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	Start-Stop
Resolution	Controller dependent (minimum accuracy 5μm)
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

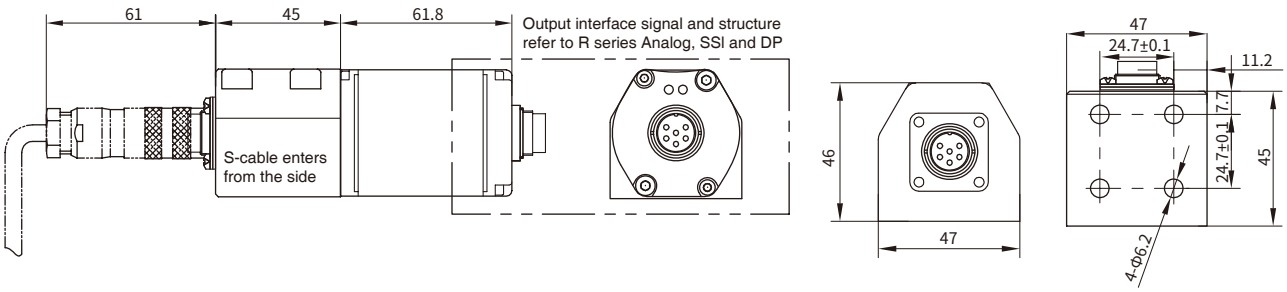
Fault indication	Electronic bin cover with LEDs display
Electronic bin	Aluminum alloy
Measuring rod	304 stainless steel
Outer tube pressure	35MPa (continuous)/70MPa (peak) or 350bar (continuous)/700bar (peak)
Position magnet	Standard Magnet ring and various magnet rings
Mounting thread form	M18×1.5（customizable）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

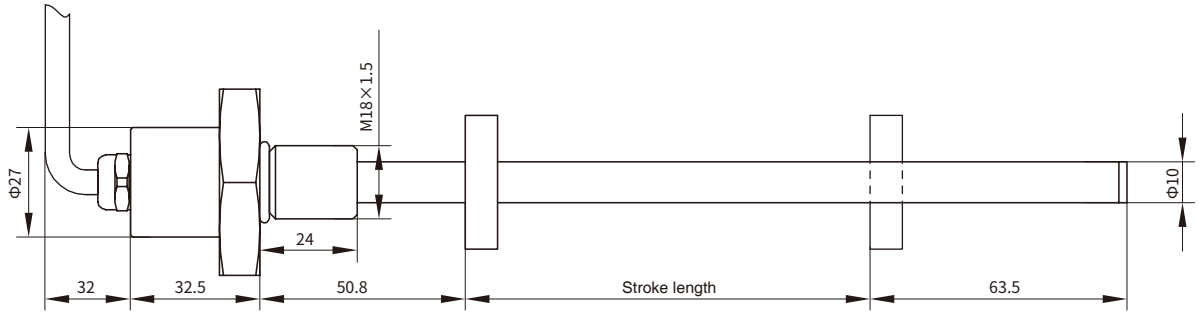
Installation and Use Instructions

• Output characteristic

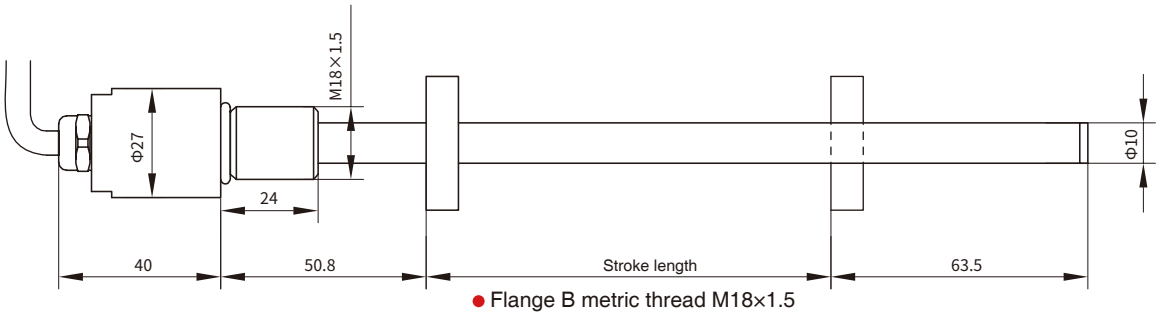
RD Series sensors are designed in a split form and are suitable for installation in cylinder, especially for cylinder applications in confined spaces. The sensor consists of two parts: a sensing rod and an electronic bin. The sensor rod is a pressure-resistant stainless round pipe with threads or flanges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

