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
Stroke length	25mm~5500mm，customized according to customer needs

• Output

Interface	EtherCAT
Resolution	1 ~ 100 μm，adjustable
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

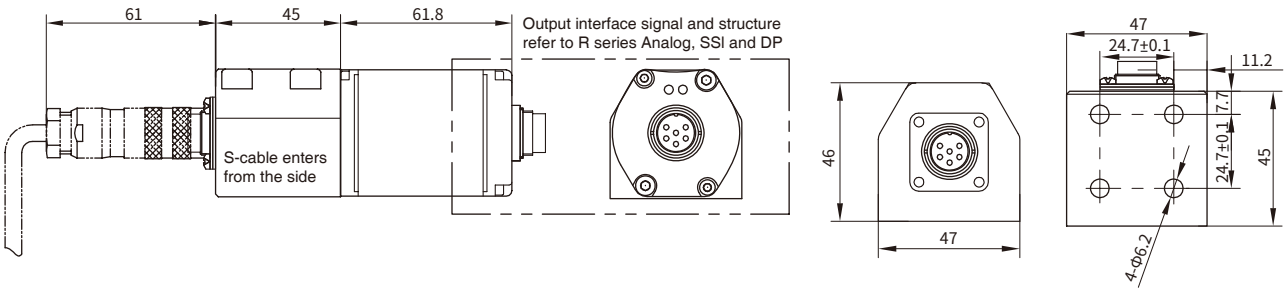
Fault indication	Electronic bin cover with LEDs display
Electronic bin	Aluminum alloy
Measuring rod	304 stainless steel
Outer tube pressure	35MPa (continuous)/70MPa (peak) or 350bar (continuous)/700bar (peak)
Position magnet	Standard Magnet ring and various magnet rings
Mounting thread form	M18×1.5（customizable）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

