ZLC06系列 S 型一体纠偏导正架扩展传感器磁粉张力控制ZLC06 S Web guide frame & Tension control system

用户使用手册

User Guide

硬件平台：P6#　　Hardware platform：P6#

适用型号：Z L C 0 6 系列 S 型 Applicable model：Series Z L C 0 6 model S

软件版本：V3.22　　Software version：V3.22

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安全注意事项

感谢使用 Bedook 纠偏与张力控制设备！
在您安装、使用、检查、维修之前，请务必仔细阅读本用户使用手册。

以下为说明书所提供的安全警示标志的含义：


危险：如果错误操作，将会产生危险情况，导致人员伤亡。


小心：如果错误操作，将会产生危险情况，造成设备损坏及财产损失。


注意：错误操作会导致设备配置混乱和异常操作

- 控制器、传感器和执行器均采用开关电源 24VDC 输出供电，切勿将 220VAC 直接接入以上设备。
- 安装工作必须在无电状态下进行。

- 只有正确连接保护接地，才能减少外界电磁干扰。
- 与电网断开后，要等电容放电完毕，才可进行操作。
- 不要让任何异物进入控制器内。在加工螺丝孔及配线时，切勿让铁屑及零碎电线落入其中。否则会有导致产品损坏、冒烟、起火、误动作等危险。
- 在使用前，要除去所有覆盖物，以防止产品过热。
- 切勿在易燃易爆等危险环境中使用。
- 请勿将本产品安装在高温、潮湿等恶劣环境下。
- 请勿将产品直接安装在易受震动冲击的环境中。
- 任何单位部门（Bedook 和 Bedook 指定公司除外）未经允许不得擅自拆卸、修理及更改产品。

注意：Bedook 对由于不遵守本说明或适用规则而造成的损坏概不负责。

因产品更新换代迅速，说明书变动之处，恕不另行通知，本公司对此保留最终解释权。

Safety Precautions

Thank you for choosing Bedook@ roll rectifying tension control system!

Please read the instructions carefully before installation, operation, inspection and maintenance. The following illustrations show the meanings of the safety warning signs provided in the manual.

 Warning: Faulty operations will cause dangerous situations including casualties.

 Caution: Faulty operations will cause dangerous situations including equipment damage and property loss.

 Notice: Faulty operations will cause disorder of the device configuration and abnormal operation.

- The controller, sensor and driver are all powered by switching power with 24VDC supply. Do not connect 220VAC directly to the equipment.
- Installation must be operated under no-power state.

- Only when the protective grounding is properly connected can the external electromagnetic interference be reduced.
- After disconnecting from the grid, wait until the capacitor is fully discharged before further operation.
- Do not let any foreign matter enter the device machining screw holes and wires, do not let iron filings or broken wire pieces fall into the device. Otherwise, there could be danger of product damage, smoke, fire, malfunction, etc.
- Remove all covers before operating in case of overheat.
- Do not operate in hazardous environment such as flammable or explosive.
- Do not install this product in harsh environment such as high temperature or humidity.
- Do not install this product directly in an environment subject to vibration.
- Any unit or department (apart from Bedook@ and Bedook@ designated companies) may not disassemble, repair or modify this product without permission.

Notice: Bedook@ is not responsible for any damage caused by noncompliance with this instruction or applicable rules.

Due to rapid product upgrades, the specifications are subject to change without notice, and the company reserves the right of final interpretation.

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1 系统概述 System Overview

ZLC06系列一体纠偏导正架，具有分辨率高、稳定性好、响应速度快、抗干扰能力强、结构简单、操作方便等优点，可广泛应用于各类卷材的纠偏控制。ZLC06系列 S 型导正架在纠偏控制的同时，通过扩展张力传感器，可方便地实现双路磁粉刹车张力控制。

ZLC06 series integrated Web guide frame has the advantages of high resolution, good stability, fast response, strong anti-interference ability, simple structure, easy operation, etc., and can be widely used in all kinds of coil Web guide. The ZLC06 series S-type can easily achieve dual magnetic particle brake tension control by expanding tension sensor while Web guide control.

1 技术规格 Technical specifications

1.1 纠偏传感器 Rectification sensor

型号	ZLC21	ZLC22
测量原理	超声波	红外光电
测量精度	0.01mm	0.02mm
测量范围	8mm	4mm
电源与功耗	24VDC （18VDC ~ 28VDC），5W	
通讯接口	CAN2.0	
工作环境	温度-10℃ ~ +60℃，湿度<95%无（水汽）凝结	
外形尺寸	长 x 宽 x 厚（102mm x 81mm x 29mm），开口宽度 44mm	

Model	ZLC21	ZLC22
Measuring method	Utrasonic	Infrared photoelectric
Measuring resolution	0.01mm	0.02mm
Measuring range	8mm	
Parameter saves time	>10years	
Power and consumption	24VDC （18DC ~ 28VDC），5W	
Communication port	CAN2.0	
Working environment	Temperature -10 ° C ~ +60 ° C, humidity <95% without (water vapor) condensation	
Dimensions	Length x width x thickness（102mm x 81mm x 29mm）, Opening width 44mm	

1.2 张力传感器 Tension sensor

测量原理	应变片电桥
结构形式	枕式/盘式（穿轴式）/悬臂式
测量范围	10kg/20kg/50kg/100kg 等，详见张力传感器说明书
分辨率	0.3%
非线性误差	±0.02%R.O.
零点漂移	±0.1%R.O.
温度漂移	±0.03%R.O.

电源与功耗	24VDC（18VDC ~ 28VDC），10W
安全超载	150%R.C.
通讯接口	CAN2.0
工作环境	温度-10℃ ~ +60℃，湿度<95%无（水汽）凝结
外形尺寸	长 x 宽 x 高（124mm x 50mm x 78mm）

Measuring method	Strain gauge bridge
Structure type	Pillow/ Disc/ Cantilever
Measuring range	10kg/20kg/50kg/100kg，See the tension sensor manual for details
Measuring resolution	0.3%
Nonlinear error	±0.02%R.O.
Zero drift	±0.1%R.O.
Temperature drift	±0.03%R.O.
Power and consumption	24VDC（18VDC ~ 28VDC），10W
Safe Overload	150%R.C.
Communication port	CAN2.0
Working environment	Temperature -10 ° C ~ +60 ° C, humidity <95% without (water vapor) condensation
Dimensions	Length x width x thickness（124mm x 50mm x 78mm）

1.3 系统 System

最大推力/张力	80kg
最大运动速度	20mm/s
运动精度	0.02mm
最大纠偏行程	±40mm（不同规格详见机械尺寸部分内容）
纠偏角度	< ±5°
最大磁粉刹车驱动电流	1A/2A（外置磁粉驱动器为 3A/4A）
参数保存时间	>10 年
电源	24VDC (18VDC ~ 28VDC)
工作环境	温度-10℃ ~ +60℃，湿度<95%无（水汽）凝结

Maximum thrust /Tension	80kg
Maximum speed	20mm/s
Motion accuracy	0.02mm
Maximum rectify range	±40mm（不同规格详见机械尺寸部分内容）
Rectification angle	< ±5°
Maximum magnetic particle brake current	1A/2A（The external magnetic particle driver is 3A/4A）
Parameter saves time	>10 years
Power supply	24VDC (18VDC ~ 28VDC)
Working environment	Temperature -10 ° C ~ +60 ° C, humidity <95% without (water vapor) condensation

1.4 开关电源选配 Switching power supply option

选配 DC24V 开关电源功率 >= (30 + 磁粉驱动电流 x 24 x 张力通道数) x 1.5W

Optional DC24V switching power supply power > = (30 + magnetic particle driving current x 24 x number of tension channels) x 1.5W

例 1：单纠偏，则开关电源功率 = 30 x 1.5 = 45W，故选 50W 开关电源

Example 1: for single rectification, the power of switching power supply = 30 x 1.5 = 45W, so 50W switching power supply is selected

例 2：双通道 2A 张力控制，则开关电源功率 = (30 + 2 x 24 x 2) x 1.5 = 189W，故选 200W 开关电源

Example 2: dual channel 2A tension control, then the switching power supply power = (30 + 2 x 24 x 2) x 1.5 = 189W, so 200W switching power supply is selected

例 3：双通道 4A 张力控制，则开关电源功率 = (30 + 4 x 24 x 2) x 1.5 = 333W，故选 350W 开关电源

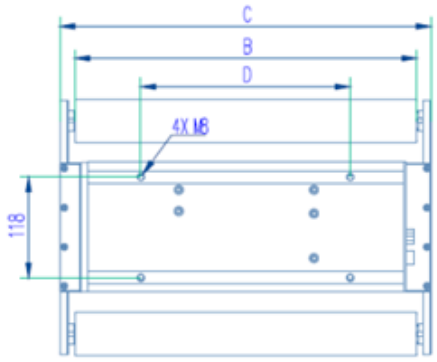
Example 3: dual channel 4A tension control, then the switching power supply power = (30 + 4 x 24 x 2) x 1.5 = 333W, so 350W switching power supply is selected

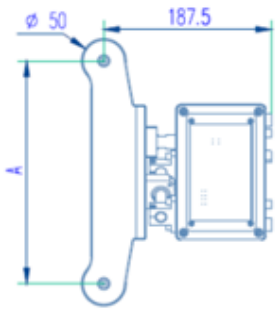
2 设备安装 Equipment installation

⚠ 应在没有任何电气连接的前提下进行机械安装，严禁通电状态下进行机械安装。

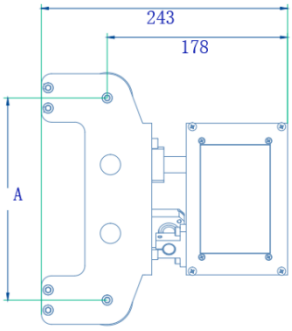
⚠ Mechanical installation shall be carried out without any electrical connection. It is strictly prohibited to carry out mechanical installation under power on state.

2.1 导正架本体安装 Frame body installation





不带接料台
No cutting table



带接料台
Having cutting table

产品型号	辊间距 A(mm)	辊长度 B(mm)	托盘长度 C(mm)	安装孔距 D(mm)	最大行程(mm)	据中点最大限幅
ZLC06-200-50	175	200	234	140	±25	±30%
ZLC06-250-50		250	284			
ZLC06-300-50	200	300	334	180	±25	±25%
ZLC06-350-50		350	384	215		
ZLC06-400-50		400	434	245	±30	±30%
ZLC06-450-50		450	484	280	±40	±40%
ZLC06-500-50		500	534	315		
ZLC06-550-50		550	584	345		
ZLC06-600-50		600	634	380		

导正架底部有 4 个 M8 螺纹安装孔，用于将导正架固定到机械设备上，安装孔间距为 D x 118mm

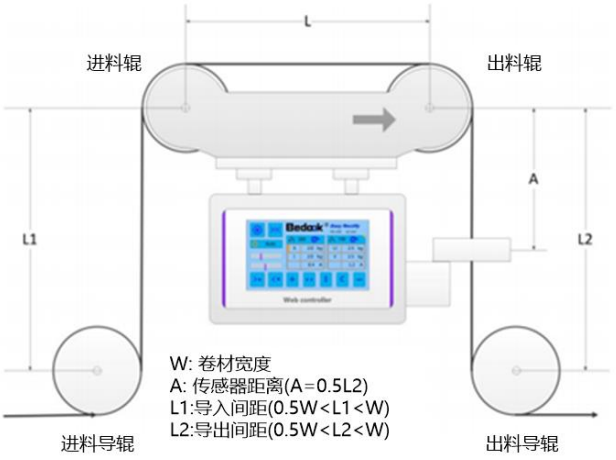
注：定制产品的外形安装尺寸以图纸为准

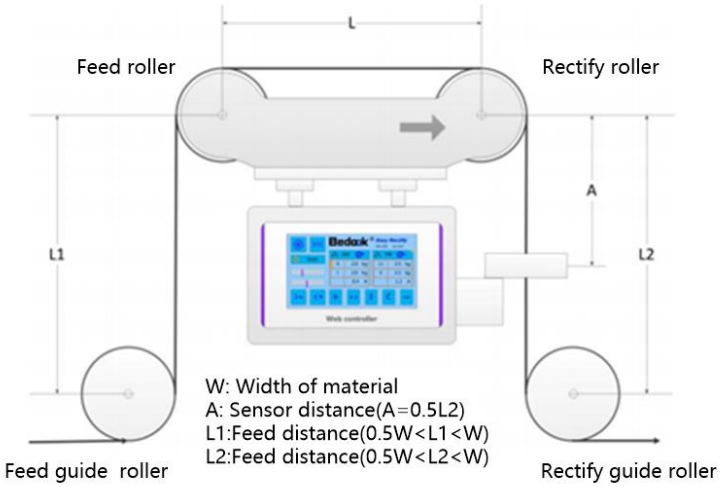
Model	Roll interval A(mm)	Roll length B(mm)	Pallet length C(mm)	Installation hole Spacing D(mm)	Maximum range (mm)	Maximum limit
ZLC06-200-50	175	200	234	140	±25	±30%
ZLC06-250-50		250	284			
ZLC06-300-50	200	300	334	180	±25	±25%
ZLC06-350-50		350	384	215		
ZLC06-400-50		400	434	245	±30	±30%
ZLC06-450-50		450	484	280	±40	±40%
ZLC06-500-50		500	534	315		
ZLC06-550-50		550	584	345		
ZLC06-600-50		600	634	380		

There are four M8 threaded mounting holes at the bottom of the guide frame, which are used to fix the guide frame to the mechanical equipment. The spacing of the mounting holes is D x 118mm

Note: The installation dimensions of customized products are subject to the drawing

2.2 进料及出料导向辊的安装 Installation of feed and discharge guide rollers





2.3 导正架的安装方向 Install direction

导正架可任意角度安装，详见 5.4.1 纠偏方向的说明。
The guide frame can be installed at any angle. See the description in 5.4.1 for details.

