

▲ 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 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 power supply cords to power sources, it is necessary to make sure that the power voltage is lower than 250V AC and matches the rated voltage indicated on the motor's name plate.
 ※Attention: If the Control Box is AC 220V system, please don't connect the Control Box to AC 380V power outlet. Otherwise, the error will occur and motor will not work. If that happens, please turn off the power immediately and check the power voltage. Continue supply 380V power over 5 minutes might damage the fuse F2, burst the electrolytic capacitors and the power module U14 of the main board and even might endanger the person safety.
 - Please 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 95%.
 - Please 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 conduction and terminals. This connection should be fixed permanently.
 - All the moving portions must be prevented to be exposed by the parts provided.
 - Tuning 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 arm.
 - Repairing or doing any mechanical adjustment.
 - Machine is out of work.
 - Repairing and high level maintenance work should only be done by electronic technicians with appropriate training.
 - All the spare parts for repairing work must be provided or approved by the manufacturer.
 - Don't use any objects 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:
- 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.
 - Damage by fire, Earth quake, lightning, wind, flood, salt corrosive, moisture, abnormal power voltage and any other damage caused by the natural disaster or by the inappropriate environments.
 - Dropping after purchasing or damage in transportation by customer himself or by customer's shipping agency.
- * Note: We make our best effort to test and manufacture the product for assuring the quality. However, it is possible that this all a failsafe device. (Such as residual current breaker).

1. Key Description

NO.	Icon	Name	Function Description
1	P	Function Key	1. In the normal mode hold [P] key enter to User parameter setting mode. 2. In the shut-off condition, hold [P] key turn on machine enter to technician parameter setting mode. 3. Under the parameter setting interface, press [P] key to return but not save the parameter.
2	S	Setting Parameter Check And Save	1. Under the parameter setting interface, press [S] key to save setting. 2. In the normal mode, press [S] key to change languages.
3	+	Parameter Increase/Speed Increase	Increase the parameter / Increase the sewing speed
4	-	Parameter Decrease/Speed Decrease	Decrease the parameter / Decrease the sewing speed
5	←	Left Key / LED+	Parameter item and parameter contents decrease / Increase LED brightness
6	→	Right Key / LED-	Parameter item and parameter contents increase / Decrease LED brightness
7	✂	Thread Trimming	Press left and right key it can execute the cycle shift of forward trimming on, forward suction on, suction on, backward suction on, backward trimming off. Long-press 3 sec to enter to trimming setting.
8	⊙	Mode Selection Shortcut Key	Press this key can execute the cycle shift of the following four modes: Long-press 3 sec to enter to mode selection setting. 1. Full automatic: start-up according full sensor signal. 2. Free sewing. 3. Semi-automatic: start-up according to front sensor signal + pedal completion (same as P-05). 4. Full manual: start-up according to the pedal completion.
9	☞	Auto-suction	Press this key it can execute the cycle shift of suction off, forward suction on, backward suction on, suction on. Long-press 3 sec to enter to auto-suction setting.
10	⏮	Presser Foot Lifting Mode Shortcut Key	Press this key it can execute the cycle shift of Front foot lifting, Rear foot lifting, front and rear foot lifting, close, valid after setting press S key to save (same as P-10). Long-press 3 sec to enter to presser foot lifting mode setting.
11	A	Sensor Situation Check Shortcut Key	1. Short-press this key can check sensor sensitivity real value of front sensor, mid-sensor, back-sensor. 2. Long-press this key can enter sensor sensitivity setting interface, please according to the display interface operation.
12	↺	Reset	Use needle insert hole, after long-press 3 sec after beep then restore factory setting.