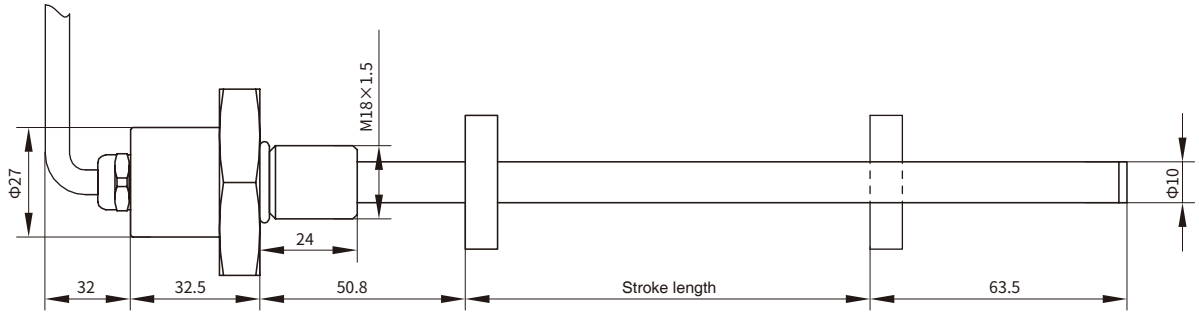
Installation and Use Instructions

Output characteristic

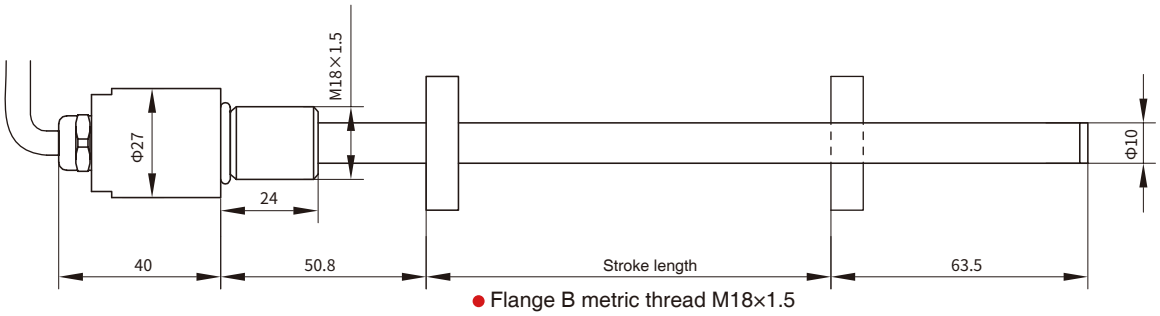
RD Series sensors are designed in a split form and are suitable for installation in cylinder, especially for cylinder applications in confined spaces. The sensor consists of two parts: a sensing rod and an electronic bin. The sensor rod is a pressure-resistant stainless round pipe with threads or flanges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

