

# Magnetostrictive Displacement Sensors Operating Manual

E Series  
ES Structure  
Analog/Modbus interface

 **400-809-1101**  
Customer Service Hotline



## ■ Use Regulations

Magnetostrictive displacement sensor is used to detect the displacement of motion mechanism. According to the selection regulations, the magnet ring (block) matched with magnetostrictive displacement detection electronic components is selected for detection applications in different occasions. Please ensure that the cable, connector, magnet ring (block) and sensor body are the original parts of the manufacturer when using. Please do not open the shell of the sensor without authorization, so as not to affect the normal warranty period of the product.

## ■ Safety matters

Please read the operating manual carefully before powering up the sensor. Firstly, confirm the outgoing mode and pin signal definition, and make correct electrical connection to prevent power-on from damaging the sensor or causing misoperation of the equipment.

During the construction and use of the sensor, the current of high-power equipment such as welding machine should be avoided from entering the working circuit of the sensor.

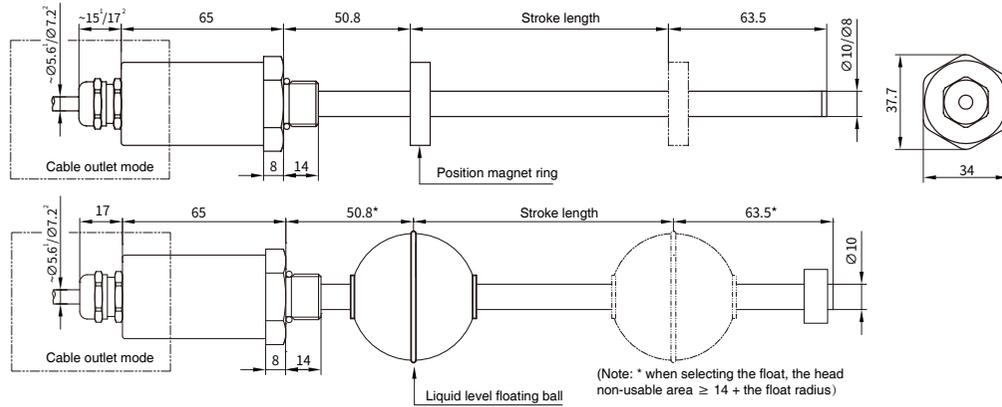
If you find abnormal sensor data or obvious changes in appearance (such as bumping deformation), please stop using it immediately, and contact the manufacturer to confirm the current state of the sensor before continuing to use it.

## ■ Status indication/fault analysis

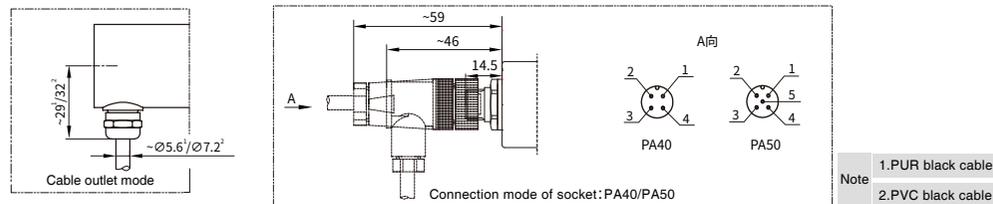
ES structure magnetostrictive displacement sensor has no LED lamp for status indication.

## ■ Installation Dimensions

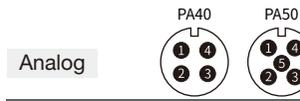
### Dimensions of cable outlet



### Outline dimensions of connector outlet



## ■ Electric interface

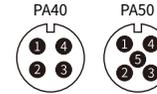


### Analog

#### • PA40/PA50 pin arrangement - 2-wire system (Sensor Oriented)

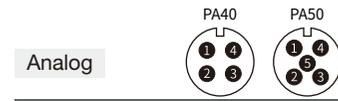
Pin	Cable color 1*	Cable color 2/3*	Function definition
1	Brown	Red	+24Vdc±20% power supply
2	White	Black	GND (power supply circuit)
3	Blue	-	Do not connect
4	Black	-	Do not connect
5	Grey	-	Do not connect

### Modbus



#### • PA40/PA50 pin arrangement (Sensor Oriented)

Pin	Cable color 1*	Cable color 2*	Cable color 3*	Function definition
1	Brown	Red	Red	+24Vdc±20% power supply
2	White	Black	Black	GND (power supply circuit)
3	Blue	Yellow	Brown	T+ (A)
4	Black	White	Green	T- (B)
5	-	-	-	Do not connect



### Analog

#### • PA40/PA50 Pin Arrangement-Four Wire (Sensor Oriented)

Pin	Cable color 1*	Cable color 2*	Cable color 3*	Function definition
1	Brown	Red	Red	+24Vdc±20% power supply
2	White	Black	Black	GND (power supply circuit)
3	Blue	Blue	Brown	Magnet ring position signal +
4	Black	Green	Green	Magnet ring position signal -
5	-	-	-	Do not connect

Note: \* Cable color1: Cable PUR sheath, black,-40~80 C, end scattered  
\* Cable color2: Cable PUR sheath, orange,-20~90 C, end scattered  
\* Cable color3: Cable PVC sheath, black,-40~80 C, end scattered

## ■ Application environment

Magnetostrictive displacement sensor is a kind of magnetic measurement sensor. Make sure there is no strong magnetic field around the sensor, which may interfere with the data. The displacement output signal cable of magnetostrictive displacement sensor should be away from the power cable or large current or strong pulse interference source. Confirm the environmental parameters including temperature, vibration, etc., and ensure that the working conditions are within the nominal working parameters of the sensor.

## ■ Installation

The installation of magnetostrictive displacement sensor mainly includes sensor body, magnet and cable fixing.

The installing forms of the sensor body are: thread installing, clamp installing and matching fixing installing. Before installation, make sure that the packaging is in good condition, and the sensor body has no obvious bending and bumping. The sensor body should be assembled according to the specific installation form.

When installing magnets, please use matching magnetic insulation gaskets to ensure normal magnetic field circuit.

When installing plugs or cables, please connect them accurately according to the electrical interfaces in the instructions.

## ■ After-sales support

If the sensor malfunctions, please contact the after-sales department of the company in time. Do not attempt to repair it yourself.