13	Indicator	① F-SENSOR ② M-SENSOR ③ B-SENSOR ④ STATE	1. When the front sensor receive with cloth, the F-SENSOR LED will be lighted; without cloth the LED OFF. 2. When the Mid-sensor receive with cloth, the M-sensor LED will be lighted; without cloth the LED OFF. 3. When the back sensor receive with cloth, the B-SENSOR receive with cloth, the B-SENSOR LED will be lighted; without cloth the LED OFF. 4. When the machine is running normally, the STATE LED will be green; or it will be red.
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2. Special function operation definition

No.	Function name	Function Description
1	Restore factory setting	1. Under the shutdown state, press left key and right key at the same time to turn on machine, display screen show P-26, press [S] key confirm. 2. Shortcut mode: Use needle insert RESET hole, after long-press 3 sec after beep then restore factory setting.
2	UP position adjustment by manual	1. Under the shutdown state, press [P] + [S] key at the same time to turn on machine, display P-70; 2. Adjust parameter P-72; 3. From hand-wheel direction, clockwise turn hand-wheel to up position, press [S] key to save the current value as down position just can fine-tuning.
3	Down position adjustment	1. Under the shutdown state, press [P] + [S] key at the same time to turn on machine, display P-70; 2. Adjust parameter P-73; 3. From hand-wheel direction, clockwise turn hand-wheel to down position, press [S] key to save the current value as down position just can fine-tuning.
4	Sensor sensitivity adjustment	1. Under the normal mode interface long-press + and - at the same time, it can direct access sensor sensitivity adjustment interface; 2. Please remove cloth after Three-sensor, press ↺ key; 3. Please cover cloth after three-sensor, press ↺ key, finished setting.

3 System Parameter Setting Definition

3.1 Electric /air-powered machine type parameter setting

User Parameter (Under the normal mode press P key to access)				
No.	Function parameters	Range	Default	Description
P-01	Maximum Sewing Speed (r/min)	100-6000	5000	Maximum sewing speed setting

P-02	Needle stop positioning selection	0-1	0	0: Up needle position 1: Down Needle position
P-03	Start sewing speed (r/min)	100-6000	4000	With trimming function: the speed setting for front sensor trigger start-up and Back sensor signal finish (before trimming)
P-04	Start-up mode	0-1	0	0: Automatic mode (start-up) 1: Foot control mode (Start-up by Front sensor + toe down the pedal) (Valid for full-automatic mode)
P-05	Automatic/semi-automatic mode selection	0-1	1	0: Semi-automatic 1: Automatic
P-06	Auto sensing switch	0-1	1	0: OFF (Full manual mode is turn on) 1: ON (It can execute automatic/ semi-automatic mode also match with P-05 use)
P-07	Automatic thread tension release switch	0-3	3	0: OFF 1: Backward thread tension release
P-08	Auto suction	0-4	3	0: OFF 1: Front trimming suction 2: Rear trimming suction 3: Front and rear trimming suction 4: Long trimming suction
P-09	Automatic cloth feeding	0-2	0	0: OFF 1: Spreading on the sewing 2: Spreading after sewing
P-10	Auto presser foot lifting	0-3	0	0: OFF 1: Front foot-lifting (Front sensor receive signal) 2: Rear foot-lifting (Rear sensor signal after finish) 3: Front and Rear foot-lifting (Valid for full-manual and semi-automatic mode)
P-11	Presser foot lifting when stop on the sewing	0-1	0	0: OFF 1: ON (when stop on the sewing the presser foot lifting automatically)
P-12	Presser foot lifting after trimming	0-1	0	0: OFF 1: ON
P-13	Presser foot lifting when half back treadle	0-2	0	(Valid for full-manual / semi-automatic mode) 0: Presser foot lifting when half back step/ back step 1: Lay down 2: Reverse step up presser foot
P-14	Manual trimming suction	0-2	1	0: No suction 1: Rear suction 2: Front suction and rear suction
P-15	Machine head lamp brightness	0-4	3	0: OFF; 1-4 the brightness grade, the more value the more brightness.
P-16	Low air pressure mode	0-1	0	0: Normal mode 1: Low pressure mode
P-17	Semi automatic continuous sewing	0-1	1	1: OFF 0: Continuous sewing when toe down the treadle
P-18	Semi automatic constant	0-1	0	0: OFF (after finish before trimming not execute P-03 speed)
P-20	Stop position after trimming selection	0-1	1	0: Down position 1: Up position
P-22	Front Receiver E# switch	0-1	0	0: ON (turn on the front sensor, sensor signal + pedal) 1: OFF (Close front sensor, pedal direct turn on)
P-23	Intermittent suction opening time (>100ms)	1-600	20	The more value the more time
P-24	Intermittent air suction off time (>100ms)	0-600	0	0: for no intermittent air suction Front suction off time (valid when P-46 function setting is 1)

