

MT Displacement Sensor

50-2500 mm Stroke , IP67, IP69K, Non-Contact, Temperature range (-40°C to $+105^{\circ}\text{C}$)

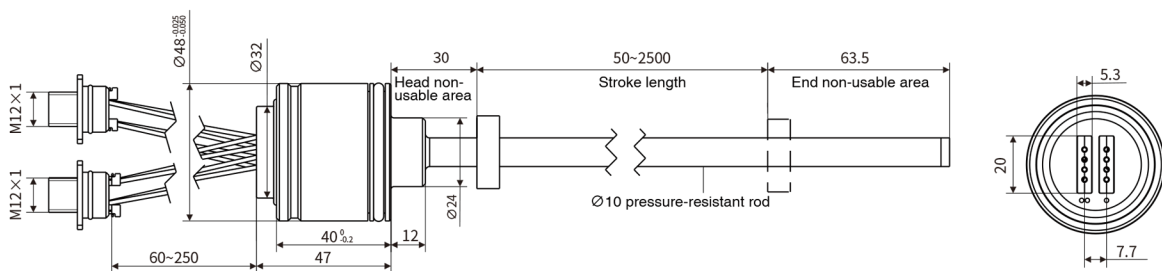


Features

- Specially designed for construction machinery
- High vibration resistance and impact resistance
- Low power consumption design effectively reduces system heating
- Multiple signal (analog and digital signal) output modes
- Linear measurement, absolute position output
- Adapt to harsh environment, IP67 protection level
- Assembled in Cylinder, free from environmental and electromagnetic interference, non-contact measurement
- Redundant sensor system to improve the safety and stability of construction machinery


Technical Characteristics

Connector external dimensions

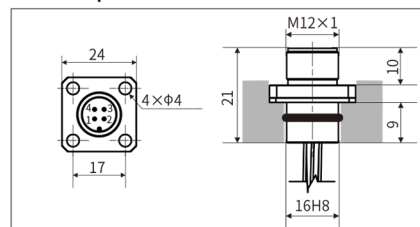


► Electrical connections


Channel 1 analog (connector)

M12-4 Pin Definition	No.	PD
	1	Power supply
	2	Do not connect
	3	Ground
	4	Signal

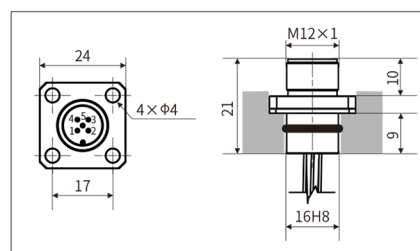
• M12-4pin socket



• Channel 2 analog (connector)

M12-5 Pin Definition	No.	PD
	1	Power supply
	2	Signal
	3	Ground
	4	Do not connect
	5	Do not connect

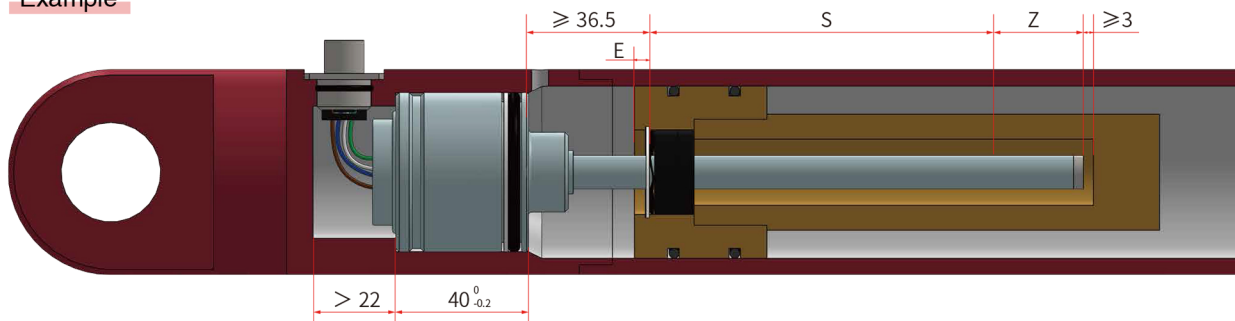
• M12-5pin socket



MT Displacement Sensor

► Assembly mode

Example

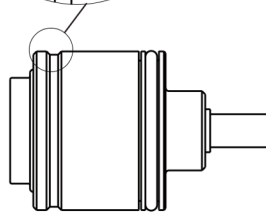
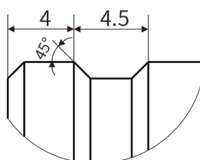


