

# RS Waterproof Displacement Sensor



## Technical Characteristics

- Non-wear, non-contact measurement method Rugged and
- fully enclosed design
- Linear measurement, absolute position output Low power
- consumption design effectively reduces system heating
- Sealing grade up to IP67
- Multiple signal type optional: Analog, SSI, CANopen, Start/Stop



## Product Parameters

### • Input

Measurement data	Position Magnet ring
Stroke length	50mm~5500mm, customized according to customer's needs
Number of measurements	1

### • Output

Interface	CANopen
Resolution	0.5 / 1 / 2 / 5 / 10 / 20 / 40 / 50 / 100 $\mu$ m
Nonlinearity	$< \pm 0.01\%$ of full scale, Min. $\pm 50\mu$ m
Repetition accuracy	$< \pm 0.001\%$ of full scale, Min. $\pm 1\mu$ m
Hysteresis	$< 10\mu$ m
Update time	1KHz (range $\leq 1$ m)      500Hz (1m < range $\leq 2$ m) 250Hz (2m < range $\leq 3$ m), customizable
Temperature coefficient	$< 30\text{ppm}/^\circ\text{C}$

### • Working conditions

Magnet ring velocity	Arbitrary
Protection level	IP68
Operating temperature	$-40^\circ\text{C} \sim +105^\circ\text{C}$
Humidity/dew point	Humidity 100%, relative humidity
Shock index	GB/T2423.5 100g(6ms)
Vibration index	GB/T2423.10 20g/10~2000Hz
EMC test	GB/T17626.2/3/4/6/8, Grade 4/3/4/3/3, Class A, CE Certification

### • Electrical connection

Input voltage	Normal: $+24\text{Vdc} \pm 20\%$ Wide voltage: $9\text{Vdc} \sim 28.8\text{Vdc}$
operating current	$< 90\text{mA}$ (varying with range)
Polarity protection	Max. $-30\text{Vdc}$
Overpressure protection	Max. $36\text{Vdc}$
Insulation resistance	$> 10\text{M}\Omega$
Insulation strength	500V

### • Structure and materials

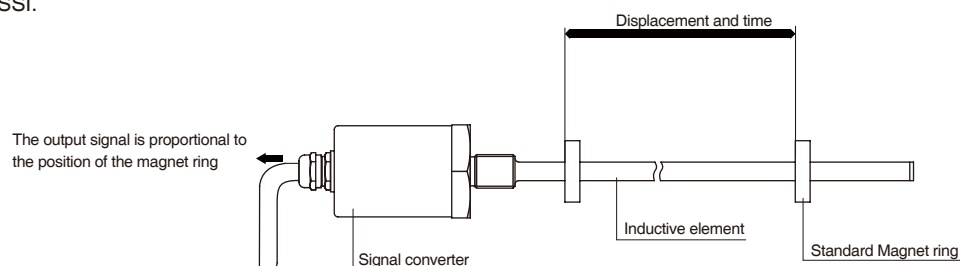
Electronic bin	304 stainless steel, or 316L according to customer requirements
Measuring rod	304 stainless steel, or 316L according to customer requirements
Outer tube pressure	35MPa (continuous)/70MPa (peak) or 350bar (continuous)/700bar (peak)
Position magnet	Standard Magnet ring and various magnet rings
Mounting thread form	M18 $\times$ 1.5、M20 $\times$ 1.5、3/4"-16UNF-3A (customizable)
Installation direction	Any direction
Cable outlet mode	Cable outlet

## A a Installation and Use Instructions

### • Output characteristic

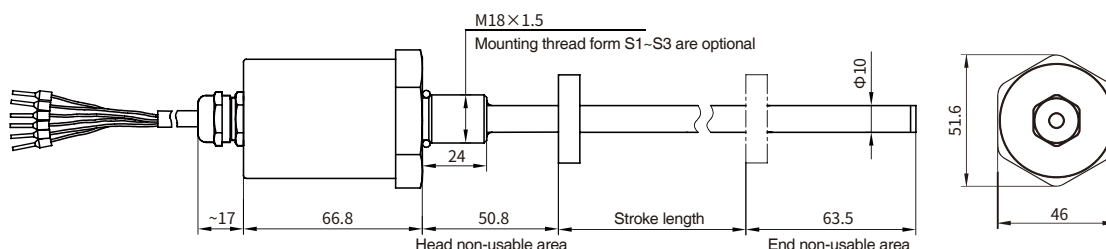
RS series sensors have strong protective shell, which is durable and can provide users with continuous, reliable and real-time displacement signals in harsh environment. The sensor is completely sealed with stainless steel shell, which fully meets the protection level IP68. Note: The electronic compartment is not detachable.