P-25	Low pressure mode, selvage suction synchronization time (P16=1)	0-2000	200	Valid for P-16 setting is 1
Technician parameter (Press [P] key and power on to enter)				
P-26	The stitches number between two sensors	1-600	100	Cycle period parameter. In a circle the rear sensor receive signal then can continue running, otherwise a cycle stop.
P-27	The delayed stitches number of front trimming	0-50	3	the smaller value the more in advance, thread will retain more longer. (Mid-sensor trigger)
P-28	The delayed stitches number of rear trimming	0-50	3	The small value the more in advance, the short of end-thread (Back-sensor trigger)
P-30	The delayed time of front suction off (ms)	100-5000	100	The small value the close is fast.
P-31	The delayed time after trimming suction (ms)	100-5000	200	The small value the close is fast.
P-32	The times when cloth-pulling ON	0-1	1	0: OFF 1: ON
P-35	The delayed stitches number before the machine stops (Stitches)	1-99	1	After through cloth back-sensor how many stitches will stop the machine automatically. (Valid for Back-sensor OFF condition)
P-36	The response time of front sensor (ms)	10-990	50	Front sensor trigger time: the small value the response is fast, the large value the response is slow.
P-37	The sensitivity of front sensor	0-700	300	In order to adapt different cloth material setting front sensor receive strength.
P-38	The sensitivity of middle sensor	0-700	300	In order to adapt different cloth material setting mid-sensor receive strength.
P-39	The delaying time of front presser foot lifter (ms)	500-2000	500	Under the full automatic/ semi-automatic: Front trigger retention time after auto-foot-lifting, the larger value the longer retention time.
P-40	Starting time for rear presser foot lifter (ms)	0-2000	120	The starting time of rear presser foot lifting, the smaller value the faster of response.
P-41	Full-on time setting for presser foot (ms)	10-990	50	The larger value the higher of foot-lifting (Noted: Not too high)
P-42	Duty-cycle time setting for presser foot (%)	10-90	20	Adjustment for duty-cycle of AFL. Fine tuning can reduce the over-heating.
P-43	The time for the presser foot laying down (ms)	10-990	100	The action time of presser foot laying down sequence.
P-44	Presser foot protection (s)	1-120	5	Stop on the sewing the presser foot lifting, stop after trimming presser foot lifting, positive closing after heeling pedal for retention time.
P-45	times (ms)	10-990	60	The longer time the large of the trimming force.
P-46	Suction when continuous feeding	0-2	0	0: No suction 1: Long suction 2: Synchronizer suction
P-48	Needle goes up as power on	0-1	1	0: OFF 1: ON
P-49	Stitch (mm)	1-7	1	Adjustment same as actual needle distance by up and down key.
P-50	Up needle position adjustment	0-24	4	Same as P-72
P-51	Down needle position adjustment	0-24	14	Same as P-73
P-52	Test speed (r/min)	100-6000	2000	Adjustment by up and down key.

