莱茵 LinecSKI®

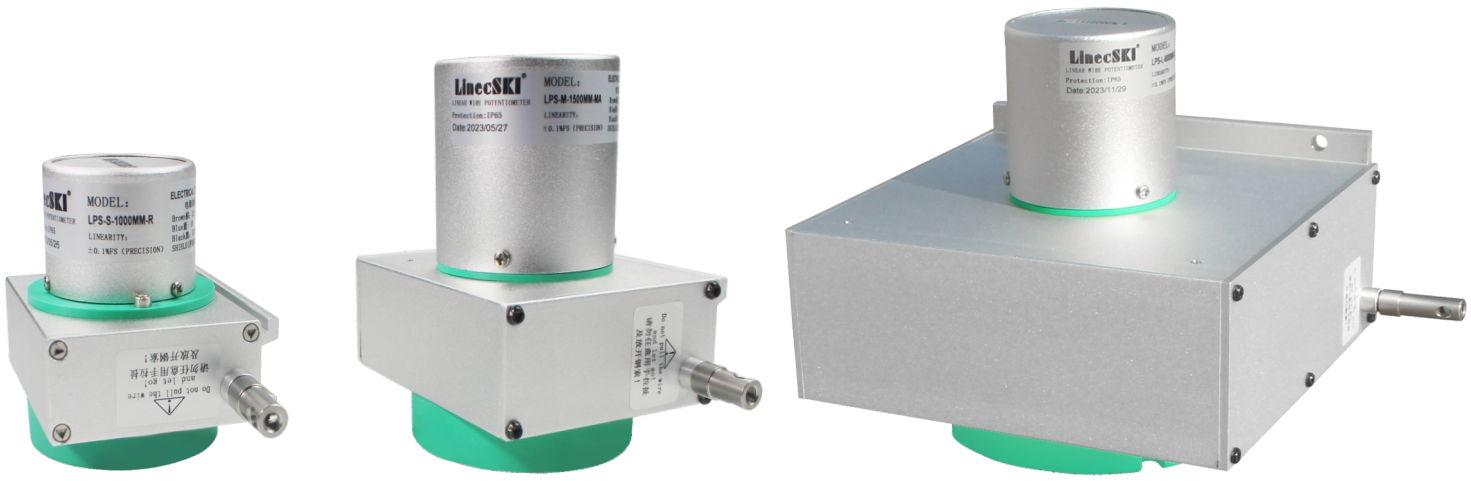
中国工信部高精度传感器一条龙应用计划示范项目

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

莱茵系列拉绳位移传感器

LINECSKI SERIES PULL ROPE DISPLACEMENT SENSOR



莱茵系列拉绳位移传感器

LINECSKI SERIES PULL ROPE DISPLACEMENT SENSOR

- 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

产品选型

LPS - S - 500mm - R

信号输出方式 Signal output mode：

R：电阻输出； Resistance output;

V1:0-5V 电压信号输出，三线制；
0-5V Voltage signal output, three-wire system;

V2:0-10V 电压信号输出，三线制；
0-5V Voltage signal output, three-wire system;

A2:4-20mA 电流信号输出，二线制；
4-20mA Current signal output, two wire system;

A3:4-20mA 电流信号输出，三线制；
4-20mA Current signal output, three wire system;

A4:4-20mA 电流信号输出，四线制(由于空间限制，S型需外置隔离电源模块)；
4-20mA Current signal output, four wire system (Due to space limitations, the S model requires an external isolated power module)；

RS:RS485 数字信号输出；RS485 digital signal output;

P:脉冲信号输出；Pulse output;

有效测量行程 Effective measuring stroke:
100-10000㎜ 之间任意量程可选，单位：㎜ 毫米
Optional range between 100-10000mm, unit: mm

安装基座型号大小(根据基座的大小选择相应范围的有效测量行程)
The installing mounting base model size(According to the mounting size to select the appropriate range of effective measuring distance)

