

***ENGLISH***

**PS-810 Panel operation  
INSTRUCTION MANUAL**

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# Chapter I Introduction to Control System

## 1.1 Overview

Thank you very much for using the automatic template sewing machine control system of our company!

This system is compatible with a wide range of template sewing machines, meeting diverse customer sewing requirements and delivering excellent sewing performance across various types of fabrics.

Before using, please read the Instruction carefully to ensure the correct use of this system.

Please keep the instruction appropriately in order to check at any time.

In case of discrepancies between actual machine and this Instruction due to different machine configurations and software update, the operating functions shall prevail.

## 1.2 Functional Description

### (1) One machine with multi-purpose, simple operation

Under certain conditions, a fully automatic template sewing machine can replace multiple specialized machines, such as flat-bed sewing machines, bartack sewing machines, and embroidery machines, allowing a single machine to perform multiple functions.

After placing the template well, the operating personnel only needs to press the start key, automatic processing can be completed, the operation is quite simple

With standardized operation; the machine can work out amazing effects for a variety of stitches and a variety of fabric!

### (2) The man-machine interface is friendly and easy to use

7 inches color LCD touch screen, with clear display, easy to touch

The system is equipped with 4 GB of file storage, enabling the storage of a large number of processing files.

onvenient file Collection (template making), modification, management functions

### (3) High sewing efficiency enabled by precise motor control technology

Using international advanced DSP chip, fast system run speed, high hardware integration, stable performance

Support step-by-step, closed loop step-by-step, brushless DC, servo drive, using smooth curve for speed governing, smooth operation

Compact mechanical structure, good rigidity, high sewing position precision, low noise

(4) The upper computer graphics editing software is easy to use

Files in SCD, SCO, and PLT formats generated by AutoCAD and other mainstream CAD software can be easily converted into processing files.

The software has comprehensive graphics editing functions, supports layer editing and adding various kinds of special sewing stitch lines

With common control instruction set, customizable control instruction (functional code), high dexterity of action

For each layer, each graphic, each stitch point, a variety of mechanical control commands can be inserted into, to meet the diversified and precise automatic sewing requirement

(5) Rich user parameter settings, comprehensive auxiliary functions

Detail settings can be carried out for various mechanical actions

Point position, painting line, automatic mold slot opening function of some equipment can be extended

Support automatic identification of template, U Disk system updates, broken threads detection, continue sewing in power down, processing statistics, forecast for lack of bobbin thread, system self-test, parameter backup and recovery, encryption lock machine.

## 1.3 Notes

### 1.3.1 Safety Instruction

In order to avoid the possible risk and prevent damage to the device, please observe the following safety matters:

 **Note:**

- Please don't carry out maintenance and debugging to electric system by non-specialists, this will reduce the safety performance of equipment, enlarge the fault, and even cause harm to the personnel and property losses.
- Some components inside the machine are under high pressure. To prevent accidental injury, do not open the machine cover after the system has been powered on.
- Please do not pile up sundry around the control box, and in the process of using; remove dust on the surface of control box and the filter regularly, so as to keep good ventilation for the system, which is good for heat dissipation.
- Without authorization of the company, please do not make any change to the product arbitrarily, and the company shall not hold any responsibility for the consequences!

 **Warning:**

- **If it is necessary to open the control box cover, turn off the power, unplug the power cord from the outlet, and wait at least five minutes before touching any components inside the control box. This work must be performed under the guidance of qualified personnel.**

 **Danger:**

- **When the machine is at work, it is forbidden to contact with any moving part or open the control equipment, plug or pull out motor interface, otherwise it may cause personal injury or the machine not to work!**
- **It is forbidden for electrical equipment to work in places with humidity, dust, corrosive gas, flammable and explosive gas, otherwise it may cause electric shock or fire!**

### **1.3.2 Work Environment**

- Solid, level ground installation
- Good ventilation, healthy environment, less dust
- Temperature in work space: 5 to 35 °C
- Relative humidity in work space: 30% to 85% without condensation

### **1.3.3 Power Supply Requirement**

- Single-phase AC220V/50 to 60 HZ
- It needs to be equipped with the voltage regulation equipment when the power grid voltage fluctuation is more than 10%
- Depending on the machine configuration, the maximum power output of the equipment is 2.0 kW.

### **1.3.4 Grounding Requirement**

- In order to prevent electric shock or fire accident of electrical equipment due to causes such as electric leakage, over voltage, insulation, etc., please make sure the electronic control with reliable grounding
- The grounding resistance should be less than 100 ohms, conductor length within 20 meters, conductor cross-sectional area greater than 1.0 square millimeters

