


### 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**

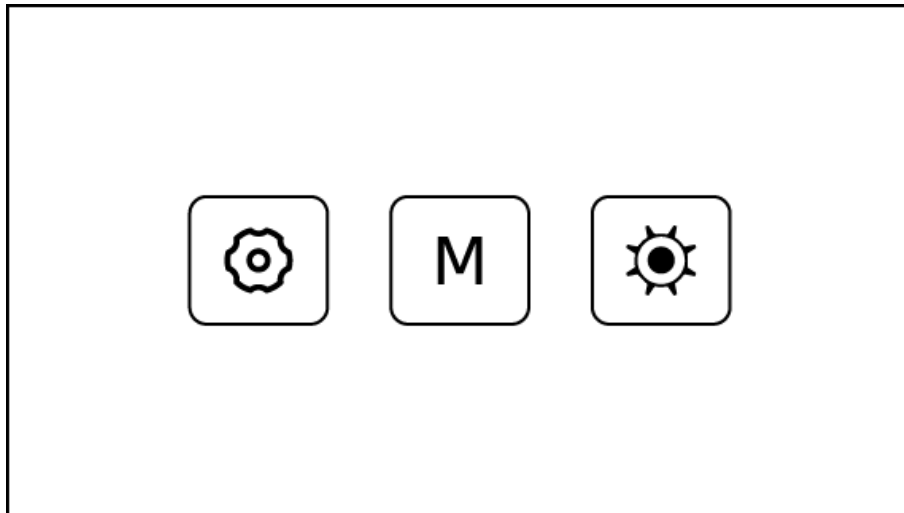
Any trouble found within warranty period under normal operation, it will be repaired free of charge. However, maintenance cost will be charged in the following cases even if within warranty period:




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 Interface and operating instructions

### 1.1 Power-on interface



Name	key	Description
M key		If clicked, enter the main interface.
Machine adjustment		If clicked, enter the machine adjustment interface.
Other functions		If clicked, enter the other functions interface.

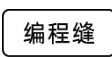

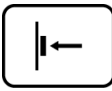
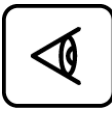






### 1.2 Machine adjustment interface description


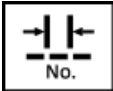

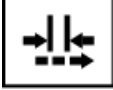
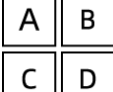
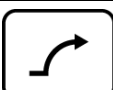
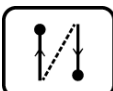







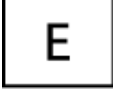
1.2.1 Panel related					
No.	Display	Range	Default	Description	Parameter
1	Model selection		15	Odd number for single-needle model; even number for double-needle model	P70
2	Restore factory setting				P124
3	Single or double needle type	0-1	0	0 for single-needle mode; 1 for double-needle mode	P200
1.2.2 Machine debugging					
No.	Display	Range	Default	Description	Parameter
1	Upper positioning quick adjustment				P72
2	Main shaft motor electricity angle adjustment				P92
3	Swing needle motor stepping angle (0.1 degree)		0		P128
4	The back-tacking stepping motor zero-point correction		0		P129
5	Upper roller diameter	10-99	28		P140
6	Upper roller gear ratio	101-9999	2058		P141




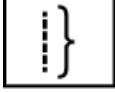
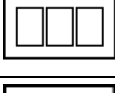

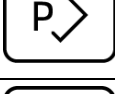

7	Lower roller diameter	1-99	43		P143
8	Lower roller gear ratio 1	101-9999	1663		P144
9	Lower roller gear ratio 2	101-9999	2416		P145
10	Swing needle range value	0-60	24		P147
11	Swing needle direction	0-1	0		P148
12	Machine key, back-tacking wrench, knee-control and turn-over switch detection				P42-N20

