


Safety Instruction

1. Users are required to read the operation manual completely and carefully before installation or operation.
2. The product should be installed and pre-operated by well-trained persons. All power supplies must be turned off during the installation work, remember not to operate with power on.
3. All the instruction marked with sign  must be observed or executed; otherwise, bodily injuries might occur.
4. For perfect operation and safety, it is prohibited that using extension cable with multi-outlet for power connection.
5. When connecting the power cord, it must be determined that the operating voltage conforms to the rated voltage value specified in the product identification.
6. Don't operate in direct sun light, outdoors area and where the room temperature is over 45°C or below 0°C.
7. Please avoid operating near the heater at dew area or at the humidity below 10% or above 90%.
8. Don't operate in area with heavy dust, corrosive substance or volatile gas.
9. Avoid power cord being applied by heavy objects or excessive force, or over bend.
10. The earth wire of power cord must be connected to the system ground of the production plant by proper size of conductions and terminals. This connection should be fixed permanently.
11. All the moving portions must be prevented to be exposed by the parts provided.
12. Turing on the machine in the first time, operate the sewing machine at low speed and check the correct rotation direction.
13. Turn off the power before the following operation:
 1. Connecting or disconnecting any connectors on the control box or motor.
 2. Threading needle.
 3. Raising the machine head.
 4. Repairing or doing any mechanical adjustment.
 5. Machines idling.
14. Repairs and high level maintenance work should only be carried out by electronic technicians with appropriate training.
15. All the spare parts for repair must be provided or approved by the manufacturer.
16. Don't use any objects or force to hit or ram the product.

Guarantee Time

Warranty period of this product is 1 year dated from purchasing, or within 2 years from ex-factory date.

Warranty Detail














Any trouble found within warranty period under normal operation, it will be repaired free of charge. However, maintenance cost will be charged in the following cases even if within warranty period:

1. Inappropriate use, including: wrong connecting high voltage, wrong application, disassemble, repair, modification by incompetent personnel, or operation without the precaution, or operation out of its specification range, or inserting other objects or liquids into the product.
2. Damage by fire, Earth quake, lighting, wind, flood, salt corrosive, moisture, abnormal power voltage and any other damage cause by the natural disaster or by the inappropriate environments.
3. Dropping after purchasing or damage in transportation by customer himself or by customer's shipping agency

* We make our best effort to test and manufacture the product for assuring the quality.

However, it is possible that this product can be damaged due to external magnetic interference and electronic static or noise or unstable power source more than expected; therefore the grounding system of operate area must guarantee the good earth and it's also recommended to install a failsafe device (Such as residual current breaker).

1 Button displays and operating instructions

Name	key	Indicate
Function parameter edit		Enter or exit the user parameter setting interface.
Setting parameter check and save		View and save the content of the selected parameter number: After selecting the parameter number, press this key to view and modify the operation. After modifying the parameter value, press this key to exit and save the parameter.
Parameter increment		Increase running speed or parameter.
Parameter decrement		Decrease running speed or parameter.
Left selection		If click, left selection parameter content.
Right selection		If click, right selection parameter content. If long-press, enter the P41 counter interface
Start back-tacking / Slow launch setting		If click, execution start back-tacking B segment, execution start back-tacking (A, B segment) 1 time or execution start back-tacking (A, B segment) 2 times. If long-press, set used or cancelled slow launch function.
End back-tacking / Needle stop position selection		If click, execution end back-tacking C segment, execution end back-tacking (C, D segment) 1 time or execution end back-tacking (C, D segment) 2 times. If long-press, shift the needle stop position after sewing (up position / down position).
Free sewing / Constant stitch sewing		If click, set to free sewing mode. If long-press, set to constant stitch sewing mode.
Consecutive reverse sewing / Multi-segment sewing		If click, set to consecutive reverse sewing mode. If long-press, set to multi-segment sewing mode.
Trimming setting / Clamp function setting		If click, set used or cancelled trimming function. If long-press, set used or cancelled clamp function.
Presser foot lifting setting / Auto function		If click, switch function off, automatic presser foot lifting after trimming, automatic presser foot lifting after pause and full function successively. If long-press, set used or cancelled auto function.
Reset		Long-press can restore factory setting.

2 Auxiliary Function

2.1 Motor electrical angle correction

Enter the parameter, adjust the parameter to P92 item, click the S key to enter the parameter item, click the needle stop position selection key in the parameter interface, and then the motor will automatically run and calculate the motor electrical angle. After the motor stops, the parameter value will automatically change, click S key to save.