# Chapter II Description of Main Interface

## 2.1 System Power-up

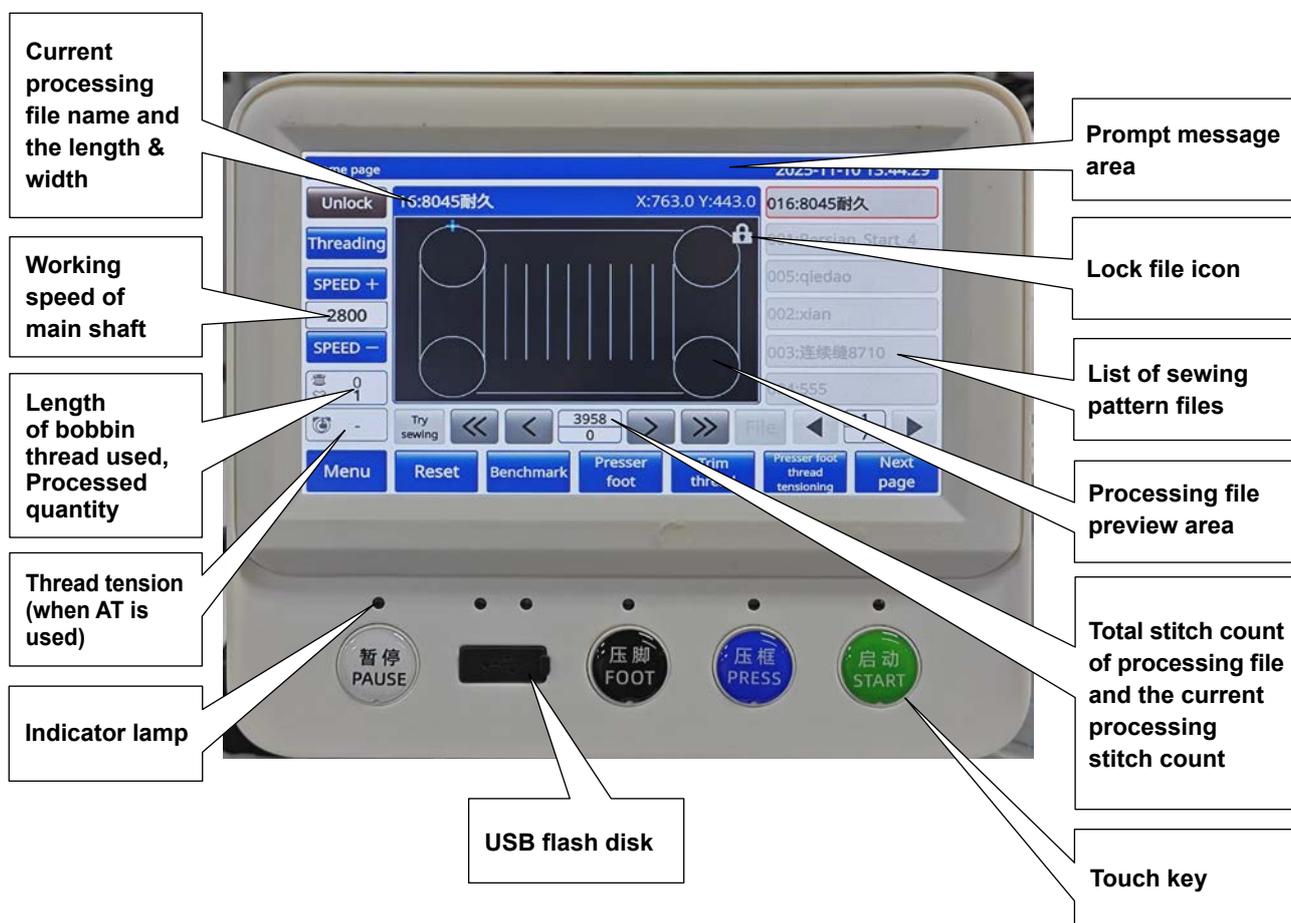
After the system is powered on, the machine operation interface displays the startup screen, and the main shaft automatically rotates to perform detection and reset operations. The specific reset behavior is related to the power-on reset parameter settings.

## 2.2 Home page (main screen)

### 2.2.1 Description of the home page screen

After the logo is displayed during startup, the system automatically enters the home page screen.

The home page screen is displayed as shown below.



#### Home page button functions

**Processing file preview area:** Displays the pattern of the currently selected file. Click on this area to switch over the pattern preview mode between the "Full graphic" (the graphic is scaled for optimal display in the preview area) and the "At ratio" (the graphic is displayed using the actual ratio to the processing range). When the processing pattern contains 8,000 stitches or more, only the "Full graphic" display mode is available.

**List of sewing pattern files:** Displays a list of sewing pattern files. Click on the key to select a pattern.

 **File button:** Lock the currently processed file to prevent misoperation. Once a file is locked up, other processing files can't be chosen, when  icon will appear in the preview area. Click once to lock, and click again to unlock.

If the START key is pressed while the pattern data is locked and the identification function is not enabled, a warning message is displayed.

**For RFID:** "RFID file not recognized" is displayed.

**For barcode reader:** "Barcode file not recognized" is displayed.

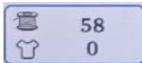
**Note:** Automatic template recognition will work only in the locked state of "lock file". The recognized template is displayed in the "prompt message area", and the corresponding numbered file will be automatically selected. For details of the method of using the electronic labels (RFID) and bar codes, refer to the Instruction Manual for the machine head.

