



# 爱博智控张力控制器 (2019版)

型号  
AB7890B

## 操作指南

本手册就本产品的各部位名称、注意事项、接线图，操作进行了说明，请在完全掌握设备知识和安装信息、注意事项后再使用。

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## 安全方面注意事项 (使用之前请务必阅读)

**设计应用注意事项** **注意**

- 因电子元件特性，张力控制器存在一定的输出失控风险及误动作风险，可能会引发事故。请务必自张力控制器外部设置紧急停止回路、保护回路、防误动作机械互锁等回路。
- 张力控制器必需由原配的开关电源独立供电，禁止与其他设备共用电源。非正确选用或没有按要求使用开关电源，可能会导致重大人身安全事故。
- 张力控制器后盖外壳不得跟机设备外壳有电气连通。否则将有可能导致张力控制器损毁、冒烟、火灾等危险。
- 禁止对张力传感器线进行剪线、接延长线等操作。
- MC1运行信号开关必需接入。
- 请严格参照接线图配置外部部件及接线。谨慎处理控制器各输出回路的负载强度，在输出回路中由于超过额定负载电流或者负载短路等导致长时间过流时，有可能导致张力控制器损毁、冒烟、火灾等危险。
- 安装张力控制器时，控制器锁紧螺栓不得锁紧过度，使得控制器变形，这将有可能会导致控制器显示故障。
- 针对压座式张力传感器安装时，轴承座M10锁紧螺栓不能超过安装板厚度，否则损坏传感器。

**维修保养注意事项** **注意**

- 请勿触碰端子。否则有触电的危险性，并有可能引起就只有动作。
- 进行清扫时，请务必在断开所有外部电源后方可操作。如果在通电的状态下进行操作，有触电的危险。
- 请勿擅自拆解、改造产品，否则有可能引起故障、误动作、火灾。
- 对接插件插拔时，请在断开电源之后再进行操作。否则有可能引起故障、误动作。
- 请勿在控制器附近进行会产生粉尘、铁屑等的作业，如打磨、切削等。否则有可能会因粉尘、铁屑进入控制器，引起故障、误动作、火灾。

## 485 通讯使用说明

- 1: 张力控制器设置 (通信从机)**
- 485 地址配置: “菜单- 07 其他设置 - 04 通讯参数设置 - 485 地址”, 触摸 + 或 - 键, 设定地址值;  
**注意: 地址不能设为 0, 否则 485 通讯将被禁用。**
  - 波特率配置: “菜单 - 07 其他设置 - 04 通讯参数设置 - 波特率”, 触摸 + 或 - 键, 选择波特率;  
**注意: 所有从机 波特率需配置成一致。**
- 2: 通讯主机设置**
- 指定串口号, 波特率配置成与从机波特率一致, 地址与张力控制器 485 地址一致, 数据位 8, 校验位 None, 停止位 1。
- 3 通讯协议**
- ModBus 通信模式: RTU 模式。
- 状态控制: (线圈状态) 功能码 0x05 0x0F (闭合代表信号接通, 断开代表信号断开)
- | 功能        | 线圈地址    | PLC Address (base1) |
|-----------|---------|---------------------|
| 运行信号 MC1  | 0x00000 | 0x00001             |
| 轴切信号 MC2  | 0x00001 | 0x00002             |
| 加速信号 MC3  | 0x00002 | 0x00003             |
| 预备值恢复 MC4 | 0x00003 | 0x00004             |
| 减速信号      | 0x00004 | 0x00005             |
| 输出状态      | 0x00005 | 0x00006             |
- 参数设置: (保持寄存器) 功能码 0x03 0x06 0x10
- | 功能    | 寄存器地址   | PLC Address (base1) |
|-------|---------|---------------------|
| 张力设定值 | 0x40000 | 0x40001             |
| 当前卷径值 | 0x40001 | 0x40002             |
| 预备输出值 | 0x40002 | 0x40003             |
| 新卷预驱值 | 0x40003 | 0x40004             |
| 最大卷径  | 0x40004 | 0x40005             |
| 最小卷径  | 0x40005 | 0x40006             |
- 状态读取: (线圈状态) 功能码 0x01 (0 代表断开 1 代表闭合接通, )
- | 功能        | 线圈地址    | PLC Address (base1) |
|-----------|---------|---------------------|
| 运行信号 MC1  | 0x00000 | 0x00001             |
| 轴切信号 MC2  | 0x00001 | 0x00002             |
| 加速信号 MC3  | 0x00002 | 0x00003             |
| 预备值恢复 MC4 | 0x00003 | 0x00004             |
| 减速信号      | 0x00004 | 0x00005             |
| 输出状态      | 0x00005 | 0x00006             |
| 工作轴       | 0x00006 | 0x00007             |
| 报警状态      | 0x00007 | 0x00008             |



