米朗 MIRAN®

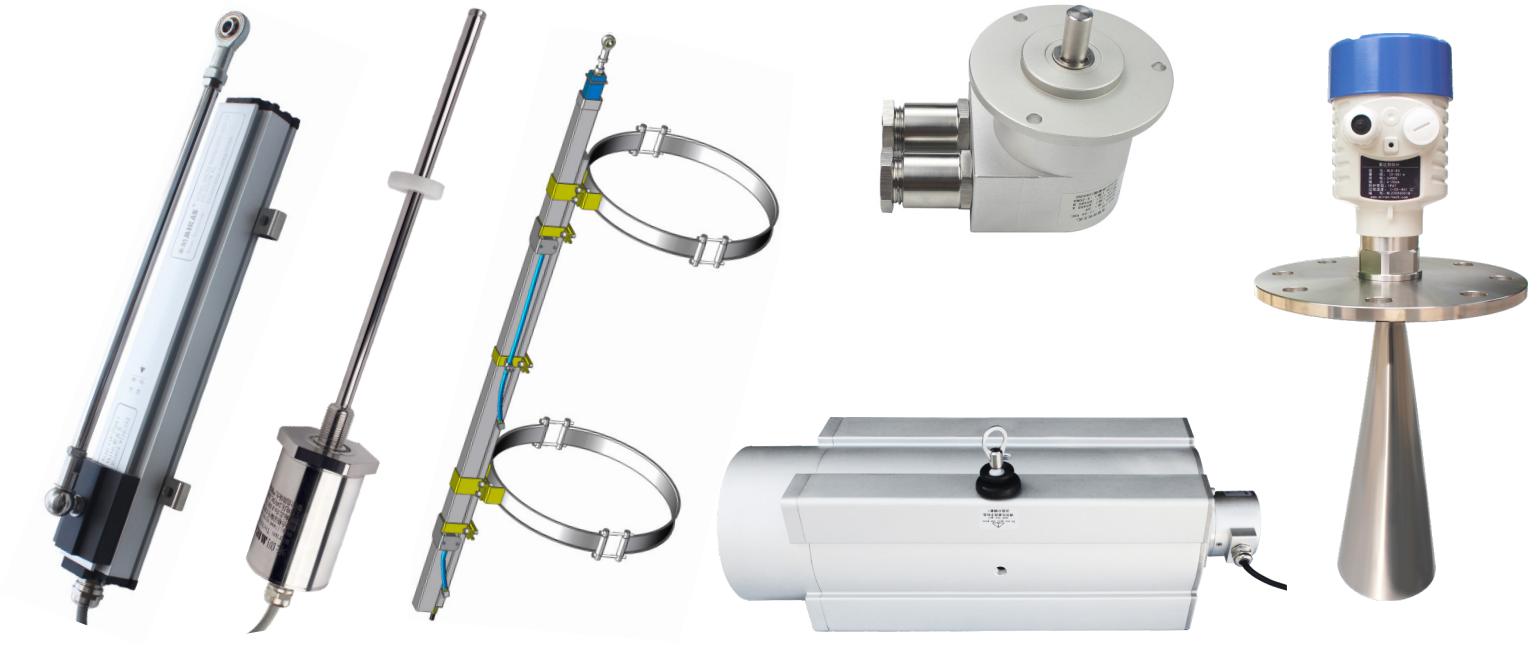
中国工信部高精度传感器一条龙应用计划示范项目

国家级专精特新“小巨人”企业，国家级高新技术企业

中国工业强基重点产品，中国工信部传感器一条龙应用计划示范企业

水利工程闸门位移传感器

Hydraulic engineering gate displacement sensor



水利工程闸门位移传感器系列

HYDRAULIC ENGINEERING GATE DISPLACEMENT SENSOR SERIES

- Demonstration project of one-stop application plan for high-precision sensors of Ministry of Industry and Information Technology of China
- National level specialized and special new "little giant" enterprise, national level high-tech enterprise
- Key products of strong industrial base in China, demonstration enterprise of sensor one-stop application plan of Ministry of Industry and Information Technology of China

目录
CATALOGS

一、MKD闸门开度(霍尔磁栅)位移传感器 ····· 03
MKD gate opening (hall magnetic grid)
displacement sensor

二、闸门开度(磁致伸缩)位移传感器 ····· 13
Gate opening (magnetostrictive)
displacement sensor

三、MTL3闸门开度内置高压式(磁致伸缩)位移传感器 ····· 18
MTL3 gate opening with built-in high-pressure (magnetostrictive)
displacement sensor

四、MKDM闸门开度滑块式(磁致伸缩)位移传感器 ····· 22
MKDM gate opening slider type (magnetostrictive)
displacement sensor

五、MR1闸门开度不锈钢软缆式(磁致伸缩)位移传感器 ····· 24
MR1 gate opening stainless steel flexible cable (magnetostrictive)
displacement sensor

六、MKDC闸门开度外置拉杆式(磁致伸缩)位移传感器 ····· 26
MKDC gate opening external tie rod (magnetostrictive)
displacement sensor

七、WOA-D2闸门开度(双输出磁感应)多圈编码器 ····· 28
WOA-D2 gate opening (dual output magnetic induction)
multiturn encoder

八、重载型防水拉绳位移传感器 ····· 31
Heavy duty waterproof rope displacement sensor

九、MLD系列高频雷达式物位计 ····· 40
MLD series high-frequency radar level meter

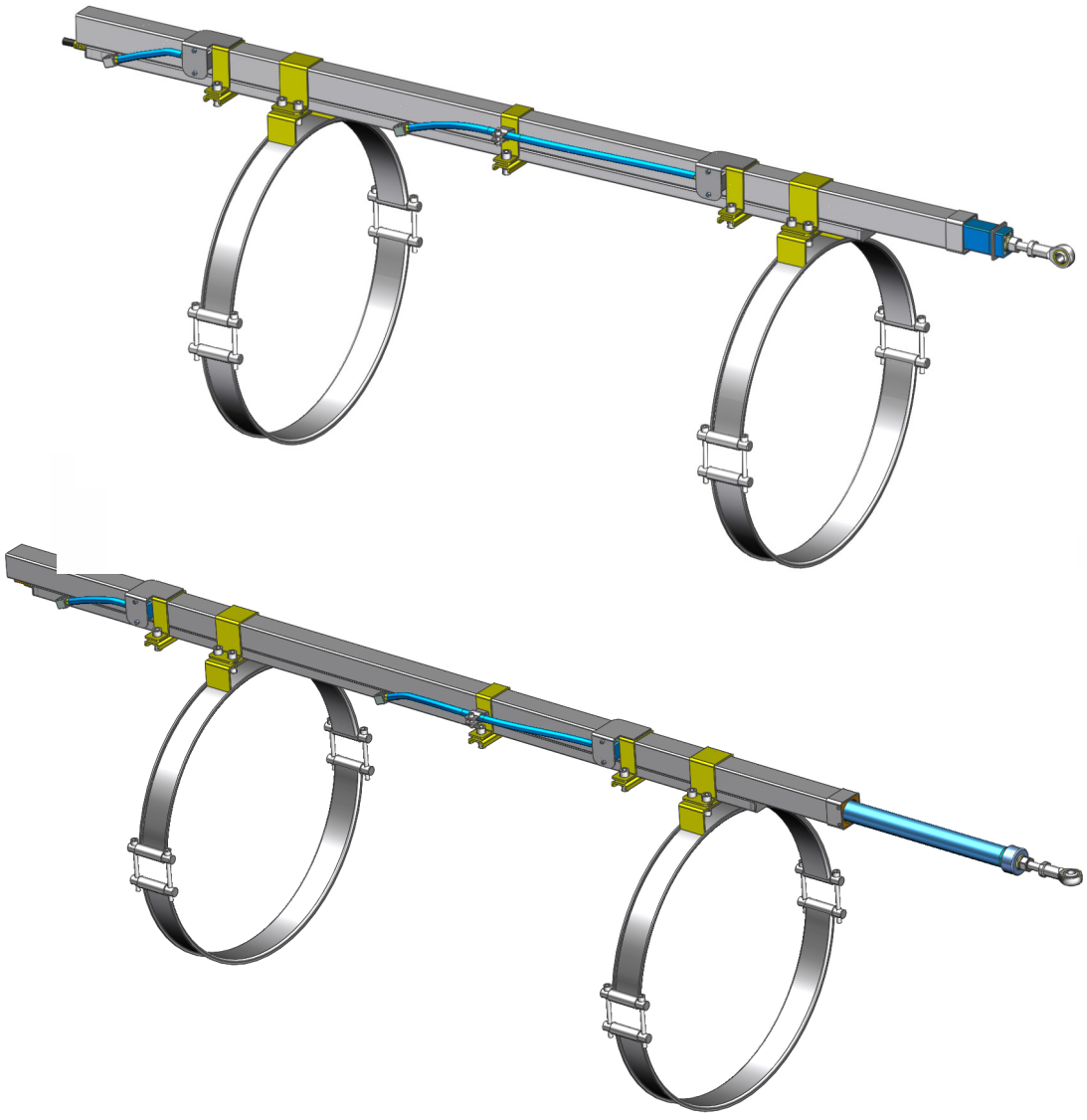
十、应用领域 ····· 46
Areas of application

十一、荣誉证书 ····· 47
Certificate of honor

MKD闸门开度(霍尔磁栅)位移传感器

MKD gate opening (hall magnetic grid) displacement sensor

产品实物图Product Picture



产品概述Product Overview

MKD闸门开度(霍尔磁栅)位移传感器是米朗科技闸门开度仪系列产品的品种之一,闸门开度(霍尔磁栅)位移传感器为外置式安装,该传感器主要由霍尔传感器、测量杆构成。霍尔传感器长1300mm,配有导向套管,电缆由后部引出,导向套管利用抱箍式安装座固定安装在油缸上;测量杆装在导向套管内,其长度略大于测量行程,测量杆前部有万向关节轴承与安装

在油缸前端吊耳上的测量杆连接抱箍连接，随着油缸伸缩运动，测量杆也对应在导向套管内伸缩移动，霍尔传感器感应到闸门开度信号。按照水利工程惯例，当活塞杆完全伸出时，开度为“0”毫米，活塞杆完全缩进时，开度为最大。

MKD gate opening (hall magnetic encoder) displacement sensor is one of the varieties of miran technology's gate opening meter series products. The gate opening (hall magnetic encoder) displacement sensor is externally mounted, which is mainly composed of a hall sensor and a measuring rod. Hall sensor length of 1300mm, equipped with guiding sleeve, cable lead from the rear, the guiding sleeve using the hoop mounting fixed installation in the cylinder; measuring rod installed in the guiding sleeve, its length is slightly longer than the measurement stroke, measuring rod front universal joint bearings and mounted in the front of the cylinder lugs on the measurement of the rod connecting the hoop connection, with the cylinder expansion and contraction movement, the measurement of the rod is also corresponds to the expansion and contraction of the guiding sleeve to move! The Hall sensor senses the gate opening signal. In accordance with water conservancy engineering practice, when the piston rod is fully extended, the opening is "0" millimeters, the piston rod is fully retracted, the opening is the maximum.

产品特点Product Features

1.绝对值输出
1.absolute value output

2.多种信号输出可供选择
2.multiple signal outputs available

3.抗恶劣环境，耐腐蚀性强
3.resistant to harsh environments and corrosion

4.适用于振动，运动的工作环境
4.suitable for vibrating, moving work environments

5.高度防水密封，防护等级IP68
5.highly waterproof sealing, protection class IP68

6.防极性选择，防雷击，抗干扰能力强
6.anti-polarity selection, lightning strike protection, anti-interference capability

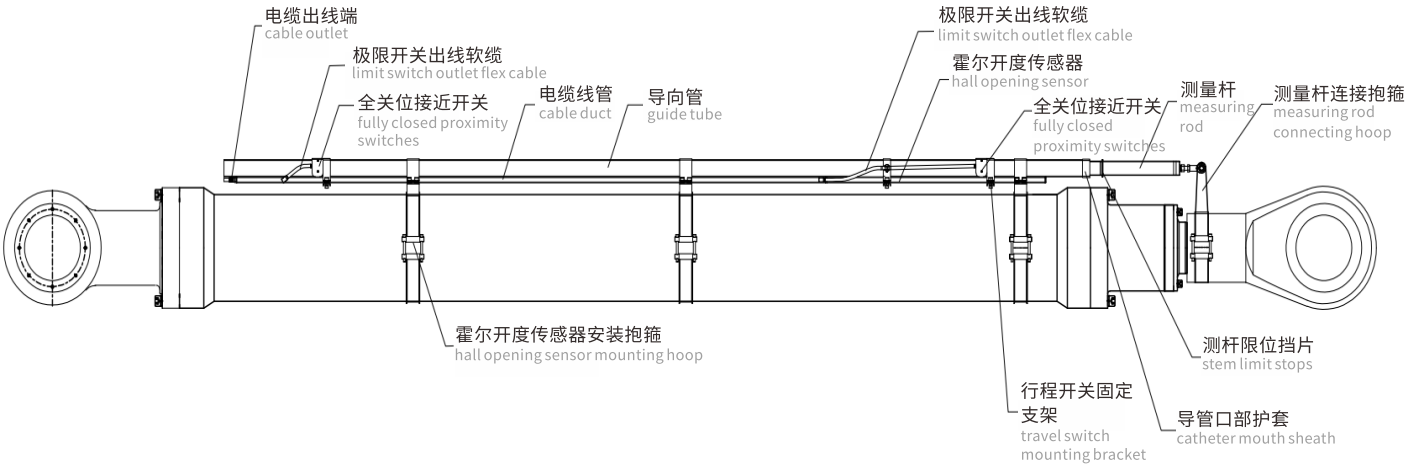
7.适合用于水利行业各类闸门开度，油缸位移测量
7.suitable for water conservancy industry all kinds of gate opening, cylinder displacement measurement

性能参数Performance Parameters

性能指标Performance indicators

MKD闸门开度(霍尔磁栅)位移传感器 MKD Gate Opening (Hall Magnetic Grid) Displacement Sensor			
工作量程 Operating range	0-15000mm	分辨率 Resolution	1mm
全程线性度 Full linearity	≤0.01%FS	重复性精度 Repeatability accuracy	≤0.01%FS
极性保护 Polarization protection	≤-30Vdc	工作电流 Operating current	≤50mA
绝缘保护 Dielectric protection	DC500V(外壳接地) DC 500V (chassis grounded)	超压保护 Overpressure protection	≤36Vdc
储存温度 Storage temperature	-45°C~90°C	工作温度 Operating temperature	-30°C~85°C
防护等级 Protection class	IP68	抗震动 Anti-vibration	10Hz to 2000Hz, 5g
安装方向 Mounting direction	垂直, 倾斜, 水平 vertical, inclined, horizontal		
防腐蚀 Corrosion protection	盐雾测试24H, 6级 salt spray test 24H, grade 6		
防雷击 Lightning protection	有(GB/T 17626.5-2019) have (GB/T 17626.5-2019)		
防静电 Antistatic	有(GB/T 17626.2) have (GB/T 17626.2)		
防浪涌 Surge protection	有(GB/T 17626.5-2019) have (GB/T 17626.5-2019)		
安装方式 Installation	抱箍安装(尺寸可定制) hoop mounting (sizes can be customized)		
供电电源 Power supply	DC24V开关电源, ≤100mA DC24V switching power supply, ≤100mA		
输出形式 Output form	4-20mA, RS485, SSI 串行同步数字信号 4-20mA,RS485,SSI serial synchronous digital signal		
材质 Material	304L不锈钢(淡水)/316L不锈钢(海水) stainless steel 304L (freshwater) / stainless steel 316L (seawater)		
电器接头 Electrical connector	防水接头直出线, 电缆标准长度10M(长度可定制) waterproof connector straight out line, cable standard length 10M (length can be customized)		

安装示意图Installation Diagram



产品型号选型Product Model Selection

MKD - H4050 / □□□□ mm - □ / □ - □ - □

MKD — 闸门开度(霍尔磁栅)位移传感器
gate opening (hall grid) displacement sensor

H4050 — 尺寸及量程范围:
size and range:
H4050/0-3000MM;
H4060/3000MM-5000MM;
H4070/5000MM-8000MM;
H5080/8000MM-10000MM;
H5090/10000MM-15000MM;

□□□□ — 有效量程:
effective range:
0-15000mm

□ — N:拉杆拉出数据从小到大
N: pull the lever to pull out the data from small to big
S:拉杆拉出数据从大到小
S: pull the lever to pull out the data from big to small

□ — 信号类型:
signal type:
A:4-20mA电流输出
A: 4-20mA current output
R:RS485输出
R: RS485 output
S:SSI输出
S: SSI output

□ — Y:圆管
Y: round tube
F:方管
F: square tube

□ — 电源线长(可定制)
power cord length (customizable)

例如Example:

MKD-H4050/1000mm-N/A-Y-10: 表示MKD闸门开度(霍尔磁栅)位移传感器,量程1000mm,拉杆拉出数据从小到大,4-20mA电流输出,拉杆为圆管,电源线长10米。

MKD-H4050/1000mm-N/A-Y-10: indicates that MKD gate opening (hall magnetic grid) displacement sensor, range 1000mm, lever pull out data from small to large, 4-20mA current output, lever for the round tube, power cord length 10 meters.