2.2 Quick setting of needle stop position

In the shutdown state, press and hold the S key to turn on, enter P72, manually turn the handwheel to the desired up position, the displayed value will change with the change of the handwheel position, press the S key to

save the current position (value) as up position will automatically calculate down position at the same time.

3 User Parameter

No.	Items	Range	Default	Description
P01	Maximum sewing speed (rpm)	100-4000	3500	Maximum speed of machine sewing
P02	Set accelerated curve (%)	10-100	80	Set the acceleration slope The greater the slope value, the steeper the speed; the smaller the slope value, the slower the speed
P03	Needle UP/ DOWN	UP/DN	DN	UP: Needle stops at up position DN: Needle stops at down position
P04	Start back-tacking speed (rpm)	200-3200	1800	
P05	End back-tacking speed (rpm)	200-3200	1800	
P06	Bar-tacking speed (rpm)	200-3200	1800	
P07	Soft start speed (rpm)	200-1500	400	
P08	Stitch numbers for soft start	0-99	2	
P09	Automatic constant-stitch sewing speed (rpm)	200-4000	3700	Speed adjustment for automatic constant-stitch sewing
P10	Automatic end back-tacking sewing after constant-stitch sewing	ON/OFF	ON	ON: After executing the constant-stitch sewing, the back-tacking sewing will be executed automatically. In any sewing mode, mending stitch function cannot be used. OFF: After executing the last constant-stitch sewing, the back-tacking sewing function will not be automatically executed, and the front step or full back step must be performed again.
P11	Manual back-tacking mode selection	J/B	J	J: It will execute back-tacking during sewing or when it stops halfway B: It will execute back-tacking during sewing, and it will mend needle when it stops halfway
P12	Start back-tacking running mode selection	0-1	1	0: Controlled by foot pedal, can be stopped and started at will 1: Touch the foot pedal to automatically execute back-tacking action
P13	Ending mode of start back-tacking	CON/STP	CON	CON: Start back-tacking is completed automatically continued for next action. STP: After the number of stitches is completed, stop automatically.
P14	Slow start function selection	ON/OFF	OFF	
P15	Mending stitch mode	0-4	2	0: half stitch; 1: one stitch; 2: continuous half stitch; 3: continuous one stitch; 4: continuous one stitch, quick stop.
P16	Speed limit of manual back-tacking	0-3200	0	The function is disabled when the value is 0.
P17	Auto count selection	0-50	1	0: P41 item counter not count automatically. 1-50: Counter thread trimming times
P18	Start back-tacking compensation 1	0-200	131	Stitch compensation for start back-tacking A section, 0~200 action gradually delay; The large value, the longer of the A section last stitch, and the shorter of the B section first stitch.
P19	Start back-tacking compensation 2	0-200	165	Stitch compensation for start back-tacking A section,

No.	Items	Range	Default	Description
				0~200 action gradually delay; The large value, the longer of the B section last stitch.
P20	End back-tacking running mode selection	0-1	1	0: Controlled by foot pedal, can be stopped and started at will 1: Touch the foot pedal to automatically execute back-tacking action
P21	The position of the pedal for accelerating	30-1000	520	
P22	The position of the pedal for the stop	30-1000	420	
P23	The position of the pedal for presser foot lifting	30-1000	270	
P24	The position of the pedal for thread trimming	30-1000	130	
P25	End back-tacking compensation 3	0-200	131	Stitch compensation for end back-tacking C section, 0~200 action gradually delay; The large value, the shorter of the C section first stitch.
P26	End back-tacking compensation 4	0-200	165	Stitch compensation for end back-tacking D section, 0~200 action gradually delay; the large value, the longer of the C section last stitch, and the shorter of the D section first stitch.
P27-N04	Language setting	0-2	1	0: OFF 1: Chinese 2: English
P27-N05	Voice broadcast selection	0-3	2	0: OFF 1: Start-up voice only 2: Key tone only 3: With start-up voice and key tone
P27-N08	Virtual and real speed function switch	0-1	0	For every increase of 100, the actual increase is 100*[P27-N09].
P27-N09	Virtual and real speed ratio (%)	1-100	100	
P27-N12	Boot display counter interface selection	0-1	0	0: OFF 1: ON
P27-N13	Counter mode selection	0-1	0	0: Incremental piecework mode 1: Diminishing piecework mode
P28	Bar-tacking running mode selection	0-1	1	0: Controlled by foot pedal, can be stopped and started at will 1: Touch the foot pedal to automatically execute back-tacking action
P29	The strength of thread trimming stop	1-45	28	
P32	Bar-tacking compensation 5	0-200	131	Stitch compensation for bar-tacking A (C) section, 0~200 action gradually delay; the large value, the longer of the A (C) section last stitch; the shorter of the B (D) section first stitch.
P33	Bar-tacking compensation 6	0-200	165	Stitch compensation for bar-tacking B (D) section, 0~200 action gradually delay; the large value, the longer of the B (D) section last stitch; the shorter of the C section first stitch.
P34	Constant-stitch sewing running mode selection	A/M	A	A: Touch the foot pedal to automatically execute constant-stitch sewing action M: Controlled by foot pedal, can be stopped and started at will
P35	Thread tension releasing function setting when presser foot lifting	0-2	0	0: OFF 1: Thread tension releasing output function ON when