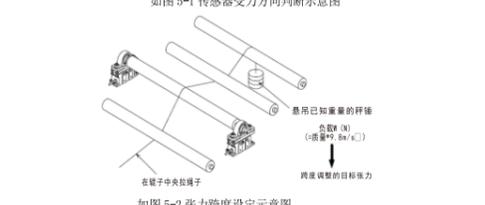
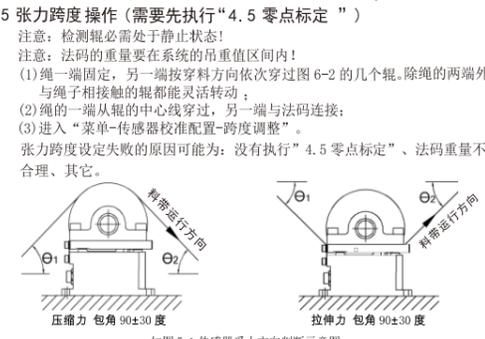
## 2 名词解释

- AUTO SET: 系统进入自动模式, 指示灯亮。
  - MANUAL SET: 系统进入手动模式, 指示灯亮。
  - SELECT: 选择 “%”、“kg”、“N” 操作对象, 指示灯亮。
  - OUTPUT ON/OFF: 指示灯亮, 输出信号开启; 指示灯灭, 输出信号关闭, 数码管显示 “OFF”。
  - 触摸 (默认短触摸): 触摸时间小于等于 2 秒。
  - 长触摸: 触摸时间大于等于 5 秒。
  - 快速调节: 步进值为 1.1 (“%”或 “kg”指示灯亮); 步进值为 1 (“N” 指示灯亮)。
  - 微调: 步进值为 0.1 (“%”或 “kg”); 步进值为 1 (“N” 指示灯亮)。
- 3 菜单访问 (默认密码:4061)**
- 系统相关参数设置及更改需要访问菜单。
- 进入菜单: 长触摸 SET, 触摸 INC/DEC、PAGE 输入密码。
  - 菜单操作: 触摸 SET/ESC、INC/DEC、PAGE。

## 4 张力传感器校准操作

- 4.1 基本设置:** 进入 “菜单-基本项配置”。
- 4.2 确认张力传感器正确安装**  
注意: 检测辊没有装载物料时才能执行以下三步操作!  
悬臂式张力传感器无需执行以下三步操作。  
(a) 长触摸 SET, 进入密码输入界面;  
(b) 触摸 MANUAL SET, 调出内部监控界面;  
(c) 观察 TR、TL 的数值, 两者的差值小于或等于 200, 传感器安装正确; 两者的差值大于 200, 调整传感器安装。
- 4.3 传感器受力方向判断**  
压缩力: 受力方向指向基准面; 拉伸力与压缩力方向相反。如图 6-1 所示。
- 4.4 满量程张力设定**  
满量程张力小于或等于两个传感器量程的总和, 建议满量程张力为系统使用最大张力的 1.2 倍。
- 4.5 零点标定 (用来设定检测辊没物料时, 测量值张力为零)**  
详见 “6.1 零点标定”。
- 4.6 张力跨度值设定 (用来校准测量值张力)**  
进入 “菜单-传感器校准配置” 及详见 “5 张力跨度操作”。

