ATO

ATO-TC858B Radius Tension Controller

Instruction Manual

mm
M/min
%

50.0

TENSION CONTROLLER
Semi-automatic Tension Controller

MONITOR
SELECT

Press 3 Seconds
Reset Radius

Radius tension control

Radius: 50.0mm
Setting value: 50.0Kg
Output value: 50.0%

OUTPUT
ON / OFF

OUT-A   OUT-B   ALM   COM   MANUAL   AUTO   LOCK

SET   ESC

AUTO
MANUAL

KEY LOCK

POWER

OFF ___ ON
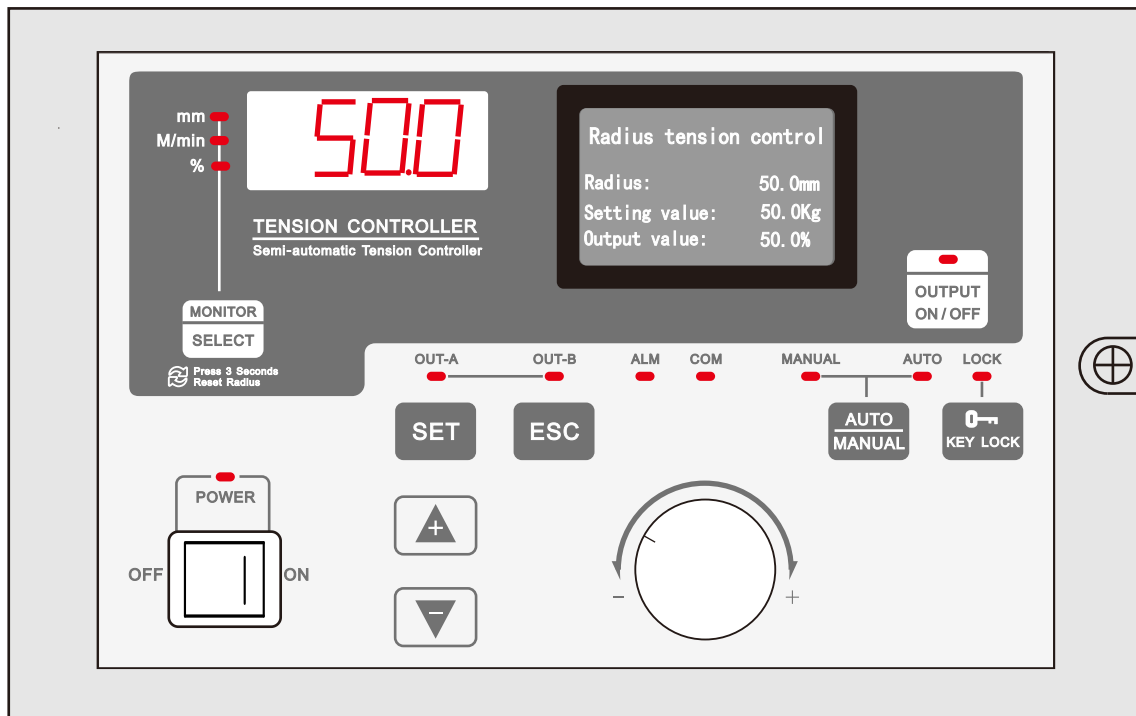
**READ AND SAVE
THIS INSTRUCTIONS**

CONTENTS

Chapter 1 Product outline

1.1 Outline

STC858B tension controller is a full digital tension controller with high precision and multi-function which to match up tension detector to form a closed-loop tension controller system an then receives the signal from LS series tension detector after intelligent PID operation processing internally, regulating implementing structure and to auto matically control the tension of the long material at the unwinder, feed reel, and winder.

STC858B tension controller uses a new graphical LCD display which Chinese and English display clearer and then generates a control voltage of 0 to 24V DC to control the powder clutch/brake and the hysteresis clutch/brake, or generates the torque command voltage of 0 to 10V to send to the servo amplifier.
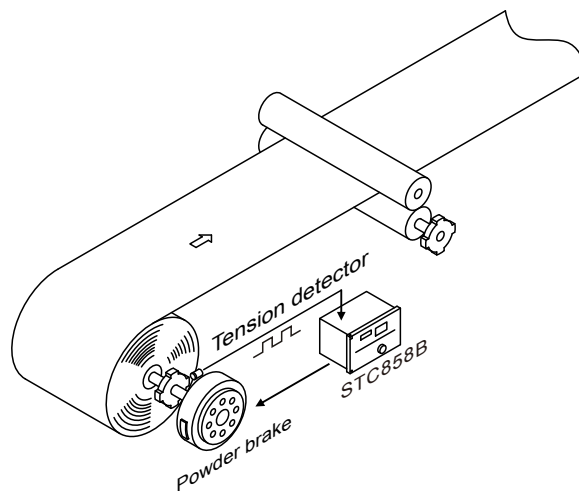
Radius Tension Controller

1.2 Features

● Using 32-bit high speed CPU, Graphical LCD display, with human interface design which is very easy to operation.

● Support thickness accumulation (need one proximity switch or encoder, need input thickness of material)

● Speed ratio method (need two proximity switch or encoder, no need input thickness of material)

● Supports ultrasonic detectors (no settings are required after calibration of the detector)

● Two reel exchange.

● Double 24V/4A input, can directly drive two brake/clutch

● Can output 0-10V, 4-20mA drive inverter/servo motor.

● Easy installation and commissioning, the tension calibration process is simple.

● Support standard Modbus communication protocol, all parameters are open, and it is very convenient to connect PLC/touch screen.

● Parameters protection by password, avoid inadvertent modification

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1.3 Panel configuration

22. Monitor display
21. LED indicator
20. Screen selection keys Reset Radius key

123
mm
M/min
%
TENSION CONTROLLER
Semi-automatic Tension Controller
MONITOR
SELECT
Press 3 Seconds
Reset Radius

Radius tension control
Radius: 50.0mm
Setting value: 50.0Kg
Output value: 50.0%

1. LCD display
2. Lockin LED
3. Lockin key
6. Manual indicator LED
4. Auto indicator LED
5. Open screw
18. Output On/Off LED
17. Output On/Off key
7. Auto/Manual switch
8. Setting dial

23. Power indicator

OUT-A   OUT-B   ALM   COM   MANUAL   AUTO   LOCK

OUTPUT
ON/OFF

AUTO
MANUAL

KEY LOCK

SET   ESC

POWER
OFF   ON

24. ower switch

13. Set, confirm key
14. Esc, cancel key
15. ▲, up key
16. ▼, down dey

9. OUTA, A shaft input indicator
10. OUTB, B shaft input indicator
11. ALM, tension alarm indicator
12. COM, communications indicator

1. Set/Esckey:using these two keys to select or to confirm settings.
   Set key: enter sun-menu or confirm operation.
   Esc key: Return to previous menu or confirm return.

