


### 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
- 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 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.
- 6) Please don't operate in direct sun light, outdoors area and where the room temperature is over 45℃ or below 0℃.
- 7) Please avoid operating near the heater at dew area or at the humidity below 10% or above 95%.
- 8) Please 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 arm.
  4. Repairing or doing any mechanical adjustment.
  5. Machine is out of work.
- 14) Repairing and high level maintenance work should only be done by electronic technicians with appropriate training.
- 15) All the spare parts for repairing work must be provided or approved by the manufacturer.
- 16) 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:

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 caused 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.











\* 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. Operation Panel for each key name and function definition

NO.	Icon	Description	Remarks
1		Function key	①In the normal mode hold [P] key enter to User parameter setting mode. ②In the shut-off condition, hold [P] key turn on machine enter to technician parameter setting mode. ③In the shut-off condition, Hold [P] key and [S] key turn on the machine enter to the senior parameter setting mode. ④Under the parameter setting interface, Press [P] key to return but not save the parameter.
2		Up key	Parameter value increase setting or function shift
3		Down key	Parameter value decrease setting or function shift
4		Left key	Parameter item and parameter contents decrease
5		Right key	Parameter item and parameter contents increase
6		Parameter check and save key / Language Shift key	①Under the parameter setting interface, press [S] key to save. ②Under the normal mode interface, shift the Chinese and English language.
7		Forward trimming	Short-press this key enter to enter forward trimming setting: ①Press left and right key it can execute the cycle shift of forward trimming ON, forward trimming OFF. ②Press up and down key it can adjustment forward trimming action times. (same as P-27)
8		Backward trimming	Short-press this key enter to backward trimming setting: ①Press left and right key it can execute the cycle shift of backward trimming ON, backward trimming OFF. ②Press up and down key it can adjustment backward trimming action times. (same as P-28)
9		Auto-suction mode shortcut key	Short-press this key once enter to P-08 auto-suction mode, press up and down key it can execute the cycle shift of forward trimming suction, backward trimming suction, forward backward trimming suction, long suction, close. Short-press this key twice enter to P-46 continuous feeding suction setting, press up and down key it can execute the cycle shift of no suction, long suction, synchronizer suction.
10		Mode selection shortcut key	①Full automatic : start-up according full sensor signal ②Semi-automatic : start-up according to front sensor signal + pedal completion (same as P-05) ③Full manual: start-up according to the pedal completion.
11		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)
12		Cloth feed mode shortcut key	
13		Needle up down position key	Short-press this key it can execute the cycle shift of up needle position, down needle position.
14		Sensor situation check shortcut Key	①Short-press this key can check sensor sensitivity real value of front sensor, mid-sensor, back-sensor. ②Long-press this key can enter sensor sensitivity setting interface, please according to the display interface operation.
15		Maximum sewing speed increase key	Short-press this key it can execute maximum sewing speed increasement, the speed not more than P-71 maximum sewing speed.

16		Maximum sewing speed decrease key	Short-press this key it can execute maximum sewing speed decreasement, the minimum speed is 100 r/min.
17		LED brightness adjustment shortcut key	Press this key to adjust LED brightness(same as the P-15)
18	Indicator	①F-SENSOR ②M-SENSOR ③B-SENSOR ④SAFE ⑤STATE	①When the front sensor receive with cloth, the F-SENSOR LED will be lighted, without cloth the LED OFF. ②When the Mid-sensor receive with cloth, the M-sensor LED will be lighted; without cloth the LED OFF. ③When the back sensor receive with cloth, the B-SENSOR receive with cloth, the B-SENSOR LED will be lighted; without cloth the LED OFF. ④Machine table or foot-lifting safe switch abnormal, SAFE LED will be lighted, normal is OFF. ⑤The normal will flashing green LED, if the error will alarm red LED.

### 2. Special function operation definition

No.	Function name	Function Description
1	Restore factory setting	①Under the shutdown state, press  and  two key at the same time to turn on machine, display screen show P-26; press [S] key confirm. ②Shortcut 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 current value.
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 current value.
4	Sensor sensitivity adjustment	1. Under the normal mode interface long-press  key, it can direct access sensor sensitivity adjustment interface; 2. Please remove cloth after Three-sensor, press [S] key; 3. Please cover cloth after three-sensor, press [S] key, finished setting.
5	Piecework function	Under the normal mode interface press  and  key at the same time, press  or  key it can increase or decrease operation to the total piece manually: piecework other corresponding parameter setting: Press  and  keys at the same time to turn on the machine, press  key to find P-75 setting pieces of alarm, find P-76 setting alarm pieces plus minus sequence.