- 5 张力跨度操作 (需要先执行 “4.5 零点标定” )**  
注意: 检测辊必需处于静止状态!  
注意: 法码的重量要在系统的吊重区内!  
(1) 绳一端固定, 另一端按穿料方向依次穿过图 6-2 的几个辊。除绳的两端外, 与绳子相接触的辊都能灵活转动;  
(2) 绳的一端从辊的中心线穿过, 另一端与法码连接;  
(3) 进入 “菜单-传感器校准配置-跨度调整”。
- 张力跨度设定失败的原因可能为: 没有执行 “4.5 零点标定”、法码重量不合理、其它。



## 6 单轴操作

- 6.1 零点标定**  
注意: 检测辊没有物料才能执行以下两步操作!  
1 关闭输出信号 触摸 OUTPUT ON/OFF, 指示灯灭, 数码管显示 “OFF”。
- 张力清零 长触摸 ESC, 当前张力值清零并自动设定张力值零基准。

- 6.2 关闭输出 (需要谨慎操作)**  
详见 “6.1-1 关闭输出信号”。
- 6.3 选择 A 轴或 B 轴 (默认 A 轴)**  
(a) “菜单-基本项配置”, 触摸 SET 选择 “双轴切换”, 对应的图标状态从 “□” 变为 “□”。
- (b) “菜单-基本项配置”, 触摸 SET 选择 A 轴或 B 轴, 对应的图标状态从 “□” 变为 “□”。
- 6.4 张力值设定 (工作张力设定)**  
常规操作:  
(a) 触摸 SELECT, 选择 “kg” 或 “N”, 指示灯亮;  
(b) 旋转旋钮, 指示灯闪烁;  
(c) 快速调节: 触摸 INC/DEC, 调节数值到接近的目标数值时, 进行微调;  
(d) 微调: 旋转旋钮进行微调。  
快捷操作:  
(a) 触摸 SELECT, 选择 “kg” 或 “N”, 指示灯亮;  
(b) 触摸 MANUAL SET, 指示灯亮;  
(c) 触摸 OUTPUT ON/OFF, 指示灯亮;  
(d) 长触摸 MANUAL SET, 系统将张力值改为当前测量值。

- 6.5 输出值设定**  
(a) 触摸 SELECT, 选择 “%”, 指示灯亮;  
(b) 与 “6.4 张力值设定” 的常规操作步骤 (b)、(c)、(d) 一致。
- 6.6 预驱值设定 (用来快速建立张力)**  
(a) 触摸 MANUAL SET, 指示灯亮;  
(b) 触摸 OUTPUT ON/OFF, 指示灯亮, 输出信号开启;  
(c) 长触摸 “▲”, 系统将预驱值改为当前输出值。
- 6.7 新卷预驱值设定 (双轴切换工况需要该设定)**  
(a) 与 “6.6 预驱值设定” 的步骤 (a)、(b) 一致;  
(b) 长触摸 “▼”, 系统将新卷预驱值改为当前输出值。

- 6.8 换卷输出复位 (换卷时信号需要复位到预驱值)**  
方法 1: 外置开关控制  
信号开关 MC4 闭合 (预先接入开关控制器), 输出信号值固定在预驱值, 当输出信号需自动调节时, 信号开关 MC4 断开。  
方法 2: 双轴切换模式 (双轴切换项需勾选)  
通过信号开关 MC2 切换工作轴, 新轴信号输出值与新卷预驱值一致。轴切时间过后, 前轴关闭输出, 新轴控制信号输出。

