EJ Displacement Sensor

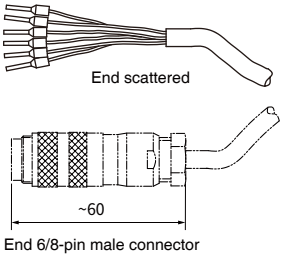
Technical Characteristics

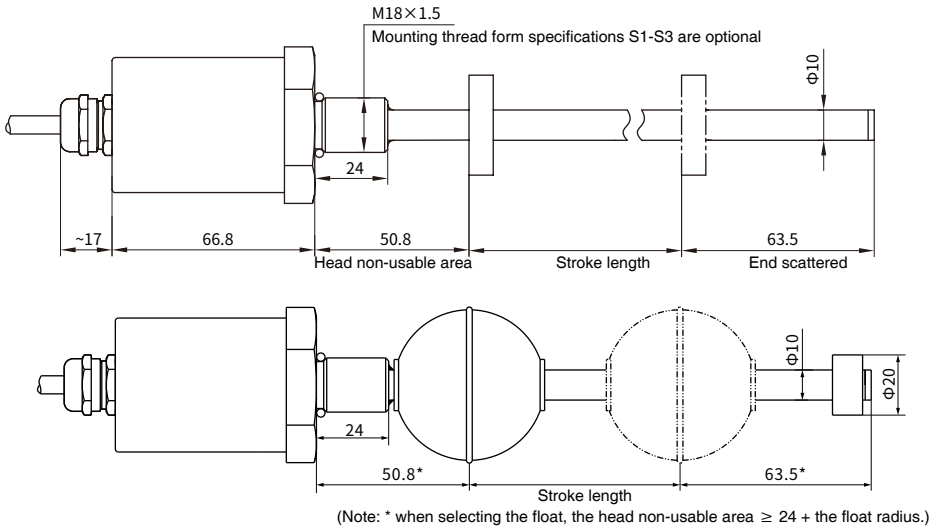
- Rugged and fully enclosed design
- Non-wear, non-contact measuring method
- Low power consumption design effectively reduces system heating
- Absolute position output, not affected by power failure
- Adapt to harsh environment, IP68 protection class
- Multiple interfaces are available: Analog, SSI, Modbus, etc

EJ-Analog Output

Structural shape

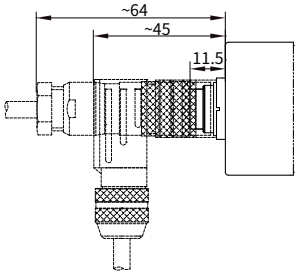
- Dimensions of cable outlet



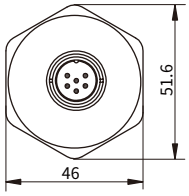


(Note: * when selecting the float, the head non-usable area ≥ 24 + the float radius.)

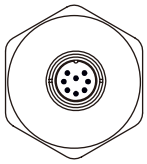
- Dimensions of connector outlet



6-pin male socket（PH60）



8-pin male socket（PB80）



Wiring and pin definition

PH60

PB80

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

Pin	Wire color 1*	Wire color 2*	Function definition
1	Blue	Grey	magnet ring position signal(+)
2	Green	Pink	magnet ring position signal(-)
3	Yellow	Yellow	Reservation
4	White	Green	Reservation
5	Red	Brown	+24Vdc power supply（-20%~+20%）
6	Black	White	GND（power supply circuit）

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

Pin	Wire color 3*	Function definition
1	Yellow	Current output
2	Grey	Current/Voltage circuit
3	Pink	Reservation
4	-	Reservation
5	Green	Voltage output
6	Blue	GND（power supply circuit）
7	Brown	+24Vdc power supply（-20%~+20%）
8	White	Reservation

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

EJ Analog Output-Product Parameters

• Input

Measuring data	Position magnet
Stroke length	25~5500 mm (customized according to customer's needs)