No.	Items	Range	Default	Description
	action			presser foot lifting, thread tension releasing output function OFF when stopover 2: Full function
P36	Thread tension releasing function selection	0-11	3	0: OFF 1-11: The strength of thread tension releasing gradually increases
P37	Thread wiping function / Thread clamping function selection	0-11	8	0 : OFF 1: Thread wiping function. 2-11: Thread clamping Function, the larger the value, the stronger the strength of automatic thread clamping.
P38	Automatic thread trimming function selection	ON/OFF	ON	
P39	Automatic presser foot lifting when pause function selection	UP/DN	DN	
P40	Automatic presser foot lifting after trimming function selection	UP/DN	DN	
P41	Thread trimming counter display	0-9999		Display the quantity of finished sewing piece. Long-press “.” key to clear the count
P42-N01	The control system version number			
P42-N02	The panel version number			
P42-N03	Speed			
P42-N04	The pedal AD			
P42-N05	The mechanical angle(up position)			
P42-N06	The mechanical angle(down position)			
P42-N07	Bus bar voltage AD			
P43	Motor rotation direction setting	CCW/CW	CCW	CW: clockwise CCW: counter clock wise
P44	Brake strength during stopover	1-45	16	
P45	Back-tacking operation duty cycle (%)	1-50	30	Back-tacking operate in duty cycle to save electricity and protect the electromagnet from over-heat.
P46	Motor stop with a reverse angle after trimming function	ON/OFF	OFF	
P47	Adjust the reverse angle when motor stop after trimming	50-200	160	Start from the upper needle position and adjust the angle of the needle lift in reverse operation after trimming.
P48	The minimum speed (positioning speed) (rpm)	100-500	210	Minimum speed limit adjustment
P49	Thread trimming speed (rpm)	100-500	250	Motor speed when adjusting thread trimming cycle
P50	Presser foot operation time to full output (ms)	10-990	150	
P51	Presser foot operation duty cycle (%)	1-50	30	Presser foot lifter operate in duty cycle to save electricity and protect the electromagnet from over-heat.
P52	Delay the start of the motor to protect the lowering time of presser foot (ms)	10-990	120	Delay the start time, with automatic presser foot down.
P53	Half back pedaling lifting presser foot function to cancel	ON/OFF	OFF	ON: Half back pedaling with lifting presser foot OFF: Half back pedaling without lifting presser foot

No.	Items	Range	Default	Description
P54	Thread trimming action time (ms)	10-990	200	
P55	Thread wiping action time (ms)	10-990	30	
P56	Power on and positioning	0-2	0	0: Always not to find the up needle position 1: Always to find the up needle position 2: If the motor is already in the up needle position, no longer find the up needle position
P57	Presser foot solenoid protection time (s)	1-60	10	Forced shutdown after hold time to prevent the electromagnet from being hot for a long time
P58	Up needle position adjustment	0-2399	1870	Up position adjustment, the needle will advance stop when the value decreased, the needle will delay stop when the value increased.
P59	Down needle position adjustment	0-2399	670	Down position adjustment, the needle will advance stop when the value decreased, the needle will delay stop when the value increased.
P60	Testing speed (rpm)	100-4000	3500	Setting testing speed.
P61	Testing A	ON/OFF	OFF	Continuous running testing.
P62	Testing B	ON/OFF	OFF	Start and stop testing with all functions.
P63	Testing C	ON/OFF	OFF	Start and stop testing without all function.
P64	Test run time	1-250	30	
P65	Test stop time	1-250	10	
P66	Machine protection switch selection	0-1	1	0: Disable 1: Testing zero signal
P70	Type		12	
P71	Presser foot release operation duty cycle (%)	0-50	1	The buffer force of presser foot release operation.
P72	Up needle position adjustment	0-2399		Adjust up needle position, the displayed value will change with the position of the handwheel, press "S" key to save the current position (value) as up needle position.
P73	Down needle position adjustment	0-2399		Adjust down needle position, the displayed value will change with the position of the handwheel, press "S" key to save the current position (value) as down needle position.
P76	Back-tacking operation time to full output (ms)	10-990	250	Back tacking start action, full output action times.
P77	Opportunity point of back-tacking for end back-tacking in high speed in free sewing mode	20-350	160	
P78	The start angle of thread clamping	5-359	100	
P79	The stop angle of thread clamping	5-359	270	
P80	Trimming engage angle	5-359	18	Trimming engage angle setting (down position defined as 0°)
P83	Stopping strength after trimming	10-100	20	
P84	Trimming full output time (ms)	10-990	60	