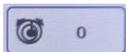
 **"Threading" key :** Places the sewing machine in the threading state and lowers the presser foot. In addition, the starting operation is automatically locked to prevent accidental startup.

 **"Acceleration" key :** The rotating speed of main shaft increases by 100 rpm. If this key is pressed and held (long-pressed), the speed will increase continuously until the set max speed is reached. Arbitrary change to rotating speed can be prohibited by setting a password.

 **"Deceleration" key :** The rotating speed of main shaft decreases by 100 rpm. If this key is pressed and held, the rotating speed will decrease continuously until the set min. speed is reached. Arbitrary change to rotating speed can be prohibited by setting a password.

 **"Display the current main shaft speed" :** Click to pop up the "File Speed" setting interface to set the independent speed of the current file. If set to 0, it means no independent processing speed.

 **Statistics button :** ① Used bobbin thread length statistics : Displays the length of bobbin thread currently used. Press the button to enter the processing statistics screen.  
② Processing count statistics : Displays the number of completed items. Press the button to enter the processing statistics screen.

 **AT tension value :** Sets the panel tension value when the AT device (optional) is used. This setting applies to all stitch points within the pattern, excluding stitch points with individual thread tension settings.

 **"Main menu" key :** Press the key to get into main menu interface.

 **"Try" key :** Used to simulate processing along the trajectory of the graphic.

When this key is depressed, XY axes rotate while the main shaft is stationary.

 **"Segment fast reverse" key :** Used to return to the starting position of the previous seam line by movement without load.

Used to check the designated processing stitch position or to start sewing from the designated seam line.

 **"Segment fast forward" key :** Used to proceed to the starting position of the next sewing by movement without load.

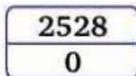
Used to check the designated processing stitch position or to start sewing from the designated seam line.

 **"Single needle return without load" key :** When this key is pressed, the sewing position is returned to one previous stitch by movement without load. Continuous backward movement without load is activated when this key is pressed and held.



**"Single needle forward without load" key** : When this key is pressed, the sewing

position is proceeded to one stitch forward without load. Continuous forward movement without load is activated when this key is pressed and held.



**"Total stitch count setup" key** : The number in the upper line indicates the stitch

count of processing file, while the number in the lower line indicates the current stitch count. Press the key, when the "Jump stitch" setup window pops up.

**Note : "Jump Stitch" window description** :  ...  : Number input for set value;  :

The set value returns to 0.



: The set value plus 1 ;



: The set value minus 1 ;



: Delete a digit from right to



: Cancel current modification ;



: The sewing position is moved to the set stitch

number position.



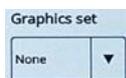
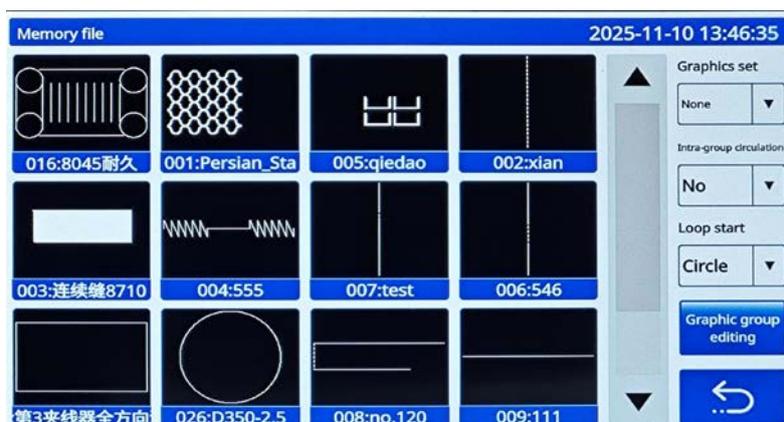
**"Left page" key** : Used to scroll the page to the left to display the processing files.



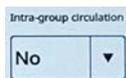
**"Right page" key** : Used to scroll the page to the right to display the processing files.



**"File" key** : Used to display all processing files.



**Group mode** : Used to to select a group from the Group 1 to Group 5.



**Loop** : Used to to activate all the graphic files within the selected group.



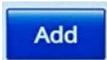
**Cycle start** : When the "Loop" is set to "Yes", selection of whether the operation is carried out in repetition or stopped after one round can be made.



**"Group" key** : Used to to enter the Group edit screen".



**Groups 1 to 10** : Select a group you want to edit.



Used to to add an arbitrary graphic file to the selected group.



Used to to delete an arbitrary file from the group.



Used to to delete all graphic files in an arbitrary group.



**“Reset” key** : Press the key, when the shafts start to rotate, while the machine is reset.



**“Reference” key** : Press the key to get into XY axes reference point setup page. At the same time, the sewing position moves to the current reference position.