• Output

Current	4 ~ 20mA or 0~20mA(min/max load 0/500Ω)
Voltage	-5 ~ 5Vdc or -10~10Vdc (minimum load resistance ≥10KΩ)
resolution	16-bit D/A , minimum 5 μm
Nonlinearity	<±0.02% of full scale, Minimum±50 μm
Repeatability	<±0.001% of full scale or the same as the resolution
Update time	1ms(range≤1m)、2ms(1m<range≤2m)、3ms(2m<range≤3m)

• Operating conditions

Magnet ring speed	Arbitrary
Protection class	Cable outlet mode IP68; socket mode IP67
Operating temperature	-40°C ~ +75°C
Humidity/dew point	Humidity 90%, no condensation
Impact Indicator	GB/T2423.5 50g(6ms)
Vibration index	GB/T2423.10 15g/10~2000Hz
EMC test	GB/T17626.2 Anti-interference Degree of Electrostatic Discharge, Grade 3, Class A GB/T17626.3 Radiation Immunity of Radio Frequency Electromagnetic Fields, Grade 3, Class A GB/T17626.4 Electrical Fast Transient Immunity, Grade 3, Class B GB/T17626.6 Radio Frequency Field Induced Conducted Disturbance Immunity, Grade 2, Class A GB/T17626.8 Power Frequency Magnetic Field Immunity, Grade 3, Class A CE certification

• Electrical Connections

Input voltage	+24Vdc±20% / +12Vdc±20%
Power consumption	<100mA
Polarity protection	Maximum -30Vdc
Overvoltage protection	Maximum 36Vdc
Insulation resistance	＞10MΩ
Insulation strength	500V

• Construction and Materials

Electronic compartment	304L stainless steel
Measuring rod	304L stainless steel /316L stainless steel
Outer measuring rod withstand pressure	35Mpa (continuous) / 70Mpa (peak) measuring rod diameter (Φ10)
Installation	Any direction, mounting thread form (line specification is optional)
Position magnet	Various ring magnets
Outgoing mode	Cable outlet or connector (M16 connector)

EJ Analog Output-Selection Guide

E	J	–	M					–	S		–					–			1		–			–		
01	02		03	04	05	06	07		08	09		10	11	12	13		14	15	16	17		18	19		20	21

01 - 02	Sensor shell form
E J	Pressure-resistant pipe

03 - 07	Range (0025~5500mm, others can be customized as needed)
	0025~0500mm step length 5mm
	0500~0750mm step length 10mm
	0750~1000mm step length 25mm
	1000~5500mm step length 50mm

08 - 09	Mounting thread form
S 1	M18X1.5, measuring rod diamete 10mm, 304 material
S 2	M20X1.5, measuring rod diameter 10mm, 304 material
S 3	3/4"-16UNF-3A, measuring rod diameter 10mm, 304 material

10 - 13	Connection form
10 - 11	Cable outlet mode
D H	PUR sheath, orange,-20~90°C, end scattered, wire color 1
D U	PVC sheath, orange,-20~105°C, end scattered, wire color 2
D B	PVC sheath, orange,-20~105°C, end scattered, wire color 3
D I	PUR sheath, orange,-20~90°C, end 6-pin male connector
D C	PVC sheath, orange,-20~105°C, end 8-pin male connector
12 - 13	Cable length, 01~99 unit: meter (cable outlet)
10 - 13	Connector form
P H 6 0	M16 6-pin male socket,
P B 8 0	M16 8-pin male socket

14 - 17	Signal output mode
14 - 15	Communication interface
A 0	Current output, 4 ~ 20mA
A 1	Current output, 20 ~ 4mA
A 2	Current output, 0 ~ 20mA
A 3	Current output, 20 ~ 0mA
V 0	Voltage output, 0 ~ 10V
V 1	Voltage output, 10 ~ 0V
V 2	Voltage output, -10 ~ +10V
V 3	Voltage output, +10 ~ -10V
V 4	Voltage output, 0 ~ 5V
V 5	Voltage output, 5 ~ 0V
V 6	Voltage output, -5 ~ +5V
V 7	Voltage output, +5 ~ -5V

