

AUTOMATIC TENSION CONTROLLER

Usage Manual

I. Technical Features:

Model: US-60MTA、US-80MTA

Power Voltage: One-way AC220V/110V 50/60HZ 120W

Output: DC0-24V 4A(MAX), DC0-10V 4-20mA

Tension Control Range: 0kg-2000kg, tension resolution: 0.1kg or 1kg

Tension Display: Alphanumeric and LCD

Display Indicator: Kgf/N/% unit, automatic/manual, power

Accessories: Tension sensor SH-TD, speed detector NEW-S2

Weight: 3kg/ 5kg

Setup Mode: Auto or manual is set by the digital set trimmer (the up/down key) in wo-function settings.

Tension Method: The unwinding or rewinding tension will be automatically controlled.

Installation Method: On table or against the wall

Calibration: A pair of sensor will calibrate to zero when power is on.

Work Part Alternation: Have the pair of work parts alternate within 30 seconds.

II. Procedure of calibrating tension controller and sensor

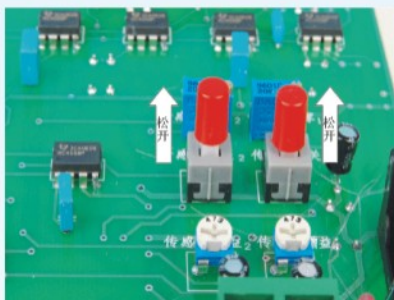
- 1、Turn off the power and open the front cover



- 2、Open machine, turn switch #6 on



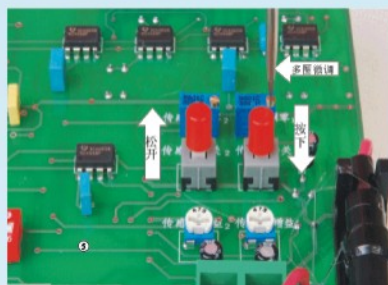
- 3、Turn off sensor switch #1 and #2.



- 4、Turn on the power- the tension controller will automatically calibrate to zero when the sensor is off-line (as done in step 3).



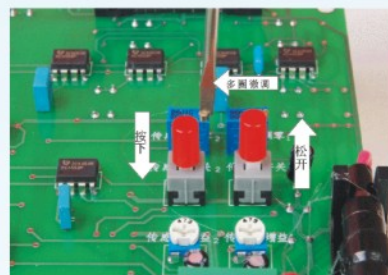
- 5、Adjusting the #1 sensor- turn on the #2 sensor switch before turning off the 1# sensor switch. Then rotate the #1 micro adjustment set trimmer to desired value (value will increase when rotated clockwise, and will decrease when rotated anticlockwise to lowest value 00.0).



- 6、The result of #1 sensor adjustment is only acceptable if the #5 LED presents a number in the range of 01.0 to 07.0 and screen #6 shows 2 or 3 bars.



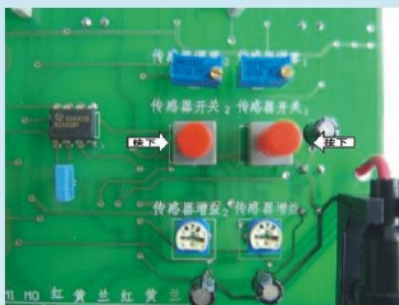
- 7、Adjusting the #2 sensor- turn on the #1 sensor switch before turning off the #2 sensor switch. Then rotate #2 micro adjustment set trimmer to desired value (value will increase when rotated clockwise, and decrease when rotate to anticlockwise to lowest value 00.0).



8、 The result of #2 sensor adjustment is only acceptable if the #5 LED presents a number in the range of 01.0 to 07.0 and screen #6 shows 2 or 3 bars.



9、 Turn on both #1 and #2 sensor switches.



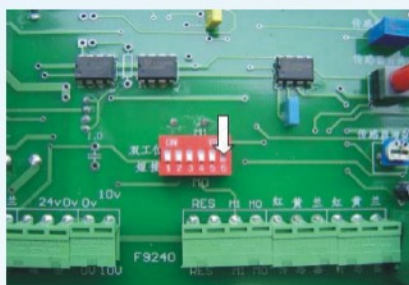
10、 The following screen will show the state of the sensor pairs after adjustments.



11、 Turn off power and then turn on power again. The controller will automatically calibrate the sensors to zero.



12、 If the sensor is needed to keep zero set point memory, please turn switch #6 off (down). If the switch is turned on (up), it will automatically calibrate to zero every time the machine is turned on.



