

Magnetostrictive Displacement Sensor

E Series Product manual

Honorary Qualification





EP Displacement Sensor



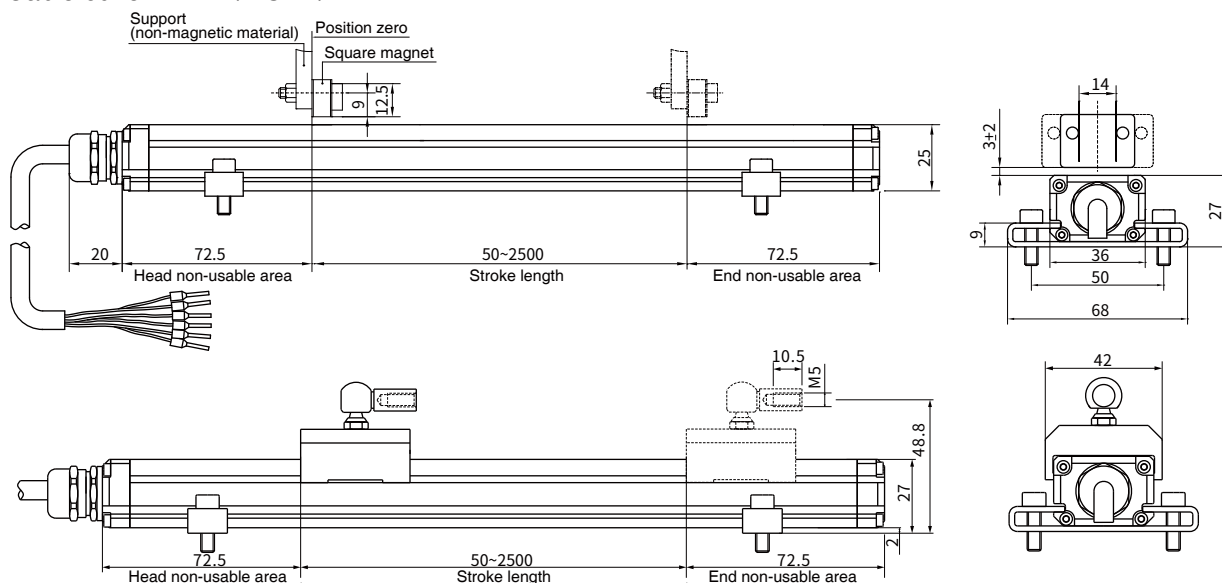
Technical characteristics

- Compact structure, convenient disassembly and assembly
- Linear measuring, absolute position output
- Never wear and tear, not affected by power failure
- Replaceable: LVDT, electronic ruler, encoder, etc.

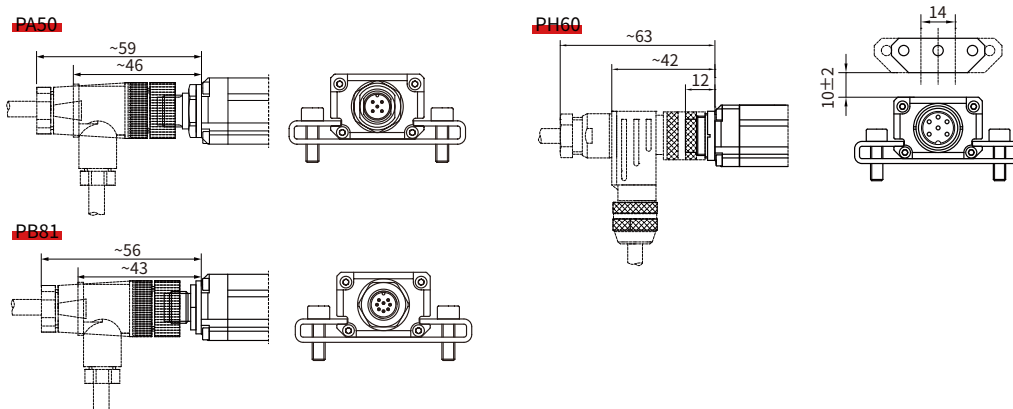
EP-Analog Output

► Structural shape

• Cable outlet DHXX/DUXX/DWXX



• Connector PA50/PB81/PH60



► Wiring and pin definition



• PA50 pin arrangement (Sensor Oriented)

Pin	Cable color3*	Function definition
1	Brown	+24Vdc±20% power supply
2	White	GND (power supply circuit)
3	Blue	Magnet ring position signal+
4	Black	Magnet ring position signal-
5	Grey	Sensor programming line