16	Reserved bit
1	Single magnet ring
2	Single floating ball

17	No magnet ring state
A	Keep the original value
B	Maximum value
C	Minimum value

18 - 19	Head and end non-usable area
S 0	50.8mm+63.5mm
B 0	30mm+60mm

20-21	Country
	Refer to the country list

● Selection example

For example: EJ-M0300-S1-DU02-V01B-S0-CN

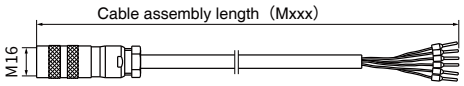
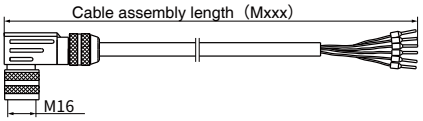
Indicates: E series EJ structure, Stroke length is 300mm, mounting thread form is M18×1.5, diameter 10, material 304 measuring rod, cable outlet PVC orange cable 2 meters (PVC orange sheath, -20~105°C, end scattered), 0-10V output, single magnet ring output (magnet ring needs to be purchased separately), the output value of no magnet ring is 10V, and the head and end non-usable area is 50.8mm+63.5mm.

● Supply list

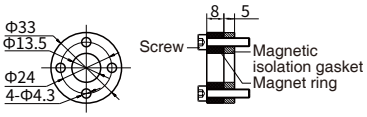
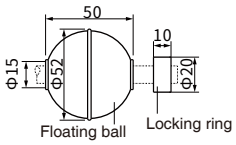
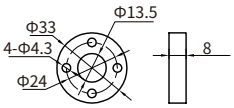
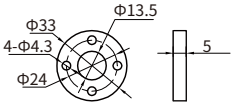
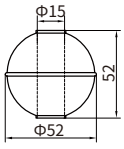
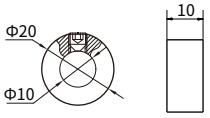
Sensor, certificate, manual, optional accessories (sold separately)

EJ Analog Output-Common Options

• Plug assembly cable

Accessory name/model	Dimensions	Description
Analog wiring cable assembly Order No.:AST-Mxxx-H01 (U01/U02)		Mxxx denotes cable length in meters; H01-6-pin PUR orange sheath, temperature-resistant -20~90°C cable assembly; U01-6-pin PVC orange sheath, temperature resistance -20~105°C cable assembly; U02-8-pin PVC orange sheath, temperature -20~105°C cable assembly.
Analog wiring right angled cable assembly Order No.:AST-Mxxx-H03 (U03/U04)		Mxxxdenotes cable length in meters; H03-6-pin PUR orange sheath, temperature-resistant -20~90°C cable assembly; U03-6-pin PVC orange sheath, temperature resistance -20~105°C cable assembly; U04-8-pin PVC orange sheath, temperature -20~105°C cable assembly.