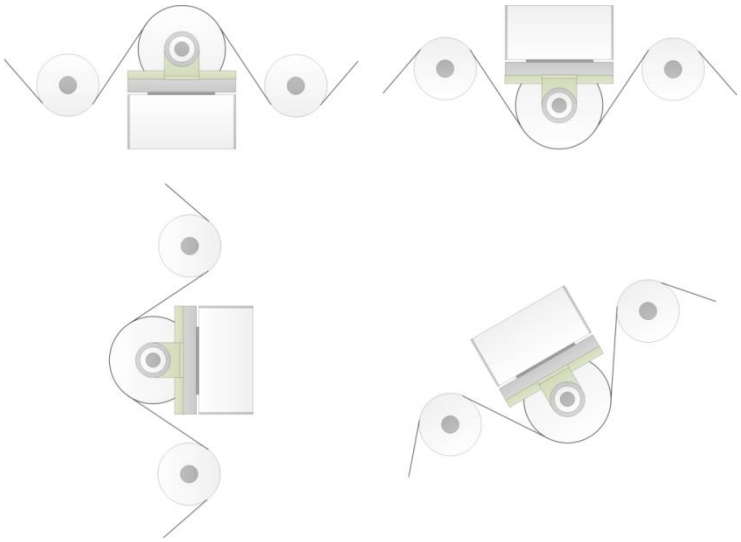
2.4 张力传感器安装 Installation of tension sensor

2.4.1 传感器安装方式 Sensor installation mode

枕式张力传感器一般成对使用，一个通道（一根张力辊）配置左右两个张力传感器，如下图所示，可任意角度安装。
Pillow type tension sensors are generally used in pairs. One channel (one tension roller shaft) is equipped with left and right tension sensors, as shown in the figure below, which can be installed at any angle.

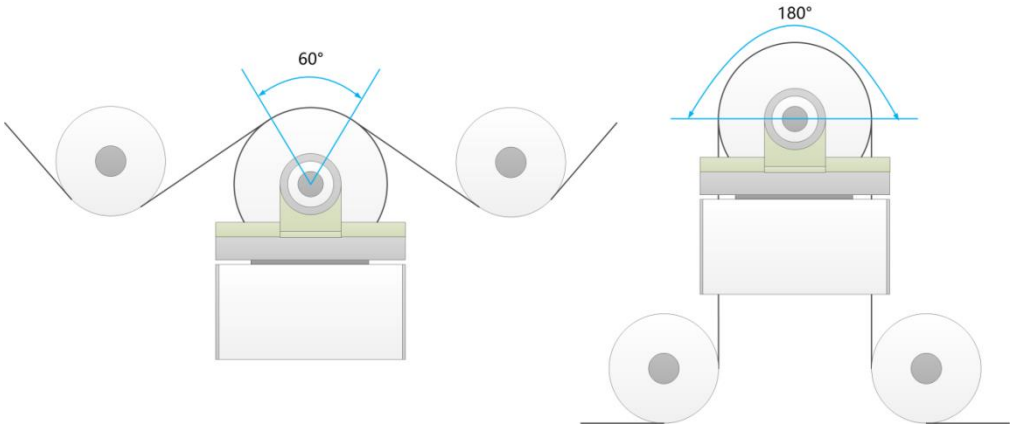
要求张力辊保持水平，和卷料长度方向保持垂直，使两个张力传感器对称均衡受力。若两个传感器偏载严重，有可能降低系统稳定性。

The tension roller shaft is required to be horizontal and perpendicular to the length direction of the coil, so that the two tension sensors can bear the force symmetrically and evenly. If the two sensors are seriously biased, the stability of the system may be reduced.



张力辊包角应大于 60°，如下图所示

The wrap angle of the tension roller should be greater than 60°, as shown in the following figure



在不同包角下，卷材张力和传感器检测到力的关系如下表：

Under different wrap angles, the relationship between the coil tension and the force detected by the sensor is as follows:

包角(度)Wrap angles°	卷材张力(kg)Tension/kg	传感器检测力(kg) Sensor detection value/kg
60	10	10.0
70	10	11.5
80	10	12.9
90	10	14.1
100	10	15.3
110	10	16.4
120	10	17.3
130	10	18.1
140	10	18.8
150	10	19.3
160	10	19.7
170	10	19.9
180	10	20.0

2.4.2 传感器机械尺寸 Sensor mounting dimensions

张力传感器包括枕式、盘式、悬臂式等，外形安装尺寸详见产品安装尺寸图。

The tension sensor includes pillow type, disk type, cantilever type, etc. The external installation dimensions are detailed in the product installation dimensions diagram.

3 系统连接 System connection

3.1 接口定义 Interface definition

代号	名称	类型	线序
POW	电源输入	GX16-3P 航插	1 棕：DC24V+ 2 蓝：DC24V- 3 黄绿：接地线 PE
SGI	开关量输入	GX12-6P 航插 (每路为双向光耦输入)	1 棕：DI0，居中信号：上升沿有效(PNP)/下降沿有效(NPN) 2 蓝：DI1，自动/手动纠偏切换信号，PNP：高电平自动/低电平手动；NPN：低电平自动/高电平手动； 3 白：DI2，保留 4 黑：DI3，保留 5 绿：DI4，保留 6 橙：DICom，开关量输入信号公共端
ALM	开关量报警输出 （可不用）	GX12-3P 航插 （NPN 输出）	1 蓝：DOCom，公共地 2 棕：DO0+，纠偏极限报警+ 3 黑：DO1+，保留
MBC	磁粉刹车电流输出 (A 款无此接口)	GX12-4P 航插	1 棕：Iout1+，1#通道磁粉刹车控制电流+ 2 蓝：Iout1-，1#通道磁粉刹车控制电流- 3 黑：Iout2-，2#通道磁粉刹车控制电流- 4 白：Iout2+，2#通道磁粉刹车控制电流+
SEN	传感器接口	RJ45	CAN bus
UI	人机界面接口 (导正架无此接口)	USB（RS232）	

Mark	Name	Type	Line order
POW	Power supply	GX16-3P	1 Brown：DC24V+ 2 Blue：DC24V- 3 Yellow green：PE
SGI	Digital input	GX12-6P (Supports NPN or PNP, but cannot be used at the same time)	1 Brown：DI0，Centering signal：Rising edge effective (PNP)/ Falling edge effective (NPN) 2 Blue：DI1，Reserved 3 Write：DI2，Coil 2 pulse signal 4 Black：DI3，Coil 1 pulse signal 5 Green：DI4，Spindle pulse signal（Start / stop signal） 6 Orange：DICom
ALM	Digital alarm Output (Not a must)	GX12-3P	1 Blue：DOCom，Command Gnd 2 Brown：DO0+，Rectify limit alarm+ 3 Black：DO1+，No coil alarm+
MBC	Magnetic particle brake current output (There is no such interface in model A)	GX12-4P	1 Brown：Iout1+，1# Current out+ 2 Blue：Iout1-，1# Current out - 3 Black：Iout2-，2# Current out - 4 Write：Iout2+，2# Current out+

SEN	Sensor interface	RJ45	CAN bus
UI	Man machine interface	USB（RS232）	Only for rectify actuator

ALM 内部光耦输出电路最大允许的电压 DC30V，最大允许的电流 80mA。

The maximum allowable voltage of ALM internal optocoupler output circuit is DC30V and the maximum allowable current is 80mA.

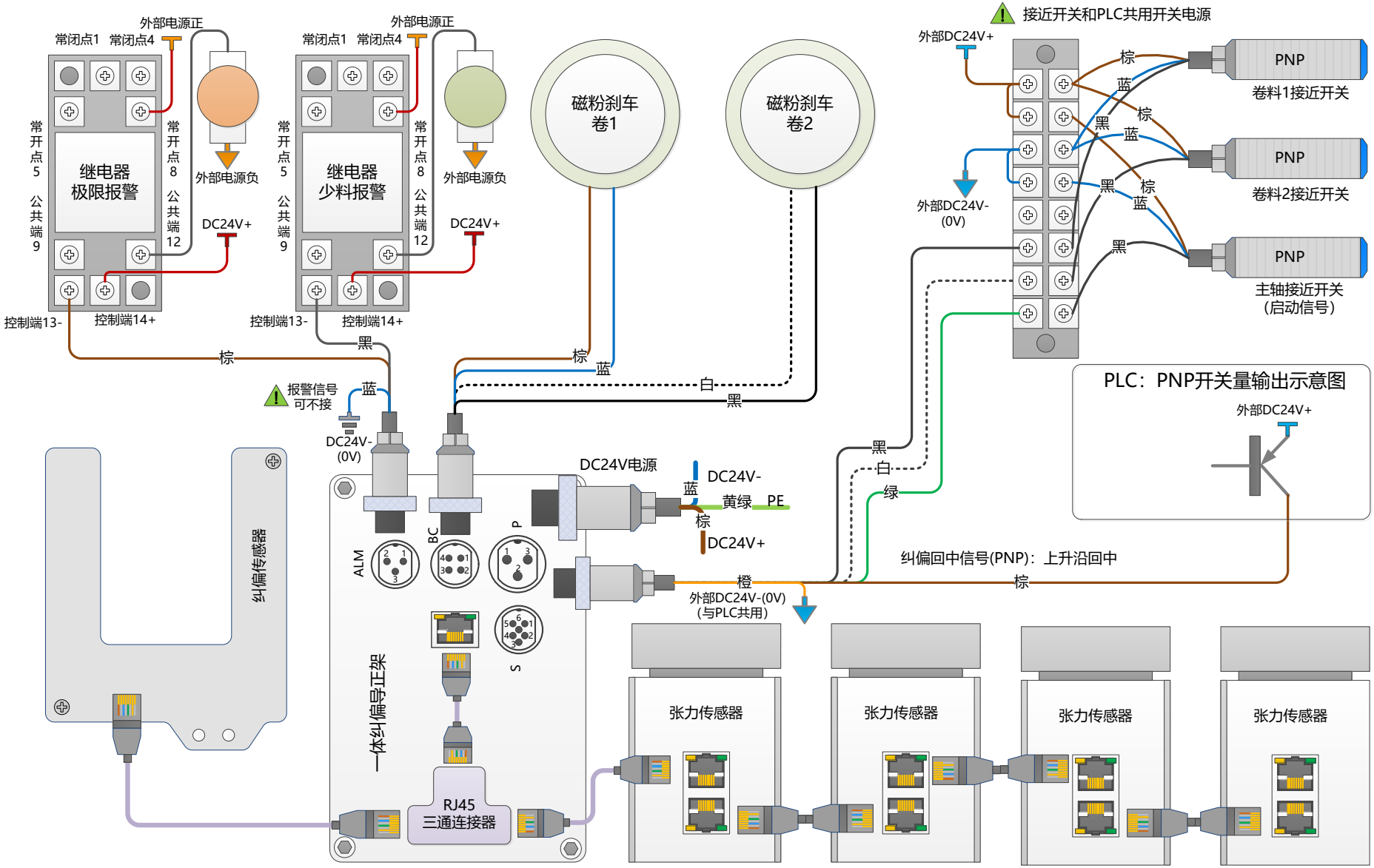
3.2 电源连接 Power connection

一体纠偏导正架或纠偏执行器、人机界面、外扩磁粉驱动器、纠偏传感器和张力传感器为张力纠偏系统内部设备，共用一个开关电源。接近开关为外部信号设备，和机械设备 PLC 系统共用一个开关电源。详见典型接线图。

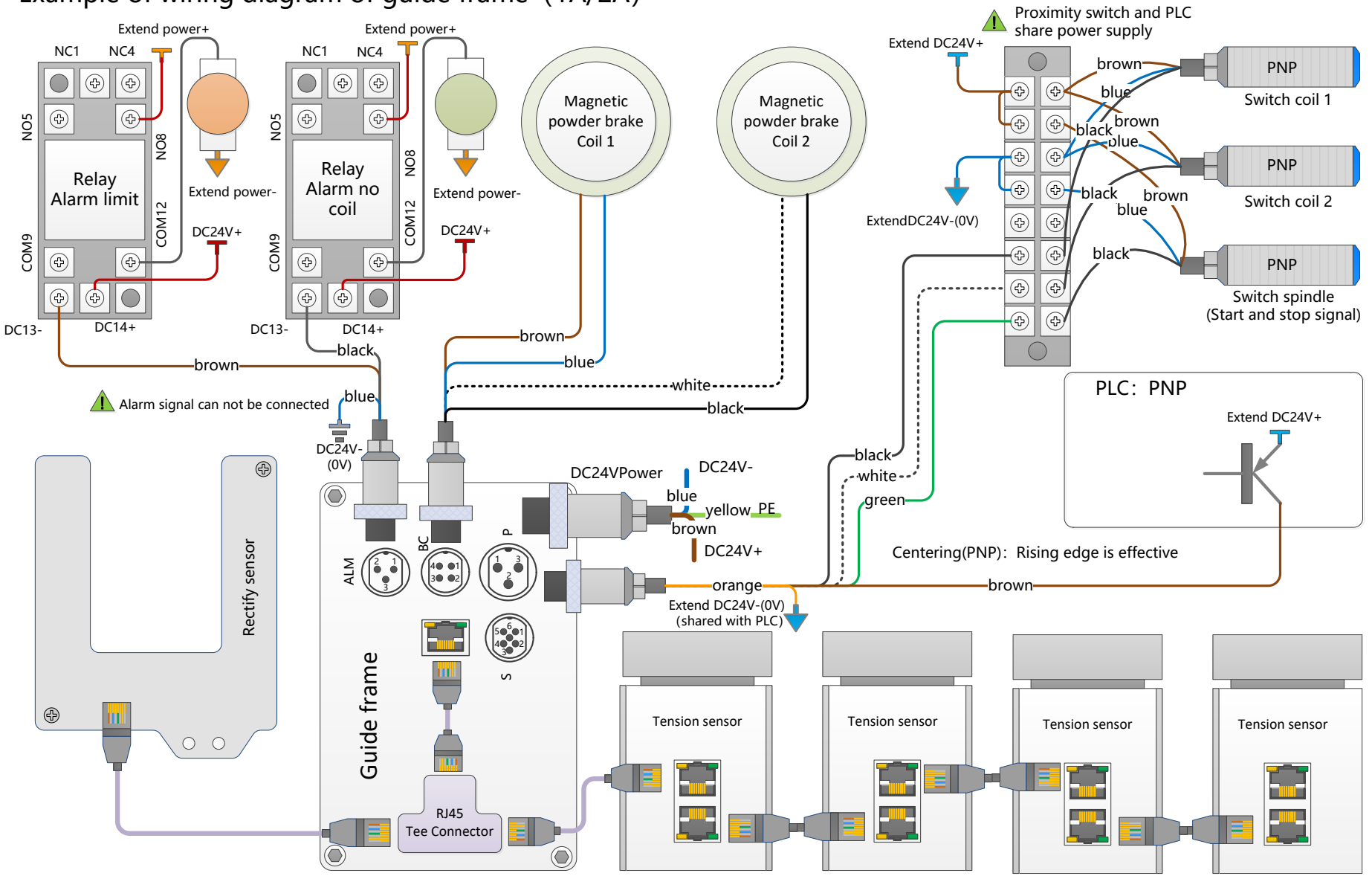
The integrated guide frame or rectify actuator, man-machine interface, expanded magnetic particle driver, rectify sensor and tension sensor are the internal equipment, they share a switching power supply. The proximity switch is an external signal equipment and shares a switching power supply with the mechanical equipment PLC system. See typical wiring diagram for details.

