

NS 799

User manual of shupu 500 stepper Motor

Foreword

Welcome to use our products, it is the right investment choices in garment industry!

The User manual is for our newly developed "W1500 Auto-Trimmer servo Motor system " products Reference Manual, please read this manual carefully, hope it can give you useful help.



Before reading the manual, please note the following requirements

- 1、 The user must be grounded before operations to ensure safety
- 2、 non-professionals do not disassemble the control box
- 3、 The control box and motor away from the magnetic high radiation environment
- 4、 Do not work in hot environments
- 5、 Do not work in humid environments too
- 6、 Users to ensure stable supply voltage (210V ~ 240V)

Safety requirement:

- 1、 Do not put your feet on the pedals when the motor is switched on
- 2、 Let professionals to install and debug this product
- 3、 Do not open the control box and the motor cover when energized
- 4、 Please turn off the power when changing the needle, threading or replacing the bottom line
- 5、 During installation and removal service, please turn off the power
- 6、 Please turn off the power when turn lift sewing machine

Warranty Policy:

- 1、 Since from the purchase of this product, we give 2-year warranty for free, Lifetime Maintenance. during the warranty period ,Any quality problems the product will be free repaired, Except artificial damage.
- 2、 without our consent disassemble or modify, the damaged will not give in warranty
- 3、 Whenever find the problem can not be solved, you can contact the company

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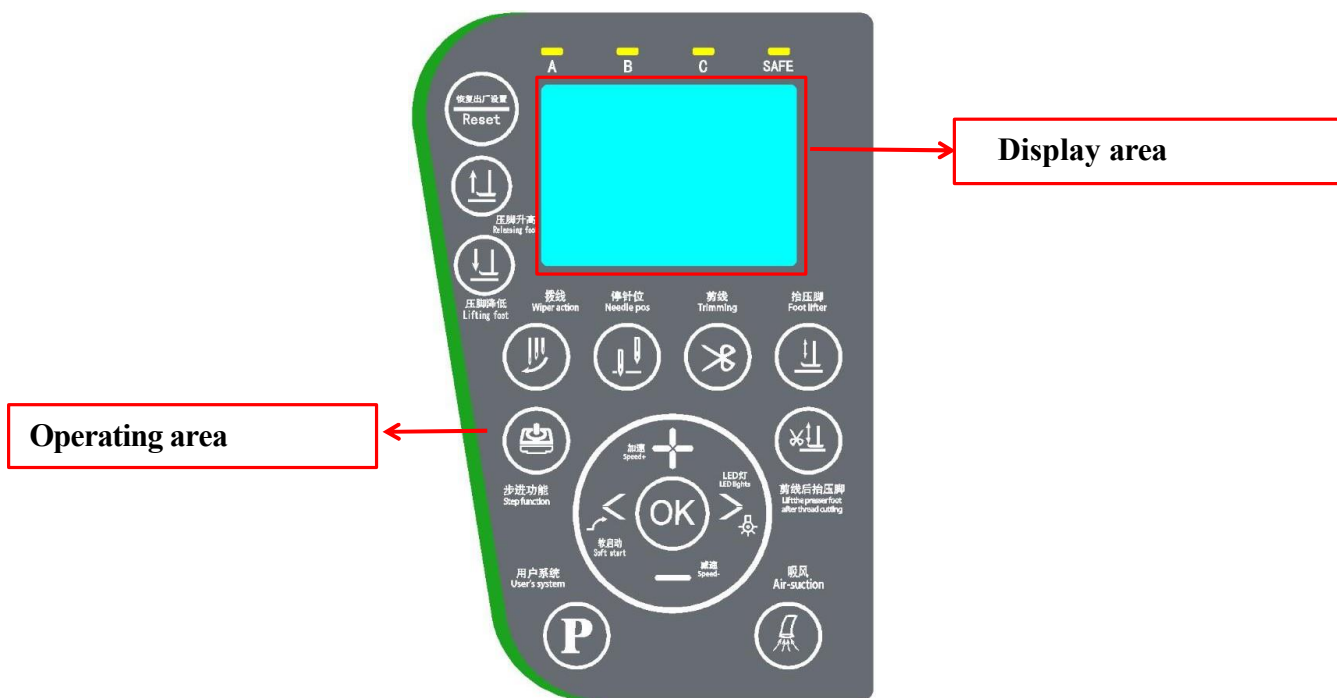
Servo System Introduction

