

EP Displacement Sensor



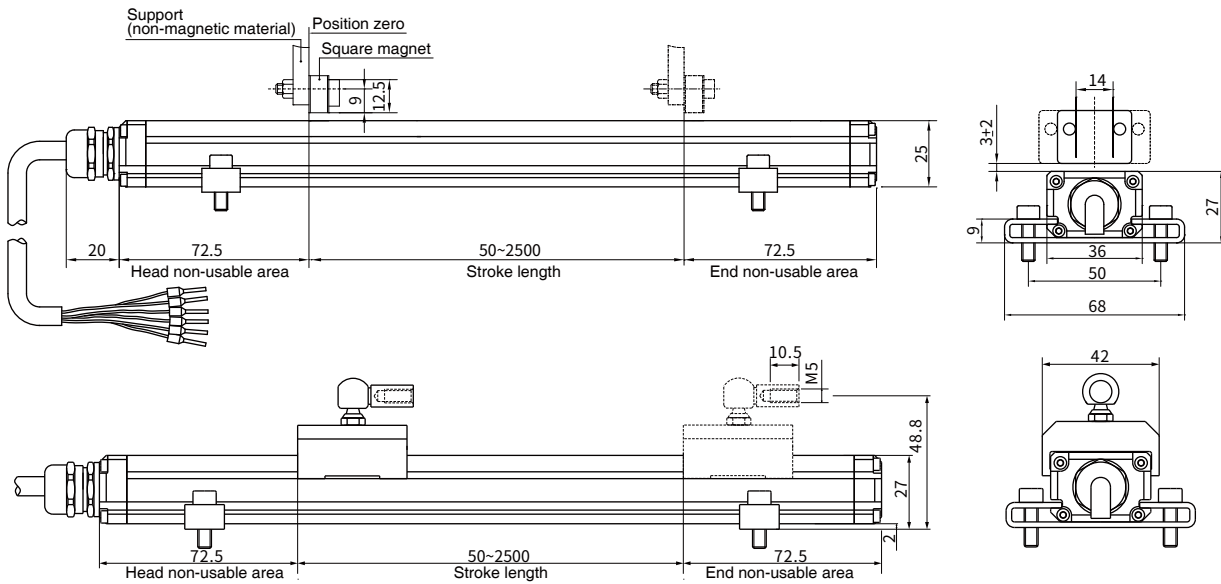
Technical characteristics

- 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.

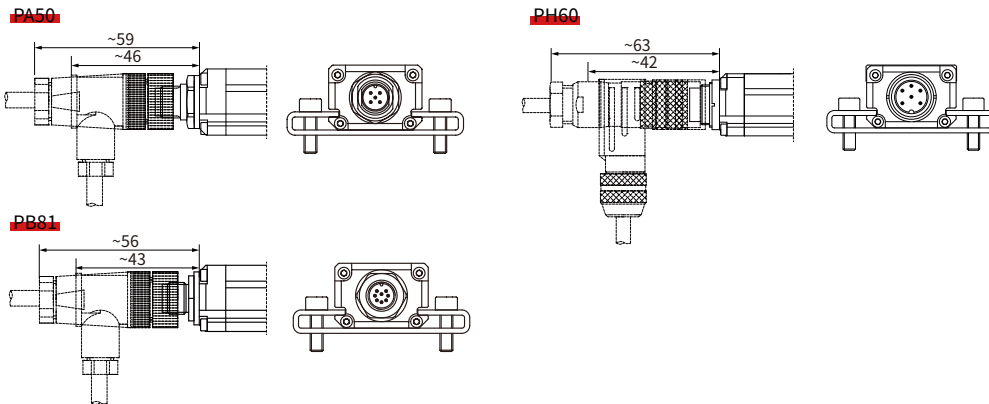
EP-Analog Output

▶ Structural shape

- Cable outlet DHXX/DUXX/DWXX



- Connector PA50/PB81/PH60

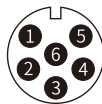


▶ Wiring and pin definition



- 0050 pin arrangement (Sensor Oriented)

