

⚠ Safety Instruction

- Users are required to read the operation manual completely and carefully before installation or operation.
- 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.
- All the instruction marked with sign ⚠ must be observed or executed. Otherwise, bodily injuries might occur.
- For perfect operation and safety, it is prohibited that using extension cable with multi-outlet for power connection.
- When connecting the power cord, it must be determined that the operating voltage conforms to the rated voltage value specified in the product identification.
- Don't operate in direct sun light, outdoors area and where the room temperature is over 45°C or below 0°C.
- Please avoid operating near the heater at dew area or at the humidity below 10% or above 90%.
- Don't operate in area with heavy dust, corrosive substance or volatile gas.
- Avoid power cord being applied by heavy objects or excessive force, or over bend.
- 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.
- All the moving portions must be prevented to be exposed by the parts provided.
- Turing on the machine in the first time, operate the sewing machine at low speed and check the correct rotation direction.
- Turn off the power before the following operation:
 - Connecting or disconnecting any connectors on the control box or motor.
 - Threading needle.
 - Raising the machine head.
 - Repairing or doing any mechanical adjustment.
 - Machines idling.
- Repair and high level maintenance work should only be carried out by electronic technicians with appropriate training.
- All the spare parts for repair must be provided or approved by the manufacturer.
- 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, lightning, 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).

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1 Button displays and operating instructions

1.1 Key description

Name	key	Indicate
Function key		If press, enter or exit function parameter edit mode. If long press, switch to the password input interface. Enter the correct password, press the S key to confirm, you can enter the advanced parameter setting interface.
Enter key		For the content of the selected parameters check and save: after select parameter press this key to check and modify operation, after modified parameter value press this key to exit and save the parameter.
Speed increase		If press, increase the speed. If long press, the speed will be increased continuously.
Speed decrease		If press, decrease the speed. If long press, the speed will be decreased continuously.
LED brightness adjustment		In the main interface, if press, adjust LED brightness. In the parameter interface, if press, the value of thousands digit will be increased.
Slow launch setting		In the main interface, if press, set used or cancelled slow launch function. In the parameter interface, if press, the value of hundreds digit will be increased.
Automatic presser foot lifting setting		In the main interface, if press, switch function off; automatic presser foot lifting after trimming, automatic presser foot lifting after pause, full function successively. In the parameter interface, if press, the value of tens digit will be increased.
Auto-suction		In the main interface, if press, set used or cancelled auto-suction function. In the parameter interface, if press, the value of units digit will be increased.
Needle stop position selection		In the main interface, if press, set needle stop position. In the parameter interface, if press, the value of thousands digit will be decreased.
Thread sweep key		In the main interface, if press, set used or cancelled thread sweeping function. In the parameter interface, if press, the value of hundreds digit will be decreased.
Upper knife trimming		In the main interface, if press, set used or cancelled upper knife trimming function. In the parameter interface, if press, the value of tens digit will be decreased.
Lower knife trimming		In the main interface, if press, set used or cancelled lower knife trimming and upper knife trimming function. In the parameter interface, if press, the value of units digit will be decreased.

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				press "S" key to save the current position (value) as down needle position.
P76	Lower thread trimming engage stroke	0-800	590	
P77	Height of press foot stroke	0-1000	580	
P78	Lower thread trimming engage acceleration	1-30	10	
P79	Lower thread trimming retract acceleration	1-40	12	
P80	Acceleration of presser foot lifting	1-40	20	
P81	Acceleration of presser foot lowering	1-40	12	
P86	Up and down needle position distance	0-2399	1200	
P87	Return delay of upper thread trimming (ms)	10-990	15	
P88	Upper thread trimming solenoid output duty cycle	0-100	75	
P89	AC overvoltage setting	500-1023	880	
P92	Motor electrical angle correction		160	Reading the initial Angle of encoder, the factory default was 0, please do not change the value (parameter value cannot be changed manually, random change it will result the control box and motor abnormal or damaged).
P93	Half back pedal delay time (ms)	10-900	150	
P100	Lower knife test mode	0-800	0	When the value is 0, the knife will be closed by default. When it is greater than 0, the stroke of the corresponding value will be taken (for example, if it is adjusted to 200, and then press save, the solenoid will take a stroke of 200). After exiting P100, the knife will be closed by default.
P105	Output selection of upper knife trimming port	0-3	1	0: Upper knife trimming 1: Upper thread sweeping 2: Upper knife trimming and Upper thread sweeping 3: Air blow
P107	Section action time (s)	0-40	0	
P108	DC motor drive output mode	0-1	0	0: OFF 1: ON
P110	Thread trimming / presser foot stepping motor zero point correction	-500-500	0	
P111	Presser foot ready current (0.1A)	7-25	10	
P112	Current compensation for presser foot (0.1A)	0-9	5	
P119	Electromagnet overcurrent protection	0-1	1	0: No alarm, turn off the output. 1: Alarm and shutdown.