产品调试Product Debugging

1.在PLC设置好后，传感器即可投入使用，闸门全关状态时传感器一般会有初始数值显示，此时通过PLC清零即可，传感器设计时测量行程会留有余量，但初始数值如果过多，清零的数值可能会大于余量，传感器就会无法测量至设计行程，如在闸门全开后，发现无法测量至全行程，则需对测量杆或套管进行调整，减少无效测量行程，使传感器能够达到设计行程；如闸门全关状态时无初始数值，且闸门开启一段时间后才开始读取到数据，说明在全关时霍尔传感器处于盲区位置，此时应全关闸门，按上面“产品安装”第6项方法，以零点标记线作参考，调整测量杆或导向套管位置，使标记线略进管口，或根据PLC上实际开度显示，调整至开度数据在100mm以内，然后在PLC上清零。注意，首次启门时，需全程观察测量杆运行状态，如与导向套管不在一条直线上，或有其它异常发生，应立刻停机检查、调整。

1. In the PLC set up, the sensor can be put into use, the gate is fully closed when the sensor will generally have the initial value of the display, at this time through the PLC can be cleared to zero, the sensor is designed to measure the stroke will leave a margin, but if the initial value is too much, the value of the zero may be greater than the margin, the sensor will not be able to measure the design stroke, such as in the gate is fully open, found that it is not possible to measure the full stroke, you need to be adjusted on the Measuring rod or casing to adjust, reduce the invalid measurement stroke, so that the sensor can reach the design stroke; such as the gate fully closed state without initial value, and the gate opens a period of time before starting to read the data, that is, the Hall sensor is in a blind position in the fully closed, at this time should be fully closed gate, according to the above "Product Installation", the sixth method In this case, the gate should be fully closed, and then according to the method in item 6 of "Product Installation" above, take the zero marking line as reference, adjust the position of the measuring rod or guiding casing, so that the marking line is slightly into the mouth of the pipe, or according to the actual display of openness on the PLC, adjust the openness data to within 100mm, and then clear the zero on the PLC. Note that when the door is opened for the first time, it is necessary to observe the running status of the measuring rod throughout the whole process. If it is not in a straight line with the guiding casing or there are other abnormalities, it should be stopped immediately for inspection and adjustment.

2.如在安装调试中有松动或更换霍尔传感器时，还原时一定要将霍尔传感器感应面（管体有标识）朝向导向套管；如有抽出测量杆，还原时应将感应面（有多段磁性的一面），朝向霍尔传感器。

2. If the hall sensor is loosened or replaced during installation and commissioning, the hall sensor inductive side (marked on the tube) must be oriented towards the guide sleeve when restoring; if the measuring rod is withdrawn, the inductive side (the side with multiple magnetic segments) should be oriented towards the Hall sensor when restoring.

安装注意事项Installation Precautions

1.安装前先对照装配图查看实物，熟悉各安装件名称、安装位置和安装要点，再参照图纸和安装说明进行安装。以下安装步骤为常规步骤，由于现场环境各不相同，可根据实际情况灵活调整安装步骤及方法。

1. Before installation, check the object against the assembly drawing, familiarize yourself with the name of each installation part, installation position and installation points, and then refer to the drawings and installation instructions for installation. The following installation steps are conventional steps, due to the site environment is different, according to the actual situation can be flexibly adjusted installation steps and methods.

2.如条件具备，可将闸门启闭至合适位置，以便安装，一般闸门全开为最佳安装位置。按安装图纸标注位置，将测量杆连接支架焊接于活塞杆吊耳上，导向套管安装抱箍安装于油缸上，根据实际情况，抱箍安装位置可不必严格按图纸标示位置安装，以分布、受力均匀，安装方便为准，但导向套管与油缸相对的位置不可改变，否则会造成闸门全关时传感器处于读取盲区，或传感器读取行程过多，清零后无法达到设计测量行程。

2. If the conditions are available, the gate can be opened and closed to a suitable position for installation, generally the gate is fully open for the best installation position. According to the installation drawings marked position, the measuring rod connecting bracket welded to the piston rod lugs, guide casing installation hoop installed on the cylinder, according to the actual situation, hoop installation position can not be strictly according to the drawings marked position installation, distribution, force uniformity, installation convenience shall prevail, but the guide casing and the cylinder relative position can not be changed, otherwise it will result

in the gate closed sensor in the reading of the blind zone, or sensor The reading stroke is too much, and the design measurement stroke cannot be reached after zeroing.

3.根据现场实际情况选择安装操作步骤，安装时，可先将导向套管与抱箍装配好（用导向套管箍将导向套管和抱箍装配）后，再将两者一起吊装至油缸上，也可先在油缸上安装好抱箍，将套管吊放至油缸，再与抱箍装配，一般选择先装配好，再吊装。抱箍安装、吊装时，应将开口朝向便于安装固定的一面。抱箍位置未确定前可将螺丝先不要拧紧，待将导向套管调整至处于油缸正上方，且在一条直线上后，再固定螺丝。

3. According to the actual situation of the site to choose the installation procedure, installation, can first guide casing and hoop assembly (with guide casing hoop guide casing and hoop assembly), and then both together with lifting to the cylinder, can also be installed on the cylinder hoop, casing lifting to the cylinder, and then with the hoop assembly, the general choice of the first assembly, and then lifting. When installing and lifting the hoop, the opening should be oriented to the side that is easy to install and fix. Before the position of the hoop is not determined, do not tighten the screws, and then fix the screws after adjusting the guiding casing to be directly above the cylinder and in a straight line.

4.安装注意事项：(1) 测量杆上印有”工作面“标识，且有多段磁性的一面为工作面（金属可吸附），如将测量杆抽出，还原时一定要将感应面朝向霍尔传感器；(2) 因不锈钢管较光滑，吊装时绳索一定要固定牢固，防止脱落。

4. Installation notes: (1)the measuring rod is printed on the "working surface" logo, and there are multiple sections of magnetic side of the working surface (metal can be adsorbed), such as the measuring rod will be withdrawn, when restoring the inductive surface must be directed towards the hall sensor; (2)due to the smooth stainless steel tube, the rope must be firmly fixed when lifting to prevent the fall off. Prevent it from falling off.

5.固定好导向套管后，将测量杆移至闸门吊耳处，测量杆上关节轴承与吊耳上抱箍支架连接；
注意：测量杆连接抱箍必须与导向套管成直线。

5. After fixing the guiding casing, move the measuring rod to the gate lugs, and connect the joint bearing on the measuring rod with the hoop bracket on the lugs; Note: The connecting hoop of the measuring rod must be in a straight line with the guiding casing.

6.如安装时闸门处于全开或全关状态，连接测量杆时可查看测量杆上的“满量程标记线”（全开

安装时查看）或“零点标记线”（全关安装时查看）是否在管口，标记线可略进入管内（一般进管内20mm以内即可，不可过多，以防行程不够），但不可露出，如标记线露出管口，应调整测量杆或导向套管，使其不在管口之外，（在空间宽裕的前提下，调整测量杆连接抱箍最简单），此操作为防止全关时测量杆处于霍尔传感器检测盲区位置；如安装时闸门不处于全开或全关状态，请按图纸标注位置安装，导向套管与油缸安装座对齐，见安装图），抱箍位置可根据情况适当调整。

6. If the gate is fully open or fully closed during installation, when connecting the measuring rod, you can check whether the "full scale marking line" (when installing fully open) or "zero marking line" (when installing fully closed) on the measuring rod is in the pipe opening, the marking line can slightly enter the pipe (generally within 20mm into the pipe, not too much, in case of insufficient travel), but not exposed, if the marking line is exposed to the pipe opening, you should adjust the rod or guide sleeve so that it is not outside the pipe opening. The marking line can be slightly into the tube (generally within 20mm into the tube, not too much, in case of insufficient travel), but not exposed, such as the marking line is exposed to the mouth of the tube, you should adjust the measuring rod or guiding sleeve, so that it is not outside the mouth of the tube, (in the case of space under the premise of adjusting the measuring rod connected to the hoop is the simplest), the operation is to prevent the measurement of the rod is in the blind spot of the Hall sensor detection position in the full-closed; such as installation of the gate is not in the full-open or full-closed state If the gate is not fully open or fully closed when installing, please install it according to the position marked on the drawing, and the guide sleeve is aligned with the cylinder mounting base, see the installation drawing), and the position of the hoop can be adjusted appropriately according to the situation.

7.在合适位置安装接线盒，以安装、接线方便，有效防护为准。霍尔传感器、接近开关电缆穿管走线，接入接线盒（接线盒内端子自行定义），再连接至电控柜。

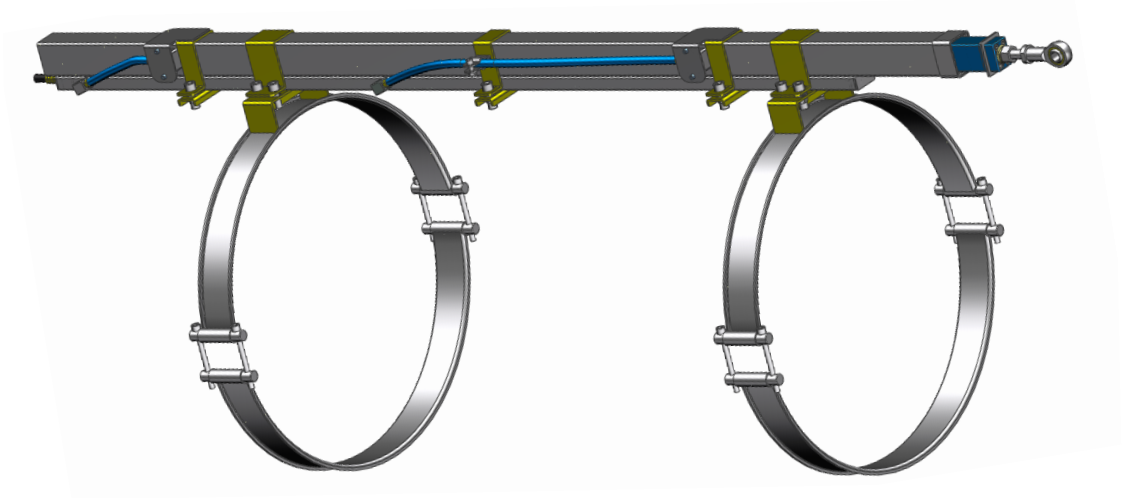
7. Install the junction box in a suitable location for easy installation and wiring, subject to effective protection. Hall sensor, proximity switch cable through the pipe line, access to the junction box (terminal in the junction box defined), and then connected to the electronic control cabinet.

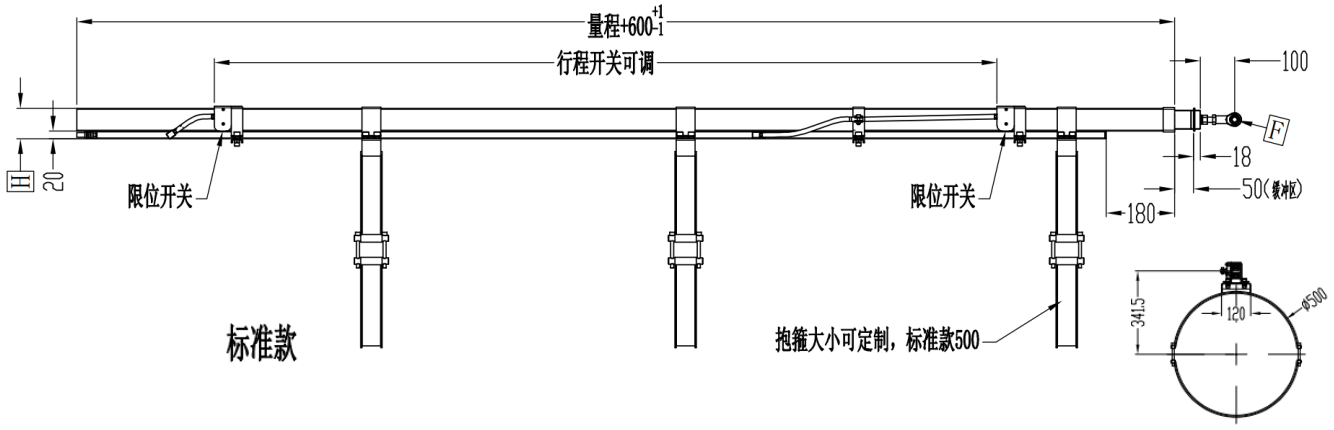
8.按照安装说明接线，将电缆线接至电控柜内对应端子。

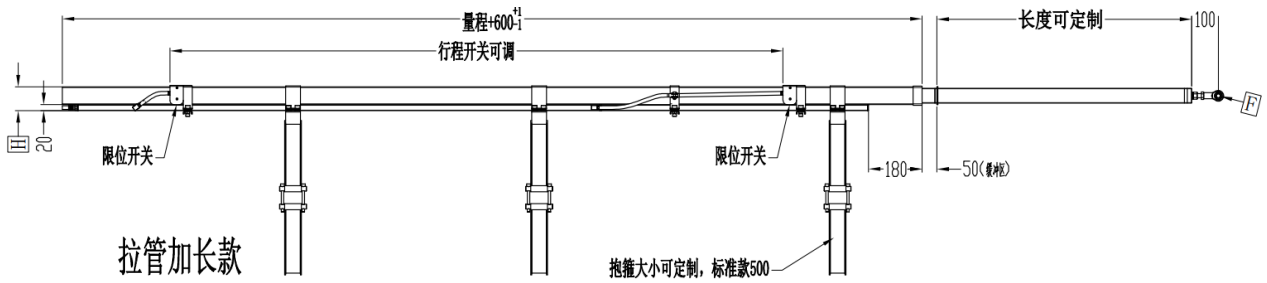
8. Connect the cable to the corresponding terminal in the electric control cabinet according to the installation instructions.

