# Automatic Sewing Control System
# (Human Machine Interface)

## Operation Instruction

Version: VER4.9

# Foreword

Thank you for selecting our Company's All-automatic Sewing Machine. In order to give full play to the excellent performance of this product, and ensure the safety of users and equipment, please carefully read the instructions before use. As the accessories supplied with the machine, the instructions must be properly kept after use for future repair and maintenance of equipment.

If there are any questions about or special requirements for operation of this machine, please feel free to contact our Company's local offices or distributors, or directly contact our Company's after-sales service center.

The contents of the instructions are subject to any changes without prior notice.

# Contents

# 1. Safety Precautions

## 1.1 Basic safety

To avoid dangers of fire, electric shock or casualties during use of this product, the following basic safety precautions shall be followed all the time:

| | |
|---|---|
|  Caution | Do not attempt to the maintain or debug electric component by yourself, or the equipment performance will be reduced, to cause instability of the system, enlarge scope of failure or even lead to human injury or property loss. The maintenance and debugging shall be done by professional technician assigned by the supplier. |
|  Danger | When the product is in working process, do not open the case cover. Some parts in the case may have lethal high-voltage to cause inadvertent personal injury. |
|  Warning | Make sure the power (pull out power plug of the machine from the power socket) is cut off when you have to open the case cover, and then the case cover can be opened only in 5 minutes after power-cut. |
|  Prohibition | Prohibit electrical equipment working in environment with moist, dust, corrosive gas or flammable and explosive gas, or it may cause electric shock or fire. |
|  Prohibition | Prohibit insulation test to input and output circuit of the controller or it may directly cause damage to electric equipment. |
|  Warning | Using any spare parts not provided or recommended by the Company may cause fire, electric shock or severe damage. |
|  Caution | Please strictly follow all requirements and warnings marked in the product, so as to guarantee personnel and property safety. |
|  Caution | The circuit board may be destroyed by electrostatic interaction; non-professional technician is not allowed to disassemble circuit board. |
|  Prohibition | Prohibit splicing overloaded electric instrument on power socket or wiring terminal of the controller. |

## 1.2 Wiring safety

1. Any error or defect of wiring may directly have an impact on reliability and stability of the system or cause electric shock or equipment damage, thus treatment and operation shall be done carefully.

2. Make sure all connecting wires (signal wire or power wire) are insulated well and have no sheath damage.

3. All cables shall be rationally fixed, cables can never be forced, cables shall be processed when passing through sharp surfaces as structural holes, etc., so as to prevent cable damage by improving insulation intensity via a wire sheath.

## 1.3 Insulation of electric components and electrical equipment

During the installation or operation process of electric moving parts, make sure good insulation between the internal circuit and the package at any time. principal axis motor, stepper motor, power switch and various electromagnets are included.

## 1.4 Connection of power wire

1. Use multimeter to measure and confirm power type, which shall be consistent with nominal value on the product nameplate, zone with power network fluctuation exceeding ±15% of the nominal voltage value must adopt AC stabilized supply with grounding function and power over 1KW.

2. In order to guarantee safe use of the product, do not select to use the same power supply with intermittence high power load (elevator, working machinery, etc.)

3. Erect the power wire at safe position.

4. Guarantee plugging the power socket tightly with correct plugging position and direction.

## 1.5 Grounding

To prevent physical injury accident or fire due to electric leakage and make sure this machine, the controller shell must be grounded reliably. The grounding resistance shall be less than 10 ohm.

## 1.6 Discard precautions

When treating discarded the sewing machine controller, pay attention to:

1. Electrolytic capacitor: Explosion may occur when the internal electrolytic capacitor is burning.

2. Plastic: Harmful or toxic gas may be produced when the internal plastic and rubber component are burning, please be careful when burning.

3. Clear-out: Please dispose of the discarded pattern sewing machine controller as industrial waste.

# 2. Product Characteristics and Performance Index

## 2.1 Product characteristics

1. By adopting the AC servo control technology, the principal axis motor has high positioning accuracy and reliable and stable performance.

2. By adopting subdivision technology to drive, the operation of stepper motor is more stable and the sewing quality is greatly improved.

3. By selecting advanced middle and large scale integrated circuit and adopting multi-CPU control mode, the main controller has greatly improved reliability of the system.

4. By adopting advanced multi-axis motion control algorithm software, stable three-axis linkage is realized.

5. Organization and production of the product under ISO 9000 quality system have reliable quality.

## 2.2 Performance index

| Stitch mode | Lock stitch |
|---|---|
| Sewing speed | 200～2800rpm |
| Sewing dimension | X: Unlimited Y:1000mm |
| Stitch length | 0.1～12.7mm |
| Cloth-feed driving mode | Pulse motor drive |
| Max. number of stitches | Storage up to 400,000 stitches |
| Presser foot state | Depress, uplift |
| Number of template pattern | 200 |
| Range of lower thread counter | 0～99999 |
| Range of production counter | 0～99999 |
| Controller overall dimension | 340×300×170mm (length ×width ×height) |
| Temperature range of working environment | 5℃～40℃ |
| Environment humidity | ≤85RH, no condensation |
| Altitude | ≤1500m; please use by lowering speed if＞1500m. |
| Power supply source | Rated voltage of AC220V±15%, rated power of 50/60Hz |
| Power of principal axis motor | 750W |
| Static power of machine | ≤200W |
| Dynamic power of machine | ≤400W |

# 3. Power-On/Off

## 3.1 Power-On

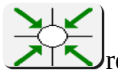
### 3.1.1 Check before power on

1.Make sure normal installation of machine head mechanical assembly and stable installation of motors of different parts.
2.Make sure all wires of the controller and machine head are connected firmly and plugging positions are correct; confirm normal power connection; all wiring shall be intact.

### 3.1.2 Check on power on process

Press 

key (as shown in Figure 3-1) to connect power supply to provide power for machine. It will then show the start interface, several seconds later, also show the main interface.

In main interface, touch  return-to-zero key, principal axis motor will automatically return to origin; Y and X axes are about to do this one after another. Now that take-up-lever is at the highest point, principal axis motor is unlocked, with the stop lever of template, the air cylinder of pinch roller arm (presser), the auxiliary presser foot and the middle presser foot uplifted.

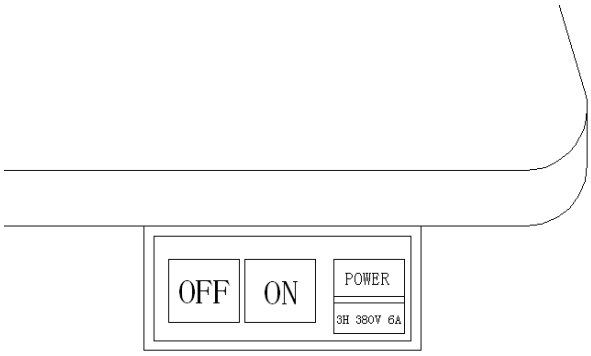



Figure 3-1

## 3.2 Power-off

Press 

key (whose position is shown in Figure 3-1) to directly turn off the power. Now the interface will go blank, with no operation of the machine head.The same display as the description, in power-off, indicates its normal stop.

Note: Each time you turn off the machine, you can only restart it at least 1 minute later.

# 4. Main Interface Introduction and Basic Operation

## 4.1 Interface Introduction

Enter Main Interface and it will show the current pattern's needle tracking:

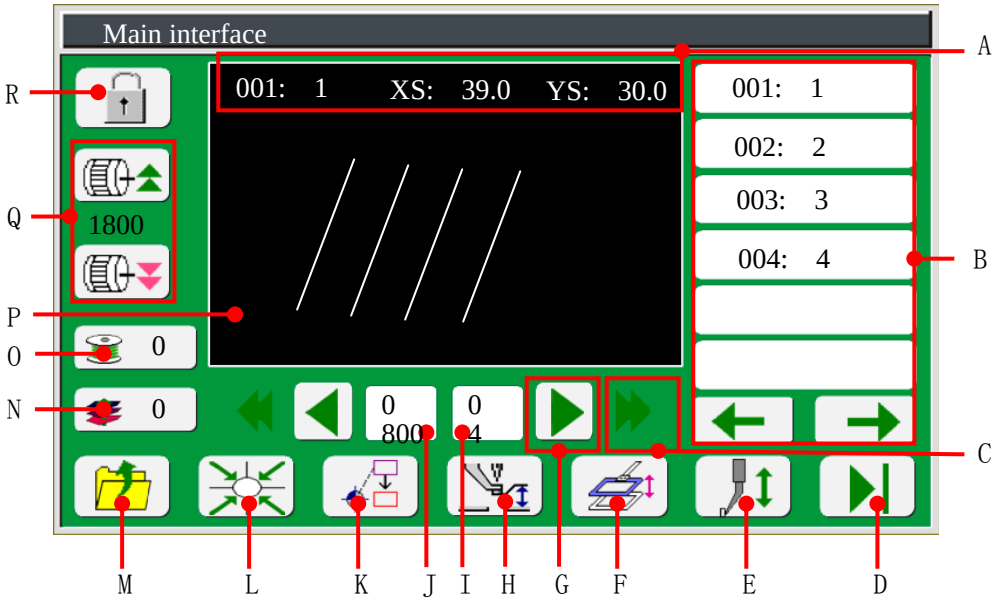
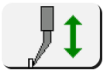
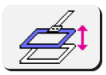
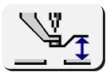
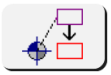
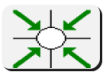



Figure 4-1Main Interface

| Number | Icon | Name | Function and content |
|---|---|---|---|
| A | Pattern parameter | Current pattern parameter display | Display data of the current pattern: current pattern number, XS (horizontal range), YS (vertical) range. |
| B | Select pattern number | Select pattern number | By page scroll, find the pattern number required in sewing and touch it for selection. |
| C | Trial sewing,move one segment at a time | Trial sewing key(segment) | Perform trial sewing of the current pattern; |
| D |  | Auxiliary interface key | Press this key to the auxiliary interface and enter the auxiliary interface of main interface. |
| E |  | Uplifting/depressing of the middle presser foot | Uplift/depress the presser foot. |
| F |  | Uplifting/depressing of presser | Uplift/depress the presser. |
| G | Trial sewing,move one needle at a time | Trial sewing key(needle) | Perform trial sewing of the current pattern; |

| | | | |
|---|---|---|---|
| H |  | Adjustment of the presser foot. | Enter the interface for “adjustment of the presser foot”. |
| I | segments | segments | show segments of the current pattern |
| J | stitches | stitches | show stitches of the current pattern |
| K |  | Datum | Touch this press to enter the “datum” interface. |
| L |  | Return-to-zero | Return to mechanical origin. |
| M |  | Main menu | Press this key to enter “main menu” interface. |
| N |  | Production counting | Press this key to enter “production counter” setting interface. |
| O |  | Lower thread counter | Press this key to enter “lower thread counter” setting interface. |
| P | Pattern display | Pattern display area | Display the currently selected pattern. |
| Q | Speed adjustment | Speed adjustment | Adjust and indicate sewing speed. |
| R |  /  | Lock key | Lock the current processed file to prevent the misoperation, click the “Lock” once and click it again to unlock. Under the lock status, automatically recognize the template. Unlock and manually select the current sewing pattern. |

## 4.2 Select pattern

Select sewing pattern in area B shown in Figure 4-1. The sewing pattern No. is indicated in figures (such as 001:1).

(1) Touch  key to view pattern of the previous page, and then return to the last page by pressing it again. Touch  key to view pattern the next page, and then return to the first page by pressing it again. There are 6 patterns at most at a single page.

(2)After finding the selected pattern, touch the corresponding key in Area B to select the pattern file.

For instance, touch the pattern #1 and the display area will show thread tracking 1.
Parameter display area: 001： 1, XS: 39.0 (X direction range: 39.0), YS:30.0 (Y direction range: 30.0).
Trial sewing area will show total stitches of pattern #1 and number of the current needle.

## 4.3 Setting of sewing speed

(1)Under default state, sewing speed is 1800rpm, and adjustment range: 100~2800rpm. Upper limit set-point of machine needle speed: default max. limit is 2500 rpm.

(2)Touch  key and the speed will increase by 100rpm and stops up to 2500rpm. Touch  key and the speed will decrease by 100rpm and stops up to 200rpm. Hold the key and the speed will increase or

decrease incessantly.

(3)Stop touching the key once it reaches the speed set-point. If sewing once more, please keep the adjusted sewing speed.

## 4.4 Pattern trial sewing

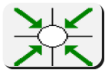
Operate the trial sewing after pattern selection.

(1) Touch  or  to enter trial sewing and the machine needle moved to sewing-start point.

(2)Touch  key once to go back 1 needle and stop at the 1st needle; touch  key once to go forward 1 needle and stop at the last needle. Continuously touch  or  to continuously backstitch or front-stitch.

(3) Sewing operation in trial sewing

Press the “Start” key, then press the auxiliary presser foot and middle presser foot. The machine start sewing from the current needle until completion of the entire pattern sewing, then exit trial sewing.

(4) Exit trial sewing, and touch  key with middle presser foot uplifted, so that presser moves to the original location and lift, then end the trial sewing.

## 4.5 Sewing

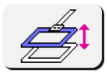
The sewing operation of this machine is as follows:

(1) Place the template:

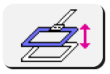
Place the template under the pinch roller arm (presser) and align the template with the stop lever.

(2) Press the template:

When the screen lock key of main interface indicates  , the automatic identification function of template is invalid:

After placing the template, press the pushing button or touch the key  and then the pinch roller arm (presser) and template are depressed.

When the screen lock key of main interface indicates  , the automatic identification function of template is valid:

After placing the template, the system will automatically judge if there is template. If there is template, the system will automatically retrieve the corresponding pattern file; at this time, press the pushing button or touch the key  and then the pinch roller arm (presser) is depressed; If there is no template, the system will display the prompt message “Not finding template”.

(3) Sewing:

Press the start button and motor X and Y will run to the sew starting position. The auxiliary presser foot and the middle presser foot are depressed. The sewing operation is started.

(4) End of sewing:

After ending the sewing, the principal axis motor will return to the zero point. The middle presser foot auxiliary presser foot are uplifted. The template will be back to the starting position. The stop lever of the template and pinch roller arm(presser) are uplifted.

(5) Remove the template:

After finishing the sewing, remove the template and finish the sewing operation. Follow the Step 1-Step4 to continue the next sewing operation.

Instructions: if the patter file include the information such as dotting and line-drawing, the dotting and line-drawing operation can be operated during the sewing process.

## 4.6 Emergency stop

### 4.6.1 Machine locking under main interface

Under main interface, press emergency stop switch on the machine and “STOP” will be displayed in red at the lower left corner of pattern display area. Every key is deactivated once the machine is locked. Press emergency stop key and the machine will be activated.

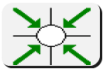
### 4.6.2 Emergency stop in sewing

During the sewing process, if thread break, needle break, lower thread exhaustion or any other condition requires emergency sewing stop occurs, you can use the emergency stop function to intermit sewing, and then continue the uncompleted pattern sewing after failures are dealt with.

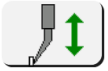
(1) Under sewing state, press emergency stop switch on the machine and sewing will stop automatically, with principal axis stopped at upper needle position, with presser pressed and stopped at the original position and middle presser foot uplifted, so that the machine operates no more and it will show the “Emergency stop” interface.Press emergency stop switch to unlock the principal axis so that pattern display area indicates the current needle stopping position.

(2) Touch  or  key to backstitch or front-stitch; however, it will constantly backstitch or front-stitch if touching the key continuously.

(3) If you want to continue sewing, press the “Start” key and continue to sew.

(4) If you want to cancel sewing, touch  key with middle presser foot uplifted and presser will return to the origin and lift automatically.

## 4.7 Threading

Touch  key under the main interface and press middle presser foot to perform the threading motion.

# 5. Auxiliary Interface of Main Interface

In auxiliary interface of main interface, the lower thread winding and other manual operation can be operated.

In the main menu interface, touch the key  to enter the auxiliary interface of main interface, as shown as Figure 5-1:

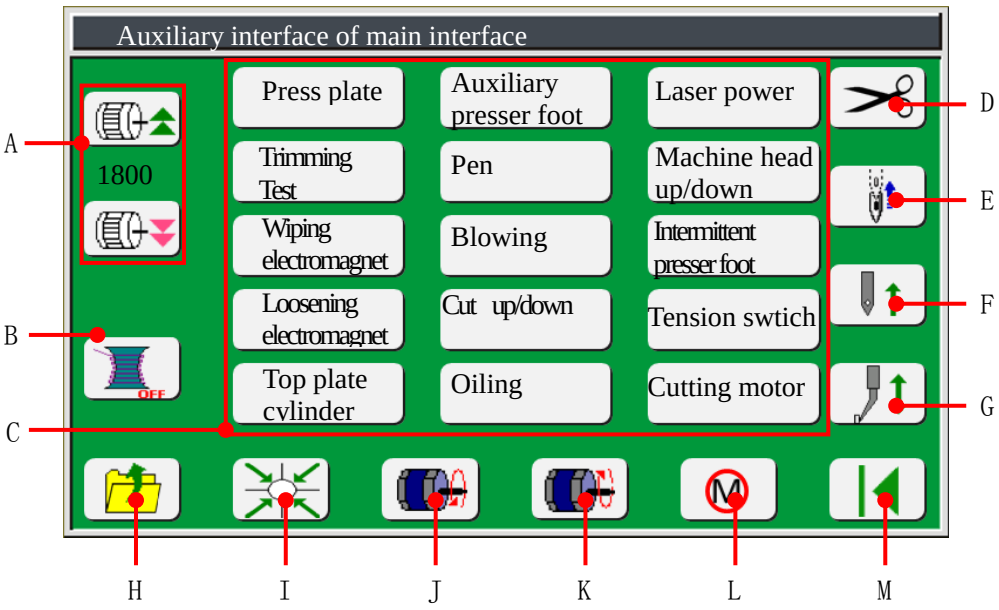



Figure 5-1 Auxiliary Interface of Main Interface

A: Set the thread winding speed.

B:  /  Touch this key to set whether the thread winding is allowable.

Winding operation:

When the lower thread of the cop latch almost runs out, take out of the cop latch and wind the thread.

(1) Enter the winding mode

In the auxiliary interface of main interface, touch  /  . If the key is  , it means the thread winding is allowable.

(2) Start thread winding

Press the start button; the sewing machine will rotate. Press the start button again, the thread winding ends.

C: Output detection area to detect the output of output signal.

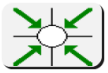
D:  Touch this key to complete the thread-trimming operation.

E:  Touch this key, principal axis motor return to origin.

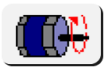
F:  /  Touch this key to adjust the uplifting and depressing of machine needle.

G:Touch this key to adjust the uplifting and depressing of middle presser foot.

H:  Touch this key to enter the main menu interface.

I:  Touch this key to return to the origin.

J:  Forward rotation key of principal axis: touch this key an d the principal axis will gradually forward rotate.

K:  Backword rotation key of principal axis: touch this key an d the principal axis will gradually backward rotate.

L: Touch  to enter the manual frame moving interface.

M: Touch  to return to the main interface.

# 6. Manual Operation Interface

In the manual operation interface, the manual movement presser and rotating principal axis can be operated.

In the auxiliary interface of main interface, touch  to enter the manual operation interface, as shown in Figure 6-1:

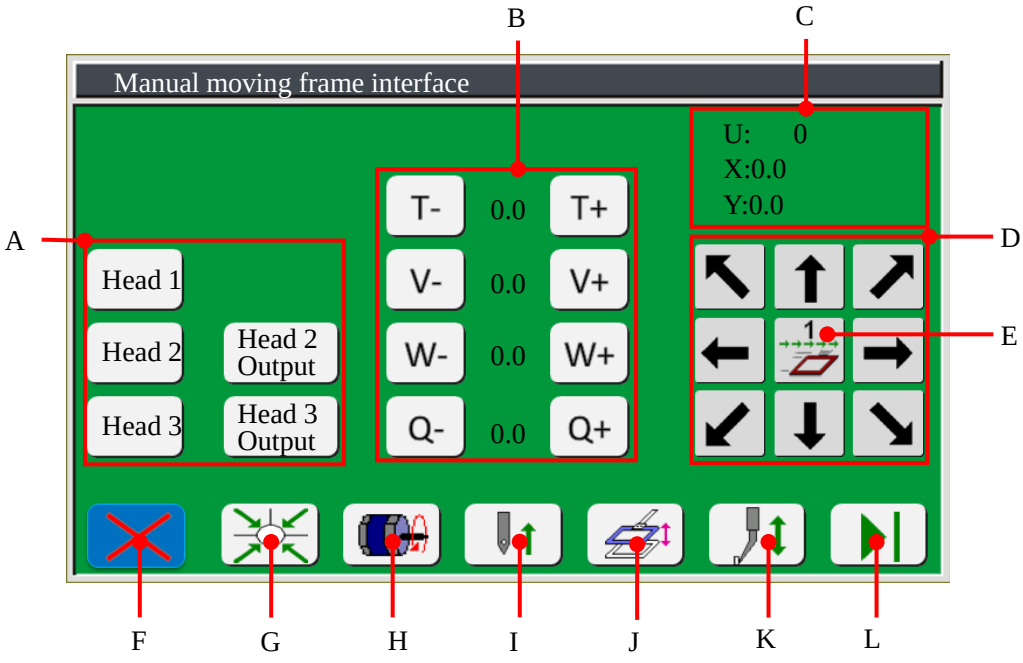



Figure 6-1 Manual Operation Interface

A: Head-offset set area.

B: Motor move area.

Forward / Backward transmission of T-axis motor.

Forward / Backward transmission of V-axis motor.

Forward / Backwardtransmission of W-axis motor.

Forward / Backwardtransmission of Q-axis motor.

C: Display the principal axis angle ,the coordinate in X direction and the coordinate in Y direction.

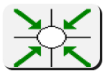
D: Eight direction keys.

Touch this key and the needle will move in the designated direction of arrow.

E: Change the drafting speed.

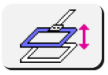
 Low speed  Middle speed  High speed

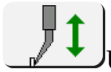
F:  Exit key to return to the auxiliary interface of main interface.

G:  Zero return key. Touch this key to make the needle run to the zero point of sewing machine (here the zero point refers to the position of photoelectric sensor installed in the head of sewing machine).

H:  Forward rotate the principal axis.

I:  /  Uplifting/depressing the machine needle, touch this key and the needle will stay at the Upper location/Down location.

J:  Uplifting/depressing the presser. Touch this key once, and the presser will be depressed; touch again, and the presser will be uplifted.

K:  Uplifting/depressing the presser foot. Touch this key once, and the presser foot will be depressed; touch again, and the presser foot will be uplifted.

L:  Next page. Touch this key to enter the next page of manual operation interface**.**

# 7. Setting Interface of Sewing Count

In the main menu interface, touch keys  /  and enter the setting interface of sewing count, as shown in the figure:

Touch the key  to enter the setting interface ofproduction counter, as shown in Figure 7-1.

Touch the key  to enter the setting interface oflower thread count, as shown in Figure 7-2.

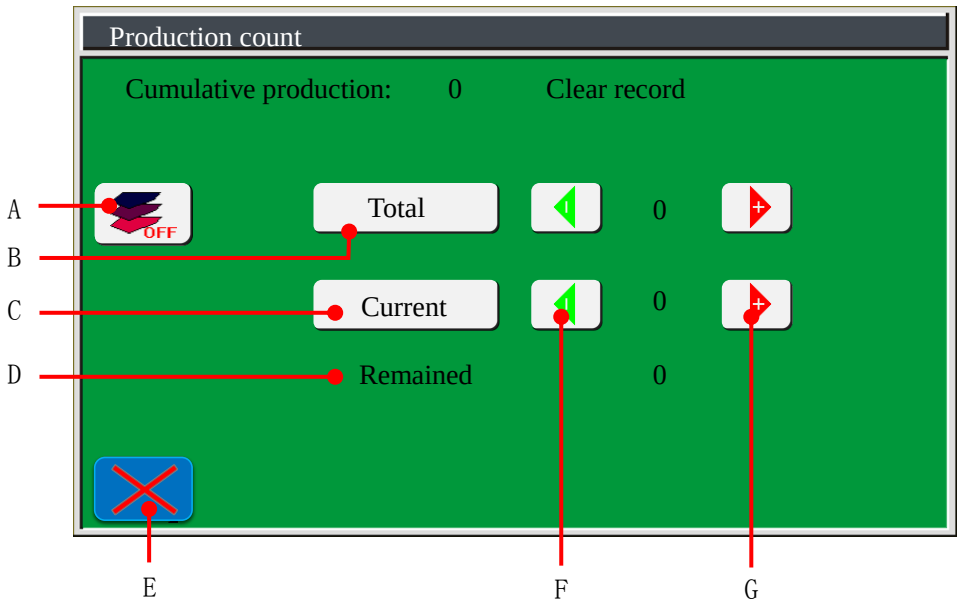



Figure 7-1 Setting Interface of Production Counter

A:Touch  /  to set the nullity/ effectivity of counter.

B:Touch  to set total number of products.

C:Touch  to set current number of products

D: Remained number of products to sew.

E:  Exit key to return the main interface.

F: Touch  to make the value decrease progressively.

G: Touch  to make the value increase progressively.

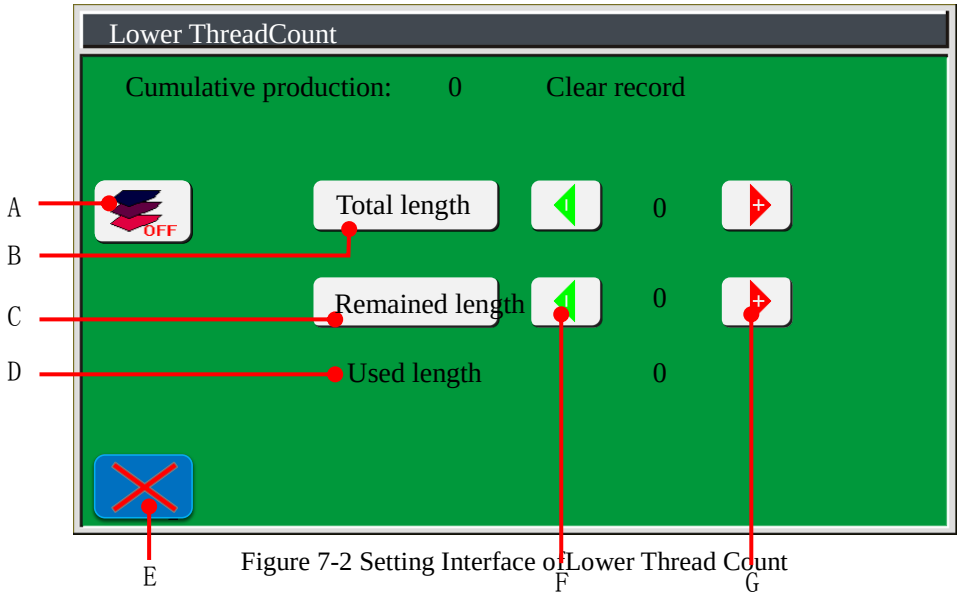



Figure 7-2 Setting Interface of Lower Thread Count

A: Touch  to set the nullity/ effectivity of counter.