## 2 Mode interface description


### 2.1 Key description

Name	Icon	Function description
Sewing mode		If clicked, switch sewing mode (free sewing, overlap sewing, target stitch sewing, editing sewing). Note: the mode can be switched only after the back pedal has finished its stroke.
Temporary cancellation of back-tacking		If clicked, the back-tacking status of the sewing can be canceled, the back-tacking remains in effect thereafter.
Knee-control key		If clicked, set used or cancelled second stitch length function.
Monitoring key		If clicked, enter the monitoring parameter interface.
Setting key		If clicked, enter the parameter setting interface. If long-press, enter the password to enter the advanced parameters.
Lock Screen Key		If clicked, toggle lock screen and unlock.
Thread winding		If long-press, activates or deactivates the winding action.
Thread trimming counting		If long-press, enter thread trimming counting interface.
Parameter increase		If click, increase the parameter. If long-press, continuously increase the parameter.
Parameter decrease		If click, decrease the parameter. If long-press, continuously decrease the parameter.


Speed display		The current speed is displayed and can be adjusted with the corresponding plus or minus keys below.
Stitch length mode		The current stitch length is displayed and cannot be adjusted.
Upper roller stitch length		The current upper roller stitch length is displayed and can be adjusted with the corresponding plus or minus keys below; after changing the value, the lower roller stitch length follows the current difference.
Lower roller stitch length		The current lower roller stitch length is displayed and can be adjusted with the corresponding plus or minus keys below; the lower roller stitch length can be modified individually.
Number of back-tacking stitches		The number of stitches corresponding to the start and end back-tacking is displayed and can be adjusted with the corresponding plus or minus keys below.
Soft start setting		If clicked, set used or cancelled soft start function.
Tight seam setting		If clicked, switch starting tight seam, ending tight seam, full function and function off successively.
Needle stop position key		If clicked, toggles the stop position of the machine needle after sewing.
Presser foot lifting		If clicked, three functions can be set in order: presser foot lift function off, presser foot lift on function when reverse pedal and semi-reverse pedal, reverse pedal presser foot on and semi-reverse pedal presser foot off function.
Automatic presser foot lifting		If click, switch function off → automatic presser foot lifting after trimming → automatic presser foot lifting after pause → full function successively.
Thread trimming		If clicked, set used or cancelled thread trimming function.
Start back-tacking		If clicked, switch AB start back-tacking → ABAB start back-tacking → function off → B start back-tacking successively.
End back-tacking		If clicked, switch CD end back-tacking → CDCD end back-tacking → function off → C end back-tacking successively.
Locking wheel key		If clicked, set used or cancelled locking wheel function (upper and lower rollers lock when parking).
Segment display		The total number of segments of overlap sewing is displayed and can be adjusted with the corresponding plus or minus keys below.

Auto function		If clicked, set used or cancelled auto function.
Interrupt function		If clicked, the activation function current sewing program is interrupted and changed to free sewing; if de-activated, the program continues.
Total number of segments		The total number of segments is displayed. If clicked, you can adjust it with the corresponding plus or minus below.
Number of current segments		The current segment is displayed and can be adjusted with the corresponding plus or minus keys below.
Current number of stitches		Displays the number of stitches in the current segment and can be adjusted with the corresponding plus or minus keys below
Pattern No.		Displays the pattern No. currently in use and can be adjusted with the corresponding plus or minus keys below
Pattern editing mode		If long-press, enter pattern editing mode.
Reverse sewing		If clicked, toggles the direction of the current sewing segment.

## 2.2 Monitoring interface description

Press  to enter the status information screen, you can observe the speed, angle, mechanical position, etc.


## 3 Parameter table

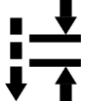



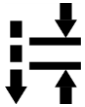


Press  to enter the parameter user parameter setting interface, the parameter setting interface directory is as follows.