3.3 典型接线图 Typical Connection Diagram

一体纠偏导正架接线图示例（1A/2A）



Example of wiring diagram of guide frame（1A/2A）



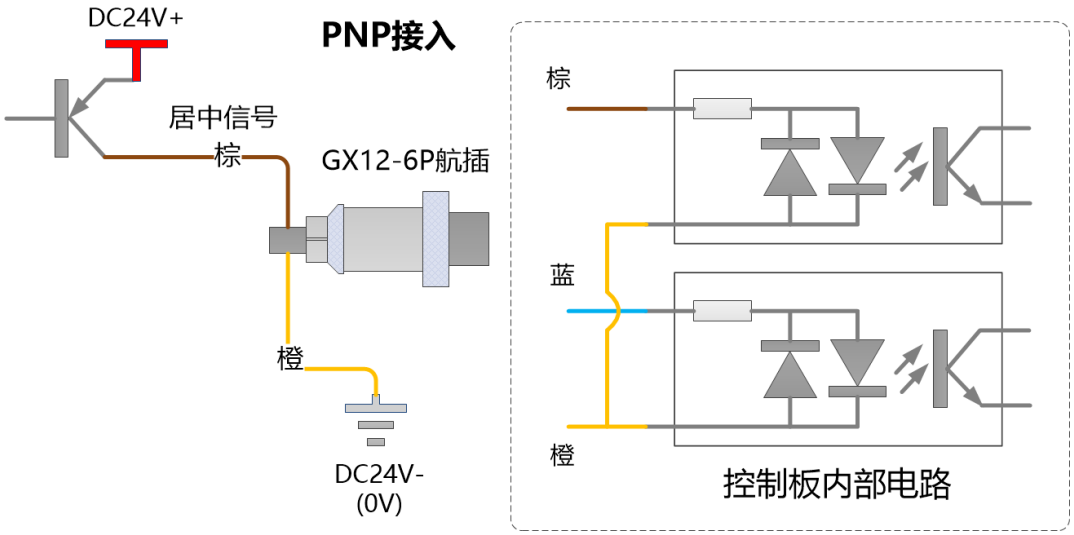
⚠ 以上仅为典型的系统接线图，具体要视实际系统构成而定。张力传感器和纠偏传感器为 CAN 总线设备，在系统安装时要结合机器的结构考虑 CAN 总线路由最短，必要时可采用三通网口（内部直通）扩展接口。

⚠ The above is only a typical system wiring diagram, which depends on the actual system composition. The tension sensor and rectify sensor are CAN bus devices. When installing the system, the shortest CAN bus route should be considered in combination with the structure of the machine. If necessary, the three-way network port (internal direct) expansion interface can be adopted.

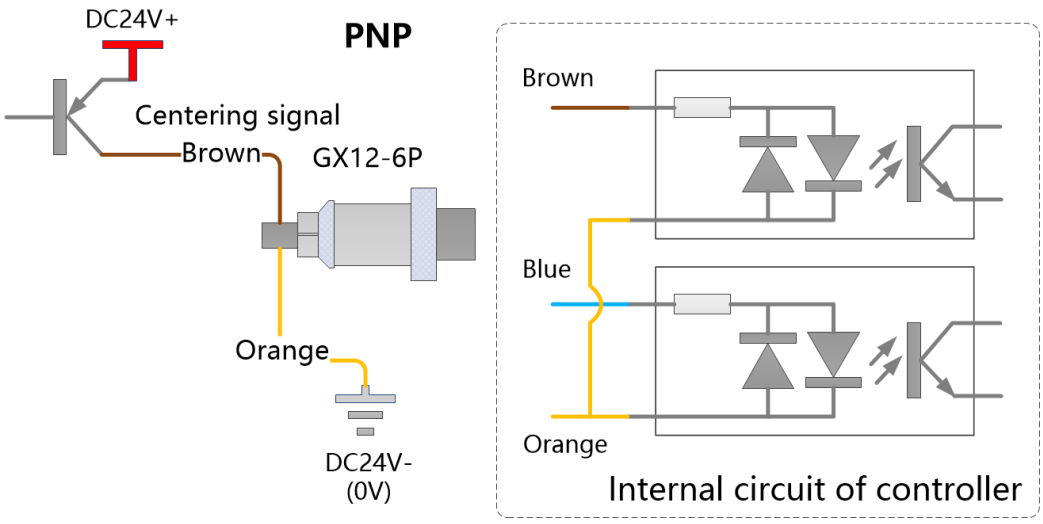
3.4 开关量输入端口 S（控制信号）接线图 Wiring diagram of digital input -Port S (control signal)

3.4.1 上位设备为集电极开路（PNP）输出 The upper device is open collector (PNP) output

1 棕：DI0，纠偏居中信号，上升沿有效。
6 橙：DICom，开关量输入信号公共端

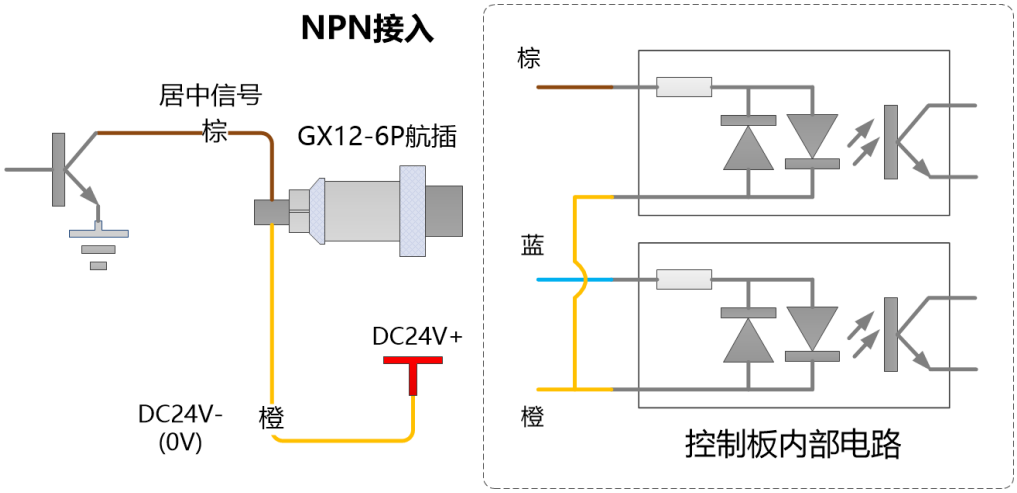


1 Brown：DI0，Centering signal：Rising edge is effective.
6 Orange：DICom

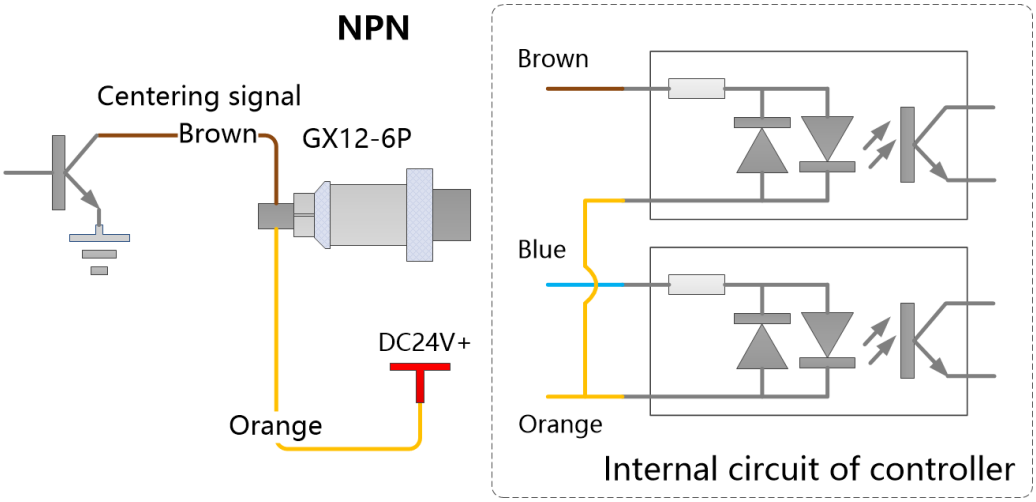


3.4.2 上位设备为集电极开路（NPN）输出 The upper device is open collector (PNP) output

1 棕：DI0，纠偏居中信号，下降沿有效。
6 橙：DICom，开关量输入信号公共端

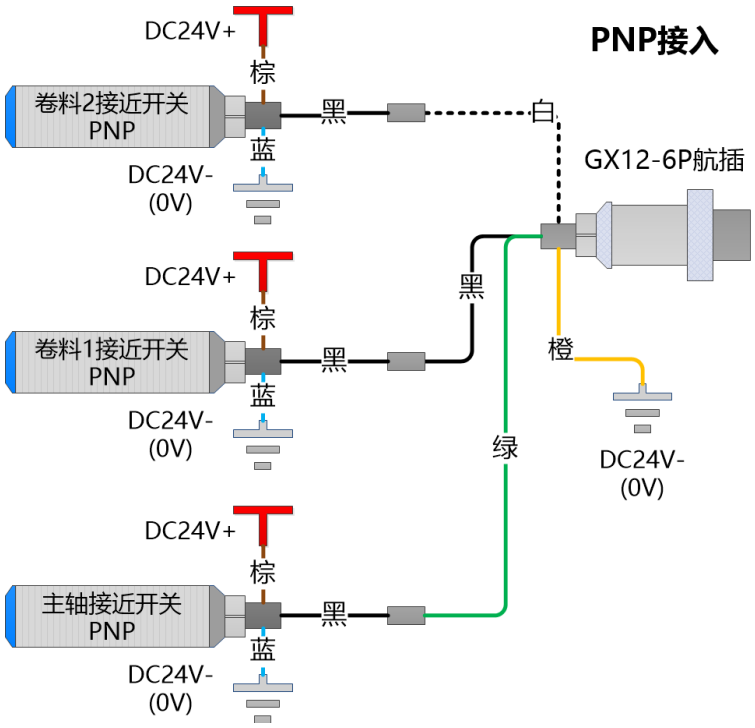


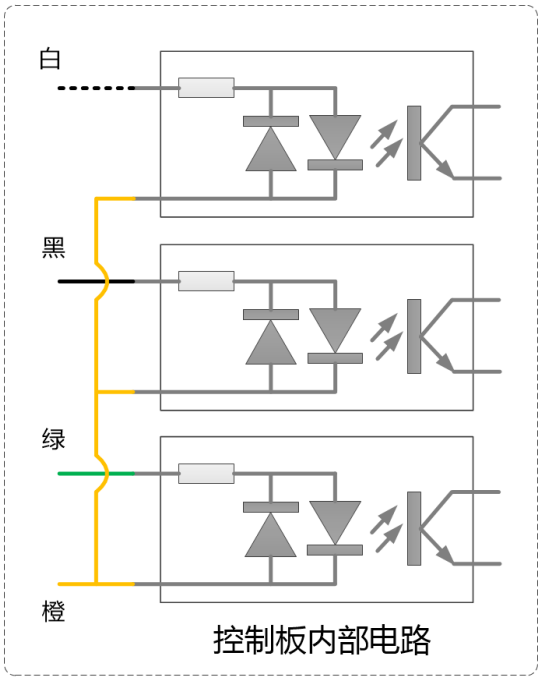
1 Brown：DI0，Centering signal：Falling edge effective
6 Orange：DICom



3.5 开关量输入端口 S（接近开关）接线图 Wiring diagram of digital input -Port S (Proximity switch signal)