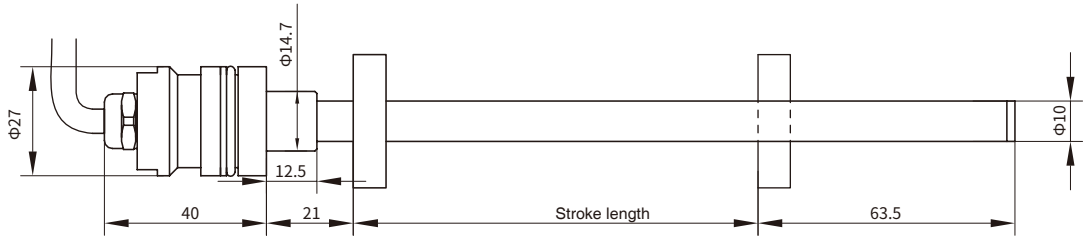




● Flange A metric thread M18×1.5 hexagon flange 46



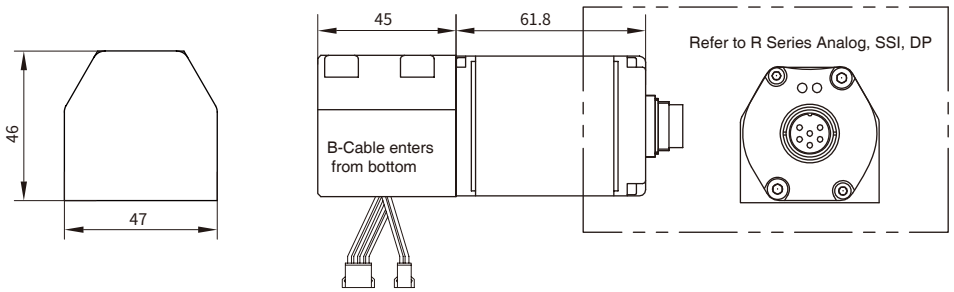
● Flange B metric thread M18×1.5



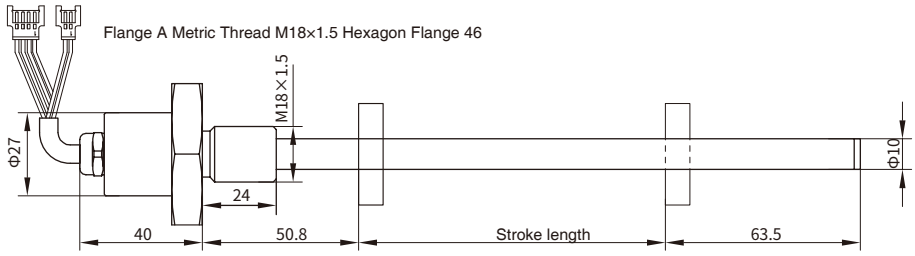
● Flange C connecting flange

Installation and Use Instructions

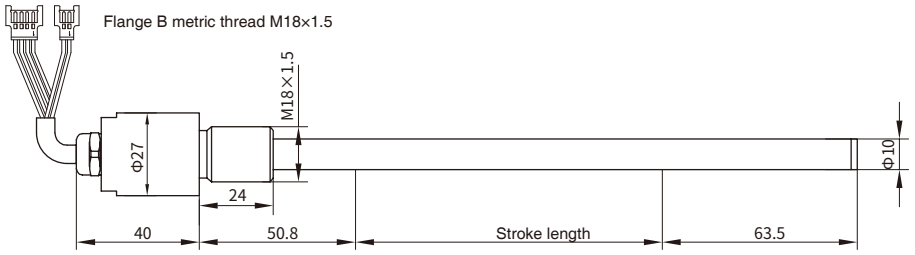
- RDSplit Sensor Installing Dimensions



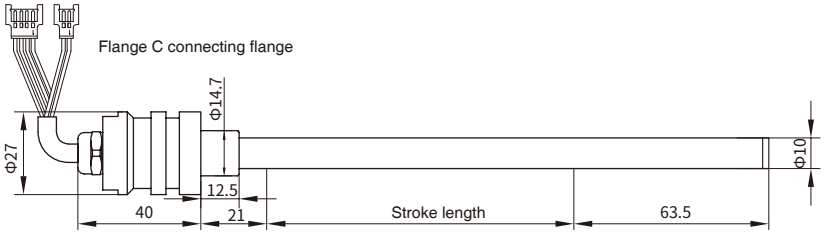
Scattered wire
with plastic plug



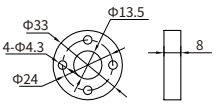
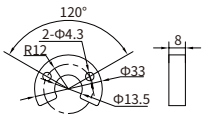
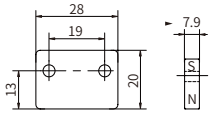
Scattered wire
with plastic plug

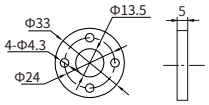
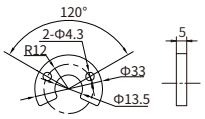


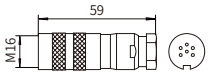
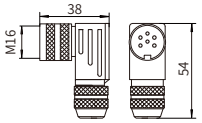
Scattered wire
with plastic plug



C C Common Accessories-Start/Stop Output

Accessory name/ model	Dimensions
Standard magnet ring Order No.: 211501	
Sector magnet Order No.: 211502	
Square magnet Order No.: 211508	

Accessory name/ model	Dimensions
Magnetic isolation gasket	
Sector magnetic isolation gasket	