S:100-1300mm; **M**:1000-4000mm; **L**:4500-10000mm

莱茵系列拉绳位移传感器 LinecSKI series pull rope displacement sensor

接线方式 Connection Mode

电阻输出 Resistance output	棕BROWN/红RED 电源正 Power Positive DC5~10V	黑色 BLACK 输出 Output	蓝色 BLUE 电源负 Power Negative 0V	屏蔽线 Shielding Wire GND		
0-5V 0-10V 电压输出 Voltage output	棕BROWN/红RED 电源正 Power Positive DC12~24V	黑色 BLACK 输出 Output	蓝色 BLUE 电源负 Power Negative 0V	屏蔽线 Shielding Wire GND		
4-20mA(2线制) 电流输出 4-20mA (2-wire system) Current output	棕BROWN/红RED 电源正 Power Positive DC12~24V	黑色 BLACK 输出 Output	屏蔽线 Shielding wire GND			
4-20mA(3线制) 电流输出 4-20mA (3-wire system) Current output	棕BROWN/红RED 电源正 Power Positive DC12~24V	黑色 BLACK 输出 Output	蓝色 BLUE 电源负 Power Negative 0V	屏蔽线 Shielding Wire GND		
4-20mA(4线制) 电流输出 4-20mA (4-wire system) Current output	棕BROWN/红RED 电源正 Power Positive DC24V	黑色 BLACK 电源负 Power Negative 0V	蓝色 BLUE 输出 + Output +	白色 WHITE 输出 - Output -	屏蔽线 Shielding Wire GND	
RS485 数字信号输出 Digital signal output	棕BROWN/红RED 电源正 Power Positive DC12~24V	黑色 BLACK 电源负 Power Negative 0V	蓝色/绿色 BLUE/GREEN RS485 A	白色 WHITE RS485 B	屏蔽线 Shielding Wire GND	
NPN(标准) 脉冲信号输出 NPN(Standard) Pulse Signal output	棕BROWN/红RED 电源正 Power Positive DC5~30V	黄色 YELLOW Z 相 Z Phase	蓝色 BLUE A 相 A Phase	绿色 GREEN B 相 B Phase	白色 WHITE 电源负 Power Negative 0V	屏蔽线 Shielding Wire GND

安装注意事项 Installation Precautions

1、 电气连接请按照传感器上的接线说明接线，确保传感器正确接线才能通电；利用底部固定螺丝孔或磁铁，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。

1. Please follow the wiring instructions on the sensor for electrical connections to ensure that the sensor is correctly wired before it can be powered on;The use of the bottom fixing screw hole or magnet, according to the site and machine installation space facilities need, direct installation or additional protection or other mechanical use.

2、不锈钢钢丝绳安装时，需确保拉线处于平行于出线口拉出，避免钢丝绳被出线口反复摩擦导致断裂；（不锈钢索安装时，使钢索绳由出线口至移动部位机件工作处于平行滑动，保持较小角度〔容许偏差正负3度〕，以确保测量精度及钢索之寿命）。

2. When installing stainless steel wire ropes, it is necessary to ensure that the pulling wire is pulled out parallel to the outlet to avoid the wire rope being repeatedly rubbed by the outlet and causing it to break; When installing stainless steel cables, the steel cable should slide parallel from the outlet to the moving parts, maintaining a small angle (allowable deviation of plus or minus 3 degrees) to ensure measurement accuracy and the lifespan of the steel cable.

3、保持较小角度（容许偏差＋/-3°）以确保量测精度及钢索之寿命。钢索本体是不锈钢加涂氟层，请勿让其受外力的割伤、烧损、撞击等不当之事发生：过量的粉尘、积屑或是足以破坏钢索的物品贮留于内部的滑轮或出线口将造成钢索破损，导致运转不顺的故障。

3. Keeping a small angle（allowable deviation +/-3 degree）to ensure the measurement accuracy and the life of the wire cable.The wire cable body is stainless add coated with flouring layer, please don't let iy hurts by the external forces,burn,impact and other improper things happen: excessive dust, chip or enough to damage the wire cable things stored in the internal pulleys or outlet will make the steel cable hurts, it causes the trouble of work unsommthly.

4、L型拉绳尺为避免运输震坏装有锁止螺丝，使用时需拆除螺丝，拉绳即才顺畅拉出。

4. L-type rope displacement sensor equipped with locking screws in order to avoid transport shock to damage, the screw needs to be removed when using, the rope can be smoothly pulled out.

5、S机座和M机座系列产品往复运动的瞬间加速不可超过1米/秒；L机座系列产品往复运动的瞬间加速不可超过0.5米/秒；否则将导致钢索断裂，恕本公司不承担正常使用范围以外的责任。

5. The instantaneous acceleration of the reciprocating motion of the S and M base series products shall not exceed 1 meter/second. The instantaneous acceleration of the reciprocating motion of the L base series products cannot exceed 0.5 meters per second. Otherwise, it will cause the steel cable to break, and our company does not assume any responsibility beyond the normal scope of use.