安装尺寸Mounting Dimensions

方形拉杆式霍尔磁栅位移传感器
square tie rod hall grid displacement sensors





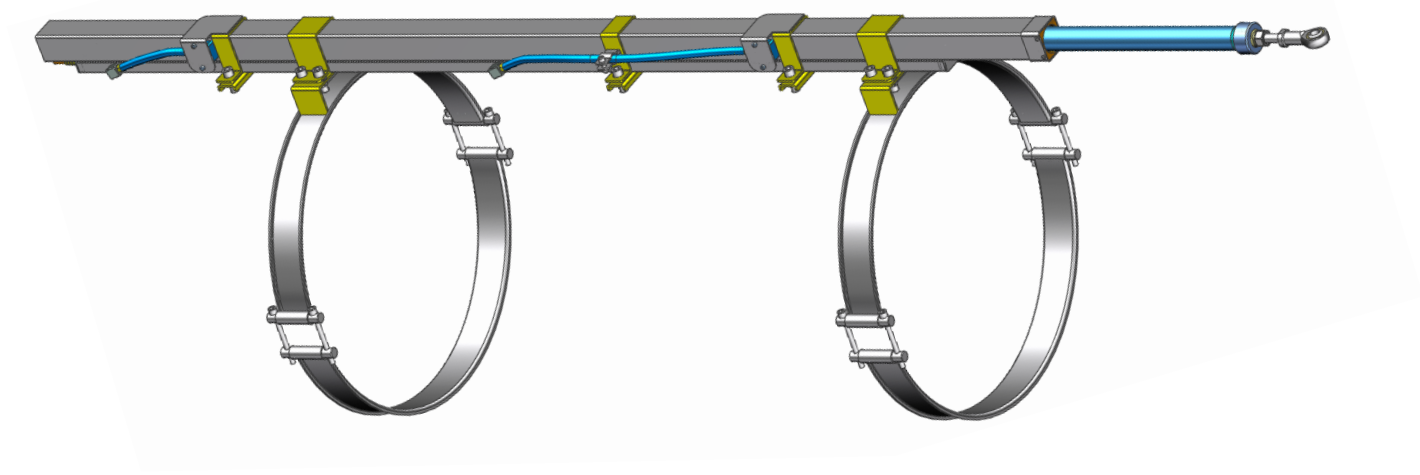


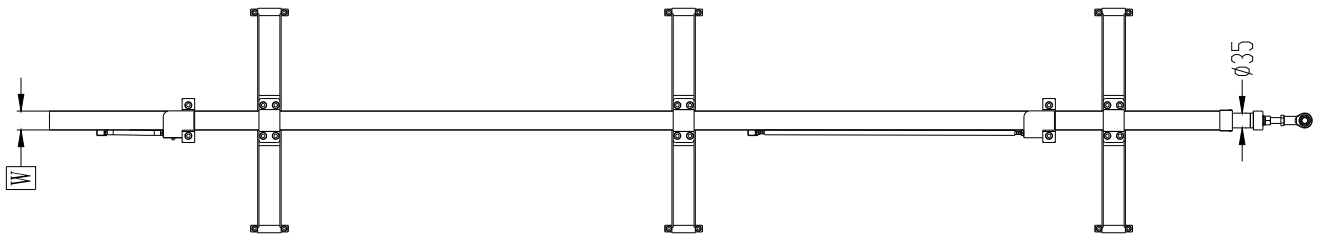
闸门开度(霍尔磁栅)位移传感器成套清单(单条油缸)： list of gate opening (hall magnetic grid) displacement sensor sets (single cylinder)	
霍尔传感器 hall sensors	测量杆 measuring rod
导向套管 guide sleeves	导向套管箍 guide tube hoop
导向套管安装抱箍 guide casing installation hoop	测量杆连接支架 measuring rod attachment bracket
磁性接近开关 magnetic proximity switches	接线盒 junction boxes

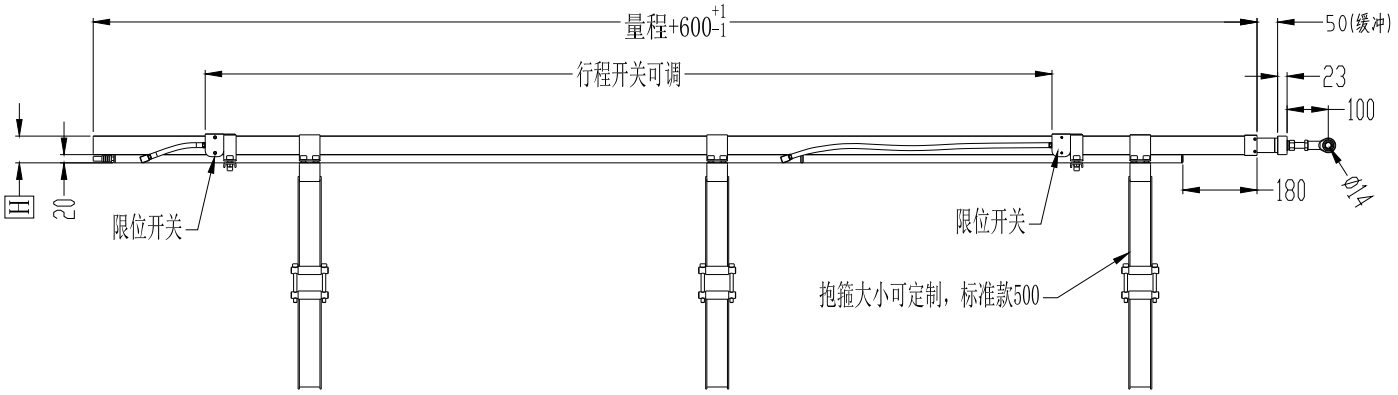
量程range/mm	H/mm	W/mm	F/mm
1-3000	70	40	∅14
1-4000	80	40	∅14
1-6000	90	40	∅14
1-8000	100	50	∅18
1-10000	110	50	∅18

安装尺寸Mounting Dimensions

圆形拉杆式霍尔磁栅位移传感器
circular tie-bar hall grid displacement sensors







量程range/mm	H/mm	W/mm
1-3000	65	45
1-6000	75	55

闸门开度(磁致伸缩)位移传感器

Gate opening (magnetostrictive) displacement sensor

产品概述Product Overview

在铁磁质中磁化方向的改变会引起介质晶格间距的改变，从而使得铁磁质的长度和体积发生改变，即：磁致伸缩现象，也称为威德曼效应，其逆效应称为维拉里效应。

磁致伸缩传感器的原理是利用两个不同磁场相交时产生一个应变脉冲信号，然后计算这个信号被探测所需的时间周期，从而换算出准确的位置。这两个磁场一个来自磁环中的永磁铁，另一个来自传感器电子仓中的电子部件产生的激励脉冲。激励脉冲沿传感器内用磁致伸缩材料制造的波导丝以声速运行。当与磁环中的永磁场相交时，由于磁致伸缩现象，波导丝产生的机械振动形成一个应变脉冲。应变脉冲很快便被电子仓中的感测电路探测到。从产生激励脉冲的一刻到应变脉冲被探测到总的时间乘以固定的声速，我们便能准确的计算出磁铁的位置变化。这个过程是连续不断的，所以每当磁环位置改变时，新的位置会被迅速测量出来。由于输出信号是真正的绝对值，而不是比例的或需要再放大处理的信号，所以不存在信号漂移或变值的情况，更不必像其他传感器那样需要定期重标。

磁致伸缩传感器为非接触式，永不磨损。具有高分辨率、高精度、高稳定性、高可靠性、响应时间快、工作寿命长等优点。传感器不用重新标定，也不用定期维护。

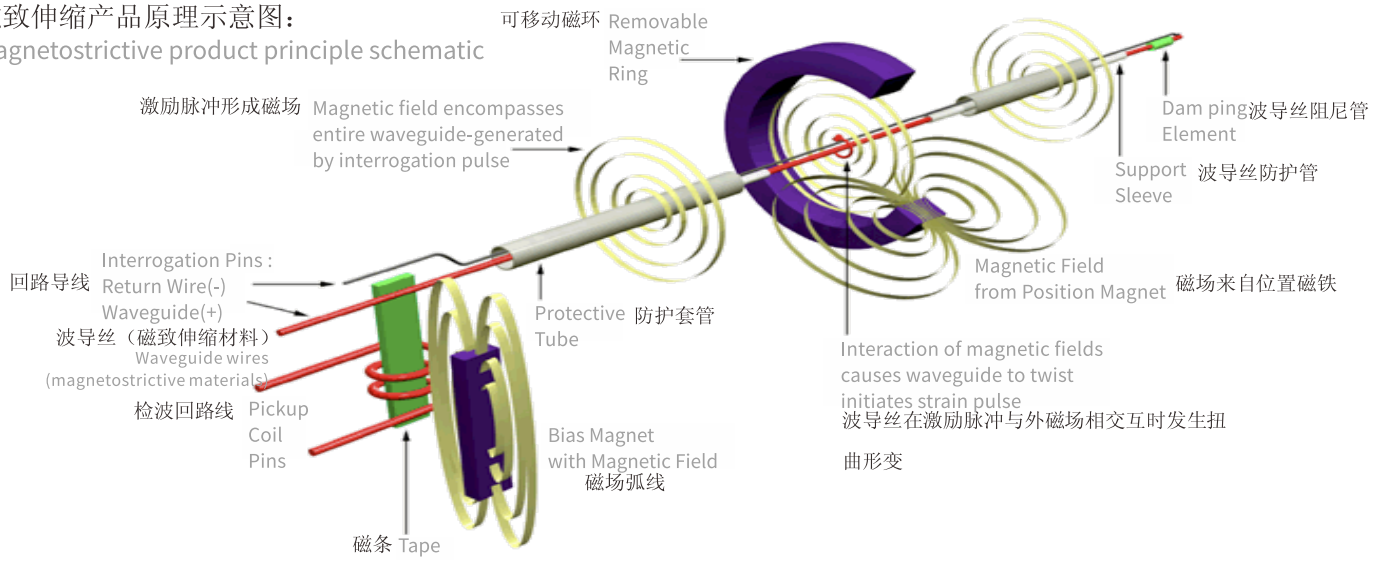
A change in the direction of magnetization in a ferromagnetic mass causes a change in the lattice spacing of the medium, which results in a change in the length and volume of the ferromagnetic mass, i.e., the phenomenon of magnetostriction, also known as the wiedemann effect, and its inverse effect, known as the Villari effect.

The principle of a magnetostrictive sensor is to use the intersection of two different magnetic fields to generate a strain pulse signal, and then calculate the time period required for this signal to be detected, thus converting the exact position. One of these

two magnetic fields comes from a permanent magnet in a magnetic ring and the other comes from an excitation pulse generated by the electronics in the sensor's electronic compartment. The excitation pulse runs at the speed of sound along a waveguide filament made of magnetostrictive material inside the sensor. When it intersects the permanent magnetic field in the magnetic ring, a strain pulse is created by the mechanical vibration of the waveguide wire due to the magnetostrictive phenomenon. The strain pulse is quickly detected by the sensing circuitry in the electronic compartment. The total time from the moment the excitation pulse is generated until the strain pulse is detected is multiplied by the fixed speed of sound, and we can accurately calculate the change in position of the magnet. This process is continuous, so that whenever the position of the magnet ring changes, the new position is quickly measured. Since the output signal is a true absolute value, not a proportional one or one that needs to be re-amplified and processed, there is no signal drift or change in value, not to mention the need for periodic re-calibration, as is the case with other sensors.

Magnetostrictive sensors are non-contact and never wear out. It has the advantages of high resolution, high accuracy, high stability, high reliability, fast response time and long working life. The sensors do not need to be recalibrated or regularly maintained.

磁致伸缩产品原理示意图：
Magnetostrictive product principle schematic



安装事项 Installation

安装前注意事项：
Pre-installation notes:

认真阅读全部安装说明，防止安装的环境温度、冲击、振动、压力及尺寸超出传感器的允许范围；不可使测杆弯曲；切勿使传感器的电子部件端或最末端承受大的冲击；用户应对产品的使用环境、防腐蚀、防爆及功能选择负责，无特殊要求的传感器不可用于有化学反应或其它对传感器有损害的易燃、易爆、腐蚀、蒸气和液体等场合；安装完毕，应对电子仓进行保护处理。

Carefully read all the installation instructions to prevent the installation of the ambient temperature, shock, vibration, pressure and size beyond the permissible range of the sensor; do not make the rod bending; do not make the sensor electronic components end or the most end of the big impact; the user should be responsible for the use of the product's environment, corrosion, explosion-proof and functional selection, no special requirements of the sensor can not be used for chemical reactions or other sensor damage to the flammable, explosive, corrosive, vapors and liquids and other occasions; installation is complete, the electronic warehouse should be protected.

传感器接线前注意事项：
Precautions before wiring the sensor：

1.传感器的屏蔽电缆线必须避开大功率电源，射频信号源和其它有噪声的传输线等。

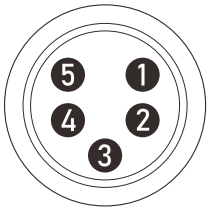
1. the sensor's shielded cable line must avoid high-power power supplies, radio frequency signal sources and other noisy transmission lines.

2.用户在接线前，请检查供电电源是否满足：+24VDC的要求，并且电源输出功率必须大于产品总功耗，按不同量程每支传感器≤65mA计算。如果电源不能满足要求，请更换供电电源以保证传感器能够正常工作。

2.the user in the wiring, please check the power supply to meet: +24VDC requirements, and power output must be greater than the total power consumption of the product, according to the different ranges of each sensor ≤ 65mA calculation. If the power supply can not meet the requirements, please replace the power supply to ensure that the sensor can work properly.

