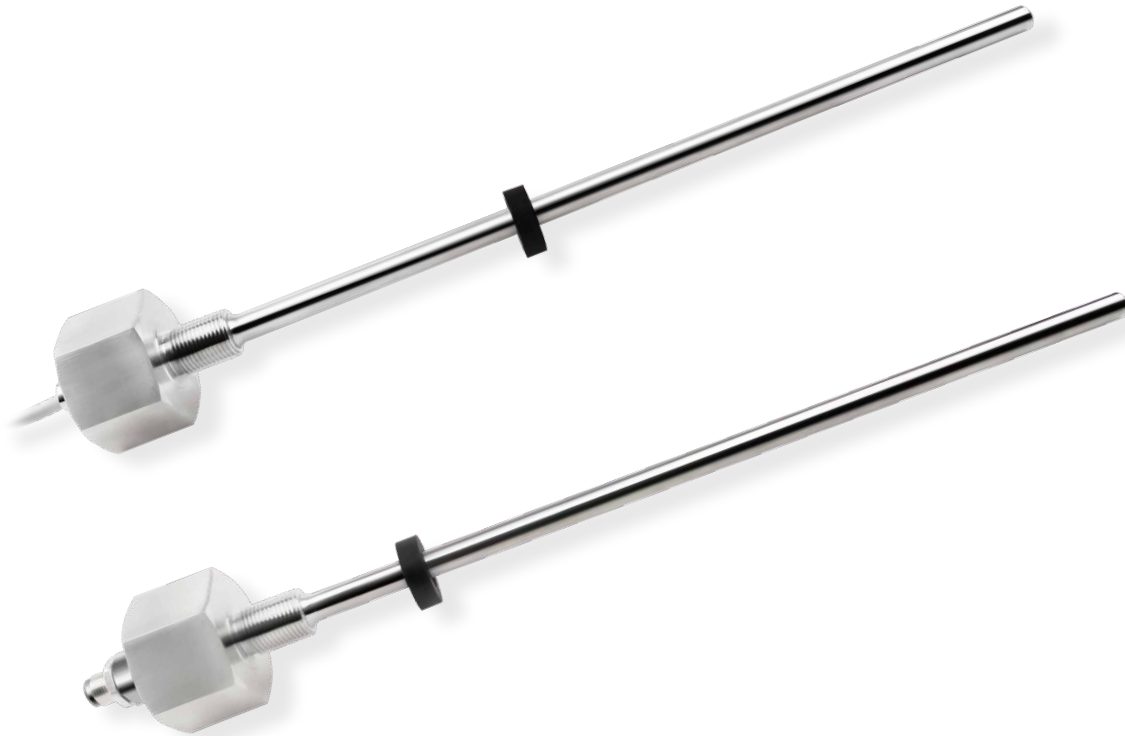




MHA Displacement Sensor

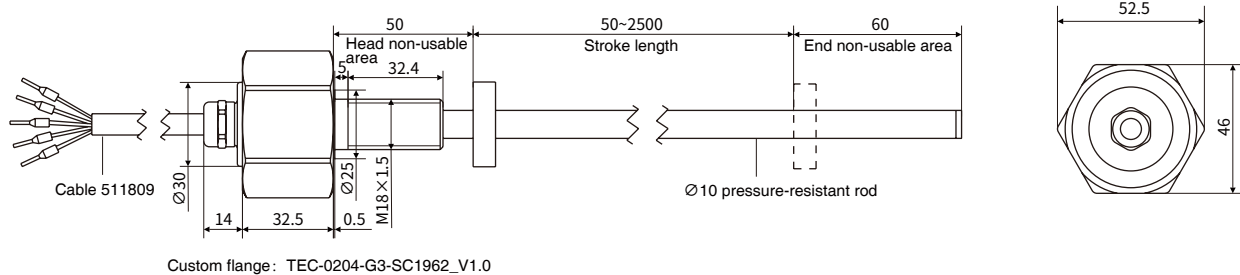


Technical characteristics

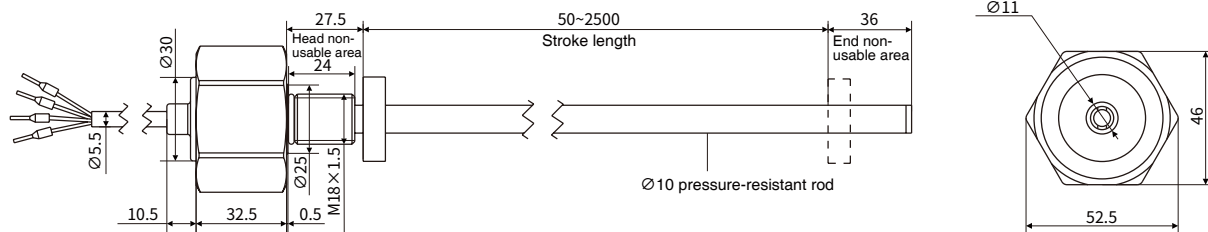
- Non-contact measurement
- Linear measurement, absolute position output
- Adapt to harsh environment, IP67 protection level
- Multiple signal (analog and digital signal) output modes
- Specially designed for construction machinery
- High vibration resistance and impact resistance
- Low power consumption design effectively reduces system heating
- Quick assembly through external threads

Structural Shape