2. Auto/Manual control switch
   Using this key to switch to auto control mode or manual control mode freely.
   In automatic mode, the indicator AUTO will be lit, at this time, the setting tension can be altered by pressing the
   Inc/Dec key or turning the digital knob., Pressing AUTO/MAN key can turn to manual mode.
   The flash of AUTO LED indicates that the controller is in stopping mode.
   In manual mode, the indicator MAN will be it, at this time, the output can be altered using the Inc/Dec key
   or turning the digital knob. Pressing AUTO/MAN key can turn to automatic mode.
   While switching the controller from manual mode to automatic mode, the measured tension before switching
   will be used as the setting tension for automatic control, this makes the smooth transition.

3. Output On/Off LED & key
   Pushing this key to control output on & off, repeat this key, the output will be swift to on or off.
   When the output on/off indicator lighting which allows output;
   When the output on/off indicator unlighting, then the LED display is off and the output value is 0.0%.

4. Screen selection keys & LED indicator
   When pushing this key, there will display tension measuring size(mm indicator lighting), output power
   (% indicator lighting), roll diameter(M/min indicator lighting). Press 3 seconds, reset Radius.

Note : 2 methods for reset Radius. :
        1. Press LED indicator for 3 seconds
        2. Short-circuit the MCC on the MC6.

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5. Lockin key

When the tension controller is at "auto control" or at "manual control"interface, the key is to lock (avoid operating incorrectly) or unlock. Once the key is locked, then the up key, down key, auto/manual control switch, output On/Off key and setting dial will not work.

When the lockin indicator lighting which means it locked, when the lockin indicator unlighting which means it unlocked.

6. OUTA : A shaft output indicator

It's red indicator. when the A shaft outputting, the indicator will light.

7. OUTB : B shaft output indicator

It's red indicator. When the B shaft outputting, the indicator will light.

8. ALM : tension alarm indicator

It's red indicator. During tension system working, when the tension is less than tension alarm value[04]* AI1, ZT relay works and generates alarm signal. When system starting/stopping,aixnl,zero tension alarm will not alarming.

9. COM: communications indicator

It's red indicator. When STC858B receives the valid command response- return data from upper station, then COM indicator lights.

Chapter 2 installation and wiring

2.1 Dimensions
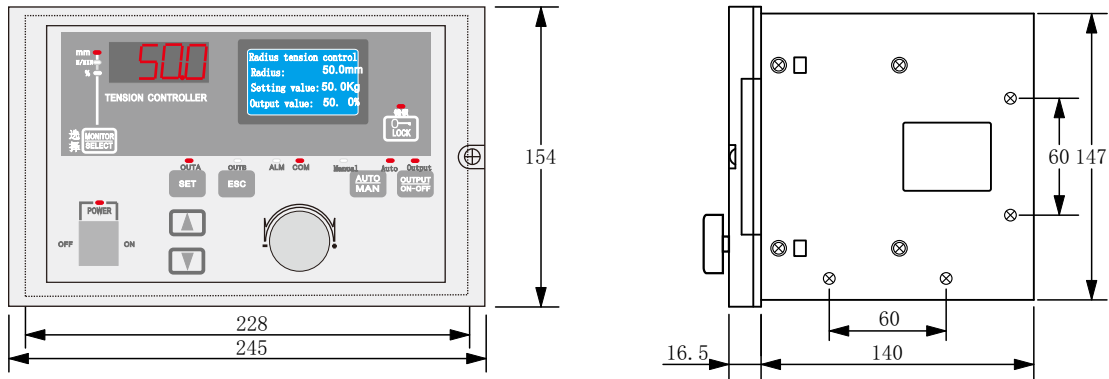
Unit:mm

2.2 Installation

The STC858B tension controller can be floor, wall or panel mounted.

Floor mounted

Wall mounted

Installed on Panel

4-M4*12 Mounting screw

2~4mm

4-M4

80±0.5

244±0.5
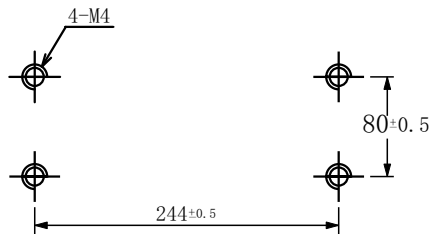
Dimensions of screw holes for floor or wall mounting.

150±0.5

232±0.5
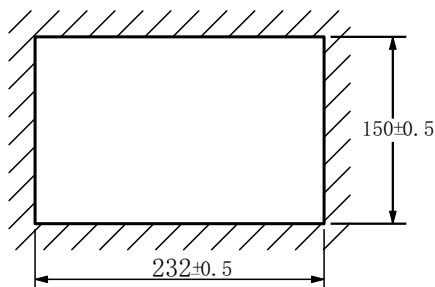
Panel cutting dimensions for panel mounting

2. 3 Wiring

2.3.1 Wiring method and cautions

[1] Weak wires such as input and output signals should be away from strong wires such as instrument power cables and power cables to avoid signal interference.

[2] Input, output and other weak electrical terminals must not be connected to strong electricity, otherwise the entire instrument will be burned.