B: Touch  to set total length of thread.

C: Touch  to set remained length of thread.

D: Used length of thread.

E:  Exit key to return the main interface.

F: Touch  to make the value decrease progressively.

G: Touch  to make the value increase progressively.

# 8. Pattern Management

Under main interface, touch key  and then touch  to enter pattern management interface shown in Figure 8-1:

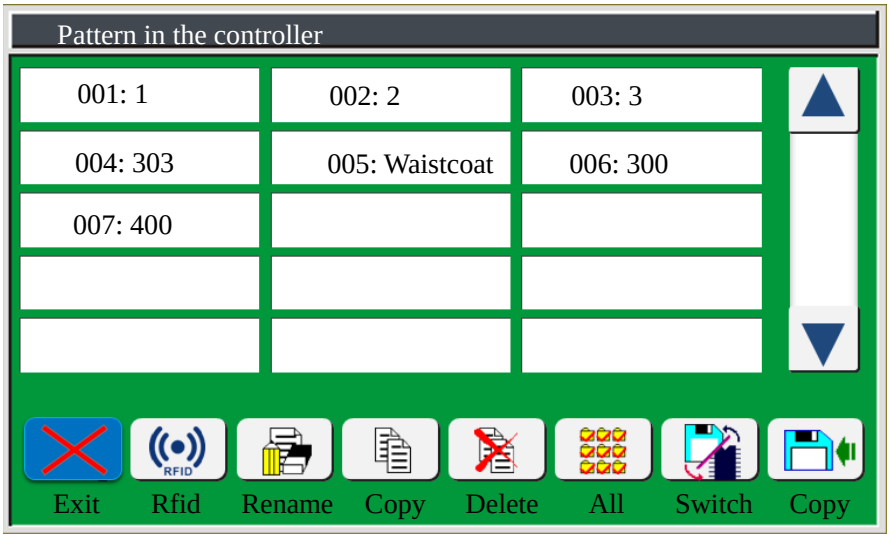
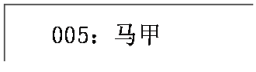



Figure 8-1 Pattern Management Interface

## 8.1 Pattern selection

Pattern selection: Touch pattern number's file folder such as  or mark all the files via touching All  . It is indicated as follows:

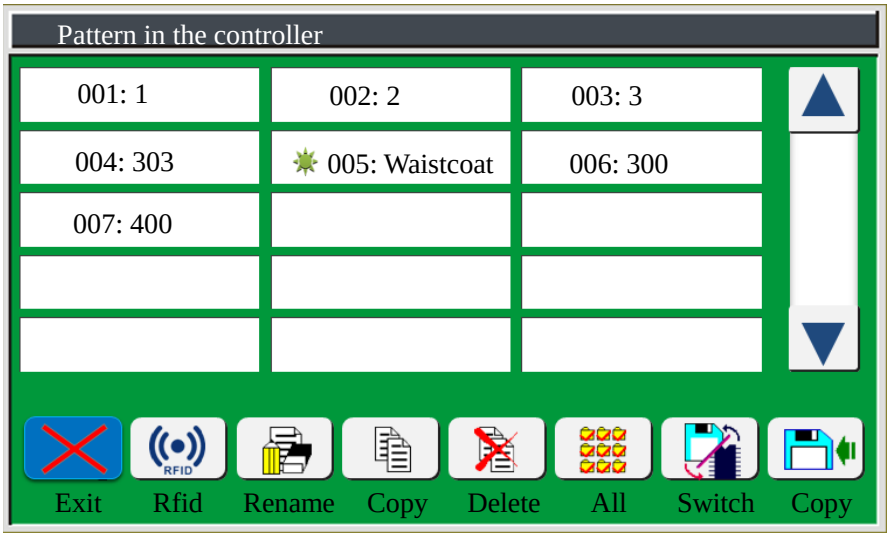



Figure 8-2 When a single pattern is selected

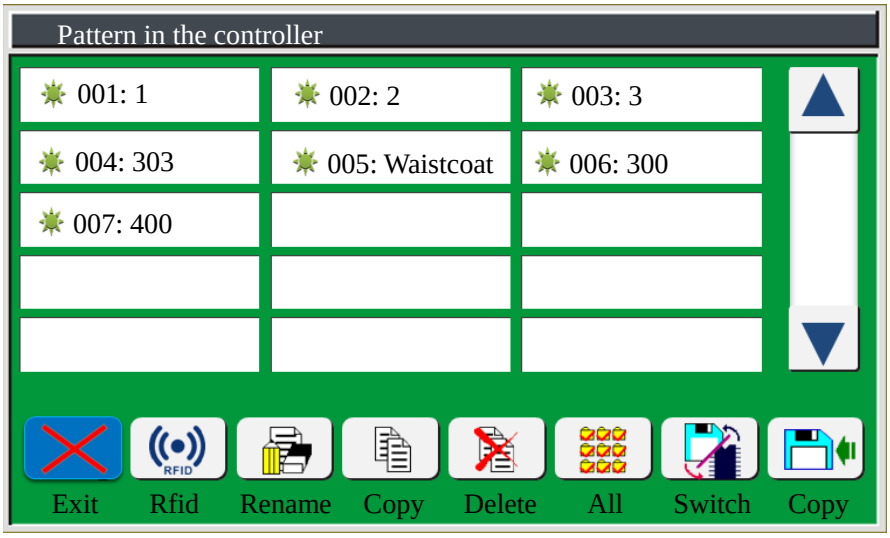



Figure 8-3 When all patterns are selected

If pattern file document occupies more than 1 page, touch the key  or  to turn page of pattern file.

## 8.2 Pattern deletion

(1) After pattern selection, touch  to delete the selected file. For instance, if selecting the selection of a single pattern number 005: Waistcoat, it will delete the number 005: Waistcoat pattern. If touching the key “Check All”, then delete the pattern and all patterns in current page will be deleted.

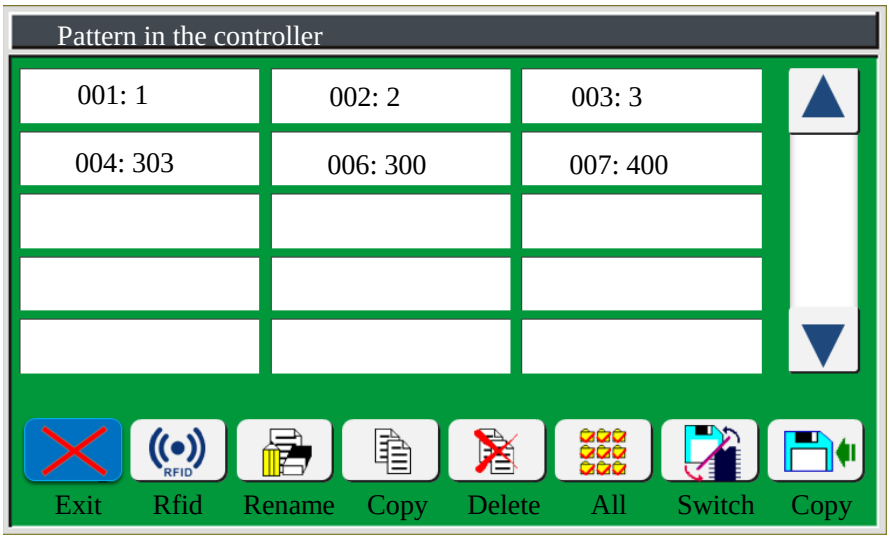



Figure 8-4 When deleting 005: Waistcoat

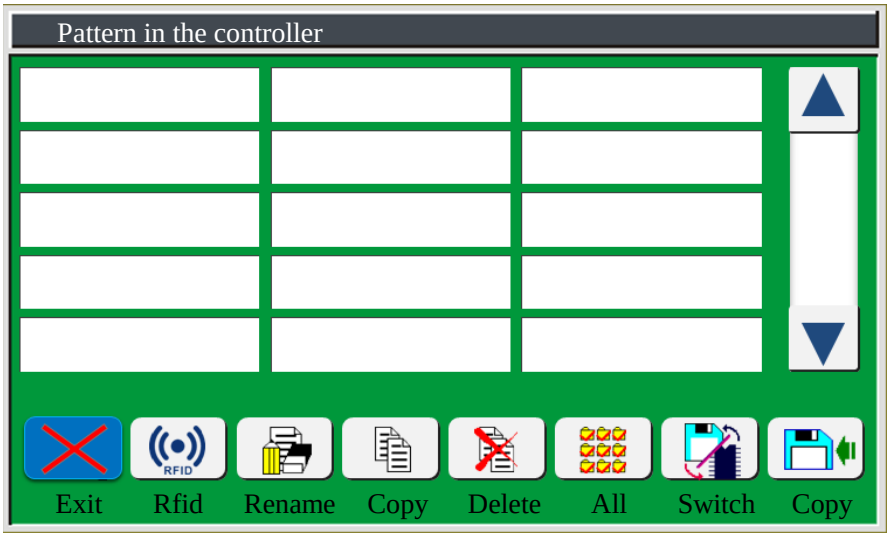



Figure 8-5 When deleting all patterns

(2) Touch the key  to return to the main menu. Then automatically refreshed the current pattern number. On the main interface, the former pattern is deleted so as to display the first pattern.

## 8.3 Pattern copy-in

(1)Insert External Memory and ensure the External Memory complies with the following conditions:

1) FAT32 formatted External Memory: adopt the FAT32 formatted External Memory.

2) Under the C root directory, copy in the pattern file--***.NTP generated by user via sewing machine drafting software. NTP: the template machine identifies the file as data of pattern file.

(2) Touch the key  on the pattern management interface to switch display the pattern in controller and External Memory. When “Pattern in external memory” will be displayed, it is indicated as follows:

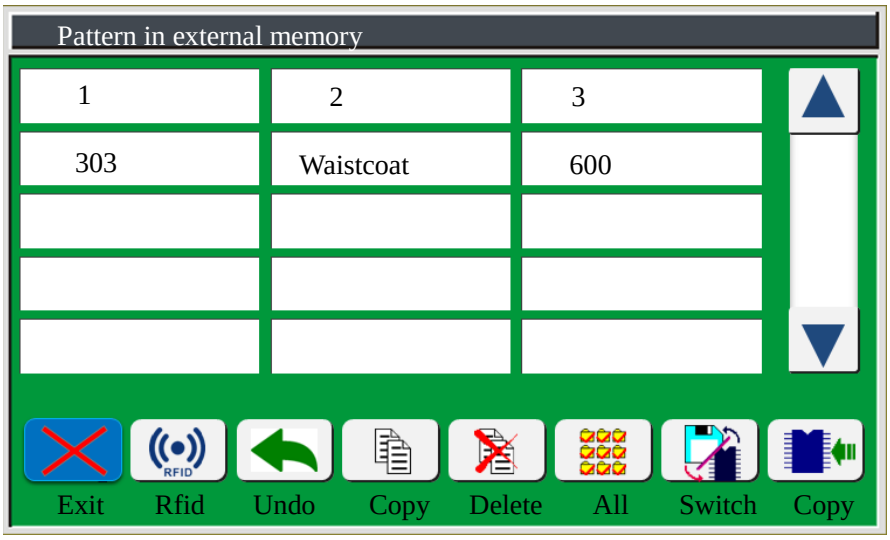



Figure 8-6 When displaying the pattern data in External Memory

Select the pattern needed to be copy into controller, touch  key to copy pattern from External Memory to controller.

(3) After entry of copying, check External Memory for presence and the prompting frame will give this indication. If there is pattern data in External Memory, the frame will indicate “Copying pattern” till disappearance of the frame upon completion of the pattern copying. Pattern data in External Memory will be saved in sewing machine. Please perform same name check when copying the pattern; if so, it shall not overlap the pattern in the controller, with pattern of a different name copied into the controller.

(4) External Memory error: If incorrectly reading External Memory data, it will stay at the pattern management interface, and show possible error data on an ad hoc basis. External Memory error prompting frame may cover:

Ł External Memory is unidentified.

Ł External Memory contains no pattern file.

Ł External Memory stores too much data so as not to be put in even if all patterns on the FLASH are deleted.

(5) After finishing copying, touch  key to view all patterns in the controller that whether pattern is copied; also touch  key and it will return to the main interface, so that you can view whether pattern is copied.

Instructions: after the copy-in of pattern file from the external memory, firstly enter the pattern adjustment position of datum interface, then simulate the sewing operation. Carry out the sewing operation after passing the simulation of sewing verification.

## 8.4 Pattern copy-out

(1) Touch  key on the pattern management interface to switch display the pattern in controller and External Memory. When “pattern in controller” will be displayed, it is shown in Figure 8-1. Select the pattern needed to be downloaded into External Memory, touch  key to download pattern from controller to External Memory.

(2) After entry of download, check External Memory for presence and the prompting frame will give this

indication. If there is correct check for External Memory, copy pattern file into the External Memory with “It is copying” prompting frame displayed. Please perform same name check when copying the pattern; if so, it shall not overlap the pattern data in the External Memory.

(3) External Memory error: If incorrectly reading External Memory data, it will stay at the pattern management interface, and show possible error data on an ad hoc basis. External Memory error prompting frame may cover:

Ł External Memory is unidentified.

Note: After finishing the pattern copy-in and copy-out operation on the pattern management interface, please touch the key  to draw External Memory after exiting the interface.

## 8.5 Pattern renaming

Rename the pattern in the controller, taking the change the pattern name 007：400 to pattern name 007：800 for an example to explain the pattern renaming operation. The detailed operation is as follows:

(1) After selecting pattern 007：400, touch the key  to enter the new pattern name input interface, shown as the following figure:

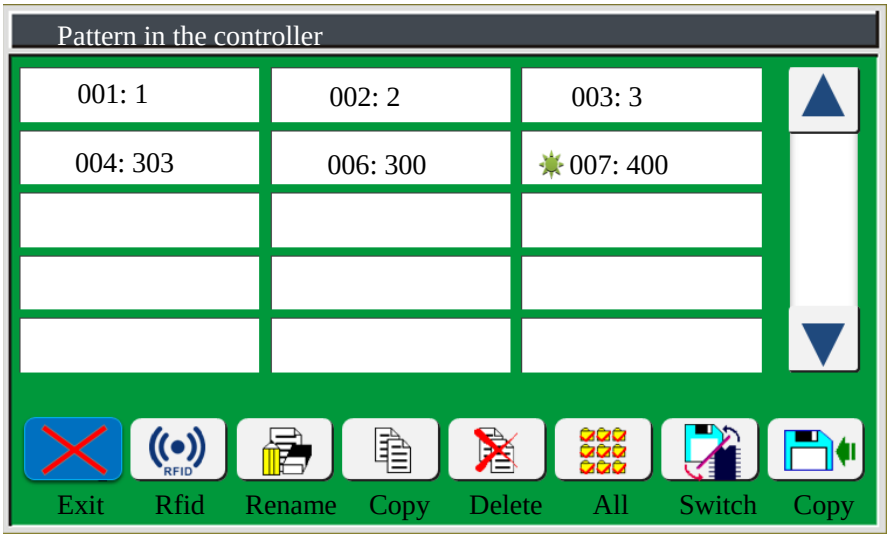



Figure 8-7 Before renaming

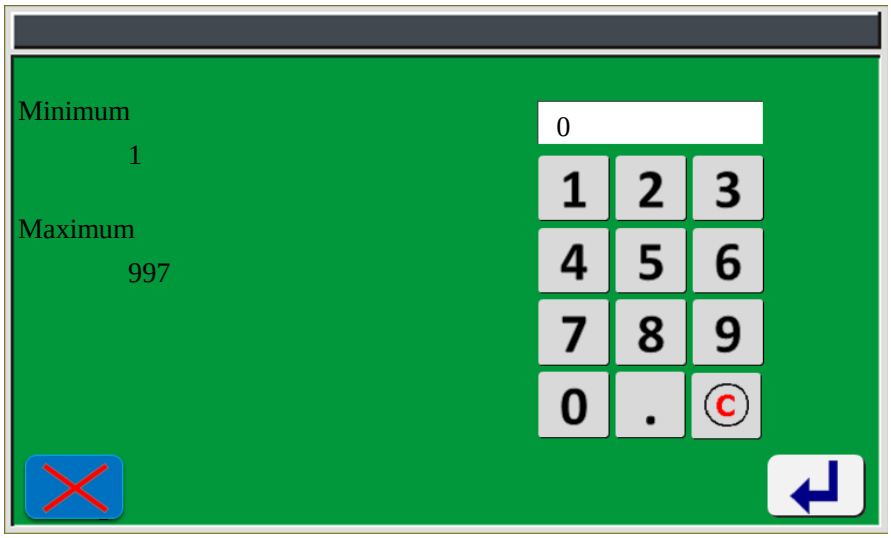



Figure 8-8 Input New Name of Pattern

(2) Input the new name of pattern, and press the confirmation key to complete the renaming operation.

Input the new name of pattern 10, and press the confirmation key to complete the renaming operation shown as the following figure.

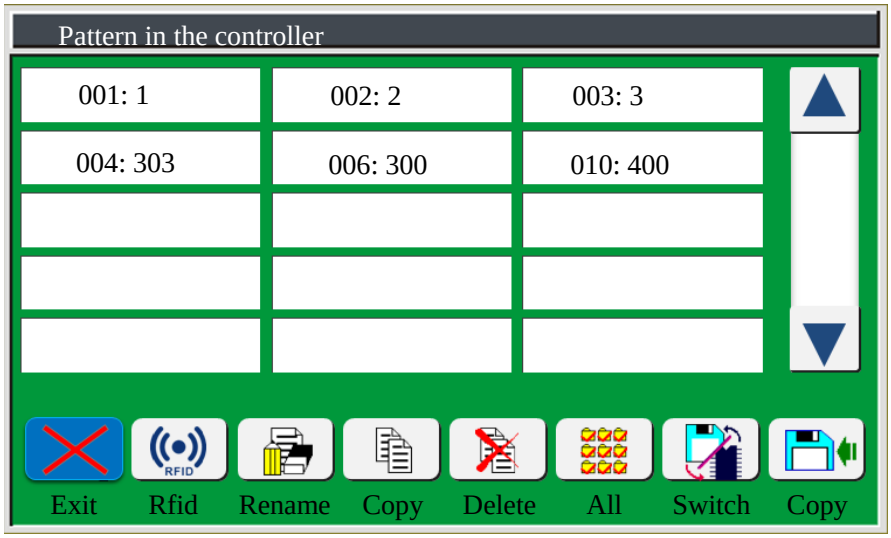



Figure 8-9 After Renaming

## 8.6 Pattern duplication

Copy the pattern in the controller.

After selecting pattern, touch the key  to complete the pattern file duplication.

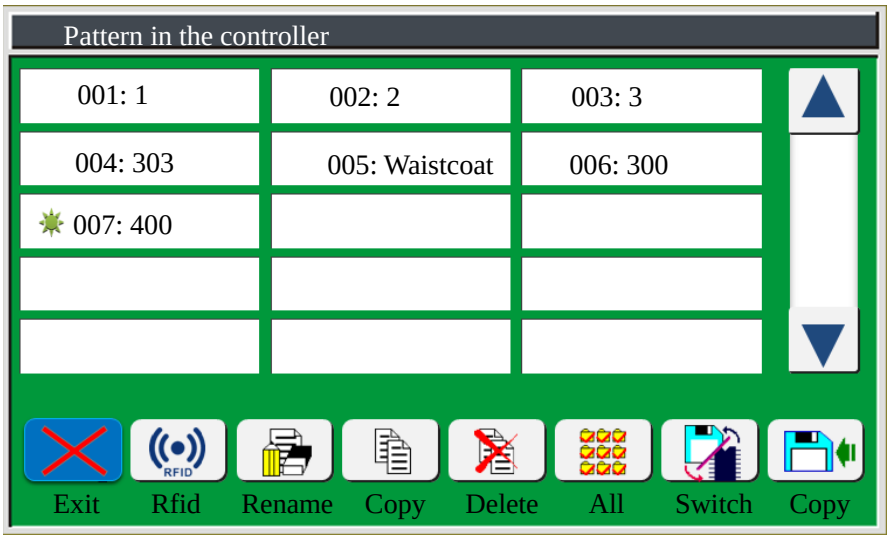



Figure 8-10 Before Duplicating Pattern No.400

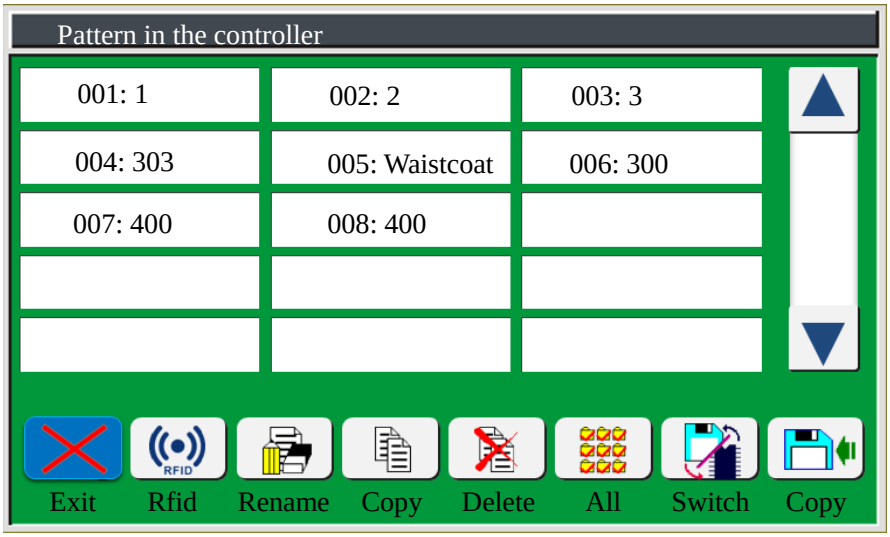



Figure 8-11 After Duplicating Pattern No.400

# 9. Drafting

Under main interface, touch the key  and then touch the key  to enter manual drafting mode. Needle bar will return to origin with presser pressed, so that X and Y axes return to mechanical origin with the result of principal axis unlocking.

After entry of drafting interface, dot input is used in default setting, with max drafting stitches up to 10000.

## 9.1 Interface introduction

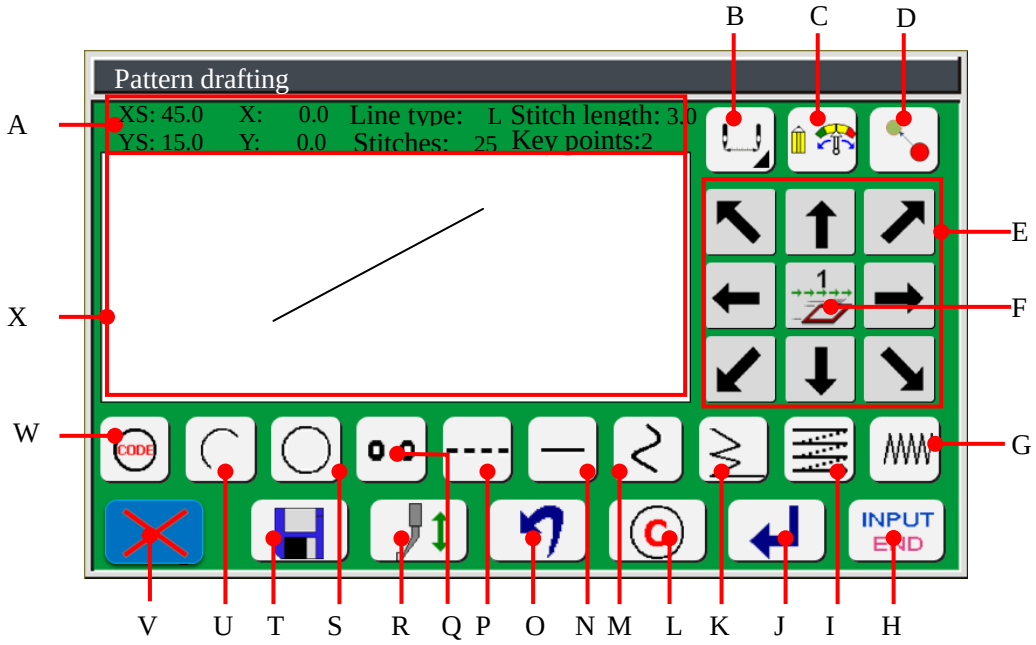
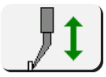



Figure 9-1 Drafting Interface

| No. | Icon | Name | Description |
|---|---|---|---|
| A | Parameter display | Pattern parameter display area | XS/YS: the current needle's coordinates; X/Y: increase of coordinates of current needle in relation to last key point; stitches: total stitches of the currently drawn figure, stitch length: The current length. Line type: Line type of the needle (D-dot input, K-empty motion, L-straight line, T-ellipse, Y-circle, H-arc, Q-free curve). Key point: Number of point needed by the current line type. |
| B |  | Stitch length | Touch  to set the stitch length |
| |  | Speed setting | Set the speed |
| D |  | Second origin | Touch direction key to move machine needle to the appropriate position and touch  key to set current machine needle's position to Second origin, and its coordinate will be indicated by red empty circle. |
| E | Direction key | Direction | Touch direction shown in the figure to move presser with direction key in the same direction as the pattern. |
| F |  | Change of drafting speed |  Low speed  Middle speed  High speed (Set the speed value in user parameter) |

| | | | |
|---|---|---|---|
| G |  | Zigzag stitches | Touch this key to enter the zigzag stitch setting |
| H |  | End | End the input of key point on "free curve" segment; generate the free curve(when the line type is free curve, display the key  ) |
| I |  | Multiple stitches | Touch this key to enter the multiple stitch setting |
| J |  | Confirmation | Enter key point of line type to confirm |
| K |  | Fastening stitches | Touch this key to enter the fastening stitch setting |
| L |  | Delete all segments | Delete all currently drawn line segments |
| M |  | Free curve input | Input multiple key points (at most 127) until inputting the current free curve by End key. |
| N |  | Straight line input | Input 2 key points to generate a straight line |
| O |  | Delete current segment | Delete current segment |
| P |  | Empty motion input | Input starting point and ending point of empty motion |
| Q |  | Point input | Input all key points in order. |
| R |  | Uplifting / depressing of middle presser foot | Adjust the middle presser foot to be uplifted or depressed |
| S |  | Circle input | Input 3 key points to generate a circle. |
| T |  | Save | Save the drawn pattern |
| U |  | Arc input | Input 3 key points to generate an arc |
| V |  | Return | Return from Drafting to main interface |
| W |  | Additional functions | Setting key on the needle function. |
| X | Pattern display | Pattern display | Display drafting pattern. |

## 9.2 Drafting flow

(1) Touch the M key to set parameter and select entry mode and stitch length, with application entry (zigzag

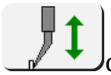
stitches, fastening stitches and multiple stitches)

valid for the current segment. Press the key  and it will return to drafting interface.