No.	Parameter selection catalogue
1	Panel parameter
2	Statistics function
3	Main shaft parameter
4	Presser foot parameter
5	Tight seam parameter
6	Thread trimming parameter
7	Thread clamping parameter
8	Thread tension release parameter

9	Segment sewing parameter
10	Soft start parameter
11	Tacking and back-tacking parameter
12	Pedal parameter
13	Multi-stitch length parameter
14	Reset

1 Panel parameter					
No.	Display	Range	Default	Description	Parameter
1	Screen brightness	10-100	50		
2	Main screen auto-lock time	10-999	80		
3	The function selection of darning stitch key	0-4	3	0: OFF 1: Half stitch 2: One stitch 3: Continuous half stitch 4: Continuous one stitch	P174
2 Statistics function					
No.	Display	Range	Default	Description	Parameter
1	Automatic piece count selection	0-30	1	0: OFF	P27-N06
2	Thread trimming counter mode selection	0-1	0	0: Incremental piecework mode 1: Diminishing piecework mode	P27-N13
3	Stitch number counter mode selection	0-4	0	0: Do not count 1. Increase cycle count 2. Decrease cycle count 3. Increase count, alarm after the count is full, need to press the clear key to start recounting 4. Decrease count, alarm after the count is full, need to press the clear key to start recounting	P165
3 Main shaft parameter					
No.	Display	Range	Default	Description	Parameter
1	The strength of machine stopping after thread trimming	1-45	25		P29
2	The stopping strength during machine pause	1-45	16		P44
3	The minimum speed	150-300	200		P45
4	The reverse-rotating needle-lift function selection after thread trimming	ON/OFF	OFF		P46
5	The adjustment of the reverse-rotating needle-lift angle after thread trimming (degree)	10-300	40	Start from the upper needle position and adjust the angle of the needle lift in reverse operation after trimming.	P47
6	The speed of machine stopping	100-500	300	Adjust the minimum speed.	P48
7	The angle of fabric entering point	0-1000	300		P55
8	Automatically find upper position after power on	0-1	0	0: Always not to find the up needle position 1: Always to find the up needle position	P56

9	Upper position adjustment	0-359	160	Upper position adjustment, the needle will advance stop when the value decreased, the needle will delay stop when the value increased.	P58
10	Lower position adjustment	0-359	230	Lower position adjustment, the needle will advance stop when the value decreased, the needle will delay stop when the value increased.	P59
11	Upper and lower positioning distance	0-359	70	Upper and lower positioning distance (1 degree for every 4 values).	P86
12	The stopping distance during machine pause	10-100	30		P88
13	The function switch of upper and lower roller motor locking main shaft when machine stopping	0-1	0	0: OFF; 1: ON	P180
14	The strength of upper and lower roller motor locking main shaft when machine stopping (0.1A)	1-30	15		P181
4 Presser foot parameter					
No.	Display	Range	Default	Description	Parameter
1	Presser foot release buffer duty ratio (%)	0-100	6		P32
2	Presser foot release buffer delay time (ms)	0-990	6		P33
3	Automatic presser foot setting when machine pause	UP/DN	0		P39
4	Automatic presser foot setting after trimming	UP/DN	0		P40
5	The working time of presser foot second section full output (ms)	10-990	150		P50
6	Periodic signal of presser foot third section output (%)	1-50	25		P51
7	Delaying motor start time after presser foot starts to lower (ms)	10-990	120	Delayed start time to match automatic presser foot lowering.	P52
8	Presser foot lifting function selection when back pedaling	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.	P53
9	Presser foot lifting protection time (s)	1-60	10	After the holding time is over, it is forced to be lowered to prevent the stepping motor from being raised for a long time and becoming hot.	P57
10	Periodic signal of presser foot second section output action (%)	10-100	100		P95
11	Periodic signal of presser foot first section output action (%)	5-40	20		P112
12	Presser foot first section output action time	0-200	0		P113
5.1 Starting tight seam					
No.	Display	Range	Default	Description	Parameter
1		0-12	1	When the parameter value is 0, starting tight seam function is turned off.	P108