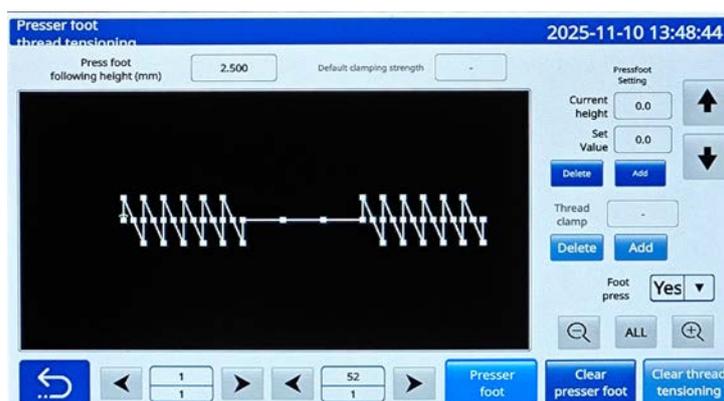
**“Trim” key** : Press this key to carry out thread trimming.



**“Manual presser UP/DOWN” key** : Every time this key is pressed, the presser foot status is changed over between lifting and lowering.



**Presser clamp**: Press this button to open the presser clamp setting screen. According to the fabric specifications and sewing pattern, you can set the intermediate presser foot height and thread tension (limited to AT device tension settings).



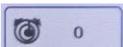
**Note:** When adjusting the presser foot follower stroke or the individual height at a stitch point, manually rotate the pulley with the intermediate presser foot lowered, and confirm that the intermediate presser foot does not interfere with the needle bar.



: Sets the vertical follower stroke of the intermediate presser foot during sewing, referenced to the bottom dead center.



: Available when an AT device (optional) is installed.

Has the same function as  on the main screen.



: Available when an AT device (optional) is installed.

(For details, refer to the Instruction Manual for the AT device.)



: Displays the current intermediate presser foot height. You can change the current height using the **Presser foot** button and the two buttons on the right (  and  ).



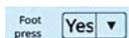
: Displays the setting values for the intermediate presser foot height at each stitch point, referenced to the bottom dead center. Before adding, adjust the current intermediate presser foot height using  and  on the right.

it is necessary to change the intermediate presser foot height from a stitch point, press the input value and then press “Add” to add the intermediate presser foot height. In this case, the

**ADD** button changes to the **Change** button.

When the current height is changed, enter a new value for that point and press **Change** to set it as a stitch point with a new intermediate presser foot height.

If the intermediate presser foot height is set at the current stitch point, pressing the **Delete** button deletes the intermediate presser foot height parameter.



Presser foot operation : The presser foot thread clamp setting controls the operation of the presser foot during stitching. If “Yes” is selected, the presser foot automatically lowers. If “No” is selected, the presser foot does not move. Use the **Presser** button for manual control.



: Enlarges the current pattern graphic.



: Displays the entire pattern graphic.



: Reduces the current pattern graphic.



Arrows on the left : Used to select each stitching line in the pattern.



: Moves to the beginning of the stitching line preceding the stitching line with the “+” mark.



: The upper number indicates the total number of stitching lines in the pattern, and the lower number indicates the current stitching line number.



: Moves to the beginning of the stitching line following the stitching line with the “+” mark.



Arrows on the right : Used to select the stitch point for each stitching line in the pattern.



: Moves to the point preceding the stitch point with the “+” mark.



: The upper number indicates the total number of stitch points on the stitching line, and the lower number indicates the current stitch point number.



: Press the number field to display the jump stitch number table.

Enter a value to move directly to the desired stitch point.



: Moves to the point following the stitch point with the “+” mark.

 : Deletes all individual intermediate presser foot height settings in the pattern.

 : Deletes all individual active tension settings in the pattern.

 **Next Interface button** : Press this button to enter the second home page.

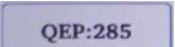
## 2.2.2 Description of the second home page screen

Operation can be checked independently using manual operation.

Press  on the home page screen to display the second home page.



### Second home page functions

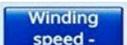
 : Show current angle of main shaft (0 to 2400) \* **QEP value 1 = 0.15°**

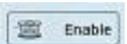
 : Set the winding speed of main shaft.

 **“Main shaft REV” key** : Press the key, when the main shaft starts to reverse and move slowly.

 **“Main shaft FWD” key** : Press the key, when the main shaft starts to rotate forward slowly.

 **Acceleration button** : Each time this button is pressed, the main shaft speed increases by 100 sti/min. Press and hold the button to continuously increase the speed until the maximum speed is reached.

 **Deceleration button** : Each time this button is pressed, the main shaft speed decreases by 100 sti/min. Press and hold the button to continuously decrease the speed until the minimum speed is reached.

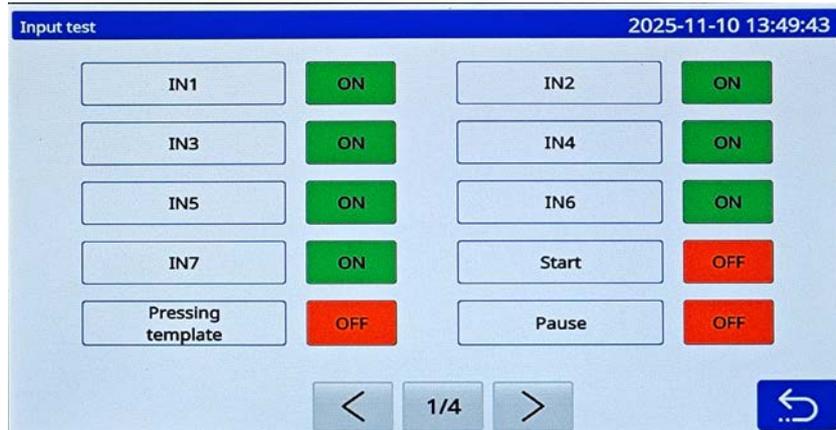
 **Bobbin Winding Mode button** : If “Enabled” is selected, pressing the START key causes the XY feed to remain stationary and only the main shaft to rotate. The bobbin winding device operates and winds the bobbin thread.