2.3.2 Basic wiring

Power supply (165~264VAC) → PSL, PSN

A shaft ultrasound sensor:
- SG — shield
- GRL — signal- (green)
- YEL — signal+ (yellow)
- BLK — power- (black)

B shaft ultrasound sensor:
- RED — power+ (red)
- YER — signal+ (yellow)
- GRR — signal- (green)
- SG — shield

Note:
The color of the wires varies by sensor.
Please consult the sensor manual for proper wiring when connecting the sensor.
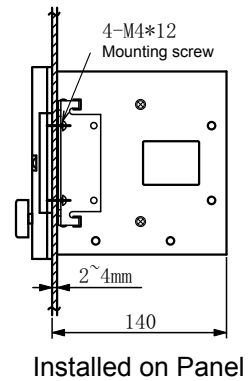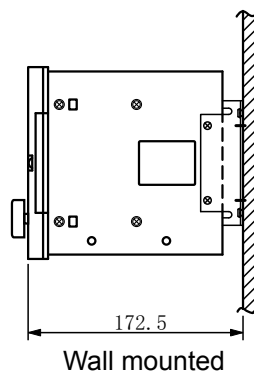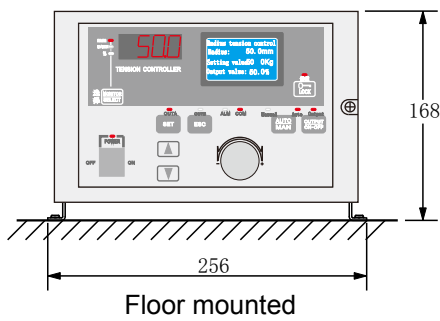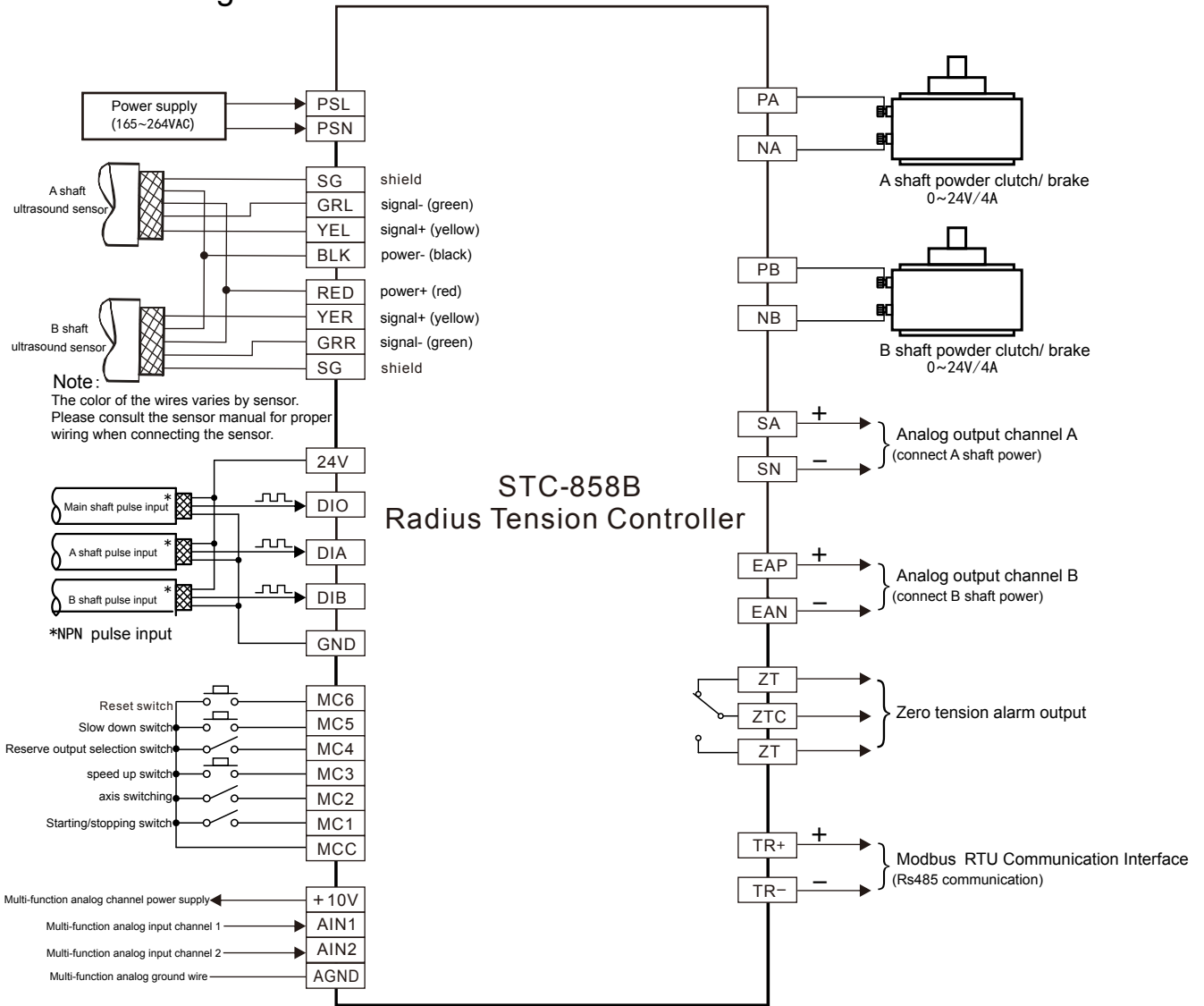
24V

Main shaft pulse input* → DIO
A shaft pulse input* → DIA
B shaft pulse input* → DIB
GND

*NPN pulse input

STC-858B
Radius Tension Controller

Reset switch → MC6
Slow down switch → MC5
Reserve output selection switch → MC4
speed up switch → MC3
axis switching → MC2
Starting/stopping switch → MC1
MCC

Multi-function analog channel power supply ← +10V
Multi-function analog input channel 1 → AIN1
Multi-function analog input channel 2 → AIN2
Multi-function analog ground wire → AGND

PA, NA → A shaft powder clutch/ brake 0~24V/4A

PB, NB → B shaft powder clutch/ brake 0~24V/4A

SA (+), SN (−) → Analog output channel A (connect A shaft power)

EAP (+), EAN (−) → Analog output channel B (connect B shaft power)

ZT, ZTC, ZT → Zero tension alarm output

TR+ (+), TR− (−) → Modbus RTU Communication Interface (Rs485 communication)

Wiring 1:

PSL	PSN	ZTC	NA	NB	MCC	Mc2	Mc4	Mc6	DIO
⏚	ZT	ZN	PA	PB	Mc1	Mc3	Mc5	GND	+24V

Wiring 2:

DIA	YEL	RED	BLK	YER	AIN1	AIN2	SA	EAP	TR−
DIB	GRL	SG	SG	GRR	+10V	AGND	SN	EAN	TR+

2.3.3 Wiring terminal

Wiring 1:

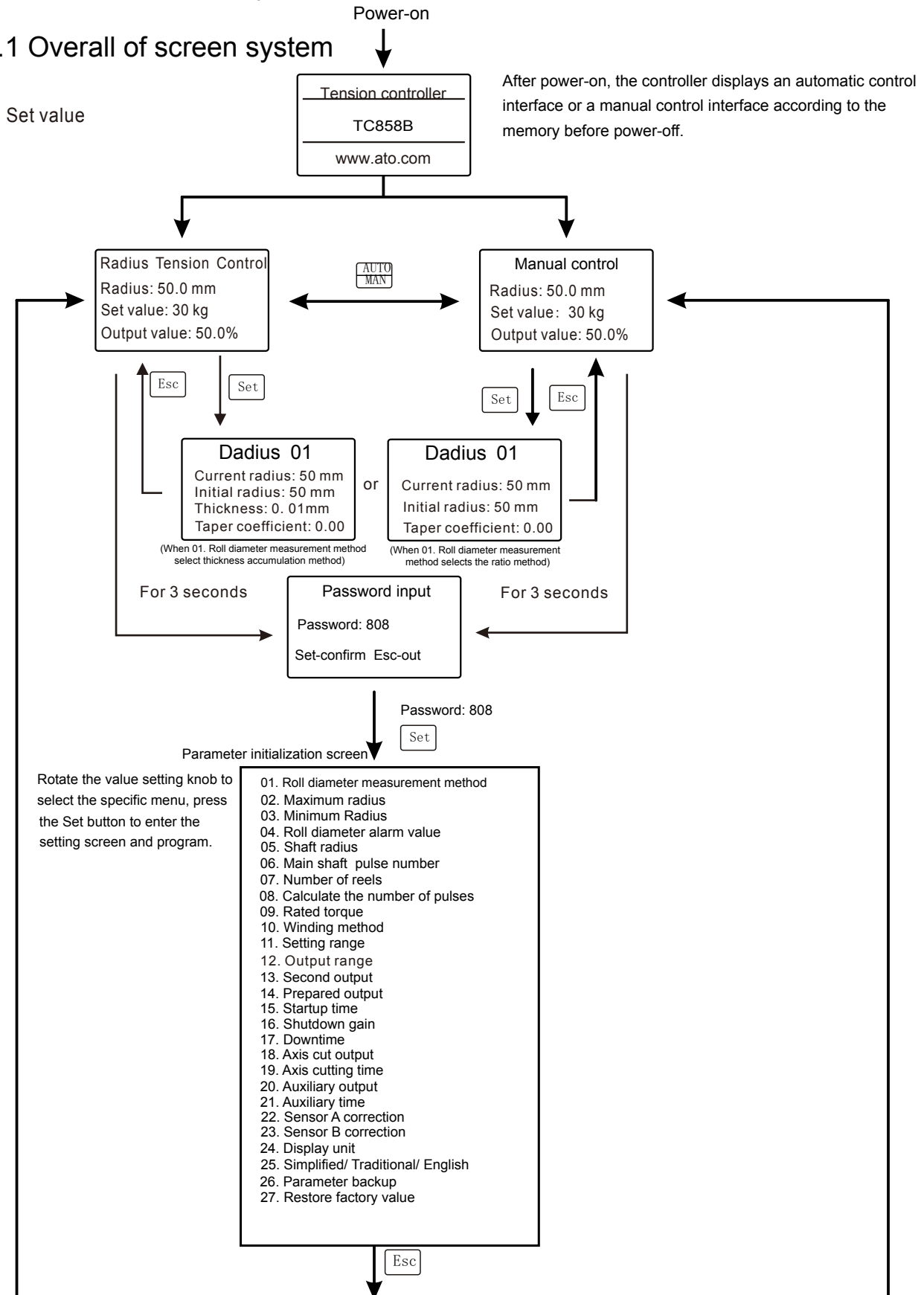| Item	Name	Type	Technique parameter	Specification
1	PSL, PSN	Input	Voltage 165VAC~264VAC	Connecting 220VAC power
2	ZT, ZTC,ZTN	Output		Tension alarm output
3	PA, NA	Output	Output 24V/4A	Connecting A shaft powder clutch/ brake
4	PB, NB	Output	Output 24V/4A	Connecting B shaft powder clutch/ brake
5	MCC	Input		Common terminal for external output on/off singnal
6	Mc1	Input		**Input terminal for external starting/stopping controlling signal**
7	Mc2	Input		Input terminal for external double axis controlling signal
8	Mc3	Input		Input terminal for external speed-up controlling signal
9	Mc4	Input		Input terminal for reserve output selection switch
10	Mc5	Input		Input terminal for external slow down controlling signal
11	Mc6	Input		**Input terminal for taper reset**
12	24V, GND	Output		Power supply for external proximity switch(rotary encoder)
13	Di0	Input	Max. frenquency 15kHz	Input terminal for main shaft proximity switch

Wiring 2:

Item	Name	Type	Technique parameter	Specification
1	DIA	Input	Max. frenquency 15kHz	A-axis proximity switch input terminal
2	DIB	Input	Max. frenquency 15kHz	B-axis proximity switch input terminal
3	YEL	Input	Input signal range ±5V	A-axis ultrasonic sensor input signal +
4	GRL	Input		A-axis ultrasonic sensor input signal -
5	RED	Output	Output power voltage 5V or 9V	Ultrasonic sensor power +
6	BLK	Output		Ultrasonic sensor power -
7	YER	Input	Input signal range ±5V	B-axis ultrasonic sensor input signal +
8	GRR	Input		B-axis ultrasonic sensor input signal -
9	SA , SN	Output	0~10V	Synchronous output 0~10V (connected to A-axis power unit)
10	EAP, EAN	Output	0~10V	The second output 0~10V (connected to the B-axis power unit)
11	TR+, TR−	digital	RS485	Rs485 communication port
12	+10V, AGND	Output	10V/50mA	backup power
13	AIN1, AIN2	Input		Standby analog interface

Chapter 3 Screen system
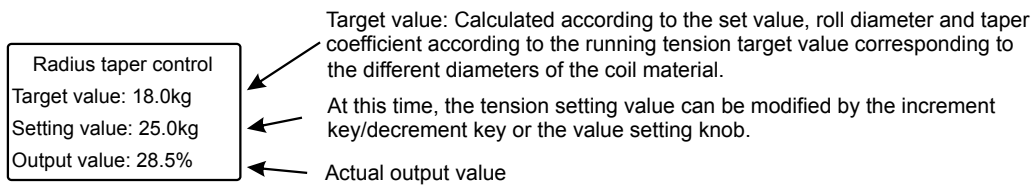
3.1 Overall of screen system

Power-on

Set value

Tension controller

TC858B

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After power-on, the controller displays an automatic control interface or a manual control interface according to the memory before power-off.