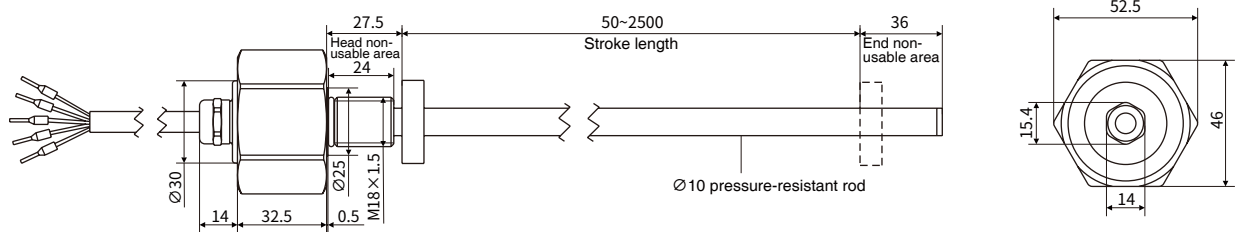
External dimensions of cable outlet (fastening mode DE)



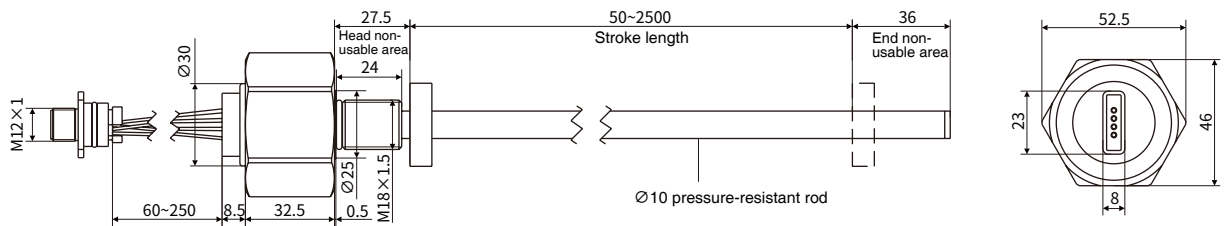
External dimensions of cable outlet (fastening method QM)



External dimensions of cable outlet (fastening mode DM)

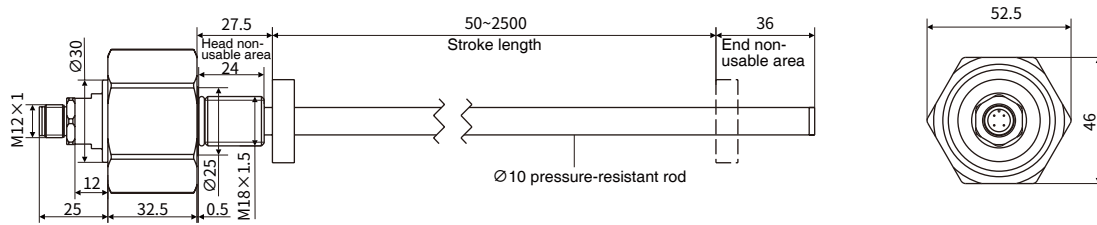


Connector external dimensions (standard type)



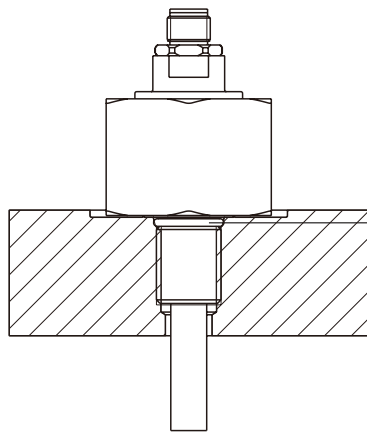
Structural Shape

Connector external dimensions (customized type)



Assembly mode

To seal the flange contact surface by assembling 15.4x2.1 mmO rings in the cut, threaded holes conforming to ISO6149-1 standard must be provided.



