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

张力传感器
Tension sensors









MZL三滑轮张力传感器
MZL Triple Pulley Tension 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

MZL三滑轮张力传感器
MZL Triple Pulley Tension Sensor

产品实物图Product Picture







产品概述Product Overview

米朗科技张力传感器采用应变片在传感器内部组成惠斯通电桥，传感器在受到外力作用时会产生形变，引起紧贴在传感器内部的应变片阻抗成线性的增加或者减小。通过变送器可将力学量转换成标准的4-20mA，0-5V，0-10V等模拟信号直接与自动控制设备PLC或计算机等连接。

Miran Technology Tension Sensor adopts strain gauges inside the sensor to form a Wheatstone bridge. The sensor will deform when it is subjected to external force, which will cause the impedance of the strain gauges tightly attached to the sensor to increase or decrease linearly. Through the transmitter can be converted into standard mechanical quantities 4-20mA, 0-5V, 0-10V and other analog signals directly with the automatic control equipment PLC or computer connection.

米朗科技张力传感器采用合金钢材质，稳定性高，安装方便，信号稳定抗干扰，可安装不同规格滑轮 。

Miran Technology's Tension Sensor is made of alloy steel, high stability, easy to install, stable signal and anti-interference, and can be installed with different specifications of pulleys.

产品型号选型Product Model Selection

MZL - □□□N - □□

- MZL：米朗科技张力传感器 miran technology tension sensors
- □□□N：量程（单位：N） range (unit: N)
- □□：输出方式： output method:
  - A：4-20mA
  - V1: 0-5V
  - V2: 0-10V

例如Example：

MZL-300N-V1：米朗科技张力传感器，量程为300N，输出方式为0-5V。
MZL-300N-V1: Miran technology tension sensor, range 300N, output 0-5V.

电气连接Electrical Connection

传感器接线方式 sensor wiring method	红色 RED	黑色 BLACK	绿色 GREEN	屏蔽线SHIELDED WIRE
	电源正 power positive +12-24VDC	电源负 power negative 0V	信号输出 signal output	接大地 connect to earth GND

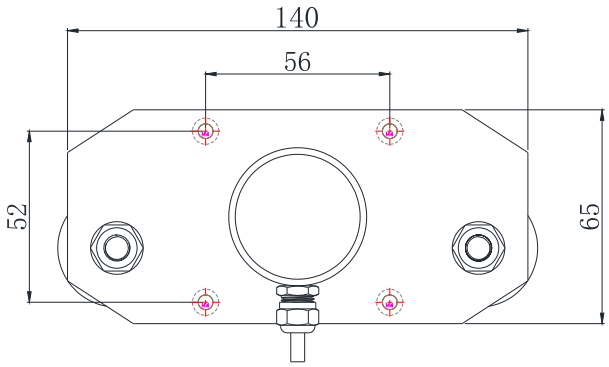
注：以上仅为参考，具体接线定义以产品实物标签上的标注为准。
Note: The above is for reference only, the specific wiring definition is subject to the labeling on the physical product label.