6、拉绳位移传感器属于精密仪器，请勿敲击或撞击，注意传感器和钢丝绳的清洁，以延长使用寿命；（钢索本体是不锈钢，外覆耐磨防腐塑胶层，请勿让其受外力的割伤、烧损、撞击等不当之事发生；过量的粉尘、积屑会破坏钢索或贮留于内部的滑轮，或将造成钢索破损，导致运转不顺的故障）。

6. The rope displacement sensor is a precision instrument. Do not knock or impact it. Pay attention to the cleanliness of the sensor and wire rope to extend its service life; (The steel cable body is made of stainless steel and covered with a wear-resistant and anti-corrosion plastic layer. Do not let it be cut, burned, or hit by external forces. Excessive dust and debris can damage the steel cable or the pulleys stored inside, or cause damage to the steel cable, resulting in poor operation.).

安装注意事项 Installation Precautions

7、未安装于工作台或固定坐前，请勿用手或是其它产品将钢索拉出并让其瞬间自行弹回，此举将造成钢索断裂，伤害本体结构及人身安全；拉线拉出后不要松开，需匀速拉出和缩回。

7. Do not use your hands or other products to pull out the steel cable before installation on the workbench or in front of the fixed seat, and let it instantly rebound on its own. This will cause the steel cable to break, damage the structure and personal safety of the body; After pulling out the cable, do not loosen it. It needs to be pulled out and retracted at a constant speed.

8、若使用于非直线运动的机构，请加装适当的滑轮运转；若使用于环境恶劣或特殊场合，请自行加装保护机构。

8. If used in the non-linear movement of the mechanism, please install the appropriate pulley operation; If used in bad environment or special occasions, please install your own protection mechanism.

注：若使用于室外或环境比较恶劣等特殊场合，可配置米朗防水防尘出线口和防护外壳，或请自行加装保护机构或与本公司联系定制加装保护机构，否则导致产品损坏， 公司不予负责！

Note: If used in outdoor or harsh environments or other special occasions, Mirang waterproof and dustproof outlet and protective shell can be configured, or please install a protective mechanism yourself or contact our company to customize the installation of a protective mechanism. Otherwise, the company will not be responsible for product damage!

安装说明 Installation Instructions

（因公司产品型号较多，安装方式也较多，有滑动支架螺丝安装式、固定螺丝孔安装式、磁吸式等），以下为常见的滑动支架螺丝安装式举例说明：

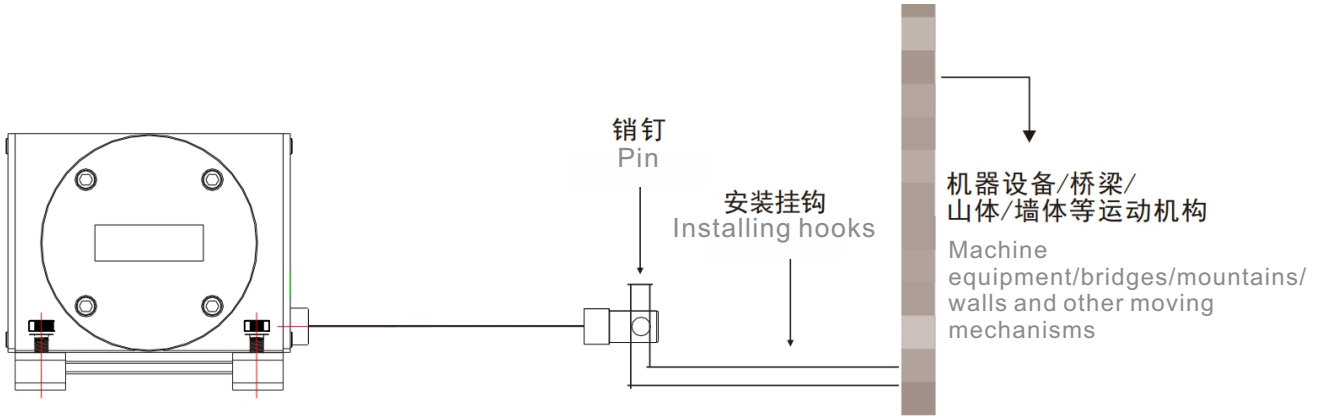
(Due to the variety of product models and installation methods in the company, there are sliding bracket screw installation, fixed screw hole installation, magnetic suction installation, etc.) The following are common examples of sliding bracket screw installation:

1. 先固定安装支架：将安装支架顺着传感器底部凹槽滑入，然后调整支架的位置，将螺丝插入安装孔固定在安装面；

1. Fix the mounting bracket first: slide the mounting bracket along the groove at the bottom of the sensor, then adjust the position of the bracket, insert the screw into the mounting hole and fix it on the mounting surface;

2. 测量端做L型销钉或者螺丝插入传感器安装头5mm的孔中固定传感器测头（或其它可靠连接方式）

2. Insert an L-shaped pin or screw into the 5mm hole of the sensor mounting head at the measuring end to fix the sensor measuring head (or other reliable connection methods)

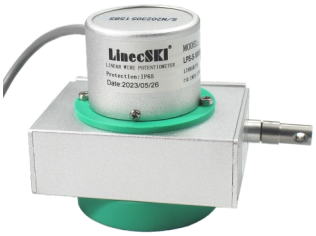


LPS-S/M/L 拉绳位移传感器

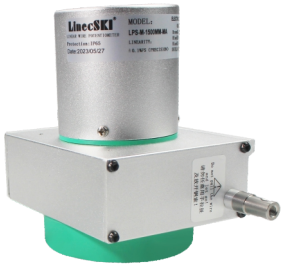
产品实物图Physical Products Pictures

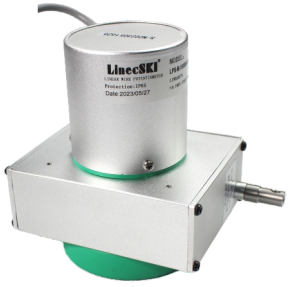
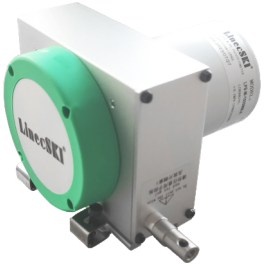
LPS-S



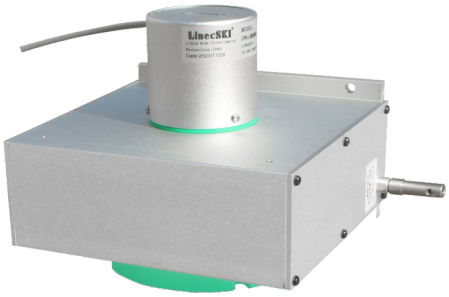
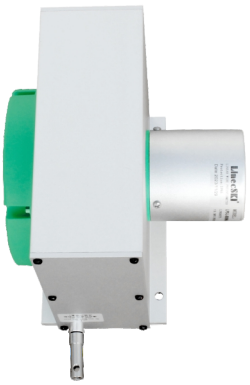
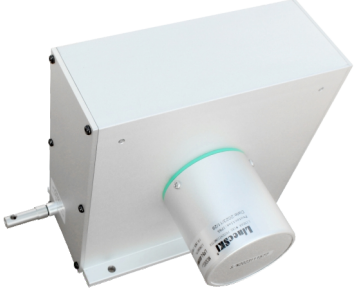