(2) Touch direction key to move the point to a proper position.

(3) Touch the key  to define the current point. Continuously move the point as per inputted line type until completion of the current segment with curve generated.

(4) User can add additional function to the last needle of the current line segment. You can skip this step if unnecessary.

(5) Touch the key  during drafting process to adjust the lifting or pressing of middle presser foot.

(6) Repeat 1-4 steps (step 1 overlooked if parameter is the same as the previous one). User not satisfied with the line segment can touch keys  and  to delete the current segment or all segments until drawing of the pattern.

(7) Touch the key  to save the currently drawn pattern.

## 9.3 Drafting parameter

### 9.3.1 Drafting parameters setting

(1) Stitch length setting: 0.1~12.7mm. Default stitch length: 3.0mm. Touch the key  to pop up stitch length setting interface shown as below:

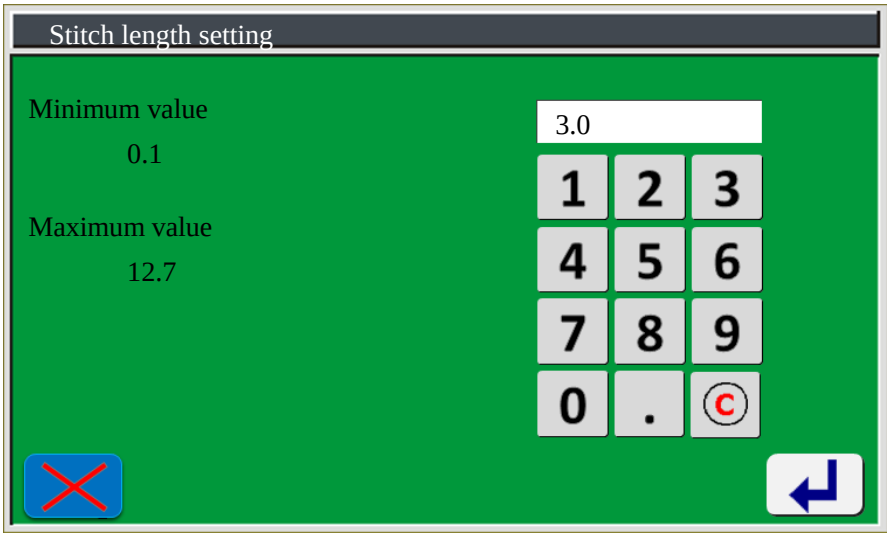



Figure 9-2 Stitch Length Setting Interface

Input stitch length to touch the key  and it will return to drafting parameters setting interface.

(2) Basic line type setting: dot, empty motion, straight line, ellipse, circle, arc, free curve.

(3) Application input setting: multiple stitches; zigzag stitches; fastening stitches; valid only for straight line, arc, circle, ellipse and free curve. However, there is no multiple stitches for ellipse.

## 9.3.2 Dot input

(1) Set line type parameter: Select dot input  .

(2) Touch direction key to move machine needle to the needed position and touch  key for confirmation, indicating stitches [XXXX].

Note: Please perform empty motion if the lengths between 2 dots are greater than 12.7mm.

(3) Repeat (2) until ending dot input.

(4) Change operation: you can change drafting parameter in operation; touch the key  to cancel input of the previous type; touch the key  to cancel all inputs

## 9.3.3 Straight line input

Note: Two points shall be inputted to create a straight line.

Operation steps:

(1) Set drafting parameter: Select input straight line type  .

(2) Touch direction key to display key dot [1]. Meanwhile, the needle will move in the designated direction.

(3) As the current dot is the 1st one  , touch direction key to move the needle to the 2nd dot, and touch the key  to confirm this dot. It will show stitches [XXXX] with completion of straight line input.

(4) Change operation: you can change drafting parameter in operation; touch the key  to cancel input of the previous type; touch the key  to cancel all inputs.

## 9.3.4 Arc input

Note: Three points are not on the same straight line, shall be inputted to create a circle.

Operation steps:

(1) Set the line type parameter: select input arc type  .

(2) As the current dot is the 1st one, touch direction key to move the needle to the 2nd dot, and touch the key  to confirm this dot. It will indicate key dot [2]; then touch direction key to move presser to the 3rd point and touch the key  for confirmation. In this way, it will indicate stitches [XXXX] with arc created.

(3) Change operation: you can change drafting parameter in operation; touch the key  to cancel input of the previous type; touch the key  to cancel all inputs.

## 9.3.5 Free curve input

(1) Set line type parameter: select input free curve type  .

(2) As the current dot is the 1st one, touch direction key to move presser to the 2nd dot and touch the key  for confirmation. It will indicate key dot [2]; then touch direction key to move presser to the 3rd dot and touch the key  for confirmation. Input multiple dots in order and touch the key  to end input of the current free curve with stitches [XXXX] displayed, generating a free curve.

(3) Change operation: you can change drafting parameter in operation; touch the key  to cancel input of the previous type; touch the key  to cancel all inputs.

## 9.3.6 Circle input

Note: Three points are not on the same straight line and shall be inputted to create a circle.

Operation step:

(1) Set line type parameter: select input circle type  .

(2) As the current dot is the 1st one, touch direction key to move presser to the 2nd dot and touch the key  for confirmation. It will indicate key dot [2]; then touch direction key to move presser to the 3rd dot and touch the key  for confirmation. It will show stitches [XXXX], generating a standard circle.

(3) Change operation: you can change drafting parameter in operation; touch the key  to cancel input of the previous type; touch the key  to cancel all inputs.

## 9.3.7 Empty motion input

Operation step:

(1) Set line type parameter: select input empty motion type  .

(2) As the current dot is the 1st one, touch direction key to move presser to the 2nd dot and touch the key

 for confirmation as ending dot of empty motion.

(3) Modification operation: empty motion dot is cancellable. You can touch the key  to cancel input of the previous type; touch the key  to cancel all inputs.

## 9.3.8 Multiple stitches

(1) Set drafting parameter, touch the key  to enter multiple stitches interface.

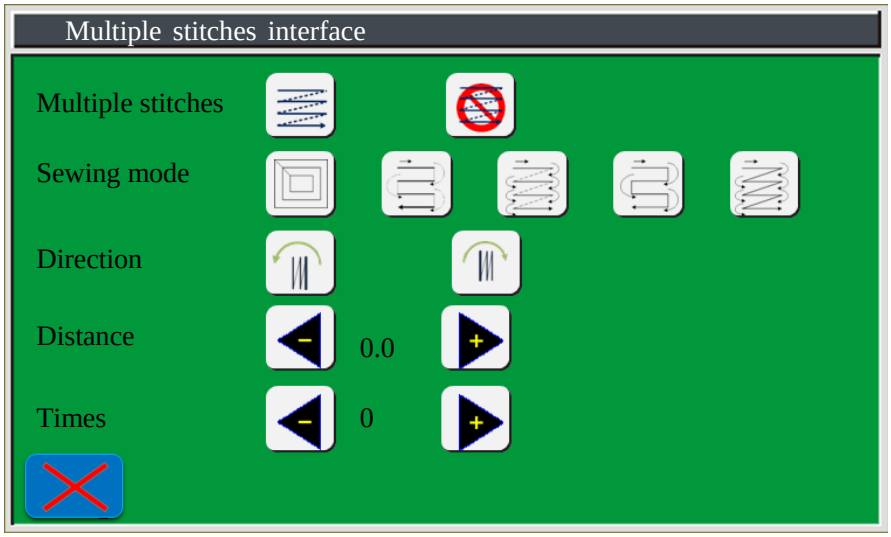



Figure 9-3 Multiple Stitches Setting

(2) Touch the key  to set up multiple stitches parameter and touch the key  to cancel it.

(3) Sewing mode: Touch  to select stitch modes: compensating stitch, invert moving without sewing, equidirectional moving without sewing, inverse stitch and equidirectional stitch. Compensating stitch is only valid for circle.

(4) Touch the key  to create multiple stitches to the left of sewing direction. You can also do this to the right of stitching direction by touching key  .

(5) Sewing length: Superimposing stitch length, range: 0~12.7mm.

(6) Times of sewing: 0~9

(7) Touch the key  and it will return to parameters setting interface.

## 9.3.9 Zigzag stitches

(1) Touch the key  to set up this drafting parameter and enter zigzag stitches interface.

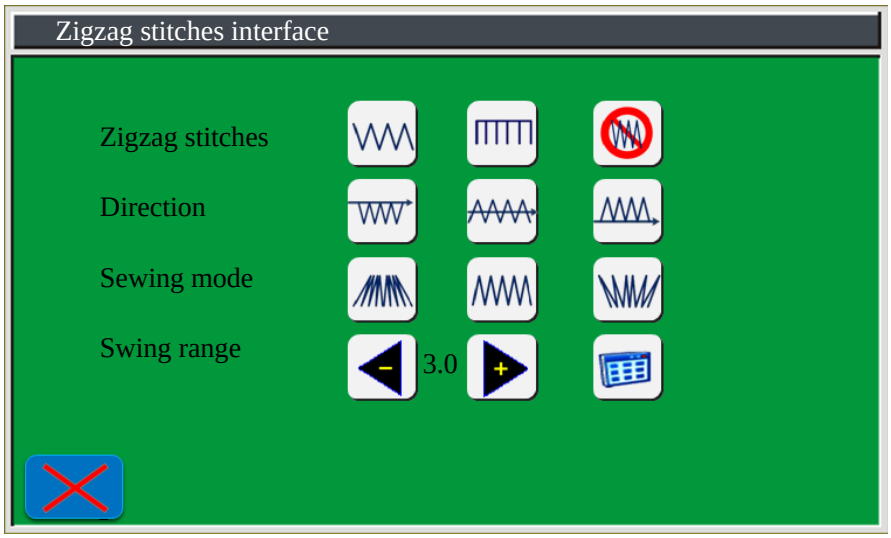



Figure 9-4 Zigzag Stitches Setting

(2) Touch the key  to set "V" stitches; touch the key  to select "E" stitches; touch  to cancel zigzag stitches setting.

(3) Touch the key  to select direction of zigzag stitches: Right, mid, left. If selecting mid of the direction, please define position of falling needle to its left or right.

(4) Touch the key  to select generating zigzag stitches as per convergence type; however, touch key  to select generating zigzag stitches as per normal type and touch  to select generating zigzag stitches as per divergence type.

(5) Touch keys  and  to set swing range: 0-12.7mm, not generating zigzag stitches if the swing is 0.

(6) Touch  to return to parameters setting interface.

## 9.3.10 Fastening stitches

(1) Set drafting parameter: touch key  to enter fastening stitches interface, with invalid stitches if fastening stitches exceed that of the current segment.

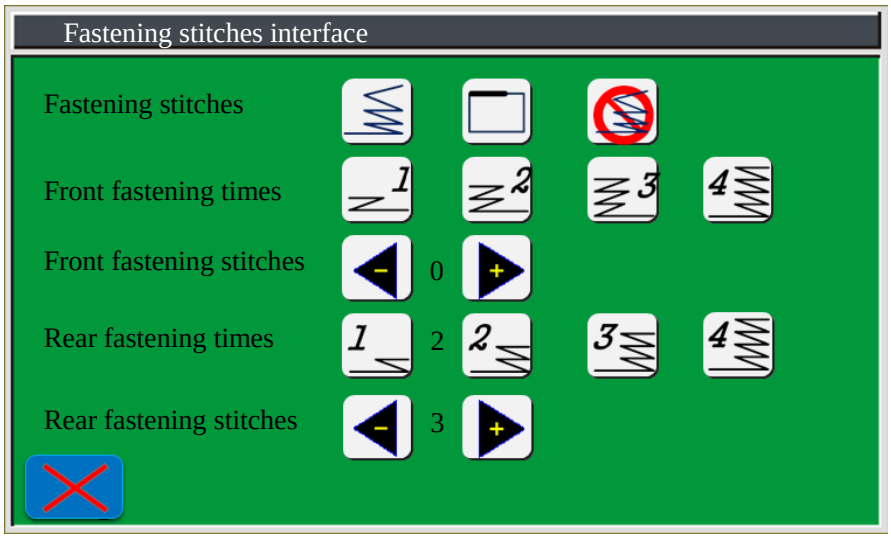



Figure 9-5Fastening Stitches Setting

(2) Touch the key to select front/backstitching used for both ends of unenclosed line type such as straight line, free curve. Touch the key to select superimposed stitches used for closed line type such as circle. You can touch the key to cancel fastening stitches setting, If you select superimposed stitches, the front fastening will be invalid.

(3) Touch o select front fastening times. Touch keys and to set up front fastening times.

(4) Touch o select rear fastening times. Touch keys and to set up rear fastening times.

(5) Touch the key to return to parameters setting interface.

## 9.3.11 Selection of additional function

(1) Touch the key to enter additional function selection interface shown as below:

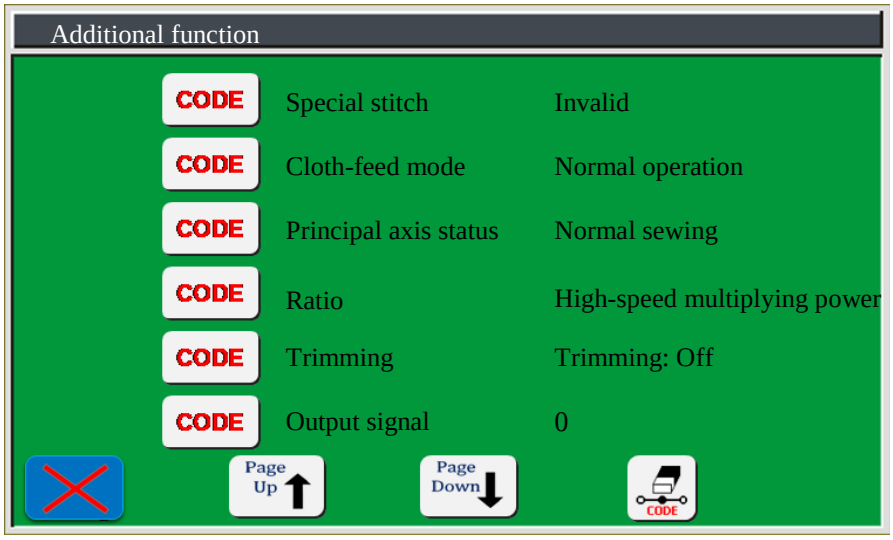



Figure 9-6 Additional Function Setting Interface

(2) Interface description:

| Icon | escription | Icon | Description |
|---|---|---|---|
| CODE | Setting key of additional functions | CODE | Deletion key of additional functions |
| Page Up | "Page Up" key | Page Down | "Page Down" key |
| | Return | | |

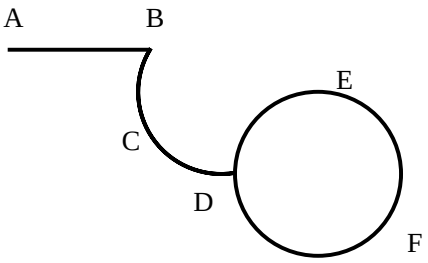
**Example:** select trim thread here: touch the key CODE in front of "Trim thread". Touch SET in the popup interface to select "Trim Thread: On" key. When it reaches the last needle in the line segment, do trim thread and then continue stitching.

(3) Touch Return key to complete the setting.

## 9.4 Application Example

**Example 1:**

Design the below figure: The 1st segment AB is straight line (stitch length is 2.0mm), the 2nd BCD is arc (stitch length is 2.5mm), the 3rd segment DEF is circle (stitch length is 3.0mm).




**Operation description:**

(1) Define sewing-start point:

After entry into drafting interface, touch direction key to move the needle to A point and press the key

 for confirmation. Now point A is the sewing-start point.

(2) Select straight line:

Select straight line type  with stitch length set as 2.0. After this, press the key  to return.

(3) Input straight line ending point:

Touch direction key to move the needle to point B and press the key  for confirmation. Now the picture display box will indicate the generated straight line trace.

(4) Select arc:

Select arc type  with stitch length set as 2.5. After this, press the key  to return.

(5) Input arc 2nd point and ending point:

Touch direction key to move the needle to point C and press the key  for confirmation; then touch direction key to move the needle to point D and press the key  for confirmation. Now the picture display box will indicate the generated arc trace.

(6) Select circle:

Select circle type  with stitch length set as 3.0. After this, press the key  to return.

(7) Input the circle 2nd point and ending point:

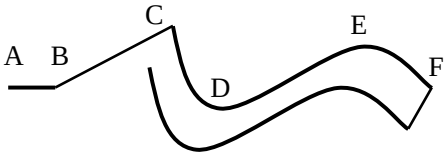
Touch direction key to move the needle to point E and press the key  for confirmation; then touch direction key to move the needle to point F, and press the key  for confirmation. Now the picture display box will indicate the generated circle trace.

(8) Save pattern:

Press Save key  to enter save interface to select the pattern name to be saved, then press key  to save it and return to the main interface.

**Example 2:**

Design the below figure: The 1st segment AB is dot inputted, the 2nd segment BC is empty motion, the 3rd segment CDEF (add multiple stitches to free curve, parameter: inverse empty motion, rightward) is free curve (stitch length 3.0mm), for 2 times.




**Operation description:**

(1) Define sewing-start point:

After entry into drafting interface, touch direction key to move the needle to point A and press the key

 for confirmation. Now point A is the sewing-start point.

(2) Select dot input:

Select dot input  .

(3) Define ending point of dot input:

Touch direction key to move the needle to point B and press the key  for confirmation. Now picture display box will indicate the generated dot input trace.

(4) Select empty motion:

Select empty motion type  .

(5) Input ending point of empty motion:

Touch direction key to move the needle to point C and press the key  for confirmation. Now picture display box will indicate the generated empty motion trace.

(6) Select free curve:

Select free curve type  (default stitch length 3.0); then press the key  to enter multiple stitches parameters setting interface and press the key  to start multiple stitches setting, the key  to select inverse moving without sewing and the key  to select right direction, key  to set the length as 3.0 in sewing length bar and press  key to set 2 times of sewing in times of sewing bar. After the above settings, press the key  to return to drafting interface.

(7) Input key point of free curve:

Touch direction key to move the needle to point D and press the key  for confirmation; then press direction key to move the needle to point E and confirm it in the same way; touch direction key to move it to point F and touch the key  to end the input. Now picture display box will indicate the generated free curve trace.

(8) Save pattern:

Press Save key  to enter save interface and input the pattern name to be saved and then press the key  to finish this and return to the main interface.

## 9.5 Alarm and solution

Drafting interface may indicate the below alarms:

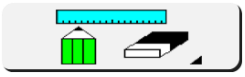
1. Pattern beyond limit of presser: The latest generated segment will be deleted if this alarm occurs.
2. Three points on a straight line failing to create an arc: The 3rd point will be invalid which shall be inputted

once again if this alarm appears.

3. No line type generated: The current point will be invalid which shall be inputted once again if this alarm comes.

4. Total number of pattern needle over 10000: The latest generated segment will be deleted if this alarm occurs.

# 10. Pattern Modification

Under main interface, touch the key  and then touch  to enter pattern modification function.

In the pattern modification interface, the current pattern can be modified by means of segment modification, pattern point modification, and pattern multiplying power, pattern rotation and pattern mirror image.

## 10.1 Interface introduction

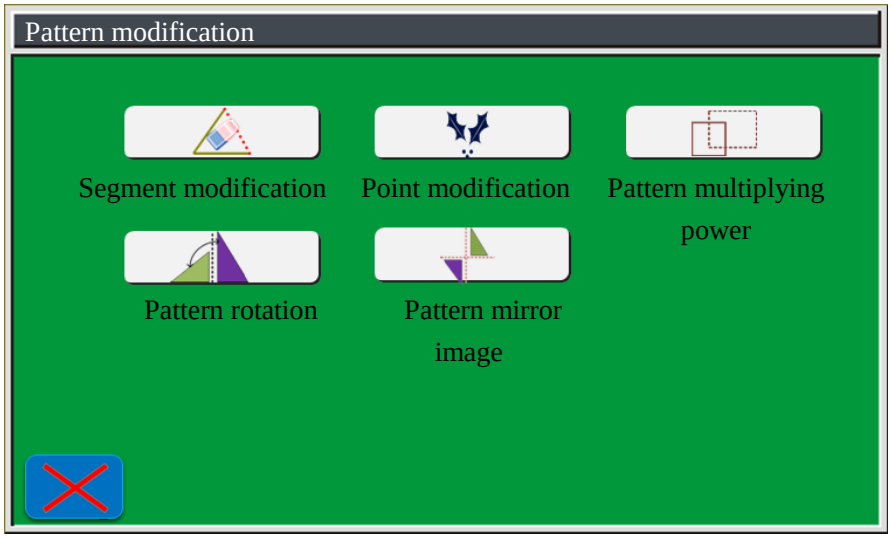
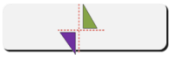



Figure 10-1 Pattern Modification Interface

Pattern modification key table

| Icon | Name | Description |
|---|---|---|
|  | Pattern modification | Modify the designated area of pattern |
|  | Point modification | Modify the single point of pattern |
|  | Pattern multiplying power | Set the pattern multiplying power |
|  | Pattern rotation | Rotate the pattern |
|  | Pattern mirror image | Mirror the pattern |

| | | |
|---|---|---|
| | Return | Return to main menu |

## 10.2 Pattern segment modification

In pattern modification interface, touch  to enter segment modification interface, such as shown in the figure below:

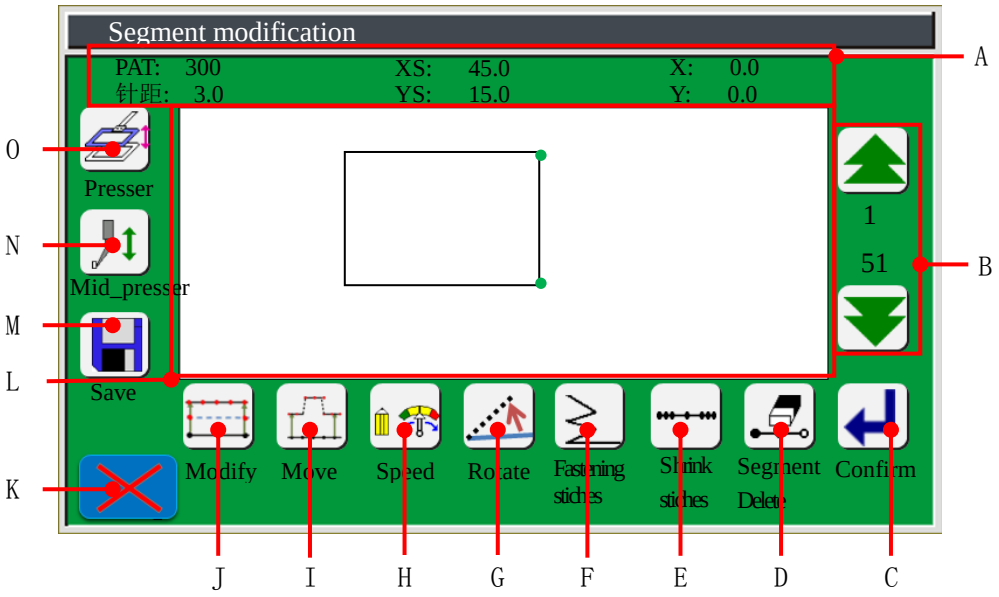



Figure 10-2 Segment Modification Interface

| No. | Icon | Name | Description |
|---|---|---|---|
| A | Parameter display | Current stitch parameter display | PAT: Current pattern number;<br>XS/YS: Absolute coordinates in the X/Y direction;<br>X/Y: Increment of X/Y coordinates of current stitch and last stitch;<br>Stitch length: Display distance between current stitch and last stitch. |
| B |  | Selection of current stitches | Display the current stitches and total stitches of pattern;<br>Select the starting and ending points of segment;<br>Touch the key  and machine needle to move forwards as per pattern;<br>Touch the key  and machine needle to move backwards as per pattern; |
| C |  | Position confirmation | After moving to the starting point or ending point of segment, press the key to confirm the segment to be modified. |

| | | | |
|---|---|---|---|
| D |  | Segment Delete | Delete the selected segment |
| E |  | Shrink stiches | Shrink the selected segment |
| F |  | Fastening stiches | Fasten the selected segment |
| G |  | Segment rotation | Rotate the selected segment |
| H |  | Speed setting | Set the speed |
| I |  | Segment movement | Move (**empty motion** or straight line) the selected segment. |
| J |  | Segment editing | Carry out the straight line, **empty motion**, circle, arc, free curve and other modification operations of selected segment. |
| K |  | Return | Return to the pattern modification interface; the pattern modification content is not saved. |
| L | Pattern display area | Pattern display | Display the current pattern modified. Display the starting and ending points of segment in red and other points in black. |
| M |  | Save | Save the modified pattern |
| N |  | Uplifting / depressing of middle presser foot | Uplift/depress the presser foot. |
| O |  | Uplifting/depressing the presser. | Uplift/depress the presser. |

## 10.2.1 Segment modification operation flow

Segment modification can be mainly divided into segment editing and movement operations.

1) Segment editing: The specified segment can be modified accordingly, e.g. straight line, **empty motion**, circle, arc, free curve, etc.

2) Segment movement: Move a certain segment of pattern; the moving distance can be filled with **empty motion** or straight line.

**Segment editing operation flow:**

(1) Select segment to be modified:

Touch  and press the key to select the point on pattern; touch the key  to select the current point (as shown in green) as the starting point of segment; continue to touch  and press the key to select the point on pattern; touch the key  to select the current point (as shown in green) as the ending

point of segment.