Radius Tension Control
Radius: 50.0 mm
Set value: 30 kg
Output value: 50.0%

AUTO
MAN

Manual control
Radius: 50.0 mm
Set value: 30 kg
Output value: 50.0%

Esc   Set

Set   Esc

Dadius 01
Current radius: 50 mm
Initial radius: 50 mm
Thickness: 0. 01mm
Taper coefficient: 0.00

(When 01. Roll diameter measurement method
select thickness accumulation method)

or

Dadius 01
Current radius: 50 mm
Initial radius: 50 mm
Taper coefficient: 0.00

(When 01. Roll diameter measurement
method selects the ratio method)

For 3 seconds

Password input

Password: 808

Set-confirm Esc-out

For 3 seconds

Password: 808
Set

Parameter initialization screen

Rotate the value setting knob to select the specific menu, press the Set button to enter the setting screen and program.

01. Roll diameter measurement method
02. Maximum radius
03. Minimum Radius
04. Roll diameter alarm value
05. Shaft radius
06. Main shaft pulse number
07. Number of reels
08. Calculate the number of pulses
09. Rated torque
10. Winding method
11. Setting range
12. Output range
13. Second output
14. Prepared output
15. Startup time
16. Shutdown gain
17. Downtime
18. Axis cut output
19. Axis cutting time
20. Auxiliary output
21. Auxiliary time
22. Sensor A correction
23. Sensor B correction
24. Display unit
25. Simplified/ Traditional/ English
26. Parameter backup
27. Restore factory value

Esc

3.2 Main Screen Introduction

（1） Radius control - constant tension mode screen

```
Radius  Tension  Control
Radius: 50.0 mm
Set value: 30 kg
Output value: 50.0%
```

Radius measured value

At this time, the tension setting value can be changed by the increment key/decrement key or the value setting knob.

Actual output value
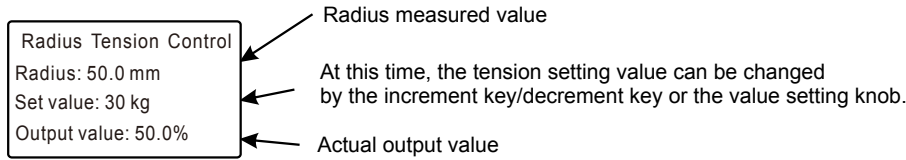
(2) Radius control - taper tension mode operation screen

```
Radius taper control
Target value: 18.0kg
Setting value: 25.0kg
Output value: 28.5%
```

Target value: Calculated according to the set value, roll diameter and taper coefficient according to the running tension target value corresponding to the different diameters of the coil material.

At this time, the tension setting value can be modified by the increment key/decrement key or the value setting knob.

Actual output value

(3) Manual control mode

```
Manual control
Radius: 50.0 mm
Set value: 30 kg
Output value: 50.0%
```

Radius measured value

At this time, the output value can be modified by the increment key/decrement key or the value setting knob.

(4) Password setting

```
Password input
Password: 808
Set-confirm  Esc-out
```

Using up key /down key or value knob to set the password
[1] When the password is 808, enter the adjustment parameter screen.
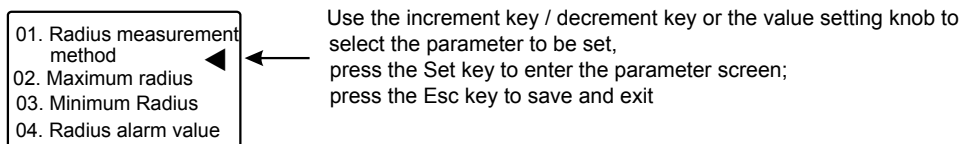
Note: To prevent the controller parameters from misusing, please change the password to others after finished the parameters.

(6) Parameter screen

```
01. Radius measurement
    method
02. Maximum radius
03. Minimum Radius
04. Radius alarm value
```

Use the increment key / decrement key or the value setting knob to select the parameter to be set,
press the Set key to enter the parameter screen;
press the Esc key to save and exit

3.3 Parameter Description

| Parameter NO	Parameter Name	Adjusting range	Factory default	Description
01	Radius measurement method	Thickness accumulation Ratio method Ultrasonic measurement	Thickness accumulation	Radius measurement method selection
02	Maximum radius	10--999mm	500mm	The Max. radius of the coil (the upper limit of the coil radius)
03	Minimum radius	10--999mm	50mm	The Min. radius of the coil (lower radius of the coil)
04	Radius alarm value	Min.---Max.		
05	Main shaft radius	10--999mm	50mm	The radius of the drive shaft, need to reset value when use the ratio method
06	Main shaft pulse number	1--1000	1	Number of pulses generated per revolution of the spindle proximity switch/encoder
07	Radius pulse number	1--1000	1	The number of pulses generated by the reel proximity switch/encoder per revolution
08	Calculate pulses	1--1000	20	Pulse accumulated to this value, the radius is calculated. It affects speed of radius update & measurement accuracy of radius.
09	Rated torque	5--999Nm	50Nm	Rated torque of powder clutch/ brake
10	Rolling method	Winding, unwinding	Unwinding	Winding/unwinding settings
11	Set up range	Minimum: 0--999.9Kg	0. 0Kg	Limit tension setting minimum
		Maximum: 0--999.9Kg	50. 0Kg	Limit tension setting maximum
12	Output range	Minimum: 0--100.0%	0. 0	Controller output power lower limit
		Maximum: 0--100.0%	100.0%	Controller output power cap
13	Second output	Synchronous control output Axis cut auxiliary output	Synchronous control output	Second output type selection
14	Preparatory output	0.0~100.0%	0. 0%	Output value at system startup
15	Start Time	0.1~25.0 seconds	0. 1	System startup time
16	Shutdown gain	01~400%	100%	
17	Shutdown time	0.1~25.0 seconds	0.1second	System downtime
18	Axis cut output	0.0~100.0%	0. 0%	For meaning of the parameters, see page 18: 4.2.5 Two-axis switching
19	Shaft cutting time	0.1~25.0 seconds	0.1second	
20	Auxiliary output	0.0~100.0%	0. 0%	
21	Auxiliary time	0.1~25.0 seconds	0.1second	
22	Sensor A correction	Point 1: 0--999.9	10mm	A-axis low point linear calibration
		Point 2: 0--999.9	500mm	A-axis high-point linear calibration
23	Sensor B correction	Point 1: 0--999.9	10mm	B-axis low point linear calibration
		Point 2: 0--999.9	500mm	B-axis high point linear calibration
24	Display unit	kg N	kg	This parameter affects all unit-related parameter displays
25	Simplified/ Traditional / English	Simplified Chinese Traditional Chinesse English	Simplified Chinese	Language selection
26	Parameter backup	Restore? Backup?		Backup and recovery parameters
27	Restore factory value	Not recovering? Restore?		Restore factory values, the current settings will be lost

Chapter 4 Radius Tension Control

4.1 Overview

   The outstanding feature of the radius tension control is saved relatively high price tension sensor, the installation is simple and easy, and the taper tension control can be conveniently obtained.