Pin	Line color ^{3*}	Function definition
1	Brown	+24Vdc±20% power supply
2	White	0 Vdc (power supply loop)
3	Blue	Magnet ring position signal+
4	Black	Magnet ring position signal-
5	Grey	Sensor programming line



- 0060 pin arrangement - 2-wire system (Sensor Oriented)

Pin	Line color ^{1*}	Line color ^{2*}	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	0 Vdc (power supply loop)



- 0081 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	0 Vdc (power supply loop)
7	+24Vdc power supply (-20%~+20%)
8	Sensor programming line

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

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

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

Note: The shield wire of the shielded cable is grounded

▶ 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 C ~ +85 C
Temperature coefficient	< 30ppm/ C
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



01 - 02 Sensor shell form

E	P	Overall profile structure series
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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

V	2	Slider magnet (211517)
V	3	Square magnet (211508)
V	4	Trapezoidal magnet (211514)

10 - 13 Connection form

10 - 11 Cable outlet mode

0	1	PUR sheath, orange, -20~90°C, end scattered, line color 1
0	2	PVC sheath, orange, -20~105°C, end scattered, line color 2
0	4	PUR sheath, black, -40~85°C, end scattered, line color 3

12 - 13 Cable length, 01~99 units: m (cable outlet mode)

10 - 13 Connector form

0	0	5	0	M12 5-pin male connector
0	0	6	0	M16 6-pin male connector
0	0	8	1	M12 8-pin male connector

15 - 18 Signal output mode

15 - 16 Signal output mode

A	0	Current output, 20 ~ 4mA
A	1	Current output, 4 ~ 20mA
A	2	Current output, 20 ~ 0mA
A	3	Current output, 0 ~ 20mA
V	0	Voltage output, 0 ~ 5V
V	1	Voltage output, 5 ~ 0V
V	4	Voltage output, 0 ~ 10V
V	5	Voltage output, 10 ~ 0V

17 Reserved bit

1	Single magnet ring
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18 No magnet ring state

A	Keep the original value
B	Maximum value
C	Minimum value

19 - 20 Non-usable area at head and end

B	1	72.5mm+72.5mm
D	2	73mm+73mm

21 RUSSIA

● Selection example

For example: EP-M0300-V0-0081M-A11C-B1R

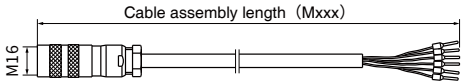
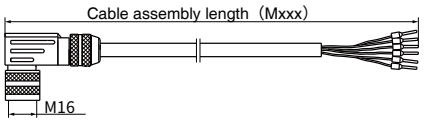
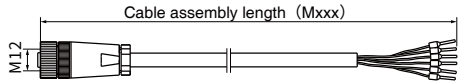
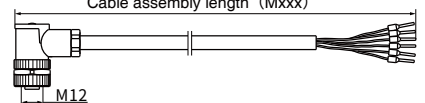
Indicates: EP integral profile structure, mounting clamp installation, 300mm Stroke length, no magnet block, M12 connector outlet form, current output of 4~20mA, output value of non-magnet ring less than 4mA, non-usable area at head and end of 72.5 mm+72.5mm.

● Supply list

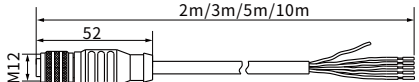
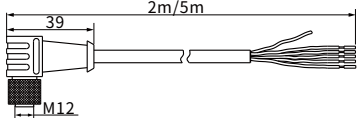
Sensor, certificate, instruction manual, optional parts (optional separately)