- I. Introduction of display screen common Operation**
- II. How to enter parameters and how to modify the parameters**
- III. Operating Parameter Description Table**
- IV. The control box Port Description**

Error code analysis

I. Introduction of display screen common Operation



















1、The display screen is described as follows:



2. Function introduction:

















Serial No.	Button Icons	Function Description
1		Parameter determines the Save button
2		Left key (when adjusting items)
		Slow start function key ※: Press to turn on or off the function of slow start
3		Left key (when adjusting items)
		Machine head LED light On or Off key ※: luminance value 0-5, 0 means the LED light off. 1-5 means the LED light on
4		“+” button (modify the parameters plus), increase 50RPM when pressing the key for once time on the host interface
5		“-” button (modify the parameters minus), decrease 50RPM when pressing the key for once time on the host interface

6		Press P button to enter the user parameter. Long press P button and enter the password (2014) to enter the system parameter.
7		Auto- trimmer and auto-foot lifter function(after auto-trimmer, the foot lifter automatically) ※: turn on or off
8		Cut-line mode: Press  key to enter, then repeatedly press this key to toggle the wire-cutting mode on or off.
		Trimming mode: Press  key to enter, repeat the key to turn on/off the trimming function Presser foot mode: Press  to enter, turn on/off the function of the half backward presser foot lifting, turn on/off the function of the halfway presser foot lifting
9		Needle position adjusting Up needle position/ Down needle position
10		Dialing Mode: Press  Enter, then repeatedly press this key to toggle dialing mode on or off.
11		Inhalation Mode: On/Off Press  Enter and then repeatedly press this button to turn inhalation mode on or off.
12		Presser foot height adjustment: Press  to enter presser foot height adjustment mode
13		Presser foot height reduction adjustment: Presser  foot height reduction adjustment:
14		To restore factory settings: Press the 2S button  once to display "Restore", then press OK to restore factory settings.

II. How to enter parameters and how to modify the parameters

System parameters entering analysis:

1. Press  and  key to enter the user parameter, select the parameter with  key, adjust the value with  and  and  key, confirm with  key.

2. Press  and  key to enter the user parameter, enter the parameter with password 2014, select the parameter with   key, adjust the value with  and  and key, confirm with  key.

Note: the upper is entry method, specific parameters No. on behalf of the parameters meaning as follows: “3: Operating Parameter Description Table”

III. Operating Parameter Description Table

3.1 System parameter list

System parameter list	Function Description	electric magnet mode	Air-drive mode	Step drive mode	range	Parameter instruction
P1	MAX Sewing speed	4500	4500	4500	200~6500	Round / Minute
P2	Start sewing speed	250	250	250	150~800	Round / Minute
P3	Pedal acceleration curve	85	85	85	10-100	%
P10	Trimming speed	350	350	350	150-600	Milliseconds
P11	Slow Start Selection	0	0	0	0~1	0: Disable 1: Enabled
P12	Slow start Stitches number	2	2	2	0~30	Stitch number
P13	Slow start speed	400	400	400	200~800	Round / Minute
P20	Acceleration sensitivity	4	4	4	1~6	The larger the value is, the larger the low-speed region is, and the larger the velocity variation is. The smaller the value is, the larger the low-speed region is, and the larger the velocity variation is.
P21	Restore factory settings	0	0	0	0~3	0: forbidden 1: restore part of the parameter to factory settings 2: restore part of the machine mode parameters to factory settings 3: restore all the parameter to factory settings
P22	Motor drive orientation	1	1	1	0~1	0: Counterclockwise 1: Clockwise
P23	Displays the current speed	0	0	0	0~9999	Displays the current motor speed
P24	Display foot controller voltage	0	0	0	0~9999	Display foot controller output voltage
P25	Automatic break-in operation	0	0	0	0~1	0: Off 1: On
P26	Backward to reset W sewing	0	0	0	0~1	0: Disable 1: Enabled