LPS-M



LPS-L

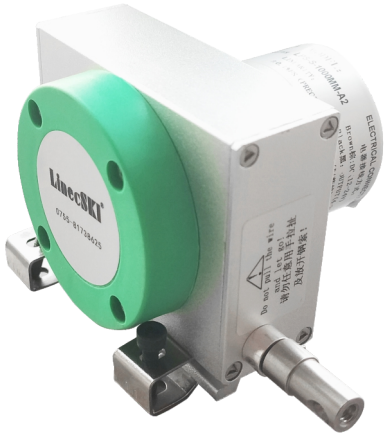
技术参数 Technical Parameter

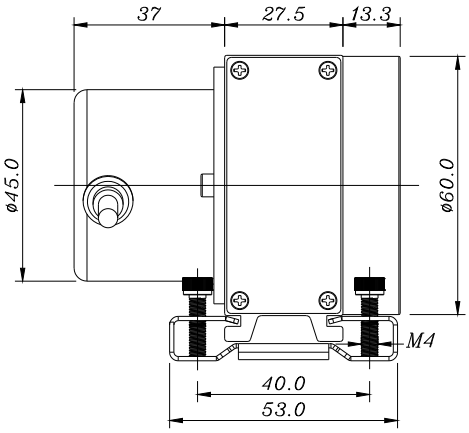
项目规格 Project specifications	内容 Content	备注 Notes
量程 Measurement range	100mm-10000mm	机座规格:S/M/L Base specifications:S/M/L
电源电压 Supply voltage	DC 5V～DC 10V(电阻输出型) DC 5V~DC 10V(Resistance output type) DC12V～DC24V(电压/电流/RS485) DC12V~DC24V(Voltage/Current/RS485)	波动 5%以下 Fluctuation below 5%
供应电流 Supply current	10mA ~ 35mA	
输出信号 Output signal	电阻输出型:5kΩ Resistance output type: 5kΩ 电压输出型:0-5V,0-10V Voltage output type: 0-5V, 0-10V 电流输出型:4-20mA(2 线制/3 线制/4线制) Current output type: 4-20mA (2-wire/3-wire/4-wire) 数字信号输出型:RS485 Digital signal output type: RS485 脉冲输出型:A B Z Pulse output type: A B Z	
线性精度 Linear accuracy	±0.25%FS～±0.3%FS (脉冲信号输出的根据客户选配的不同单圈脉冲数的编码器而定) (The output of the pulse signal is determined by the encoder selected by the customer for different single cycle pulse counts)	
重复性 Repeatability	±0.05%FS	
分辨率 Resolution	无断解析 Uninterrupted parsing (脉冲信号输出的根据客户选配的不同单圈脉冲数的编码器而定) (The output of the pulse signal is determined by the encoder selected by the customer for different single cycle pulse counts)	
线径规格 Wire diameter specification	0.8mm 或 1.5mm(SUS304) 0.8mm or 1.5mm(SUS304)	
工作环境温度 Working environment temperature	-10℃～65℃	
震动 Vibration	10Hz to 2000Hz	
防护等级 Protection grade	IP65	

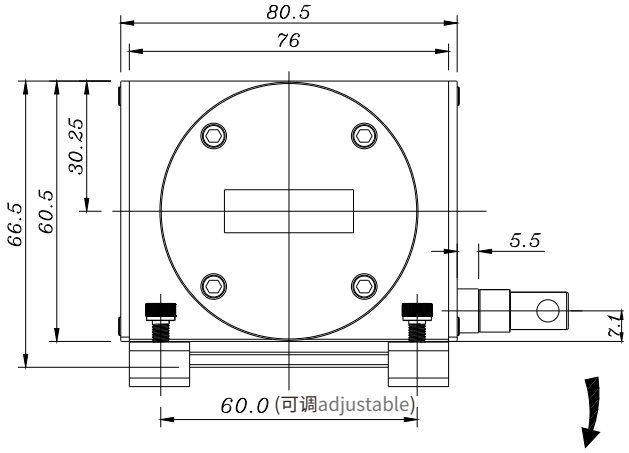
安装尺寸 Installation Dimensions

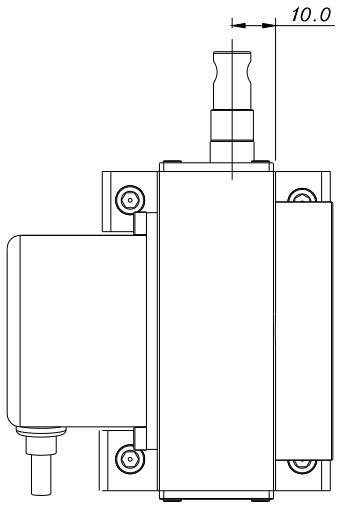
LPS-S

量程范围 Range of measurement (100-1300mm)



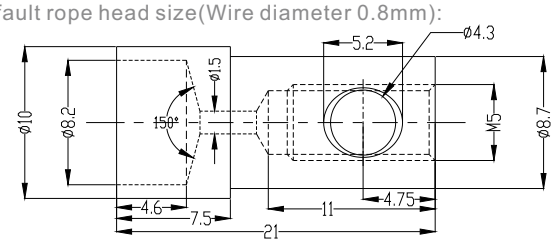






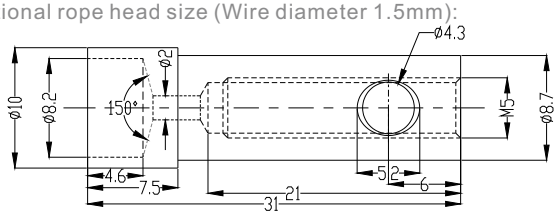
默认拉绳头尺寸(线径0.8mm):