(2) Enter segment editing interface

In segment modification interface, touch the key  to enter the segment editing interface (as shown in Figure below):

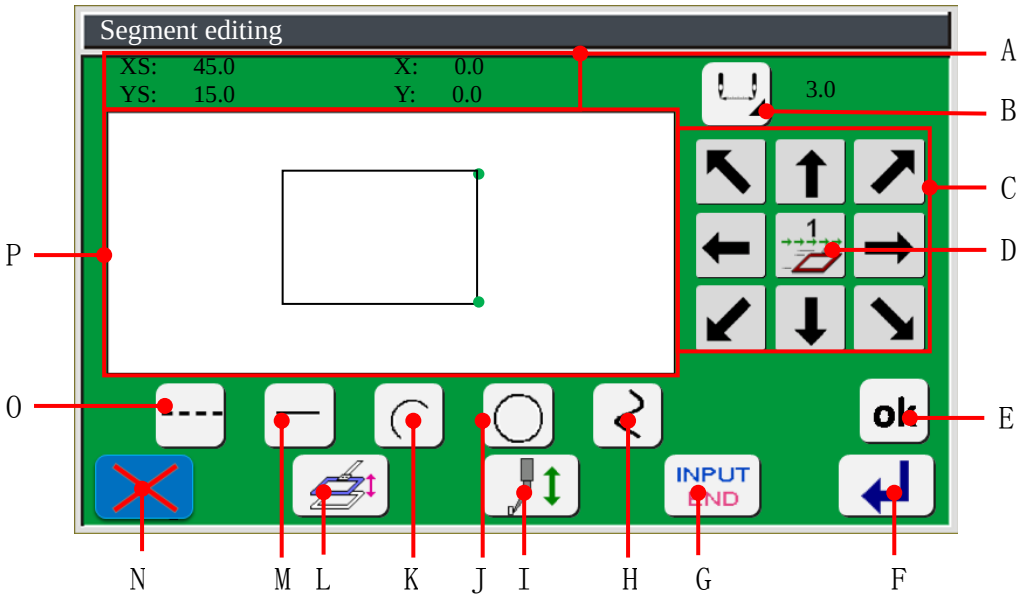
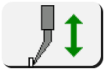
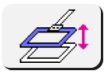



Figure 10-3: Segment Editing Interface

| No. | Icon | Name | Description |
|---|---|---|---|
| A | Parameter display | Current stitch parameter display | XS/YS: Absolute coordinates in the X/Y direction;<br>X/Y: Relative coordinates in the X/Y direction; increment of movement in the X/Y direction of machine needle. |
| B |  | Stitch length | Display the stitch length; touch the key  to set the stitch length. |
| C | Direction key | Direction key | Move the current point; move the machine needle to proper position. |
| D |  | Change of drafting speed |  Low speed  Middle speed  High speed<br>(Set the speed value in user parameter) |
| E |  | Confirmation | Confirm the current input results; display the modified pattern. |
| F |  | Confirmation | Confirm the segment modification operation; enter the preview interface. |
| G |  | End | End the input of key point on "free curve" segment; generate the free curve.<br>This key appears only if the line type is free curve. |
| H |  | Free curve | The segment is modified as free curve. |

| | | | |
|---|---|---|---|
| I |  | Uplifting/depressing the presser foot. | Uplift/depress the presser foot. |
| J |  | Modification of circle | Then enter a key point (a total of three points, including: starting point and ending point of segment); Modify the segment as circle. |
| K |  | Modification of arc | Then enter a key point (a total of three points, including: starting point and ending point of segment); Modify the segment as arc. |
| L |  | Uplifting/depressing the presser. | Uplift/depress the presser. |
| M |  | Modification of straight line | Modify the segment as straight line. |
| N |  | Return | Return to the segment modification interface. |
| O |  | Modification of empty motion | Modify the segment as empty motion. |
| P | Pattern display area | Pattern display | Display the current modified pattern. Display the starting and ending points of segment in green and other points in black. |

(3) Set stitch length for creating the segment

Touch the key  to enter the stitch length setting interface (as shown in Figure below):

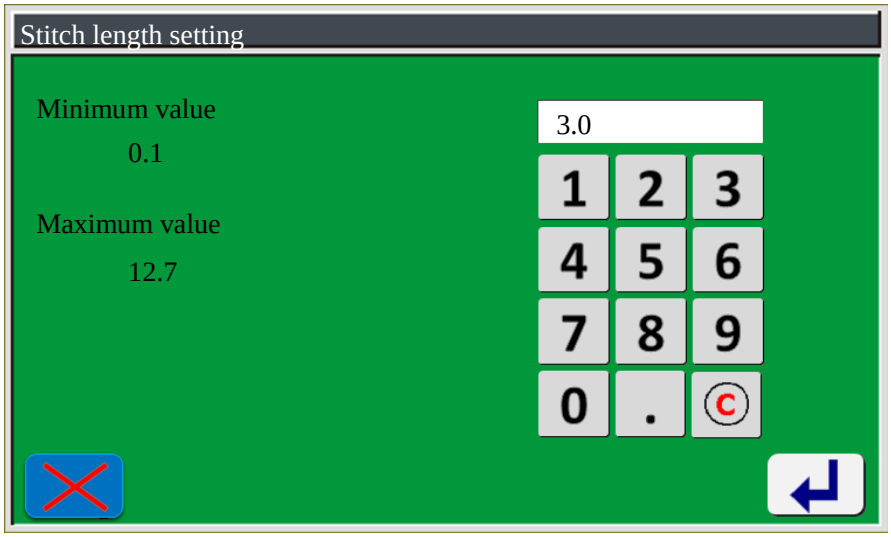



Figure 10-4 Stitch Length Setting

Enter 3; enter "." and then enter 0; 3.0 will be displayed in the display frame; then press the key  for

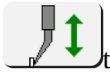
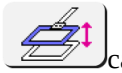
confirmation. If the input digit is valid, then return to the segment editing interface. Touch the key  to return to the segment editing interface. The **empty motion**ing operation does not need to set the stitch length; you can skip this operation.

(4) Set and modify line type

Select the line type to be modified on segment among straight line, **empty motion**, circle, arc and free curve.

(5) Input the key point and create the stitch.

According to the modified line type, touch the direction key to move the machine needle and input the key point; touch the key  for confirmation; generate the stitch. It is required to input one key point to modify the circle and arc; it is required to at least input two key points to modify the free curve; it is not required to input the key point to modify the straight line and **empty motion**; you can skip this operation.

(6) In the segment editing process, you can touch the key  to adjust the middle presser foot to be uplifted or depressed. Touching the key  can freely uplift / depress the presser.

(7) Touch the key  to enter the pattern preview interface; zoom and preview the modified pattern.

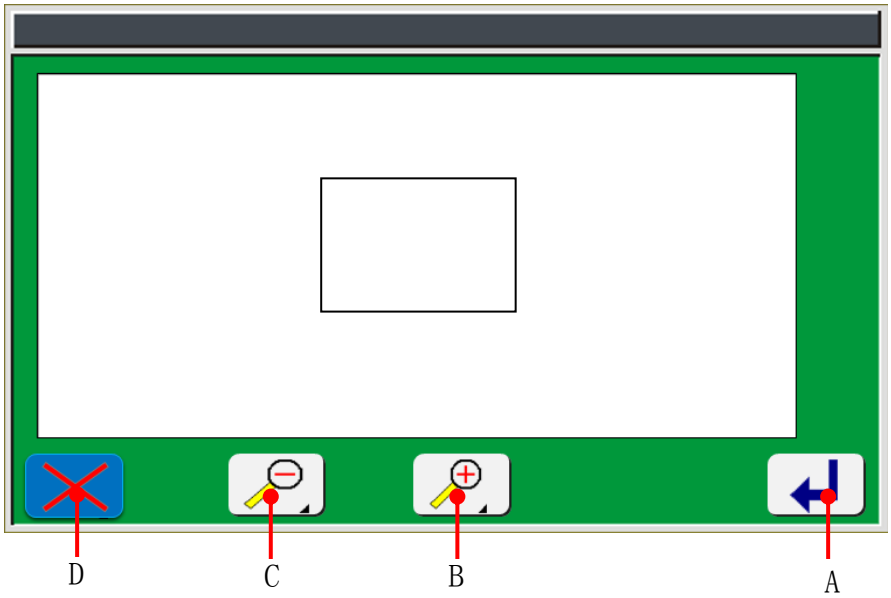
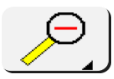



Figure 10-5 Pattern Preview Interface

| No. | Icon | Name | Description |
|---|---|---|---|
| A |  | Confirmation key | Confirm the modification of pattern; return to the segment modification interface. |
| B |  | Pattern magnification key | Magnify the current pattern. |
| C |  | Pattern reduction key | Reduce the current pattern. |

| | | | |
|---|---|---|---|
| D |  | Return | Cancel the modification of pattern; return to the segment modification interface. |

(8) Save pattern

In segment modification interface, touch  to save the modified segment pattern as the new pattern.

(9) If you do not want to save the pattern, omit the eighth step; directly press the key  to abandon the operation; return to the pattern customization interface.

**Segment movement operation flow:**

(1) Select the segment to be moved:

Touch  and press the key to select the point on pattern; touch the key  to select the current point (as shown in green) as the starting point of segment; continue to touch  and press the key to select the point on pattern; touch the key  to select the current point (as shown in green) as the ending point of segment.

(2) Entersegment movement interface

In segment modification interface, touch the key  to enter the segment movement interface (as shown in Figure below):

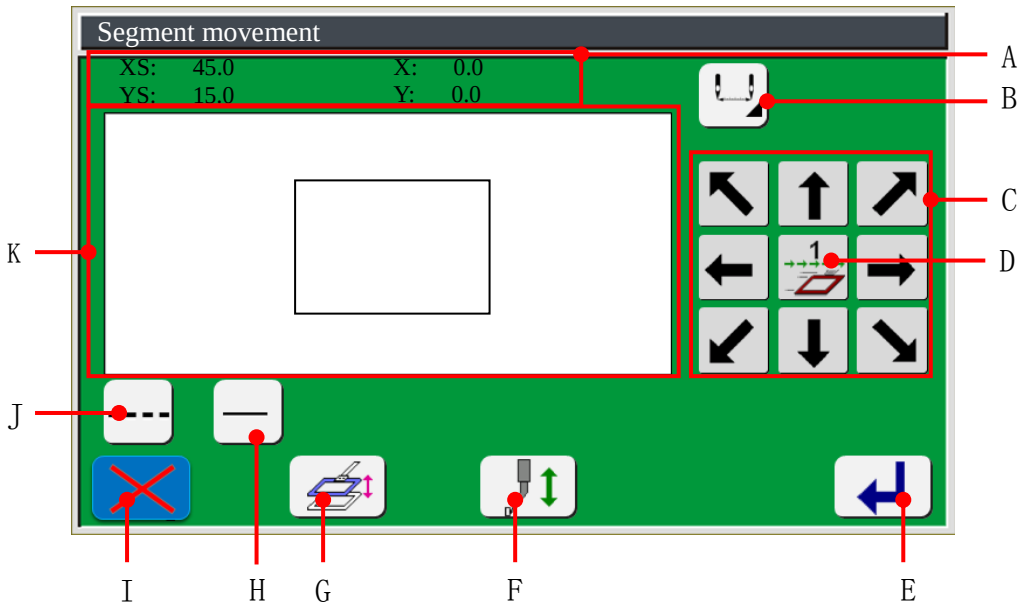
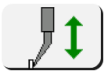
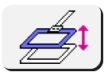



Figure 10-6: Segment Movement Interface

| No. | Icon | Name | Description |
|---|---|---|---|
| A | Parameter display | Current stitch parameter display | XS/YS: Absolute coordinates in the X/Y direction;<br>X/Y: Relative coordinates in the X/Y direction; increment of movement in the X/Y direction of machine needle. |

| | | | |
|---|---|---|---|
| B |  | Stitch length | Display the stitch length; touch the key  to set the stitch length. |
| C | Direction key | Direction key | Move the current point; move the machine needle to proper position. |
| D |  | Change of drafting speed |  Low speed  Middle speed  High speed (Set the speed value in user parameter) |
| E |  | Confirmation | Confirm the segment modification operation; enter the preview interface. |
| F |  | Uplifting/depressing the presser foot. | Uplift/depress the presser foot. |
| G |  | Uplifting/depressing the presser. | Uplift/depress the presser. |
| H |  | Modification of straight line | Move distance to fill with straight line. |
| I |  | Return | Return to the segment modification interface. |
| J |  | Modification of **empty motion** | Move distance to fill with **empty motion**. |
| K | Pattern display area | Pattern display | Display the current pattern stitches. |

(3) Set stitch length for segment movement distance

Touch the key  to enter the stitch length setting interface (as shown in Figure below):

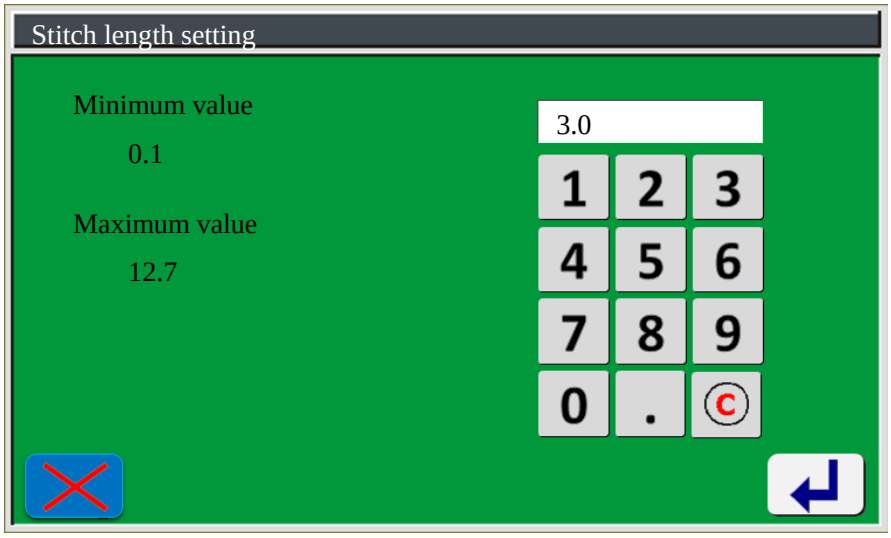



Figure 10-7 Stitch Length Setting

Enter 3; enter "." and then enter 0; 3.0 will be displayed in the display frame; then press the key  for confirmation. If the input digit is valid, then return to the segment movement interface. Touch the key

to return to the segment movement interface. The **empty motion**ing operation does not need to set the stitch length; you can skip this operation.

(4) Select segment move pattern: **empty motion** modification and straight line modification.

(5) Touch the direction key to move the segment to proper position.

(6) In the segment editing process, you can touch the key to adjust the middle presser foot to be uplifted or depressed. Touching the key can freely uplift / depress the presser.

(7) Touch the key to generate the stitch and enter the pattern preview interface (as shown in Figure 10-5); zoom and preview the modified pattern.

(8) Save pattern, and touch to save the modified segment pattern.

(9) If you do not want to save the pattern, omit the ninth step; directly press the key to abandon the operation; return to the pattern customization interface.

**Segment rotation operation flow:**

(1) Select the segment to be moved:

Touch and press the key to select the point on pattern; touch the key to select the current point (as shown in green) as the starting point of segment; continue to touch and press the key to select the point on pattern; touch the key to select the current point (as shown in green) as the ending point of segment.

(2) Enter segment rotation interface

In segment modification interface, touch the key to enter the segment rotation interface (as shown in Figure below):

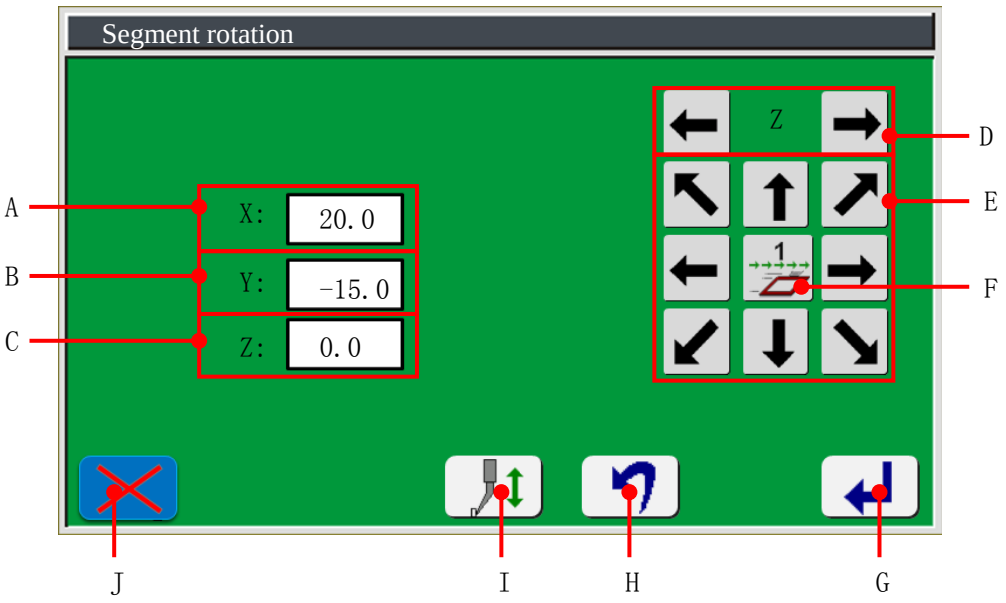
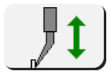
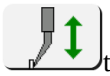


Figure 10-8 Segment Rotation

| No. | Icon | Name | Description |
|---|---|---|---|
| A | X coordinate | X coordinate | Display the coordinate in X direction |
| B | Y coordinate | Y coordinate | Display the coordinate in Y direction |
| C | Reserve | Reserve | Reserve |
| D | Reserve | Reserve | Reserve |
| E | Direction key | Direction key | Touch this key and the needle will move in the designated direction of arrow. |
| F |  | Change of drafting speed |  Low speed  Middle speed  High speed (Set the speed value in user parameter) |
| G |  | Confirmation key | Confirm the position of rotation point and rotate the segment to the current X/Y coordinate. |
| H |  | Cancel | Reserve |
| I |  | Middle presser foot | Adjust the middle presser foot to be uplifted or depressed |
| J |  | Return | Return to the segment modification interface. |

(3) Touch the direction key, center the segment starting point and rotate the segment end point to the proper position.

(4) In the segment rotation process, you can touch the key  to adjust the middle presser foot to be uplifted or depressed.

(5) Touch the key  to generate the stitch and enter the pattern preview interface (as shown in Figure 10-5); zoom and preview the modified pattern.

(6) Save pattern

Touch  to save the modified pattern.

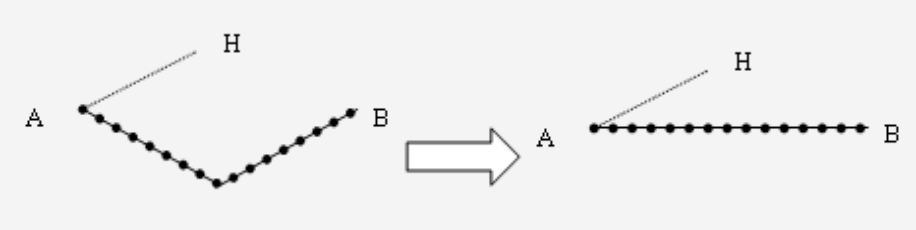
(7) If you do not want to save the pattern, omit the sixth step; directly press the key  to abandon the operation; return to the pattern modification interface.

## 10.2.2 Application example:

Operation example:

**Example 1: Segment modification (straight line modification)**

Modify the straight line for segment of pattern A-B (as shown in Figure below).




Operation step:

(1) Select segment:

Touch the key  and  to move the machine needle to Point A; touch the key  to confirm the starting point of segment; continue to touch the key  and  to move the machine needle to Point B; touch the key  to confirm the ending point of segment.

(2) Set stitch length:

Touch the key  to enter the segment editing interface; touch the key  to enter the stitch length setting interface; set stitch length as 3.0mm.

(3) Select straight line modification

Touch the key  to set the segment modification line type as straight line; modify the segment; generate the stitch.

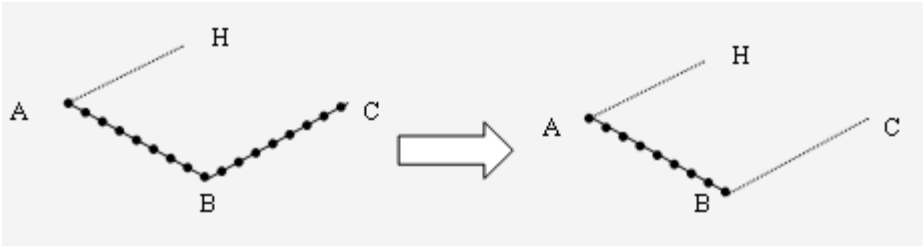
(4) Touch the key  to enter the pattern preview interface (as shown in Figure 10-5); zoom and preview the modified pattern.

(5) Save pattern

Touch  to save the modified segment pattern; after saving the pattern, return to the main interface. If you do not want to save the pattern, directly press the key  to abandon the operation; return to the pattern modification interface.

**Example 2: Segment modification (empty motion modification)**

Modify the **empty motion** for segment of pattern B-C (as shown in Figure below).




Operation step:

(1) Select segment:

Touch the key  and  to move the machine needle to Point B; touch the key  to confirm the starting point of segment; continue to touch the key  and  to move the machine needle to Point C;

touch the key  to confirm the ending point of segment.

(2) Select **empty motion** modification

Touch the key  to enter the segment editing interface; touch the key  to set the segment modification line type as **empty motion**; modify the segment; generate the stitch.

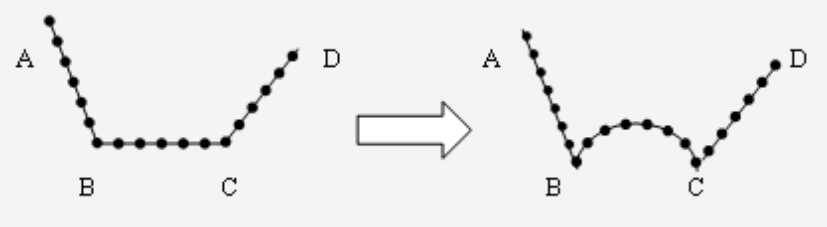
(3) Touch the key  to enter the pattern preview interface (as shown in Figure 10-5); zoom and preview the modified pattern.

(4) Save pattern:

Touch  to save the modified segment pattern; after saving the pattern, return to the main interface. If you do not want to save the pattern, directly press the key  to abandon the operation; return to the pattern modification interface.

**Example 3: Segment modification (arc, circle and free curve modification)**

Modify the arc for segment of pattern B-C (as shown in Figure below).




Operation step:

(1) Select segment:

Touch the key  and  to move the machine needle to Point B; touch the key  to confirm the starting point of segment; continue to touch the key  and  to move the machine needle to Point C; touch the key  to confirm the ending point of segment.

(2) Set stitch length:

Touch the key  to enter the segment editing interface; touch the key  to enter the stitch length setting interface; set stitch length as 3.0mm.

(3) Select arc modification

Touch the key  to set the segment modification line type as arc; touch the direction key to move the machine needle to proper position; touch OK key to confirm the 3rd key point (which fails to coincide or be aligned with the starting and ending points of segment ); modify the segment; generate the stitch.

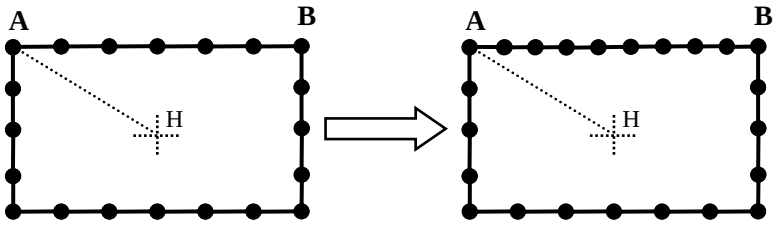
(4) Touch the key  to enter the pattern preview interface (as shown in Figure 10-5); zoom and preview the modified pattern.

(5) Save pattern:

Touch  to save the modified segment pattern; after saving the pattern, return to the main interface. If you do not want to save the pattern, directly press the key  to abandon the operation; return to the pattern modification interface.

**Example 4. Stitch length modification**

Modify the stitch length of straight line AB segment (3.0mm) as 2.0mm (as shown in the figure below).




Operation step:

(1) Select segment:

Touch keys  and  to select the segment to be modified; select the segment AB here.

(2) Set stitch length:

Touch the key  to enter segment editing interface; touch the key  to enter the stitch length setting interface; set the stitch length as 2.0mm.

(3) Select straight line modification:

Touch the key  to set the segment modified linetype as straight line; modify the segment; create the stitch.

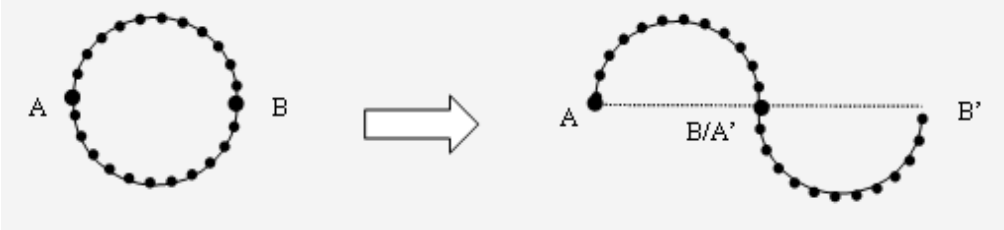
(4) Touch key  to enter the pattern preview interface (as shown in Figure 10-5); zoom and preview the modified pattern.

(5) Save pattern:

Touch  to save the modified segment pattern. After saving the pattern, return to the main interface. If you do not want to save it, directly press the key  to abandon this operation; return to the pattern modification interface.

**Example 5: Segment movement (empty shift):**

Move the following pattern from segment B to segment A in empty shift mode (as shown in Figure below).



Operation step:

(1) Select segment:

Touch the keys  and  to move the machine needle to Point A; touch the key  to confirm the starting point of segment; continue to touch the keys  and  to move the machine needle to Point B; touch the key  to confirm the ending point of segment.

(2) Select empty shift modification

Touch the key  to enter the segment movement interface; touch the key  to select the empty-shift mode; touch the direction key to move the cross cursor from point B to point A (the machine needle will be moved synchronously).

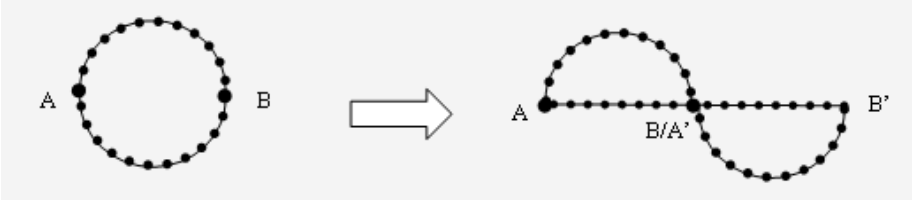
(3) Touch the key  to modify the segment; create the stitch; enter the pattern preview interface (as shown in Figure 10-5); zoom and preview the modified pattern.

(4) Save pattern

Touch  to save the modified segment pattern; after saving the pattern, return to the main interface. If you do not want to save the pattern, directly press the key  to abandon the operation; return to the pattern modification interface.