III. Operating the tension controller

1、 Press the MANUAL key- the green light above the key will light up.



2、 Rotate the digital set trimmer, adjust the manual tension to an appropriate value (example- 30.0). The max value is 50.0, or 100% load. The controller can't enter the automatic status until it obtains the value necessary for maintaining normal state tension (example- 10 kgf).



3、 Press the AUTOMATIC key. The green and red light above the key will blink alternately for 5 seconds. If the red light is lit and the green light out, then auto status is working.



4、 This machine is now working under the normal conditions. #5 LED will show the initial tension set value, screen #6 will show present tension value and #8 LED will show the voltage percent value.



5、 If the tension is not appropriate, then micro adjust the #17 set trimmer to obtain a valid tension set value for #5 LED.



Thus procedures of the calibration and operation are complete. The digital tension controller will now run under normal state. It is normal if #6 LED shows tension values are constant. The digital tension controllers mainly apply to unwinding or rewinding under stable tension. #8 LED will show the voltage percent decreasing slowly from the original value to a constant value when it is unwinding. #8 LED will show the voltage percent increasing slowly from the original value to a constant value when it is rewinding. Caution: do not touch the key accidentally when the machine is operating

IV. Additional illustration of the function of the digital automatic tension controller

1、 Press ENTER key until the upper-left #5 LED shows menu, prepare to set time (T) for parts alternating with each other and primary value (F) for loading voltage percent.



2、 Rotate the auto digital set trimmer, put in password "07".



3、 Press ENTER key until screen shows T01 (It is the time for a two part alternation, set up the same way as the set up for F). For example, rotate the digital set trimmer and adjust the initial value of time to current time 0-30 secretary.



4、 Press ENTER key until screen shows F01 (It is the initial value of load voltage percent). For example, rotate the digital set trimmer and adjust the initial value of voltage percent to current value.



5、 If new material roll change is needed, press the load output OFF key to stop load output.



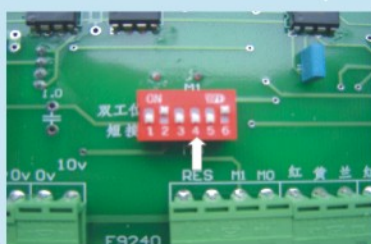
6、 After changing the material roll, press the load output ON key to recover the load output.



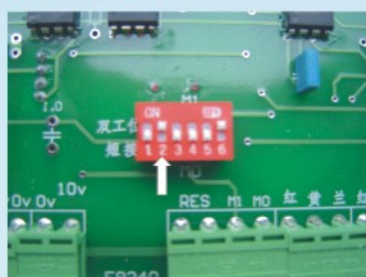
7、 Press #1 or #2 two-work parts key and the CANCEL key, the #8 LED shows the initial value of voltage percent, it is ready to start the new work. (If no function of two-work parts, please press the CANCEL key)



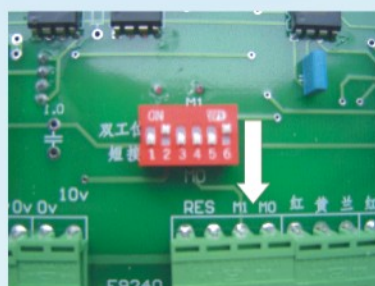
8、Please turn on #4 switch. This means that the controller works directly from manual to auto, the outer counting ring (need to be removed) is invalid under the auto state.



9、If need two-work parts output, please turn on # 2 switch.



10、RSE is the outside connect piece to two-work part.



V. Front screen panel, switch, keypad function, and connection



1-- Power switch. "On" is turn on the machine, "OFF" is turn off the machine.
5-LED Display. It is a multifunctional display. The display will show the sensor's dynamic tension value when the controller is working under manual state and tension's setting value when it is working under auto state. The max rang is from 00.0 to 50.0. It is set to appropriate value by auto digital set trimmer #17. It also can be set by #20 and #21 key. The detail operating steps are showed on the step five.
6-LED Display. It shows tension sensor's value. "100%" means at full scale. LED display set off when value is at 0 or below zero. The #6 LED display is used to cooperate with #5 and #8 LED display. They reference each other.

8-LED display. It is a double function display. When #9 kgf green indicator on the right light is bright, it shows the tension value (the max value is 50.0). When the #11 % red indicator on the right light is bright, it shows the voltage percent (the max value is 50.0). Press #10 key can change with each other. (It can only change under auto state.)