Seal by O-ring in flange cut

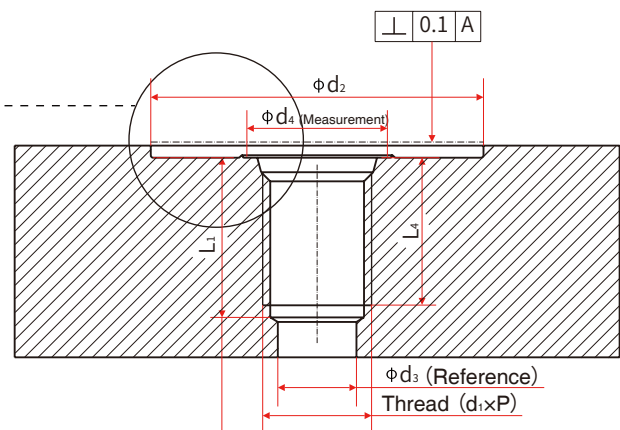
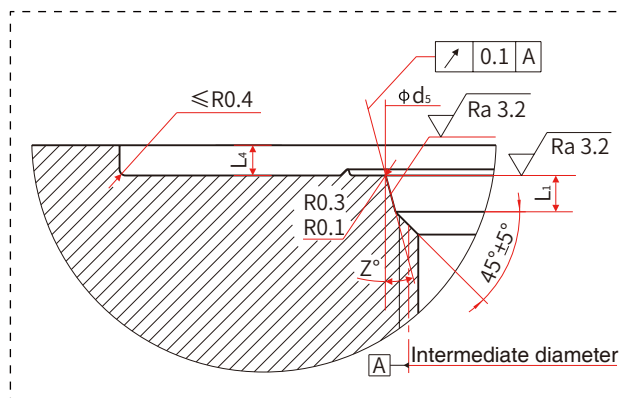
Note::

- 1.The fastening torque is 50Nm;
- 2.The flange contact surface must be located on the Cylinder assembly surface as a whole;
- 3.The positioning magnet should not contact with the sensor measuring rod;
- 4.Do not exceed the peak pressure of equipment;
- 5.Protect the stell rod from wear.

Threaded holes conforming to ISO6149-1 (for pressure-resistant rods with a diameter of 10mm)

unit: mm

Thread (d1 xP)	d ₂	d ₃	d ₄	d ₅	L ₁	L ₂	L ₃	L ₄	Z°
M18x1.5	55	13	24.5	19.8	2.4	28.5	2	14.5	15°



This size is suitable for blind holes

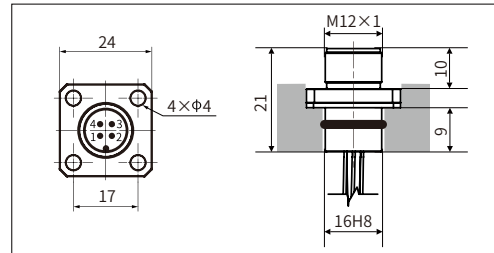
MHA-Analog Output

Electrical connections

• Analog (connector)

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

• M12-4 pin socket



• Analog output (line color definition of female connector)

M12-5 pin female connector		Line color		
	Definition	PA	PB	PC
	Power supply	Brown	White	Brown
	Ground	Blue	Blue	Blue
	Signal	White	Black	Black

• Analog output (scattered output)

Scattered output	PT	
	Definition	Line color
	Power supply	Brown
	Ground	White
	Signal	Green

• Analog output (line color definition of right angle female connector)

M12-5pin right angle female connector		Line color		
	Definition	PA	PB	PC
	Power supply	Brown	White	Brown
	Ground	Blue	Blue	Blue
	Signal	White	Black	Black

• Analog output (cable outlet)

Cable code:511806	Definition	Line color
	Power supply	Brown
	Ground	White
	Signal	Green
Cable code:511809	Definition	Line color
	Power supply	Brown
	Ground	White
	Signal	Blue

▶ Product Parameters-Analog Output

• 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 $< 500\text{mm}$) 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	IP67
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 (11ms)
Vibration index	GB/T2423.10 25g/10~2000Hz
EMC test	GB/T17626.2 Electrostatic Discharge Anti-interference, Grade 3, Class A
	GB/T17626.3 Radio Frequency Electromagnetic Field Radiation Anti-interference, Grade 3, Class A
	GB/T17626.4 Electric Fast Transient Pulse 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	Maximum36Vdc
Insulation resistance	$> 10M\Omega$
Insulation strength	500V
Outgoing mode	Cable outlet or connector