接线定义Wiring Definitions

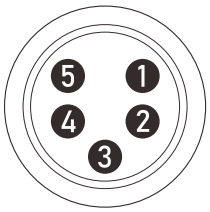
二线电流输出接线方式
2-wire current output wiring



公接头针号排列(面向传感器头)
Male connector pin number arrangement (facing the sensor head)

航空插头/防水接头接线图 Aviation plug/waterproof connector wiring diagram	针号 Gauge	颜色 Color	定义 Define
	1	棕 brown	电源正 power positive
	2		
	3	蓝 blue	信号输出+ signal output +
	4		
	5	屏蔽线 shield wire	壳体地 shell ground

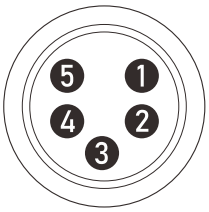
三线制/四线制模拟信号输出接线方式
3-wire/4-wire analog signal output wiring method



公接头针号排列(面向传感器头)
Male connector pin number arrangement (facing the sensor head)

航空插头/防水接头接线图 Aviation plug/waterproof connector wiring diagram	针号 Gauge	颜色 Color	定义 Define
	1	棕 brown	电源正 power positive
	2	黑 black	电源负 power negative
	3	蓝 blue	信号输出+ signal output +
	4	白 white	信号输出- signal output -
	5	屏蔽线 shield wire	壳体地 shell ground

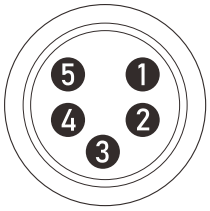
RS485信号输出接线方式
RS485 signal output wiring



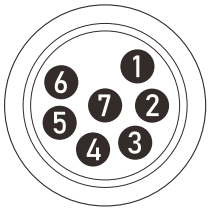
公接头针号排列(面向传感器头)
Male connector pin number arrangement (facing the sensor head)

航空插头/防水接头接线图 Aviation plug/waterproof connector wiring diagram	针号 Gauge	颜色 Color	定义 Define
	1	棕 brown	电源正 power positive
	2	黑 black	电源负 power negative
	3	蓝 blue	RS485A
	4	白 white	RS485B
	5	屏蔽线 shield wire	壳体地 shell ground

CAN open输出接线方式
CAN open output wiring

航空插头/防水接头接线图 Aviation plug/waterproof connector wiring diagram	针号 Gauge	颜色 Color	定义 Define
 公接头针号排列(面向传感器头) Male connector pin number arrangement (facing the sensor head)	1	棕 brown	电源正 power positive
	2	黑 black	电源负 power negative
	3	蓝 blue	CAN-H
	4	白 white	CAN-L
	5	屏蔽线 shield wire	接地 grounding

SSI信号输出接线方式
SSI signal output wiring

航空插头/防水接头接线图 Aviation plug/waterproof connector wiring diagram	针号 Gauge	颜色 Color	定义 Define
 公接头针号排列(面向传感器头) Male connector pin number arrangement (facing the sensor head)	1	棕 brown	电源正+(DC24V) power positive
	2	黑 black	电源负0V power negative
	3	蓝 blue	时钟正+C1k clock positive
	4	白 white	时钟负-C1k clock negative
	5	绿 green	数据正+Data data positive
	6	黄 yellow	数据负-Data data negative
	7	屏蔽线 shield wire	壳体地GND shell ground

注:以上仅为参考,具体接线定义以产品实物标签上的标注为准。

Note: The above is for reference only, the specific wiring definition is subject to the labeling on the product physical label.

MTL3闸门开度内置高压式(磁致伸缩)位移传感器

MTL3 gate opening with built-in high-pressure (magnetostrictive) displacement sensor

产品实物图Product Picture



MTL3-防爆型explosion-proof



MTL3-五金外壳型hardware housing type

产品型号选型Product Model Selection

MTL3 - □□□□ mm - □ / □ - □ - □

闸门开度内置高压式(磁致伸缩)位移传感器
gate opening with built-in high-pressure (magnetostrictive) displacement sensor

有效测量行程(0-12000mm)
effective measuring stroke (0-12000mm)

N:为磁环由电子仓向尾端移动数值变大
N: the value becomes larger as the magnet ring moves from the electronics compartment to the tail end
S:为磁环由电子仓向尾端移动数值变小
S: is the value of the magnetic ring moving from the electron compartment to the tail end becomes smaller

信号输出类型:
signal output type:
A: 4-20mA
A1:0-20mA
M:RS485/Modbus RTU
CO:CANopen
S:SSI

出线方式选型:
outlet type selection:
C:防水接头
C: waterproof connector
EX1:隔爆型(配防爆栓)
EX1: flame-proof type (with explosion-proof bolt)

电源线长
(默认10米,可定制)
power cord length (default 10 meters, can be customized)

例如Example:

MTL3-500mm-N/A-C-10: 表示MLT3闸门开度内置高压式(磁致伸缩)位移传感器,有效测量行程500mm,磁环由电子仓向尾端移动数值变大,4-20mA信号输出,防水接头出线,电源线长10米。

MTL3-500mm-N/A-C-10: indicates that MLT3 gate opening built-in high-pressure (magnetostrictive) displacement sensor, effective measurement stroke 500mm, the magnetic ring from the electronic compartment to the tail end of the movement of the value of the larger, 4-20mA signal output, waterproof connector out of the line, the power cord length of 10 meters.

1.接线错误(最常发生):按接线表重新接线。

1. Wiring error (the most common): according to the wiring table to rewire.

2.供电不对或反向连接,电源不稳定:提供正确稳定和纯净电源重接。

2. Incorrect power supply or reverse connection, unstable power supply: Provide correct, stable and pure power supply and reconnect.

3.不匹配零件,如配对接头错误:联系我们重订所需配件。

3. Mismatched parts, such as the wrong pair of connectors: contact us to reorder the required parts.

4.磁铁受到破坏(注意:磁铁本身为“永磁体”不会自我消磁):更换磁铁。

4. The magnet is damaged (note: the magnet itself is a "permanent magnet" will not demagnetize itself): replace the magnet.

5.信号不稳定,接地不对(如DC电路地线和机械外壳地线接在一起)。

5. Signal instability, grounding is not right (such as DC circuit ground and mechanical shell ground connected together).

6.通讯故障,请查看控制器厂家的相关资料或联系供应商。

6. Communication failure, please check the relevant information of the controller manufacturer or contact the supplier.

7.控制器失效:如果可能的话,用户应该把传感器与控制器分开,独立检查传感器是否工作正常。

7. Controller failure: If possible, the user should separate the sensor from the controller and independently check whether the sensor is working properly.

8.外来电子EMI噪音干扰(包括对电缆的干扰):请检查所选用电缆是否带屏蔽和符合要求。

8. External electronic EMI noise interference (including interference with the cable): Please check whether the selected cable is shielded and meet the requirements.

9.传感器受到外来破坏,如水淹、高温、电缆被切断又或受到猛烈的冲撞等事故(在一些环境恶劣如钢铁厂,木材厂等生产线上,这些事故可能经常发生,并不为奇):可寄回修理,但如果严重的话,可能需要重新订货。

9. The sensor is subject to external damage, such as flooding, high temperature, cable is cut or subject to violent impact and other accidents (in some harsh environments, such as steel mills, timber mills and other production lines, these accidents may be frequent and not surprising): can be sent back to the repair, but if the seriousness of the case, it may be necessary to re-order.

注:按上述方法故障排除不了,请送生产厂家检修。

Note: If you are unable to solve the problem by the above method, please send it to your healthcare provider for repair.

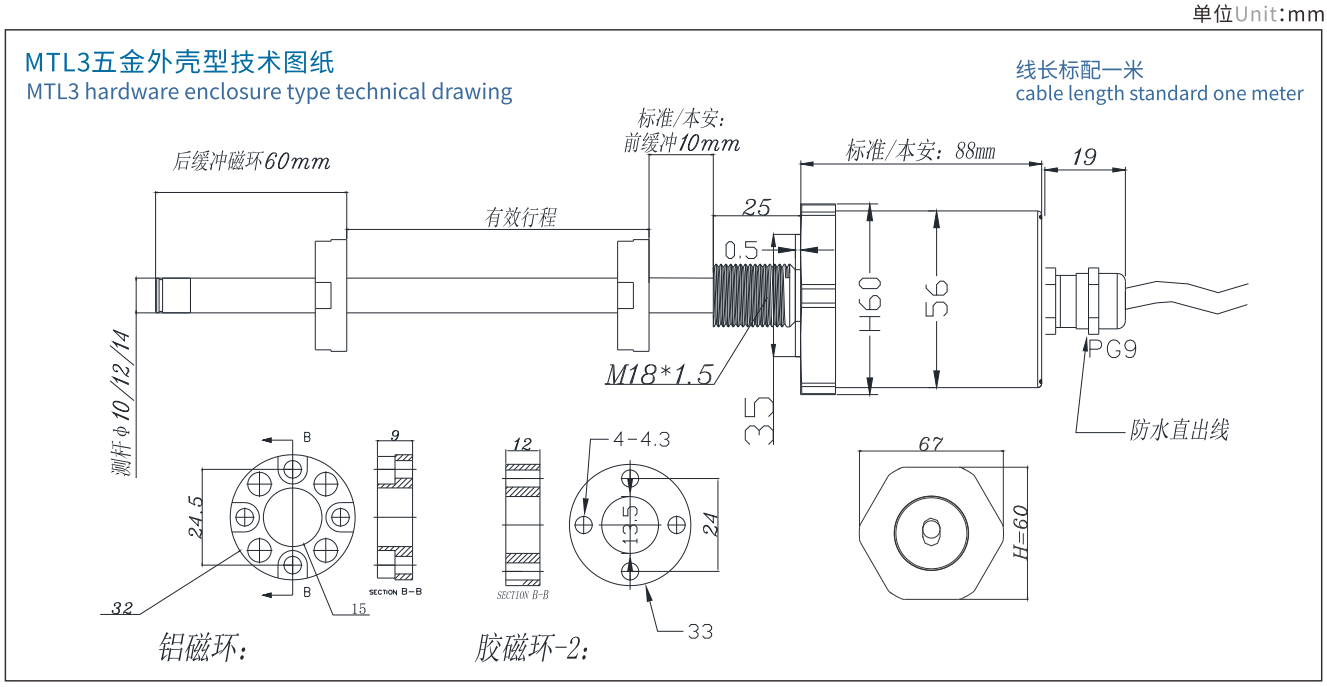
性能参数Performance Parameters

性能指标Performance indicators

MTL3闸门开度内置高压式(磁致伸缩)位移传感器 MTL3 high pressure (magnetostrictive) displacement sensor for gate openings			
分辨率 Resolution	≤0.05mm	工作量程 Operating range	0-15000mm
重复性精度 Repeatability accuracy	≤±0.005%FS	非线性误差 Nonlinear error	≤±0.05%FS
迟滞 Hysteresis	≤0.001%FS	供电 Electricity supply	DC24V
工作环境温度 Working environment temperature	-40°C～80°C	温度稳定性 Temperature stability	≤0.002%/°C
防雷击 Lightning protection	有have(GB/T 17626.5-2019)	防护等级 Protection class	IP68
防静电 Antistatic	有have(GB/T 17626.2)	防浪涌 Surge protection	有have(GB/T 17626.5-2019)
防腐蚀 Corrosion protection	盐雾测试24H,6级 Salt spray test 24H, grade 6	抗震动 Anti-vibration	10Hz to 2000Hz,5g
输出信号 Output signal	电流信号:4-20mA,0-20mA;数字信号:CANopen,SSI;RS485(MODBUS-RTU) current signal: 4-20mA, 0-20mA; digital signal: CANopen, SSI; RS485 (MODBUS-RTU)		
负载能力 Load capacity	电压信号输出负载≥4KΩ,电流信号输出负载≤500Ω voltage signal output load ≥ 4KΩ, current signal output load ≤ 500Ω		
材质 Material	SUS304不锈钢(默认)/SUS316不锈钢(定制) SUS304 stainless steel (default) /SUS316 stainless steel (customized)		
出线方式 Outlet	防水电缆接头出线,线长标配10米(线长可定制) waterproof cable connector outlet, cable length standard 10 meters (cable length can be customized)		

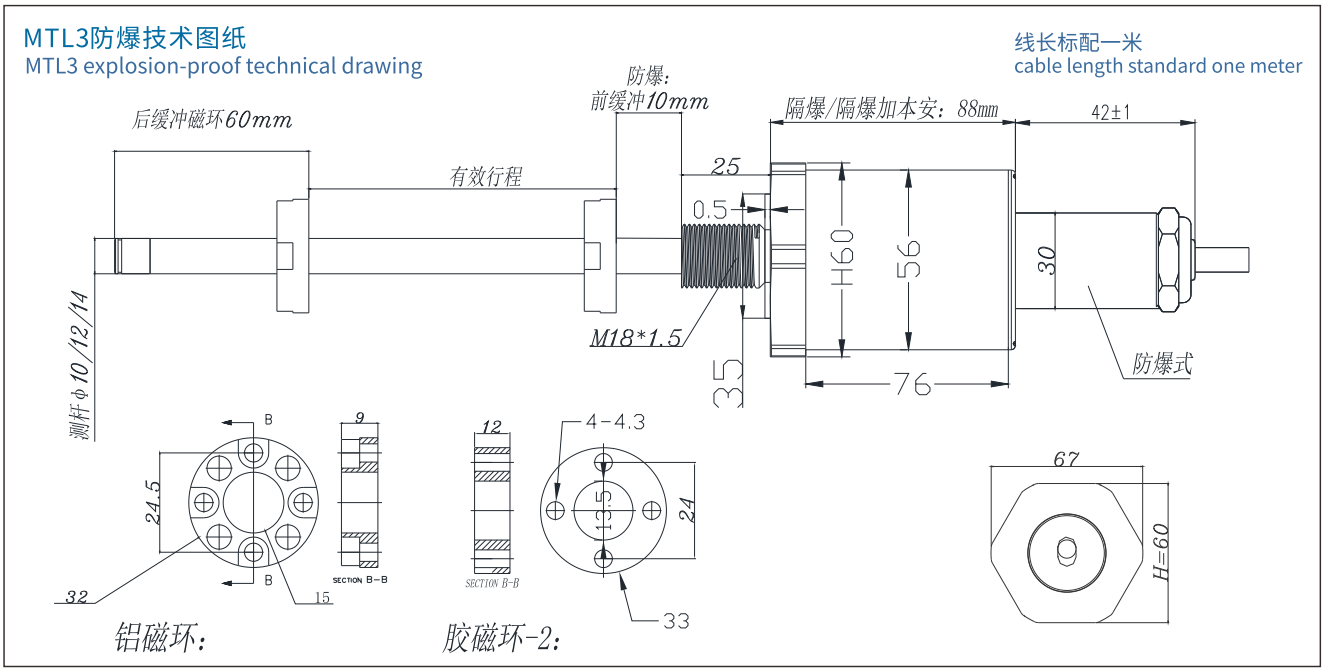
产品尺寸图Product Dimension Drawing

单位Unit:mm





单位Unit:mm





产品调试Product Debugging

该传感器在出厂时已经按照满量程将零点和满度调校好。由于传感器的长期稳定性很好，整个使用周期内不需要调整。由此，为了提高可靠性，传感器没留有供调校用的端口。请选用参数校准的二次仪表进行测量。如用户需要重新设定零点和满度，请与我公司联系。

The sensor is factory adjusted for zero and fullness to full scale. Due to the excellent long-term stability of the sensor, no adjustments are required throughout its life cycle. As a result, the sensor does not have a port for adjustment to increase reliability. Please use a parameter calibrated secondary instrument for measurement. If the user needs to reset the zero and fullness, please contact us.