▶ EP Analog Output - Common Options

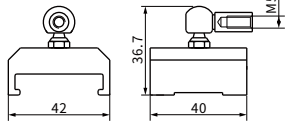
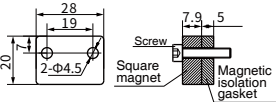
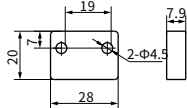
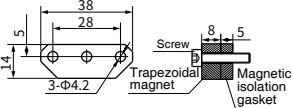
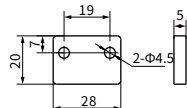
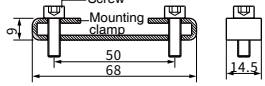
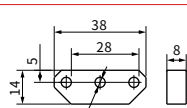
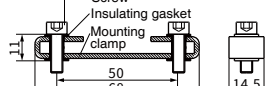
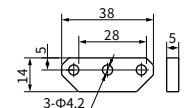
• Plug assembly cable

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

HP Displacement Sensor



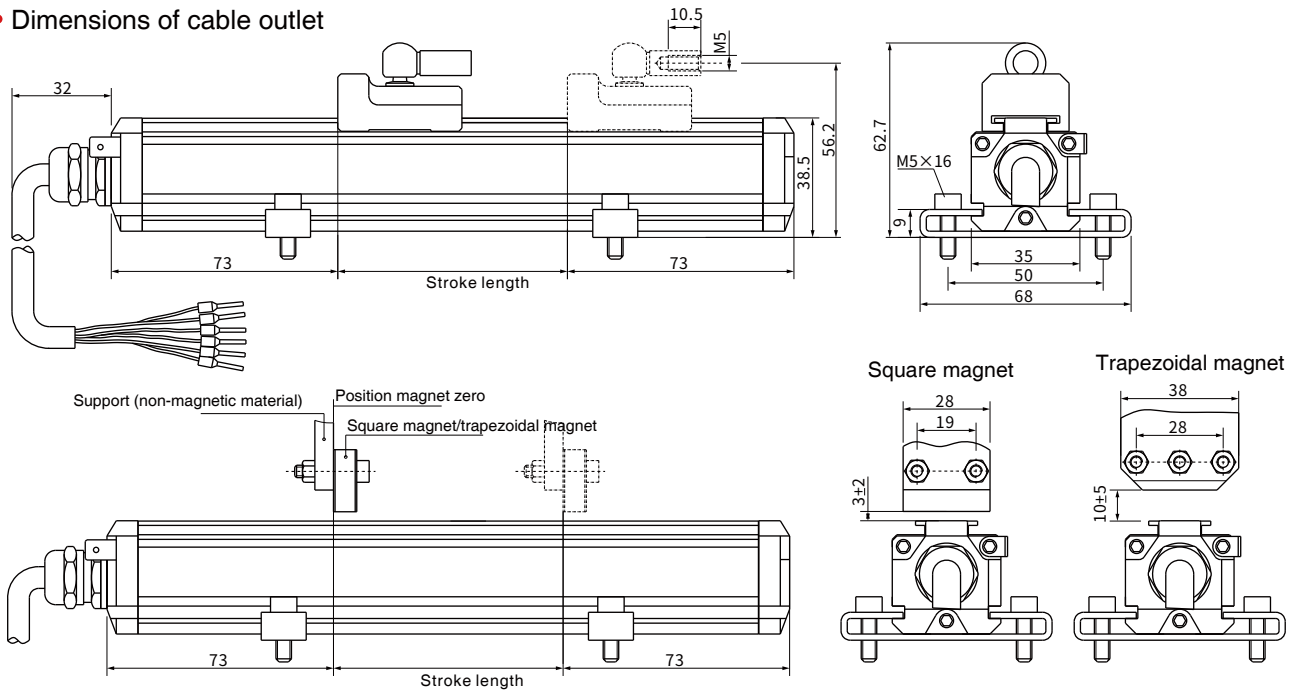
Technical characteristics

- Compact structure, convenient disassembly and assembly
- Linear measuring, absolute position output
- Rugged and fully enclosed design
- Digital technology, stable and reliable