2		0-5.0	0.5	Stitch length	P99
3		100-2000	500	Speed	P107
4		CW/CCW	CCW	Direction	P100
5.2 Ending tight seam					
No.	Display	Range	Default	Description	Parameter
1		0-12	1	When the parameter value is 0, ending tight seam function is turned off.	P160
2		0-5.0	0.5	Stitch length	P157
3		100-2000	500	Speed	P158
4		CW/CCW	CCW	Direction	P159
6 Thread trimming parameter					
No.	Display	Range	Default	Description	Parameter
1	Automatic trimming function setting	ON/OFF	1		P38
2	Trimming speed	100-500	260	Adjusting the motor speed during thread trimming cycle.	P49
3	Trimming action time (ms)	10-990	200	The required action time when thread trimming to protect the thread trimming solenoid.	P54
4	Trimming first engage angle	0-300	50	Trimming engage angle setting (calculated at 0° for lower positioning).	P80
5	Trimming retract angle	0-359	330		P82
6	Stopping distance after trimming	10-100	20		P83
7	Trimming full output time (ms)	0-990	60		P84
8	Periodic signal of trimming output (*10%)	1-10	7		P85
9	Trimming return time (ms)	60-990	65	Make sure the thread trimming device returns to its original position.	P110
10	The switch of allowed to darning stitch after trimming	0-1	1	0: OFF; 1: ON	P175
7 Thread clamping parameter					
No.	Display	Range	Default	Description	Parameter
1	Thread clamping mode	0-3	0	0: OFF 1: Thread clamping when front pedaling 2: Thread clamping when back pedaling 3: Full function	P35



2	Thread clamping function selection	0-10	6	0: OFF 1-10: Thread clamping function, the greater the value, the greater the action strength.	P37
8 Thread tension release parameter					
No.	Display	Range	Default	Description	Parameter
1	Thread tension releasing function setting	0-1	1	0: OFF; 1: ON	P36
2	The start angle of thread tension releasing	1-359	300	Thread tension releasing start angle (defined as 0°under calculation).	P101
3	The stop angle of thread tension releasing	1-359	340	Thread tension releasing end angle (defined as 0°under calculation, must be greater than P101 parameter value).	P102
4	Periodic signal of the second thread tension releasing output (%)	1-100	35		P103
5	Periodic signal of the first thread tension releasing output (%)	1-100	60		P211
6	Action time of the first thread tension releasing output	1-100	25		P212
9 Segment sewing parameter					
No.	Display	Range	Default	Description	Parameter
1	Testing speed	100-3000	2400		P60
2	Testing A	ON/OFF	OFF	Continuous running testing.	P61
3	Testing B	ON/OFF	OFF	Start and stop testing with all functions.	P62
4	Testing C	ON/OFF	OFF	Start and stop testing without all function.	P63
5	Test run time	1-250	30		P64
6	Test stop time	1-250	20		P65
10 Soft start parameter					
No.	Display	Range	Default	Description	Parameter
1	Soft start speed after second stitch	200-1500	1500		P07
2	Stitch numbers for soft start	1-15	2		P08
3	Soft start function setting	ON/OFF	0	Effective in any mode.	P14
4	Soft start first stitch speed	200-1500	400	Sets the first stitch speed when the soft start sewing function is on.	P90
5	Soft start second stitch speed	200-1500	1000	Sets the second stitch speed when the soft start sewing function is on.	P91
6	Start sewing first stitch speed limit	0-3000	0	The function is disabled when the value is less than 100.	P205
7	Start sewing second stitch speed limit	0-3000	0	The function is disabled when the value is less than 100.	P206
8	Start sewing speed limit function switch	0-1	0	0: OFF; 1: ON	P207
11 Tacking and back-tacking parameter					
No.	Display	Range	Default	Description	Parameter