The assembly method depends entirely on the design of the hydraulic cylinder. The commonly used assembly method is to install from the rod end of the hydraulic cylinder, or to install from the cylinder head end of the hydraulic cylinder. In both assembly methods, O-ring and auxiliary gasket are used for air sealing.

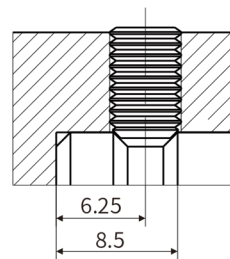
- Note: 1. The position magnet should not contact the steel rod;
2. Drilling depth of piston rod $\geq E+Z+3\text{mm}$;
3. Piston rod hole diameter

Steel rod	$\varnothing 10$
Aperture size	$\geq \varnothing 13$

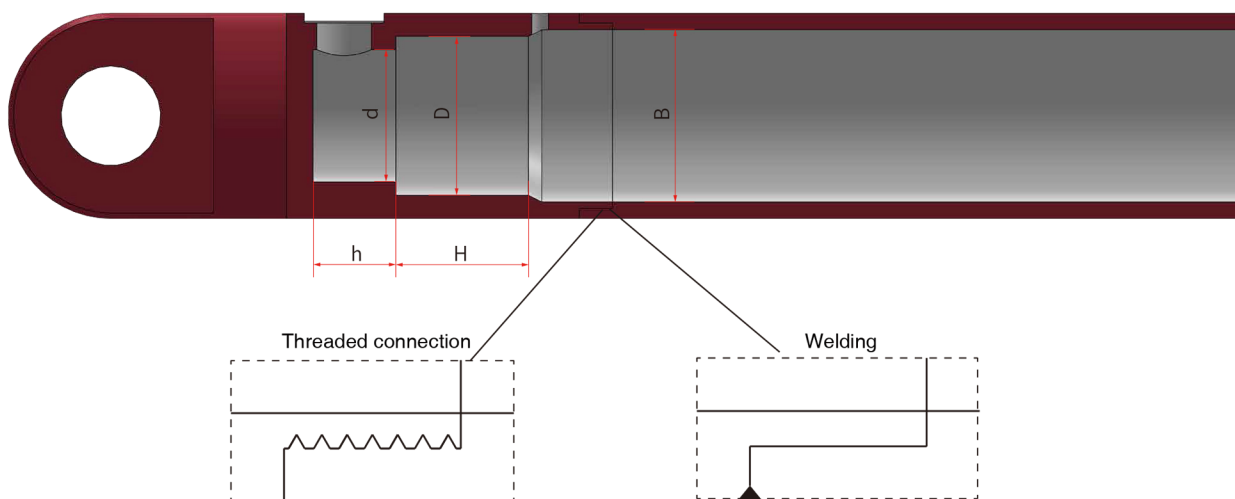
4. Do not exceed the operating pressure during use.



