.

With this sensor, Honeywell has utilized MR technology through the ASIC at a level never before accomplished.

Other configurations are in development.

POTENTIAL APPLICATIONS

Aerospace:

- Aircraft ram door position

Medical:

- Syringe pumps

Industrial:

- Cutting and slitting machinery
- Elevator level position
- Material handling
- Packaging
- Plastic molding machines
- Valve position
- Wafer handling equipment
- Woodworking machinery

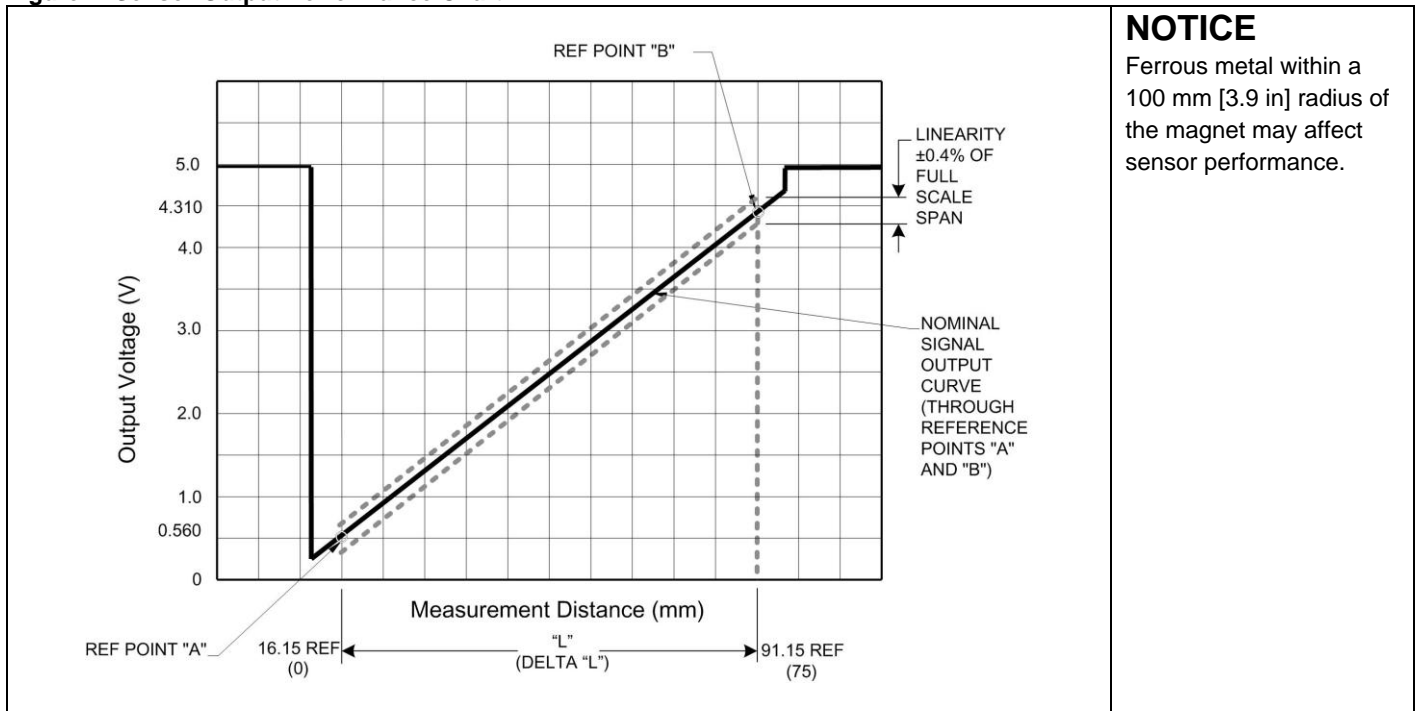
SMART Position Sensor

Table 1. Specifications

Characteristic	Component	Parameter	
Sensing range	sensor only	0 mm to 75 mm [0 in to 3.0 in]	
Resolution		0,05 mm [0.002 in]	
Supply voltage		6 Vdc to 24 Vdc regulated	
Output		0 V to 5 V analog	
Supply current		32 mA max.	
Linearity		±0.4% full scale output	
Reverse polarity		26.4 V at 125 °C [257 °F]	
Sensitivity		50 mV/mm typ.	
Update rate		800 µs	
Initial startup time		30 ms	
Termination (flying leads)		red = supply voltage, black = ground, green = output	
