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℃)
- Multiple interfaces available: Analog、SSI、Profibus-DP、CANopen、Start-Stop、Profinet、EtherCAT

Product Parameters

• Input

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

• Output

Interface	Analog、SSI、CANopen、Profibus-DP、Start-Stop、Profinet、EtherCAT
Resolution	0.5 / 1 / 2 / 5 / 10 / 20 / 40 / 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

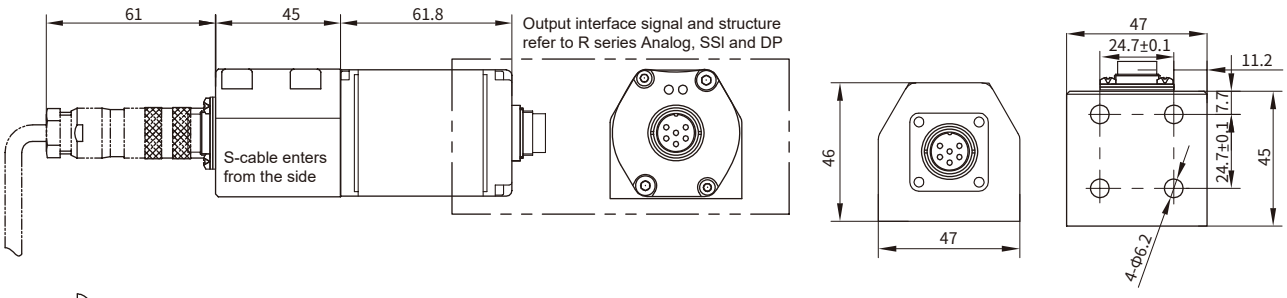
Fault indication	Electronic bin cover with LEDs display
Electronic bin	Aluminum alloy
Measuring rod	304 stainless steel
Outer tube pressure	35MPa (continuous)/70MPa (peak) or 350bar (continuous)/700bar (peak)
Position magnet	Standard Magnet ring and various magnet rings
Mounting thread form	M18×1.5（customizable）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

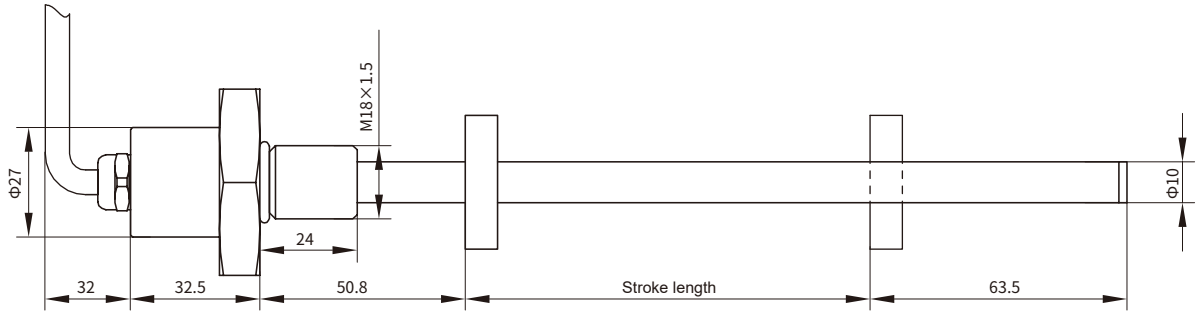
Installation and Use Instructions

Output characteristic

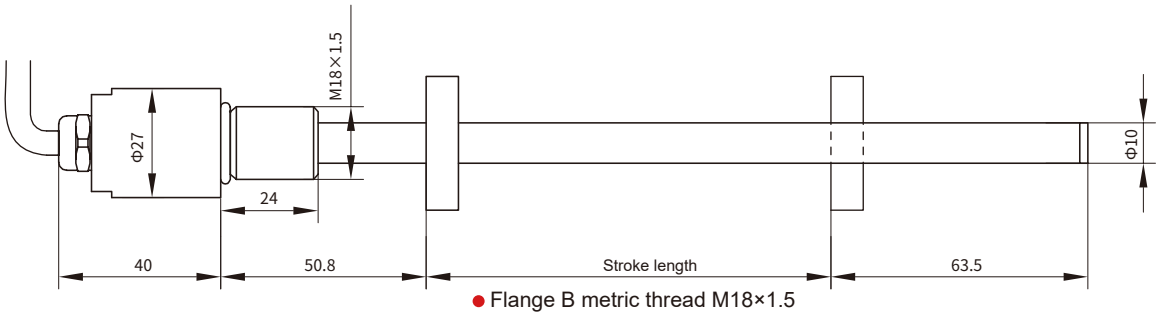
RD Series sensors are designed in a split form and are suitable for installation in cylinder, especially for cylinder applications in confined spaces. The sensor consists of two parts: a sensing rod and an electronic bin. The sensor rod is a pressure-resistant stainless round pipe with threads or flanges 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℃, 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