- 6.9 释放张力**  
方法 1: 关闭输出信号  
详见 “6.1-1 关闭输出信号”。
- 方法 2: 输出信号为零**  
详见 “6.5 输出值设定”, 且将输出值调整为 0。
- 方法 3: 开关控制**  
(a) 接入开关控制器;  
(b) “菜单-外部输入配置-MC6 配置”, 选择 “02 强制输出”, 图标状态从 “□” 变为 “□”, 然后闭合 MC6。
- 6.10 自动运行**  
(a) 触摸 AUTO SET, 指示灯亮;  
(b) MC1 闭合 (接入开关控制器);  
(c) 输出信号开启;  
(c) 系统根据设置的参数自动输出控制信号。
- 6.11 停机**  
(a) MC1 断开 (运行信号关断);  
(b) 输出信号关闭; 详见 “6.1-1 关闭输出信号”。

- 6.12 暂停**  
系统会维持当前张力输出。  
方法 1: 切换到手动模式  
触摸 MANUAL SET, 指示灯亮。  
方法 2: 开关控制  
(a) MC1 断开 (运行信号关断);  
(b) “菜单-外部输入配置-MC6 配置” 或 “菜单-外部输入配置-MC5 配置”, 选择 “02 强制输出” 图标状态从 “□” 变为 “□”, 然后闭合 MC5 或 MC6。

- 6.13 控制面板锁定 (用来防止误操作)**  
注意: 控制面板被锁定, 只有 SELECT 会被响应, 系统保持之前的工作状态!  
系统锁定:  
(a) 触摸 AUTO SET, 指示灯亮;  
(b) 长触摸 SELECT  
系统解锁: 长触摸 SELECT

- 7 双轴操作 (默认已开启)**  
(a) 将 “6.3-a 选择双轴切换” 的操作更改为: 进入 “菜单-基本项配置” 触摸 SET 选择双轴切换, 对应的图标状态从 “□” 变为 “□”;  
(b) 其它操作同 “6 单轴操作”。

**8 张力传感器种类与接口说明**

(1) 压座式传感器 (AB7830 系列)

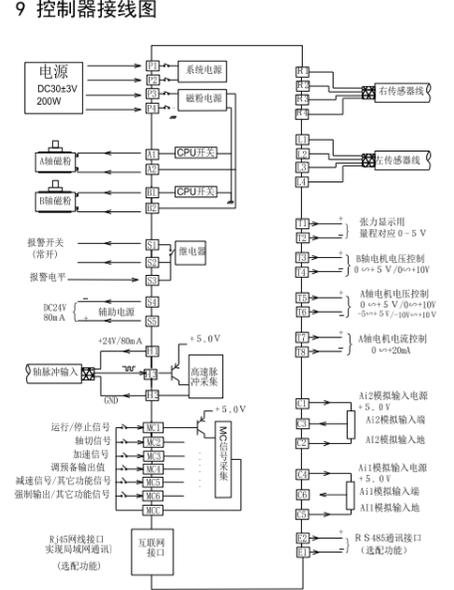
接口说明	插拔式端子	直式电缆 (母头)
棕: DC15V+	1	1
黑: DC15V-	2	2
蓝: OUT-	3	5
灰: OUT+	4	4
屏蔽线	2	2

(2) 穿轴式传感器 (AB7831 系列)

接口说明	插拔式端子	直式电缆 (公头)
棕: DC15V+	1	1
黑: DC15V-	2	2
蓝: OUT-	3	3
灰: OUT+	4	5
屏蔽线	2	4

(3) 悬臂式传感器 (AB7833 系列) (如图 9-2 所示)

接口说明	插拔式端子	直式电缆 (公头)
棕: DC15V+	1	1
黑: DC15V-	2	4
蓝: OUT-	3	3
灰: OUT+	4	5
白: 不接		2