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

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3 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	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	CPU communication abnormal	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 alarm E03, replace the control box and notify the after-sales service.
E05	Pedal signal abnormal	1. Check whether the pedal connector is loose or fall off, and restart the system after returning it to normal. 2. If it still does not work normally, please replace the control box or speed controller and notify the after-sales service.
E07	Main shaft motor locked-error	1. Turn off the power and check whether the hand-wheel can be turned smoothly (turn the hand-wheel 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	Turn off the system power and check the solenoid (solenoid valve) for damage or short circuit.
E09 E11	The positioning signal of main shaft motor encoder is abnormal	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	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	1. Please check whether the motor power cord has had contact. 2. Please check whether the motor power cord is crushed.

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1.2 Auxiliary function

1.2.1 Debugging mode

Long press **[S]** in the main interface, switch to the debugging parameter interface. P02 motor electrical angle correction, P72 quick adjustment of upper positioning and P100 lower lock test mode.

1.2.1 Reset

In the main interface, press **[1]** and **[S]** at the same time, you can restore factory settings

2 User parameter

No.	Items	Range	Default	Description
P01	Maximum sewing speed (rpm)	100-9000	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	UP	UP: Needle stops at up position DN: Needle stops at down position
P04	Upper sweeping solenoid output duty cycle	0-100	75	
P05	Upper sweeping action time (ms)	10-990	20	
P06	Upper sweeping return time (ms)	10-990	15	
P07	Soft start speed (rpm)	200-1500	1000	
P08	Switch numbers for soft start (rutch)	1-99	2	
P14	Slow start function selection	ON/OFF	OFF	
P21	The position of the pedal for accelerating	30-1000	500	
P22	The position of the pedal for the stop	30-1000	420	
P23	The position of the pedal for presser foot lifting	30-1000	280	
P24	The position of the pedal for thread trimming	30-1000	130	
P27-N06	Automatic piece counting selection	0-50	1	0: P41 item trimming counter does not automatically count 1-50: Counter thread trimming times
P29	The stepping force when thread trimming	1-45	20	
P37	Upper knife thread trimming output function setting	0-11	1	
P38	Lower knife thread trimming output function setting	ON/OFF	ON	
P39	Automatic presser foot lifting when press	UP/DN	DN	UP: ON DN: OFF
P40	Automatic presser foot lifting after trimming	UP/DN	DN	UP: ON DN: OFF
P41	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			

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P42-N04	The pedal AD			
P42-N05	The mechanical angle(up position)			
P42-N06	The mechanical angle(down position)			
P42-N07	Run bar voltage AD			
P42-N11	Status information			
P43	Direction of motor rotation	CCW/CW	CCW	CW: Clockwise CCW: Counter clockwise
P44	Normal stepping force	1-45	15	
P45	Periodic signal of needle output (%)	1-80	80	
P48	The minimum speed (positioning speed) (rpm)	200-1000	500	Adjust the minimum speed.
P52	Delay the start of the motor to protect the lowering time of presser foot (ms)	10-990	100	Delay the start time, with automatic presser foot down.
P53	Presser foot lifting function selection	0-2	1	0: OFF 1: Back pedaling and half back pedaling with lifting presser foot 2: Half back pedaling without lifting presser foot, back pedaling with lifting presser foot
P55	Upper thread trimming action time (ms)	10-990	20	
P56	Power on and positioning	0-2	0	0: Always not to find the upper position 1: Always to find the upper position 2: If the motor is slowly in the upper position, no longer find the upper position
P57	Presser foot protection time (s)	1-120	10	Forced to close after lifting the presser foot for a holding time.
P58	Upper positioning adjustment	0-1479	40	Upper positioning adjustment, the needle will advance stop when the value decreased, the needle will delay stop when the value increased.
P59	Down positioning adjustment	0-1479	750	Down positioning adjustment, the needle will advance stop when the value decreased, the needle will delay stop when the value increased.
P60	Testing speed (rpm)	100-6000	4000	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 functions.
P64	Test run time	1-250	50	
P65	Test stop time	1-250	50	
P69	Motor type selection	0-50	0	
P70	Model selection	1-45	31	
P72	Quick adjustment of upper positioning	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	Quick adjustment of down positioning	0-2399		Adjust down needle position, the displayed value will change with the position of the handwheel.