**Example 6: Segment movement (straight line):**

Move the following pattern from segment B to segment A in straight line mode (as shown in Figure below).




Operation step:

(1) Select segment:

Touch the keys  and  to move the machine needle to Point A; touch the key  to confirm the starting point of segment; continue to touch the keys  and  to move the machine needle to Point B; touch the key  to confirm the ending point of segment.

(2) Set stitch length:

Touch the key  to enter the segment movement interface; touch the key  to enter the stitch length setting interface; set stitch length as 3.0mm.

(3) Select straight line modification

Touch the key  to select the straight line mode; touch the direction key to move the cross cursor from point B to point A (the machine needle will be moved synchronously).

（4) Touch the key  to modify the segment; create the stitch; enter the pattern preview interface (as shown in Figure 10-5); zoom and preview the modified pattern.

(5) Save pattern

Touch  to save the modified segment pattern; after saving the pattern, return to the main interface. If you do not want to save the pattern, directly press the key  to abandon the operation; return to the pattern modification interface.

## 10.3 Pattern point modification

In pattern modification interface, touch  to enter the point modification interface; in the interface, a new stitch can be inserted to the current pattern or a stitch in the pattern can be deleted or moved. All points can be modified. The moving distance shall not be greater than 12.7mm from the current point.

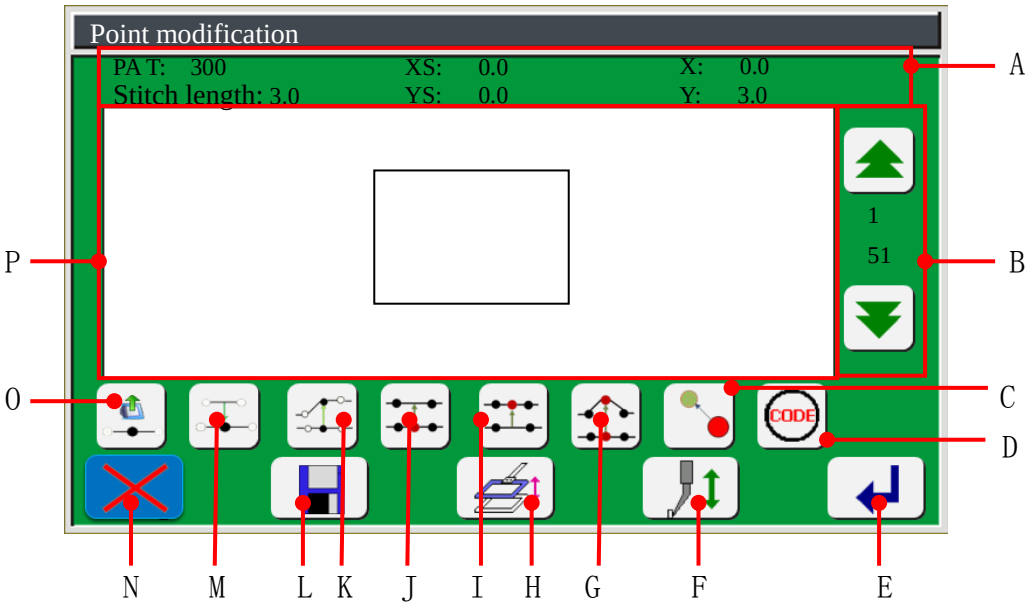
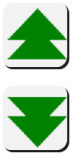
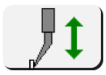
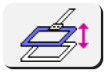



Figure 10-9 Pattern point modification interface

| No. | Icon | Name | Description |
|---|---|---|---|
| A | Parameter display | Current stitch parameter display | PAT: Current pattern number;<br>XS/YS: Absolute coordinates in the X/Y direction;<br>X/Y: Increment of X/Y coordinates of current stitch and last stitch;<br>Stitch length: Display distance between current stitch and last stitch. |

| | | | |
|---|---|---|---|
| B |  | Selection of current stitches | Display the current stitches and total stitches of pattern; Select the starting and ending points of segment; Touch the key  to get the machine needle to move forwards as per pattern; Touch the key  to get the machine needle to move backwards as per pattern; |
| C |  | Second origin | Move the Second origin; the coordinates of Second origin are shown in red open circle. |
| D |  | Additional function | Set the additional features of current point, e.g. dotting, trimming thread, turning over presser, etc. |
| E |  | Confirm modified point | Press the key  ,  to move the machine needle; press the key  to confirm the modified point; enter the point modification editing interface. |
| F |  | Middle pressure foot | Uplift / depress the presser foot. |
| G |  | Stitch movement (without changing the following patterns) | Move the current needle to a certain position; the following pattern will not change. |
| H |  | Presser uplifting/depressing | Uplift/depress presser |
| I |  | Stitch insertion (without changing the following patterns) | Insert a stitch between the current stitch and the following stitch; the following patterns will not change. |
| J |  | Stitch deletion (without changing the following patterns) | Delete the current stitch |
| K |  | Stitch movement (changing the following patterns) | Move the stitch; the following stitch will move along |
| L |  | Save | Save the modified pattern |
| M |  | Stitch insertion (change the following patterns) | The following patterns will change; the stitches will move backwards. |
| N |  | Return | Return to pattern modification interface |

| | | | |
|---|---|---|---|
| O |  | Stitch deletion (change the following patterns) | Delete the current stitch; change the following patterns; move the stitches forwards. |
| P | Pattern display area | Pattern display | Display the current pattern; display the cross cursor on the current stitch. |

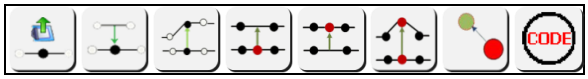
### 10.3.1 Point modification operation flow

(1) Select the point to be modified:

Touch the keys  and  to select the point on the pattern; a cross cursor will be displayed on the selected point; during Second origin  modification of patterns, you can skip this operation.

(2)Select point modification operating mode:

In point modification interface, stitch deletion, stitch insertion, stitch movement, additional functions, Second origin and other operations are available; select the operating mode of current stitch in the following list of functions:




For modification for stitch deletion, stitch insertion and stitch movement (i.e. the first six modifications as shown in above Figure); Operation steps (1) & (2) shall not be specified in any sequence.

(3) Enter point modification editing interface

After completion of operation steps (1) & (2), touch the key  to enter the point modification editing interface (as shown in Figure below). In point modification editing interface, you can not only move, insert or delete the current stitch of patterns, but also can set the Second origin of patterns.

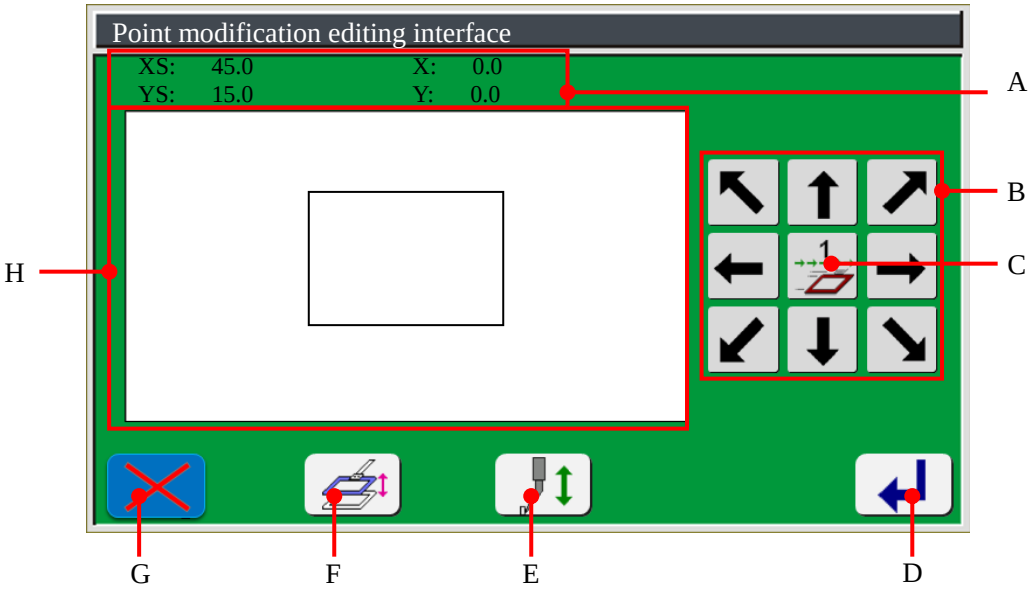
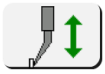
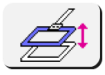



Figure 10-10: Pattern point modification editing interface

| No. | Icon | Name | Description |
|---|---|---|---|
| A | Parameter display | Current stitch parameter display | XS/YS: Absolute coordinates in the X/Y direction;<br>X/Y: Relative coordinates in the X/Y direction; increment of movement of machine needle in the X/Y direction. |
| B | Direction key | Direction key | Move the current point; move the machine needle to a proper position. |
| C |  | Changing drafting speed |  low speed  intermediate speed  high speed (speed values to be set in user parameter) |
| D |  | Confirmation | Confirm the point modification operations; return to point modification interface |
| E |  | Uplifting/depressing of middle presser foot | Uplift/depress the presser foot. |
| F |  | Presser uplifting and depressing | Presser uplifting / depressing |
| G |  | Return | Cancel the point modification operation; return to the point modification interface. |
| H | Pattern display area | Pattern display | Display the current pattern; the cross cursor represents the current position of machine needle |

If you select the stitch movement and stitch insertion operations (  ,  ,  ,  ) in point modification interface: in point modification editing interface, touch the direction key B to move the machine needle to a proper position; touch the key OK to confirm the stitch movement and stitch insertion positions; display the modified pattern.

If you select the stitch deletion operation (  ,  ) in point modification interface: touch the key OK to delete the current stitch; display the modified pattern.

If you select the Second origin setting operation (  ) in point modification interface: Touch the direction key B to move the machine needle to a proper position; touch the key OK to confirm the Second origin position

If you save the point modification operation, press the confirmation key  to return to the point modification interface; to delete the previous point modification operations, press the key  and return to the point modification interface.

(4) Continue to make point modification of patterns

Make point modification of patterns as per steps (1), (2) & (3); you can skip this operation (if unnecessary).

(5) Save pattern

Touch  to save the point-modified pattern; after saving the pattern, return to the main interface.

(6) If you do not want to save the pattern, omit the fifth step; directly press the key  to abandon the

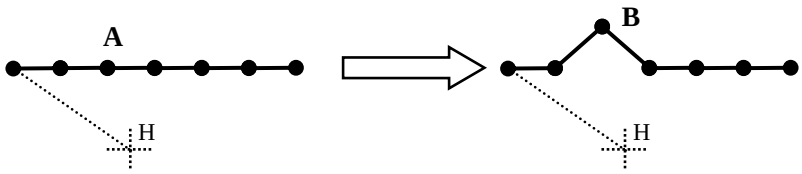
operation; return to the pattern modification interface.

10.3.2 Application example

**Operation example:**

**Example 1: Stitch movement (the point behind stitch not to be moved)**

Move Point A on the left original pattern to Point B on the right pattern (H represents the origin) (as shown in Figure below):




**Operation instruction:**

(1) Select point to be moved:

Touch the keys  and  to select the point on the pattern; the cross cursor represents the currently-selected point; select Point A here.

(2) Select modification mode:

Touch key  to select the modification mode as point movement (the points behind it not to be moved).

(3) Move the selected point:

Touch the key  to enter the point modification editing interface; touch the direction key to move the cursor to the required position; move the cursor to Point B here.

(4) Confirmation:

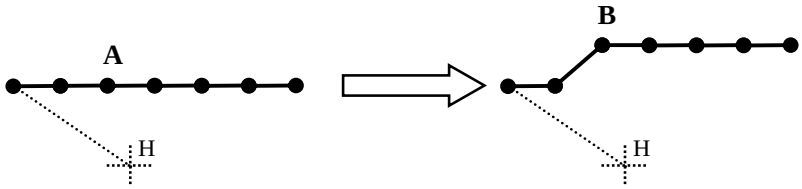
Press the confirmation key  to return to the point modification interface; the modified pattern will be displayed in pattern display area.

(5) Save pattern

Touch  to save the point-modified pattern; after saving the pattern, return to the main interface.

**Example 2: Stitch movement (the point behind stitch to be moved along)**

Move Point A on the left original pattern to Point B on the right pattern (H represents the origin) (as shown in the Figure below):




**Operation instruction:**

(1) Select point to be moved:

Touch the keys  and  to select the point on the pattern; the cross cursor represents the

currently-selected point; select Point A here.

(2) Select modification mode:

Touch the key  to select the modification mode as point movement (the following point behind it to be moved along).

(3) Move the selected point:

Touch the key  to enter the point modification editing interface; touch the direction key to move the cursor to the required position; move the cursor to Point B here.

(4) Confirmation:

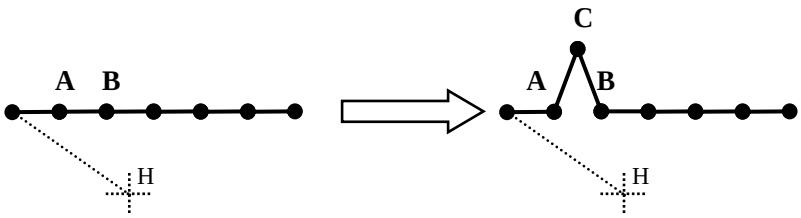
Press the confirmation key  to return to the point modification interface; the modified pattern will be displayed in pattern display area.

(5) Save pattern

Touch  to save the modified pattern; after saving the pattern, return to the main interface.

**Example 3: Stitch addition (the point behind stitch not to be moved)**

Add Point C between Point B and Point A on the left original pattern (as shown in Figure below); transform it into the pattern as shown in right Figure (H represents the origin):




**Operation instruction:**

(1) Select point addition position:

Touch the keys  and  to select the point on the pattern; the cross cursor represents the currently-selected point; select Point A here, indicating that a point will be added behind Point A).

(2) Select modification mode:

Touch the key  to select the modification mode as point addition (the points not to be moved).

(3) Select point insertion position:

Touch the key  to enter the point modification editing interface; touch the direction key to move the cursor to the required position; move the cursor to Point C here.

(4) Confirmation:

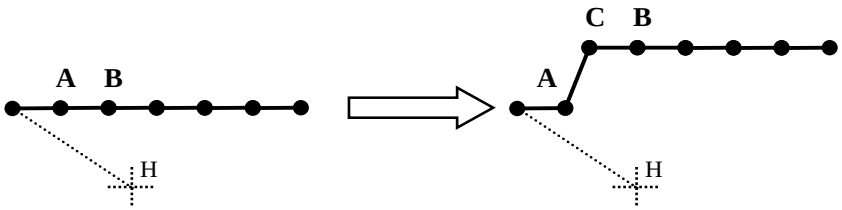
Press the confirmation key to return to the point modification interface; display the modified pattern in pattern display area.

(5) Save pattern

Touch  to save the point-modified pattern; after saving the pattern, return to the main interface.

**Example 4: Stitch addition (the point behind stitch to be moved along):**

Add Point C between Point B and Point A on the left original pattern (as shown in Figure below); transform it into the pattern as shown in right Figure (H represents the origin):




**Operation instruction:**

(1) Select point addition position:

Touch the keys  and  to select the point on the pattern; the cross cursor represents the currently-selected point; select Point A here, indicating that a point will be added behind Point A).

(2) Select modification mode:

Touch the key  to select the modification mode as point addition (the points behind it to be moved along)

(3) Select point insertion position:

Touch the key  to enter the point modification editing interface; touch the direction key to move the cursor to the required position; move the cursor to Point C here.

(4) Confirmation:

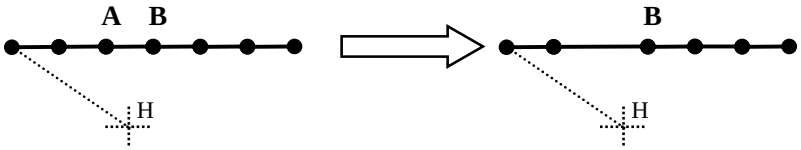
Press the confirmation key  to return to the point modification interface; the modified pattern will be displayed in pattern display area.

(5) Save pattern

Touch  to save the modified pattern; after saving the pattern, return to the main interface.

**Example 5: Stitch deletion (the point behind stitch not be moved)**

Delete Point A on the left original pattern (as shown in Figure below); it will be transformed into the pattern as shown in right Figure (H represents the origin):




**Operation instruction:**

(1) Select point to be deleted:

Touch the keys  and  to select the point on the pattern; the cross cursor represents the currently-selected point; select Point A here.

(2) Select modification mode:

Touch the key  to select the modification mode as point deletion (the following point not to be moved).

(3) Confirmation:

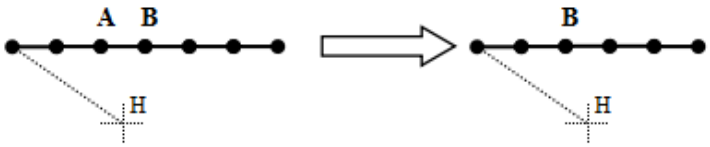
Touch the key  to enter the point modification editing interface; press the confirmation key  to return to the point modification interface; the modified pattern will be displayed in pattern display area.

(4) Save pattern

Touch  to save the modified pattern; after saving the pattern, return to the main interface.

**Example 6: Stitch deletion (point behind stitch to be moved along)**

Delete Point A on the left original pattern (as shown in Figure below); it will be transformed into the pattern as shown in right Figure (H represents the origin):




**Operation instruction:**

(1) Select point to be deleted:

Touch and press the keys  and  to select the point on the pattern; the cross cursor represents the currently-selected point; select Point A here.

(2) Select modification mode:

Touch the key  to select the modification mode as point deletion (the following point to be moved along).

(3) Confirmation:

Touch the key  to enter the point modification editing interface; press the confirmation key  to return to the point modification interface; the modified pattern will be displayed in pattern display area.

(4) Save pattern

Touch the key  to save the modified pattern; after saving the pattern, return to the main interface.

**Example 7: Second origin modification:**

**Operation instruction:**

(1) Touch the key  to enter the Second origin operation; the Second origin is displayed in a small red circle as shown in the figure.

(2) Touch the key  to enter the point modification editing interface; by this time, the cross cursor represents the position of current Second origin; touch the direction key to move the Second origin cursor to the required position.

(3) In point modification editing interface, touch the key  to confirm the position of Second origin and return to the point modification interface; by this time, a small red circle displays the set position of Second

origin.

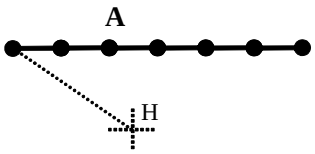
(4) Save pattern

Touch  to save the modified pattern; after saving the pattern, return to the main interface.

**Example 8: Additional functions**

The additional functions shall consist of dotting, lower suspension, trimming thread, upper suspension, turning over presser, output signal 1~4 (reserved), empty shift, normal sewing and other functions.

**Example**: Add the trimming function to Point A as shown in the figure below.




**Operation instruction:**

(1) Select point to be added with functions

Touch the keys  and  to select the point on the pattern; the cross cursor represents the currently-selected point; select Point A here.

(2) Select function to be added

Touch the key  to enter the function selection interface (as shown in the Figure below):

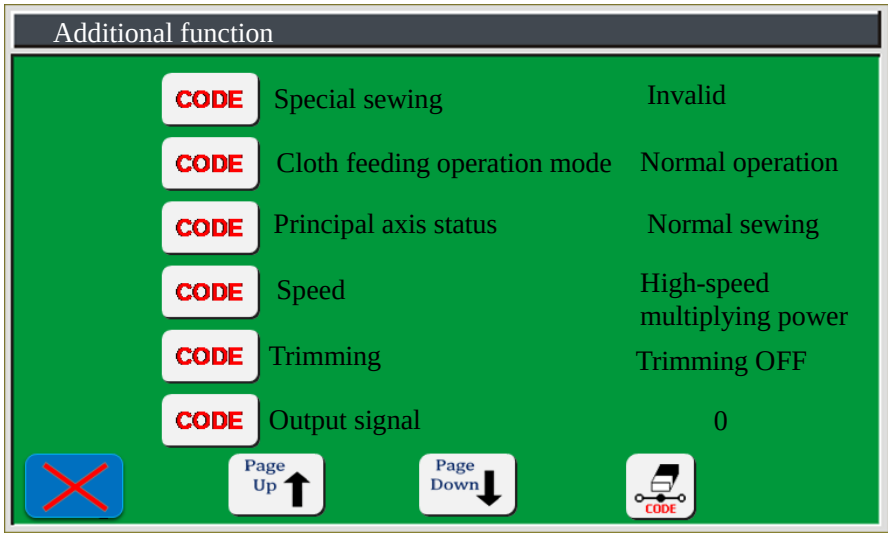



Figure 10-11: Additional function setting interface

| Icon | Description | Icon | Description |
|---|---|---|---|
|  | Key for setting additional functions |  | Key for deleting additional keys |
|  | Key for page up |  | Key for page down |
|  | Return | | |

**Example:** Select trimming thread here: Touch the key 

before “trimming thread” and an interface will pop out. Touch the key SET to select “trimming thread on”. When the last stich of this section is reached in actual sewing, perform the thread trimming operation and continue to sew.

(3) Touch the return key  to complete the setting.

(4) Save pattern

Touch  to save the modified pattern; after saving the pattern, return to the main interface.

10.4 Multiplying power of pattern

In Figure 10-1 pattern modification interface, press  to enter multiplying power setting interface.

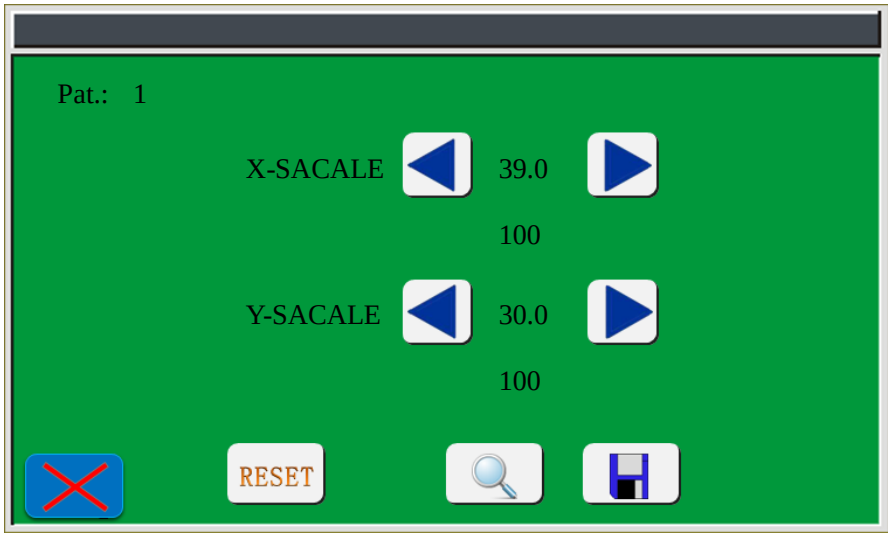



Figure 10-12 Adjustment of pattern multiplying power

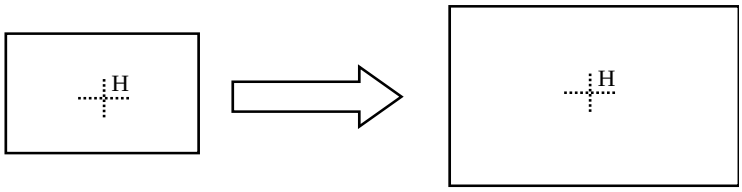
Multiplying power adjustment table

| No. | Icon | Name | Description |
|---|---|---|---|
| A | Pattern number | Pattern number | Show number of the pattern under modification |
| B | X-SCALE | X multiplying power indication | Indicating X dimension (horizontal) of the pattern. A user can perform horizontal stretching or contraction adjustment on the pattern within a certain range. Minimal dimension for X multiplying power adjustment is 20% of X length of original pattern and the maximal dimension is not more than presser. |
| C | Y-SCALE | Y multiplying power indication | Indicating Y dimension (vertical) of the pattern. A user can perform vertical stretching or contraction adjustment on the pattern within a certain range. Minimal dimension for Y multiplying power adjustment is 20% of Y width of original pattern and the maximal dimension is not more than presser. |

| | | | |
|---|---|---|---|
| D |  | Return | Return to the main interface. |
| E |  | Save | Save the pattern with multiplying power modified as the new pattern. |
| F |  | Preview | Preview the pattern with multiplying power modified. |
| G |   | Reset | Restore initial value of the multiplying power. |

**Operation example:**

As shown in figure below, transform the left figure to the right figure through magnifying (Point H is central point of the figure with constant stitch number and variable stitch length. X is transformed to 150% of original figure; Y is transformed to 150% of original figure).




(1) Adjust X multiplying power:

Touch and hold the key  in column X-SCALE and X will be magnified gradually. At the same time, current magnifying factor will be indicated below. When the multiplying power reaches 150%, release the key.

(2) Adjust Y multiplying power:

Touch and hold the key  in column Y-SCALE and Y will be magnified gradually. At the same time, current magnifying factor will be indicated below. When the multiplying power reaches 150%, release the key.

(3) Preview the pattern:

Touch the key  to check whether the pattern conforms to the requirement.

(4) Save pattern:

After the pattern is adjusted, if you want to save the pattern adjusted as the new pattern, touch the key  to enter the save interface, as shown in the figure below, new pattern numbers are from 300 to 997.

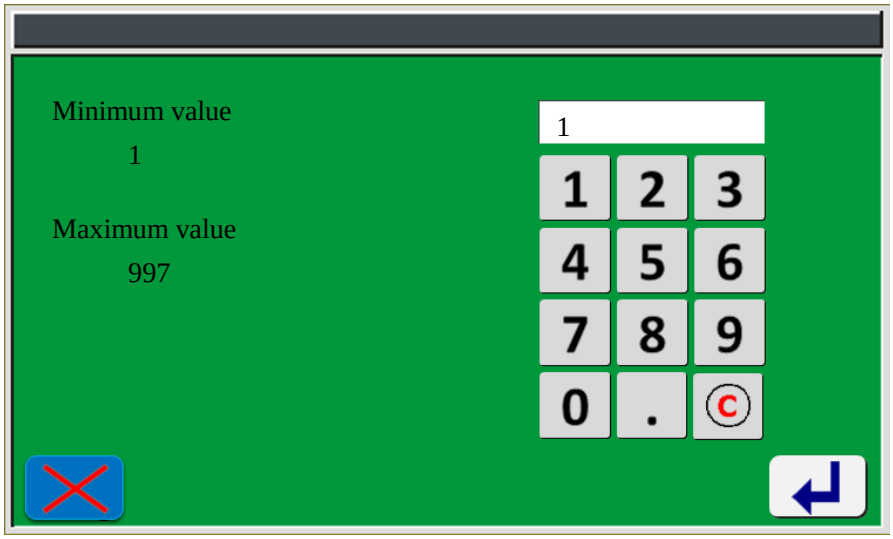


Figure 10-13 Save interface

Enter the pattern number to be saved, then touch the key  to save the pattern.