1	Start back-tacking speed	200-3000	1200		P04
2	End back-tacking speed	200-3000	1200		P05
3	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 a pattern sewing action.	P12
4	Start back-tacking ending mode selection	CON/STP	CON	CON: Start back-tacking is completed automatically continued for next action. STP: After the number of stitches is completed, stop automatically.	P13
5	Back-tacking switch	0-1	1	0: OFF; 1: ON	P15
6	Speed limit of manual back-tacking	0-3000	0	The function is disabled when the value is less than 100.	P16
7	Back-tacking angle compensation	0-30	15		P18
8	Angle compensation	0-30	15		P19
9	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 a pattern sewing action.	P20
10	When the main shaft motor running, the allowed back-tacking angle after needle bar at the lowest position	0-180	70		P104
11	When the main shaft motor stopping, the allowed back-tacking angle after needle bar at the lowest position	0-180	120		P105
12	The switch of each constant-stitch sewing with start back-tacking sewing, end back-tacking sewing and trimming	0-1	0	0: OFF; 1: ON	P230
12 Pedal parameter					
No.	Display	Range	Default	Description	Parameter
1	Speed-up curve line adjustment (%)	10-100	80	The speed controller climbing slope setting. The larger the slope value, the steeper the speed; the smaller the slope value, the slower the speed.	P02
2	Pedal mode	0-1	0	0: Regular mode; 1: Special mode	P11
3	Pedal speed-up position	30-1000	580		P21
4	Pedal start up position	30-1000	480		P22
5	The position of the pedal for presser foot lifting	30-1000	230		P23
6	The position of the pedal for thread trimming	30-500	110		P24
7	Pedal acceleration	0-40	10		P25
8	Pedal flexibility	0-20	12		P26
9	Half back pedaling function effect time (ms)	10-900	100		P93
13 Multi-stitch length parameter					

No.	Display	Range	Default	Description	Parameter
1	Switching the second stitch length switch	0-1	0		P111
2	Number of cycles allowed for switching stitch length	1-5	2		P130
3	Upper roller first stitch length	0-5.0	3.0		P131
4	Upper roller second stitch length	0-5.0	2.8		P132
5	Upper roller third stitch length	0-5.0	3.2		P133
6	Upper roller fourth stitch length	0-5.0	3.4		P134
7	Upper roller fifth stitch length	0-5.0	3.6		P135
8	Upper and lower roller stitch length difference value limitation	0-2.0	1.0		P150
9	Upper and lower roller stitch length difference value (first stitch length)	-2.0~2.0	0.0		P151
10	Upper and lower roller stitch length difference value (second stitch length)	-2.0~2.0	0.0		P152
11	Upper and lower roller stitch length difference value (third stitch length)	-2.0~2.0	0.0		P153
12	Upper and lower roller stitch length difference value (fourth stitch length)	-2.0~2.0	0.0		P154
13	Upper and lower roller stitch length difference value (fifth stitch length)	-2.0~2.0	0.0		P155
14 Reset (just enter the parameter item and click to confirm)					

#### 4 Advanced parameter table



Long-press and enter the password to enter the parameter user advanced parameter setting interface, the parameter setting interface directory is as follows.

No.	Advanced parameter selection catalogue
1	Main shaft parameter
2	Roller parameter
3	Swing needle parameter
4	Statistics function
5	Thread clamping parameter
6	Tacking and back-tacking parameter
7	Safety protection
8	Presser foot lifting when start sewing

1 Main shaft parameter					
No.	Display	Range	Default	Description	Parameter


1	The maximum limit speed	100-3000	2200		P68
2	The deviation value of needle position	0			P71
3	Upper positioning quick adjustment	0-359		Adjust up needle position, the displayed value will change with the position of the handwheel, press "SET" key to save the current position (value) as upper needle stop position.	P72
4	Lower positioning quick adjustment	0-359		Adjust down needle position, the displayed value will change with the position of the handwheel, press "SET" key to save the current position (value) as lower needle stop position.	P73
5	Main shaft motor electricity angle adjustment			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).	P92
6	Main shaft motor maximum current	0-16	7		P94
7	Main shaft motor blocking current peak value (A)	0-16	7	Numerical value*0.5+10.	P96
8	Main shaft motor blocking protection time (s)	0-10	5		P97
2 Roller parameter					
No.	Display	Range	Default	Description	Parameter
1	Upper roller diameter	10-99	28		P140
2	Upper roller gear ratio	101-9999	2580		P141
3	Upper roller percentage compensation	-100~100	0		P142
4	Lower roller diameter	10-99	43		P143
5	Lower roller gear ratio 1	101-9999	1663		P144
6	Lower roller gear ratio 2	101-9999	2416		P145
7	Lower roller percentage compensation	-100~100	0		P146
8	Maximum stitch length limit	0.0-7.0	5.0		P123
3 Swing needle parameter					
No.	Display	Range	Default	Description	Parameter
1	Swing needle motor stepping angle (0.1 degree)	-1800~1800	0	Enter the parameter to issue command 1 and exit the parameter to issue command 0.	P128
2	Swing needle stepping motor zero-point correction	-500~50	0		P129
3	Swing needle range value	0-60	24		P147
4	Swing needle direction	0-1	0	0: Positive direction; 1: Negative direction	P148
4 Statistics function					
No.	Display	Range	Default	Description	Parameter