If “Prohibited” is selected and the START key is pressed, neither the XY feed nor the main shaft will move, and a warning message appears: “Please enable bobbin winding mode”.

**Note:** If a bobbin winding device is attached to the machine head, set this to “Enabled”.

**Input test**

“Input test” key : The ON/OFF status of each input signal can be checked.



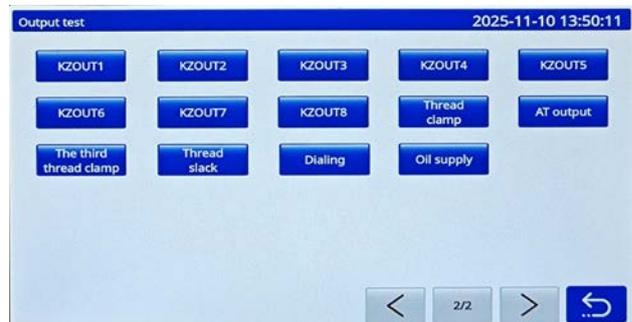
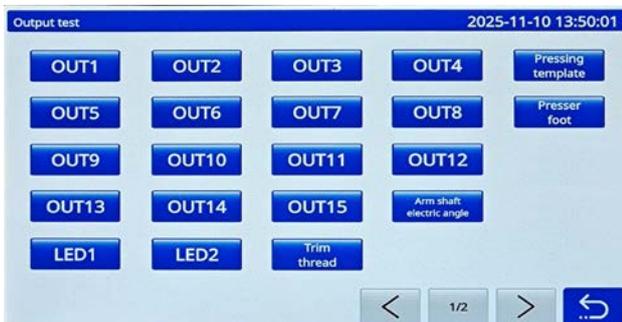
The main functions of the input test are to determine whether each input port can be switched ON/OFF, whether it operates normally, and to check the current operating status.

The following uses IN7 and the presser foot frame as examples.

Input port	Operating status	Condition description
IN7	<b>ON</b>	Indicates that input port IN7 is operational.
Presser foot frame	<b>OFF</b>	Indicates that the presser foot frame is not operational.

**Output test**

“Output test” key : Allows you to check the operation of devices at each output port.



The main functions include checking the operation of each output port and device, and searching for the main shaft home angle.

List of definitions and descriptions for each IN/OUT port (from the specifications: electrical control box side)

	Standard specification	Rotary knife specification	Laser specification
OUT1	Pen stick		
OUT2	Not set	Not set	Laser lifting
OUT3	Thread clamp		
OUT4	Not set	Not set	Laser emission
OUT5	Air blow		
OUT6	Not set		
OUT7	Suction device blower		
OUT8	Not set	Not set	Laser blower
OUT9	Not set	Upper knife lifting	Not set
OUT10	Not set		
OUT11	Not set	Lower knife motor output	Not set
OUT12	Not set	Knife auxiliary presser foot lifting	Not set
OUT13	Not set		
OUT14	No port	Not set	No port
OUT15	No port	Not set	No port
IN1	Not set		
IN2	Not set		
IN3	Not set		
IN4	Not set		
IN5	Bobbin thread remaining amount detection		
IN6	Not set		
IN7	Suction device pedal		
IN8	Not set		
IN9	Not set		
IN10	No port	Not set	No port
IN11	No port	Not set	No port
IN12	No port	Not set	No port
IN13	No port	Not set	No port
IN14	No port	Not set	No port
IN15	No port	Not set	No port

List of definitions and descriptions for each KZIN/KZOUT port (from the specifications: on the expansion board side for the bobbin changer)