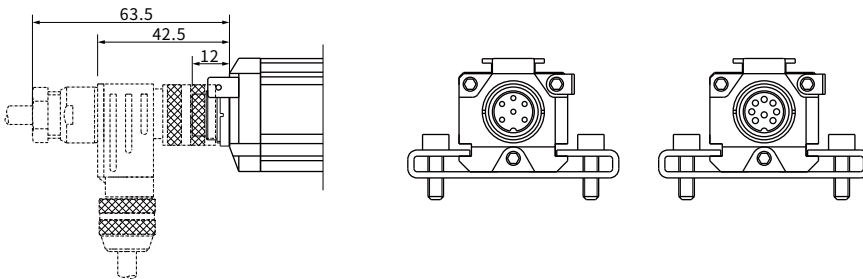
HP-Analog Output

▶ Structural shape

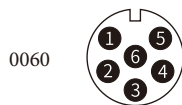
• Dimensions of cable outlet



• Outline dimensions of connector outlet



▶ Wiring and pin definition



0060



0080

• 6-pin male connector arrangement (Sensor Oriented)

Pin	Line color 1*	Line color 2*	Function definition
1	Blue	Grey	Magnet ring position signal+
2	Green	Pink	Magnet position signal-
3	Yellow	Yellow	Reservation
4	White	Green	Reservation
5	Red	Brown	+24Vdc power supply (-20%~+20%)
6	Black	White	0 Vdc supply loop

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

* Line color 2/3: Cable PUR sheath, orange, -20~90°C

• 8-pin male connector arrangement (Sensor Oriented)

Pin	Line color 3*	Function definition
1	Yellow	Current output
2	Grey	0 Vdc (current/voltage loop)
3	Pink	Reservation
4	-	Reservation
5	Green	0~10V
6	Blue	0 Vdc (supply loop)
7	Brown	+24Vdc power supply (-20%~+20%)
8	White	Reservation

▶ HP Analog Output-Product Parameters

• Input

Measuring data	Position magnet
Stroke length	50~2500 mm (customized according to customer's needs)

• Output

Current	4 ~ 20mA or 20~4mA(min/max load 0/500Ω)
Voltage	0 ~ 10Vdc or 0~5Vdc (minimum load resistance ≥ 10KΩ)
Resolution	16-bit D/A or 0.0015% of full scale (minimum 5μm)
Nonlinearity	< 0.02% of full scale
Repetition accuracy	< ± 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°C ~ +85°C
Humidity/dew point	Humidity 90%, no condensation
Temperature coefficient	<30ppm/°C
Shock index	GB/T2423.5 50g(6ms)
Vibration index	GB/T2423.10 20g/10~2000Hz
EMC test	GB/T17626.2 Anti-interference Degree of Electrostatic Discharge, Grade 3, 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 3, 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

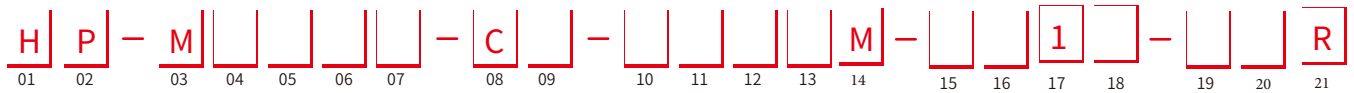
• Electrical Connections

Input voltage	+24Vdc±20%
Power consumption	<80mA
Polarity protection	Maximum-30Vdc
Overvoltage protection	Maximum 36Vdc
Insulation resistance	>10MΩ
Insulation strength	500V

• Construction and Materials

Measuring rod	Aluminum profile
Installation	Movable mounting clamp
Position magnet	C-shaped magnet, trapezoidal magnet
Outgoing mode	Cable outlet or connector