## 局域网通讯说明

- 1: 张力控制器设置 (通信从机)**
- IP 地址配置: “菜单- 07 其他设置 - 04 通讯参数设置 - IP 地址” 触摸 ▲ 或 ▼ 键选择 IP 段位, 触摸 + 或 - 键设定 IP 值。
  - 默认网关配置: “菜单- 07 其他设置 - 04 通讯参数设置 - 默认网关” 触摸 ▲ 或 ▼ 键选择 IP 段位, 触摸 + 或 - 键设定网关 IP 值。
- 2: 通讯主机设置**
- 选中 Mdubs TCP/ip 通讯模式, 目标 IP 设置成与张力控制器 IP 一致, 端口设置成 502。
- 通讯协议**
- ModBus 通信模式: TCP 模式。
- 状态控制: (线圈状态) 功能码 0x05 0x0F (闭合代表信号接通, 断开代表信号断开)

功能	线圈地址	PLC Address (base1)
运行信号 MC1	0x00000	0x00001
轴切信号 MC2	0x00001	0x00002
加速信号 MC3	0x00002	0x00003
预备值恢复 MC4	0x00003	0x00004
减速信号	0x00004	0x00005
输出状态	0x00005	0x00006

参数设置: (保持寄存器) 功能码 0x03 0x06 0x10

功能	寄存器地址	PLC Address (base1)
张力设定值	0x40000	0x40001
当前卷径值	0x40001	0x40002
预备输出值	0x40002	0x40003
新卷预驱值	0x40003	0x40004
最大卷径	0x40004	0x40005
最小卷径	0x40005	0x40006

状态读取: (线圈状态) 功能码 0x01 (0 代表断开 1 代表闭合接通)

功能	线圈地址	PLC Address (base1)
运行信号 MC1	0x00000	0x00001
轴切信号 MC2	0x00001	0x00002
加速信号 MC3	0x00002	0x00003
预备值恢复 MC4	0x00003	0x00004
减速信号	0x00004	0x00005
输出状态	0x00005	0x00006
工作轴	0x00006	0x00007
报警状态	0x00007	0x00008

读取输入: (输入寄存器) 功能码 0x04

功能	寄存器地址	PLC Address (base1)
测量值	0x30000	0x30001
目标值	0x30001	0x30002
工作状态	0x30002	0x30003
预备输出值	0x30003	0x30004
新卷预驱值	0x30004	0x30005
最大卷径值	0x30005	0x30006
最小卷径值	0x30006	0x30007
当前卷径值	0x30007	0x30008

- 说明:**
- 预备输出值还原成输出百分比 = (预备输出值 - 1000) / 10 ;  
如读取返回的预备输出值 = 10010。那么还原成输出值时是 1%。
  - 新卷预驱值还原成输出百分比 = 新卷预驱值 / 10 ;  
如读取返回的新卷预驱值 = 100。那么还原成输出值时是 10%。
  - 张力设定值返回值 比实际值要大 10 倍。如返回值是 105, 实际为 10.5N ; 下发张力设定值的数据 同样要大 10 倍。  
如需要 5.5N 张力, 则下发数所 55;
  - 工作轴读取返回 0 代表 A 轴, 1 代表 B 轴;
  - 报警状态读取返回: 0 代表无报警, 1 代表正在报警;  
工作状态读取返回: 0000 手动, 0001 等待, 0002 自动, 0003 加速中, 0004 减速中 0005 脱料报警
  - 当控制器处于手动模式时只提供读取功能, 设置及控制命令无效。
- 如需其他帮助请联系我们。

In this specification, the name, matters needing attention, wiring diagram and operation of each part of the product are described. Before use, please fully grasp the equipment knowledge and installation information, and precautions before use.