Default rope head size(Wire diameter 0.8mm):



可选拉绳头尺寸(线径1.5mm):

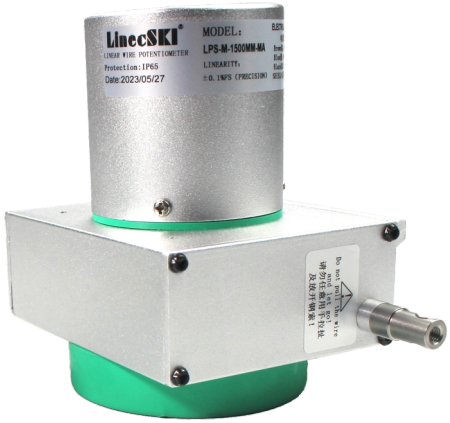
Optional rope head size (Wire diameter 1.5mm):

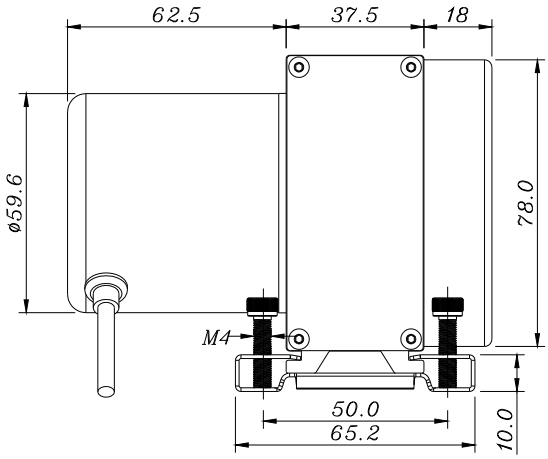


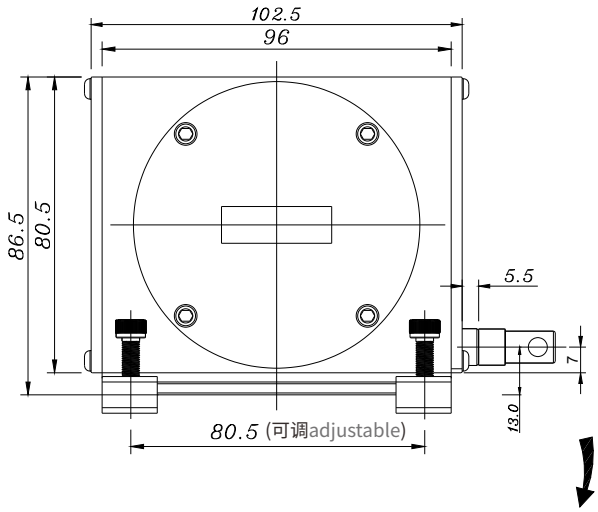
安装尺寸 Installation Dimensions

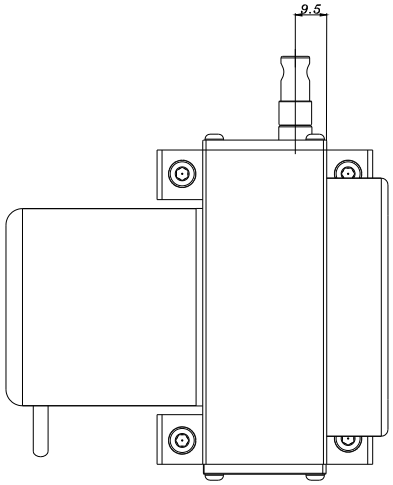
LPS-M

量程范围 Range of measurement（1000-4000mm）



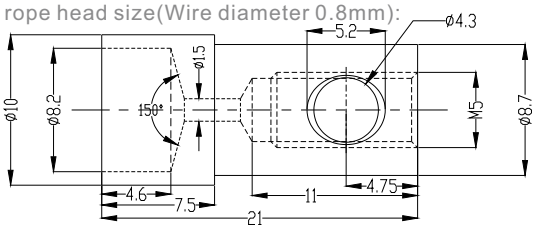






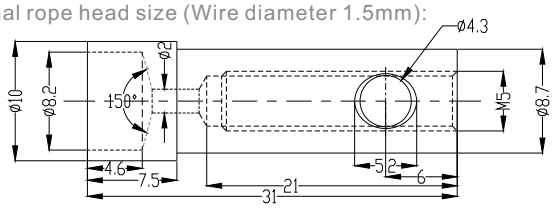
默认拉绳头尺寸（线径0.8mm）：

Default rope head size(Wire diameter 0.8mm):