Note: * Cable color 1: Cable PUR sheath, black, -20~90°C

* Cable color 2: Cable PVC sheath, orange, -20~105°C

* Cable color 3: Cable PUR Sheath, Black, -40~85°C

Note: The shield wire of the shielded cable is grounded



• PH60 pin arrangement - 2-wire system (Sensor Oriented)

Pin	Cable color1*	Cable color2*	Function definition
1	Blue	Grey	Magnet ring position signal+
2	Green	Pink	Magnet ring position signal-
3	Yellow	Yellow	Sensor programming line
4	White	Green	Sensor programming line
5	Red	Brown	+24Vdc±20% power supply
6	Black	White	GND (power supply circuit)



• PB81 pin arrangement (Sensor Oriented)

Pin	Function definition
1	Do not connect
2	Magnet ring position signal-
3	Do not connect
4	Sensor programming line
5	Magnet ring position signal+
6	GND (power supply circuit)
7	+24Vdc power supply (-20%~+20%)
8	Sensor programming line

🔍 EP Analog Output-Product Parameters

• Input

Measuring data	Position magnet ring
Stroke length	50~2500 mm, others can be customized according to needs

• Output

Current	0 ~ 20mA or 4 ~ 20mA (min/max load 0/500Ω)
Voltage	0 ~ 10Vdc or 0~5Vdc (minimum load resistance ≥ 10KΩ)
Resolution	14-bit D/A or 0.0065% of full scale (minimum 10μm)
Nonlinearity	<±0.03% of full scale
Repeatability	<±0.005% of full scale
Update time	1ms(range ≤ 1m) 2ms(1m<range ≤ 2m) 3ms(2m<range ≤ 3m)
Hysteresis	<10μm

• Operating conditions

Magnet velocity	Arbitrary
Protection class	IP65
Operating temperature	-40℃ ~ +85℃
Temperature coefficient	< 30ppm/℃
Humidity/dew point	Humidity 90%, no condensation
Shock index	GB/T2423.5 50g(11ms)
Vibration index	GB/T2423.10 10g/10~2000Hz
EMC test	GB/T17626.2 Anti-interference Degree of Electrostatic Discharge, Grade 4, Class A
	GB/T17626.3 Radiation Anti-interference Degree of Radio Frequency Electromagnetic Field, Grade 3, Class A
	GB/T17626.4 Anti-interference Degree of Electrical Fast Transient Train, Grade 4, Class A
	GB/T17626.6 RF 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%
Power consumption	<80mA
Polarity protection	Maximum-30Vdc
Overvoltage protection	Maximum36Vdc
Insulation resistance	> 10MΩ
Insulation strength	500V

• Construction and Materials

Measuring rod	Aluminum profile
Installation	Any direction, clamp installation
Position magnet	Square magnet, trapezoidal magnet
Outgoing mode	Cable outlet (scattered connection), connector (M16 connector)

EP Analog Output-Selection Guide

EP - M - C -
 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19

01 - 02	Sensor shell form
E P	Overall profile structure series

03 - 07	Range (0050~2500mm, others can be customized as needed)
	0050~0500mm step length 5mm
	0750~1000mm step length 25mm
	1000~2500mm step length 50mm

08 - 09	Magnet form
C 2	Slider magnet (211517)
C 3	Square magnet (211508)
C 4	Trapezoidal magnet (211514)

10 - 13	Connection form
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10 - 11	Cable outlet mode
D H	PUR sheath, orange, -20~90°C, end scattered, Cable color 1
D U	PVC sheath, orange, -20~105°C, end scattered, Cable color 2
D W	PUR sheath, black, -40~85°C, end scattered, Cable color 3

12 - 13	Cable length, 01~99 units: m (cable outlet mode)
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10 - 13	Connector form
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P A 5 0	M12 5-pin male socket, plug cable needs to be selected separately
P H 6 0	M16 6-pin male socket, plug cable needs to be selected separately
P B 8 1	M12 8-pin male socket

14 - 17	Signal output mode
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14 - 15	Signal output mode
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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 4	Voltage output, 0 ~ 5V
V 5	Voltage output, 5 ~ 0V

16	Reserved bit
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1	Single magnet ring
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17	No magnet ring state
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A	Keep the original value
B	Maximum value
C	Minimum value

18 - 19	Non-usable area at head and end
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B 1	72.5mm+72.5mm
D 2	73mm+73mm