常见问题及处理Common Problems and Handling:

以下为一般故障原因与处理方法:

The following are general causes of malfunctions and how to deal with them:

MKDM闸门开度滑块式(磁致伸缩)位移传感器
MKDM gate opening slider type (magnetostrictive) displacement sensor

产品实物图Product Picture





产品型号选型Product Model Selection

MKDM - H4032 / □□ - □ / □ - □

- **MKDM**：闸门开度滑块式(磁致伸缩)位移传感器 gate opening slider type (magnetostrictive) displacement sensor
- **H4032**：产品尺寸及量程范围 product size and range H4032/0-5500mm
- **□□**：有效测量行程 effective measuring stroke
- **□**：N：拉杆拉出数据从小到大 N: pull the lever to pull out the data from small to big；S：拉杆拉出数据从大到小 S: pull the lever to pull out the data from big to small
- **□**：信号输出类型: signal output type:
  - A：4-20mA
  - A1：0-20mA
  - M：RS485/Modbus RTU
  - CO：CANopen
  - S：SSI
- **□**：电源线长(默认10米，可定制) power cord length (default 10 meters, can be customized)

例如Example:

MKDM-H4032/600mm-N/A-10: 表示MKDM闸门开度滑块式(磁致伸缩)位移传感器，有效测量行程600mm，磁环由电子仓向尾端移动数值变大，4-20mA信号输出，电源线长10米。

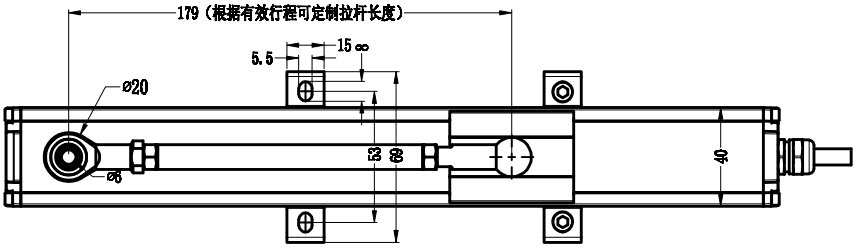
MKDM-H4032/600mm-N/A-10: indicates that MKDM gate opening slider type (magnetostrictive) displacement sensor, effective measuring stroke 600mm, the magnetic ring from the electronic compartment to the tail end of the movement of the value of the larger, 4-20mA signal output, the power cord length of 10 meters.

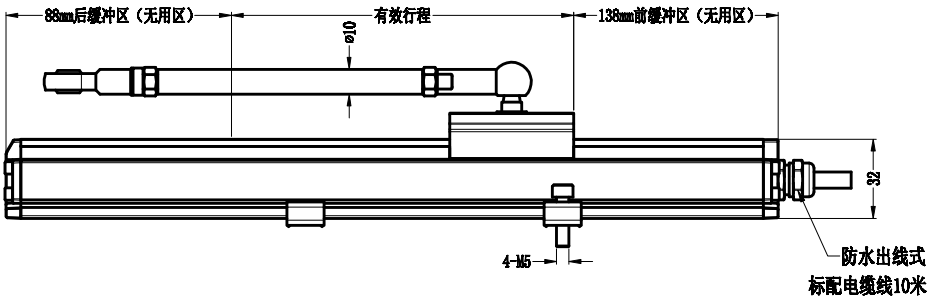
性能参数Performance Parameters

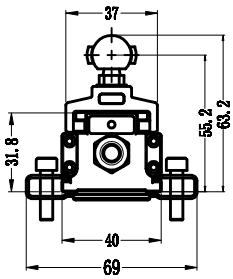
性能指标Performance indicators

MKDM闸门开度滑块式(磁致伸缩)位移传感器 MKDM gate opening slider type (magnetostrictive) displacement sensor			
抗震动 Anti-vibration	10Hz to 2000Hz, 5g	有效行程 Valid itinerary	50-5500mm
重复性精度 Repeatability accuracy	≤±0.005%FS	非线性误差 Nonlinear error	≤±0.05%FS
迟滞 Hysteresis	≤0.001%FS	供电 Electricity supply	DC24V
工作环境温度 Working environment temperature	-40°C～80°C	温度稳定性 Temperature stability	≤0.002%/°C
防雷击 Lightning protection	有have(GB/T 17626.5-2019)	防护等级 Protection class	IP68
防静电 Antistatic	有have(GB/T 17626.2)	防浪涌 Surge protection	有have(GB/T 17626.5-2019)
防腐蚀 Corrosion protection	盐雾测试24H, 6级 salt spray test 24H, grade 6	分辨率 Resolution	0.04mm(标准), 0.01mm(可定制) 0.04mm (standard), 0.01mm (customizable)
负载能力 Load capacity	电压信号输出负载≥4KΩ, 电流信号输出负载≤500Ω voltage signal output load ≥ 4KΩ, current signal output load ≤ 500Ω		
出线方式 Outlet	防水电缆接头出线, 线长标配10米(线长可定制) waterproof cable connector outlet, cable length standard 10 meters (cable length can be customized)		
输出信号 Output signal	电流信号:4-20mA, 0-20mA; 数字信号:CANopen, SSI; RS485(MODBUS-RTU) current signal: 4-20mA, 0-20mA; digital signal: CANopen, SSI; RS485 (MODBUS-RTU)		

产品尺寸图Product Dimension Drawing









MR1闸门开度不锈钢软缆式(磁致伸缩)位移传感器

MR1 gate opening stainless steel flexible cable (magnetostrictive) displacement sensor

产品实物图Product Picture



产品型号选型Product Model Selection

MR1 - □□□□mm - □ / □ - □ - □

- **MR1**：闸门开度不锈钢软缆式(磁致伸缩)位移传感器 stainless steel flexible cable (magnetostrictive)displacement sensors for gate openings
- **□□□□mm**：有效测量行程：effective measuring stroke：500-12000mm
- **□**：N：数据从小到大 N: data from small to large；S：数据从大到小 S: data from large to small
- **□**：信号输出类型：signal output type:
  - A：4-20mA
  - R：RS485
  - S：SSI
  - CO：CANopen
- **□**：EX1：隔爆 EX1: explosion-proof
- **□**：电源线长(默认10米，可定制) power cord length (default 10 meters, can be customized)

例如Example:

MR1-800mm-N/A-EX1-10: 表示MR1闸门开度不锈钢软缆式(磁致伸缩)位移传感器，有效测量行程800mm，数据由电子仓向尾端移动数值变大，4-20mA信号输出，隔爆，电源线长10米。

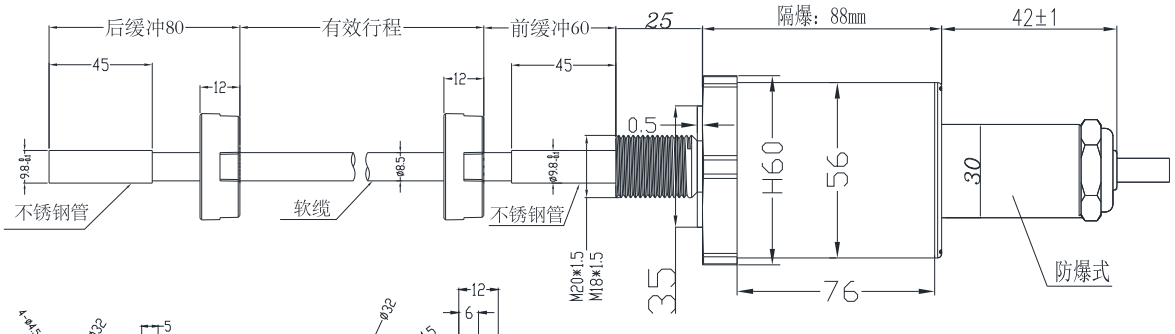
MR1-800mm-N/A-EX1-10: indicates MR1 gate opening degree stainless steel flexible cable (magnetostrictive) displacement sensor, effective measurement stroke 800mm, data from the electronic warehouse to the tail end of the movement of the value of the larger, 4-20mA signal output, explosion-proof, the power cord is 10 meters long.

性能参数Performance Parameters

性能指标Performance indicators

MR1闸门开度不锈钢软缆式(磁致伸缩)位移传感器 MR1 gate opening stainless steel flexible cable (magnetostrictive) displacement sensor			
有效行程 Valid itinerary	500-12000mm	工作电流 Operating current	＜90mA(随量程大小而变化) ＜90mA (varies with range size)
重复性精度 Repeatability accuracy	≤±0.005%FS	非线性误差 Nonlinear error	≤±0.05%FS
迟滞 Hysteresis	≤0.001%FS	供电 Electricity supply	DC24V
工作环境温度 Working environment temperature	-40℃～85℃	温度稳定性 Temperature stability	≤0.002%/℃
电子仓 Electronic warehouse	铝合金，可定制不锈钢 aluminum, customizable stainless steel	防护等级 Protection class	IP65
极限保护 Limit protection	最大-30VDC maximum -30VDC	超压保护 Overpressure protection	最大36VDC maximum 36VDC
绝缘电阻 Insulation resistance	＞10MΩ	绝缘强度 Dielectric strength	500V
分辨率 Resolution	0.01mm(量程500mm-4000mm)；0.04mm(量程4000mm-12000mm)；SSI输出可选0.001mm 0.01mm (range 500mm-4000mm); 0.04mm (range 4000mm-12000mm); SSI output optional 0.001mm		
测杆材质 Stem material	不锈钢软管，装运半径:600mm Stainless steel hose, shipping radius: 600mm		
输出信号 Output signal	4-20mA，RS485(MODBUS-RTU)，CANopen，SSI		
出线连接 Outlet connection	航空插头/防水电缆接头/赫斯曼插头 aviation plugs/waterproof cable glands/hirschmann plugs		
负载能力 Load capacity	电压信号输出负载≥4KΩ，电流信号输出负载≤500Ω voltage signal output load ≥ 4KΩ, current signal output load ≤ 500Ω		

产品尺寸图Product Dimension Drawing





MKDC闸门开度外置拉杆式(磁致伸缩)位移传感器

MKDC gate opening external tie rod (magnetostrictive) displacement sensor

产品实物图Product Picture

方形拉杆式外置式磁致伸缩位移传感器
square rod type external magnetostrictive displacement sensor



圆形拉杆式外置式磁致伸缩位移传感器
external magnetostrictive displacement sensors with round tie rods



性能参数Performance Parameters

性能指标Performance indicators

MKDC闸门外置拉杆式(磁致伸缩)位移传感器 MKDC gate external tie rod (magnetostrictive) displacement sensor			
分辨率 Resolution	≤0.05mm	有效行程 Valid itinerary	50-12000mm
重复性精度 Repeatability accuracy	≤±0.005%FS	非线性误差 Nonlinear error	≤±0.05%FS
迟滞 Hysteresis	≤0.001%FS	供电 Electricity supply	DC24V
工作环境温度 Working environment temperature	-40°C～80°C	温度稳定性 Temperature stability	≤0.002%/°C
防雷击 Lightning protection	有have(GB/T 17626.5-2019)	防护等级 Protection class	IP68
防静电 Antistatic	有have(GB/T 17626.2)	防浪涌 Surge protection	有have(GB/T 17626.5-2019)
防腐蚀 Corrosion protection	盐雾测试24H,6级 salt spray test 24H, grade 6	抗震动 Anti-vibration	10Hz to 2000Hz,5g
拉杆类型 Tie rod type	圆形拉杆式,方形拉杆式 round tie-bar, square tie-bar	安装方式 Installation	抱箍安装(尺寸可定制) hoop mounting (sizes can be customized)
安装方向 Mounting direction	垂直安装,倾斜安装,水平安装 vertical mounting, inclined mounting, horizontal mounting		
负载能力 Load capacity	电压信号输出负载≥4KΩ,电流信号输出负载≤500Ω voltage signal output load ≥ 4KΩ, current signal output load ≤ 500Ω		
输出信号 Output signal	电流信号:4-20mA,0-20mA;数字信号:CANopen,SSI;RS485(MODBUS-RTU) current signal: 4-20mA, 0-20mA; digital signal: CANopen, SSI; RS485 (MODBUS-RTU)		
出线方式 Outlet	防水电缆接头出线,线长标配10米(线长可定制) waterproof cable connector outlet, cable length standard 10 meters (cable length can be customized)		

产品型号选型Product Model Selection

MKDC - H4050 / □□ - □ / □ - □ - □

- **MKDC**：闸门开度外置拉杆式(磁致伸缩)位移传感器
  gate opening external tie rod (magnetostrictive) displacement sensor
- **H4050**：产品尺寸及量程范围 product size and range
  - H4050/0-3000mm
  - H4060/3000-5000mm
  - H4070/5000-8000mm
  - H5080/8000-10000mm
  - H5090/10000-12000mm
- **□□**：有效测量行程 effective measuring stroke (0-12000mm)
- **□**：
  - N:为磁环由电子仓向尾端移动数值变大
    N: the value becomes larger as the magnet ring moves from the electronics compartment to the tail end
  - S:为磁环由电子仓向尾端移动数值变小
    S: is the value of the magnetic ring moving from the electron compartment to the tail end becomes smaller
- **□**：信号输出类型: signal output type:
  - A:4-20mA
  - A1:0-20mA
  - M:RS485/Modbus RTU
  - CO:CANopen
  - S:SSI
- **□**：
  - Y:圆管 Y: round tube
  - F:方管 F: square tube
- **□**：电源线长(默认10米,可定制) power cord length (default 10 meters, can be customized)

例如Example:

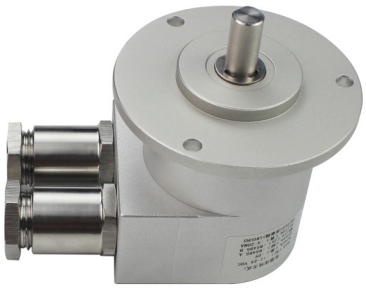
MKDC-H4050/1000mm-N/A-F-10: 表示MKDC闸门开度外置拉杆式(磁致伸缩)位移传感器,有效测量行程1000mm,磁环由电子仓向尾端移动数值变大,4-20mA信号输出,拉杆为方管,电源线长10米。

MKDC-H4050/1000mm-N/A-F-10: indicates that MKDC gate opening external tie rod (magnetostrictive) displacement sensor, effective measurement stroke 1000mm, the magnetic ring is moved from the electronic compartment to the end of the larger value, 4-20mA signal output, the power cord is 10 meters long. Magnetic ring from the electronic compartment to the tail end of the value becomes larger, 4-20mA signal output, tie rod for the square tube, power cord length of 10 meters.

WOA-D2闸门开度(双输出磁感应)多圈编码器

WOA-D2 gate opening (dual output magnetic induction) multiturn encoder

产品实物图Product Picture







产品概述Product Overview

闸门开度(双输出磁感应)多圈编码器为测量电机旋转位置的内部非接触式绝对值编码器,产品为米朗科技自主研发的磁感应多圈传感器,并加入信号调理及算法,计算绝对角度,可同时输出模拟量信号与数字量信号。支持(max)转速600rmp,体积小,抗污染能力强,绝对值输出,数据掉电记忆,信号输出:RS485半双工通信,4-20mA,0-5V,0-10V。

Gate opening (dual output magnetic induction) multi-turn encoder for the measurement of the motor rotary position of the internal non-contact absolute encoder, the product for the independent research and development of miran technology magnetic induction multi-turn sensor, and join the signal conditioning and algorithms, the calculation of the absolute angle, can be simultaneously output analog signals and digital signals. Support (max) speed 600rmp, small size, strong anti-pollution ability, absolute value output, data power-down memory, signal output: RS485 half-duplex communication, 4-20mA, 0-5V, 0-10V.