• Construction and materials

Electronic compartment	304Lstainless steel
Measuring rod	304Lstainless 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

Magnet Selection

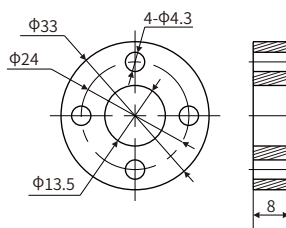
Accessory name/model

Dimensions

Description



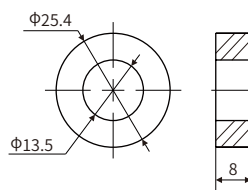
Magnet ring kit
Order No.: 288501



Magnetic isolation gasket: size same as magnet ring, thickness 5mm
Screws: GB/T70.1, M4X18, material 304
Spring gasket: GB/T 93, ϕ 4, material 304
Includes: 1 magnet ring, 1 gasket, 4 screws with elastic gasket



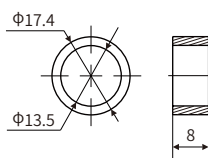
Magnet ring kit
Order No.: 288506



Magnetic isolation gasket: size same as magnet ring, thickness 5mm
Retaining ring: GB/T893, 264
Includes: 1 magnet ring, 2 gaskets, 1 retaining ring



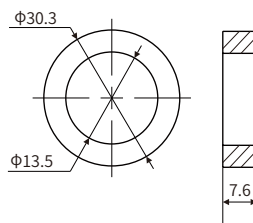
Magnet ring kit
Order No.: 288507



Magnetic isolation gasket: size same as magnet ring, thickness 5mm
Retaining ring: GB/T 893, 18
Includes: 1 magnet ring, 2 gaskets, 1 retaining ring



Magnet ring kit
Order No.: 288509



Magnetic isolation gasket: size same as magnet ring, thickness 5mm
Retaining ring: GB/T893, 18
Includes: 1 magnet ring, 2 gaskets, 1 retaining ring

Cable selection

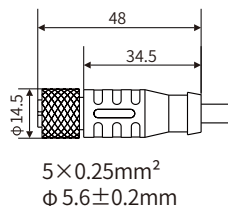
Accessory name/model

Dimensions

Description



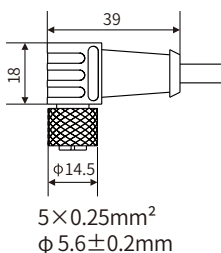
5-pin M12 female connector
Order No.: 521801-2/3/5/10/15



Conductor: 5-pin,
brown/white/blue/black/gray
Sheath color: Black
Shielding layer: tinned copper woven mesh
Sheath material: PUR
Temperature: (-40~80°C)
Line length: 2m/3m/5m/10m/15m



5-pin M12 right angle female connector
Order No.: 521804-2/3/5/10/15



Conductor: 5-pin,
brown/white/blue/black/gray
Sheath color: Black
Shielding layer: tinned copper woven mesh
Sheath material: PUR
Temperature: (-40~80°C)
Line length: 2m/3m/5m/10m/15m



MH Analog Special Cable (M)
Order No.: 511806

$3\text{C} \times 0.5\text{SQ}$
 $\phi 5.5 \pm 0.2\text{mm}$

Conductor: 3-pin, brown/white/green
Sheath color: grey
Shielding layer: tinned copper woven mesh
Sheath material: 105°C polyvinyl chloride (PVC)
Temperature: (-40~105°C)



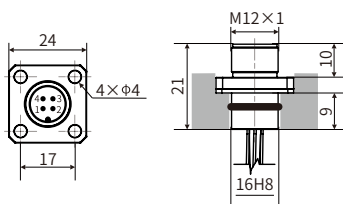
PUR Black Cable
Order No.: 511809

$5 \times 0.25\text{mm}^2$
 $\phi 5.6 \pm 0.2\text{mm}$

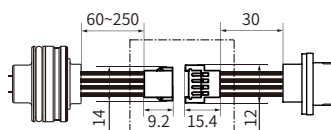
Conductor: 5-pin,
brown/white/blue/black/gray
Sheath color: Black
Shielding layer: tinned copper woven mesh
Sheath material: PUR
Temperature: (-40~80°C)



MH 4-pin wire socket
Order No.: 600000



MH adapter harness
Order No.: 522007



When the Cylinder threading hole is less than 16H8, This harness switching can be used, Plastic shell thickness: 2.8 mm