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### Cautions for Safe Use

#### Matters needing attention in design and Application

1. Because of the characteristics of electronic components, tension controller has certain risk of out-of-control output and misoperation, which may lead to accidents. Be sure to set up emergency stop circuit, protection circuit and anti-misoperation mechanical interlocking circuit outside the self-tension controller.
2. The tension controller must be powered independently by the original switching power supply. It is forbidden to share power with other equipment. Improper selection or failure to use switching power supply as required may lead to serious personal safety accidents.
3. The back cover housing of tension controller shall not be electrically connected with the machine equipment housing. Otherwise, it may lead to damage of tension controller, smoke, fire and other dangers.
4. It is forbidden to cut or extend the tension sensor wires.
5. MC1 signal switch must be connected.
6. Please configure peripheral components and wiring strictly according to wiring diagram. Careful handling of the load intensity of each output circuit of the controller may lead to damage of the tension controller, smoke, fire and other dangers when the output circuit exceeds the rated load current or short circuit of the load causes long overcurrent.
7. When installing the tension controller, the locking bolt of the controller should not be locked excessively, which makes the controller deformed, which may lead to the failure of the controller display.
8. The M10 locking bolt of the bearing seat should not exceed the thickness of the mounting plate, otherwise the sensor will be damaged.

**Matters needing attention in maintenance**

1. Do not touch terminals. Otherwise, there is the danger of electric shock, and it may cause only action.
2. When cleaning, be sure to operate after disconnecting all external power supply. If operated in the state of electrification, there is a danger of electric shock.
3. Do not disassemble or alter the product without authorization, otherwise it may cause malfunction, misoperation and fire.
4. When the docking plug-in is plugged in and unplugged, please disconnect the power supply before operating. Otherwise, it may cause malfunction and misoperation.
5. Do not carry out operations near the controller, such as grinding and cutting, which will produce dust and iron chips. Otherwise, dust and iron filings may enter the controller, causing malfunction, misoperation and fire.

Congratulations upon your selection of this tension controller!

### 1 About This Panel



### 2 Keywords Explanation

- (a) **AUTO SET:** System will enter the automatic mode and the corresponding indicator will on.
- (b) **MANUAL SET:** System will enter manual mode and the corresponding indicator will on.
- (c) **SELECT:** Select "%", "kg" and "N" operation object and the corresponding indicator will on.
- (d) **OUTPUT ON/OFF:** The indicator light is on, the output signal is on; the indicator is off, the output signal is off and the digital tube displays "OFF".
- (e) **Press:** The press time is less than or equal to two second.
- (f) **Long Press:** The press time is longer than or equal to five seconds.
- (g) **Quick Tuning:** The step value is 1.1 ("% or "kg"); the step value is 11 ("N").
- (h) **Fine Tuning:** The step value is 0.1 ("% or "kg"); the step value is 1 ("N").

### 3 Menu Access

- (a) **Enter Settings:** long press SET, then press INC/DEC and PAGE to enter password.
  - (b) **Menu Operation:** press SET/ESC, INC/DEC and PAGE.
- Important!**
- Default password is 4061.
  - System parameter settings or updates require menu

- (a) Press SELECT to select "%" and the corresponding indicator will on;
- (b) The remaining steps are the same as the routine operation steps (b), (c), and (d) of "6.4 Tension Value Setting".

### 6.11 Controller stops working

- Warning!**
- The tension control value is zero.
  - This operation is required when the parameter setting is incorrect, the equipment is not working properly, the material is replaced, the single and double axis are switched and Other situations.
- (a) MC1 turn off (access switch controller);
  - (b) The output signal is turned off;
  - (c) Disconnect the power.

### 6.12 Controller Pause Control

The system maintains the current tension output.

- Warning!**
- This operation is required when the material is replaced, the single and double axis are switched and Other situations.

**Method 1:** Switch to manual mode  
Press MANUAL SET and the corresponding indicator will on.

**Method 2:** External Switch Control  
(a) access switch controller;  
(b) Enter "Menu - External Input Configuration - MC6 Configuration" or "Menu - External Input Configuration - MC5 Configuration", select the "02 Forced Output" and the corresponding icon status changes from "□" to "☑", then turn on the MC5 or MC6.

### 6.13 Panel Lock Setting

- Warning!**
- When the panel is locked, only the SELECT will be responded and the system keeps the working state before the panel is locked.