Because of the non-contact measurement technology, the sensor can be integrated in an isolated and sealed shell. The position magnet moves along the measuring rod, and the position can be measured without mechanical contact. For liquid level measurement, an alternative float can be used. The sensor with high protection level shell is easy to install and use, so as to better meet the application requirements. The measurement accuracy and all technical parameters depend on the output characteristics of the selected sensor, and the interface form can be selected: analog or SSI.



### • Installation dimensions of RS waterproof sensor

RS Series super protective Sensor, designed for cylinder built-in installation in harsh environment, withstands pressure of 35MPa for continuous, flexible and simple installation mode, and mounting thread form M18×1.5 or M20×1.5 or 3/4"-16UNF-3A.



**Note:** It is equipped with standard Magnet ring kit 288501, with magnetic isolation gasket and fixing screw.

## C c Commonly Used Accessories

Accessory name/ model	Dimensions	Accessory name/ model	Dimensions	Accessory name/ model	Dimensions
Standard Magnet ring Order No.: 211501		Magnet ring Order No.: 211506		Enlarge magnet ring Order No.: 211504	
Magnet ring Order No.: 211507					

• **Note:** Please refer to "Magnet ring Selection" for details of Magnet ring kit and other models

## J J Wiring Mode

When the sensor is a connector output, refer to the pin definition in the following table for wiring mode; when the sensor is cable outlet cable output, refer to the cable color definition in the following table for connection mode



- Pin arrangement of six-pin male connector (facing the sensor head)

Pin	Cable color	Pin/wire function definition
1	Green	CAN (-)
2	Yellow	CAN (+)
3	-	Do not connect
4	-	Do not connect
5	Brown	+24Vdc power supply (-20%~+20%)
6	White	0 Vdc (power supply circuit)

## X Selection Guide-CAN Bus

RS - M -  -  - C -  -

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22

01 - 02	Sensor shell form
<span>R</span> <span>S</span>	Pressure-resistant pipe

03 - 07	Measuring range
	Four digits, less than four digits are preceded by zero, M means metric system, unit mm

08 - 09	Magnet ring type/mounting thread form
<span>S</span> <span>1</span>	M18×1.5, measuring rod diameter 10mm, 304 material
<span>S</span> <span>2</span>	M20×1.5, measuring rod diameter 10mm, 304 material
<span>S</span> <span>3</span>	3/4"-16UNF-3A, measuring rod diameter 10mm, 304 material

10 - 13	Connection form
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10 - 11	Cable outlet mode
<span>D</span> <span>A</span>	PVC sheath, purple, 4 cores, -40℃~75℃, end scattered

12 - 13	Cable outlet mode: cable length, 01~99 meters
<span>0</span> <span>D</span> <span>R</span> <span>1</span>	PVC sheath, length 150mm, end 5-pin male connector

10 - 13	Connector mode
<span>P</span> <span>D</span> <span>6</span> <span>0</span>	Set of 6-pin male connector (M16)

**Note:** For supporting cables, please refer to CAN bus cable Accessories selection

14 - 18	Signal output mode
<span>14</span>	Interface
<span>C</span>	CAN bus

15	Protocol type
<span>1</span>	CANopen
<span>2</span>	CANBasic

16	Baud
<span>1</span>	1000kBit/s
<span>2</span>	800kBit/s
<span>3</span>	500kBit/s
<span>4</span>	250kBit/s
<span>5</span>	125kBit/s
<span>6</span>	100kBit/s
<span>7</span>	50kBit/s
<span>8</span>	20kBit/s

17	Resolution
<span>1</span>	0.1mm
<span>2</span>	0.05mm
<span>3</span>	0.02mm
<span>4</span>	0.01mm
<span>5</span>	0.005mm
<span>6</span>	0.002mm
<span>7</span>	0.001mm

18	Number of Magnet rings (1~9 optional)
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19 - 20	Non-usable area at head and end, customizable
<span>S</span> <span>0</span>	50.8mm+63.5mm
<span>B</span> <span>0</span>	30mm+60mm

21-22	Country
<span></span> <span></span>	Refer to the country list