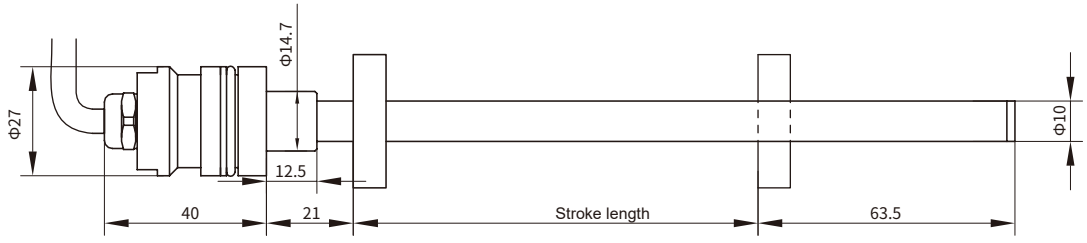




● Flange A metric thread M18×1.5 hexagon flange 46



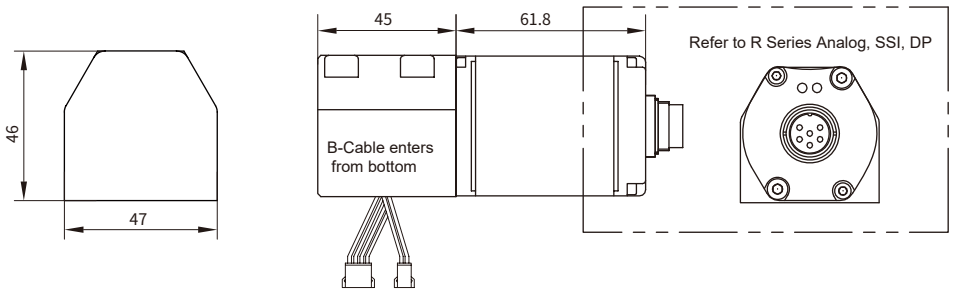
● Flange B metric thread M18×1.5



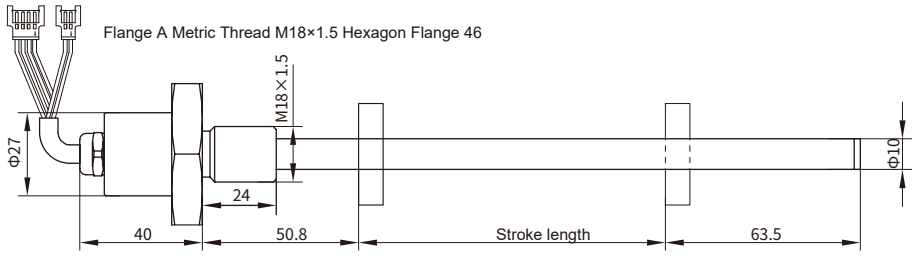
● Flange C connecting flange

Installation and Use Instructions

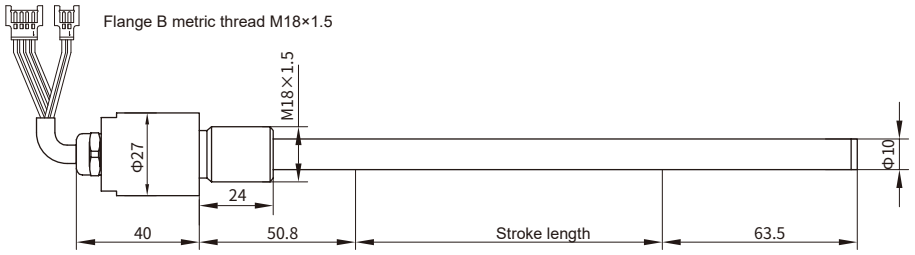
- RDSplit Sensor Installing Dimensions



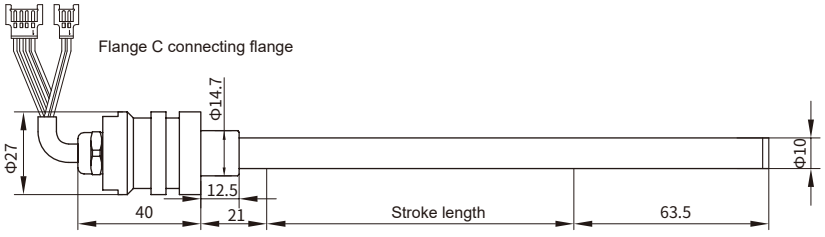
Scattered wire
with plastic plug



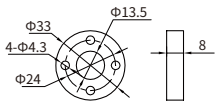
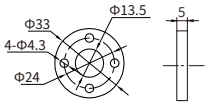
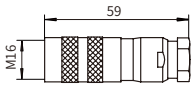
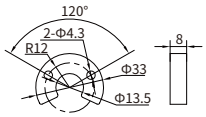
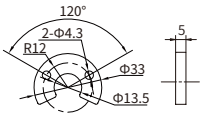
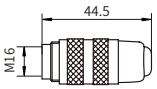
Scattered wire
with plastic plug



Scattered wire
with plastic plug



Common Accessories - CAN Bus Output

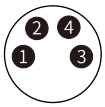
Accessory name/ model	Dimensions	Accessory name/ model	Dimensions	Accessory name/ model	Dimensions
Standard Magnet ring Order No.: 211501		Magnetic isolation gasket		6-pin female connector Order No.: 312701	
Sector magnet Order No.: 211502		Sector magnetic isolation gasket		6-pin end female connector Order No.: 312722	

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

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 wire color definition in the following table for connection mode

CAN Bus output
Four-pin connector socket (for power supply)



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

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

CAN Bus output

- Five-pin male connector and female connector pin arrangement (facing the sensor head direction)

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

CAN Bus output

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

Pin	Wire 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)

Selection Guide-CAN Bus

R	D	–	M					–		–				–					–			–			–		
01	02		03	04	05	06	07		08		09	10	11		12	13	14	15		16	17	18	19	20		21	22		23	24

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	PVC sheath, purple, 4 cores,-40℃~75℃, end scattered

14 - 15 Cable outlet mode: cable length, 01-99m