P27	Auto W sewing touch off mode	0	0	0	0~3	0: off 1: start the machine at maximum speed in the multi-sewing mode. 2: start the machine at setting speed in the multi-sewing mode. 3: reservation
P28	Finding the needle position automatic	1	1	1	0~2	0: forbidden 1: able (do not find the needle position if it is on the up needle stop position) 2: able (find the needle position in any needle stop position)
P34	The angle of upper needle stop position	0	0	0	-30~30	degree
P35	The angle of down needle stop position	150	150	150	150-300	degree
P36	Delayed start time for knife action	20	25	0	0~2000	Millisecond
P37	Knife action time (full power + maintain power)	110	90	10	10~2000	Millisecond
P38	Full power scissors action time	80	80	80	10~990	Millisecond
P39	Trimmer action full power	90	100	80	20~100	Percentage
P40	maintain power adjustment for knife action	60	60	60	10~100	Percentage
P41	Knife action release the protection time	10	10	10	1~800	Millisecond
P42	Trimming protection time	1	1	1	0~5	Second
P43	Scissors action reset switch enable	1	1	1	0~1	0: Disable 1: Enabled
p44	Cutting manual action mode	0	0	0	0~1	0: Disable 1: Enabled

P45	Reservation (trimming touch off mode)	1	1	1	0~1	0: Disable 1: Enabled
P46	Wiper action delayed start time	70	70	145	0~2000	Millisecond
P47	Wiper action time (full power + maintain power)	55	55	55	10~2000	Millisecond
P48	Wiper action time at full power time	45	45	45	10~990	Millisecond
P49	Wiper action full power	90	90	90	20~100	Percentage
P50	Wiper action time at maintain power adjustment	50	50	50	10~100	Percentage
P51	Wiper action release the protection time	25	25	25	1~800	Millisecond
P52	Wiper action protection time	3	3	3	1~5	Second
P53	Wiper action protection switch enable	0	0	0	0~1	0: Disable 1: Enabled
P54	Wiper action mode	0	0	0	0~4	0: normal Sweep thread 1: cut one time blow one time 2: Blow for each foot lifter 3: Long blowing 4: break blow
P55	Blowing time	10	10	10	5~3000	Millisecond
P56	Foot-lifter action delayed start time	110	110	1	0~2000	Millisecond
P57	Foot-lifter action time (full power + maintain power)	260	260	260	100~2000	Millisecond
P58	Foot-lifter action time at full power time	160	160	160	100~990	Millisecond
P59	Presser foot full power	100	100	100	60~100	Percentage

P60	Foot-lifter action time at maintain power adjustment	50	50	50	1~90	Percentage
P61	Foot-lifter action release the protection time	65	65	65	1~800	Millisecond
P62	Automatic presser foot lifter down time	10	10	10	1~120	Second
P63	Presser foot protection switch enabled (stepper origin point detection)	1	1	1	0~1	0: Disable 1: Enabled
P64	Presser foot action mode	0	0	0	0~1	0: Disable 1: Enabled
P65	Half-back step pedal foot lifter delay start time	150	150	150	0~2000	Millisecond
P67	Low voltage and over voltage detection off	0	0	0	0~3	0: the function of low voltage and over voltage detection on 1: the function of low voltage detection off 2: the function of over voltage detection off 3: the function of low voltage and over voltage detection off
P69	Trimming releasing power	0	0	0	0~55	Percentage
P70	Motor max electric current	350	350	350	50~600	Ampere/A (independent internal calculation)
P71	Maximum speed lock	4200	4200	4200	200~5500	Round / Minute
P72	System Password	2014	2014	2014	0~9999	
P73	Voice volume	25	25	25	0~30	dB
P74	Language selection	0	0	0	0~1	0 Chinese 1 English
P76	Air-suction action delay starting time	140	140	140	0~2000	Millisecond
P77	Air-suction action maintain time	20	20	20	1~600	Millisecond
P78	Air-suction action full power time	160	160	160	10~990	Millisecond

P79	Air-suction action full power	100	100	100	20~100	Percentage
P80	Air-suction action maintain power	80	80	80	1~100	Percentage
P81	Air-suction action releasing time	45	45	45	1~800	Millisecond
P82	Air-suction action protection time	1	1	1	1~120	Second
P83	Air-suction protection switch enable	0	0	0	0~1	0: 禁用 1: 启用 0: Disable 1: Enabled
P84	Air-suction action	0	0	0	0~4	0: off; 1: long blowing; 2: blow at intervals:first blow 3: blow at intervals: first stop 4: blow after presser foot lifting
P85	Blowing mode	0	0	0	0~4	0: blowing after presser foot lifting 1: blow once 2:blow twice 3:blow three times 4:blow four times
P86	Blow at intervals ON needle numbers	10	10	10	1~250	Needle numbers
P87	Blow at intervals OFF needle numbers	30	30	30	1~250	Needle numbers
P88	Interlock machine mode selection	/	/	/	/	/
P89	Trimming count	0	0	0	0~9999	Press right button to adjust when enter the parameter, press OK to confirm display. ※ Long press OK button for 2 seconds to zero the value in the interface.
P90	Display on the main interface	0	0	0	0~4	0: off 1:number count 2: speed 3: pedal voltage 4: voltage
P91	Aging running time	5	5	5	1~60	Second
P92	Aging running stop time	2	2	2	0~60	Second
P93	Aging running speed	4500	4500	4500	200~5500	Round / Minute
P94	Speed lock	5000	5000	5000	200~5500	Round / Minute

