

RD Split Displacement Sensor



Technical Characteristics

- Rugged and fully enclosed design
- Non-wear, non-contact measurement method
- Linear measurement, absolute output
- Sealing grade up to IP68
- Low power consumption design effectively reduces system heating
- Ultra-high temperature sensing rod (up to + 125 °C)
- Multiple interfaces available: Analog, SSI, Profibus-DP, CANopen, Start-Stop, Profinet, EtherCAT

C Product Parameters

• Input

Measurement data	Position Magnet ring
Stroke length	25mm~5500mm, customized according to customer needs

• Output

Interface	Profibus-DP
Resolution	1 / 5 / 10 / 20 / 50 / 100 μm
Nonlinearity	< ± 0.01% of full scale, Min. ± 50μm
Repetition accuracy	< 0.001% for full-scale taxis, Min. ± 1μm
Hysteresis	< 10μm
Update time	1KHz (range ≤ 1m) 500Hz (1m < range ≤ 2m) 250Hz (2m < range ≤ 3m), customizable
Temperature coefficient	< 30ppm/℃

• Working conditions

Magnet ring velocity	Arbitrary
Protection level	IP68 (Sensor Lever)
Operating temperature	Sensor rod -40℃ ~ +125℃, electronic bin -40℃ ~ +85℃
Humidity/dew point	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	+24Vdc±20%
operating current	< 100mA (varying with range)
Polarity protection	Max.-30Vdc
Overpressure protection	Max.36Vdc
Insulation resistance	> 10MΩ
Insulation strength	500V

• Structure and materials

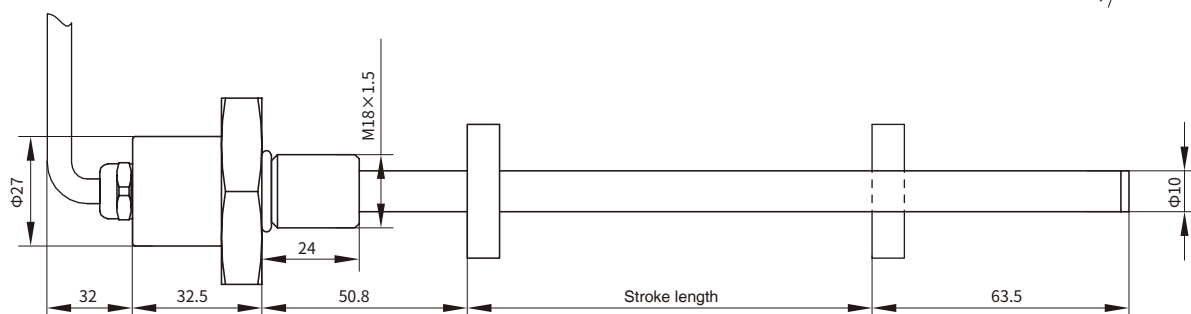
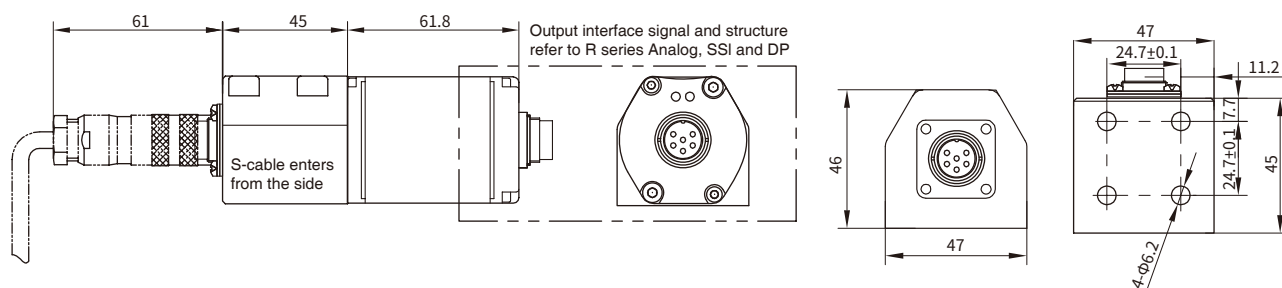
Fault indication	Electronic bin cover with LEDs display
Electronic bin	Aluminum alloy
Measuring rod	304 stainless steel
Outer tube pressure	35MPa (continuous)/70MPa (peak) or 350bar (continuous)/700bar (peak)
Position magnet	Standard Magnet ring and various magnet rings
Mounting thread form	M18×1.5 (customizable)
Installation direction	Any direction
Cable outlet mode	Cable outlet cable or connector