3.5.1 PNP 型接近开关 PNP Proximity switch





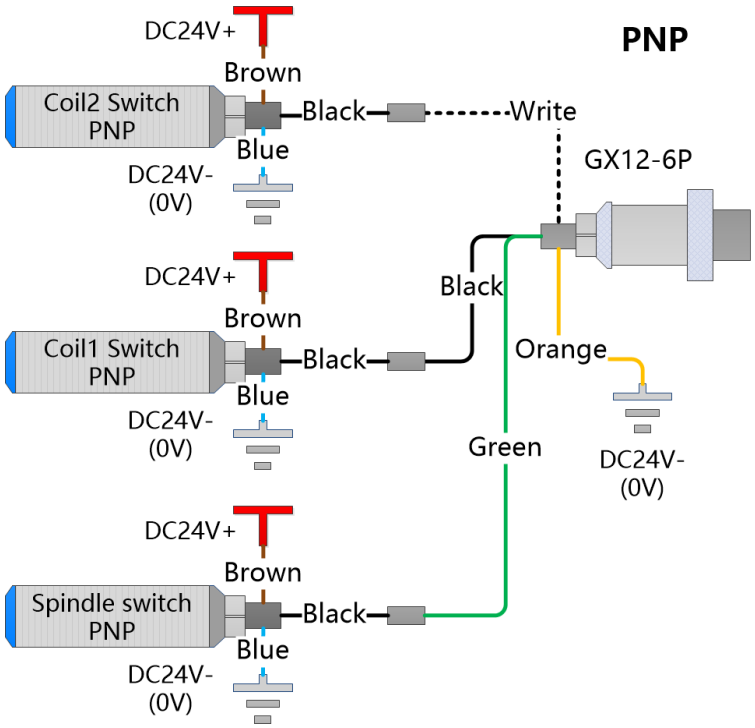
3 白：DI2，料卷 2 计数信号，连接近开关信号线

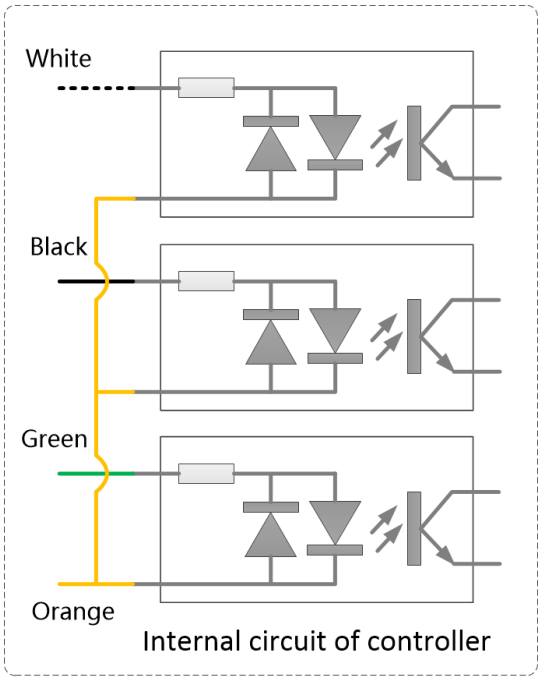
4 黑：DI3，料卷 1 计数信号，连接近开关信号线

5 绿：DI4，主轴计数信号，连接近开关信号线

6 橙：DICom，开关量输入信号公共端

注：单通道时料卷 2 接近开关不接





3 Write：DI2，Coil 2 pulse signal

4 Black：DI3，Coil 1 pulse signal

5 Green：DI4，Spindle pulse signal

6 Orange：DICom

Note: in case of single channel, the proximity switch of coil 2 is no use.

3.5.2 NPN 型接近开关 NPN Proximity switch

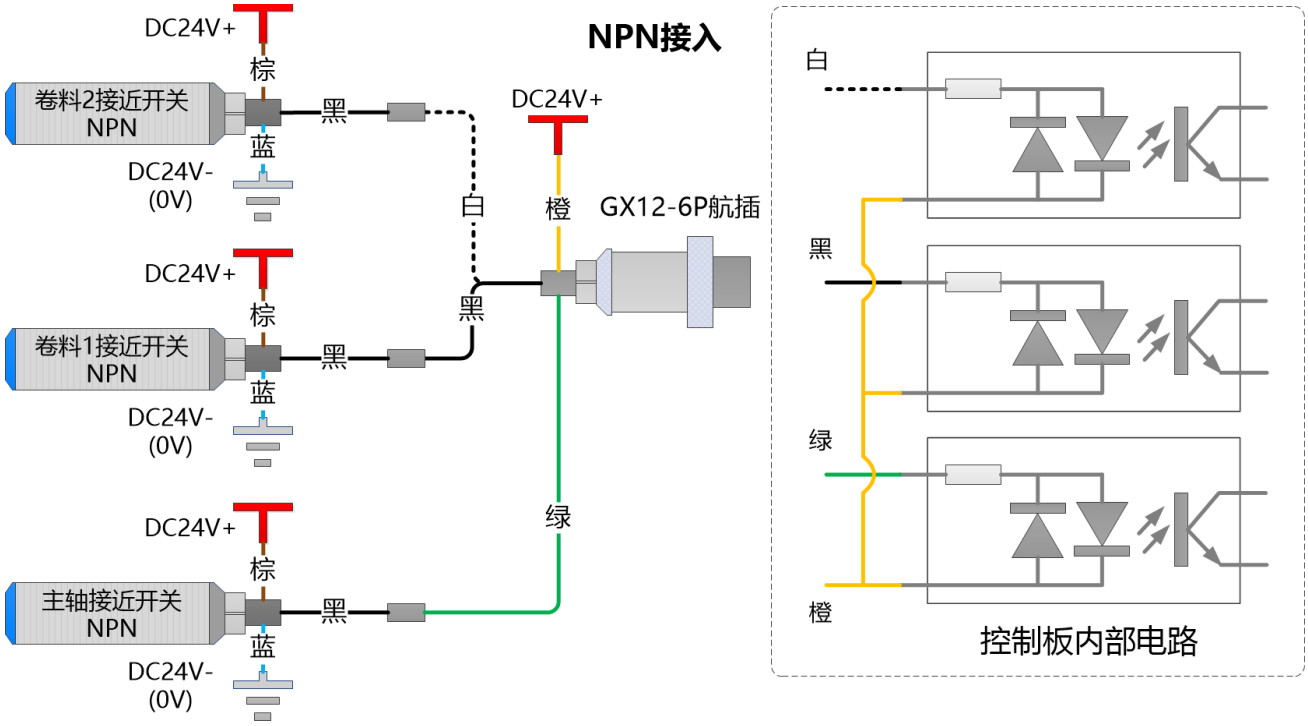
3 白：DI2，料卷 2 计数信号，连接近开关信号线

4 黑：DI3，料卷 1 计数信号，连接近开关信号线

5 绿：DI4，主轴计数信号，连接近开关信号线

6 橙：DICom，开关量输入信号公共端

注：单通道时料卷 2 接近开关不接



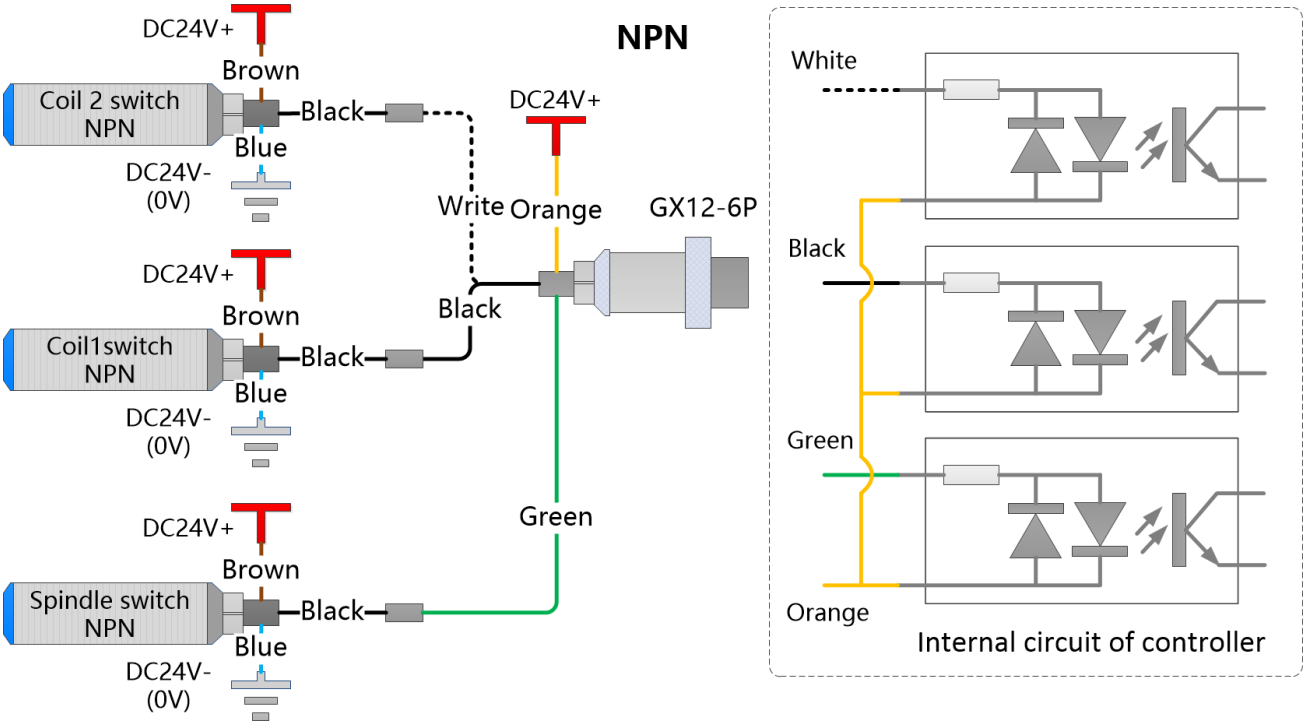
3 Write：DI2，Coil 2 pulse signal

4 Black：DI3，Coil 1 pulse signal

5 Green：DI4，Spindle pulse signal

6 Orange：DICom

Note: in case of single channel, the proximity switch of coil 2 is no use.



3.6 开关量报警输出端口 ALM 接线图 Wiring diagram of alarm signal

ALM 内部光耦输出电路最大允许的电压是 DC30V，最大允许的电流是 80mA。

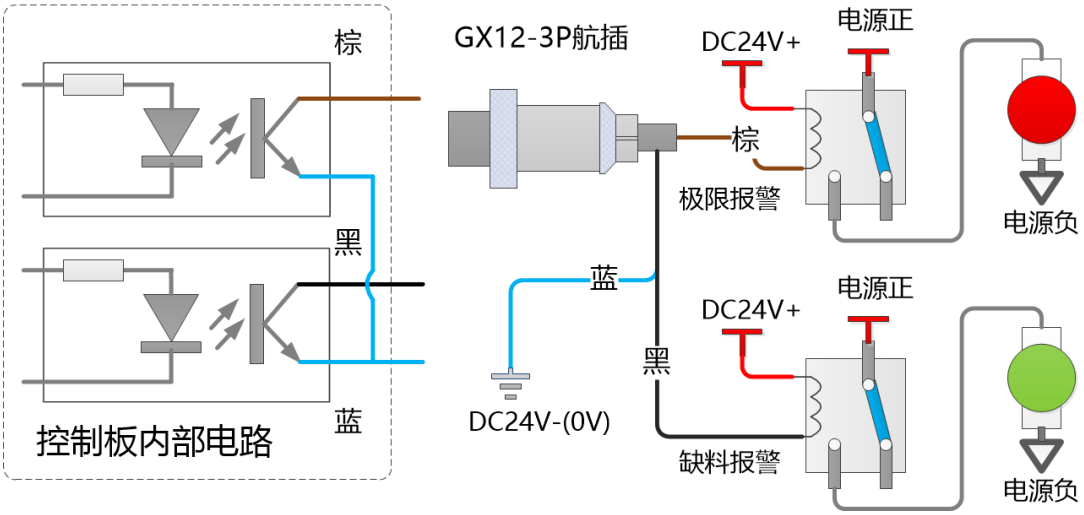
The maximum allowable voltage of ALM internal optocoupler output is DC30V and the maximum allowable current is 80mA.