▶ HP Analog Output-Selection Guide



01 - 02	Sensor shell form
H P	Overall profile structure series
03 - 07	Range (0050~2500mm, others can be
	0050~0500mm step length 25mm
	0500~1000mm step length 50mm
	1000~2500mm step length 100mm
08 - 09	Magnet form
V 2	Slider magnet (211513)
V 3	Square magnet (211508)
V 4	Trapezoidal magnet (211514)
10 - 13	Connection form
10 - 11	Cable outlet mode
0 1	PUR sheath, orange,-20~90°C, end scattered, line color 1
0 2	PVC sheath, orange,-20~105°C, end scattered, line color 2
0 3	PVC sheath, orange,-20~105°C, end scattered, line color 3
12 - 13	Cable length, 01~99 units: m (cable outlet mode)
10 - 13	Connector form
0 0 6 0	M16 6-pin connector
0 0 8 0	M16 8-pin connector

15 - 18	Signal output mode
15 - 16	Communication interface
A 0	Current output, 20 ~ 4mA
A 1	Current output, 4 ~ 20mA
A 2	Current output, 20 ~ 0mA
A 3	Current output, 0 ~ 20mA
V 0	Voltage output, 0 ~ 5V
V 1	Voltage output, 5 ~ 0V
V 4	Voltage output, 0 ~ 10V
V 5	Voltage output, 10 ~ 0V
17	Reserved bit
1	Single magnet
18	No magnet state
A	Keep the original value
B	Maximum value
C	Minimum
19 - 20	Non-usable area at head and end
B 1	72.5mm+72.5mm
D 2	73mm+73mm
21	RUSSIA

● Selection example

For example: HP-M0300-V2-0060M-A11B-B1R

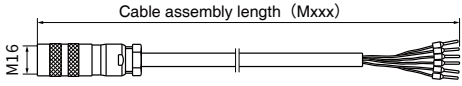
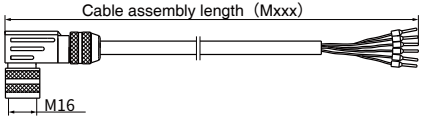
Indicates: HP structure, mounting clamp installation, 300mm Stroke length, C-type magnet, M16 male socket (without plug cable), current output of 0~20mA, output value larger than 20mA without magnet, non-usable area at head and end of 72.5 mm+72.5 mm.

● Supply list

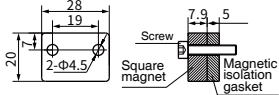
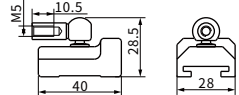
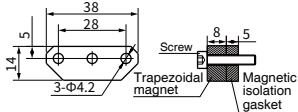
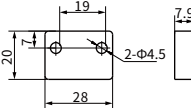
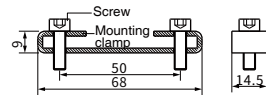
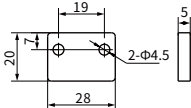
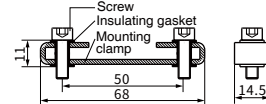
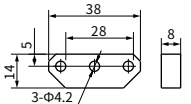
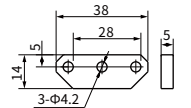
Sensor, certificate, instruction manual, optional parts (optional separately)

▶ HP 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)		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; U04-8-pin PVC orange sheath, temperature -20~105°C cable assembly

• Magnet

Accessory name/ model	Dimensions	Description	Accessory name/ model	Dimensions
Square magnet kit Order No.:288508		One square magnet 211508, one square magnet gasket 211529 (thickness 5mm), two M4X20 socket screws	Slider Magnet Kit Order No.:211513	
Trapezoidal magnet kit Order No.:288514		One trapezoidal magnet 211514, one trapezoidal magnet gasket 211530 (thickness 5mm), three M4X20 socket screws	Square magnet Order No.:211508	
Mounting clamp kit Order No.:211561		One mounting clamp, two M5X16 socket screws	Square magnet gasket Order No.:211529	
Mounting clamp kit (With insulation) Order No.:211801		One mounting clamp, two M6X16 socket head cap screws, four insulating washers	Trapezoidal magnet Order No.:211514	
			Trapezoidal magnet gasket Order No.:211530	

Note: For other accessories, please refer to general options