A a Installation and Use Instructions

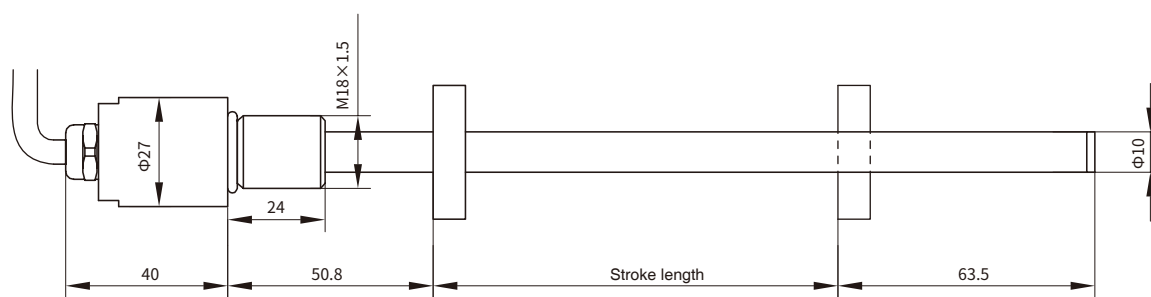
• Output characteristic

RD Series sensors are designed in a split form and are suitable for installation in cylinder, especially for cylinder applications in confined spaces. The sensor consists of two parts: a sensing rod and an electronic bin. The sensor rod is a pressure-resistant stainless round pipe with threads or flanges to provide protection for the sensing elements, and the whole sensor rod is installed in the cylinder through pistons. The temperature resistance of the sensing rod up to + 125 °C, and the protection level reaches IP68, which is very suitable for harsh occasions such as high temperature, high humidity and water vapor; The electronic bin encapsulates the sensor signal processing part and the external interface together, reaching IP67 protection level, and can be connected with the sensor rod through the side or bottom of the connector plate.