No.	Items	Range	Default	Description
P85	Periodic signal of trimming output (*10%)	1-10	6	
P86	Up and down needle position distance	10-2399	1200	
P87	Wiping thread return delay time	10-990	50	
P89	AC overvoltage setting	500-1023	920	
P92	Correct the electrical angle of motor		160	Reading the initial Angle of encoder, the factory default was set, please do not change the values (parameter value cannot be changed manually, random change it will result the control box and motor abnormal or damaged).
P93	The delay time of the half back pedaling function (ms)	10-900	200	
P101	The start angle of thread tension releasing	1-359	30	Thread tension releasing start angle (defined as 0°under calculation)
P102	The stop angle of thread tension releasing	1-359	180	Thread tension releasing end angle (defined as 0°under calculation, must be greater than P101 parameter value)
P109	The delay time before thread wiping	0-990	5	
P110	Trimming back time (ms)	60-990	60	
P113	Presser foot operation duty cycle to full output (%)	0-100	90	
P117	Press foot release buffer delay time (ms)	0-990	22	
P119	Electromagnet overcurrent protection selection	0-1	0	0: No alarm, turn off the output 1: Alarm and shutdown;
P131	Ending tight seam speed	100-1200	1000	
P132	Ending tight seam stitch number	0-10	2	
P133	Start action angle of ending tight seam	20-330	100	
P134	First stitch speed limit of start sewing	0-3000	0	It is invalid when the parameter value is 0.
P135	Second stitch speed limit of start sewing	0-3000	0	It is invalid when the parameter value is 0.
P138	Speed limit of start sewing function switch	0-1	0	0 : OFF 1: ON

Note: the initial value of parameters is for reference only, and the actual value of parameters is subject to the real object.

4 Error Code List

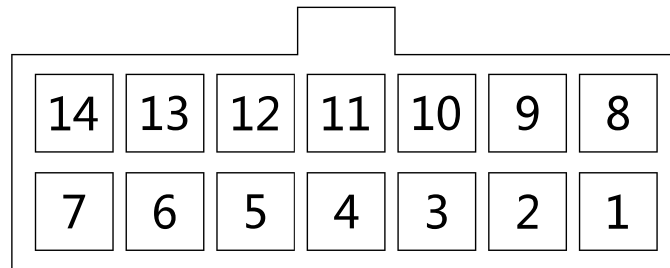
Error Code	Problem description	Solutions
E01	High voltage	1. Whether the grid voltage is higher than AC260V. 2. If it is self-generated power supply, please reduce the generator power. 3. If it still does not work normally, please replace the control box and notify the after-sales service.