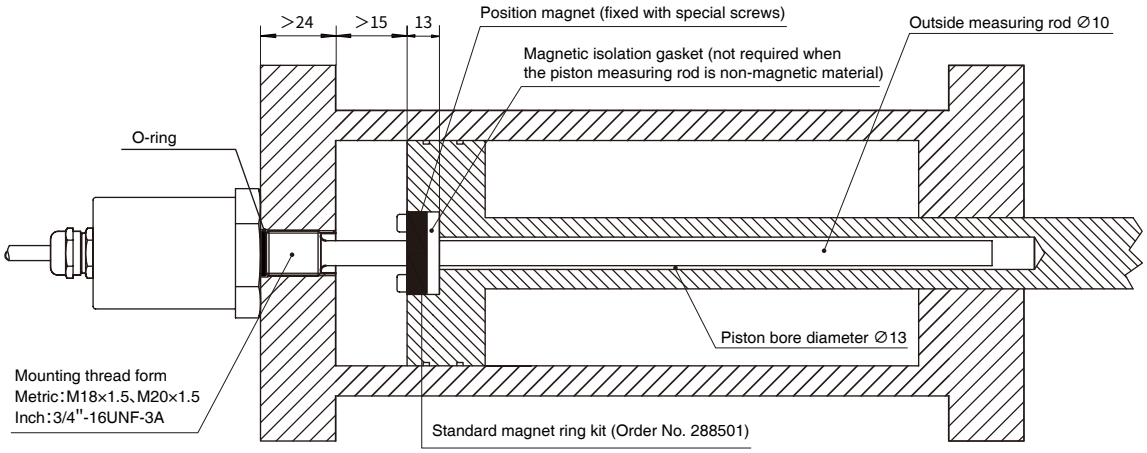
• Magnet ring/floating ball

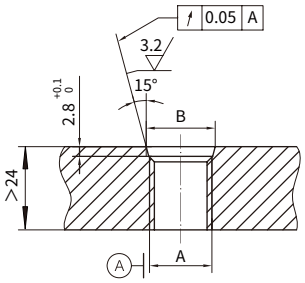
Accessory name/model	Dimensions	Description
Standard magnet ring kit Order No.:288501		One magnet ring 211501, one gasket 211521 (thickness 5mm)、four M4X20 socket screws with spring wgreyer.
Floating ball kit Order No.:266001		One floating ball 211546, a set of locking rings 211589. Floating ball material 304, pressure resistance 2.5MPa, density 0.6; locking ring material 304.
Standard magnet ring Order No.:211501		
Magnetic isolation gasket Order No.:211521		
Floating ball Order No.:211546		Material 304, pressure resistance 2.5 MPa, density 0.6
Locking ring Order No.:211589		Material 304

Note: For other accessories, please refer to general options

EJ-Hydraulic cylinder Application

Built-in installation

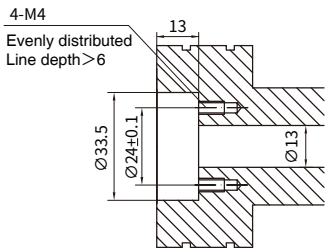




Installation accessories size list:

Code \ Size	A	B	O-ring
S1	M18×1.5	∅19.9±0.1	15.3×2.4
S2	M20×1.5	∅21.8±0.1	16×2.4
S3	3/4"-16UNF-3A	∅20.8±0.1	17×2.4

Installation and sealing surface processing requirements
Note: Recommended matching lineed hole structure size



Structural dimensions and center dimensions of accessories installed on the piston measuring rod

How to choose the sensor range according to the hydraulic cylinder

When selecting the sensor range for the existing hydraulic cylinder, ensure that the sensor range covers the cylinder piston measuring rod stroke, that is, the sensor range 0 point is before the piston measuring rod stroke starting point, and the sensor range end point is after the piston measuring rod stroke ends.

Precautions

- Hydraulic cylinder installation—the sensor of the pressure-resistant round tube casing is usually installed with a built-in hydraulic cylinder. The mounting thread form specifications Includes: M18×1.5, M20×1.5, 3/4"-16UNF-3A. Before installation, make sure that the hydraulic cylinder
- is as given in the picture book. Finished to the correct size.
- Mechanical installation - The sensor has no requirements on the installation position and direction, but must ensure that the installation is firm and reliable. The position magnet should be installed on the moving part under test and maintains a proper distance from the measuring rod. Position magnet - To ensure the accuracy of measuring, the installing parts of the position magnet must be made of non-magnetic materials, such as screws, magnetic isolation gaskets, etc.
- Notes: The sensor is a magnetic sensitive device and must be kept away from the interference of strong external magnetic fields. The stability and accuracy of the power supply should also be considered when measuring with high precision. During use, it is also necessary to prevent the electronic compartment from being hit by foreign objects.