P95	Virtual speed	100	100	100	0~5000	Round / Minute
P99	Display version	1	1	1	0~9999	
P100	Controller version	505	505	505	0~9999	
P101	Step direction	1	1	1	0~1	0: forward 1: reverse
P102	Step origin offset	32	32	32	0~400	degree
P103	Step origin power	2	2	2	0~50	Percentage
P104	Step thread cutting power	85	85	85	5~95	Percentage
P105	Step thread cutting angle	/	/	900	1~1200	Tiny adjust the step thread cutting angle (the larger the value is, the deeper the knife cut, the smaller the value is, the shallower the knife cut)(do not set the value over the knife cutting limited to avoid the stepper motor out of step)
P106	Step forward knife speed	/	/	800	1~1200	The larger the value is, the fast the trimming speed is. The smaller the value is, the slower the trimming speed is.
P107	Step backward knife speed	/	/	500	1~1200	The larger the value is, the fast the knife back. The smaller the value is, the slower the knife back.
P108	Step forward knife power	/	/	1	1~5	The larger the value is, the larger power the knife cut
P109	Step backward knife power	/	/	1	1~5	The larger the value is, the larger power the knife back
P110	Step motor presser foot lift angle	/	/	1500	1~1800	The larger the value is, the higher the presser foot lift, the smaller the value is, the lower the presser foot lift (do not set the value over the presser foot lifting limited to avoid the stepper motor out of step)

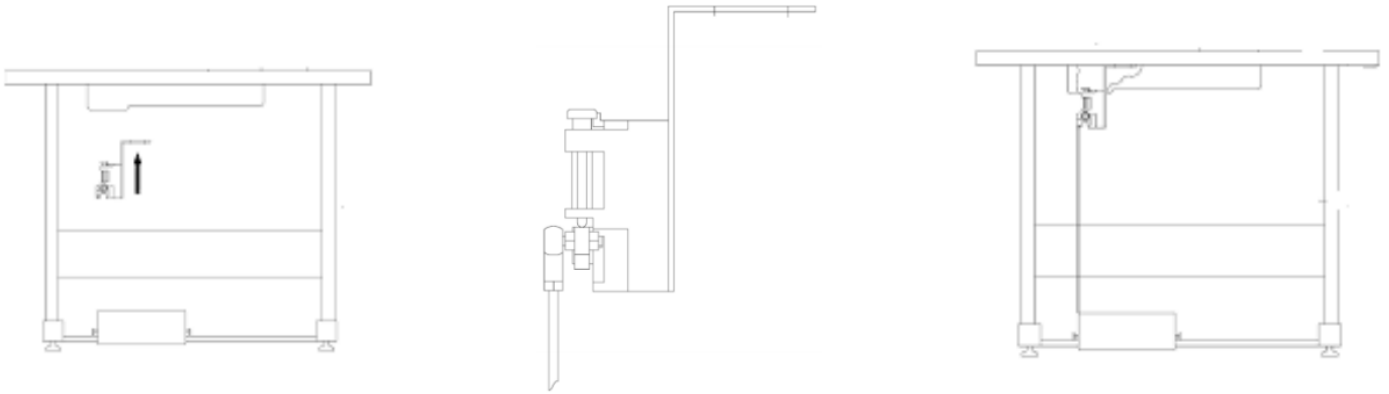
P111	Step motor presser foot lift speed	/	/	500	1~1200	The larger the value is, the faster the presser foot lift. The smaller the value is, the slower the presser foot lift.
P112	Step motor release presser foot speed	/	/	600	1~1200	The larger the value is, the faster the presser foot release. The smaller the value is, the slower the presser foot release.
P113	Step motor presser foot lift power	/	/	2	1~5	The larger the value is, the larger power the presser foot lift.
P114	Step motor release presser foot power	/	/	1	1~5	The larger the value is, the larger power the presser foot release.
P115	500-05 mode function	/	/	0	0-1	0: Disable 1: Enabled ※: Switch of the automatic belt feed
P116	05 mode fix needle sewing switch	/	/	0	0-1	0: Disable 1: Enabled
P117	05 mode feeding material speed	/	/	390		Stepper speed of automatic belt feed
P118	Trimming starting slow down itinerary	/	/	80	5~600	The position of the second knife feed or back of stepper motor.
P119	Trimming starting slow down speed	/	/	500	100~950	The speed of the second knife feeding of stepper motor.
P120	Trimming back slow down speed	/	/	350	100~950	The speed of the second knife back of stepper motor.
P131	Presser foot lifting slow down itinerary	/	/	100	5~1000	The position of the second presser foot lifting of stepper motor.
P132	Presser foot lifting slow down speed	/	/	200	100~1200	The speed of the second presser foot lifting of stepper motor.
P133	Presser foot releasing slow down itinerary	/	/	300	5~1000	The position of the second presser foot releasing of stepper motor.
P134	Presser foot releasing slow down speed	/	/	100	100~1200	The speed of the second presser foot releasing of stepper motor.