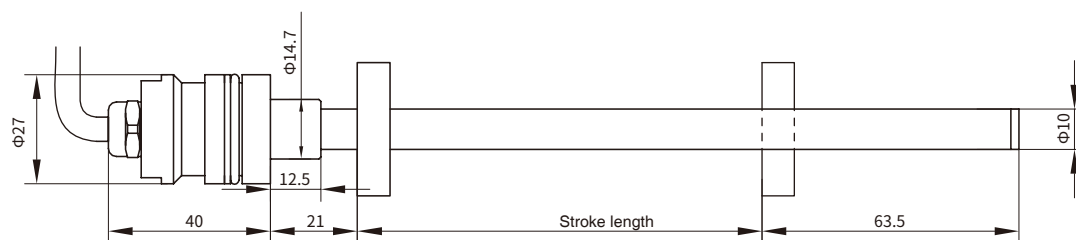
• RD Split Sensor Installing Dimensions



• Flange A metric thread M18×1.5 hexagon flange 46



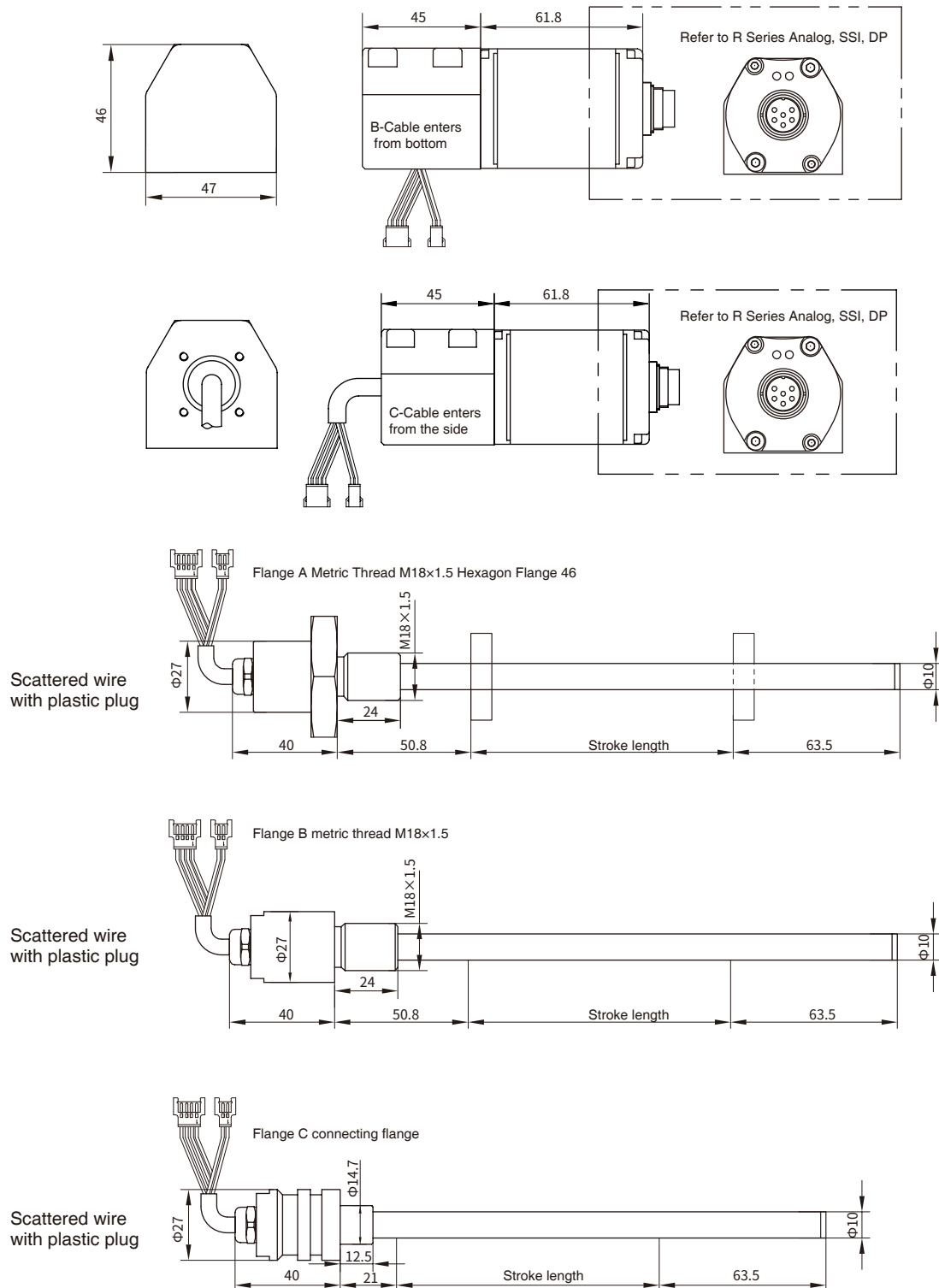
• Flange B metric thread M18×1.5



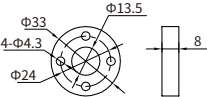
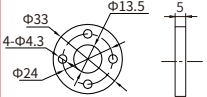
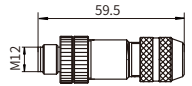
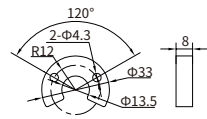
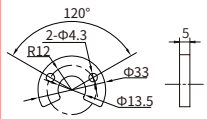
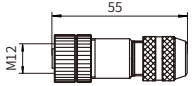
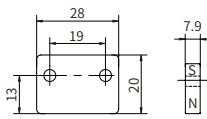
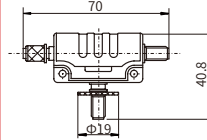
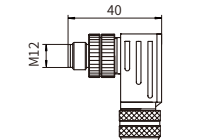
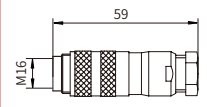
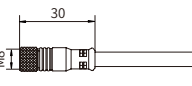
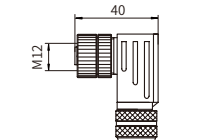
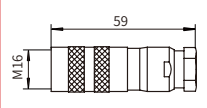
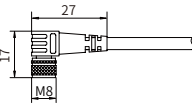
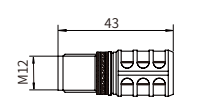
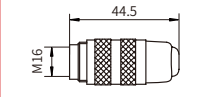
• Flange C connecting flange

A a Installation and Use Instructions

• RDSplit Sensor Installing Dimensions



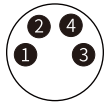
C Common Accessories-Profibus-DP Bus Output

Accessory name/ model	Dimensions	Accessory name/ model	Dimensions	Accessory name/ model	Dimensions
Standard Magnet ring Order No.: 211501		Magnetic isolation gasket		5-pin connector male head (B code) Order No.: 312706	
Sector magnet Order No.: 211502		Sector magnetic isolation gasket		5-pin female connector (B code) Order No.: 312707	
Square magnet Order No.: 211508		5-pin T-shaped male connector Order No.: 312708			
Accessory name/ model	Dimensions	Accessory name/ model	Dimensions	Accessory name/ model	Dimensions