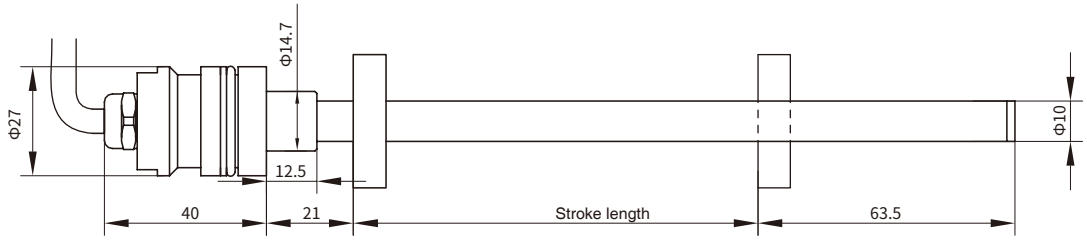




● Flange A metric thread M18×1.5 hexagon flange 46



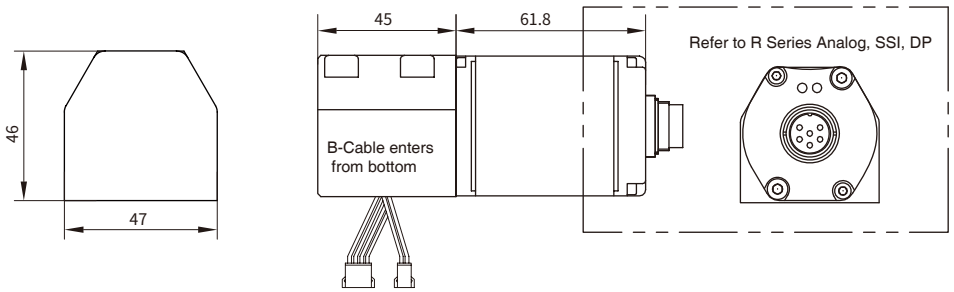
● Flange B metric thread M18×1.5



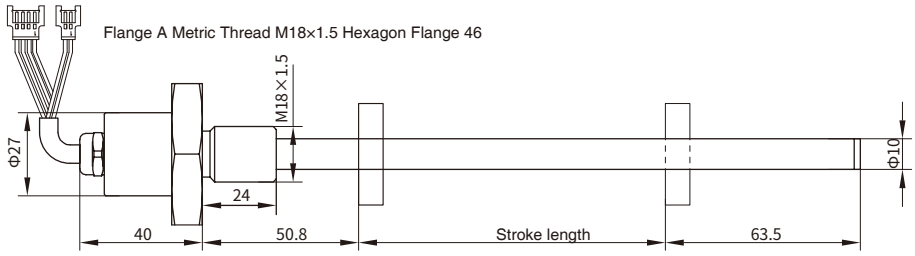
● Flange C connecting flange

Installation and Use Instructions

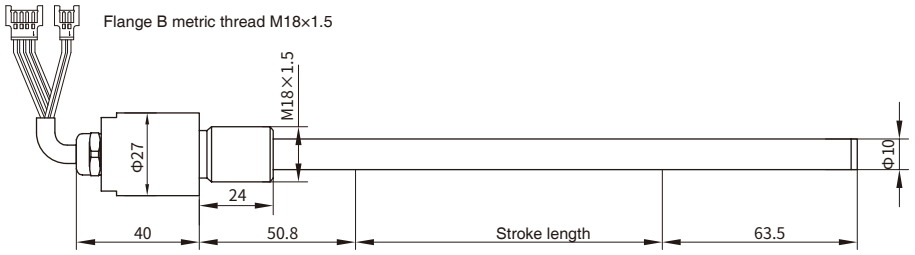
- RDSplit Sensor Installing Dimensions



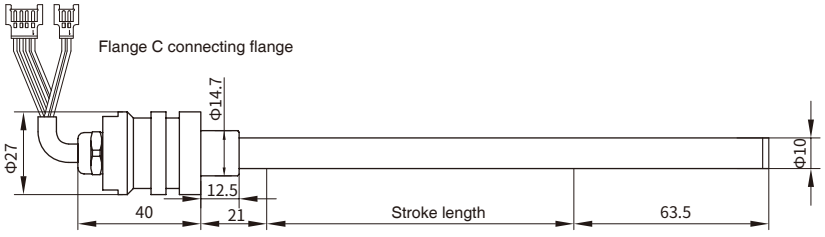
Scattered wire
with plastic plug



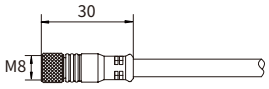
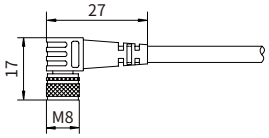
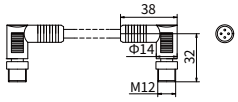
Scattered wire
with plastic plug

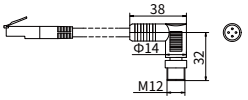
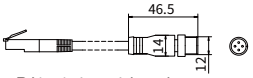
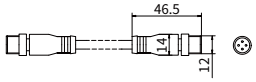


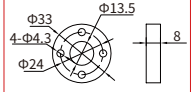
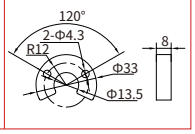
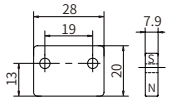
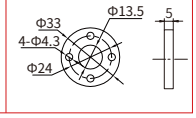
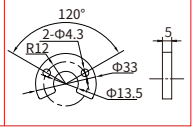
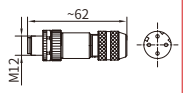
Scattered wire
with plastic plug



Common Accessories-EtherCAT Output

Accessory name/ model	Dimensions
Female Connector (for power supply) Order No.: 522000-xx (xx- cable length, unit m)	
4-pin90° female connector (for power supply) Order No.: 522001-xx (xx- cable length, unit m)	
Industrial Ethernet Cable (Cat 5e) d-coded Order No.: 522004-xx (xx- cable length, unit m)	 Connector type: two 4-pin 90° male connectors (M12) Cable sheath: PVC, light blue operating temperature:-40℃~80℃

Accessory name/ model	Dimensions
Industrial Ethernet Cable (Cat 5e) d-coded Order No.: 522005-xx (xx- cable length, unit m)	 Connector type: RJ45, 4-pin 90° male connector (M12) Cable sheath: PVC, light blue working temperature:-40℃~80℃
Industrial Ethernet Cable (Cat 5e) d-coded Order No.: 522006-xx (xx- cable length, unit m)	 Connector Type: RJ45, 4-pin straight male connector (M12) Cable sheath: PVC, light blue Working temperature:-40℃~80℃
Industrial Ethernet Cable (Cat 5e) d-coded Order No.: 522008-xx (xx- cable length, unit m)	 Connector type: Two straight male connectors (M12) Cable sheath: PVC, light blue Working temperature:-40℃~80℃