3.6.1 下位设备为蜂鸣报警灯 The lower equipment is the buzzer alarm light

1 蓝：DOCom，公共地

2 棕：DO0+，纠偏极限报警+

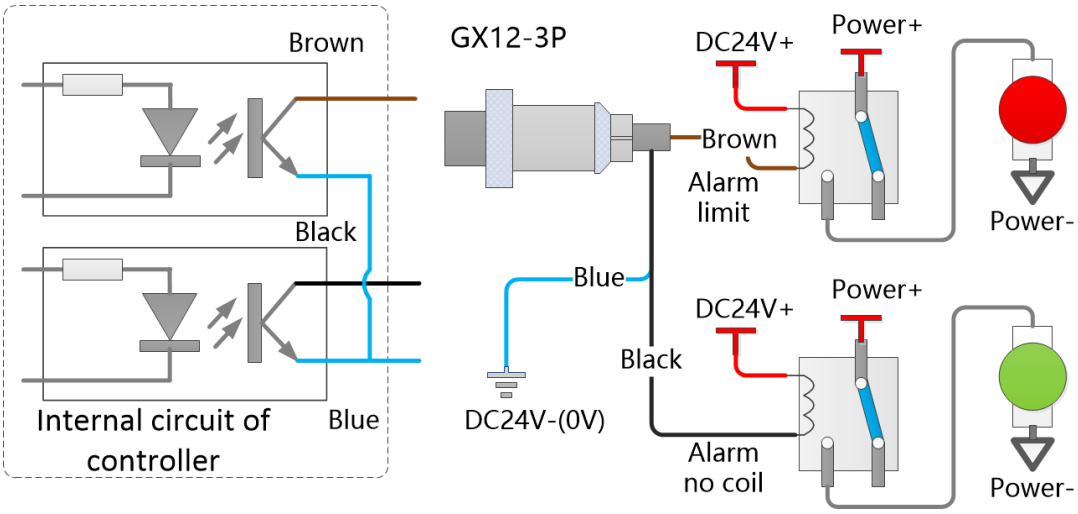
3 黑：DO1+，料卷将缺报警+



1 Blue：DOCom，Command Gnd

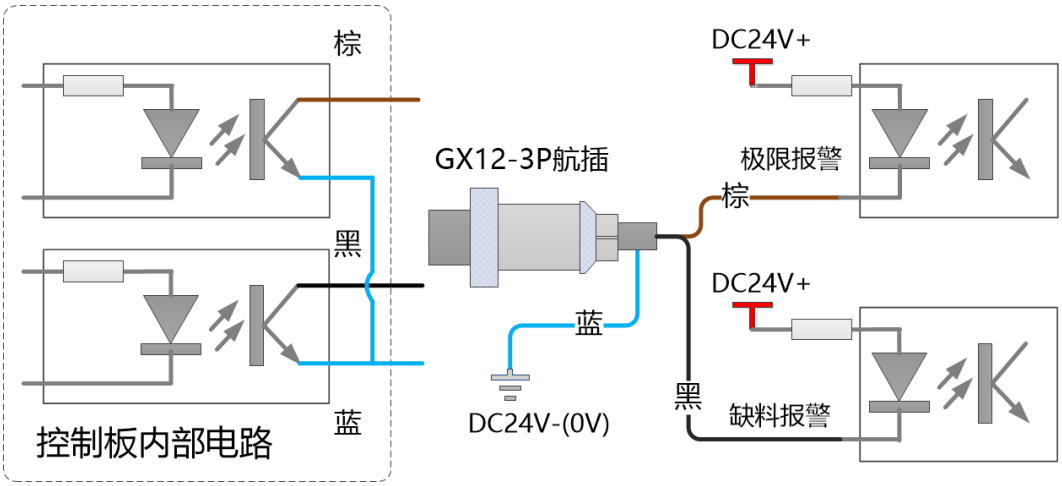
2 Brown：DO0+，Rectify limit alarm+

3 Black：DO1+，No coil alarm+

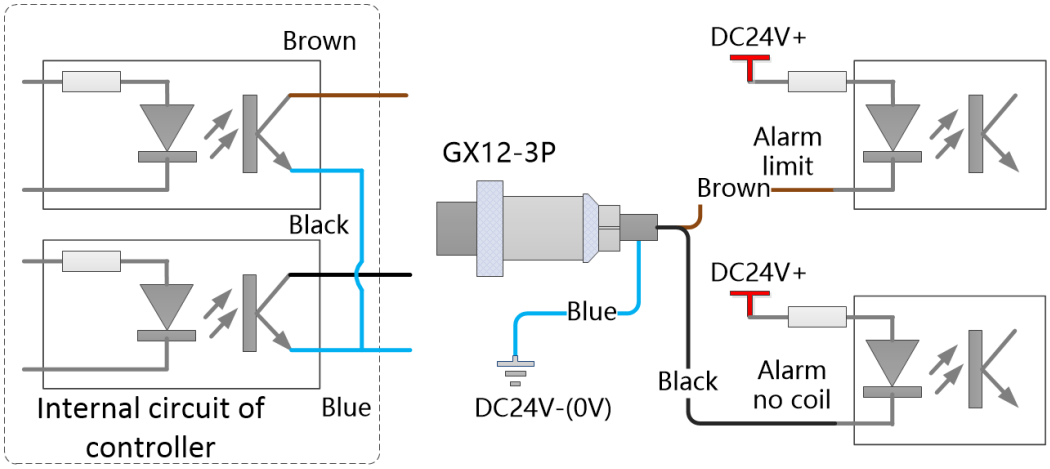


3.6.2 下位设备为光耦 The lower equipment is optocoupler

1 蓝：DOCom，公共地
2 棕：DO0+，纠偏极限报警+
3 黑：DO1+，料卷将缺报警+

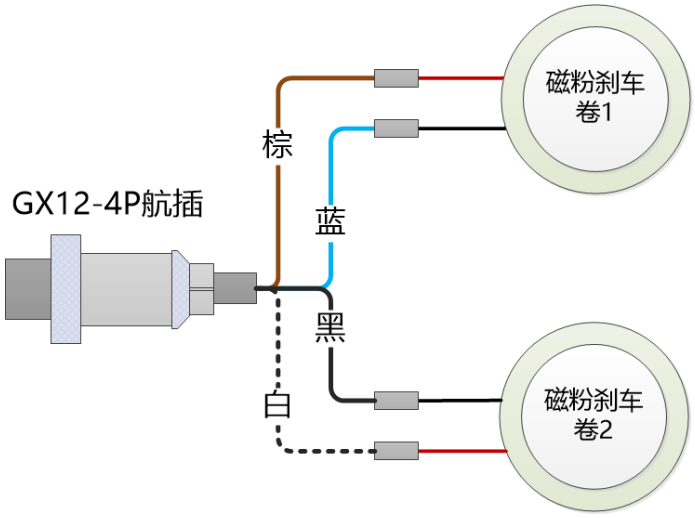


1 Blue：DOCom，Command Gnd
2 Brown：DO0+，Rectify limit alarm+
3 Black：DO1+，No coil alarm+

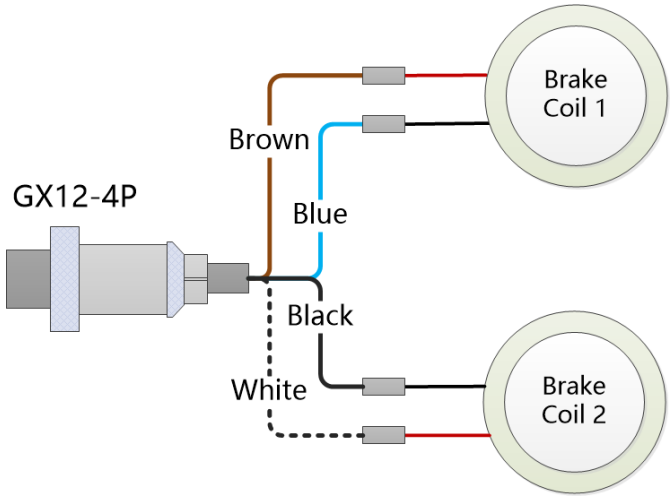


3.7 磁粉刹车端口接线图 Magnetic particle brake port wiring diagram

1 棕：Iout1+，1#通道磁粉刹车控制电流+
2 蓝：Iout1-，1#通道磁粉刹车控制电流-
3 黑：Iout2-，2#通道磁粉刹车控制电流-
4 白：Iout2+，2#通道磁粉刹车控制电流+



1 Brown：Iout1+，1# Current out+
2 Blue：Iout1-，1# Current out -
3 Black：Iout2-，2# Current out -
4 Write：Iout2+，2# Current out+



选用磁粉刹车额定电流大小应与所选产品规格型号一致!

The rated current of magnetic particle brake shall be consistent with the selected product specification and model!

4 操作说明 Soft operating

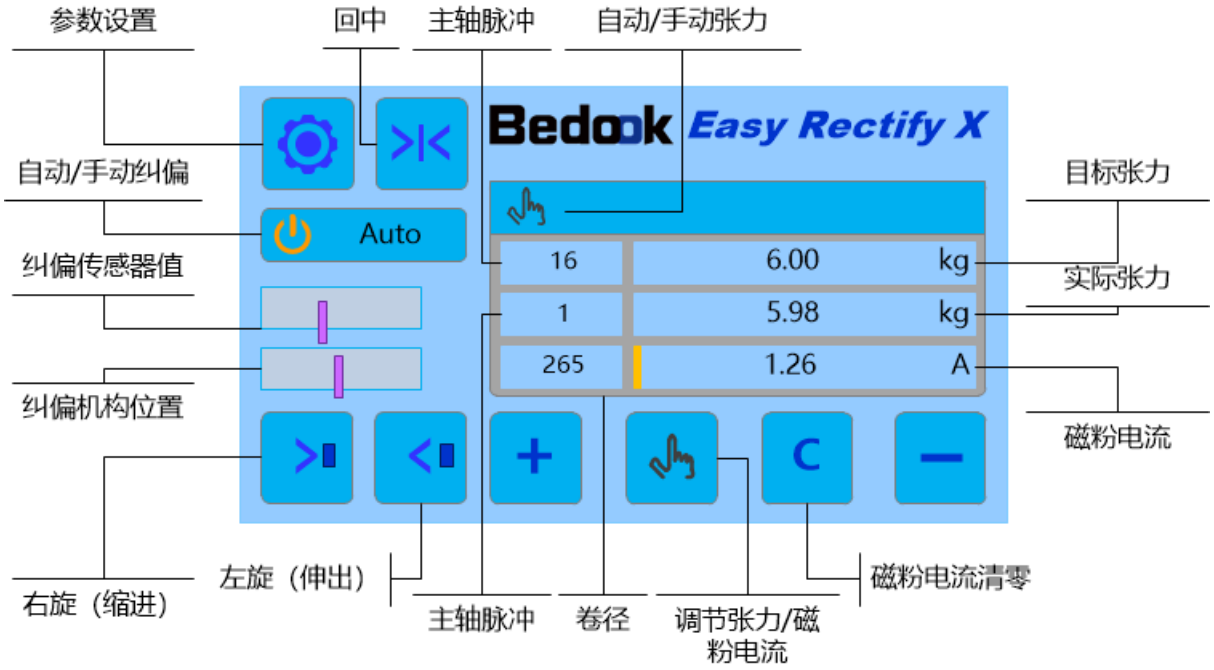
Rectify 采用电阻触摸显示屏，用户可通过手指点击屏幕进行各类操作。

Rectify adopts a resistive touch screen, and users can click the screen with their fingers for various operations.

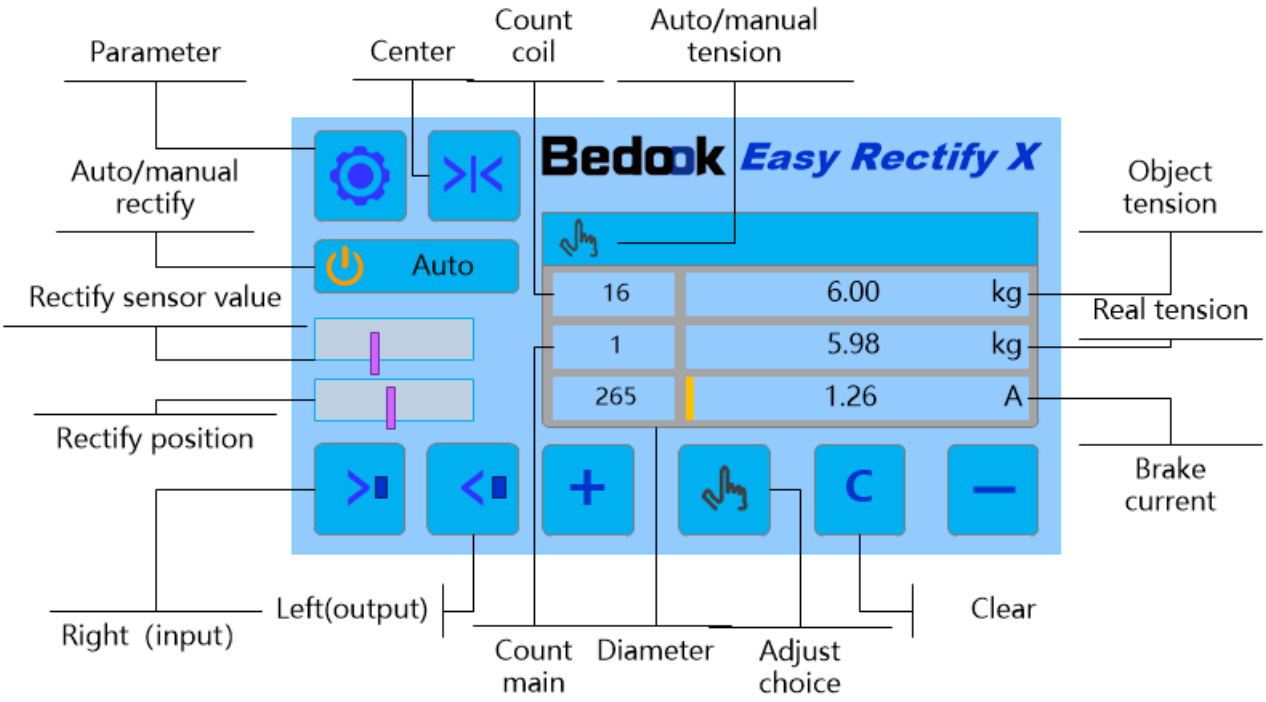
在软件操作说明时，受篇幅限制，将以导正架系统为例。纠偏执行器系统类似，仅在个别用词上有所区别，例如：导正架描述为“左旋按钮”和“右旋按钮”；执行器则可以理解为“伸出按钮”和“缩进按钮”

In the software operation instructions, due to space limitations, the guide frame system will be taken as an example. The rectify actuator system is similar, with only differences in individual words. For example, the guide frame is described as "left-hand button" and "right-hand button"; The actuator can be understood as "extend button" and "retract button"

4.1 主界面 Main UI



主界面分为两部分，左侧为纠偏控制，右侧为张力控制，其中左上角为参数设置按钮。



The main interface is mainly divided into two parts. The left side is rectifying control, the right side is tension control, and the upper right corner is parameter setting button.

4.1.1 自动/手动纠偏按钮与标识 Auto/Manual button and icon

点击纠偏“运行与停止”按钮， 显示 Auto 时为自动运行，显示 Manual 时手动运行。也可通过开关量输入信号，控制纠偏运行状态。

在自动纠偏模式下，导正架的旋转运动（或推杆的伸缩运动）不可人工控制，而由控制器根据传感器的检测值进行自动调节。

Click the “Run or stop” button, the system operates automatically when Auto displayed and manually when Manual displayed. In the automatic rectify mode, the telescopic movement of the actuator push rod cannot be controlled manually, but is automatically adjusted by the controller according to the detection value of the sensor.

4.1.2 左旋右旋（伸出缩进）按钮 Extend or intend button

点击“左旋”按钮 ，图标变为 ，导正架慢速向左旋转，再次点击“左旋”钮，导正架停止运动。

点击“右旋”按钮 ，图标变为 ，导正架慢速向右旋转，再次点击“右旋”按钮，导正架停止运动。

只有在系统处于手动纠偏状态时，导正架左旋与右旋按钮使能；在系统处于自动纠偏状态时，系统禁止手动旋转导正架

Click the "left-rotate" button , the icon changes to , and the frame turn left slowly. Click the button again, and the frame stops turning.

Click the "right-rotate " button , the icon changes to , the frame turn right slowly, click the button again, and the frame stops turning.

Note: The turn left or right button is enabled only when the system is in manual state. When the system is in the state of automatic state, the system prohibits manual adjustment of the frame.

1.1.1 居中按钮 Push rod center button

点击“居中”按钮  ，图标变为  ，导正架自动运动到中间位置并停止，图标显示为  。

只有在系统处于手动纠偏状态时，导正架居中按钮使能；在系统处于自动纠偏状态时，系统禁止人工调节导正架。也可通过开关量信号控制导正架居中。

Click the "centering" button  , the icon changes to  , the frame automatically turns to the middle position and stops, and the icon is displayed as  .

