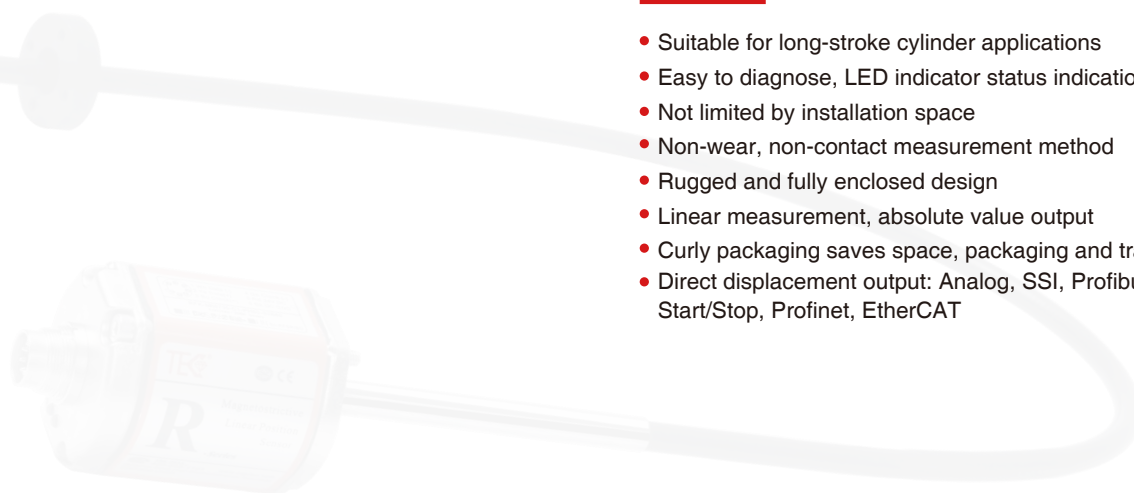


RF Flexible Outer Tube Displacement Sensor



Technical Characteristics

- Suitable for long-stroke cylinder applications
- Easy to diagnose, LED indicator status indication
- Not limited by installation space
- Non-wear, non-contact measurement method
- Rugged and fully enclosed design
- Linear measurement, absolute value output
- Curly packaging saves space, packaging and transportation costs
- Direct displacement output: Analog, SSI, Profibus-DP, CANopen, Start/Stop, Profinet, EtherCAT



CC Product Parameters

• Input

Measurement data	Position magnet ring
Stroke length	500~7620mm, customized according to customer needs, Up to 23 meters
Number of measurements	Multiple

• Output

Interface	Start/Stop
Resolution	Controller dependent (minimum accuracy 5μm)
Nonlinearity	<±0.01% of full scale, minimum ±50μm
Repetition accuracy	<±0.001% of full scale, min. 1μm
Hysteresis	<10μm
Update time	1KHz (range ≤1m) 500Hz (1m < range ≤2m) 250Hz (2m < range ≤3m), customizable
Temperature coefficient	<30ppm/°C

• Operating conditions

Magnet velocity	Arbitrary
Protection level	IP65 (When combined with pressure-resistant outer tube, the protection level can reach IP67)
Operating temperature	-40°C ~ +85°C (up to 105°C)
Humidity/dew point	Humidity 90%, no condensation
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

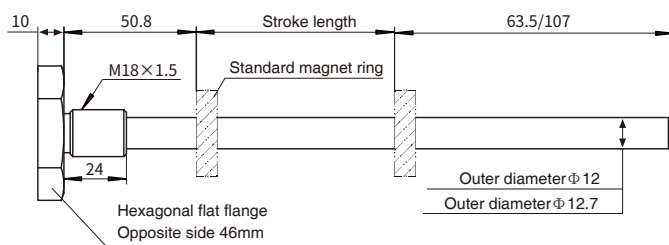
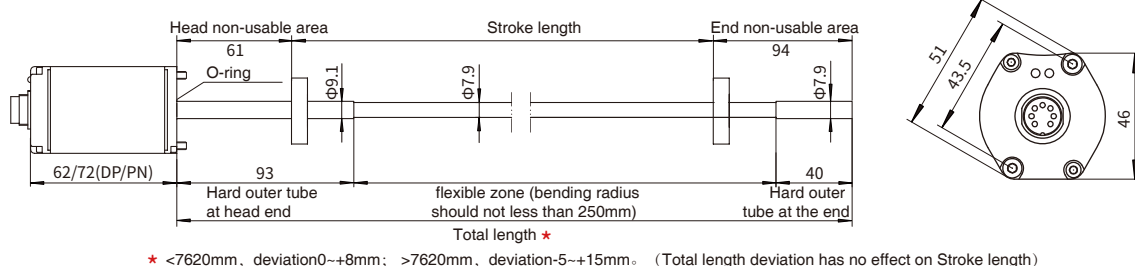
Input voltage	+24Vdc±20%
operating current	<90mA (varying with range)
Polarity protection	Max.-30Vdc
Overvoltage protection	Max.36Vdc
Insulation resistance	>10MΩ
Insulation strength	500V