可选拉绳头尺寸（线径1.5mm）：

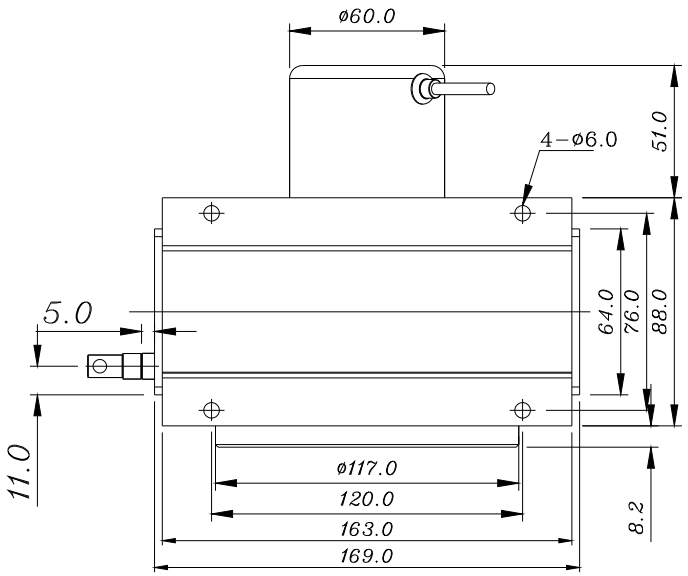
Optional rope head size (Wire diameter 1.5mm):