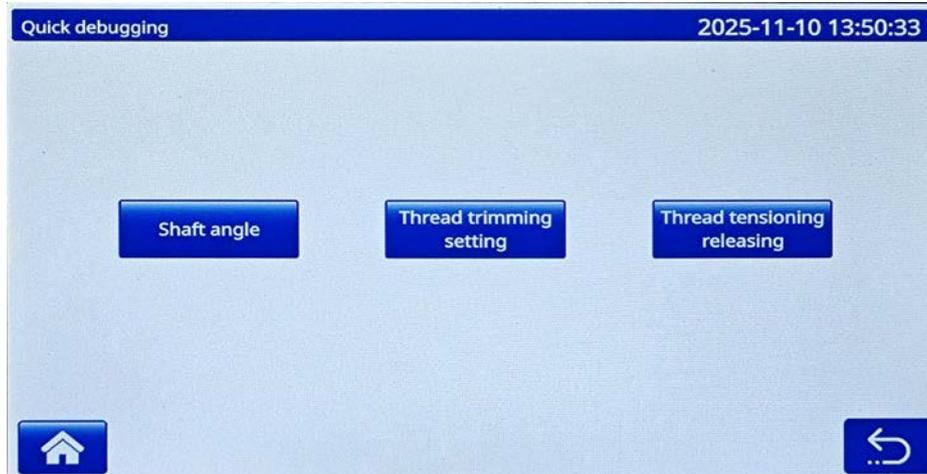
	Standard specification	Rotary knife specification	Laser specification
KZOUT1	Bobbin changer output		
KZOUT2	Not set		
KZOUT3	Not set		
KZOUT4	Changer arm output		
KZOUT5	Changer chuck output		
KZOUT6	Not set		
KZOUT7	Not set		
KZOUT8	Not set		
KZOUT9	Not set		
KZIN1	Bobbin change complete signal		
KZIN2	Change error signal		
KZIN3	Bobbin number signal detection		
KZIN4	Not set		
KZIN5	Not set		
KZIN6	Not set		
KZIN7	Not set		
KZIN8	Not set		
KZIN9	Not set		
KZIN10	Not set		
KZIN11	Not set		
KZIN12	Not set		
KZIN13	Not set		



**“Reset” key** : Each shaft starts rotating and the machine is reset.

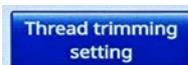
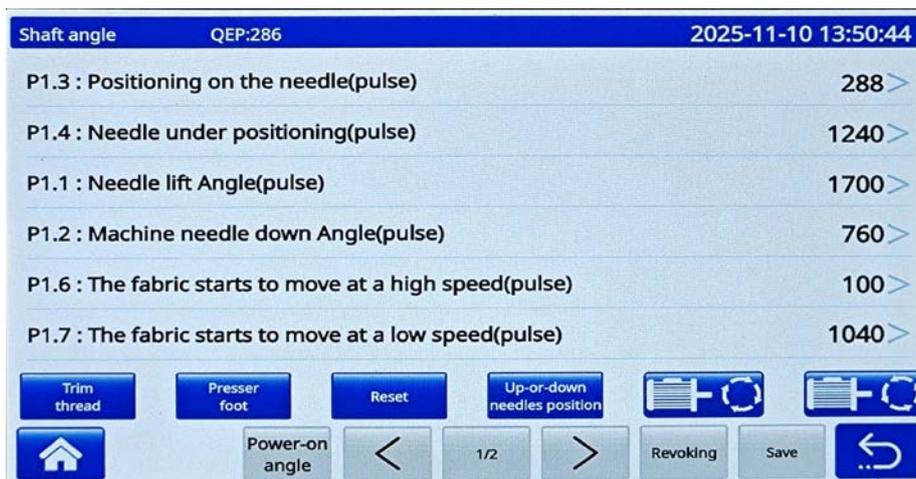


**Shortcut menu** : Press this button to enter the shortcut menu, where you can adjust common parameters such as shaft angle, thread trimming settings, and grip thread tension release.



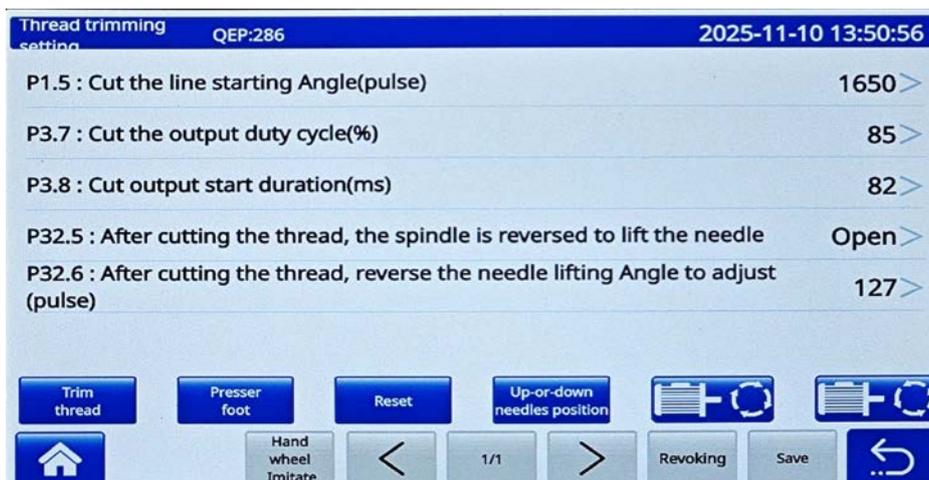
**“Shaft angle” key** : Press this button to display the shaft angle setting

screen. You can set the needle upper stop position, needle lower stop position, lifting angle, and lowering angle.