0 D R 1	PVC sheath, length 150mm, end 5-pin male connector

12 - 15 Connector mode

P D 6 0	6-pin male connector (M16)
P D 6 2	Two sets of 6-pin male connector (M16)
P D 5 0	5-pin male connector (M12)
P D 5 2	5-pin male connector (M12) and 5-pin female connector (M12)
P D 5 4	5-pin male connector (M12), 5-pin female connector (M12), 4-pin male connector (M8)

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

16 - 20 Signal output mode

16 Interface

C	CAN bus

17 Protocol type

1	CANopen	2	CANBasic

18 Baud

1	1000kBit/s	2	800kBit/s
3	500kBit/s	4	250kBit/s
5	125kBit/s	6	100kBit/s
7	50kBit/s	8	20kBit/s

19 Resolution

1	0.1mm	2	0.05mm
3	0.02mm	4	0.01mm
5	0.005mm	6	0.002mm
7	0.001mm		

20 Number of Magnet rings (1~9 optional)

21 - 22 Non-usable area at head and end, customizable

S 0	50.8mm+63.5mm
B 0	30mm+60mm

23-24 Country

Refer to the country list

Selection of CAN Bus Cable Accessories

C	A	N	–	M				–			
01	02	03		04	05	06	07		08	09	10

01 - 03	Type
C A N	CAN Bus
04 - 07	**Cable length**
M * * *	Less than 3 digits are preceded by zeros, and M means metric system, unit m
08 - 10	**Cable type, outlet mode**
08	Cable type
C	PVC sheath, purple, 4 cores,-40~75C
09 - 10	Connection
0 1	One end of 6-pin (M16) female connector, and one end scattered
0 2	One end of 5-pin (M12) female connector, and one end scattered
0 3	One end of 5-pin (M12) male connector, and one end scattered
0 4	One end of 5-pin (M12) right angle female connector, and one end scattered
0 5	One end of 6-pin (M16) right angle female connector, and one end scattered
1 1	6-pin (M16) female connector at both ends
2 3	One end 5-pin (M12) female connector and one end 5-pin (M12) male connector

- Selection example: CAN-M015-C01

  Indicates: CAN bus interface cable, 15m long, PVC sheath, purple, 4-pin,-40~75C, 6-pin (M16) at one end of the cable are female connector, and one end scattered.

- Selection example: CAN-M020-C23

  Indicates: CAN bus interface cable, 20 meters long, PVC sheath, purple, 4 cores,-40~75C, with 5-pin (M12) at one end female connector and 5-pin (M12) at the other end male connector.