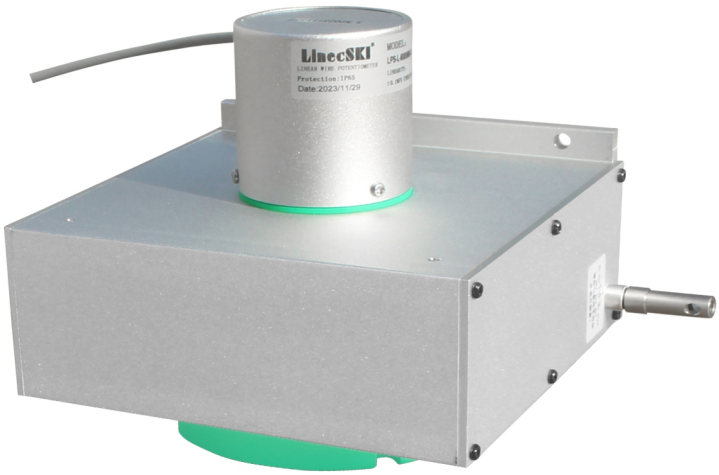


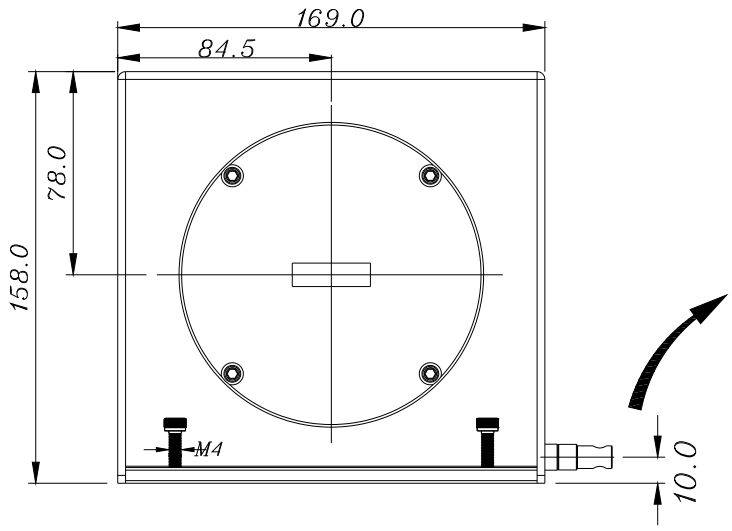
安装尺寸 Installation Dimensions

LPS-L

量程范围 Range of measurement（4500-10000mm）

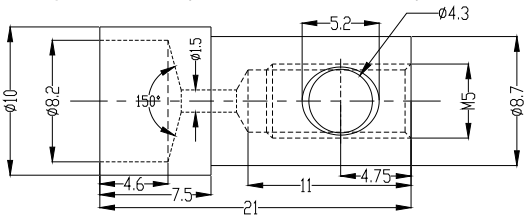






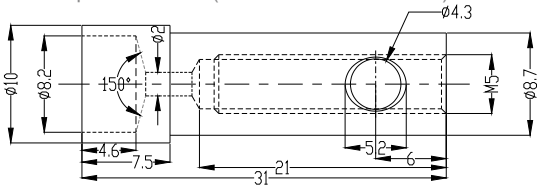
默认拉绳头尺寸（线径0.8mm）：

Default rope head size(Wire diameter 0.8mm):



可选拉绳头尺寸（线径1.5mm）：

Optional rope head size (Wire diameter 1.5mm):



产品特征 Product Characteristics

1、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，是直线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，成为一款结构紧凑、测量行程长、安装空间尺寸小、具有高精度测量的优良传感器。

该系列产品具有很大的选择空间，行程从 100mm 至 10000mm 不等，具有模拟电流信号 mA：4-20mA，模拟电压信号 V1：0-5V，V2：0-10V，脉冲信号 P：A、B、Z 相数字输出，RS485 数字信号输出等；满足大行程、高精度各种信号需求。

2、S 机座和 M 机座系列产品往复运动的瞬间加速不可超过 1 米/秒；L 机座系列产品往复运动的瞬间加速不可超过 0.5 米/秒；否则将导致钢索断裂。

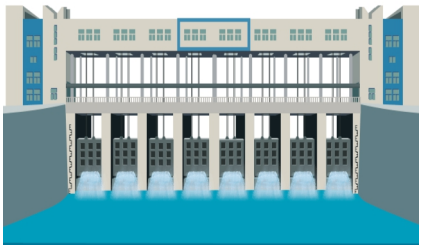
1. The rope-pulling displacement sensor, also called the rope-pulling encoder, the rope-pulling ruler, the rope-pulling ruler, the rope-pulling encoder, the rope-pulling displacement sensor, is the exquisite integration of the linear displacement sensor in the structure, it combines the advantages of angle sensor and linear displacement sensor, and becomes an excellent sensor with compact structure, long measuring stroke, small size of installation space and high precision measurement.

The range of products is from 100mm to 10000mm, with analog current signal mA: 4-20mA, analog voltage signal V1:0-5V, V2:0-10V, pulse signal P: A, B, Z phase digital output, RS485 digital signal output. To meet the needs of large-stroke, high-precision signals.

2. The instantaneous acceleration of the reciprocating motion of the S-size and M-size products should not exceed 1 m/s, and the instantaneous acceleration of the reciprocating motion of the L-size and XL-size products should not exceed 0.5 m/s Otherwise the cable will break.

产品细节 Product Details

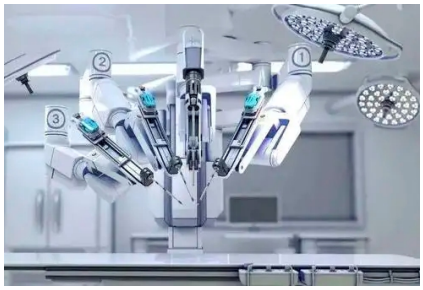
应用范围 Application Scope



● 闸门开度控制
Gate Opening Control

● 建筑健康监测
Building Health Monitoring

● 液压机
Hydraulic Press



● 工业机器人
Industrial Robots

● 纺织机械
Textile Machinery

● 桥梁与大坝监测
Bridge And Dam Monitoring

● 石油钻井设备
Oil Drilling Equipment

● 空气压缩机
Air Compressor

●●●

拉绳位移传感器应用场所极多，随着核心技术的发展，拉绳位移传感器得到越来越广泛的应用。
适合应用于工厂、山体、铁路、隧道、船业、机械、建筑业、医疗事业、桥梁铺设、水坝建设、汽车行业、核工业和航空航天事业等。

With the development of the core technology, the rope displacement sensor is used more and more widely. It is suitable for factories, mountains, railways, tunnels, ships, machinery, construction, medical industry, bridge laying, dam construction, automobile industry, nuclear industry and aerospace industry.

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2024年03月出品

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Main author: Engineer Li
Produced in March 2024