性能参数Performance Parameters

电气指标Electrical indicators

WOA-D2闸门开度（双输出磁感应）多圈编码器 WOA-D2 gate opening (dual output magnetic induction) multiturn encoder	
线性精度 Linear accuracy	≤0.05%F.S.
电源电压 Supply voltage	+12～24VDC
防静电 Antistatic	有have（GB/T 17626.2）
防雷击/防浪涌 Lightning/surge protection	有have（GB/T 17626.5-2019）
防腐蚀 Corrosion protection	盐雾测试24H，6级 salt spray test 24H, grade 6
分辨率 Resolution	模拟量信号输出：16位；数字量信号输出：单圈12位 analog signal output: 16-bit; digital signal output: single-turn 12-bit
输出信号 Output signal	模拟量信号输出：0～5V/0～10V/4～20MA；数字量信号输出：RS485，SSI analog signal output: 0～5V/0～10V/4～20mA; digital signal output: RS485, SSI

性能指标Performance indicators

防护等级 Protection class	IP68
允许旋转速度 Allowable rotation speed	≤600rpm
抗震动 Anti-vibration	10Hz to 2000Hz，5g
旋转方向 Direction of rotation	顺时针/ 逆时针 clockwise / counterclockwise
响应频率 Response frequency	100Hz
工作环境温度 Working environment temperature	-10°C～60°C（低温状态下，需保持无结晶状态） -10°C～60°C (low temperature, need to maintain a non-crystallized state)
可标定圈数范围 Range of calibratable turns	1～4080圈（模拟量输出建议40圈以内） 1 to 4080 turns (40 turns or less recommended for analog output)

注：①模拟量输出选择较大圈数后，分辨率也会随之变差。②电源打开后因内部电路的初期化，请在上电50msec后，再输入命令。每次断电与上电保持间隔大于10秒。

Note: ①Resolution will deteriorate when a larger number of turns is selected for analog output. Please input the command after 50msec of power-on due to the initialization of the internal circuit after the power is turned on. The interval between each power-off and power-on should be more than 10 seconds.

产品型号选型Product Model Selection

WOA - □ - □ - □ / □

米朗科技角度传感器
miran technology
angle sensors

D2：磁感应双输出专用电子仓
D2: magnetic induction dual output
specialized electronic compartment

1-4080圈可选
1-4080 turns available

模拟信号：
analog signal:
V1：(0-5V) 电压input voltage
V2：(0-10V) 电压input voltage
A：(4-20mA) 电流amps

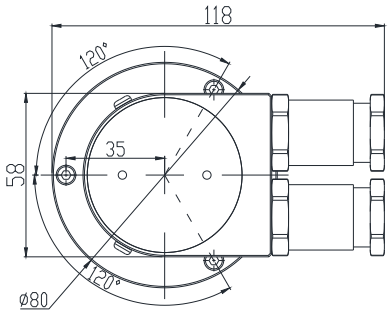
数字信号：
digital signal:
R：RS485/Modbus RTU
S：SSI

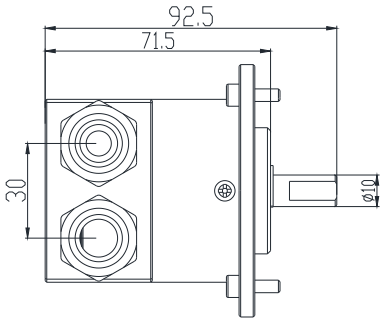
例如Example:

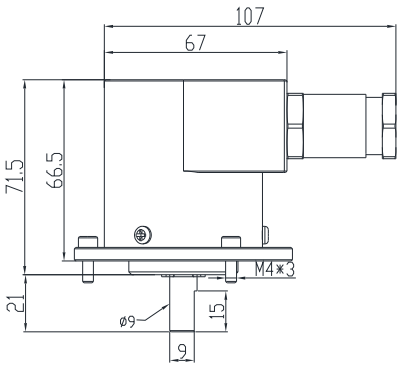
WOA-D2-10-A/R: 表示米朗磁感应角度传感器，圈数10圈，可同时输出4-20mA电流信号和RS485数字信号。（只能同时输出两种不同的信号）

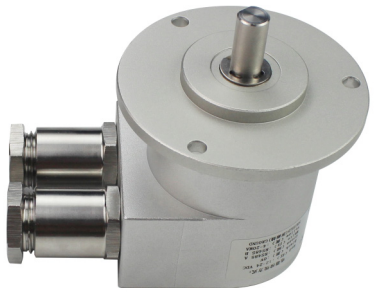
WOA-D2-10-A/R: Indicates a Miran magnetic induction angle sensor with 10 turns, which can simultaneously output a 4-20mA current signal and an RS485 digital signal. (Only two different signals can be output at the same time)

产品尺寸图Product Dimension Drawing









重载型防水拉绳位移传感器
Heavy duty waterproof rope displacement sensor

产品实物图Product Picture

SMZFS2(可选量程 optional range:100-4000mm)

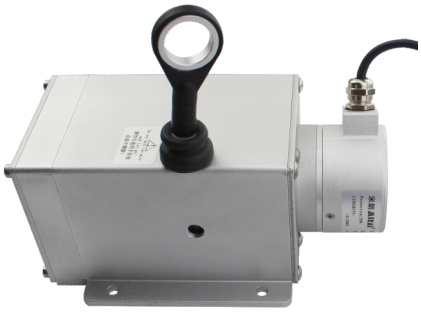








WEPZFS2(可选量程 optional range:100-4000mm)









MPSZFS2(可选量程 optional range:4500-20000mm)









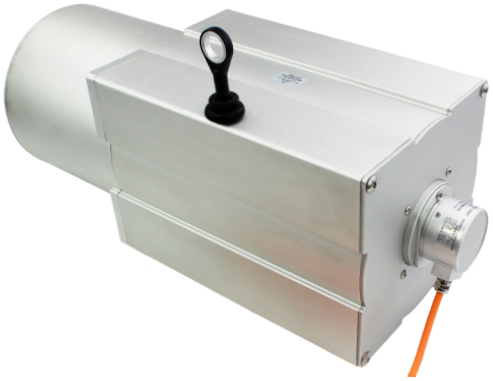




MPSZLFS2(可选量程 optional range:20000-45000mm)













产品概述Product Overview

重载型防水拉绳位移传感器，又称拉绳编码器，拉绳尺，拉线尺，拉线编码器，拉线位移传感器，该传感器采用米朗公司自主研发多圈磁感应绝对值编码器，内部使用高强度灌封胶封装，从而保证磁感应绝对值编码器能够在水下长期正常工作。

重载型防水拉绳位移传感器在结构上的精巧集成，充分结合了角度传感器和直线位移传感器的优点，成为一款测量行程长、安装简单、具有高精度测量的绝对值拉线位移传感器。

Heavy-duty waterproof pull rope displacement sensor, also known as pull rope encoder, pull rope ruler, pull line ruler, pull line encoder, pull line displacement sensor, the sensor adopts Miran company independent research and development of multi-turn magnetic induction absolute encoder, the internal use of high-strength potting adhesive encapsulation, which ensures that the magnetic induction absolute encoder can be in the underwater for a long period of time to work normally.

Heavy-duty waterproof pull-wire displacement sensor in the structure of the delicate integration, fully combined with the advantages of the angle sensor and linear displacement sensor, to become a long measuring stroke, simple installation, with high precision measurement of the absolute value of the pull-wire displacement sensor.

性能参数Performance Parameters

性能指标Performance indicators

线性精度 Linear accuracy	±0.25%FS	重复性 Repeatability	±0.02mm
电源电压VCC消耗电流 supply voltage VCC consumption current	40mA（不含突变情况） 40mA (without mutation)	防护等级 Protection grade	IP68
防雷击/防浪涌 Lightning/surge protection	有（GB/T 17626.5-2019） have (GB/T 17626.5-2019)	防静电 Anti-static	有（GB/T 17626.2） have (GB/T 17626.2)
防腐蚀 Anti-corrosion	盐雾测试24H，6级 salt spray test 24 hours, level 6	抗震动 Vibration resistance	10Hz to 2000Hz，5g
量程 Range	SMZFS2：100-4000mm；WEPZFS2：100-4000mm；MPSZFS2：4500-20000mm； MPSZLFS2：20000-450000mm（其他行程可定制 other itineraries can be customized）		
电源电压 Supply voltage	DC12V～DC24V（电压/电流/RS485）波动5%以下 DC12V~DC24V (voltage/current/RS485) fluctuation below 5%		
分辨率 Resolution ratio	模拟量信号（电压、电流）：16位；数字量信号(RS485)：默认12位，可选16位 analog signal (voltage, current): 16-bit; digital signal (RS485): default 12-bit, optional 16-bit		
线径规格 Range	直径1.5mm的多股不锈钢钢丝SUS316材质，外层为尼龙涂层 1.5mm diameter multi-strand stainless steel wire SUS316 with nylon coated outer layer		
工作环境温度 Ambient Temperature	-10°C～60°C低温状态下，需保持无结晶状态 -10°C～60°C low temperature, need to maintain a non-crystallized state		
输出信号 Output signal	模拟量输出信号：0-5V，0-10V，4-20mA，数字量输出信号：RS485，SSI，脉冲信号A/B/Z analog output signal: 0-5V, 0-10V, 4-20mA, digital output signal: RS485, SSI, pulse signal A/B/Z		

产品型号选型Product Model Selection

MFB - MPSZ - FS2 - □□□□□ - □ - EX

- **MFB**：《可选》米朗科技防爆系列（限MPSZ系列与MPSZL系列）
  miran technology explosion-proof series (only MPSZ and MPSZL series)
- **MPSZ**：重载型拉绳/线式位移传感器：WEPZ系列（行程100-4000mm）；SMZ系列（行程100-4000mm）；MPSZ系列（行程4500-20000mm）；MPSZL系列（行程20000-45000mm）
  heavy duty pull cord/wire displacement sensor : WEPZ series (travel 100-4000mm);SMZ series (travel 100-4000mm);MPSZ series (travel 4500-20000mm); MPSZL series (travel 20000-45000mm)
- **FS2**：防水类型系列，核心电子部件为磁电编码器，绝对位置输出型，采用特有的防水专利技术，完全防水，可以在深水中使用，防护等级可达IP68
  waterproof type series, the core electronic components for the magnetoelectric encoder, absolute position output type, the use of unique waterproof patented technology, completely waterproof, can be used in deep water, protection class up to IP68
- **□□□□□**：有效测量行程：100-45000mm之间任意行程可选，单位：mm
  effective measuring stroke: any stroke between 100-45000mm optional, unit: mm
- **□**：
  - V1：0-5V电压信号输出，三线制
    V1: 0-5V voltage signal output, 3-wire system
  - V2：0-10V电压信号输出，三线制
    V2: 0-10V voltage signal output, 3-wire system
  - A3：4-20mA电流输出，三线制
    A3: 4-20mA current output, 3-wire system
  - RS485：MODBUS-RTU信号输出
    RS485: MODBUS-RTU signal output
  - P：脉冲信号输出
    P: pulse signal output
  - S：SSI
- **EX**：防爆型EX（可选）
  explosion-proof EX (optional)

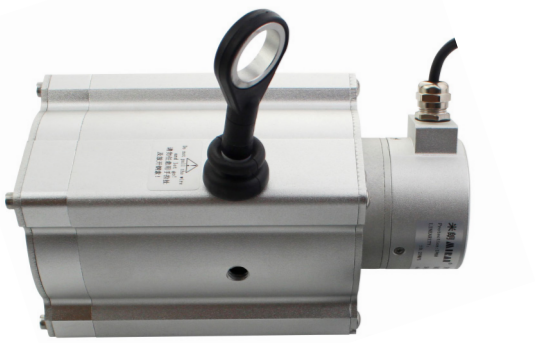
接线定义Wiring Definitions

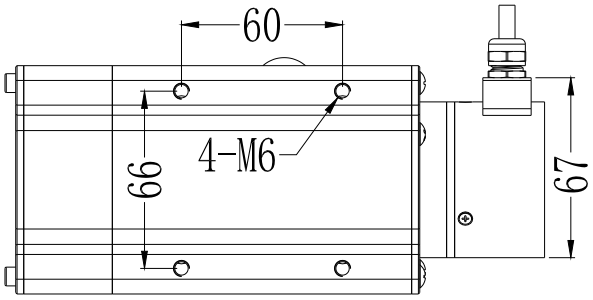
	红色 RED	黑色 BLACK	绿色/黄色 GREEN/YELLOW	白色 WHITE	屏蔽线 SHIELDED WIRE
接线方式电流型 wiring method current type	电源正 power positive DC12~DC24V	电源负 power negative 0V	输出 exports 4-20mA	空 void	接大地 connect to the earth GND
接线方式电压型 wiring method voltage type	电源正 power positive DC12~DC24V	电源负 power negative 0V	输出 exports 0-5V,0-10V	空 void	接大地 connect to the earth GND
接线方式RS485 wiring method RS485	电源正 power positive DC12~DC24V	电源负 power negative 0V	RS485 A+	RS485 B-	接大地 connect to the earth GND

	红色 RED	黑色 BLACK	绿色 GREEN	白色 WHITE	蓝色 BLUE	黄色 YELLOW
接线方式SSI wiring method SSI	电源正 power positive DC12~DC24V	电源负 power negative 0V	D+	D-	C+	C-

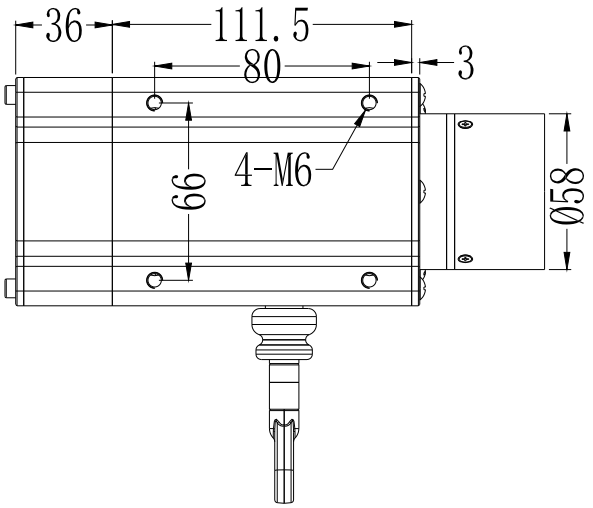
产品尺寸图Product Dimension Drawing

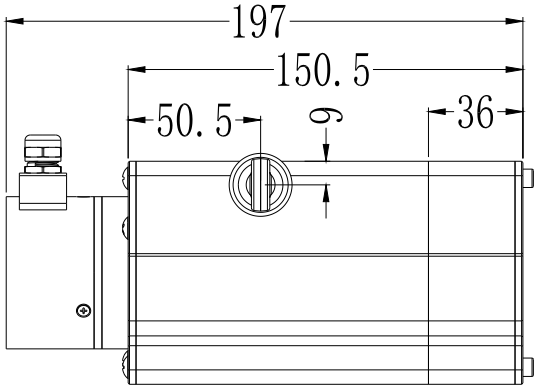
SMZFS2可选量程 optional range:100-4000mm

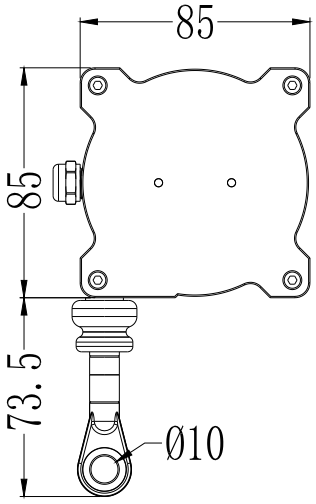












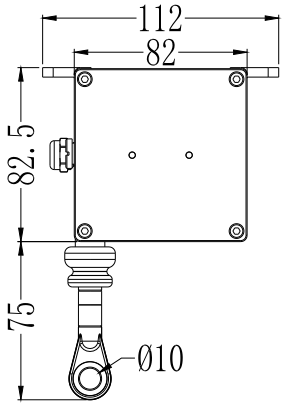
注:安装时请利用底部4个螺丝孔固定,依现场及机器安装空间设施需要,直接安装或另加保护或其他机械使用。

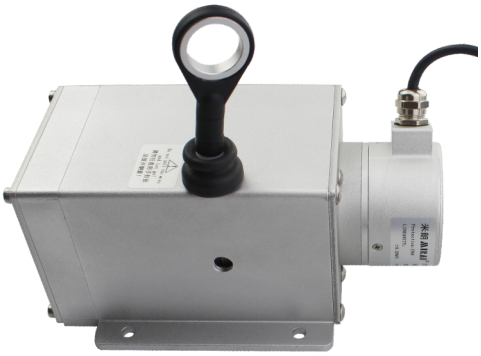
Note: Please use the four screw holes at the bottom to fix the installation. According to the requirements of the site and the installation space of the machine, directly install or add protection or other mechanical use.