**Panel lock:**  
(a) Press AUTO SET and the corresponding indicator will on;  
(b) Long press SELECT.  
**Panel unlock:** Long press SELECT.

### 7 Dual Axis Operation Mode

- (a) Change the operation of "6.3 Select Two-Axis Switching" to "Menu-Basic Item Configuration". Touch SET Select Two-Axis Switching, and change the icon status from "□" to "☑";
- (b) Other operations are the same as "6 Single axis operation mode".

### 8 Tension Sensor Type And Interface

(a) Pressure Seat Type Sensor (AB7830 series)

Interface	Plug-in terminal block	Straight cable plug(female)
Brown:DC15V+	1	1
Black:DC15V-	2	2
Blue :OUT-	3	5
Gray :OUT+	4	4
Shielded	2	2

### 4 Tension Sensor Calibration

- 4.1 **Basic Settings:** Enter "Menu - Basic Configuration".
- 4.2 **Make Sure The Tension Sensor Is Properly Installed Important!**
  - Cantilever tension sensor does not need to perform the following three steps.

**Warning!**

  - The detection roller has no material loaded to perform the following three steps.
  - (a) Long press SET to enter the password input interface;
  - (b) Press MANUAL SET to enter the internal monitoring interface;
  - (c) Observe the values of TR and TL. If the difference between the TR and TL is less than or equal to 200, the sensor is installed correctly; otherwise, the sensor is not installed correctly.

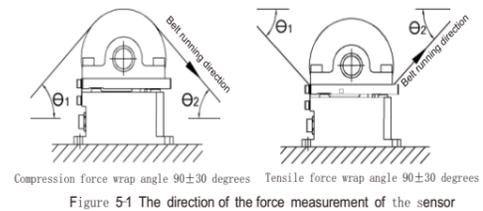


Figure 51 The direction of the force measurement of the sensor

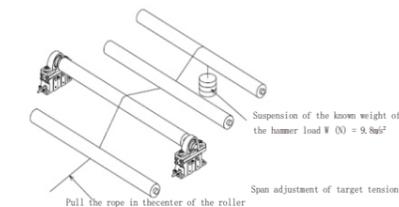


Figure 52 Schematic diagram of tension reference setting

### 4.3 The Force Direction Of The Sensor

**Compression force:** the direction of the force is directed to the reference plane; the tensile force is in contrast to the compression force. As shown in Figure 5-1.

### 4.4 Full Scale Tension Setting

If the full-scale tension value is less than or equal to the sum of the two sensor ranges, it is recommended the full-scale tension should be 1.2 times the maximum tension value used by the system.

### 4.5 Calibration

- See "6.1 Calibration" for details.
- Warning!**
- This step is required when the detecting roller has no material loaded but the measured value is not zero.

### 4.6 Tension Reference Setting

Enter "Menu - Sensor Calibration Configuration" and see "5 Tension Reference Operation" for details.

### 5 Tension Reference Operation

- Warning!**
- First execute "4.5 calibration".
  - The detection roller must be motionless.
  - The weight of the code must be within the hoisting value range of the system.
- (a) One end of the rope is fixed and the other end passes through several rollers of Figure 5-2 in the direction of the feed. The rollers that are in contact with the rope can be flexibly rotated except for the two ends of the rope;
  - (b) One end of the rope passes through the center line of the roller, and the other end is connected to the code;
  - (c) Enter "Menu - Sensor Calibration Configuration - Span Adjustment".
- Important!**
- The reason why the tension reference operation fails may be: "4.5 Calibration" is not performed, the weight of the code is unreasonable and others.

- (a) Press SELECT to select "%" and the corresponding indicator will on;
- (b) The remaining steps are the same as the routine operation steps (b), (c), and (d) of "6.4 Tension Value Setting".

### 6.6 Pre-Drive Value Setting

- This operation is to quickly establish tension.
- (a) Press MANUAL SET and the corresponding indicator will on;
  - (b) Press OUTPUT ON/OFF, the corresponding indicator will on and the output signal is on;
  - (c) Long press "▲", system change the pre-driver value to the current output value.