Cable bend radius		40 mm [1.6 in] min.	
Operating temperature range		sensor and magnet	-40 °C to 125 °C [-40 °F to 257 °F]
Storage temperature range			-40 °C to 150 °C [-40 °F to 302 °F]
Air gap	3,0 ±2,5 mm [0.118 ±0.098 in]		
Magnet velocity along sensor	292 mm/s [11.4 in/s]		
Sealing	IP67, IP69K		
Shock	50 G half sinewave with 11 ms duration		
Vibration	20 G from 10 Hz to 2000 Hz		
Housing material	thermoplastic		
Approvals	CE		
Mounting: screws recommended torque range	¼-20 or M6 6 N m to 8 N m [53.1 in lb to 70.8 in lb]		
Material	magnet only		neodymium
Strength			10,000 gauss

Note: Percent linearity shall be the quotient of the measured output deviation from the best fit line at the measured temperature to the full scale output span.

Figure 1. Sensor Output Performance Chart



NOTICE

Ferrous metal within a 100 mm [3.9 in] radius of the magnet may affect sensor performance.

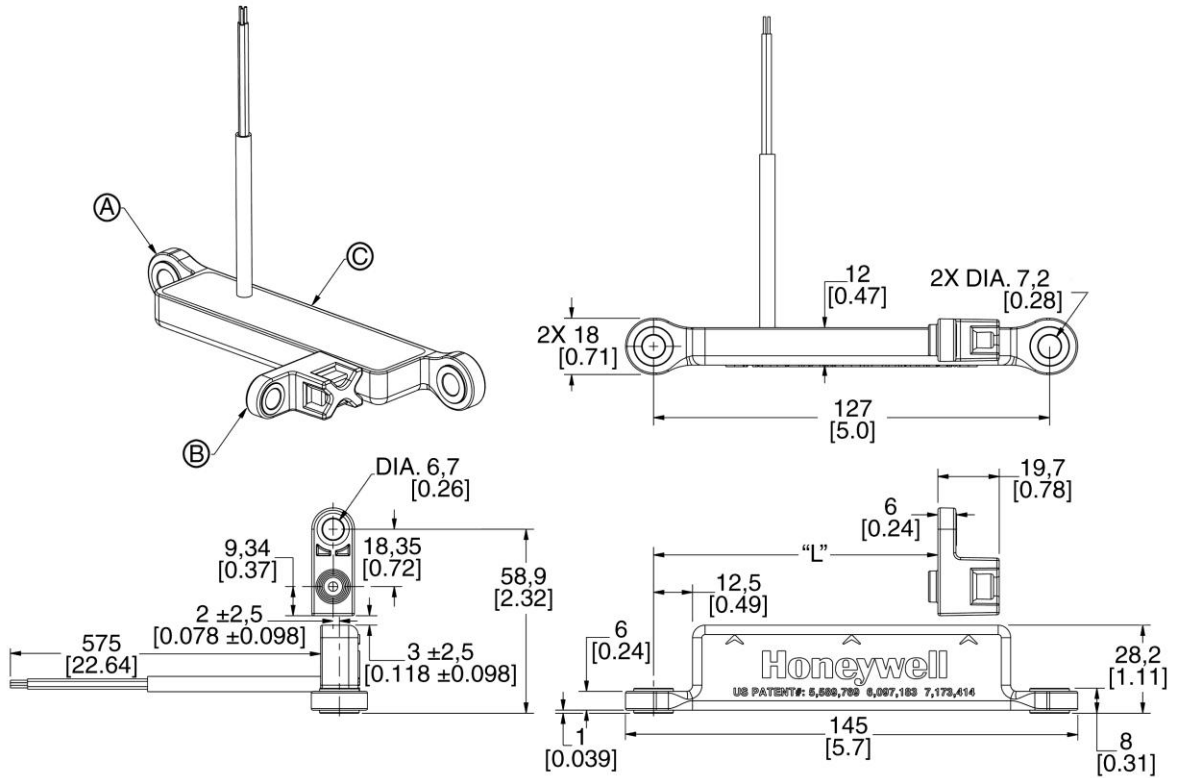
Notes:

- See Fig. 2 for location of "L".
- Ideal output at reference point "A" = 0.560 V; ideal output at reference point "B" = 4.31 V.

75 mm Linear Configuration

Figure 2. Dimensional Drawings (For reference only: mm/[in].)

Sensor

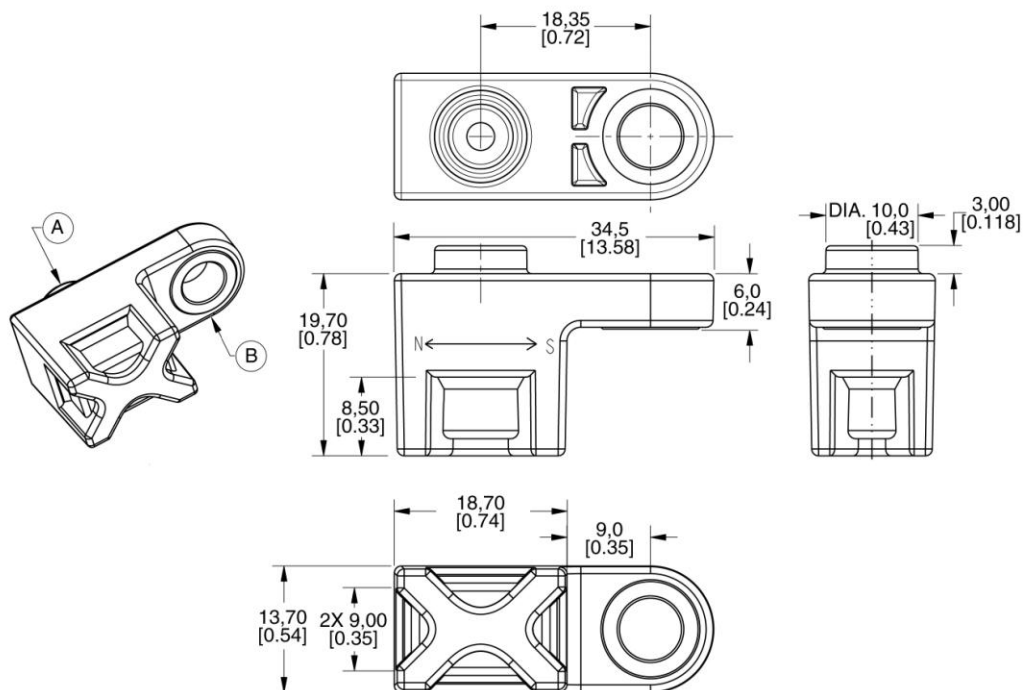


A = 2X Mounting ear

B = Magnet

C = SMART Position Sensor

Magnet



A = Mounting dog

B = Mounting ear

Order Guide

Catalog Listing	Description
SPS-L075-HALS	SMART Position Sensor, 75 mm linear configuration, 0 mm to 75 mm [0 in to 3.0 in] sensing range, 0 V to 5 V analog output, magnet included

Note: Contact Honeywell for alternative allowable magnet orientations.

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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