E02	Low voltage	<ol style="list-style-type: none"> 1. Whether to connect to low voltage. 2. Reset. 3. If it still does not work normally, please replace the control box and notify the after-sales service.
E03	Abnormal communication between main CPU and panel CPU	<ol style="list-style-type: none"> 1. Turn off the system power and check whether the connection of the display screen is loose or disconnected, restart the system after returning it to normal. 2. Turn off the system power, remove the control box and only plug in the power cord to power on, whether alarm E05, if it still alarms E03, replace the control box and notify the after-sales service.
E05	Pedal signal abnormal	Turn off the system power, check whether the speed controller connector is loose or fall off, restore it to normal and restart the system.
E07	Main shaft motor locked-rotor	<ol style="list-style-type: none"> 1. Turn off the power and check whether the handwheel can be turned smoothly (turn the handwheel by hand), if it cannot be turned, please check the machine; 2. Turn off the power, check whether the motor power connector is loose, plug it in and restart it. 3. Check whether the upper needle stop position is correct, if not, please adjust the upper positioning position. 4. If it still does not work normally, please replace the control box or spindle motor and notify the after-sales service.
E10	Electromagnet overcurrent protection	<ol style="list-style-type: none"> 1. Unplug the solenoid connector, if alarm E10, replace the control box and notify the after-sales service. 2. If there is no alarm after removing the solenoid connector, please plug it back in <ol style="list-style-type: none"> 1) Step on the front pedal to let the sewing machine perform thread clamping and back-tacking. If alarms, please turn off start back-tacking and end back-tacking, restart the control box, and then step forward. If alarms, please turn off the thread clamping function and restart the electronic control, and step forward again. If there is no alarm, replace the clasper. 2) Step on the front pedal to let the sewing machine perform thread clamping and back-tacking. If it alarms, please turn off start back-tacking and end back-tacking, restart the control box, and then step forward. If there is no alarm, please turn off the thread clamping function and restart the control box, and open start back-tacking function, step forward again, if it alarms, please replace the back-tacking solenoid. 3) Step on the front pedal to let the sewing machine perform thread clamping and back-tacking. If there is no alarm, please step back halfway to raise the presser foot. If it alarms, please replace the presser foot solenoid. 4) Step on the front pedal to let the sewing machine perform thread clamping, back-tacking and half anti-side trample. If there is no alarm, please back step pedal to trim. If it alarms, please replace the thread trimming solenoid.
E09 E11	When power on and positioning, the positioning signal of main shaft motor encoder is abnormal	<ol style="list-style-type: none"> 1. Turn off the system power, check whether main shaft motor encoder connector is loose or fall off, restore it to normal and restart the system. 2. Check whether the motor zero point correction setting is correct; Reset the motor zero point correction; Whether there is oil on the encoder code plate, please clean it if there is any. 3. If it still does not work normally, please replace the control box or main shaft motor and notify the after-sales service.

E14	Main shaft motor encoder signal is abnormal	<ol style="list-style-type: none"> 1. Turn off the system power, check whether the main shaft motor encoder connector is loose or fall off, restore it to normal and restart the system. 2. Check whether the grating is installed correctly (whether the grating screws are tightened and whether the grating is in the center of the encoder). 3. Check whether there is oil on the encoder code plate, if there is, please clean it up, and restart the system after recovery. 4. If it still does not work normally, please replace the control box or main shaft motor and notify the after-sales service.
E15	Main shaft motor drive overcurrent	<ol style="list-style-type: none"> 1. Please check whether the motor power cord has bad contact; 2. Please check whether the motor power cord is crushed. 3. Please replace the control box or main shaft motor and notify the after-sales service.
E17	Machine overturned	<ol style="list-style-type: none"> 1. Turn off the system power and check if the machine is overturned. 2. Check whether the machine protection switch detection setting is correct. 3. If it still does not work normally, please replace the control box or panel and notify the after-sales service.
E20	Main shaft motor failed to start	<ol style="list-style-type: none"> 1. Turn off the system power, check whether main shaft motor power cord connector and encoder connector are loose or fall off, restore them to normal and restart the system. 2. Check whether the motor zero point correction setting is correct, reset the motor zero point correction. 3. If it still does not work normally, please replace the control box or main shaft motor and notify the after-sales service.
E42	EEPROM read and write failure	<ol style="list-style-type: none"> 1. Restore factory settings. 2. If it still does not work normally, please replace the control box and notify the after-sales service.
E43	Main chip trap reset	<ol style="list-style-type: none"> 1. Restore factory settings. 2. If it still does not work normally, please replace the control box and notify the after-sales service.
E44	Main chip undervoltage reset	<ol style="list-style-type: none"> 1. Restore factory settings. 2. If it still does not work normally, please replace the control box and notify the after-sales service.
E45	Main chip watchdog alarm	<ol style="list-style-type: none"> 1. Restore factory settings. 2. If it still does not work normally, please replace the control box and notify the after-sales service.
OFF	Power off	<ol style="list-style-type: none"> 1. Check whether the power switch is off. 2. Restart the power supply. 3. If it still does not work normally, please replace the control box and notify the after-sales service.

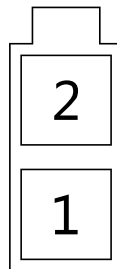
5 Port diagram

14P function port description



1. Thread trimming electromagnet: 1, 8 (+32V)
2. Thread wiping/ thread clamping electromagnet: 2, 9 (+32V)
3. Thread tension releasing electromagnet: 3, 10 (+32V)
4. LED Light: 4 (DGND), 11 (+5V)
5. Manual back-tacking key: 5 (signal)
6. Back-tacking electromagnet: 6, 13 (+32V)
7. Mending stitch key: 7 (signal)

2P function port description



1. Presser foot electromagnet: 1, 2 (+32V)