### 6.7 New Volume Pre-driver Value Setting

- This operation is for dual-axis switching and new volume pre-driver setting.
- (a) The steps (a) and (b) of "6.6 Pre-Driver Value Setting" are the same;
  - (b) Long touch "▼", system change the New Volume Pre-driver value to the current output value.

### 6.8 Change Volume Output Reset Setting

- This operation is to reset the signal to the pre-drive value when changing the volume.
- Method 1:** External Switch Control  
The signal switch MC4 turn off (pre-connected to the switch controller), the output signal value is fixed at the pre-driver value, when the output signal needs to be automatically adjusted, the MC4 must be turned on.
- Method 2:** Dual Axis Switching Mode  
The signal switch MC2 switches the working axis, the new axis signal output value is consistent with the new volume pre-driver value. After the axis cutting time has elapsed, the front axis turns off the signal output and the new axis controls the signal output.

- Method 3:** External Switch Control  
(a) access switch controller;  
(b) Enter "Menu - External Input Configuration - MC6 Configuration" to select "02 Forced Output" and the corresponding icon status changes from "□" to "☑", then MC6 must be turn on.

### 6.9 Release tension

- Warning!**
- The tension control value is zero.
  - This operation is required when the parameter setting is incorrect, the equipment is not working properly, the material is replaced, the single and double axis are switched and Other situations.
- Method 1:** Output Value Off  
See "6.1-(a) Output Value Off" for details.
- Method 2:** Make The Output Value Be Zero  
See "6.5 Output Value Setting" for details and to make the output value be zero.

- Method 3:** External Switch Control  
(a) access switch controller;  
(b) Enter "Menu - External Input Configuration - MC6 Configuration" to select "02 Forced Output" and the corresponding icon status changes from "□" to "☑", then MC6 must be turn on.

### 6.10 Controller Starts Working

- Warning!**
- Be sure to confirm the tension has been built.
- (a) Press AUTO SET and the corresponding indicator will on;

### (b) Shaft-Type Sensor (AB7831 series)

Interface	Plug-in terminal block	Straight cable plug(female)
Brown:DC15V+	1	1
Black:DC15V-	2	2
Blue :OUT-	3	3
Gray :OUT+	4	5
Shielded	2	4

### (c) Cantilever Sensor (AB7833 Series)

Interface	Plug-in terminal block	Straight cable plug(female)
Brown:DC15V+	1	1
Black:DC15V-	2	4
Blue :OUT-	3	3
Gray :OUT+	4	5
No connected		2

### 9 Controller Wiring Diagram

The interface description is shown in Figure 12-1.

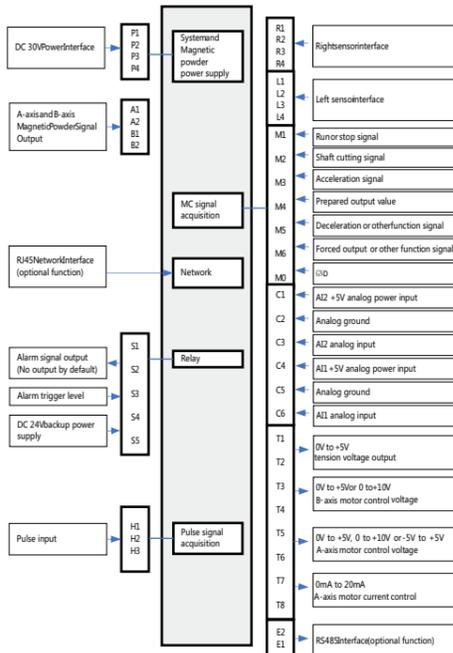


Figure 12-1 Interface description

### 10 For More Details, See The Detailed Instructions

**Need RS485 communication protocol and Ethernet communication protocol, please contact us.**