   It is especially suitable for use in machine tools such as slitting and winding in printing, packaging, printing and dyeing industries.

   The STC858B controller collects the pulse signal of the spindle and the material reel. After the CPU calculation, the unwinding radius is calculated. According to the coil radius, the set tension, and the rated torque of the magnetic powder clutch [38], the output excitation current is changed to achieve the control tension. The power supply can output 0~24V, 0~4A braking current.

Radius tension control schematic (unwinding)
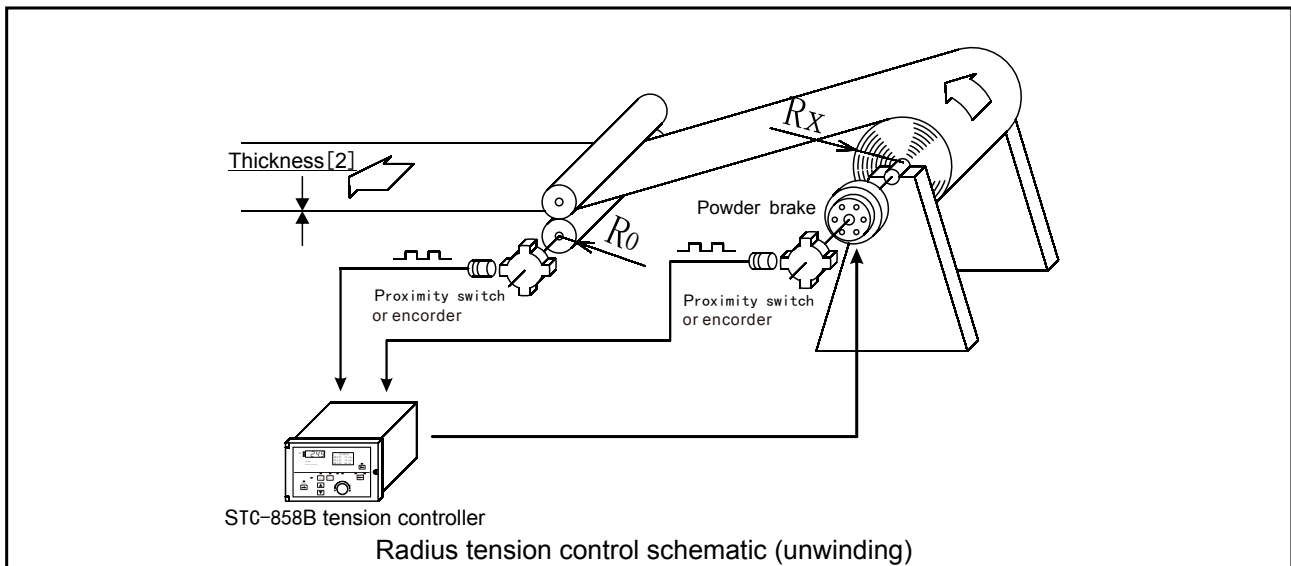
   To calculated accurately about radius measurement, the related parameter must be set correctly, speed of the proximity switch or encoder measuring the winding diameter and the correct installation should be paid attention.

4.2 Radius measurement

4.2.1 Proximity switch / encoder installation and wiring

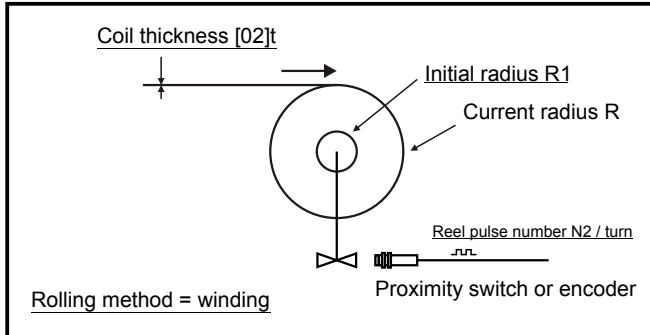Use NPN type proximity switch or encoder.
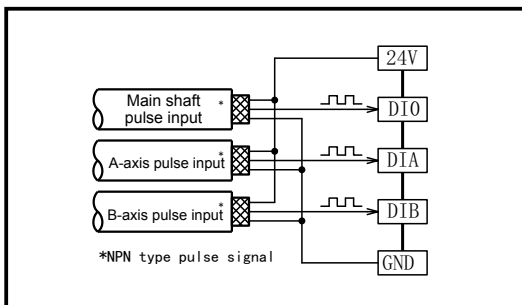
   Proximity switch/encoder wiring

4.2.2 Radius measuring method

The user can choose to measure the coil radius by thickness accumulation or ratio method by setting the radius measurement method [01].

(1) Radius measurement - thickness accumulation method

Coil thickness [02]t

Initial radius R1

Current radius R

Reel pulse number N2 / turn

Proximity switch or encoder

Rolling method = winding

The controller counts the pulses generated by the reel proximity switch, and calculates the current reel diameter according to the cumulative number N and the initial radius [01] R1:

$$R = R1 \pm \frac{N}{N2} t \quad (\text{+: winding, -: unwinding})$$

R : current coil radius
R1: initial radius
N : cumulative pulse number
N2: number of reels / turn
t : coil thickness

In order to ensure accurate measurement of the winding diameter, the parameters related to the winding diameter measurement must be correctly set, and it is necessary to pay attention to the correct installation of the proximity switch for measuring the winding diameter.

Related parameters of thickness accumulation method:
1. Initial radius R1   This value is set according to the actual situation. When the controller performs axis switching, the coil diameter will be automatically reset to the initial radius R1.
2. Coil thickness   The actual thickness of the material, in mm.
3. Maximum radius   This value is set according to the actual situation.
4. Minimum radius   This value is set according to the actual situation.
5. Number of reels pulses   The number of pulses produced per revolution of the reel.
6. Coiling method   Affects the roll diameter calculation. When winding up, the roll diameter is accumulated; when unwinding, the roll diameter is decremented.