**Note: the pattern saving method in the following chapters will be the same as the method described here. Therefore, it shall not be repeated again.**

(5) If you do not want to save it as a new pattern, omit the 4th step and directly press the key  to return.

## 10.5 Pattern rotation

In the pattern modification interface shown in Figure 10-1, touch  to enter pattern rotation interface. In pattern rotation mode, a pattern rotates along the central point of the pattern.

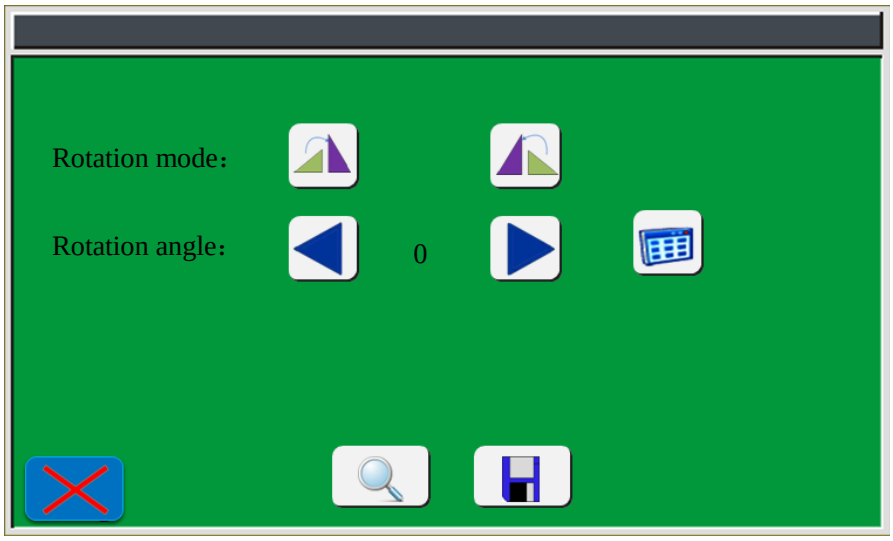


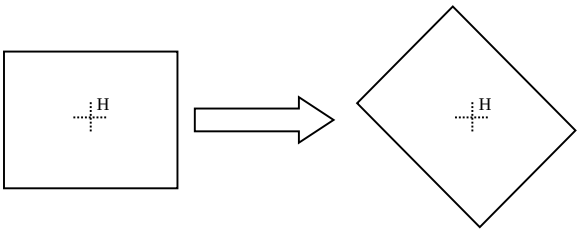

Figure 10-14 Pattern rotation interface

| Icon | Name | Description |
|---|---|---|
|  | Rotate clockwise | Rotate the pattern clockwise. |
|  | Rotate anticlockwise | Rotate the pattern anticlockwise. |
|  | Reduce the rotation angle. | The minimal angle is 0 °. |
|  | Increase the rotation angle. | The maximal angle is 180 °. |
|  | Input rotation angle | The rotation angle is between 0 °and 180 °. |
|  | Preview | Preview the pattern after mirror. |
|  | Save | Save the rotated pattern as a new pattern. |

| | | |
|---|---|---|
|  | Return | Return to the pattern modification interface. The pattern will not be saved after return. The operation will be ineffective. |

**Operation example:**

As shown in figure below, transform the left pattern into the right pattern. H is the central point. Rotate clockwise the pattern by 45 °.




(1) Select rotation mode:

Touch  to select clockwise rotation mode (the default rotation mode). If it is marked by√, it indicates that the mode has already been selected.

(2) Select rotation angle:

Touch  to increase the rotation angle to 45. You can also input 45 by pressing the key  . Angles are from 0 to 180 degrees.

(3) Preview pattern:

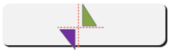
After the rotation direction and angle are set, touch the key  to check whether the pattern rotated conforms to requirements.

(4) Save pattern:

Touch  to save the pattern rotated as a new pattern. Pattern numbers are from 300 to 997. Return to the main interface after the pattern is saved.

(5) If you do not want to save the pattern, omit the fourth step and directly press the key  to abandon the operation and return to the pattern modification interface.

10.6 Pattern mirror image

Under pattern modification interface, touch  to enter the pattern mirror image interface, the mechanical origin is taken as the central point for mirror image along direction X, Y and the origin.

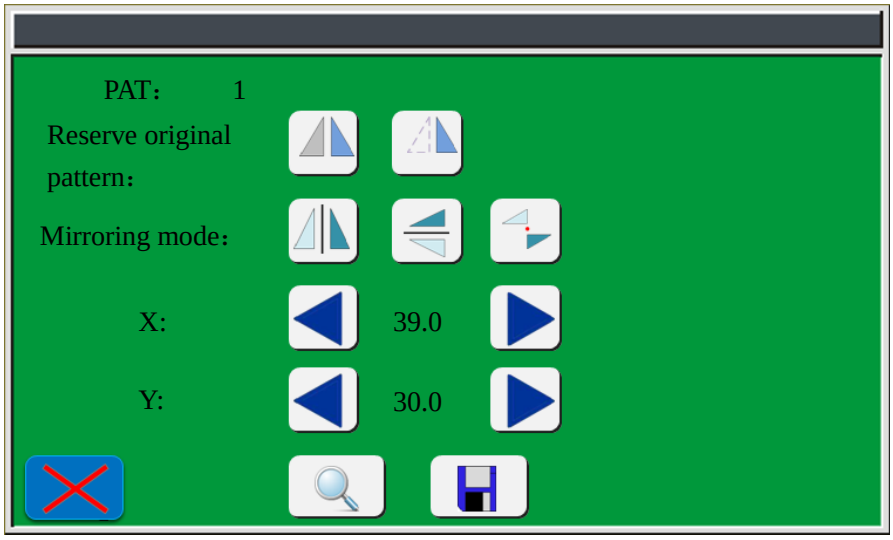
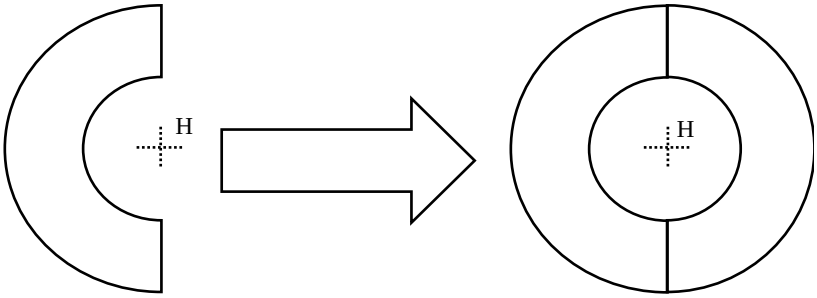



Figure 10-15 Pattern mirror image interface

| Icon | Name | Description |
|---|---|---|
|  | Reserve the original pattern | Reserve the original pattern after mirror image. |
|  | Not reserve Original pattern | Delete original pattern after mirror image and only reserve the pattern after mirror image. |
|  | Mirror image along direction X | Mirror image relative to axis X. |
|  | Mirror image along direction Y | Mirror image relative to axis Y. |
|  | Central mirror image | Mirror image relative to setting point. |
|  | Preview | Preview the pattern after mirror image. |
|  | Save | Save the pattern after mirror image as a new pattern. |
|  | Return | Return to the pattern modification interface. The pattern modified will not be saved after return. The operation is ineffective. |
| X | Center point along direction X | Set the center point position of mirror image along direction X |
| Y | Center point along direction Y | Set the center point position of mirror image along direction Y |

**Operation example:**

As shown in figure below, transform the left original pattern into the right pattern. H is the origin. Reserve the origin and the pattern is symmetrical along direction Y.




(1) Select the original pattern reservation mode:

Touch the key  to select original pattern reservation mode (default mode). If the key is marked by √, it indicates that the mode has already been selected.

(2) Mirror image selection mode:

Touch the key  to select axis Y mirror image mode. If the key is marked by √, it indicates that the mode has already been selected.

(3) Preview pattern:

Touch the key  to check whether the pattern under mirror image conforms to the requirement.

(4) Mirror image origin selection

Touch keys along direction X or Y to set mirror image origin along direction X and Y, and the system default is mirror image at relative coordinate origin.

(5) Save pattern:

Touch  to save the pattern after mirror image as a new pattern. Pattern numbers are from 300 to 997. Return to the main interface after the pattern is saved.

(6) If you do not want to save the pattern, omit the fifth step. Directly press  key to abandon the operation and return to the pattern modification interface.

# 11. User Parameter Setting

After touching the key  in the main interface, touch the key  to enter user parameter setting interface.

## 11.1 Interface introduction

There are totally two pages for user parameter operation, switchable between the two pages with 

and  .

The 1st page is indicated as follows:

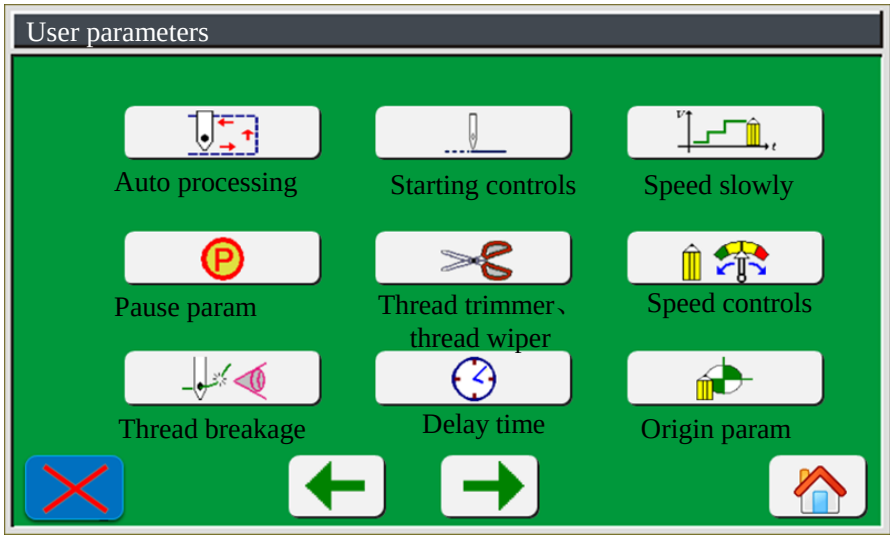



Figure 11-1

The 2nd page is indicated as follows:

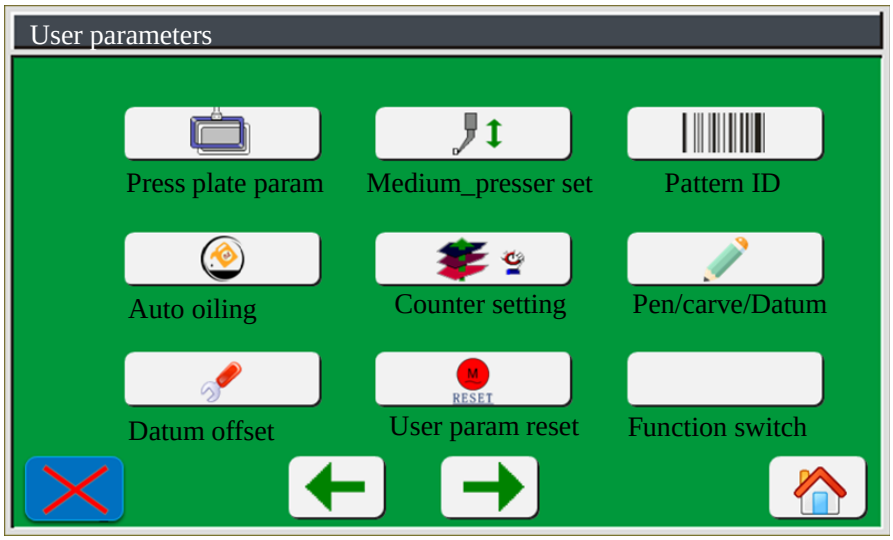
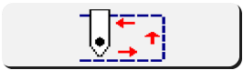



Figure 11-2

## 11.2 Operation example

Take actuating of presser after the automatic processing on the 1st page as an example when describing operational process:

(1) Touch the key  to enter the interface of setting automatic operating parameters，as shown in the figure below:

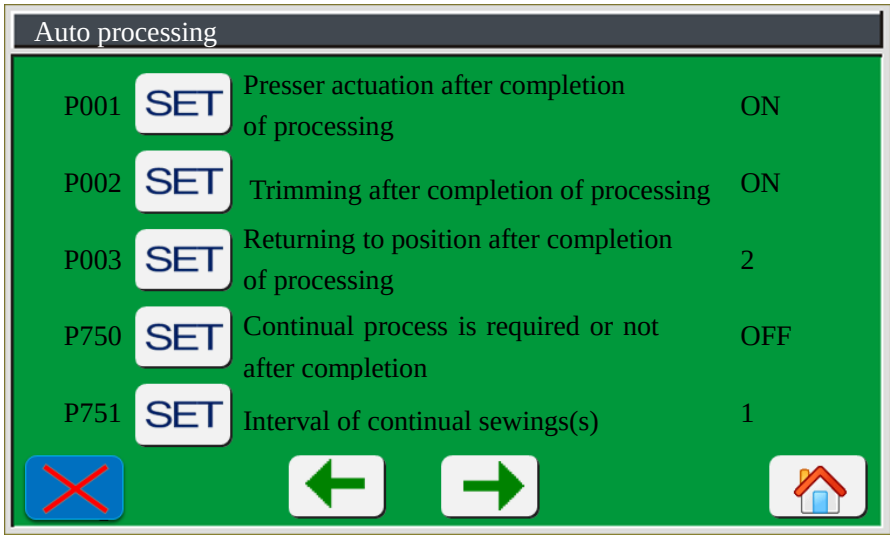



Figure 11-3

(2) Press the key SET to enter the interface of setting actuation of presser after the processing, as shown in the figure below:

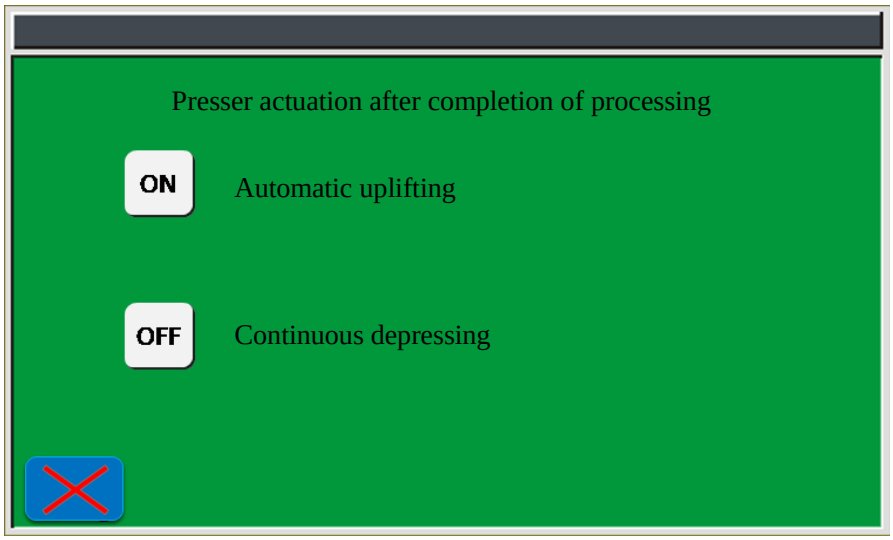
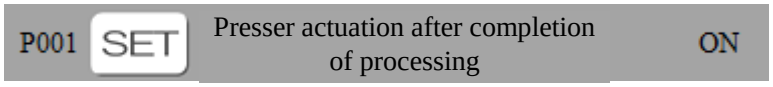



Figure 11-4

The keys ON and ON are followed with the meanings of these two options (it also applies to other keys). Touch the keys ON and ON to select either of them and press to return.

(3) The selection result will be shown in the right of the content.




(4) In user parameters setting interface, touch to return to auxiliary function interface with parameters setting becoming valid.

Note: On the 2nd page of user parameters, the user parameters may be reset as default values by touching the key RESET.

## 11.3 Setting instruction

User Parameter Setting List

**Auto processing parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| Presser actuation after completion of processing | ON | ON=Automatic plifting;<br>OFF=Continuously depressing; | |
| Trimming thread after completion of processing | ON | ON=Automatic trimming thread;<br>OFF=Thread trimming forbidden; | |
| Returning to position after completion of processing | 4 | Setting range 0~4 | 0: return to mechanical origin,<br>1:returnto absolute coordinates,<br>2: return to sewing-start point,<br>3:return to pattern Second origin,<br>4:return to mechanical Second origin, |
| Continual process is required or not after completion | OFF | ON=Allowed;<br>OFF=Forbidden; | |
| Interval of continual sewings(s) | 1s | Time interval, 0-60s | |
| Automatic simulation sewing permission | OFF | ON=Allowed;<br>OFF=Forbidden; | |
| Continuous keystrokes to start automatic simulation sewing | 5 | Setting range 1~10 | |
| Air pressure detection | OFF | ON=Switch on air pressure detection function, sewing is forbidden in case of low air pressure;<br>OFF=Switch off air pressure detection function, sewing is allowed in case of high air pressure | |
| Air pressure alarm detection time | 0 | Setting range 0~5000ms | |

| | | | |
|---|---|---|---|
| Single pedal operation available | OFF | ON=Allow, single pedal mode;<br>OFF=Not allowed, double pedal mode; | |
| Two wipingpresser foot | OFF | ON=Effective;<br>OFF=Invalid； | |
| Start button operation when pattern changed | OFF | ON= Move tosewing-start point only;<br>OFF=Move to sewing-start point and start sewing; | |
| Sewing range limitation valid | ON | ON=Valid;<br>OFF=Invalid; | |

**Starting controls parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| Repetition number of needle start | 0 | Setting range 0~2 | |
| Releasing empty motion control | OFF | ON=Releasing when empty motion;<br>OFF=No releasing when empty motion | |
| Cast-on thread slack enabled | OFF | ON=Enable;<br>OFF=Forbid | |
| Numbers of stitch loosening | 3 | Setting range 1~10 | |
| Delay time for thread pre-actuation(ms) | 50 | Setting range 1~500 | |
| Blowing mode | ON | ON=Gass just several needles in the sewing;<br>OFF=Gass in the sewing | |
| Cast-on blowing enabled | ON | ON=Enabled；<br>OFF=Forbidden | |
| Cast-on blowing needle count | 0 | Setting range 0~5 | |
| Cast-on blowing start angle | 0 | Setting range 0~360 | |
| Cast-on blowing end angle | 360 | Setting range 0~360 | |
| Delay time for blowing start (ms) | 200 | Setting range 0~500 | |
| Delay time for blowing end (ms) | 500 | Setting range 0~500 | |

| | | | |
|---|---|---|---|
| Yarn trapper setting | OFF | ON=On;<br>OFF=Off | |
| Clipping type | 0 | Setting range 0~2<br>0 means start needle clamping<br>1 means start needle clamping and end needle clamping<br>2 means end needle clamping | |
| Clamp stitches | 1 | Setting range 1~10 | |
| Start angle of yarn trapper | 260 | Setting range 0~360 | |
| End angle of yarn trapper | 350 | Setting range 0~360 | |

**Startup slowly parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| Activate at low speed | OFF | ON=At low speed<br>OFF=At normal speed | |
| 1st needle speed after starting sewing(rpm) | 300rpm | Settable range limited by speed of the previous and following needles | |
| 2nd needle speed after starting sewing(rpm) | 600rpm | Settable range limited by speed of the previous and following needles | |
| 3rd needle speed after starting sewing(rpm) | 800rpm | Settable range limited by speed of the previous and following needles | |
| 4th needle speed after starting sewing(rpm) | 1400rpm | Settable range limited by speed of the previous and following needles | |
| 5th needle speed after starting sewing(rpm) | 2000rpm | Settable range limited by speed of the previous and following needles | |
| The last but four needle speed before completion of sewing(rpm) | 2000rpm | Settable range limited by speed of the previous and following needles | |
| The last but three needle speed before completion of sewing(rpm) | 1400rpm | Settable range limited by speed of the previous and following needles | |
| The last but two needle speed before completion of sewing(rpm) | 800rpm | Settable range limited by speed of the previous and following needles | |
| The last but one needle speed before completion of sewing(rpm) | 500rpm | Settable range limited by speed of the previous and following needles | |

| | | | |
|---|---|---|---|
| Reverse lifting enable | OFF | ON= Press "inverted angle" to set inverted value after completion of sewing;<br>OFF=Don't turn in reverse； | |
| Inverted angle | 67degrees | Setting range 0~67 degrees | |

**Pause parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| Allowed emergency stop | ON | ON=Effective emergency button ;<br>OFF Ineffective emergency button | |
| Emergency stop switch type | OFF | ON=Ordinary switch;<br>OFF=Self-locking switch | |
| Delay operation of emergency stop(ms) | 100ms | 0~900 | Time for pressing emergency stop key |
| Automatic trimming in the condition of emergency stop | OFF | ON=On;<br>OFF=Off; | |

**Thread trimmer、thread wiper parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| Trimming speed | 180 | Setting range 100~400 | |
| Cutter reset check | OFF | ON=Effective;<br>OFF=In effective; | |
| The running distance of thread-cutting motor(rpm) | 0 | Setting range 0~10000 | |
| The inhaling time of loosing thread at trimming | 0 | Setting range 0~1000 | |
| Trimming setting before empty moving | ON | ON=Allow;<br>OFF=Forbid; | |
| Trimming type selection | 1 | Setting range 0~3<br>0magnetic valve<br>1electromagnet<br>2hook cutter motor<br>3circular cutter motor | |
| Check whether thread is cut off in empty move? | OFF | ON=Effective emergency button ;<br>OFF Ineffective emergency button | |

| | | | |
|---|---|---|---|
| Mode of thread breakage detection | 0 | Setting range 0~2<br>0 Jumper spring mode,<br>1 Encode mode,<br>2 Sensor mode | |
| Time of detecting whether thread is cut off in empty move(ms) | 0 | Setting range 0~10000 | |
| Number of alarm pulses when thread is not cut off in empty move | 0 | Setting range 0~1000 | |
| Duration of wiping actuation(ms) | 80 | Setting range 10~300 | |
| Sweep thread delaytime(ms) | 50 | Setting range 10~200ms | |
| Wipper setting | ON | ON=On;<br>OFF=Off; | |
| The thread release starts angle | 225 | Setting range 1~358 | |
| The thread release terminates angle | 355 | Setting range 1~358 | |

**Speed control parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| Upper limit of needle speed(rpm) | 2500rpm | Setting range 400~3500； | |
| Empty moving speed(rpm) | 2500rpm | Setting range 400~5000； | |
| Return-to-zero speed(rpm) | 1500rpm | Setting range 400~8000； | |
| The lowering and lifting speed of medium_presser | 10000 | Setting range 50~10000； | |
| The lowering and lifting speed of presser | 50 | Setting range 50~10000； | |
| Settingout speed | 800rpm | Setting range 400~3500； | |
| Template speed(rpm) | 800rpm | Setting range 400~3500； | |
| Cutting knife rotation speed(rpm) | 0 | Setting range 50~5000； | |
| Cutting knife rotation speed | 50 | Setting range 50~5000； | |

| | | | |
|---|---|---|---|
| The running speed of cutting motor(rpm) | 0 | Setting range 0~20000； | |
| Drafting speed 1(rpm) | 200rpm | Setting range 200~10000； | |
| Drafting speed 2(rpm) | 1000rpm | Setting range 200~10000； | |
| Drafting speed 3(rpm) | 1500rpm | Setting range 200~10000； | |
| High speed multiplying power(%) | 100 | Setting range 0~100； | |
| Medium to high speed multiplying power(%) | 80 | Setting range 0~100； | |
| Medium to low speed multiplying power(%) | 30 | Setting range 0~100； | |
| Low speed multiplying power(%) | 20 | Setting range 0~100； | |
| Speed of tension motor inhale | 50 | Setting range 50~5000； | |
| Speed of tension release motor | 50 | Setting range 50~5000； | |
| The running speed of thread-cutting motor(rpm) | 0 | Setting range 10~10000； | |

**Thread breakage parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| Thread break detection effective | ON | ON=Effective；<br>OFF=Ineffective; | |
| Mode of thread breakage detection | 0 | Setting range 0~2<br>0 Jumper spring mode,<br>1 Encode mode,<br>2 Sensor mode | |
| The efficiention number of stitchs while thread breaking | 5 | Setting range 1~200 | |
| The delays when thread breakage(ms) | 100 | Setting range 1~200 | |

| | | | |
|---|---|---|---|
| Number of alarm pulses at thread breakage detection(in encode mode) | 0 | Setting range 1~1000 | |

**Delay time parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| The time of thread trimmer began to inhale | 1400 | Setting range 0~10000 | |
| The time of thread release began to inhale | 1500 | Setting range 0~10000 | |
| The time of thread wipper began to inhale | 1300 | Setting range 0~10000 | |
| Delay time for middle presser foot pressed (ms) | 0 | Setting range 0~500 | |
| Delay time for middle presser foot lifting(ms) | 300 | Setting range 0~500 | |
| Delay time for press plate pressed (ms) | 100 | Setting range 0~500 | |
| Delay time for press plate lifting (ms) | 100 | Setting range 0~500 | |
| Delay time for auxiliary press plate pressed (ms) | 200 | Setting range 0~500 | |
| Delay time for auxiliary press plate lifting (ms) | 100 | Setting range 0~500 | |
| Auxiliary presser foot depresses timing control | ON | ON=Time delay is valid；<br>OFF=Time delay is invalid; | |
| The delay time of medium_presser lowering | 0 | Setting range 1~100 | |
| The delay time of medium_presser lifting | 0 | Setting range 1~100 | |

**Origin parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| The principal axis lock on power | OFF | ON=Effective；<br>OFF=Ineffective; | |
| Home position return when powering up | ON | ON=Effective；<br>OFF=Ineffective; | |
| Home position when powering up | OFF | ON=Effective；<br>OFF=Ineffective; | |
| Press plate motion of origin | OFF | ON=Effective；<br>OFF=Ineffective; | |
| Return to origin order | 0 | Setting range 0~2<br>0: X-axis motor and Y-axis motor return to origin at the same time,<br>1: X-axis motor return to origin first,<br>2: Y-axis motor return to origin first | |