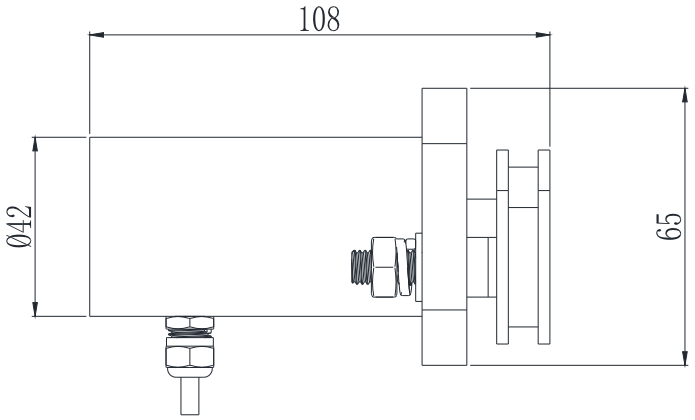
性能参数Performance Parameters

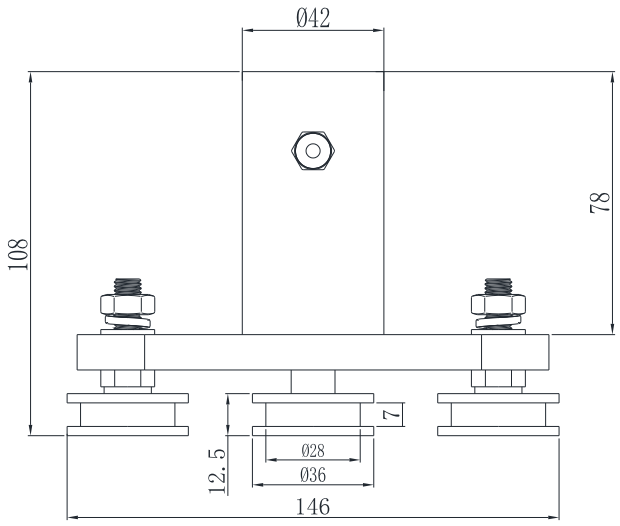
性能指标Performance indicators

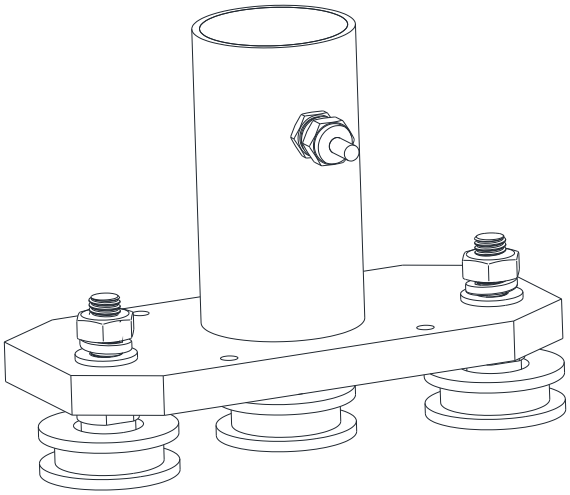
型号 Model number	MZL系列张力传感器 MZL series tension sensor	量程 Range	50-300N
灵敏度 Sensitivity	2.0±0.1mv/V	阻抗 Impedance	350Ω
综合精度 Comprehensive accuracy	±0.1%FS	绝缘电阻 Insulation resistance	⩾5000MΩ
非线性 Nonlinear	±0.1%FS	工作温度 Operating temperature	-20～+80℃
滞后误差 Lag error	±0.1%FS	极限过载 Maximum overload	200%R.C
重复性误差 Repeatability error	±0.1%FS	安全过载 Safety overload	150%R.C
零点温度系数 Zero temperature coefficient	±0.05%FS/10℃	材质 Material	合金钢 alloy steel
蠕变 Creep	±0.1%FS/30min	传感器工作电压 Sensor operating voltage	+12-24VDC

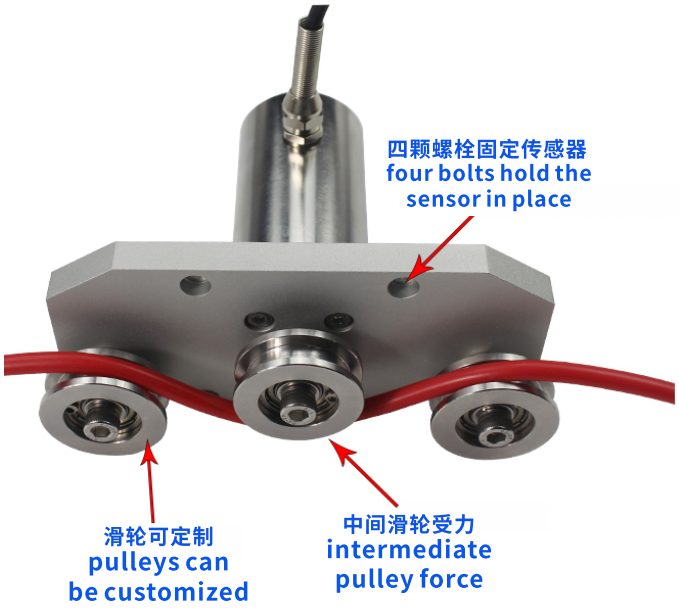
产品尺寸图Product Dimension Drawing





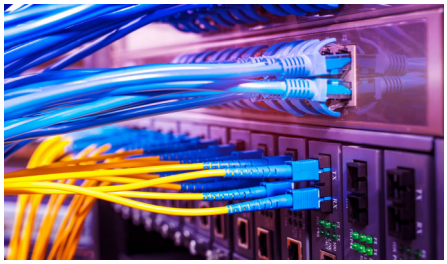








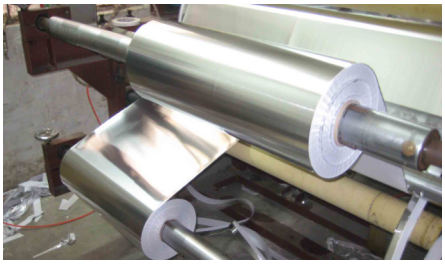
应用领域Areas of application



• 光纤动态测量
Fiber optic dynamic measurement



• 电缆动态测量
Cable dynamic measurement



• 胶带生产设备测量
Tape production equipment measurement



• 线材生产设备
Industrial automation



• 纱线生产设备
Yarn production equipment



• 工业自动化
Industrial automation



• 纺织领域
Textile field



• 汽车装配测试
Automotive assembly testing

• • •

张力传感器应用场所极多，随着核心技术的发展，张力传感器得到越来越广泛的应用；适合应用于光纤、纱线、电缆、胶带等各类线材生产设备，用于张力的动态测量。

Tension sensors are used in many places, with the development of core technology, tension sensors are more and more widely used; suitable for use in optical fiber, yarn, cable, tape and other various types of wire production equipment, for the dynamic measurement of tension.



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质量第一 Quality First

用户至上 Customer 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-张力传感器彩页

20260401 - Tension sensor brochure

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Main author: Wang designer

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