### 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-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	30	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	4	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	300	The small value the close is fast.
P-32	The times when cloth-pulling ON	0-50	20	
P-34	Trimming protection by manually	0-1	1	0: OFF 1: ON
P-35	The delayed stitches number before the machine stops (Stitches)	1-99	1	(Valid for Back-sensor OFF condition) After through cloth back-sensor how many stitches will stop the machine automatically.
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	380	In order to adapt different cloth material setting front sensor receive strength.
P-38	The sensitivity of middle sensor	0-700	440	In order to adapt different cloth material setting mid-sensor receive strength.
P-39	The delaying time of front presser foot lifter (ms)	100-2000	300	(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	100	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	Trimming time (ms)	10-990	40	the longer time, the greater trimming pressure
P-46	Suction when continuous	0-2	0	0: No suction 1: Long suction
P-47	Total pieces	0-65535	0	
P-48	Needle goes up as power on	0-1	1	0: OFF 1: ON
P-49	Stitch (mm)	1-7	3	Adjustment same as actual needle distance by up and down key.
P-50	Up needle position adjustment	0-1439		Same as P-72
P-51	Down position adjustment	0-1439		Same as P-73

P-52	Test speed (r/min)	100-6000	5500	Adjustment by up and down key
P-53	Test working time (>100ms)	1-250	50	Adjustment by up and down key
P-54	Test stop time (>100ms)	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		(Electric machine type the default is 0, air-powered machine type the default is 1) 0: Electric 1: Air-powered
P-61	Trimming switch by heeling pedal	0-7	7	0: All OFF 1: All ON by manually 2: Semi-auto ON 3: Auto ON 4: Manual and semi-auto ON 5: Semi-auto and auto ON 6: Manual and auto ON 7: Manual and semi-auto and auto ON
P-62	Rotate direction	0-1	0	Through Hand-wheel direction: 0: Corotation (Clockwise) 1: Reversal (Counter clockwise)
P-63	Language	0-1	1	0: English 1: Chinese
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	440	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.
Senior parameter setting (press P + S key at the same time to turn on the machine access)				
P-70	Model selection	0-1	0	0: Horizontal knife type 1: Side knife type
P-71	Maximum sewing speed limitation (r/min)	100-8000	6000	Maximum sewing speed limitation
P-72	Manually up positioning adjustment	0-1439		Through hand-wheel direction, clockwise turn hand-wheel to up position press [S] to save the current value.
P-73	Manually down positioning adjustment	0-1439		Through hand-wheel direction, clockwise turn hand-wheel to down position then press [S] to save current value.
P-74	Parameter reference	N1-N4		Use up and down key shift: N1: Control box software version N2: Panel software version N3: Rotation N4: Pedal AD
P-75	Alarm pieces	0-9990	0	

P-76	Alarm pieces plus minus sequence	0-1	0	0: minus 1: plus
P-77	Zero-point angle setting			Firstly to enter P-48 close the needle goes up as power on, turn off the machine then restart the machine, enter this item press  automatic to find zero-point, till machine stops, press  key to save, then enter to P-48, turn on the needle goes up as power on.
P-78	Suction bucket type	0-2	1	0: with brush 1: without brush 2: valve
P-79	Testing	0-1	0	0: OFF 1: ON

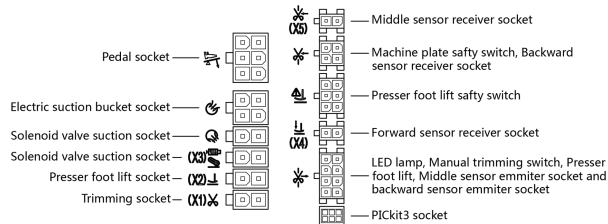
### 4 Error Code List

Error Code	Problem	STATUS / MEASUREMENT
E01	1) When power ON, detected main voltage too high 2) When the supply voltage is too high	Turn off the system power supply, and detect whether the supply voltage is correct. (Or exceed the rated voltage.) If correct, please replace the control box and inform the factory
E02	1) When power ON, detected main voltage too low. 2) When the supply voltage is too low.	Turn off the system power supply, and detect whether the supply voltage is correct. (Or exceed the rated voltage.) If correct, please replace the control box and inform the factory
E05	Speed control unit connection is abnormal	Turn off the system power supply, please check the speed control unit connector if loose or fall off, Will resume normal after the restart system. If you still can not work normally, please replace the speed control unit and notify the manufacturer.
E07	a) Bad connection at the motor connector. b) Machine locked or object stuck in the motor pulley c) Sewing material is too thick. d) Module output is abnormal.	Please check the machine head to see if objects stuck in the motor pulley. If stuck it is not the machine head machinery fault. If normal running, please check the encoder connector and motor power cord connector if loose. If loose please tight connection. If connection well, please check supply voltage whether abnormal or setting speed too high. If have please modify. If normal, please replace the control box and notify the manufacturer.
E10	Solenoid over-current protection	Turn off the system power supply, please check the solenoid (solenoid valve) connector or solenoid (solenoid valve) is broken or not.
E11	Synchronizer signal error.	Turn off the system power supply, please check motor encoder connector if loose or fall off, renew to normal then restart system. If still not work, please replace the motor and notify the manufacture.
E14	Encoder signal error.	Turn off the system power supply, please check motor encoder connector if loose or fall off, renew to normal then restart system. If still not work, please replace the motor and notify the manufacture.
E15	Abnormal over current protection for Power Module.	Turn off the system power supply, renew to normal then restart system. If still not work, please replace the motor and notify the manufacture.

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	The sewing table safety switch is not in the correct position	Please check sewing table is open or not, the sewing table safety switch is damage or not, the socket is abnormal or not.
NC	Front operation panel linked to CPU interface had communication error.	Please check the operation box and its connection.

### 5. Rear panel connector port outline diagram

#### 5.1 Electric machine type port



#### 5.2 Air-powered / side knife machine type port