1	Bobbin thread stitch counter upper limit value (stitch) *10	0-9999	500		P166
2	Maintenance stitch upper limit value (10000 stitches) *10	0-9999	9000		P167
5 Thread clamping parameter					
No.	Display	Range	Default	Description	Parameter
1	The start angle of thread clamping when trimming	5-359	100		P76
2	The stop angle of thread clamping when trimming	5-359	270		P77
3	The start angle of thread clamping when start sewing	5-359	100		P78
4	The stop angle of thread clamping when start sewing	5-359	270		P79
6 Tacking and back-tacking parameter					
No.	Display	Range	Default	Description	Parameter
1	Tacking stitch length overall compensation	-200~200	0	Compensates for all stitch length in tacking.	P74
2	Back-tacking stitch length overall compensation	-200~200	0	Compensates for all stitch length in back-tacking.	P75
3	End back-tacking in effect in target stitch sewing setting	0-2	0	0: When all segments are completed in target stitch sewing, end back-tacking takes effect. 1: when all segments are not completed in target stitch sewing, end back-tacking is still in effect when thread trimming after back pedaling in the middle of sewing. 2: End back-tacking takes effect any time when thread trimming after back pedaling in target stitch sewing.	P190
7 Safety protection					
No.	Display	Range	Default	Description	Parameter
1	Presser foot lifting protection time (s)	1-60	10	After the holding time is over, it is forced to be lowered to prevent the stepping motor from being raised for a long time and becoming hot.	P57
2	Machine protection switch	0-1	1	0: OFF; 1: ON	P66
3	AC overvoltage value setting	500-1023	880	Set the threshold value of overvoltage alarm E01.	P89
4	Thread tension release protection time (s)	1-5	2	Forced shutdown after protection time to prevent long-term magnetic absorption from getting hot.	P98
8 Presser foot lifting when start sewing					
No.	Display	Range	Default	Description	Parameter
1	Presser foot lifting switch when start sewing	0-1	0	0: OFF; 1: ON	P201

2	Presser foot lifting start angle when start sewing	0-359	1		P202
3	Presser foot lifting stop angle when start sewing	0-359	200		P203
4	Presser foot lifting strength when start sewing	0-100	40		P204

## 5 Machine debugging mode



Step 1: Turn on the machine and enter the boot interface, click  to enter the panel related interface, select the model you need and then turn off the machine and restart (if the factory model is the model you need, there is no need for this operation). Enter machine adjustment setting, check whether the upper and lower roller gear ratio is consistent with the mechanical gear ratio (if it is not consistent, change the data).


Step 2: Click “Main shaft motor electricity angle adjustment” parameter, and press save after the motor rotation stops.

Step 3: Click on the "Upper Positioning Quick Adjustment" parameter and manually turn the handwheel counterclockwise so that the upper stop position stops where you need it to (the actual stop position) and press Save.

Step 4: Make the wide slot of the pendulum cam face upward, just lock the corresponding screw.

Step 5: Make the pendulum needle bar at its lowest point and at the center of the needle hole, lock the needle bar screw.



Step 6: Go back to the start-up screen and click  to enter the sewing interface, adjust the stitch length to the maximum and turn the handwheel to observe if the needle bar is within the needle hole (not in the appropriate adjustment can be made) .

Step 7: Use paper to test the machine stitch size and synchronization. (If there is an error, go to the advanced parameters roller parameters to adjust the upper and lower roller compensation appropriately)