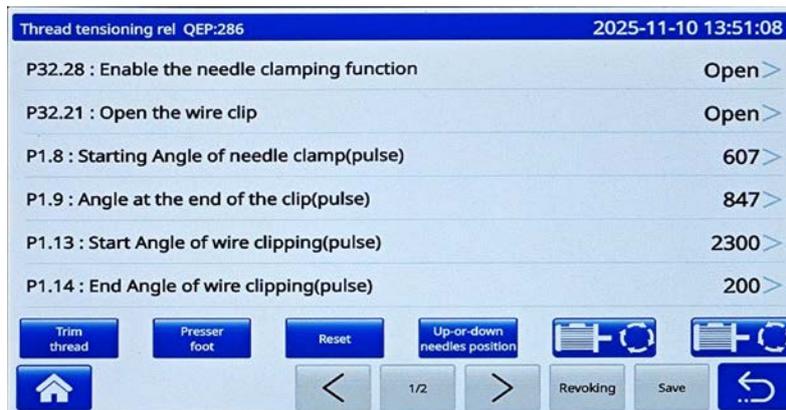
**“Thread trimming setting” key** : Press this button to display the thread trim-

ming setting screen. You can set thread trimming–related parameters.



Thread tensioning releasing

“**Thread tensioning releasing**” key : Press this button to display the thread tension adjustment setting screen. You can set the solenoid parameters.



Up-or-down needles position

“**Needle rod up/down**” key : Press the key to switch between upper position (the highest point of needle) and lower position (the lowest point of need).

Manual frame shift

“**Manual frame shift**” key : Press this button to enter the manual feed main interface.

Benchmark-free debugging

“**Benchmark-free debugging**” key : Press this button to shift to the benchmark-free debugging page.

**Note:** Only effective for data for which the benchmark-free debugging setting has been enabled in the pattern editing software.

Header offset debugging

“**Header offset debugging**” key : Press this button to enter the head offset interface and set the offset position of head 2, head 3, and head 4 relative to head 1. Head 1 is the sewing head, and head 2, head 3 and head 4 can be assigned to the functions you require.

**Pen stick** : Head 2

**Laser device** : Head 3

**Rotary knife device** : Head 4

Common functions

“**Common functions**” key : Press this button to set the pitch and perform zoom, increase/decrease, combination, reinforcement, and changeover operations.

Bobbin change debugging

“**Bobbin change debugging**” key : Press this button to open the reference bobbin change setting screen.

Trim thread

“**Trim**” key : Press the key, when the machine sews one stitch to realize a complete trim operation.

OUT3

OUT4

OUT5

Dialing

Thread slack

: The output is turned ON only as long as you keep pressing the key. When you release the key, the output is turned OFF.

Presser foot

“**Presser foot**” key : Press this button to switch the upper and lower positions of the intermediate presser foot and auxiliary presser foot.

LED

OUT1

OUT2

OUT6

OUT7

OUT8

OUT12

Presser foot

: Press the key, when the corresponding IO output function is always ON; press again to turn off the output.

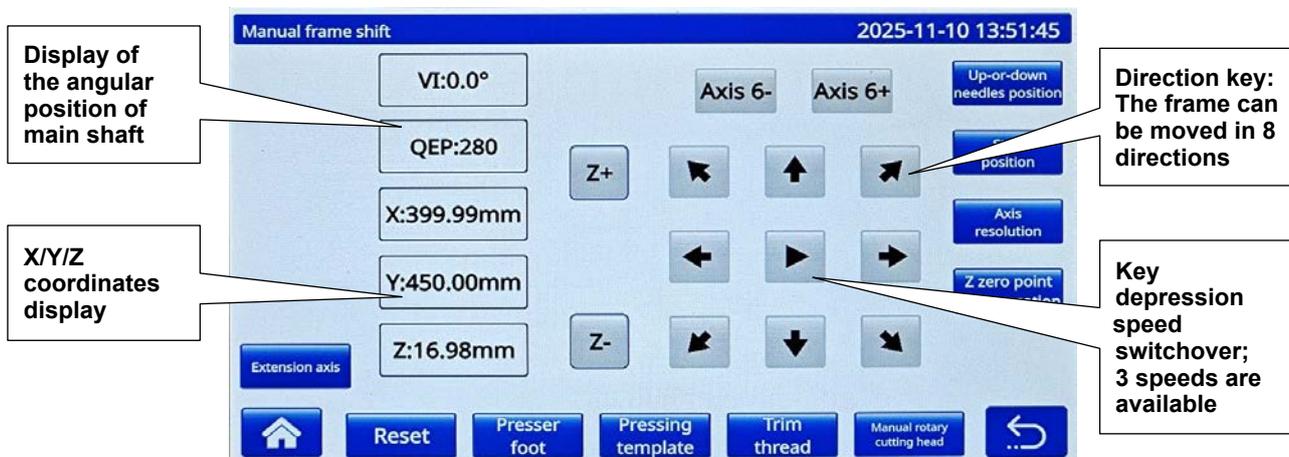
**Note:** Please don't press and hold the electromagnet control output for long (e.g. **Thread slack**, **Trim thread**); otherwise, the electromagnet connected with this output may get damaged due to overheating!

Return

“**Return**” key : Press the key to return to the previous operation interface.