9-The indicator light of percentage of tension kgf. When the red light is bright, it shows the voltage percent. When the green light is bright, it shows the tension value.

10-MONITOR/SELECTT is the change key of output voltage % of tension kgf.

12-MANUAL mode key. If machine needs work under MANUAL mode, then press this key. 13-MANUAL mode green indicator light.

15-AUTO mode key. Press this key, the machine works from manual mode into auto mode.

16-AUTO mode red indicator light. If 16-AUTO mode red indicator light is bright, 13- MANUAL mode green indicator light is off at the same time. #12 and #15 key can be changed each other.

17--AUTO digital set trimmer. It is a multifunctional set trimmer. When the machine works under manual mode, it is used to set output voltage percent (100%) (It shows on #8 LED display). When the machine changes from MANUAL to AUTO, it is used to set tension value (It shows in #5 LED display). It will make the machine work in the best state if adjust this set trimmer.

18、19-Two-work parts alternation key. When the controller (magnetic powder arrester) runs on #1 work part, the right green light is bright and output F1. When press the #2 key, it will change to run on #2 work part, the right red light is bright and output F2. Meantime, it output F1 and F2 within 30 seconds.

20、21-Decrease key/Increase key (▲INC\▼DEC). Their functions is same as auto digital set trimmer #17, but changes more fast.

22- Menu key. Press this key can show different menu D00, T00 and F00 on the 5 LED display. Menu T00 and F00 only can be shown when put in password 07 under menu D00.

How to show menu contents of T00 and F00

Press #22 key to show menu D00, rotate digital set trimmer #17 to input password "07" . Then press #22 key again to show menu T00. At this time, adjust auto digit set trimmer #17 and set the time of the two-work part alternation. The time can be chosen from T01 to T30 flexibly.

Then press #22 key again to show menu F00. At this time, adjust auto digit set trimmer #17 and set the initial voltage percent value. The voltage percent value can be chosen from F01 to F50 flexibly.

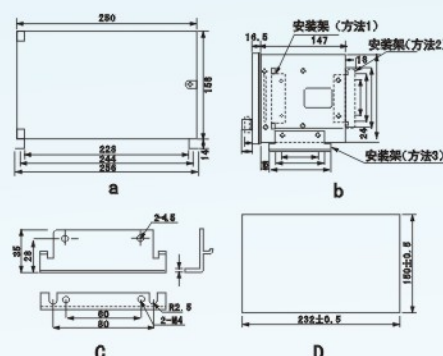
23-CANCEL key. Press this key, the voltage percent will come back to present value. Initial value is in the range from F01 to F50. The single-work part and the two-work part are all valid.

24 & 25- Lights correspond to #18 and #19. When the indicator light is bright, it means that function is working.

26 & 27- Load output control keys. Press ▲ON output the load. Press ▼OFF unload while the #8 LED shows "OFF".

VI. The following is the US-60MTA's relative terminal connection line

Ring	Load	Output	Multifunction	2# sensor	1# sensor	Power
○○○	○○○	○○○	○○○	○○○	○○○	○○○
Yellow/red/blue	F2F1G 24V24V 0	10V 10V 0	RES G G	Red/yellow/blue	Red/yellow/blue	220/110



注：下列操作属于

故障调试



(图片1) 为正常标准张力传感器调试零点值状态是1号传感器绿灯和2号传感器绿灯都是亮一个。

(Picture 1) Debugging for normal standard tension sensor

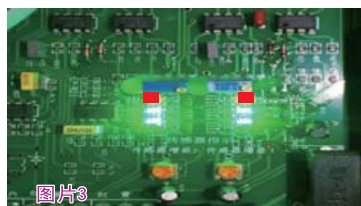
Zero point status is No. 1 sensor green light and No. 2 sensor

The green lights are all bright.



(图片2) 为偏离正常标准张力传感器调试零点值状态是1号传感器绿灯和2号传感器绿灯都是亮二个。可以通过传感器调零1和2微调电位器（指示灯上面蓝色的），用小螺丝刀调节微调电位器上铜螺丝，逆时针方向旋转至（图片1）为正常标准张力传感器调试零点值状态是1号传感器绿灯和2号传感器绿灯都是亮一个。

(Picture 2) Debug zero point deviation from normal standard tension sensor. The status is that the No. 1 sensor green light and the No. 2 sensor green light are both bright. The sensor can be zeroed by the sensor 1 and 2 trimmer potentiometer (the indicator light above the blue Color), use a small screwdriver to adjust the copper screw on the trimmer potentiometer, reverse time. Rotate the needle to (picture 1) for normal standard tension sensor commissioning. The zero value status is that the No. 1 sensor green light and the No. 2 sensor green light are both one bright.