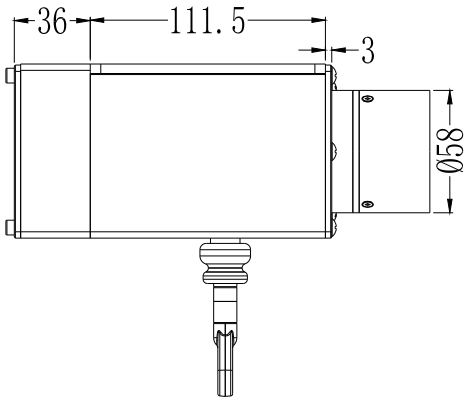
产品尺寸图Product Dimension Drawing

WEPZFS2可选量程 optional range:100-4000mm

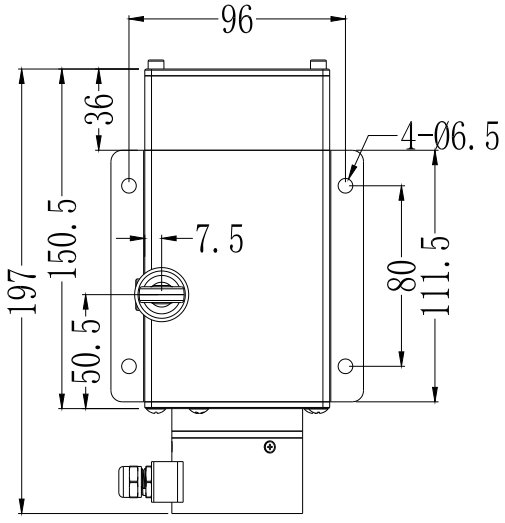












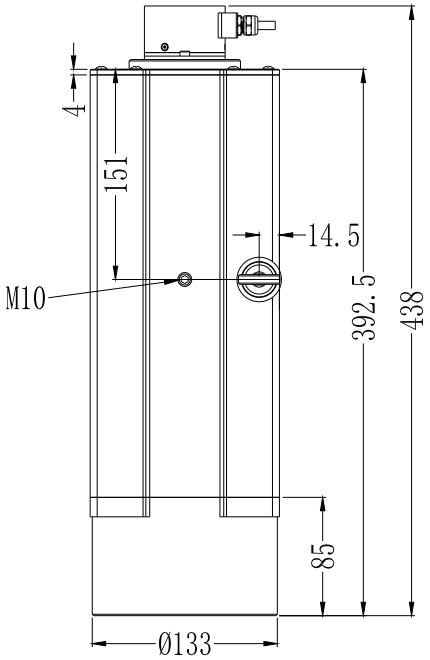
注:安装时请利用底部4个螺丝孔固定,依现场及机器安装空间设施需要,直接安装或另加保护或其他机械使用。

Note: Please use the four screw holes at the bottom to fix the installation. According to the requirements of the site and the installation space of the machine, directly install or add protection or other mechanical use.

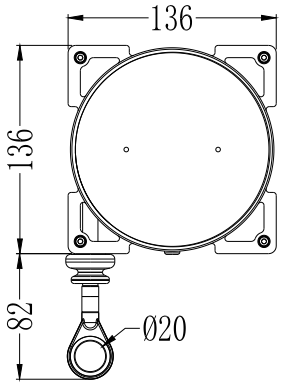
产品尺寸图Product Dimension Drawing

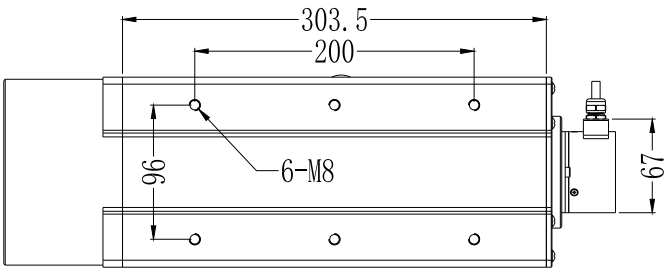
MPSZFS2可选量程 optional range:4500-20000mm

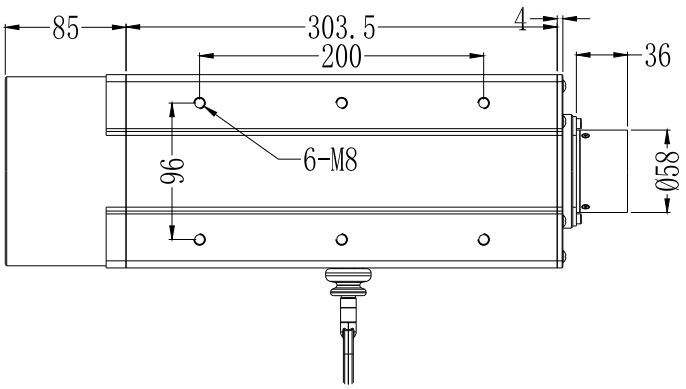












注:安装时请利用侧面或底面6个螺丝孔固定,依现场及机器安装空间设施需要,直接安装或另加保护或其他机械使用。

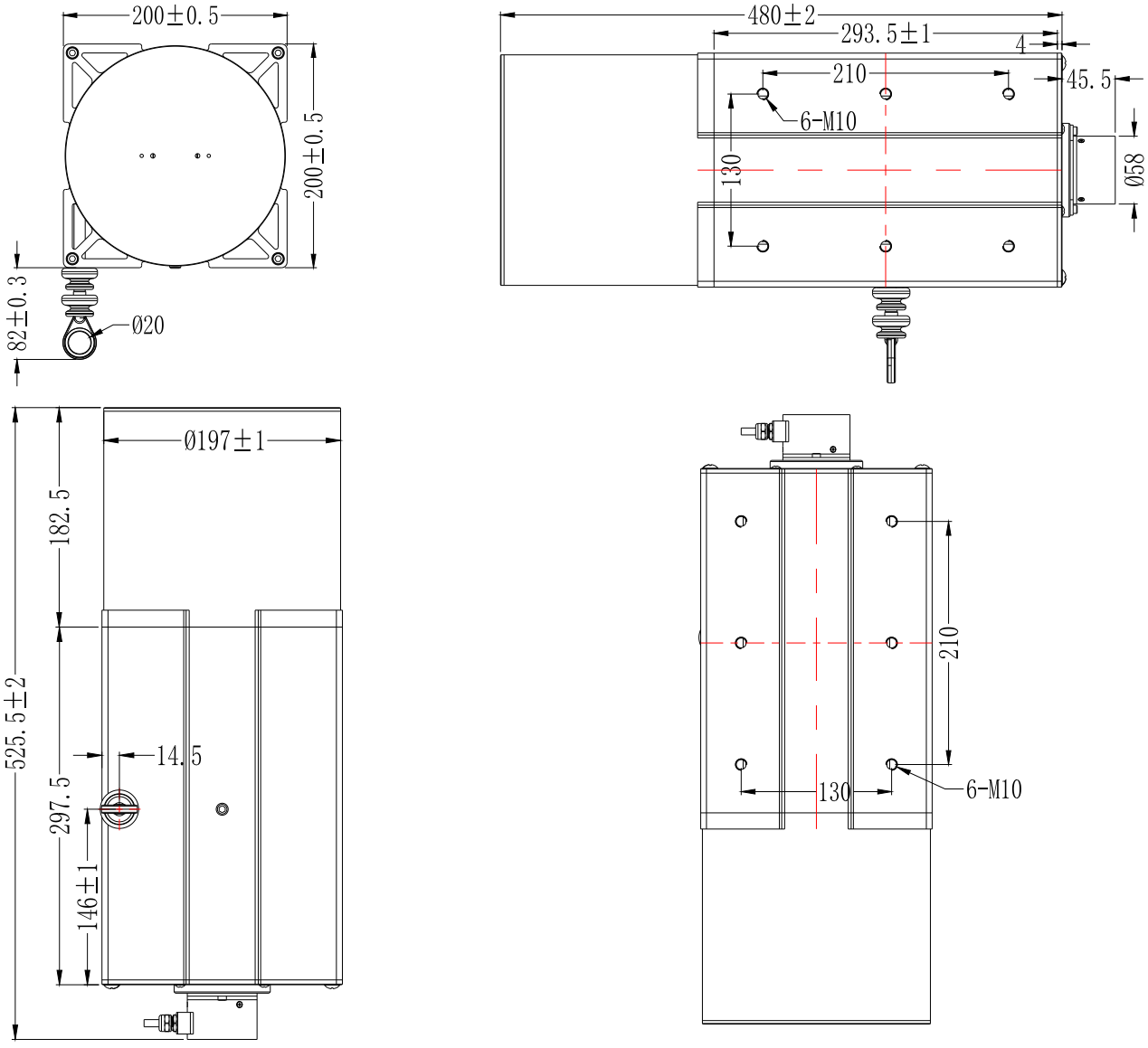
Note: Please use the 6 screw holes on the side or bottom side to fix the installation. According to the needs of the site and the installation space of the machine, directly install or add protection or other mechanical use.

产品尺寸图Product Dimension Drawing

MPSZLFS2可选量程 optional range:20000-45000mm







注:安装时请利用侧面或底面6个螺丝孔固定,依现场及机器安装空间设施需要,直接安装或另加保护或其他机械使用。

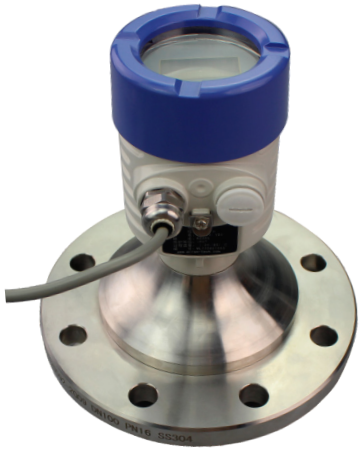
Note: Please use the 6 screw holes on the side or bottom side to fix the installation. According to the needs of the site and the installation space of the machine, directly install or add protection or other mechanical use.

MLD系列高频雷达式物位计
MLD series high-frequency radar level meter

产品实物图Product Picture

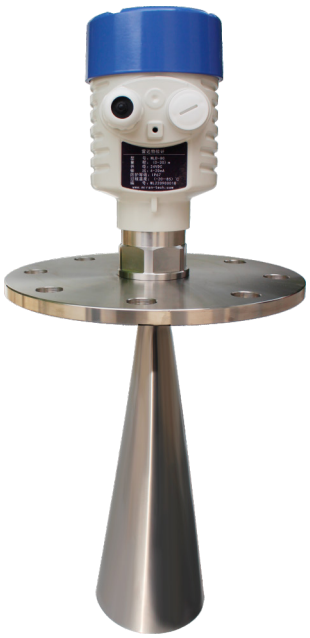
MLD-40M 80GHZ雷达物位计
MLD-40M 80GHZ radar level meter







MLD-30M 26GHZ雷达物位计
MLD-30M 26GHZ radar level meter







产品概述Product Overview

MLD-30M系列传感器是26GHz高频雷达式物位测量计，测量距离可达30米。MLD-40M系列传感器则是80GHz高频雷达式物位测量计，测量距离可达40米。如需更长的测量距离，可以联系我们定制。雷达物位计的天线被进一步优化处理，新型快速的微处理器可以进行更高速率的信号分析处理，雷达物位计可用于河道、湖泊、浅滩、固体料、过程容器或强粉尘、易结晶/露场合反应釜等一些复杂的测量条件。

The MLD-30M series sensor is a 26GHz high-frequency radar level measuring instrument with a measuring distance of up to 30 meters. The MLD-40M series sensors are 80GHz high-frequency radar level measuring instruments with a measuring distance of up to 40 meters. If you need a longer measuring distance, you can contact us for customization. The antenna of the radar level sensor is further optimized, the new fast microprocessor can carry out higher rate signal analysis and processing, and the radar level sensor can be used for some complex measurement conditions such as rivers, lakes, shoals, solid materials, process vessels or strong dust, easy to crystallize/dew reactors, etc.

雷达物位天线发射较窄的微波脉冲，经天线向下传输。微波接触到被测介质表面后被反射回来再次被天线系统接收，将信号传输给电子线路部分自动转换成物位信号（因为微波传播速度极快，电磁波到达目标并经反射返回接收器这一来回所用的时间几乎是瞬间的）。采用先进的微处理器和独特的回波处理技术，雷达物位计可以应用于各种复杂工况；采用脉冲工作方式，雷达物位计发射功率极低，可安装于各种金属、非金属容器内，对人体及环境均无伤害。

The radar level antenna transmits narrow microwave pulses, which are transmitted downward through the antenna. After contacting the surface of the measured medium, the microwaves arereflected back to the antenna system, which transmits the signals to the electronic circuitry for automatic conversion into level signals (since microwaves propagate very fast, the time taken for the electromagnetic waves to reach the target and to be reflected back to the receiver is essentially instantaneous). Using advanced microprocessor and unique echo processing technology, the radar level meter can be applied to various complex conditions. Using pulse operation mode, the radar level meter emits very low power, and can be installed in various metallic and non-metallic containers, which is harmless to human body and the environment.