(2) Roll diameter measurement - ratio method

Spindle radius [05]R0

Current radius R

Spindle pulse number [06] N1/turn

Proximity switch or encoder

R

Reel pulse number [07] N2 / turn

Proximity switch or encoder
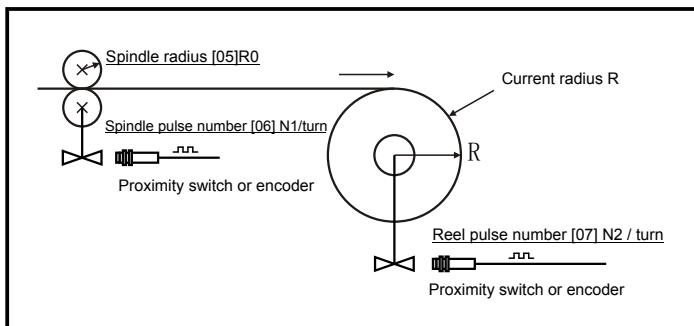
When the winding diameter is measured by the ratio method, the controller counts the pulses generated by the reel and the spindle proximity switch, and automatically calculates the winding diameter value according to the set parameters, and the ratio method does not need to set the coil thickness.

When measuring the coil diameter using the ratio method, the following parameters must be set:
1. Maximum radius [02]   This value is set according to the actual situation.
2. Minimum radius [03]   This value is set according to the actual situation.
3. Spindle radius [05]R0   Spindle radius, see schematic.
4. Spindle pulse number [06]   The number of pulses generated by one revolution per revolution of the spindle N1.
5. Number of reels [07]   The number of pulses N2 produced per revolution of the reel.
6. Calculate the number of pulses [08]   Calculate the roll diameter when the pulse is accumulated to the number of calculated pulses [08]. This parameter affects the measurement accuracy of the radius and the measurement time interval. The larger the value, the higher the accuracy of the measurement roll diameter, but the measurement time. The interval becomes longer.
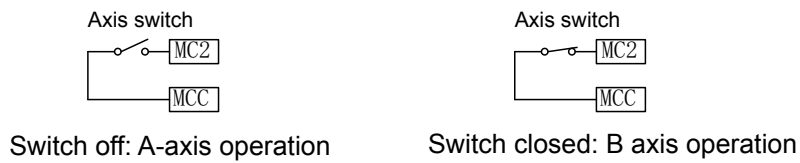
4.3 Radius tension control basic operation

4.3.1 Start/Stop Control
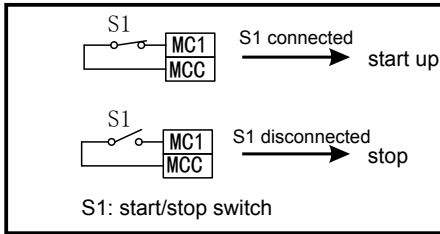
The start and stop of the STC858B tension controller are controlled by the terminals Mc1 and MCC. A switch is connected to the MC1 and MCC terminals. This switch (S1) is the start/stop switch of the system. The S1 switch is turned on or off to start or stop. The tension system is running.

4.3.2 Two-axis switching control

Switch off: A-axis operation

Switch closed: B axis operation

   The axis switching function of the STC858B tension controller is controlled by the terminals MC2 and MCC. A switch is connected to the MC2 and MCC terminals. This switch is the axis switch of the system. When the axis changeover switch is off, the A axis is running; when the axis changeover switch is shorted, the B axis is running.

4.3.3 Reel reset

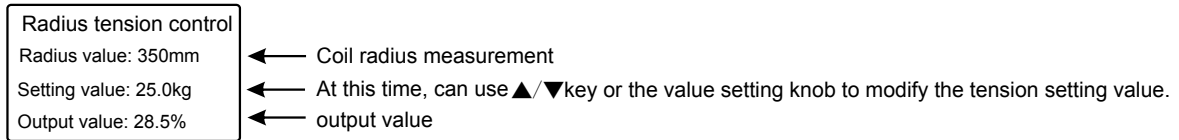The STC858B has two ways to reset the radius:

1. Press "Selection Key", after the radius indicator flashes 3 times, the radius is reset to the initial value.
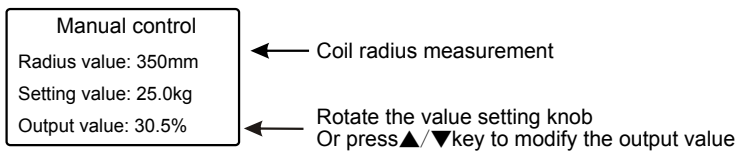
2. Short-circuit the MCC on the MC6.
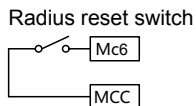
4.4 Constant radius tension control

4.4.1 Constant radius tension control - operation and display

(1) Automatic control screen

```
Radius tension control
Radius value: 350mm      ◄──── Coil radius measurement
Setting value: 25.0kg    ◄──── At this time, can use▲/▼key or the value setting knob to modify the tension setting value.
Output value: 28.5%      ◄──── output value
```

(2) Manual control screen

```
Manual control
Radius value: 350mm      ◄──── Coil radius measurement
Setting value: 25.0kg
Output value: 30.5%      ◄──── Rotate the value setting knob
                               Or press▲/▼key to modify the output value
```

When switching from manual control to automatic control, the controller will save the tension value at this time.

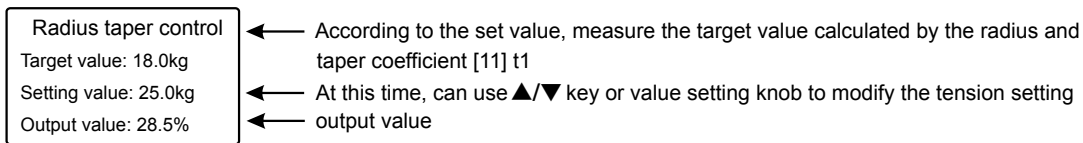### 4.4.2 Constant radius tension control - commissioning steps

[1] Make sure that the proximity switch of the measuring coil diameter is installed and wired correctly, and check that the proximity switch is working properly.