**Pressplate param**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| When the press plate is lifted, whether or not allow simulation sewing | OFF | ON=Permission；<br>OFF=Forbid; | |
| When the press plate is lifted, whether or not allow the sewing | ON | ON=Allow；<br>OFF=Forbid; | |
| Press plate motion after back to the initial positon | OFF | ON=Automatic lifting；<br>OFF=Continal press down; | |
| Template automatic depressing/automatic sewing | 0 | Setting range 0~2<br>0 means template not automatic depressing,<br>1 means automatic depressing,<br>2 means automatic depressing and start sewing(it is valid the automatic identification template mode ); | |
| After the template is in place, the delay time of template automatic depressing(ms) | 200 | Setting range 0~20000 | |
| After template automatic depressing, the delay time before sewing(ms) | 1500 | Setting range 0~20000 | |

**Medium_presser set parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| Allow simulation sewing when middle presser foot depresses | ON | ON=Permission；<br>OFF=Forbid; | |
| Allow edium_presser pressed down at datum point setting | OFF | ON= Forbid；<br>OFF= Permission; | |
| Medium_presser rising up detection | ON | ON=Effective；<br>OFF=Ineffective; | |
| Numbers of stitches with medium_presser height adjustment at the start of sewing | 0 | Setting range 0~10 | |
| Number of stitches whitch electronic intermittent presser does not move up and down at the beginning of sewing | 0 | Setting range 0~10 | |
| Offset of intermittent presser foot height at the start of sewing | 0 | Setting range -200~200 | |
| Number of stitches whitch electronic intermittent presser does not move up and down at the beginning of sewing | 0 | Setting range 0~10 | |
| angle of the presser foot began falling | 350 | Setting range 1~358 | |
| angle of the presser foot end falling | 100 | Setting range 1~299 | |
| angle of the presser foot began rising | 220 | Setting range 1~299 | |
| angle of the presser foot end rising | 300 | Setting range 1~299 | |
| Intermediate presser high proportion function set at the beginning and the end of sewing | OFF | ON=Effective；<br>OFF=Ineffective; | |

| | | | |
|---|---|---|---|
| Intermediate presser high proportion of 1st needle at the beginning of sewing | 0 | Setting range 0~100 | |
| Intermediate presser high proportion of 2nd needle at the beginning of sewing | 0 | Setting range 0~100 | |
| Intermediate presser high proportion of 3rd needle at the beginning of sewing | 0 | Setting range 0~100 | |
| Intermediate presser high proportion of 4th needle at the beginning of sewing | 0 | Setting range 0~100 | |
| Intermediate presser high proportion of 5th needle at the beginning of sewing | 0 | Setting range 0~100 | |
| Intermediate presser high proportion of the last but four needle before completion of sewing | 0 | Setting range 0~100 | |
| Intermediate presser high proportion of the last but three needle before completion of sewing | 0 | Setting range 0~100 | |
| Intermediate presser high proportion of the last but two needle before completion of sewing | 0 | Setting range 0~100 | |
| Intermediate presser high proportion of the last but one needle before completion of sewing | 0 | Setting range 0~100 | |
| Intermediate presser high proportion of the last needle before completion of sewing | 0 | Setting range 0~100 | |

**Pattern ID parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| Pattern automatic identification mode (bar code/detector switch) | ON | ON=Bar code;<br>OFF=Detector switch; | |
| Whether to move to the scanning position when scanning the bar code | OFF | ON=Move;<br>OFF=Do not move; | |
| Number of barcode scanning | 0 | Setting range 0~10 | |
| X offset of bar code scanning position | 0 | Setting range -500~500 | |
| Y offset of bar code scanning position | 0 | Setting range -500~500 | |

**Auto oiling**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| Automatic oiling permission | ON | ON=Allow;<br>OFF=Forbid | |
| Automatic oiling time(ms) | 6000 | Setting range 0~20000 | |
| Automatic oiling interval sewing needle count(unit:10000) | 100 | Setting range 0~10000<br>1 means 10000 needles, when speed is 2000 ,it will take 5 minutes to finish 10000 needles ,set 50, After 250 minutes of sewing machine running, it will automatically oil | |
| Interval sewing needle count(unit:1) | 0 | Setting range 0~10000<br>Interval sewing needle count = 10000*P212 + P219 | |
| Sewing needle count(unit:10000) | 0 | Setting range 0~10000<br>Sewing needle count(unit:10000) | |
| Sewing needle count(unit:1) | 0 | Setting range 0~10000<br>Sewing needle count(unit:10000) | |
| Oiling time count | 0 | Setting range 0~20000 | |

**Counter parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| Reset of productivity counting after power on | OFF | ON=Reset；<br>OFF=Unchanged | |
| Keep recording when the counting equals to default | OFF | ON=Allow;<br>OFF=Forbid | |
| Reset of low thread counter after power on | OFF | ON=Reset；<br>OFF=Unchanged | |
| Keep recording after reset of low thread counter | OFF | ON=Allow;<br>OFF=Forbid | |
| Alarm length of lower thread(mm) | 0 | Setting range 0~20000 | |
| Automatic bobbin change function | OFF | ON=Effective；<br>OFF=Ineffective; | |
| After automatic bobbin changed, whether automatic sewing or not | OFF | ON=Effective；<br>OFF=Ineffective; | |
| Alarm time of automatic bobbin changing | 0 | Setting range 0~30000 | |

**Pen/carve/datum parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| Setting-out X offset(0.1mm) | 0 | Setting range -5000~5000 | |
| Setting-out Y offset(0.1mm) | 0 | Setting range 0~7000 | |
| Template X offset(0.1mm) | 0 | Setting range -5000~5000 | |
| Template Y offset offset(0.1mm) | 0 | Setting range 0~7000 | |

**Datum offset parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| reserved | | | |

**Function switch parameters**

| Parameters | Initial Values | Contents | Remarks |
|---|---|---|---|
| reserved | | | |

# 12. Auxiliary Setting

After touching the key  in the main interface, touch the key  to enter the auxiliary setting interface.

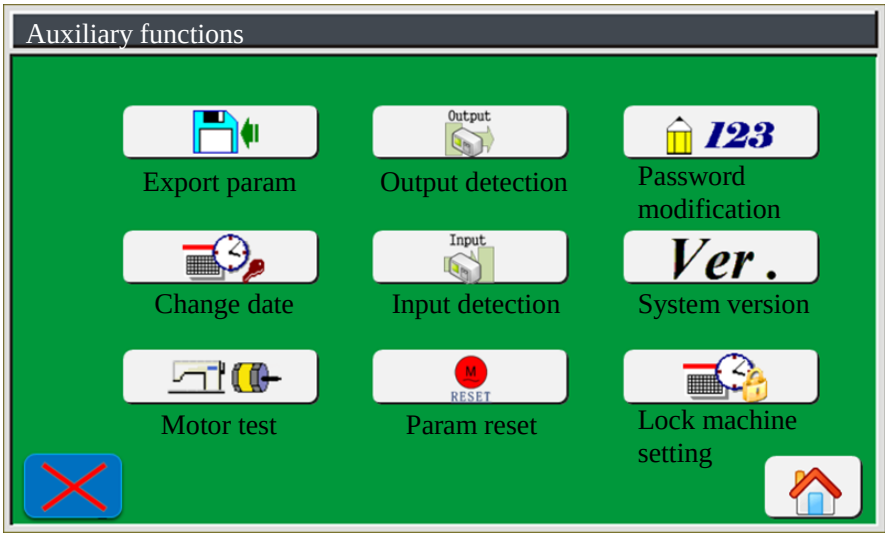



Figure 12-1 Auxiliary Setting Interface

 Export param  Output detection

 Password modification  Change date

 Input detection  System version

 Motor test  Param reset

 Lock machine setting

## 12.1 Output detection

Touch  to enter the interface for output signal checking.

The first page is shown as the figure below：

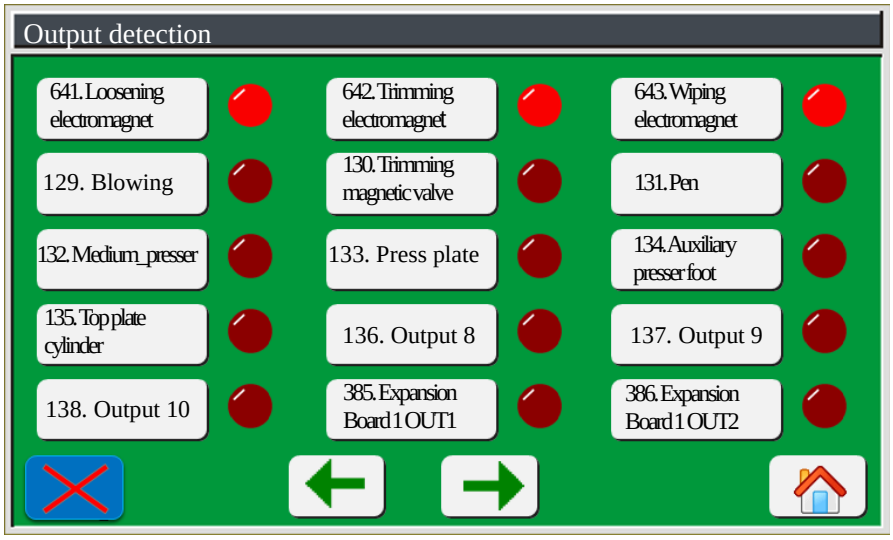



Figure 12-2 Output detection interface

Red signal lamp and dark red signal lamp indicate the corresponding status. It can be switched overvia the key The statuses of the electromagnets and solenoid valves are as follows：

**Releasing electromagnet:** red signal lamp indicates the attraction of the releasing electromagnet.

dark red signal lamp indicates the release of the releasing electromagnet.

**Trimming electromagnet:** red signal lamp indicates the attraction of the trimming electromagnet.

dark red signal lamp indicates the release of the trimming electromagnet.

**Sweeping electromagnet:** red signal lamp indicates the attraction of the sweeping electromagnet.

dark red signal lamp indicates the release of the sweeping electromagnet.

**Blowing：** red signal lamp ， indicates the attraction of the blowing solenoid valve.

dark red signal lamp indicates the release of the blowing solenoid valve.

**Trimming solenoid valve:** red signal lamp indicates the attraction of the trimming solenoid valve.

dark red signal lamp indicates the release of the trimming solenoid valve.

**Presser:** red signal lamp indicates the attraction of the template arm solenoid valve.

dark red signal lamp indicates the release of the template arm solenoid valve.

**Middle presser foot：** red signal lamp indicates the attraction of the middle presser foot solenoid valve.

dark red signal lamp indicates the release of the middle presser foot solenoid valve.

**Top plate cylinder:** red signal lamp indicates the attraction of the top plate solenoid valve.

dark red signal lamp indicates the release of the top plate solenoid valve.

**Pen：** red signal lamp indicates the attraction of the pen solenoid valve.

dark red signal lamp indicates the release of the pen solenoid valve.

**Auxiliary presser foot：** red signal lamp indicates the attraction of the auxiliary presser foot solenoid valve.

dark red signal lamp indicates the release of the auxiliary presser foot solenoid valve.

**Output 8：** red signal lamp indicates the attraction of the output 8 solenoid valve.

dark red signal lamp indicates the release of the output 8 solenoid valve.

**Output 9：** red signal lamp indicates the attraction of the output 9 solenoid valve.

dark red signal lamp ， indicates the release of the output 9 solenoid valve.

**Output 10：** red signal lamp indicates the attraction of the output 10 solenoid valve.

dark red signal lamp indicates the release of the output 10 solenoid valve.

**ExpansionBoard 1 OUT1：**

red signal lamp indicates the attraction of the ExpansionBoard 1 OUT1 solenoid valve.

dark red signal lamp indicates the release of the ExpansionBoard 1 OUT1 solenoid valve.

**ExpansionBoard 1 OUT2：**

red signal lamp indicates the attraction of the ExpansionBoard 1 OUT2 solenoid valve.

dark red signal lamp indicates the release of the ExpansionBoard 1 OUT2solenoid valve.

Touch the key  to return to auxiliary setting interface.

## 12.2 Change date

In the auxiliary setting interface, touch  to enter the interface for date change, as shown in the figure below:

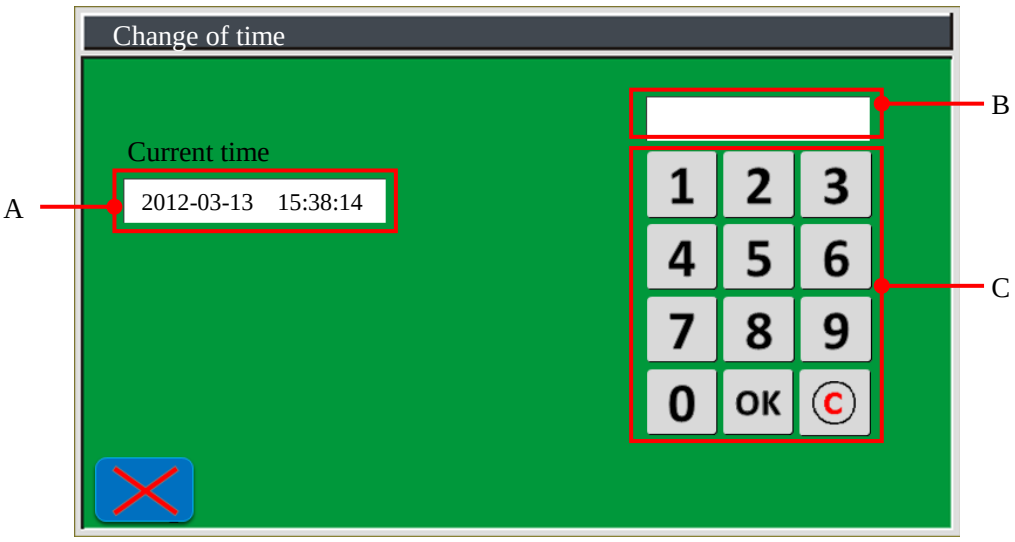



Figure 12-3 Interface for date change

Operation example: set the current time as 16：40：30 of October 20, 2012.

(1) Open the window for time setting

After touching the key A, “20??-??-?? ??-??-??” will be indicated in time-setting area B, as shown in the figure below:

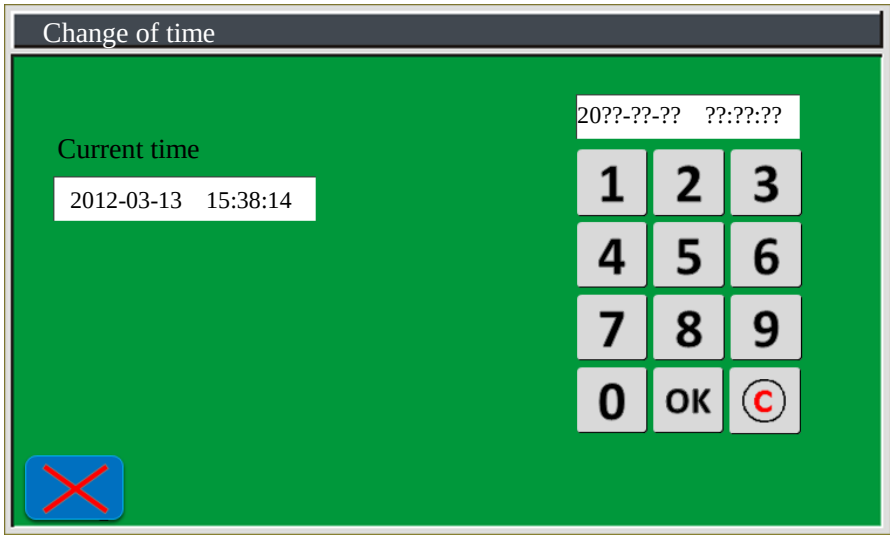



Figure 12-4 Interface for date change

(2) Input the set time

Input 1220164030 through data input area C, and touch the key OK to complete time setting.

## 12.3 Input detection

In the auxiliary setting interface, touch 

to enter input signal examination, and check the signal of the input system.

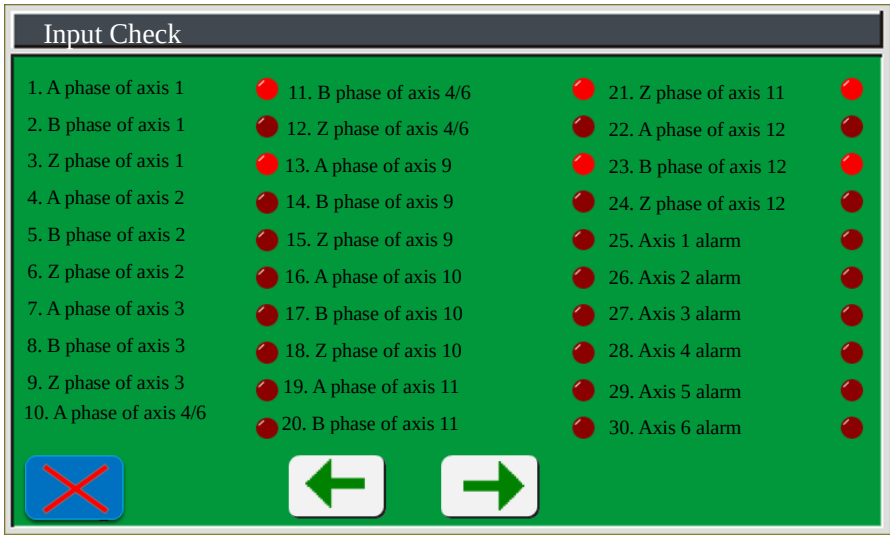



Figure 12-5 Interface 1 for input signal examination

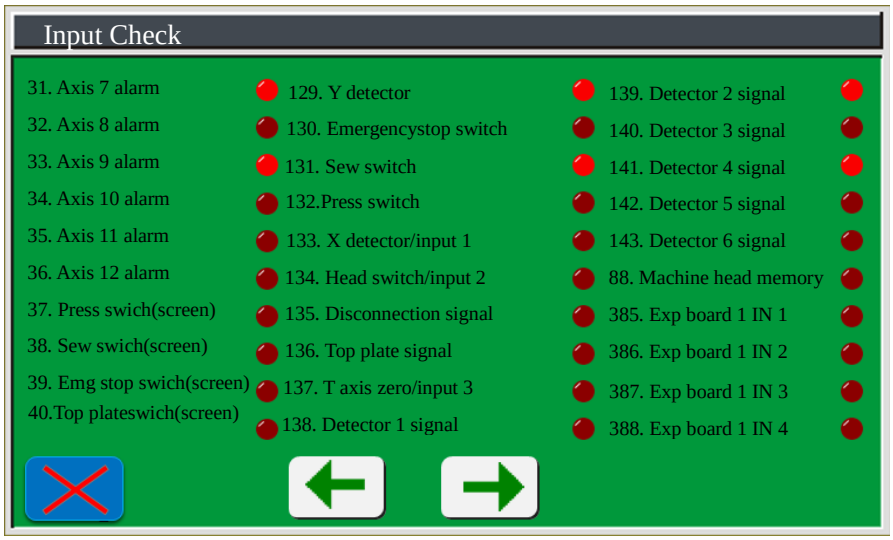



Figure 12-6 Interface 2 for input signal examination

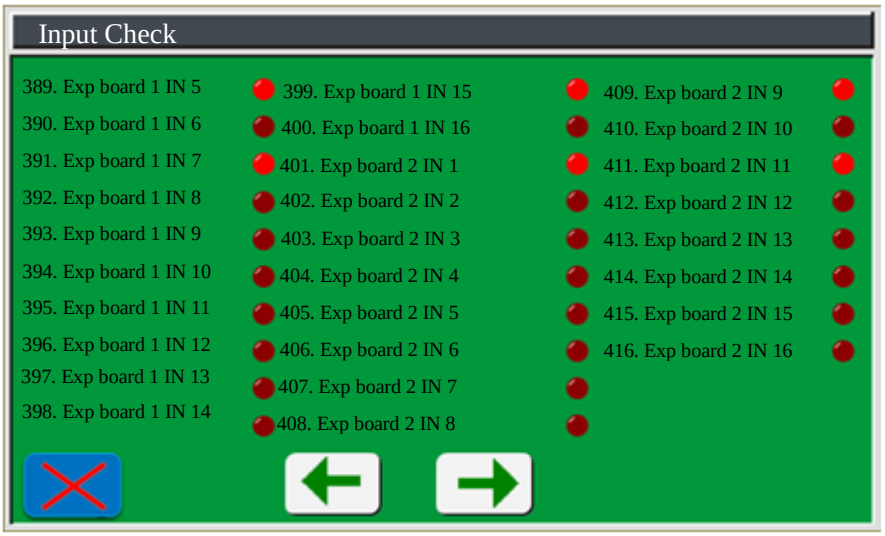
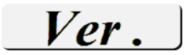



Figure 12-7 Interface 3 for input signal examination

(1) Indicating the output signal L/H of ABZ encoder of axis 1,axis 2, axis 3, axis 4/6, axis 8, axis 9, axis 10, axis 11, axis 12.
(2) Indicating the output alarm signal of axis 1~12.
(3) Indicating press switch (screen) signal, sew switch(screen) signal, emg stop(screen) signal,top plate(screen) signal.
(4) Indicating detector signal at Y position, emergencystop switch signal, sew switch signal, press switch signal , X detector/input 1 signal, head switch/input 2 signal, disconnection signal, top plate signal, T axis zero/input 3 signal, machine head memory signal.
(5) Indicating detector signal 1~6.
(6) Indicating the input signal 1~16 of expansion board 1.
(7) Indicating the input signal 1~16 of expansion board 2.

Touch the key  to return to auxiliary setting interface.

## 12.4 System version

Touch 

to check the version number of current controller:

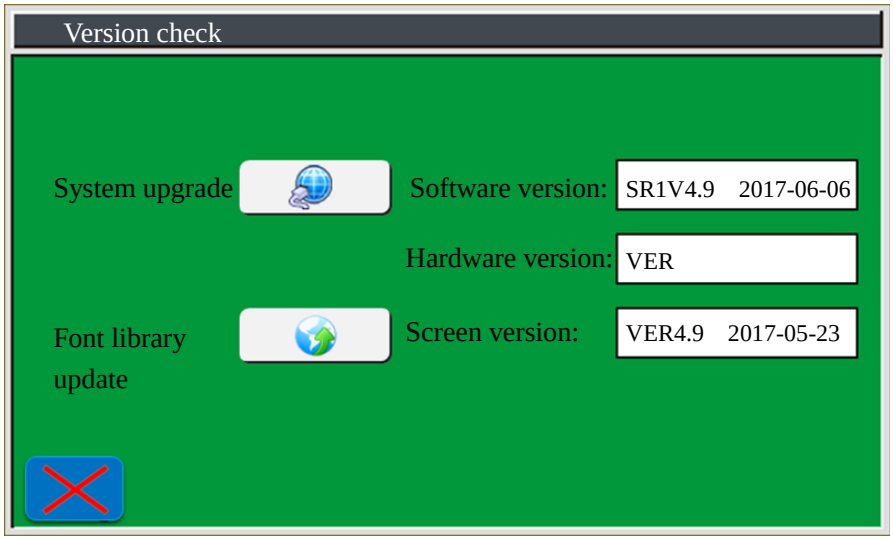



Figure 12-8 Interface for software version check

## 12.5Networking

In the auxiliary Settings interface, Touch  to enter the network Settings interface as shown in the following figure :

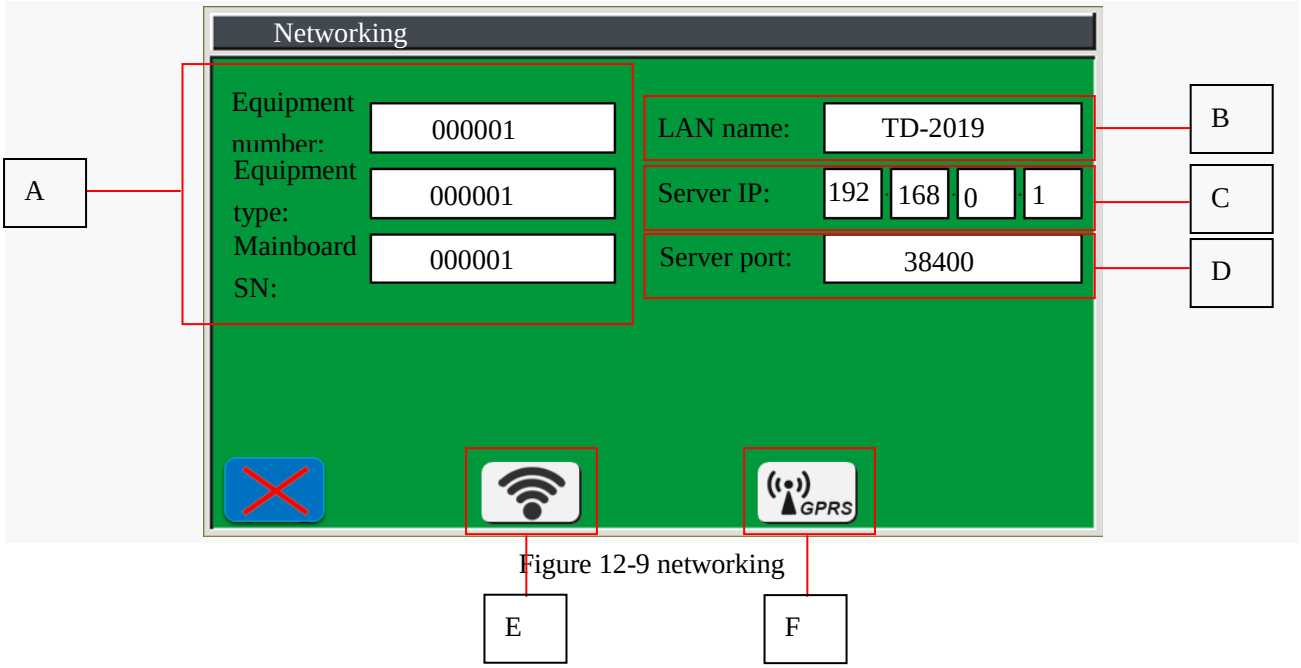



Figure 12-9 networking

A：Equipment number, Equipment type, Mainboard SN, Click the button to set Equipment number, Equipment type, Mainboard SN.

B：LAN name,Displays the name of the LAN that has been connected here.

C：Server IP, You should enter the correct Server IP before connecting to the network so that you can connect to the network normally.

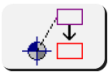
D：Server port,You should enter the correct Server port before connecting to the network so that you can connect to the network normally.

E：WIFI LIST，After setting the correct IP address and Server port ,Click  to Search for connectable networks within range,select the network you want to connect to and enter the correct password to connect to it.

F：GPRS connecting，Click it to connect GPRS.

# 13. Benchmark Interface

In actual sewing, it needs to ensure that the position of the pattern and the actual position of the template coincide. Before sewing a newly-designed pattern file for the first time, it needs to adjust the position of the datum point in the benchmark interface so to make the position of the pattern and the actual position of the template to coincide. Then perform simulated sewing in the main interface. When it is confirmed that the position of the pattern and the actual position of the template coincide, perform the sewing operations.