5-pin 90° Connector male Order No.: 312709		6-pin Connector male Order No.: 312714		4-pin Female Connector (For power supply) Order No.: 522000-XX xx-cable length in m	
5-pin 90° female connector Order No.: 312710		6-pin female connector Order No.: 312701		4-pin 90° female connector (For power supply) Order No.: 522001-XX xx-cable length in m	
5-pin end connector Order No.: 312705		6-pin end male connector Order No.: 312715			

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

• Wiring mode

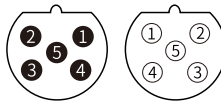
When the sensor is connector output, refer to the pin definition in the following table for wiring mode; when the sensor is cable outlet output, refer to the wire color definition in the following table for connection mode



4-pin connector socket (for power supply)

• 4-pin male connector pin arrangement (facing the sensor head direction)

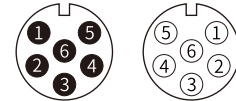
Pin	Wire color	Pin/wire function definition
1	Brown	+24Vdc power supply (-20%+20%)
2	White	Do not connect
3	Blue	0Vdc(power supply circuit)
4	Black	Do not connect



• 5-pin male connector, female connector pin arrangement (facing the direction of the sensor head)

Pin	Wire color	Pin/wire function definition
1	-	VP+5N(applicable to end wiring only) *
2	Green	RxD/TxD-N(Bus)
3	-	DGnd(end connection only) *
4	Red	RxD/TxD-P(Bus)
5	Shielded wire	Ground the cable shield

Note: * Only applicable to signal connection of sensor female connector



• 6-pin male connector, female connector pin arrangement (facing the direction of the sensor head)