● Selection example

For example: EP-M0300-C0-PB81-A01B-B1

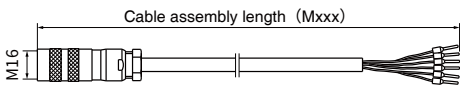
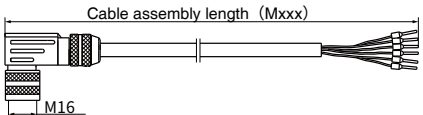
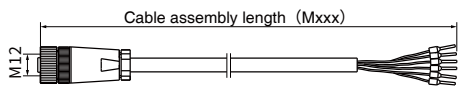
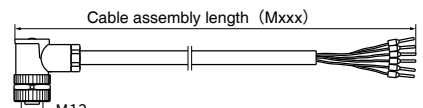
Indicates: EP integral profile structure, mounting clamp installation, 300mm Stroke length, no magnet block, M12 connector outlet form, current output of 4~20mA, output value of non-magnet ring less than 4mA, non-usable area at head and end of 72.5 mm+72.5mm.

● Supply list

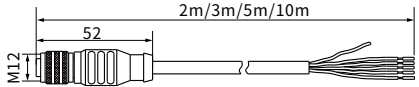
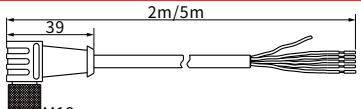
Sensor, certificate, instruction manual, optional parts (optional separately)

► EP Analog Output - Common Options

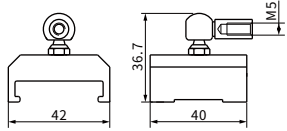
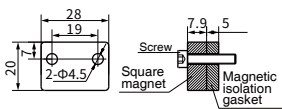
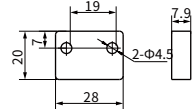
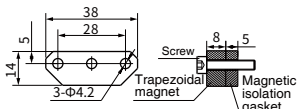
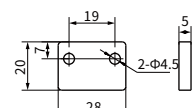
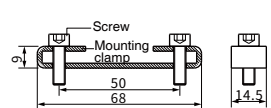
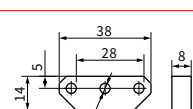
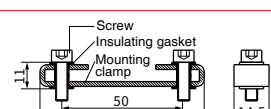
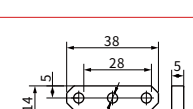
• Plug assembly cable

Accessory name/model	Dimensions	Description
Analog wiring cable assembly Order No.:AST-Mxxx-H01 (U01)		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.
Analog wiring right angled cable assembly Order No.:AST-Mxxx-H03 (U03)		Mxxx denotes 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.
Analog output cable assembly Order No.:AST-Mxxx-W06		Mxxx denotes cable length in meters; W06-5-pin PUR black sheath, temperature -40~80°C cable assembly.
Analog output right angled cable assembly Order No.:AST-Mxxx-W05		Mxxx denotes cable length in meters; W05-5-pin PUR black sheath, temperature -40~80°C cable assembly.

• Finished plug cable

Accessory name/model	Dimensions	Description
M12 female connector Order No.:521801-2 (3/5/10)		PUR black sheath, line core 1 brown, 2 white, 3 blue, 4 black, 5 gray, temperature resistance -40°C~80°C.
M12 Right angle female connector Order No.:521804-2 (5)		PUR black sheath, line core 1 brown, 2 white, 3 blue, 4 black, 5 gray, temperature resistance -40°C~80°C.

• Magnet ring/floating ball

Accessory name/ model	Dimensions	Accessory name/ model	Dimensions	Description
Slider Magnet Kit Order No.:211517		Square Magnet Kit Order No.:288508		One square magnet 211508, one square magnet gasket 211529 (thickness 5mm), two M4X20 socket screws
Square magnet Order No.:211508		Trapezoidal magnet kit Order No.:288514		One trapezoidal magnet 211514, one trapezoidal magnet gasket 211530 (thickness 5mm), three M4X20 socket screws
Square magnet gasket Order No.:211529		Mounting clamp kit Order No.:211561		One mounting clamp, two M5X16 socket screws
Trapezoidal magnet Order No.:211514		Mounting clamp kit (With insulation) Order No.:211801		One mounting clamp, two M6X16 socket head cap screws, four insulating washers
Trapezoidal magnet gasket Order No.:211530				

Note:For other accessories, please refer to general options