In the benchmark interface, move the datum point of the pattern file to align it with the datum point of the template, thus ensuring the position of real pattern is consistent with that of the template. In the main interface, touch the key  to enter the benchmark interface, as shown in the figure below:

## 13.1 Interface Introduction

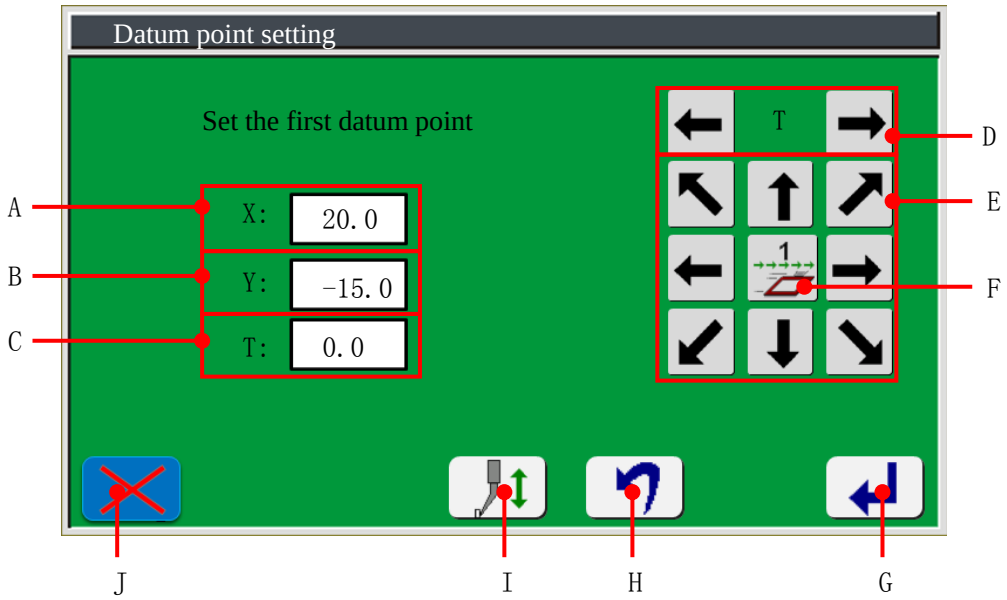
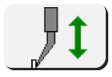



Figure 13-1 Benchmark interface

| No. | Icon | Name | Description |
|---|---|---|---|
| A | X coordinate | X coordinate | Indicating the coordinate along X direction |
| B | Y coordinate | Y coordinate | Indicating the coordinate along Y direction |
| C | Reserved | Reserved | Reserved |
| D | Reserved | Reserved | Reserved |
| E | Direction key | Direction key | Touch the key, the needle will operation in the direction of the arrow. |
| F |  | Changing drafting speed |  low speed  middle speed  high speed (Speed value to be set in user parameters) |
| G |  | Confirmation key | Set the current X/Y coordinates as the sewing starting point of the pattern |
| H |  | Cancellation | Return to the first datum point |
| I |  | Middle presser foot | Adjust middle presser foot, uplift or depress |
| J |  | Return | Return to main interface |

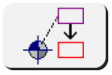
## 13.2 Operating Instructions

In drawing a pattern file, two datum points are generally set. If no datum point is set while drawing a pattern file, the system default is that the sewing starting point be the datum point, in which case there is only one datum

point for the pattern file.

When a pattern file includes two datum points:

(1) Setting the first datum point:

In the main interface, touch the key  to enter the benchmark interface. Then the machine needle moves to the first datum point of the pattern. Touch the direction key E in Figure 14-1 to align the first datum point of the pattern with the first datum point of the template.

(2) Aligning the second datum point:

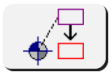
After touching the key  , the machine needle will move to the second datum point of the pattern. Touch the direction key E in Figure 14-1 to align the second datum point of the pattern with the second datum point of the template.

(3) Confirm exit:

Touch the key  to complete the alignment of the pattern file and the template. Return the main interface.

When a pattern file includes one datum point:

(1) Aligning the first datum point:

In the main interface, touch the key  to enter the benchmark interface. Then the machine needle moves to the first datum point of the pattern. Touch the direction key E in Figure 14-1 to align the first datum point of the pattern with the first datum point of the template.

(2) Confirm exit:

Touch the key  to complete the alignment of the pattern file and the template. Return the main interface.

# 14. Appendix

## Appendix 1

## Alarm Description

| Alarm Codes | Causes and Handling Methods |
|---|---|
| E.040 | Not press for press frame |
| E.041 | Unidentification template |
| E.043 | Return to origin |
| E.044 | Not lift for presser foot |
| E.049 | Machine head not up |
| E.050 | The machine head is tipped after the power supply is connected.<br>Switch off the power supply and align the machine head;<br>Confirm the connections of cables from the machine head switch to position BK of front panel. |
| E.051 | Machine head not down |
| E.052 | Cut cloth knife is not in the top |
| E.053 | Cut cloth knife is not in the bottom |
| E.058 | Cutter not reset |
| E.100 | The origin of the principal axis motor cannot be found after the power supply is connected.<br>Switch off the power supply and turn the handwheel to confirm if the upper shaft is stuck;<br>Confirm connections of cables from the principal axis motor to position ZD of front panel. |
| E.111 | The main axis operates abnormally.<br>Switch off the power supply, rotate the handwheel to confirm if the principal axis motor is stuck;<br>Confirm connections of cables from principal axis motor to position ZD of front panel. |
| E.113 | The principal axis actuator gives an alarm.<br>Switch off the power supply, rotate the handwheel to confirm if the principal axis motor is stuck;<br>Confirm connections of cables from principal axis motor to position ZD of front panel. |
| E.200 | After the power supply is connected, the origin of motor of X axis can not be found.<br>Switch off the power supply to inspect whether the mechanical part along X (horizontal) direction is stuck;<br>Confirm connections of cables from motor of X axis to position XD of front panel. |

| | |
|---|---|
| E.201 | During cloth feeding process, motor of X axis is desynchronized.<br>Switch off the power supply to inspect whether the mechanical part along X (horizontal) direction is stuck;<br>Confirm connections of cables from motor of X axis to position XD of front panel.<br>Confirm whether motor of X axis and the encoder are securely installed. |
| E.202 | Cloth feeding of X axis motor not completed |
| E.203 | The X axis actuator gives an alarm.<br>Switch off the power supply, inspect whether the mechanical part along X (horizontal) direction is stuck;<br>Confirm connections of cables from motor of X axis to position XD of front panel. |
| E.204 | Actuator 2 of X axis gives an alarm |
| E.210 | After the power supply is connected, the origin of motor of Y axis can not be found.<br>Switch off the power supply to inspect whether the mechanical part along Y (vertical) direction is stuck;<br>Confirm connections of cables from motor of Y axis to position YD of front panel |
| E.211 | During cloth feeding process, motor of Y axis is desynchronized.<br>Switch off the power supply to inspect whether the mechanical part along Y (longitudinal) direction is stuck;<br>Confirm connections of cables from motor of Y axis to position YD of front panel.<br>Confirm whether motor of Y axis and the encoder are securely installed. |
| E.212 | Cloth feeding of Y axis motor not completed |
| E.213 | The Y axis actuator gives an alarm.<br>Switch off the power supply, inspect whether the mechanical part along Y (longitudinal) direction is stuck;<br>Confirm connections of cables from motor of Y axis to position YD of front panel. |
| E.214 | Actuator 2 of axis Y gives an alarm |
| E.300 | After the power supply is connected, the origin of the foot-lifting motor can not be found.<br>Switch off the power supply and turn the foot-lifting motor to inspect whether the foot-lifting mechanical part is stuck;<br>Confirm connections of cables from foot lifting-motor to position TD of front panel. |
| E.301 | During operation process, foot-lifting motor is significantly desynchronized.<br>Switch off the power supply to inspect whether the mechanical part of foot-lifting motor is stuck;<br>Confirm connections of cables from foot-lifting motor to position TD of front panel.<br>Confirm whether foot-lifting motor and the encoder are securely installed. |
| E.303 | Actuator on axis Z gives an alarm |
| E.304 | Actuator on axis Z gives an alarm |
| E.310 | The engine of axis v can not find zero after power on |
| E.313 | Actuator 1on axis V gives an alarm |
| E.314 | The engine of v-axis 2 can not find zero after power on |
| E.320 | Q axis 1 can not find zero |
| E.321 | Q axis 2 can not find zero |
| E.323 | Actuator 1on axis Q gives an alarm |
| E.324 | Actuator 2on axis Q gives an alarm |

| | |
|---|---|
| E.330 | The engine of axis w can not find zero after power on |
| E.333 | W-axis actuator alarm |
| E.334 | The engine of w-axis 2 can not find zero after power on |
| E.370 | E370 DCM1 can not find zero |
| E.500 | In multiplying power setting, the sewing pattern is out of the sewing range of presser.<br>Reset the multiplying power of the pattern. |
| E.501 | The sewing pattern out of the sewing range is read.<br>Confirm the pattern data;<br>Confirm whether the presser is set accurately. |
| E.502 | No pattern file in machine |
| E.512 | The pattern sewing is not completed (not sewed completely).<br>Switch off the power supply and restart the machine. |
| E.551 | Pattern name is inconsistent with internal file name of the pattern.<br>Reedit the pattern to maintain the pattern name and internal file name of the pattern consistent. |
| E.552 | Wrong pattern data structure.<br>Reedit the pattern or delete the pattern in the controller. |
| E.553 | Anomaly occurs while clearing up Flash memory. Anomaly<br>Switch off the power supply and restart the machine. |
| E.800 | E800: Feeding mechanical arm is not up(auto feed 1) / (auto feed 2) |
| E.801 | E801: Feeding mechanical arm is not down(auto feed 1) / (auto feed 2) |
| E.802 | E802: Feeding bar is not down(auto feed 1) / (auto feed 2) |
| E.803 | E803: Feeding mechanism is not in place(auto feed 1) / (auto feed 2) |
| E.804 | E804: Taking mechanism is not in place(auto feed 1) / (auto feed 2) |
| E.805 | E805: No template is detected(auto feed 1) / (auto feed 2) |
| E.806 | E806: Taking mechanism is not in place(auto feed 1) / (auto feed 2) |
| E.807 | E807: Feeding bar is not up(auto feed 1) / (auto feed 2) |
| E.808 | E808: Negative pressure is insufficient(auto feed 1) / (auto feed 2) |
| E.809 | E809: Negative pressure not released(auto feed 1) / (auto feed 2) |
| E.810 | E810: Template is not removed(auto feed 1) / (auto feed 2) |

# Appendix 2

## 14.2.1 system chart

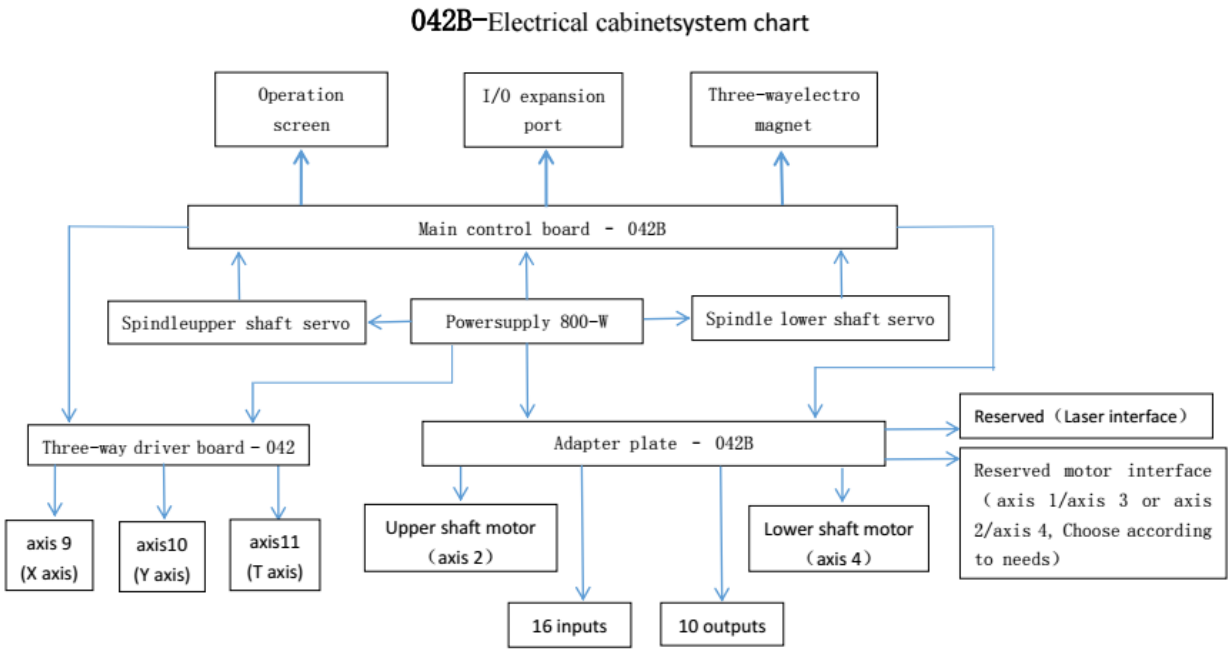



Figure 14-2-1 system chart

## 14.2.2 System wiring diagram

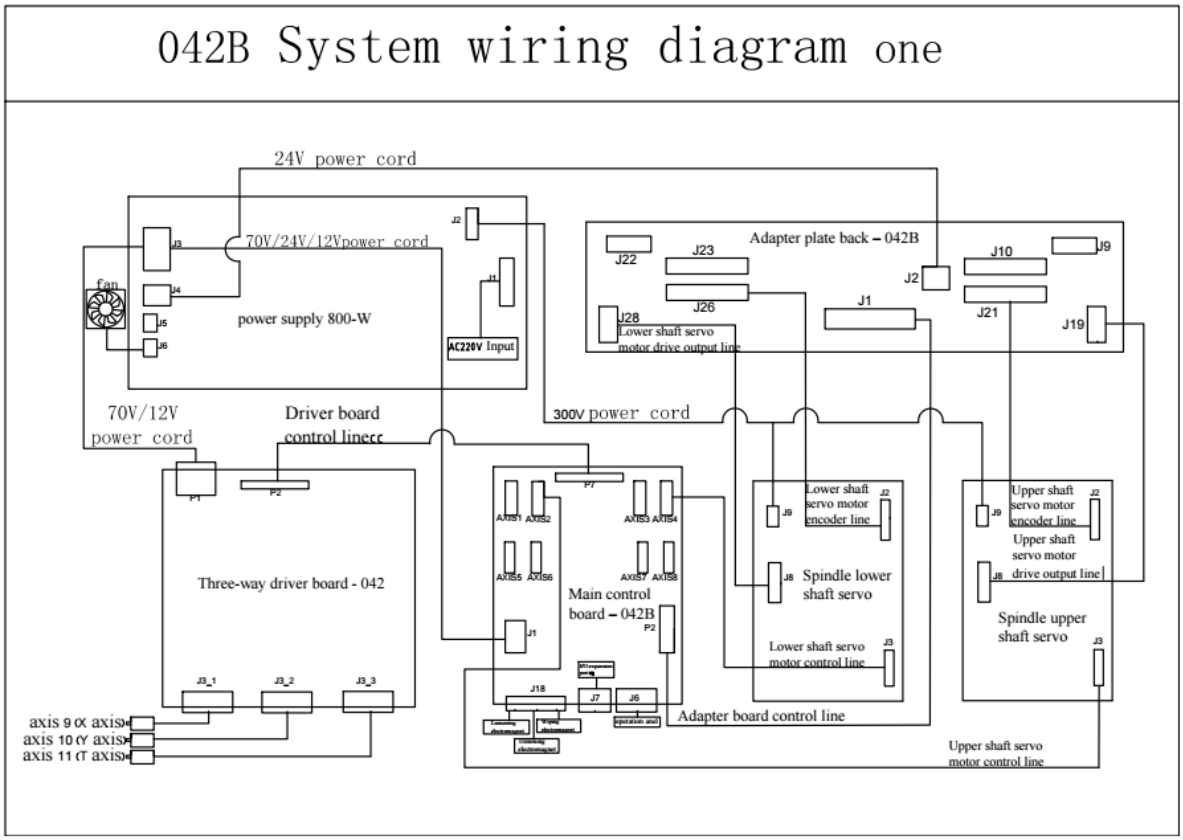



Figure 14-2-2（1） System wiring diagram 1

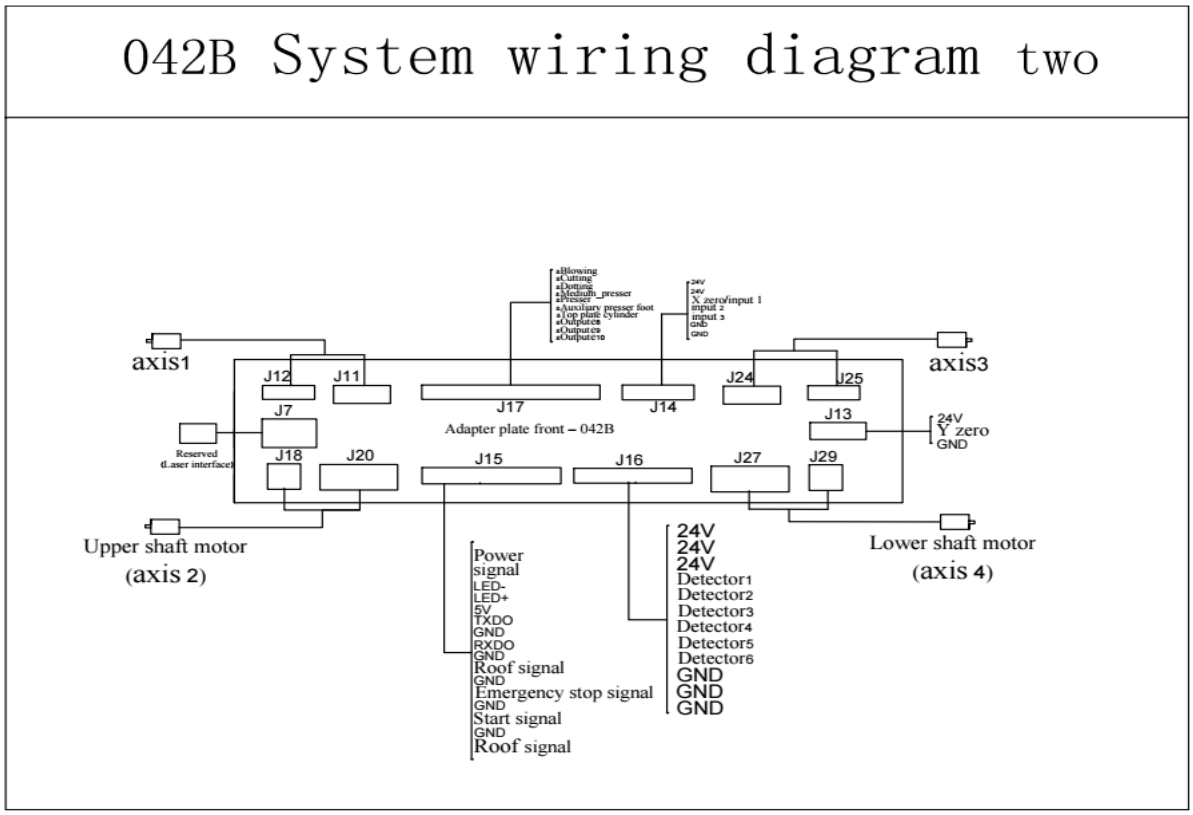



Figure 14-2-2（2） System wiring diagram 2

## 14.2.3 Chassis mounting dimension drawing

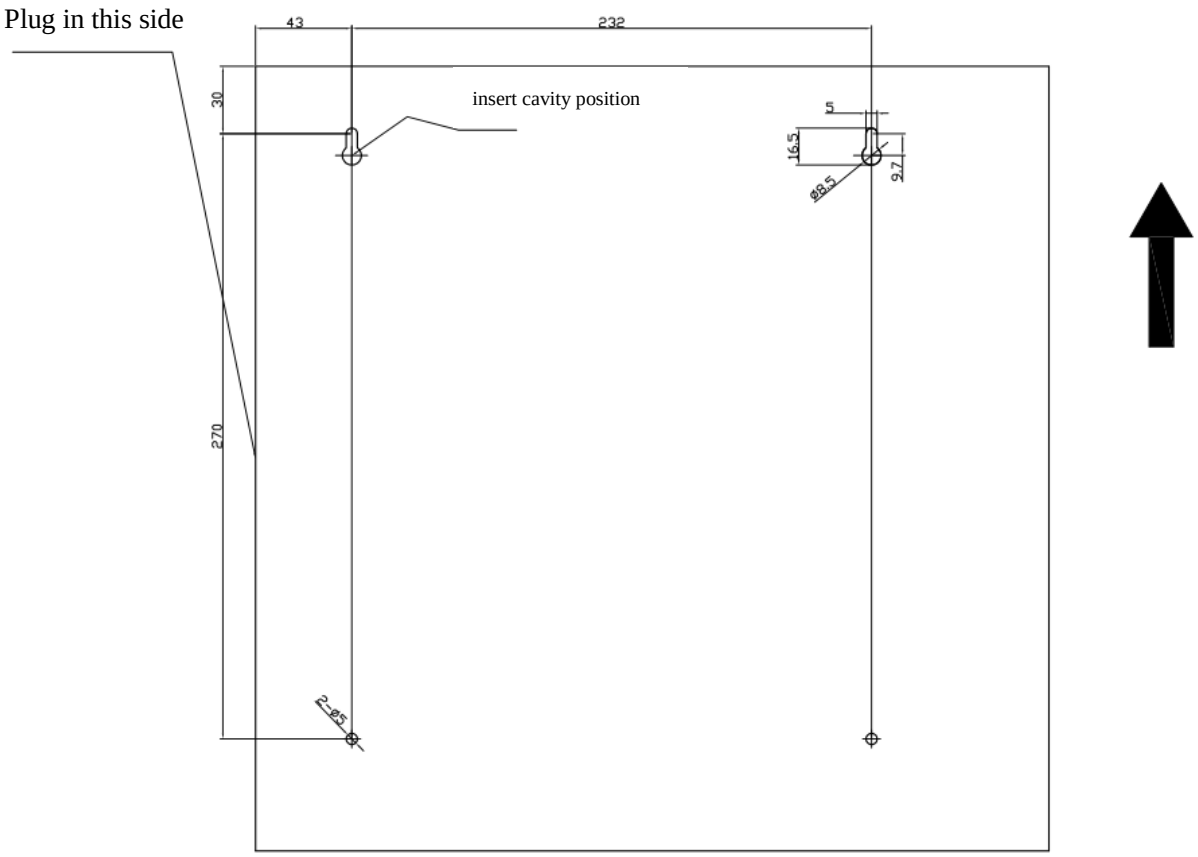



Figure 14-2-3 Chassis mounting dimension drawing

## 14.2.4 Operation screen installation dimension drawing

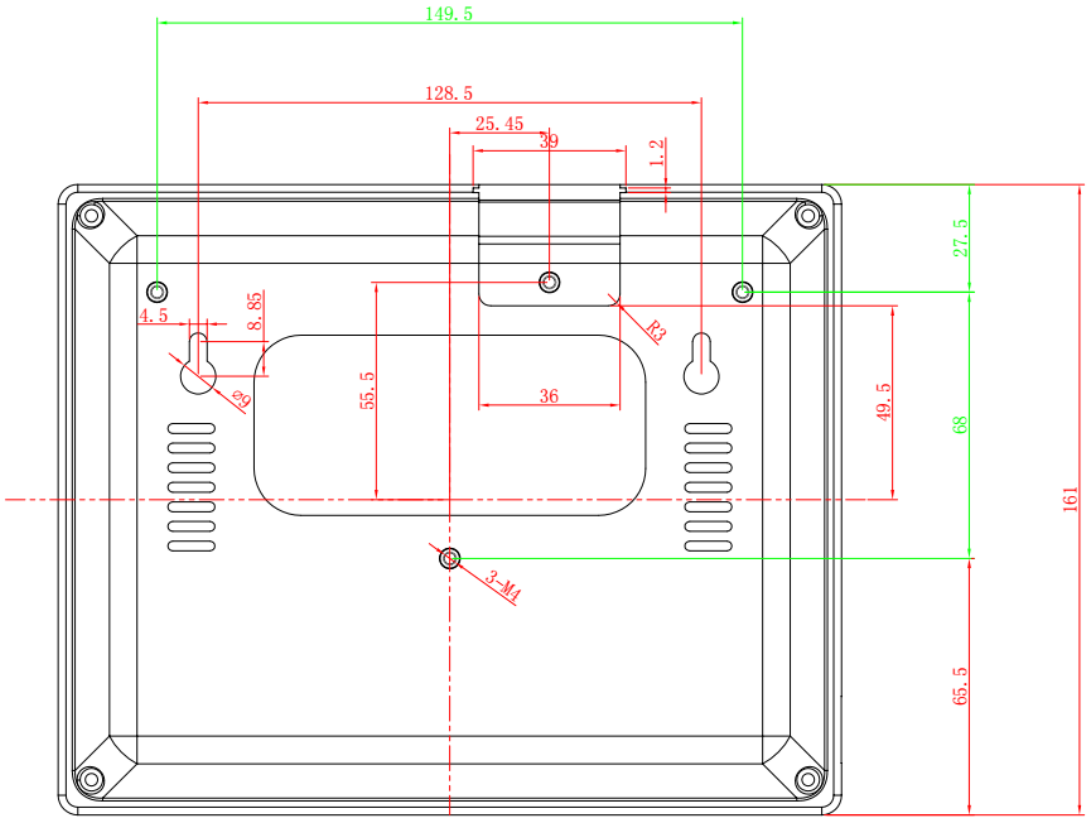



Figure 14-2-4 Operation screen installation dimension drawing

# Appendix 3

## Electrical cabinet hardware configuration table

| Electrical cabinet hardware configuration table | | | | |
|---|---|---|---|---|
| number | Name of parts | Unit | amount | remark |
| 1 | Main control panel | chunk | 1 | |
| 2 | Three-way drive plate | chunk | 1 | |
| 3 | pinboard | chunk | 1 | |
| 4 | Servo board | chunk | 2 | |
| 5 | 800W-4power | chunk | 1 | |
| 6 | power line(1meter) | root | 1 | |
| 7 | Control panel | cover | 1 | |
| 8 | External attachments | cover | 1 | |
| 9 | USB flash disk | entries | 1 | |
| 10 | RFID plate component | cover | 1 | |
| 11 | HB60 actuator | cover | 1 | |