• Structure and materials

Failure indication	Electronic bin cover with LEDs display
Electronic bin	Aluminum alloy
Measuring rod	Stainless steel hose, minimum bending radius 250mm, shipping radius 400mm
Position magnet	Standard magnet ring and various ring magnets
Installation direction	Any direction
Outgoing mode	Cable outlet or Connector

A a Installation and Use Instructions

• Dimensions of RF flexible outer tube sensor



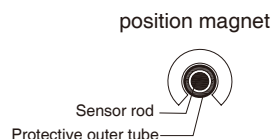
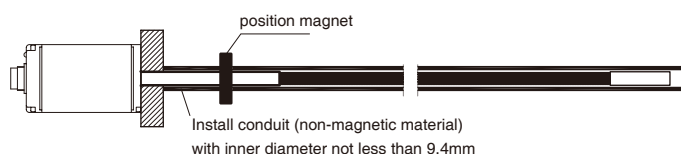
Option: Pressure-resistant outer pipe with flange, outer diameter 12mm/12.7mm

The flanged pressure-resistant outer pipe is used to cooperate with RF flexible sensor, which can withstand 35MPa pressure for hydraulic cylinder and provide protection for RF sensor. For large Cylinder, it is necessary to drill a $\phi 18$ mm deep hole in the piston rod when selecting the pressure pipe with 12mm outer diameter, which can match our magnet ring with large inner diameter.

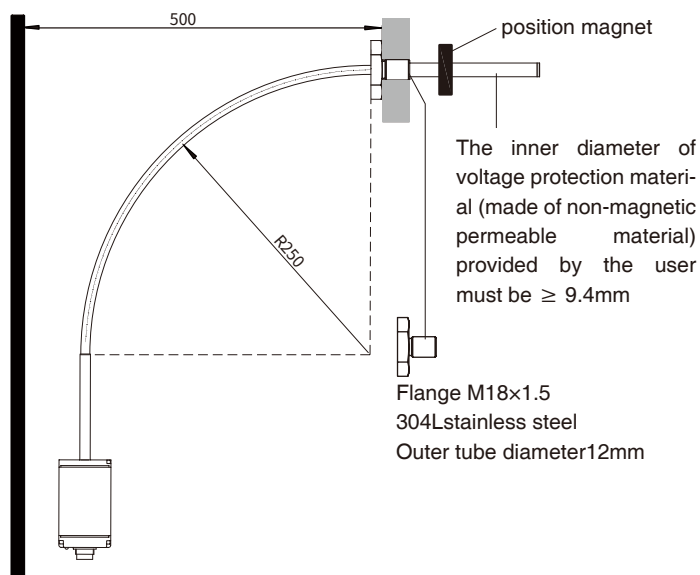
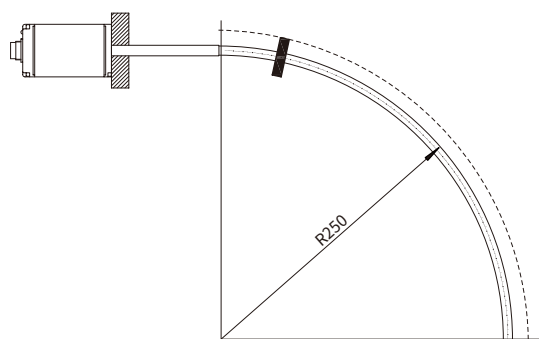
• Installation instruction of RF flexible outer tube sensor

Two non-magnetic bolts are required for the installation of the sensor electronic bin. Long-stroke sensors need non-magnetic tube support (inner diameter ≥ 9.4), or bend into the desired shape. Sensors with hexagonal flanges can be easily mounted using non-magnetic bolts. Or you can choose a flanged pressure-resistant outer pipe with an outer diameter of 12mm, with a maximum stroke of 7620mm.

Linear measurement (external installation)



Arc measurement (external installation)



C Common Accessories-Start/Stop 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 90° female connector Order No.: 312702	
Square magnet Order No.: 211508					

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



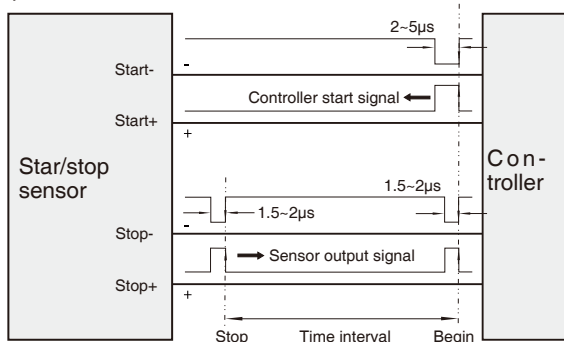
• 8-pin male connector arrangement (facing the sensor head direction)

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

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

SS Output Characteristics-Start/Stop Output

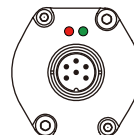
- The sensor outputs the controller start signal and the position magnet signal, and the time interval between them is proportional to the displacement of the position magnet. The measurement and control of time is calculated by the controller and converted into displacement value.



LL 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



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 °C
				U: Cable type, PVC sheath, orange, -20~105 °C

- 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.