P-53	Test working time (x100ms)	1-250	20	Adjustment by up and down key
P-54	Test stop time (x100ms)	1-250	20	Adjustment by up and down key
P-55	Item A testing: Continuous running	0-1	0	0: STOP 1: RUN
P-56	Item B testing: With function running	0-1	0	0: STOP 1: RUN
P-57	Item C testing: Without function running	0-1	0	0: STOP 1: RUN
P-58	Machine plate protection switch	0-1	1	0: OFF 1: ON
P-59	Presser foot protection switch	0-1	1	0: OFF 1: ON
P-60	Electric /Air-powered	0-1	0	0: Electric 1: Air-powered
P-62	Rotate direction	0-1	0	Through Hand-wheel direction: 0: Corotation (Clockwise) 1: Reversal (Counter clockwise)
P-63	Language	0-2	1	0: English 1: Chinese 2: Turkish
P-64	The strength of front sensor	0%-100%	80%	Adjustment front sensor strength
P-65	The strength of mid-sensor	0%-100%	80%	Adjustment mid-sensor strength
P-66	The strength of back sensor	0%-100%	80%	Adjustment back sensor strength
P-67	The sensitivity of back sensor	0-700	375	In order to adapt different cloth material setting back-sensor receive strength.
P-69	Response time of back sensor (ms)	0-3000	0	Response time of back-sensor, when sewing such as mesh cloth can adjust this item, then can achieve you want effects.
P-70	Model selection	0-1	0	0: Horizontal knife type 1: Side knife type
P-72	Manually up positioning adjustment	0-24		Through hand-wheel direction, clockwise turn hand-wheel to up position, press [S] key to save the current value as up position just can fine-tuning.
P-73	Manually down positioning adjustment	0-24		Through hand-wheel direction, clockwise turn hand-wheel to down position then press [S] key to save the current value as down position just can fine-tuning.
P-74	Parameter reference	N1-N5		N1: Control box version N2: Panel version N3: rotation speed N4: Pedal AD N5: drive version
P-76	Code		0000	
P-78	Suction bucket type	0-2	0	0: With brush 1: Without brush 2: Valve
P-80	The needle bar shield protection switch	0-1	0	0: OFF 1: ON
P-81	Electromagnet protection	0-1	1	0: OFF 1: ON

4 Error Code List

Error Code	Problem description	Measure
E1	Over-voltage	Turn off the machine, check the power supply voltage. (Or whether exceed the rated voltage of use). If there are still errors, please replace the control box and call for customer service.
E2	Low-voltage	Turn off the machine, check the power supply voltage. (Or whether under the rated voltage of use). If there are still errors, please replace the control box and call for customer service.
E5	Pedal connection error	Turn off the machine, please check if the pedal in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.
E7	Motor locked-rotor error	Turn the machine handwheel, check if it is stuck. If it is stuck, you have to rule out the mechanical failure. If turn normal, check if the encoder and motor in bad connection or is too loose. If yes, please correct. If connection well, check if the power supply voltage is abnormal or sewing speed is too high. If yes, please adjust. If there are still errors, please replace the control box and call for customer service.
E10	Solenoid over-current	Turn off the machine, please check the related circuit is shorted or damaged.
E11	Positioning signal error	Turn off the machine, please check if the encoder in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.
E14	Encoder error	Turn off the machine, please check if the encoder in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.
E15	Power supply module abnormal over-current	Turn off the machine, then turn on again. If there are still errors, please replace the control box and call for customer service.
E16	Foot pressure safety switch is not in the correct position	Please check presser foot whether to return to correct position, the presser foot switch is damage or not, or socket is abnormal.
E17	Machine protection switch is not in the correct position	Turn off the machine, check if the machine is turn over, or the mercury switch is shifted or damaged.
E18	The needle bar shield protection switch not at the right position	Please kindly check the needle bar is open or not, needle shield protection switch is damaged or not, the plug is abnormal or not.
NC	Front operation panel linked to CPU interface had communication error	Please check the operation box and its connection. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.

5. Rear panel connector port outline diagram

5.1 Electric machine type port