Accessory name/ model	Dimensions
6-pin female connector Order No.: 312701	
6-pin 90° female connector Order No.: 312702	

Note: Please refer to "Magnet 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

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

Pin	Wire color 1*	Wire color 2*	Pin/wire function definition
1	Blue	Grey	Stop (-)
2	Green	Pink	Stop (+)
3	Yellow	Yellow	Start (+)
4	White	Green	Start (-)
5	Red	Brown	+24Vdc power supply (-20%~+20%)
6	Black	White	0 Vdc

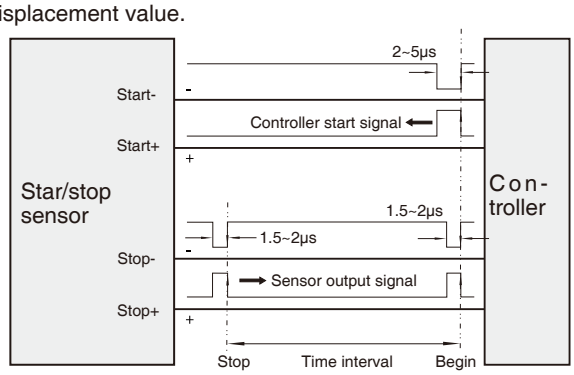
Note: * Wire color 1: Cable PUR sheath, orange,-20~90℃
* Wire color 2/3: Cable PVC sheath, orange,-20~105℃

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

Pin	Wire color 3*	Pin/wire function definition
1	Yellow	Start (+)
2	Grey	Stop (+)
3	Pink	Start (-)
4	-	Reservation
5	Green	Stop (-)
6	Blue	0 Vdc (power supply circuit)
7	Brown	+24Vdc power supply (-20%~+20%)
8	White	Reservation

S s Output Characteristics-Start/Stop Output

- The sensor outputs the controller start signal and the position magnet signal, and the time interval between them is proportional to the displacement of the position magnet. The measurement and control of time is calculated by the controller and converted into displacement value.



L l LED Real-time State Monitoring and Diagnosis

- Red and green LED indicator built into the sensor head cover provides sensor working condition and diagnostic function.

Green light	ON	ON	ON	Flash
Red light	OFF	Flash	ON	OFF
Function	Normal work	The sensor has no interrogation signal	Magnet not detected	Programming state

XX Selection Guide-Start/Stop Output

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

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 H	PUR sheath, orange,-20~90℃, end scattered, cable color 1
D U	PVC sheath, orange,-20~105℃, end scattered, cable color 2
D B	PVC sheath, orange,-20~105℃, end scattered, cable color 3
D I	PUR sheath, orange,-20~90℃, end 6-pin connector
D V	PVC sheath, orange,-20~105℃, end 6-pin connector
D C	PVC sheath, orange,-20~105℃, end 8-pin connector

14 - 15 Cable length, 0199 units: meters (Cable outlet mode)

12 - 15 Cable outlet mode

0 D R	cable outlet first and end with plastic connector
0 D R 2	Scattered wire with plastic connector 65mm
0 D R 3	Scattered wire with plastic connector 170mm
0 D R 4	Scattered wire with plastic connector 230mm
0 D R 5	Scattered wire with plastic connector 350mm

12 - 15 Connector mode

P H 6 0	M16 male connector (6 pins)

Note: For supporting cables, please refer to the Guide for Selection of Cable Accessories

16 - 19 Signal output mode

17 Input voltage

1	+ 24Vdc（- 20% ~ + 20%）
2	+ 9 ~ 28.8Vdc

18 - 19 Output signal

0 1	Start/Stop， multi-Magnet ring

20 - 21 Non-usable area at head and end, customizable

S 0	50.8mm+63.5mm
S 9	50.8mm+107mm

22-23 Country

Refer to the country list

Mm Selection Guide of Analog/Start-Stop Cable Fittings

A	S	T	–	M				–			
01	02	03		04	05	06	07		08	09	10

01 - 03	Type
A S T	Analog/Start-Stop interface

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
H 0 1	One 6-pin (M16) female connector, and one end scattered
H 0 3	One 6-pin (M16) right angle female connector, and one end scattered
U 0 1	One end 6-pin (M16) female connector, and one end scattered
U 0 2	One end 8-pin (M16) inserted into female connector,and one end scattered
U 0 3	One end 6-pin (M16) right angle female connector, and one end scattered
U 0 4	One end 8-pin (M16) right angle female connector, and one end scattered

Note	
	H: Cable type, PUR sheath, orange,-20~90℃
	U: Cable type, PVC sheath, orange,-20~105℃

- Selection example: AST-M005-H01

  Indicates: analog or start-stop interface cable, 5 meters long, PUR sheath, orange,-20~90° C, with 6-pin (M16) at one end female connector and scattered at one end.

- Selection example: AST-M010-U04

  Indicates: Analog or Start-Stop interface cable, 10 meters long, PVC sheath, orange,-20~105°C;One end 8-pin (M16) right angle female connector, and one end scattered.