Flange shell with O-ring and auxiliary washer



Use M5 internal hexagon flat-end setting screws for fixation with a maximum torque of 0.5 N/m



Unit: mm

Model	B Minimum diameter of hydraulic cylinder	D Minimum diameter	H Depth	d Minimum diameter	h Depth
MT	52	48H8 (thread) 48G7 (welding)	40 ^{+0.2}	> 32.5 < 40	> 22

MT Displacement Sensor

▶ Product parameters

Input

Measurement data	Position (vernier magnet)
Stroke length	50~2500 mm

Output

Current	4 ~ 20mA (load resistance $\leq 250\Omega$)
Voltage	0.5 ~ 4.5Vdc or 0.25~4.75Vdc (load resistance $\geq 10K\Omega$)
Resolution	$\pm 0.1\text{mm}$ (range $< 500\text{mm}$) $\text{range} \div 4096$ (range $> 500\text{mm}$)
Nonlinearity	$\pm 0.1\text{mm}$ ($\leq 250\text{mm}$) or 0.04%F.S. ($> 250\text{mm}$)
Repetition accuracy	$\pm 0.1\text{mm}$
Update time	2ms

Operating conditions

Magnet velocity	Arbitrary
Protection level	Sensor shell IP67; M12 Connector System IP69K
Operating temperature	-40℃ ~ +105℃
Humidity/dew point	Humidity 90%, no condensation
Temperature drift coefficient	$< 30\text{ppm}/^\circ\text{C}$
Shock index	GB/T2423.5 100g (6ms)
Vibration index	GB/T2423.10 15g/10~2000Hz
EMC test	GB/T17626.2 Electrostatic Discharge Anti-interference, Grade 3, Class B
	GB/T17626.3 Radio Frequency Electromagnetic Field Radiation Anti-interference, Grade 3, Class A
	GB/T17626.4 Electric Fast Transient Group Anti-interference, Grade 3, Class B
	GB/T17626.5 Surge (Impact) Anti-interference, Grade 3, Class B
	GB/T17626.6 Radio Frequency Field Induced Conducted Disturbance Anti-interference, Grade 3, Class A
	GB/T17626.8 Power Frequency Magnetic Field Anti-interference, Grade 4, Class A

Electrical connections

Input voltage	9~ 32Vdc
Power consumption	$< 1\text{W}$
Polarity protection	maximum -30Vdc
Overvoltage protection	maximum 36Vdc
Insulation resistance	$> 10\text{M}\Omega$
Insulation strength	500V
Outgoing mode	Cable outlet or connector

Construction and materials

Electronic compartment	304L stainless steel
Measuring rod	304L stainless steel
Operating pressure grade	Rated pressure Pn: 35MPa maximum pressure Pmax: 45MPa for stell rod with diameter of 10mm
Assembly	Any direction
Position magnet	Various ring magnets

MT Displacement Sensor

▶ Selection Guide

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

01 - 02	Sensor shell form
M T	Sensor shell Φ48mm
03 - 07	Measuring range
	0050~2500 mm, step length 1mm
08 - 09	Mounting thread form
S A	Pressure-resistant rod, diameter 10mm
10 - 13	Connection form
P D	Channel 1: 4 single leads, M12 IP69K, 4 pins (1-3-4) Channel 2: 4 single leads, M12 IP69K, 5 pins (1-3-2)
P D 0 6	60mm, minimum length of wiring harness
P D 2 5	250mm, maximum length of wiring harness
14 - 16	Signal output mode
V 2 0	Voltage output, 0.25~4.75V, 0.25~4.75V
V 2 1	Voltage output, 0.5~4.5V, 0.5~4.5V
V 2 2	Voltage output, 4.75~0.25V, 4.75~0.25V
V 2 3	Voltage output, 4.5~0.5V, 4.5~0.5V
V 3 0	Voltage output, 0.25~4.75V, 4.75~0.25V
V 3 1	Voltage output, 0.5~4.5V, 4.5~0.5V
A 2 0	Current output, 4~20mA, 4~20mA
V 2 1	Current output, 20~4mA, 20~4mA
A 3 0	Current output, 4~20mA, 20~4mA
17 - 18	Non-usable area at head and end, customizable
M 1	30mm+63.5mm

● Selection example

For example: MT-M0300-SA-PD08-A20-M1

Indicates: MT flange diameter 48mm, stroke length 300mm, pressure-resistant rod with diameter 10mm, two-way M12 connector, current output of 4~20mA, non-usable area at head and end of 30mm + 63.5mm.