Note:

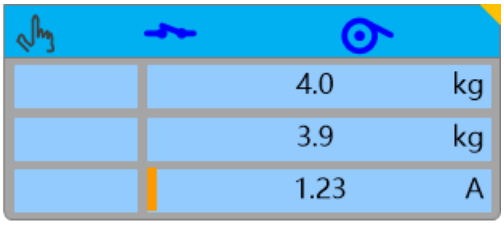
the centering button is enabled only when the system is in manual state. When the system is in the state of automatic state, the system prohibits manual adjustment of the frame, and the center button is disabled.

The centering of the guide frame can also be controlled by the switch signal of the PLC.

4.1.3 改变目标张力或磁粉刹车力 Change the target tension or magnetic powder brake current

按钮  和  用于切换目标张力或磁粉驱动电流，如下图所示。当光标  处于目标张力时，通过按钮  和  改变目标张力；当光标  处于磁粉驱动电流时，通过按钮  和  手动改变磁粉刹车力。

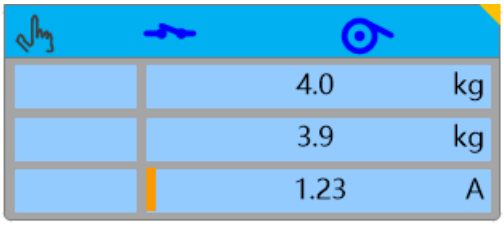
选择改变目标张力



选择改变磁粉刹车电流

The button  and  is used to switch the target tension or magnetic powder drive current, as shown in the figure below. When the cursor  is at the target tension, use the button to change the target tension。 When the cursor  is at the magnetic powder drive current, use the buttons to change the magnetic powder braking force manually.

Choose to change target tension



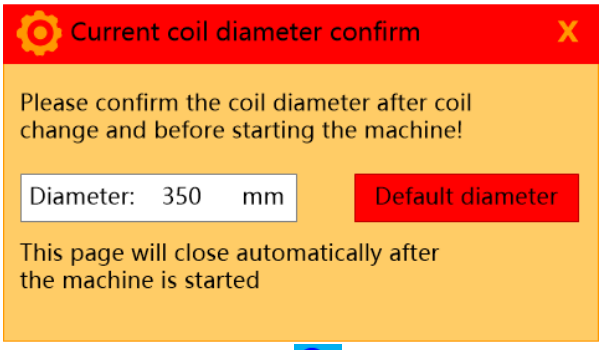
Choose to change the magnetic powder brake current

注意：只有在手动状态下，才能通过点击屏幕按钮改变磁粉刹车力。

Notice: The magnetic powder braking force can be changed only in the manual state

4.1.4 当前卷径确认 Confirmation of current roll diameter

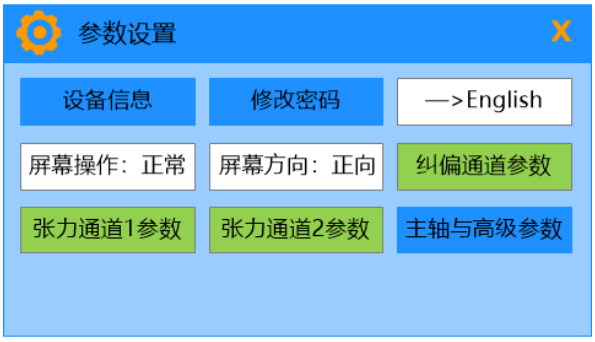
换料时，为了得到更好的起始张力，可点击  弹出当前卷径确认页。

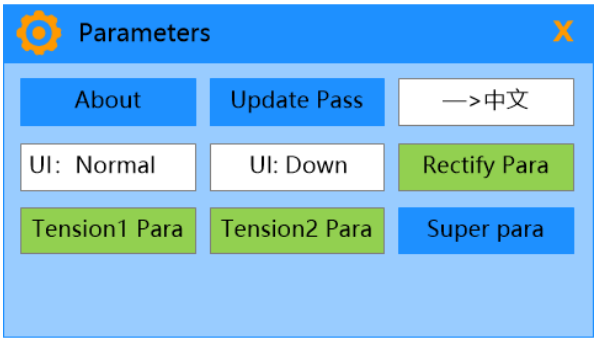


When changing the material, in order to get a better initial tension, you can click  to pop up the current roll diameter confirmation page.

4.2 参数设置界面 Parameter setting interface

在主界面上点击屏幕 “设置”按钮  ，设备弹出密码输入框，输入正确密码后进入系统参数设置界面。





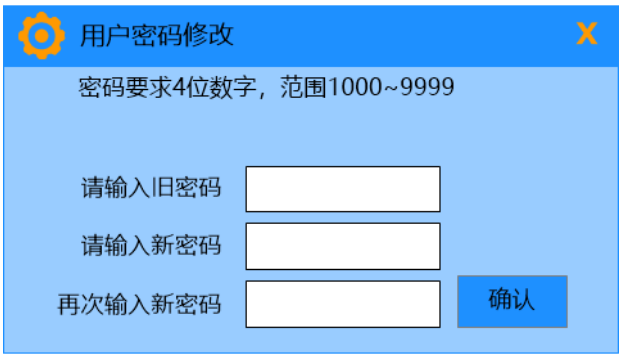
注：A 款无张力通道配置按钮；H/X/S 款可配置为单通道或双通道张力控制。配置成单通道时，张力通道 2 参数按钮不能操作。

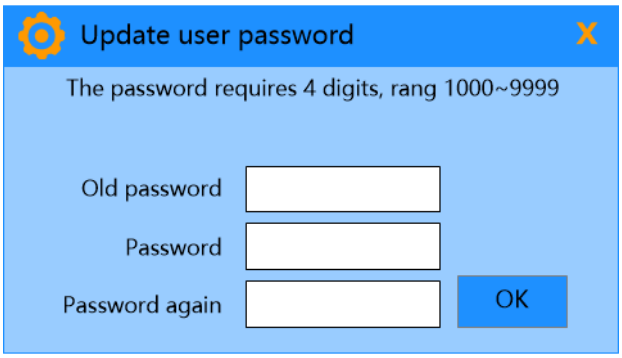
On the main interface, click the button  on the screen, the device will pop up a password input box, enter the correct password and enter the system parameter setting interface.

Note:
Model A has no tension channel configuration buttons; models H/X/S can be configured as single or dual channel tension control. When configured as single channel, the parameter button of tension channel 2 cannot be operated.

4.2.1 修改密码 Change password

点击“修改密码”按钮，可在弹出页面中修改密码。





Click the "Change Password" button to change the password on the pop-up page.

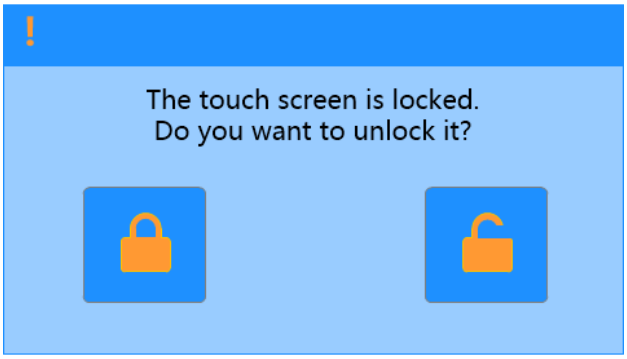
1.1.2 中英文切换 Chinese or English

—>English 和 —>中文 用于中英文切换。

—>English and —>中文 Used for switching between Chinese and English.

4.2.2 屏幕操作 Screen Operation

屏幕操作分为正常和锁定两种模式。在正常模式可直接操作主界面上控件；在锁定模式下需要解锁后才能操作控件，此功能用于防止误操作。



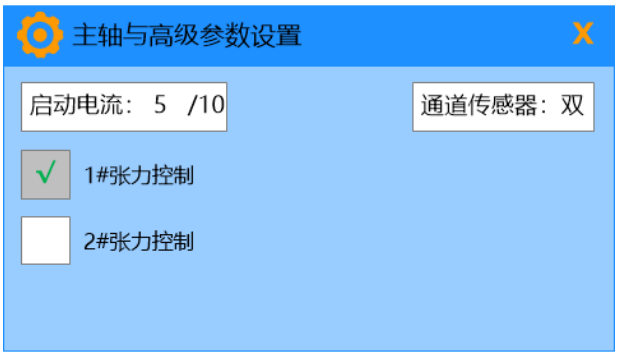
The screen operation is divided into two modes: normal and locked. In normal mode, you can directly operate the controls on the main interface; in locked mode, you need to unlock the controls before you can operate them. This function is used to prevent misoperation.

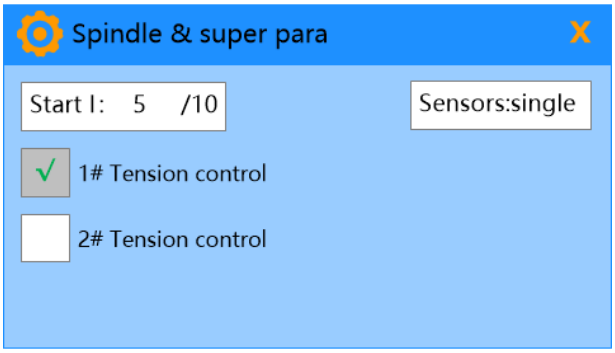
4.2.3 屏幕方向 Screen Orientation

显示屏可进行 180° 翻转。

The display can be flipped 180°

4.3 主轴与高级参数 Spindle and advanced parameters





4.3.1 通道传感器数量 Sensors per channel

只有 S 款需要设置每通道传感器的数量，可设置为单或双传感器。

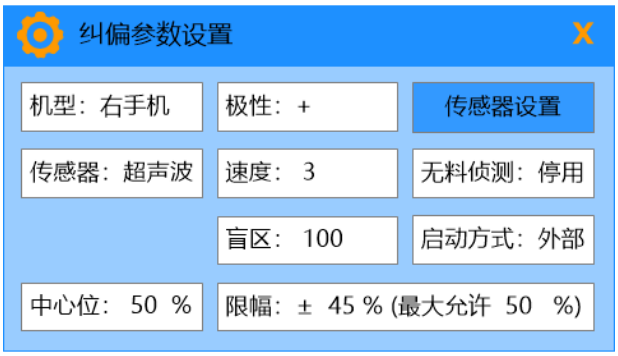
Only the S model needs to set the number of sensors per channel, which can be set to single or dual sensors.

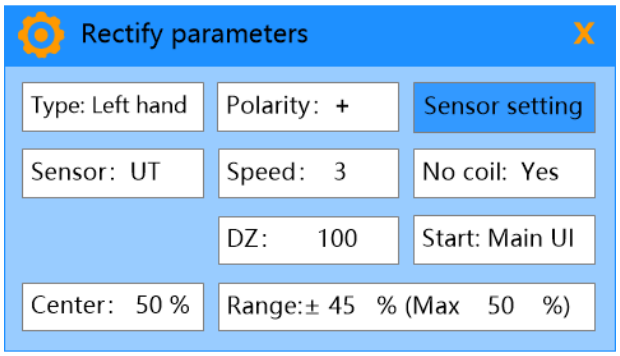
4.3.2 启动电流 Start current

启动电流是指机器启动瞬间，磁粉电流主动下调的比例，即设置启动电流为上次停机（不断电）的十分之几。

The starting current refers to the proportion of the magnetic powder current actively lowered at the moment the machine is started, that is, the starting current is set to a few tenths of the last shutdown (constant power).