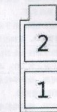
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E16	The thread trimming switch is not in the correct position	3. Please replace the control box or main shaft motor and notify the after-sales service.
E20	Main shaft motor failed to start	Turn off the system power and check if the thread trimming mechanism returns to the correct position. 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.
E92	Overcurrent when the stepping motor is trimming	1. Turn off the power of the system and observe whether the stepping motor for thread trimming (presser foot) is stuck. If it is stuck, remove the mechanical failure of the machine first. If it is normal, check whether the thread trimming (presser foot) stepping motor interface is loose or falling off, and then restart the system after returning it to normal. 2. If it still does not work normally, please replace the control box or the thread trimming (presser foot) stepping motor and notify the after-sales service.
E94	The positioning signal of trimming (presser foot) stepping motor encoder is abnormal	1. Turn off the system power and observe whether trimming (presser foot) stepping motor is stuck. If it is stuck, remove the mechanical failure of the machine first. If it is normal, check whether trimming (presser foot) stepping motor encoder connector is loose or falling off, and whether there is oil on the encoder code plate. If there is, please clean it up, restore it to normal and restart the system. 2. If it still does not work normally, please replace the control box or trimming (presser foot) stepping motor and notify the after-sales service.
E95	Trimming (presser foot) stepping motor encoder signal is abnormal	1. Turn off the system power, check if the thread trimming (presser foot) stepping motor encoder connector is loose or fall off, restore it to normal and restart the system. 2. If it still does not work normally, please replace the control box or the thread trimming (presser foot) stepping motor and notify the after-sales service.
E96	Trimming (presser foot) stepping motor failed to start	1. Turn off the power of the system, check whether the thread trimming (presser foot) stepping motor power cord connector and encoder connector are loose or fall off, and restart the system after returning it to normal. 2. If it still does not work normally, please replace the control box or the thread trimming (presser foot) stepping motor and notify the after-sales service.
E97	The stepping motor is locked-over when thread trimming	1. Turn off the system power and observe whether the thread trimming (presser foot) stepping motor is stuck. If it is stuck, remove the mechanical failure of the machine first. If it is normal, check whether the thread trimming (presser foot) stepping motor power cord connector and encoder connector are loose or fall off, restore them to normal and restart the

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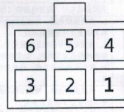
		system. 2. If it still does not work normally, please replace the control box or the thread trimming (presser foot) stepping motor and notify the after-sales service.
E98	The stepping motor is locked-over when presser foot lifting	1. Turn off the system power and observe whether the thread trimming (presser foot) stepping motor is stuck. If it is stuck, remove the mechanical failure of the machine first. If it is normal, check whether the thread trimming (presser foot) stepping motor power cord connector and encoder connector are loose or fall off, restore them to normal and restart the system. 2. If it still does not work normally, please replace the control box or the thread trimming (presser foot) stepping motor and notify the after-sales service.
E99	The stepping motor overcurrent when presser foot lifting	1. Turn off the system power and observe whether the thread trimming (presser foot) stepping motor is stuck. If it is stuck, remove the mechanical failure of the machine first. If it is normal, check whether the thread trimming (presser foot) stepping motor power cord connector and encoder connector are loose or fall off, restore them to normal and restart the system. 2. If it still does not work normally, please replace the control box or the thread trimming (presser foot) stepping motor and notify the after-sales service.

4 Port diagram 2P function port description



1: LED lights; 1 (DGN2), 2 (+5V)

4P function port description



1. Upper knife thread trimming: 1 (DGN2), 4 (2V)
2. Section: 2 (DGN2), 3 (2V)
3. Thread sweeping: 4 (DGN2), 3 (2V)

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