产品型号选型Product Model Selection

MLD - □ - □

雷达物位计
radar level meter

30M：量程30M，发射频率26GHZ
30M: measuring range 30M,transmit frequency 26GHZ

40M：量程40M，发射频率80GHZ
40M: measuring range 40M,transmit frequency 80GHZ

MA：4-20mA输出
MA: 4-20mA output

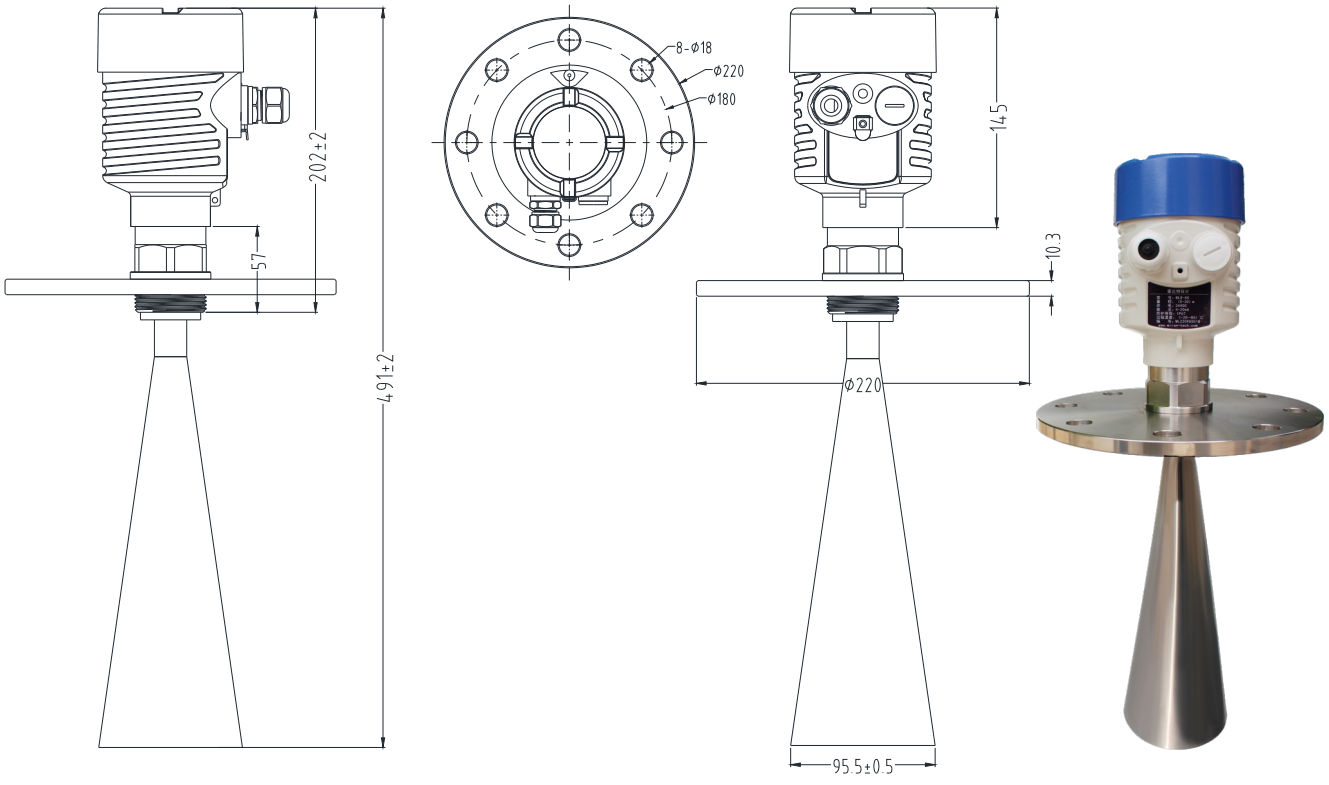
RS：RS485输出
RS: RS485 output

例如Example:

MLD-30M-RS： 雷达物位计，量程为30M，发射频率为26GHZ，RS485信号输出。
MLD-30M-RS: radar level gauge, with a range of 30M, a transmitting frequency of 26GHZ, and an RS485 signal output.

产品尺寸图Product Dimension Drawing

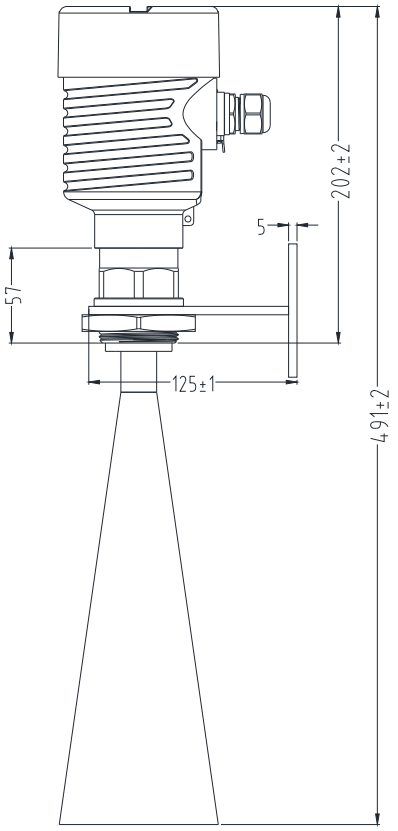
MLD-30M 26GHZ雷达物位计radar level meter
法兰盘安装（默认）flange mounting (default)

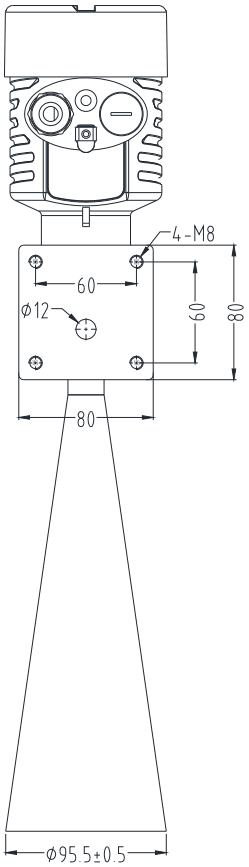


产品尺寸图Product Dimension Drawing

MLD-30M 26GHZ雷达物位计radar level meter

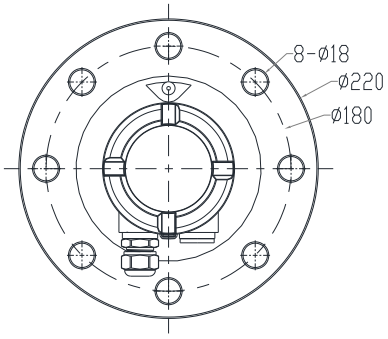
支架安装（可选）bracket mounting (optional)

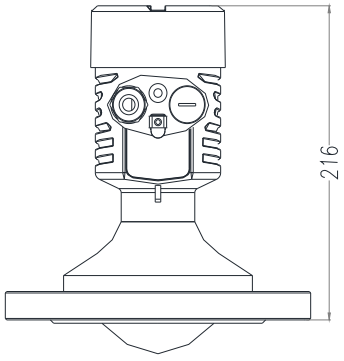






MLD-40M 80GHZ雷达物位计radar level meter







接线定义Wiring Definitions

	红色 RED	黑色 BLACK	蓝色 BLUE	白色 WHITE	屏蔽线 SHIELDED WIRE
RS485接线定义 RS485 wiring definition	电源正 power positive DC 24V	电源负 power negative 0V	RS485 A	RS485 B	接外壳 connecting shell 接大地 connect to the earth

	红色 RED	黑色 BLACK	屏蔽线 SHIELDED WIRE
4-20mA二线制接线定义 4-20mA 2-wire wiring definition	电源正 power positive DC 24V	输出 exports 4-20mA	接外壳 connecting shell 接大地 connect to the earth

产品特点Product Features

1.天线尺寸小，便于安装；非接触雷达，无磨损，无污染。
1.small antenna size, easy to install; non-contact radar, no wear and tear, no pollution.

2.几乎不受腐蚀、泡沫影响；几乎不受大气中水蒸气、温度和压力变化影响。
2.virtually unaffected by corrosion and foam; virtually unaffected by water vapor, temperature and pressure changes in the atmosphere.

3，严重粉尘环境对高频物位计工作影响不大。
3.severe dusty environment has little effect on the work of high frequency level meter.

4.波长更短，对在倾斜的固体表面有更好的反射。
4.shorter wavelength, better reflection on solid surfaces at an incline.

5.波束角小，能量集中，增强了回波能力的同时又有利于避开干扰物。
5.the beam angle is small, the energy is concentrated, which enhances the echo capability and at the same time is conducive to avoiding interfering objects.

6.测量盲区更小，对于小罐测量也会取得良好的效果。
6.the measurement of the blind spot is smaller, for small tank measurement will also achieve good results.

7.高信噪比，即使在波动的情况下也能获得更优的性能。
7.high signal-to-noise ratio, even in the case of fluctuations can also obtain better performance.

8.高频率，是测量固体和低介电常数介质的首要选择。
8.high frequency, is the primary choice for measuring solids and low dielectric constant media.

9.温度补偿，实时监测电子仓内温度，自动补偿温飘系数。
9.temperature compensation, real-time monitoring of the temperature in the electronic. compartment, automatic compensation for temperature fluctuation coefficient.

性能参数Performance Parameters

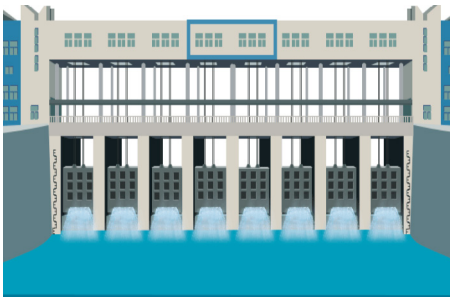
性能指标Performance indicators

80GHZ雷达物位计 80GHZ Radar Level Meter			
发射频率 Frequency of emission	76.2 - 80.2GHz	扫描频率 Scanning frequency	4GHz
测量范围 Measurement range	0.1m-40m	近端盲区 Near-end blind spot	50mm
分辨率 Resolution	0.5mm	精度 Accurate	±5mm
天线波束 Antennae beam	3°	过程压力 Process pressure	-1 ~ 3MPa
电缆接口 Cable connector	M20x1.5		
天线类型 Antenna type	PEEK材料 透镜天线 PEEK material lens antenna		
信号输出 Signal output	4-20mA，HART5（标准配置）/或 HART7 4-20mA, HART5 (standard) /or HART7		
过程连接 Process connection	DN100		
过程温度 Process temperature	-40~150°C（适用于法兰盘发射雷达波的工作面） -40~150°C (for working surfaces where flanges emit radar waves)		
环境温度 Environmental temperature	-40~85°C，≤95%RH		
现场操作 On-site operation	PC端软件/4按键面板配置/手机app和微信小程序/罐旁表 PC-based software / 4-button panel configuration / mobile app and wechat applet / tankside meter		
通讯协议 Communication protocols	HART/MODBUS /PROFIBUS (可选selectable)		
故障输出 Fault output	22mA 或 4mA/20.5mA (可设置) 22mA or 4mA/20.5mA (settable)		
现场显示 On-site display	160x80 点阵式黑白LCD显示器/带背光显示 160x80 dot-matrix black and white LCD display/with backlighting		
外壳材质 Shell material	铝合金单腔或双腔 Aluminum single or double cavity		
天线类型 Antenna type	PEEK材料 透镜天线 PEEK material lens antenna		

性能指标Performance indicators

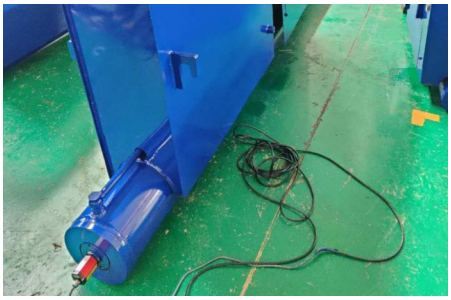
26GHZ雷达物位计 26GHZ Radar Level Meter			
测量范围 measuring range	0.6m-30m 0.6m-30m	过程连接 Process connection	螺纹/支架/法兰 threaded/bracket/flange
过程温度 process temperature	-40~85°C	过程压力 Process pressure	常压 atmospheric
防护等级 protection class	IP67	频率范围 Frequency range	26GHZ
近端盲区 near-end blind spot	600mm	现场显示 On-site display	可选(显示器) optional (monitor)
外壳 housings	铝/304不锈钢 aluminum/304 stainless steel	供电电源 power supply	DC(12-24V)四线制/DC 24V二线制 DC (12-24V) 4-wire / DC 24V 2-wire
精度 accurate	±5mm(量程10m);±10mm(量程30m) ±5mm (range 10m); ±10mm (range 30m)		
信号输出 signal output	Modbus RTU协议(12~24V DC)或4-20mA/Hart两线(24V DC) Modbus RTU protocol (12~24V DC) or 4-20mA/Hart 2-wire (24V DC)		

应用领域Areas of application









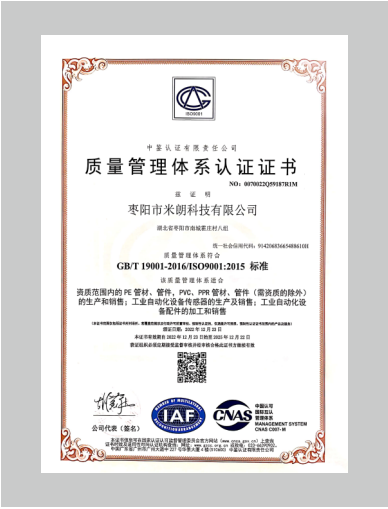




水利工程闸门位移传感器应用于水利行业各类闸门开度、油缸位移测量、摆动运动、倾斜运动的工作环境。

Water conservancy engineering gate displacement sensor applied to the water conservancy industry all kinds of gate opening, cylinder displacement measurement, swing movement, tilt movement of the work environment.

荣誉证书Certificate of Honor


质量管理体系认证证书

枣阳市米朗科技有限公司

GB/T 19001-2016/ISO9001:2015 标准


CERTIFICATE OF CONFORMITY OF QUALITY MANAGEMENT SYSTEM CERTIFICATION

ZAOYANG MILANG TECHNOLOGY CO., LTD.

GB/T 19001-2016/ISO9001:2015 Standard


Certificate of Compliance


实用新型专利证书


商标注册证

米朗 MIRAN


防爆合格证


证 书

湖北省支柱产业细分领域隐形冠军培育企业

（2019-2021）

企业名称：枣阳市米朗科技有限公司

主营产品：位移传感器

湖北省经济和信息化厅

二〇一九年


荣誉证书

№ 15-1311

枣阳市米朗科技有限公司：

被认定为第十五届（2018—2019年度）湖北省守合同重信用企业。

特发此证。

湖北省市场监督管理局

二〇二〇年十月

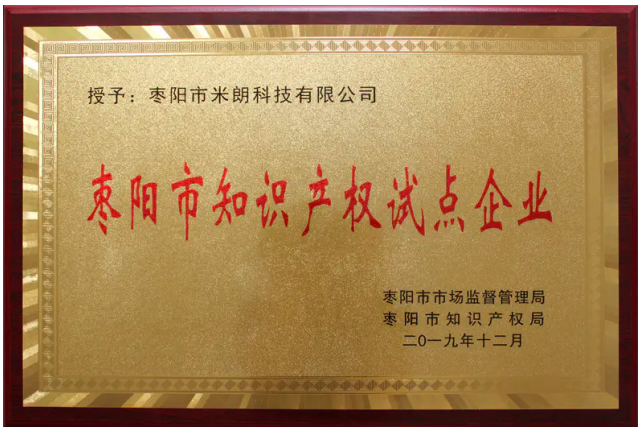
有效期至2022年10月（有效期间如被撤销称号，此证作废）。

荣誉证书Certificate of Honor















辐射全国 放眼世界

Radiate to the whole country and see the world

质量第一 Quality First

用户至上 Customer First

诚信为本 Credit First

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（尤其是在尺寸方面要求特别严格的，或者在产品实物没收到之前，就要先在自己设备上加工做好安装孔位和确定安装空间位置的，要特别注意,要在购买前3天内与我们书面再次确认好产品的实际尺寸，以免造成不必要的返工等损失，若没有在购买前3天内与我们书面确认尺寸而造成后续安装困难等损失，我司不予承担，最终尺寸要以产品实物为准。）

将致力于位移、物位、角度等测控领域

Will be committed to the field of displacement, level, angle measurement and control

为客户提供一站式解决方案的产品与服务

Products and services that provide one-stop solutions for our customers

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20260401-开度位移传感器彩页
20260401 - Opening displacement sensor brochure

主要著作人：王工
Main author: Wang designer

2026年4月出品
Produced in April 2026