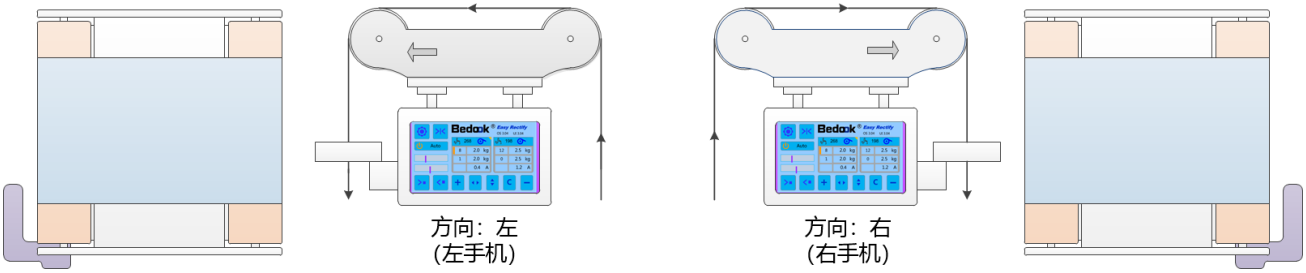
4.4 纠偏参数设置 Rectification parameters



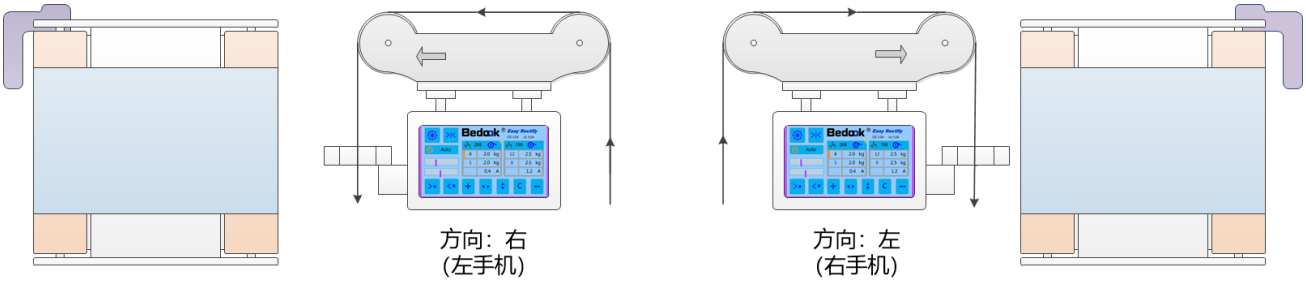


4.4.1 纠偏方向（极性）Rectify direction（polarity）

纠偏传感器如下图所示安装在显示屏侧（传感器前装），在导正架正向放置的前提下，对纠偏方向进行定义：



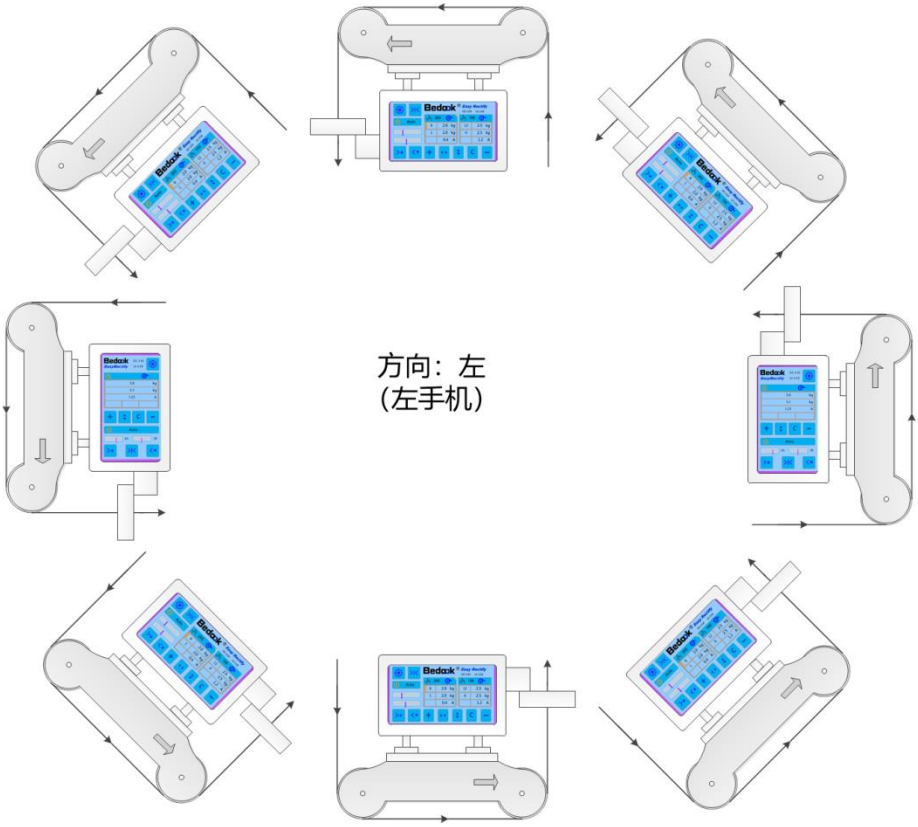
纠偏传感器如下图所示安装导正架后侧（传感器后装），在导正架正向放置的前提下，对纠偏方向进行定义：

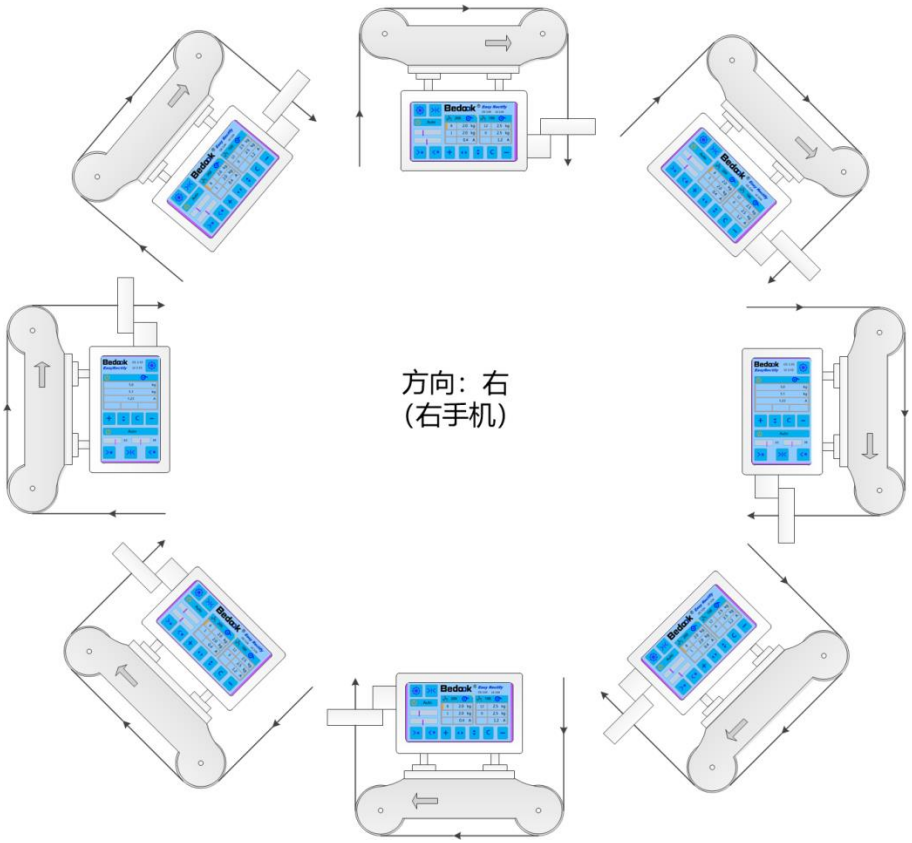


纠偏传感器永远安装在出料辊侧。机型必须根据实际情况设置正确，否则设备不能正常工作。

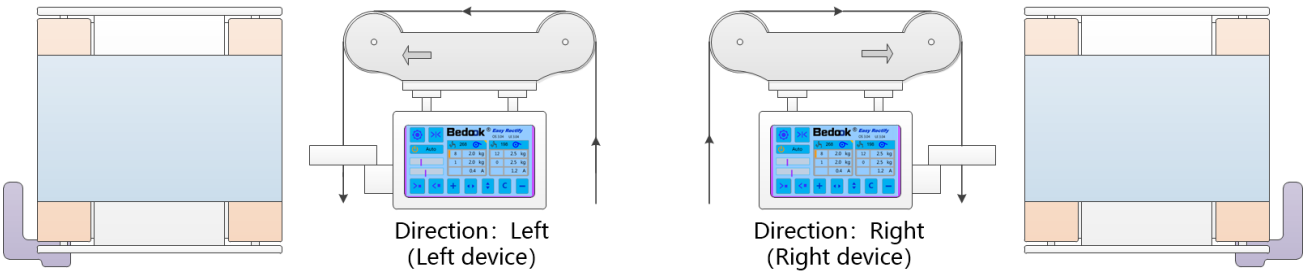
左右机和纠偏方向（极性）是不同的概念，注意区分

以传感器前装为例，不同安装角度下的纠偏方向可参考下图示例。传感器后装时，纠偏方向与传感器前装相反。

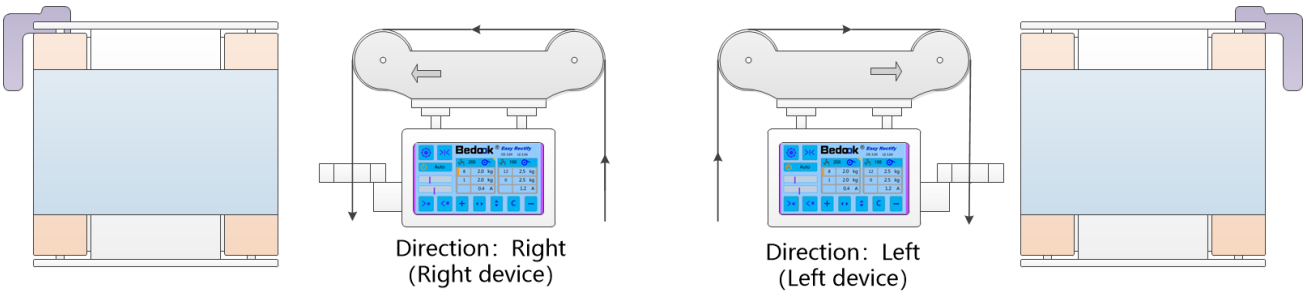




The rectify sensor is installed on the display side as shown in the figure below (the front installation of the sensor) . Under the premise that the guide frame is placed in the forward direction, the rectification direction is defined:



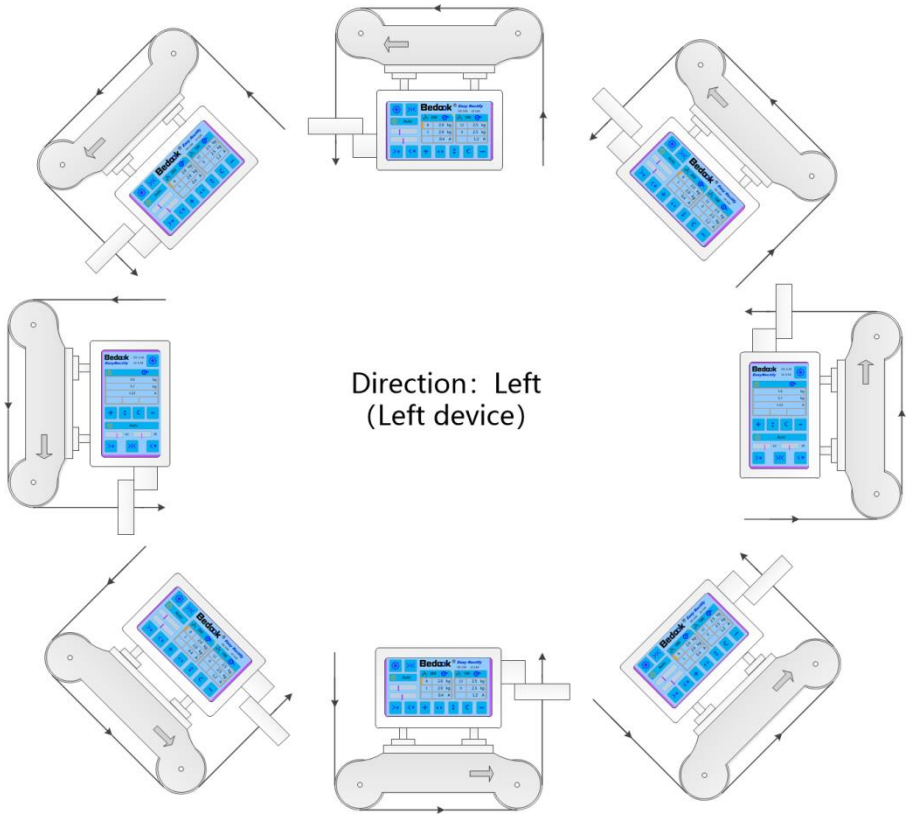
The rectify sensor is installed on the rear side of the guide frame as shown in the figure below (the rear installation of the sensor) . Under the premise that the guide frame is placed in the forward direction, the rectification direction is defined:

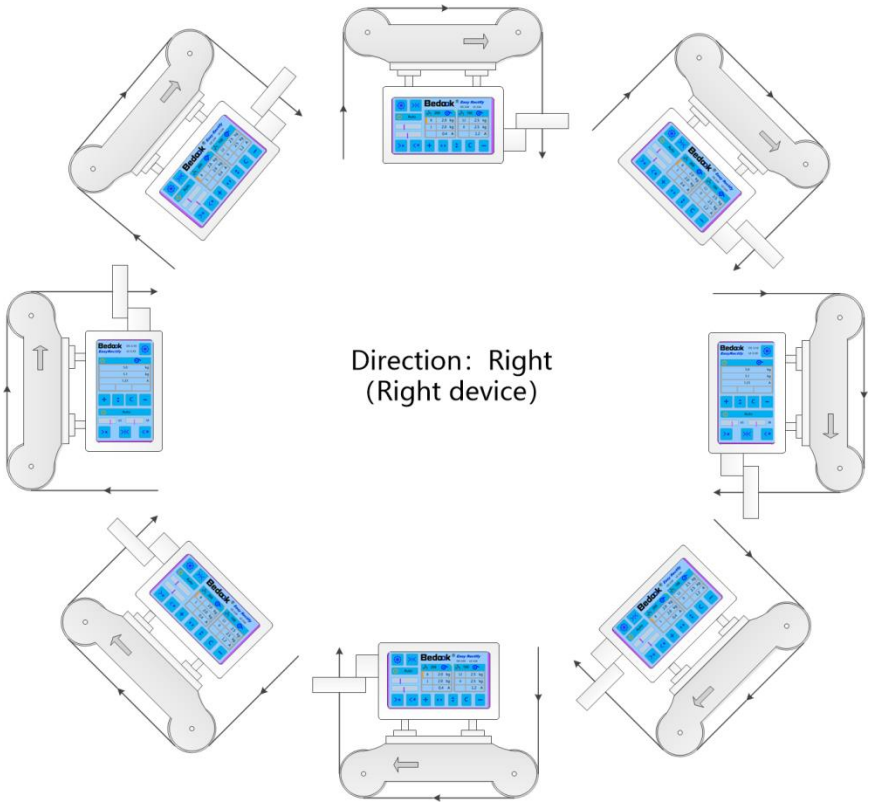


The sensor is always installed on the side of the rectify roller (the exported side). The model must be set correctly according to the actual situation, otherwise the device will not work properly.

Left and right machine and correction direction (polarity) are different concepts, pay attention to distinguish

Taking the front installation of the sensor as an example, the deviation correction direction under different installation angles can refer to the example in the figure below. When the sensor is installed in the rear, the deviation correction direction is opposite to that of the sensor in the front.





4.4.2 纠偏速度 Rectify speed

纠偏速度可以设为 1~5 级。速度越快，纠偏越灵敏，但惯性也越大，容易引起震荡，且对开关电源的功率要求更高。在使用过程中，应根据实际需求，合理选择，一般来说卷材边缘有细小锯齿的，不宜选择高速模式。

The rectify speed can be set to 1~5 grades. The faster the speed, the more sensitive the rectification is, but the inertia is also greater, which is easy to cause vibration, and the power requirements of the switching power supply are higher. In the process of use, it should be selected reasonably according to the actual needs. Generally speaking, if the edge of the coil has small serrations, it is not suitable to choose the high-speed mode.