Accessory name/ model	Dimensions
Standard magnet ring Order No.: 211501	
Sector magnet Order No.: 211502	
Square magnet Order No.: 211508	
Magnetic isolation gasket	
Sector magnetic isolation gasket	
4-pin male connector Order No.: 312723	

Note: Please refer to "Magnet ring Selection" and "Cable Selection" for details of cables, magnet rings 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

EtherCAT Output 

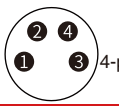
- Connector Connection Mode (Interface 1, 2)

Pin	Wire color	Pin/wire function definition
1	Yellow	Tx +
2	White	Rx +
3	Orange	Tx -
4	Blue	Rx -

- Single cable outlet connection mode

Wire color 1*	Pin/wire function definition
Yellow	Tx +
White	Rx +
Orange	Tx -
Blue	Rx -
Red	24Vdc
Black	COM

Note: * Wire color 1: light green, PUR sheath, 6 cores,-40C~85℃

EtherCAT Output  4-pin connector socket (for power supply)

- Connector Connection Mode (Interface 3)

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

- Double cable outlet connection mode

Wire color1*	Wire color2*	Pin/wire function definition
Yellow	Yellow	Tx +
White	White	Rx +
Orange	Orange	Tx -
Blue	Blue	Rx -
Red	-	24Vdc
Black	-	COM

Note: * Wire color 2: light green, PUR sheath, 4 cores,-40C~70℃

Selection Guide-EtherCAT Output

R	D	–	M					–		–				–					–	E				–			–		
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

RD	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

M1	1m	M2	2m	M3	3m
M4	1.5m	D1	250mm	D2	400mm
D3	600mm	R2	65mm	R4	170mm
R5	230mm	R6	350mm		

12 - 15 Connection form

DA**	Single cable outlet, light green, PUR sheath (6 cores),-40°C~85°C (** indicating cable length, unit: meter)
DB**	Double cable outlet, light green, PUR sheath (one set of 6 cores,-40℃~85℃; one set of 4 cores,-40℃~70℃) (** denotes cable length, unit: meters)
PD56	2 sets of 4-pin M12 female connector, 1 set of 4-pin M8 male connector

16 - 19 Communication interface

16 - 17 Sensor form

E1	EtherCAT， 1-9 magnets, position and speed, distributed clock optional

18 - 19 Number of Magnet rings

	01~09 optional

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

S0	50.8mm+63.5mm
B0	30mm+60mm

22-23 Country

	Refer to the country list

G g Selection of Cable Accessories for Industrial Ethernet

N	E	T	–	M				–			
01	02	03		04	05	06	07		08	09	10

01 - 03	Type
N E T	Industrial Ethernet

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
D	PVC sheath, blue, 8-pin, shielded, CAT-5e,-40~85°C
A	PUR sheath, green, 4-pin, shielded, CAT-5eES,-40~70C
09 10	Connection
1 1	Two 4-pin connector, M12, d-code
2 2	Two 4-pin right angle male connectors, M12, d-code
1 3	One end 4-pin connector, M12, d-code, one end shielded RJ45 connector
2 3	One end 4-pin right angle male connector, M12, d-code, one end shielded RJ45 connector

- Selection example: NET-M010-D11

  Indicates: Ethernet cable, 10m long, PVC sheath, blue, 8-pin, CAT-5e standard, shielded,-40~85C, 4-pin connector at both ends, M12, d-code.

- Selection example: NET-M020-A23

  Indicates: Ethernet cable, 20 meters long, PUR sheath, green, 4-pin, shielded, CAT-5eES,-40~70°C, 4-pin right angle male connector at one end of the cable, M12, d-code, and shielded RJ45 connector at one end.

L l LED real-time state monitoring and diagnosis

Green light	ON	ON	ON	Flash
Red light	OFF	ON	Flash	×
Function	Normal work	The network cable is not connected	Configuring	Fault