[2] Correctly set the relevant parameters of the constant radius control of the coil diameter:
The radius measurement method is set to the thickness accumulation method or the ratio method
Correctly set the rated torque of the magnetic powder brake/clutch
Set the appropriate values for parameters 08-15 according to system requirements.

[3] Manually run the system and confirm that the roll diameter measurement is correct. If not, return to step [2].

[4] Manually operate the system, adjust the output value so that the tension reaches the appropriate value, then switch to automatic control, the controller will save the tension value at this time.
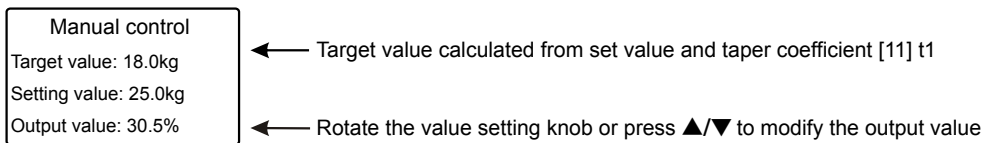
4.5 Radius taper control

On the coil number selection screen, different taper coefficients can be set for different numbered coils. When the taper coefficient is set to 0, it is a constant tension control without taper. When the taper coefficient is not zero, the coil tension decreases with the increase of the coil diameter, and the larger the taper coefficient, the faster the tension decreases.

4.5.1 Radius taper control - operation and display

(1) Automatic control screen

Radius taper control
Target value: 18.0kg
Setting value: 25.0kg
Output value: 28.5%

←— According to the set value, measure the target value calculated by the radius and taper coefficient [11] t1

←— At this time, can use ▲/▼ key or value setting knob to modify the tension setting

←— output value

(2) Manual control screen

Manual control
Target value: 18.0kg
Setting value: 25.0kg
Output value: 30.5%

←— Target value calculated from set value and taper coefficient [11] t1

←— Rotate the value setting knob or press ▲/▼ to modify the output value

When switching from manual control to automatic control, the controller will save the tension value at this time.

4.5.2 Roller taper control - commissioning steps

[1] Make sure that the proximity switch of the measuring coil diameter is installed and wired correctly, and check that the proximity switch is working properly.

[2] Correctly set the relevant parameters of the roll diameter taper control.

[3] Manually run the system and confirm that the roll diameter measurement is correct. If not, return to step [2].

[4] Set the taper coefficient and manually run the system, adjust the output value to bring the tension to the appropriate value, then switch to automatic control, the controller will save the tension value at this time.

Chapter V Other Functions

5.1 radius alarm function

R.alm=　50mm

Esc Confirm / Exit
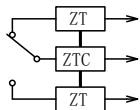
1. When unwinding, when the coil diameter measurement value is less than the set volume alarm value [04], the zero tension alarm relay will pull in, and the tension alarm indicator ALM on the panel will light.

2. At the time of winding, when the winding diameter measurement value is greater than the set volume alarm value [04], the zero tension alarm relay will be closed, and the tension alarm indicator ALM on the panel will light.

ZT

ZTC

ZT

Radius alarm

5.2 second output

42. Second output
▶Synchronous control
　output
Axis cut auxiliary output

When the second output [42] selects the synchronous control output, the output value is exactly the same as the main output.

When the second output [42] selects the axis cut assist output, the output value is the auxiliary output [14].

EAP ＋

EAN ＿ }
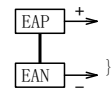
The second output: 0~10V
(connected to the B-axis power unit)

5.3 Language Selection

26. Simplified/
　Traditional/ English
▶ English
　Simplified
　Traditional

STC858B can choose Chinese or English interface:
(1) Enter the Chinese English [47] parameter screen
(2) Use the ▲/▼ keys or the value setting knob to select the language.
(3) Press Esc to confirm exit

5.4 Parameter backup

27. Parameter backup
▶ Restore?
　Backup?
Set Confirm　　Esc Exit

This function can back up and restore the current parameters of the controller. When the system works normally, the current parameters can be backed up and saved. When necessary (such as parameter setting confusion), the backup parameter values can be restored.

Note: When the system debugging is completed and the system is running normally, a "backup" operation can be performed; when the "recovery" operation is performed, the parameter value will be restored to the value of the last backup parameter.

5.5 Restore factory value

28. Restore factory value
▶Restore?
　Not recovering?
Set Confirm　　Esc Exit

This feature restores all controller parameters to their factory defaults.
(Note: Performing this function will lose all current parameters!)

Chapter VI Inspection and Maintenance

Problem	Possible malfunction	Solution
The controller does not work after power-on	Power problem, fuse blown	The controller is powered by 110-264 VAC 1. Please check if the power supply is connected correctly. 2. Replace the new fuse (4A)
Tension display is unstable in both manual and automatic control modes	1. The detection roller is not round, the bearing damaged, and the detection roller is bent. 2. There is a problem with the clutch/brake or driver parts. 3. Sensor signal failure or calibration error	1. Re-machine installation 2. Replace the appropriate actuator 3. Select a qualified sensor and recalibrate it correctly
Radius measurement display is incorrect	1. Related parameter setting is incorrect. 2. Proximity switch or encoder type is incorrect 3. Proximity switch/encoder damage or wiring error	1. Set correct radius measurement parameters according to the actual situation. 2. Select NPN type proximity switch / encoder 3. Check wiring or replace with a new proximity switch/encoder
Controller has no output	1. The output is turned off 2. Output short circuit protection 3.A/B axis output wiring error	1. Confirm that the OUTPUT ON/OFF indicator is lit 2. Turn off the power and power on after 30 seconds. 3. Connect the output device correctly
Button or value setting knob does not work	Button is locked	Check the status of the Lock indicator. When the Lock light is on, the button is locked.
Cannot switch to automatic control mode	Cannot switch to automatic control mode in fault state 1. The measured value is incorrect 2. The button is locked	1. Check the sensor, wiring, parameters, recalibrate until the measurement is correct 2. Press the lock button to cancel the lock
Restart after the device stops, tension is very large or small	1. When the system stops, the start/stop switch Mc1 is still connected. 2. The MC4 switch is not shorted, and the preliminary output has no memory.	1. When parking, disconnect the start/stop switch MC1 2. Short circuit the preliminary output switch Mc4
Set value change when switching from manual mode to automatic mode	When the controller switches from manual control mode to automatic control mode, the controller sets the measured value at this time to the set value to achieve bumpless switching.	Normal, this feature enables the tension control system to achieve bumpless switching

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