P135	Two paragraphs presser foot lifting switch	/	/	1	0~1	0: Disable 1: Enabled
P136	Two paragraphs trimming switch	/	/	1	0~1	0: Disable 1: Enabled

3.2. Installing and adjusting of speed controller:

A. Installing of the speed controller:

- 1) Install the speed controller under the table
- 2) Fix the pedal and the speed controller
- 3) The installation diagram



B. Adjusting the pedal force:

power adjusting of the backward pushing

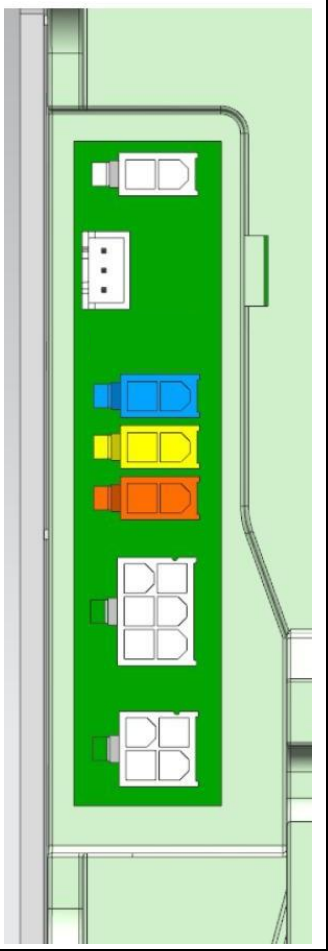


Adjustment required	Adjustment result
Adjustment of the pedal backward pushing power	The power will be stronger when fix the screw downward. The power will be weak stronger when fix the screw upward.

V. Control Box Port Description:

Step-through port definition

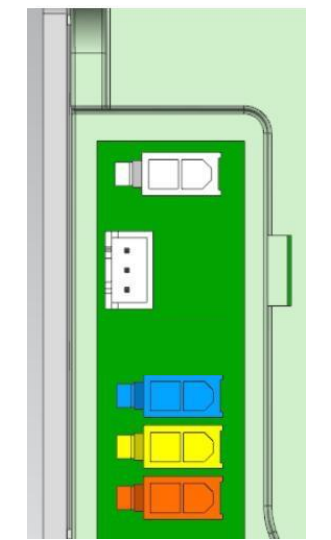
serial	Plug name	Output port definition		color
		- (Black)	+ (Red)	
1	LED	- (Black)	+ (Red)	White
2	safety switch	5V		black
		Signal		
		GND		
3	trimming	-	34V	blue
4	thread pulling	-	34V	white
5	presser foot	-	34V	orange
6	Stepper motor signal plug	Encorder A	5	white
		Encorder B	gnd	
		Sky	Origin	
7	Stepper motor phase plug	w	V	white
		ground	u	



The diagram shows a vertical control box with a green interior. On the left side, there are several ports: a white LED port at the top, a black safety switch port with three sub-ports (5V, Signal, GND), a blue trimming port, a white thread pulling port, and an orange presser foot port. On the right side, there are three white stepper motor signal ports and two white stepper motor phase ports. The ports are arranged in a vertical line, with the safety switch and stepper motor ports being the most prominent.