Pin	Wire color	Pin/wire function definition
1	Green	RxD/TxD-N(bus)
2	Red	RxD/TxD-P(bus)
3	-	DGnd(for end wiring only) *
4	-	VP+5N(for end wiring only) *
5	Black	+24Vdc power supply (-20%+20%)
6	Blue	0 Vdc (power supply circuit)

Note: * Only applicable to signal connection of sensor female connector

X Selection Guide-Profibus-DP Bus

R D - M - - - - D - -

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
R D	Split structure

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

08	Outer tube flange
A	M18X1.5 SW46
B	M18X1.5 SW24
C	Connecting flange

09 - 11	Connection mode of outer tube
09	Cable outlet mode
S	Cable enters from the side, PUR cable
B	Cable entry from bottom, independent cable with flat plastic connector
C	Cable entry from side, independent cable with flat plastic connector

10 - 11			Cable length							
M	1	1m		M	2	2m		M	3	3m
M	4	1.5m		D	1	250mm		D	2	400mm
D	3	600mm		R	2	65mm		R	4	170mm
R	5	230mm		R	6	350mm				

12 - 15	Connection form
12 - 13	Cable outlet mode
D A	Single cable outlet, PUR sheath, cyan,-20-80℃, end scattered
D B	Double cable outlet, PUR sheath, cyan,-20~80℃, end scattered
D C	Double cable outlet, PUR sheath, cyan,-20~80℃, end M16, 6-pin, one male connector, one female connector
14 - 15	Cable outlet mode: cable length, 01-99m

12 - 15	Connector mode
P D 5 3	One set of 5-pin male connector (M12), one set of 5-pin female connector (M12), one set of 4-pin male connector (M8)
P D 6 3	A set of 6-pin male connector M16 and a set of 6-pin female connector M16
	Note: Please refer to Profibus-DP cable fitting selection for supporting cables

16 - 18	Signal output mode
16	Profibus Protocol
17	Number of Magnet rings (1~9 optional)
18	0-single magnet B-single/multiple Magnet rings

19 - 20	Non-usable area at head and end, customizable
S 0	50.8mm+63.5mm
B 0	30mm+60mm

21-22	Country
 	Refer to the country list

P p Profibus-DP Cable Accessories Selection

D	P	-	M				-			
01	02		03	04	05	06		07	08	09

01 - 02	Type
D P	Profibus-DP interface

03 - 06	Cable length
M * * *	Less than 3 digits are preceded by zeros, and M means metric system, unit m

07 - 09	Cable type、utlet mode
H 0 1	One end of 5-pin (M12) female connector, and one end scattered
H 0 2	One end of 5-pin (M12) female connector, and one end scattered
H 0 3	One end of 5-pin (M12) right angle female connector, and one end scattered
H 0 4	One end of 5-pin (M12) right angle maleconnector, and one end scattered
Z 0 5	One end of 6-pin (M16) female connector, and one end scattered
Z 0 6	One end of 6-pin (M16) female connector, and one end scattered
Z 0 7	One end of 6-pin (M16) right angle female connector, and one end scattered
H 1 2	One end of 5-pin (M12) female connector; One end of 5-pin (M12) female connector
H 3 4	One end of 5-pin (M12) right angle male connector; One end of 5-pin (M12) right angle female connector
Z 5 6	One end of 6-pin (M16) male connector and one end of 6-pin (M16) is female connector

Note	H: Cable type, PUR sheath, purple, 2-cores,-20~80℃
	Z: Cable type, PUR sheath, cyan, 5-cores,-20~80C℃

- Selection example: DP-M020-H01

Indicates: Profibus-DP interface cable, 20 meters long, PUR sheath, purple, 2 cores,-20~80℃, 5-pin (M12) at one end of the cable are female connector, and the other end is scattered.

- Selection example: DP-M015-Z56

Indicates: Profibus-DP interface cable, with a length of 15m, PUR sheath, cyan, 5 cores,-20~80℃, with 6-pin (M16) at one end male connector and 6-pin (M16) at the other end female connector.