(图片3) 为严重偏离正常标准张力传感器调试零点值状态是1号传感器绿灯和2号传感器绿灯都是亮并且二个红灯全亮。必须通过传感器调零1和传感器调零2微调电位器（指示灯上面蓝色的），用小螺丝刀调节微调电位器上铜螺丝，逆时针方向旋转至（图片1）为正常标准张力传感器调试零点值状态是1号传感器绿灯和2号传感器绿灯都是亮一个。

(Picture 3) Debugging for severe deviation from normal standard tension sensor. The zero value status is that the No. 1 sensor green light and the No. 2 sensor green light are both Bright and two red lights are all on. Must be zeroed and passed through the sensor. Sensor zero adjustment 2 trimmer potentiometer (the indicator light is blue), use Small screwdriver adjusts the copper screw on the trimmer potentiometer, counterclockwise Go to (Picture 1) for normal standard tension sensor debug zero value. The status is that the No. 1 sensor green light and the No. 2 sensor green light are both one bright.



(图片4) 为1号传感器绿灯和2号传感器绿灯都是不亮无指示。可以通过传感器调零1和2微调电位器（指示灯上面蓝色的），用小螺丝刀调节微调电位器上铜螺丝，顺时针方向旋转至（图片1）为正常标准张力传感器调试零点值状态是1号传感器绿灯和2号传感器绿灯都是亮一个。如果顺时针调十圈后绿灯还是不亮，请检查传感器红线或黄线是否断线。

(Picture 4) The No. 1 sensor green light and the No. 2 sensor green light are both off and no indication. You can use the sensor to zero and 1 and 2 trim potentiometers (the indicator light is blue). Small screwdriver adjusts the copper screw on the trimmer potentiometer and rotates clockwise to (picture 1). The zero point value status for the normal standard tension sensor is the No. 1 sensor green light and the No. 2 transmission. The sensor green light is bright one. If the green light still does not light after adjusting the clockwise ten times, please check Check if the sensor red or yellow line is broken.



(图片5) 为1号传感器绿灯不亮无指示。可以通过传感器调零1（指示灯上面蓝色的），用小螺丝刀调节微调电位器上铜螺丝，顺时针方向旋转十圈，如果一直是不亮无指示，表示1号张力传感器黄色线断线出故障。

(Picture 5) The green light of No. 1 sensor is not lit without indication. Can pass The sensor is zeroed (the indicator light is blue). Adjust the fine adjustment with a small screwdriver The copper screw on the potentiometer rotates ten times clockwise, if it is not If there is no indication, it indicates that the yellow line of the tension sensor No. 1 has broken.



(图片6) 为2号传感器绿灯是不亮无指示。可以通过传感器调零2（指示灯上面蓝色的），用小螺丝刀调节微调电位器上铜螺丝，顺时针方向旋转十圈，如果一直是不亮无指示，表示2号张力传感器黄色线断线出故障。

(Picture 6) The green light for the No. 2 sensor is not lit without indication. can Tune 2 by sensor (blue on the indicator light) with small screws. The knife adjusts the copper screw on the potentiometer and rotates ten times in a clockwise direction. If it is always no light, no indication, indicating the yellow line of the tension sensor No. 2. The disconnection has failed.



(图片7) 为1号传感器绿灯和红灯是全亮指示。可以通过传感器调零1（指示灯上面蓝色的），用小螺丝刀调节微调电位器上铜螺丝，逆时针方向旋转十圈一直是红灯绿灯全指示，张力指示值显示为999保持不动，表示1号张力传感器蓝色线断线出故障。反之如果2号全亮调试方法如同1号，如果发现其中传感器断线请及时拔下它的插头，排除故障后重新插回原位。

(Picture 7) The green light and red light for the No. 1 sensor are all bright indications. can Zero by sensor (blue on the indicator light), adjust with a small screwdriver Fine-tuning the copper screw on the potentiometer, rotating ten turns counterclockwise has been red. The green light full indicator indicates that the tension indicator value is 999 and remains unchanged. The tension line of the No. 1 tension sensor is broken. On the contrary, if the 2nd is full. The test method is like No. 1, if you find that the sensor is disconnected, please dial it in time. Its plug is reinserted after troubleshooting.