Pneumatic port definition :

serial	Plug name	Output port definition		color
1	LED	- (Black)	+ (Red)	White
2	safety switch	5V		Black
		Signal		
		GND		
3	trimming	-	34V	blue
4	thread pulling	-	34V	white
5	presser foot	-	34V	orange



五： 错误代码解析 : Error code analysis

Display error code	Error code meaning	Various possible for the erro	Solution
ER-01	Not find needle position	1: Hand wheel and motor 2 : Hand wheel magnet off 3: Hand wheel magnet polarity reversal 4: Nine-pin terminal head Poor contact 5: Motor hall damaged, with the change motor	1: check whether the motor signal line is loose 2:replace the wheel 3: replace the motor
ER-02	Foot controller signal error	1: Not plugged foot controller into control box 2: foot controller inserted upside 3: foot control box line broken 4: foot controller damage	1: check the foot controller signal line 2: change the foot controller 3: replace the foot controller
ER-03	Motor phase signal error	1: Nine-pin terminal plug Poor connect 2: Hall and rotor has large deviations when the motor is mounted 3: Motor hall damage	1: open the rubber cover on the motor through the hole to see whether the motor rotor and stator in the same surface to ensure the error is not more than 1MM 2:replace the motor 3: replace the control box
ER-04	Motor stall protection	1: Sewing machine overweight or blocked 2: Motor overload 3: 4-wire motor drive cable is not connected or inserted upside	1: check motor 4P line 2: check whether the sewing machine is too heavy 3: replace the controller

ER-05	Hardware over current	<p>1: Sewing machine overweight or blocked</p> <p>2: Motor overload</p> <p>3: Motor phase signal line is not connected</p> <p>4: Power tube damage</p>	
ER-07	Serial communication timeout	<p>1: Display bad cable connection Motherboard</p> <p>2: Motherboard chip damage</p>	<p>1: Check the connection line between the display screen and the control box.</p> <p>2: check whether the controller run well, if not, controller damage</p> <p>3: check whether there is a high frequency machine near the machine interference</p> <p>4: change the display panel</p>
ER-09	Poor memory	1: Motherboard memory corruption or bad	1: control box damage
ER-12	Knife is not reset the alarm	<p>1: Reset the detector is broken</p> <p>2: knife stuck not reset</p>	<p>1 check the hall is damage or not</p> <p>2: check whether the induction magnet is detected or not</p> <p>3: check induction magnet pole is installed in reverse or not</p> <p>4. change the control box</p>
ER-15	the motor board error		
ER-16	Over load	1. The motor drive power supply voltage is too high, the 220V power supply voltage exceeds the limit value(AC310V), or the load inertia is too large to the regenerative voltage exceeds the limit value(DC440V), or the voltage detection circuit fails.Note:(110V control system power supply voltage exceeds limit value(AC155V), or load inertia is too large to regeneration voltage exceeds limit value(DC220V).	
ER-20	Under voltage error	<p>1. The motor drive power supply voltage is too low, the 220V power supply voltage is lower than the limit value(AC91V), or the motor drive power supply voltage is lower than the limit value(DC130V), or the voltage detection circuit fails.</p> <p>Note:(110 V power supply voltage is below the limit(AC45.5 V), or motor drive power supply voltage is below the limit(DC 65V))</p>	
ER-22	Speed controller error	<p>Step forward the speed controller when booting on</p> <p>Speed controller failure</p>	<p>Troubleshooting with stepping forward the speed controller again.</p> <p>Enter the parameter P24, check the value of the speed controller if it is $200 \pm 15\%$, change a new one if the value abnormal.</p>
ER-35	Stepper motor hardware over current	<p>1:Sewing overweight or blocked</p> <p>2:Motor overload</p> <p>3:Motor phase signal line is not connected</p> <p>4:Power tube damage</p>	<p>1:check stepper motor connection</p> <p>2:check whether the stepper motor stuck or not</p> <p>3:replace the controller</p>

ER-37	A phase current detection error	Change a controller box	
ER-38	A phase current detection error	Change a controller box	
ER-39	A and B phase current detection error	Change a controller box	
ER-45	Stepper motor encoder error	Change the encoder of the stepper motor	
ER-46	The starting point of stepper motor is not reset	Check if the stepper structure installing mistake or not, if it still shows error when releasing the fixed screw.	