4.4.3 纠偏盲区 Rectify blind zone

当偏差小于盲区时，系统不执行纠偏动作，可输入数字 10~250，一般选用 50。

When the deviation is less than the blind zone, the system does not perform rectify action, and the number 10~250 can be input, generally 50 is selected.

4.4.4 中心位和限幅 Center position and limit

纠偏执行器系统，中心位可在 30~70%之间设置，缺省值为 50%；例如设置中心位为 40%，限幅为 25%，则导正架可在总行程的 15%~65%之间运行。

导正架系统中心位用户不可更改。

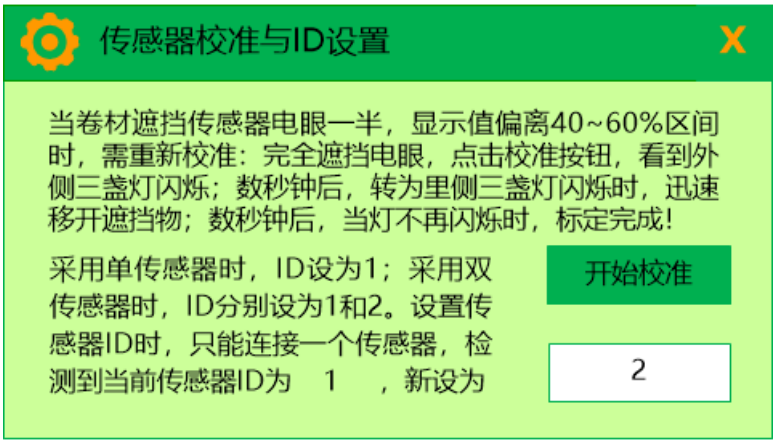
超出运行范围时，系统自动保护，并输出极限保护开关量信号。

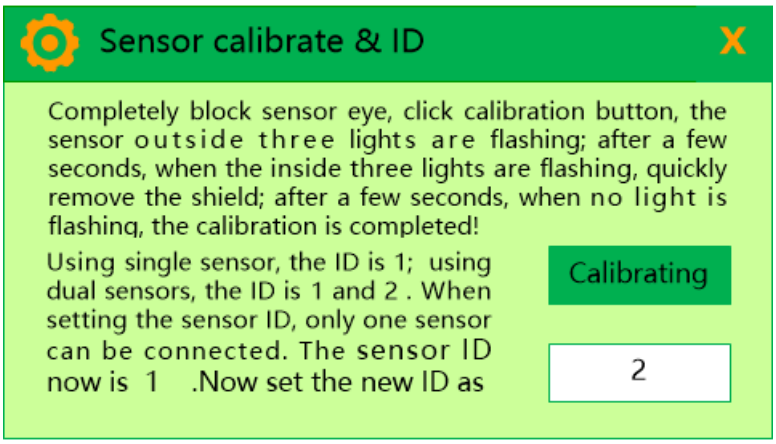
For the rectify actuator system, the center position can be set between 30% and 70%, and the default value is 50%. For example, if the center position is set to 40% and the limit is 25%, the guide frame can run between 15% and 65% of the total stroke.

The center position of the guide frame system cannot be changed by the user.

When it exceeds the operating range, the system will automatically protect and output limit protection switch signal.

4.4.5 纠偏传感器设置 Rectify sensor setting





4.4.6 启动方式 Starting mode

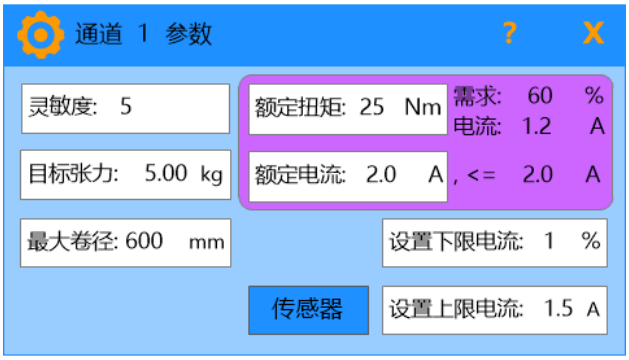
启动自动纠偏或切换为手动纠偏可以有两种方式：

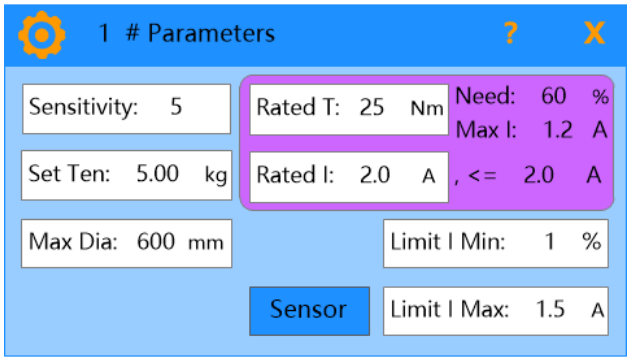
- 界面启动：即点击主界面纠偏 Auto / Manual 切换自动/手动纠偏；
- 外部信号+界面按钮：需要再外部信号为高电平，同时主界面按钮为 Auto 时，才能启动自动纠偏。

There are two ways to start automatic correction or switch to manual correction:

- interface startup: that is, click the main interface switch button Auto / Manual
- External signal + button on the interface: Automatic correction can be enabled only when the external signal is high and the button on the home interface is Auto

4.5 张力参数设置 Tension parameters





4.5.1 灵敏度 Sensitivity

灵敏度用于设置张力调节的速度，灵敏度越大，张力调节越快，一般可设置为 10 左右。

Sensitivity is used to set the speed of tension adjustment. The greater the sensitivity, the faster the tension adjustment. Generally, it can be set to about 10.

4.5.2 额定电流 Brake rated current

按照实际使用的磁粉刹车的额定电流输入。

Input according to the rated current of the magnetic powder brake actually used.

4.5.3 额定扭矩 Brake rated torque

设置刹车额定扭矩和实际选配的刹车额定扭矩一致。注意：刹车额定扭矩应考虑刹车和料卷轴之间的传动比。

The set brake rated torque is consistent with the actual selected brake rated torque. NOTE: The brake torque rating should take into account the gear ratio between the brake and the spool.

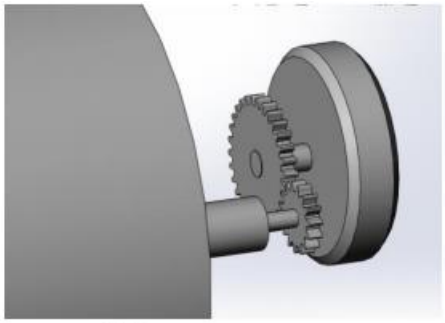


图 A

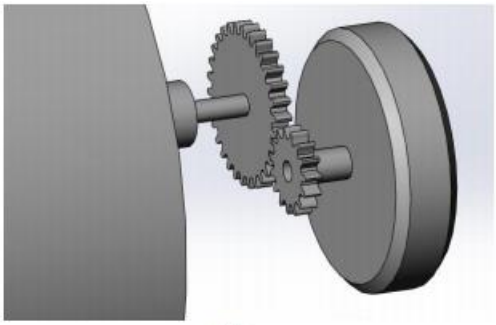
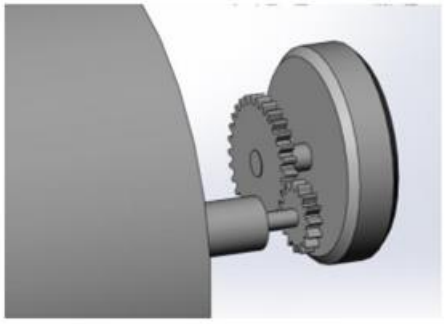
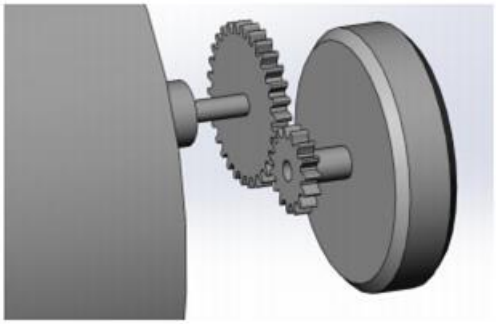


图 B



A



B

假设：刹车额定扭矩均为 100Nm， 大齿轮齿数为 60，小齿轮齿数为 30， 则图 A 输出到卷轴的实际扭矩为 50Nm，图 B 输出到卷轴的实际扭矩为 200Nm。
Assuming: the rated torque of the brake is 100Nm, the number of teeth of the large gear is 60, and the number of teeth of the small gear is 30, then the actual torque output to the reel in Figure A is 50Nm, and the actual torque output to the reel in Figure B is 200Nm.

4.5.4 目标张力 Target tension

材料的目标张力应尽量设置精确。**1 米 宽的 100 克/平方米 的纸张，目标张力的参考值为 10 公斤。**根据卷材设备的种类和工艺不同，根据材料和幅宽的不同，应根据实际情况合理设置目标张力。
The target tension of the material should be set as precisely as possible. For 1m wide 100g/m2 paper, the reference value for the target tension is 10kg. According to the type and process of the coil equipment, according to the different materials and widths, the target tension should be set reasonably according to the actual situation.

4.5.5 最大卷径 Maximum diameter

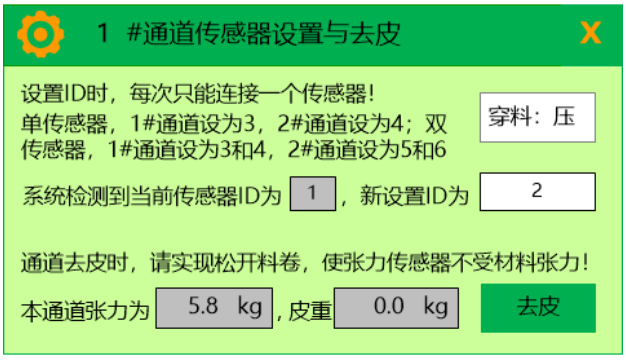
根据实际设备输入可能的最大卷料直径。
Enter the maximum possible coil diameter according to the actual equipment.

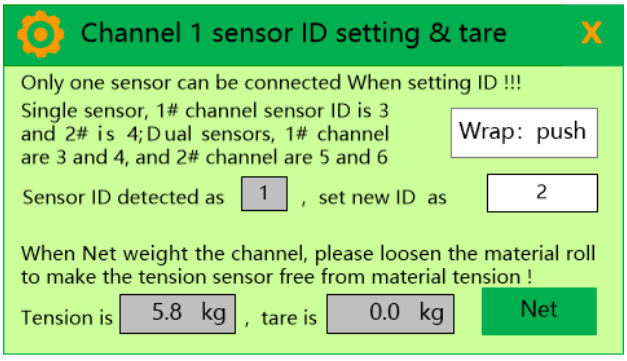
4.5.6 最大扭矩需求 Maximum torque demand

系统根据目标张力、最大卷径和刹车额定扭矩计算选配的刹车是否合适，并给出最大扭矩需求。
The system calculates whether the optional brake is suitable according to the target tension, the maximum coil diameter and the rated torque of the brake, and gives the maximum torque demand.

4.6 张力传感器设置 Tension sensor settings

4.6.1 张力传感器 ID 设置 CAN Id





成套销售 Super/Easy Rectify 在出厂之前已设置好张力传感器 ID 号。在需要重新设置张力传感器 ID 号的情况下，可按照界面提示设置 ID 号。必须注意：在设置张力传感器 ID 时，每次只能连接一个张力传感器。
The Super/Easy Rectify is sold as a set with the tension sensor ID number set before leaving the factory. If you need to reset the ID number of the tension sensor, you can set the ID number according to the interface prompts. It must be noted that when setting the tension sensor ID, only one tension sensor can be connected at a time.

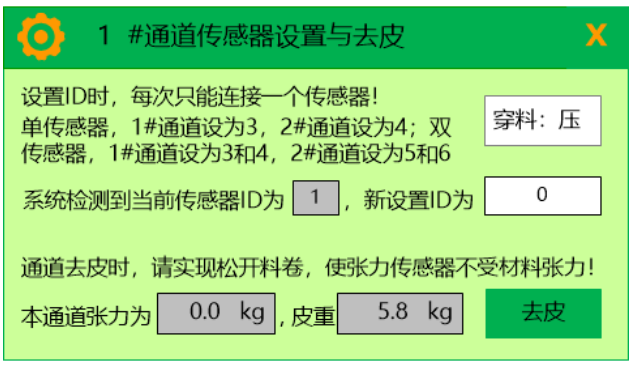
4.6.2 张力通道去皮 Net weight

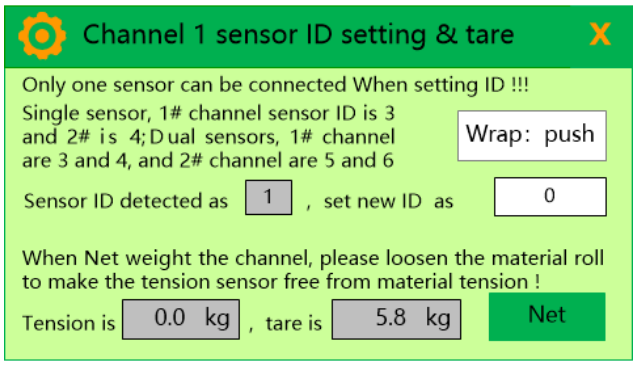
由于传感器安装方向不同，张力辊自身重量对传感器产生拉或压，从而产生皮重。

Due to the different installation directions of the sensor, the tension roller's own weight pulls or presses the sensor, resulting in a tare weight.

必须松开卷料，在张力辊不受力的条件下，才能进行去皮重操作。

The coil must be loosened, and the tare operation can only be carried out under the condition that the tension roller is not stressed.





4.6.3 穿料方式 Material through type

材料穿过张力辊的方式分为“压”和“拉”两种，务必根据实际情况正确设置。

There are two ways for the material to pass through the tension roller: "press" and "pull". Be sure to set it correctly according to the actual situation.