## 2.2.3 Description of the manual feed screen

On the home page screen, press **Next page**, and then press **Manual frame shift** to display the manual feed operation screen. On the manual feed operation screen, you can manually move the frame and control the rotation of each axis.



QEP is 2400 divisions per 360 degrees (one rotation of the main shaft).

### Manual Feed button functions

**▶ “Frame movement speed switching” key** : Click to switch among low, medium and high speeds. The speed setting can also be changed by pressing the User parameter, Speed parameter and selecting the key speed 1 to 3 in the written order.

**▶ “8 direction” keys** : Move in X and Y directions.

**▶ Axis 6 button** : Operates the up-and-down motor of the rotary knife. (Only applicable to rotary knife specifications)

**Z+ Intermediate Presser Foot Lifting button** : Raises only the intermediate presser foot to the top dead center.

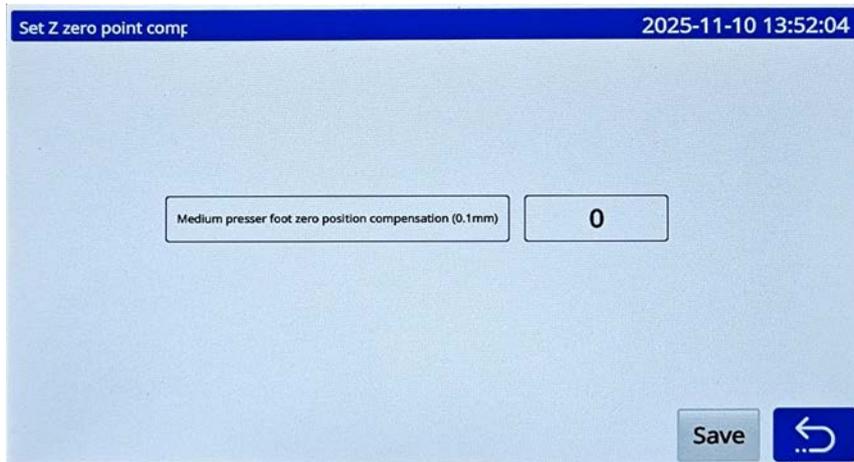
**Z- Intermediate Presser Foot Lowering button** : Lowers only the intermediate presser foot to the bottom dead center.

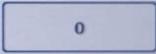
**Note:** Confirm in advance that the auxiliary presser foot is in the lowered position.

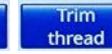
**▶ Up-or-down needles position “Up/down needle position” keys** : Enter the head offset interface for setting the offset position of heads 2 and 3 in relation to head 1. Head 1 is a sewing head. Desired functions such as laser cutting head and brush head can be assigned to heads 2 and 3.

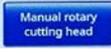
**▶ Axis resolution “Axis resolution” keys** : Press this button to enter the axis resolution page and set the resolution of the X, Y, and Z axes.

**▶ Z zero point compensation “Z zero point compensation” keys** : Press this button to enter the Z-axis zero correction page and set the presser foot zero-point position correction.



 : When a correction value is entered, the intermediate presser foot moves up or down by the entered value plus 0.1 mm.

    : Same as the “Main interface” and “Next page” button functions.

 **“Manual rotary cutting head” keys** : Press the button once to confirm that the rotary knife motor shaft lock is disabled, and then rotate the shaft by hand. Press the button again to confirm that the locking function is resumed, and the motor shaft returns to its original position.

 **“Extension axis” keys** : For details on BK device adjustment, refer to the BK Instruction Manual.

 **“Stop position” keys** : After moving the XY feed to the desired position using the “Manual feed” button, press this button to set the return position after sewing is completed.

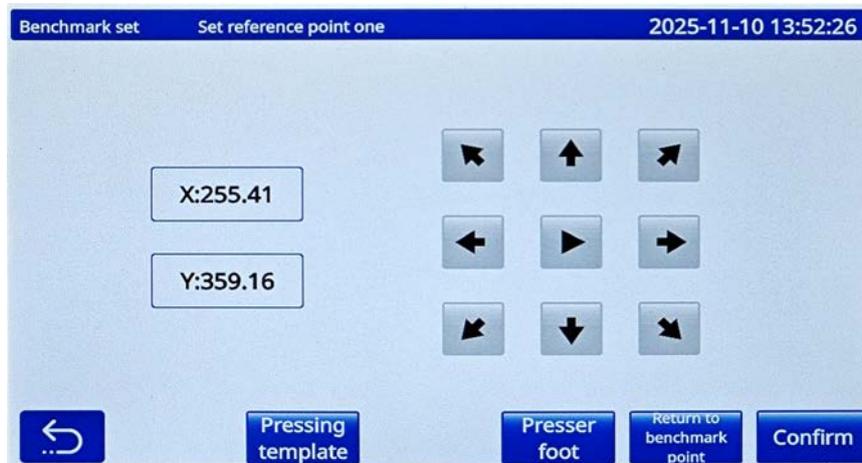
**Note** : The parameter in User parameters → Automatic processing → P21.3 must be set to “Return to stop position”.

 **“Return” key** : Press the key to return to the previous operation interface.

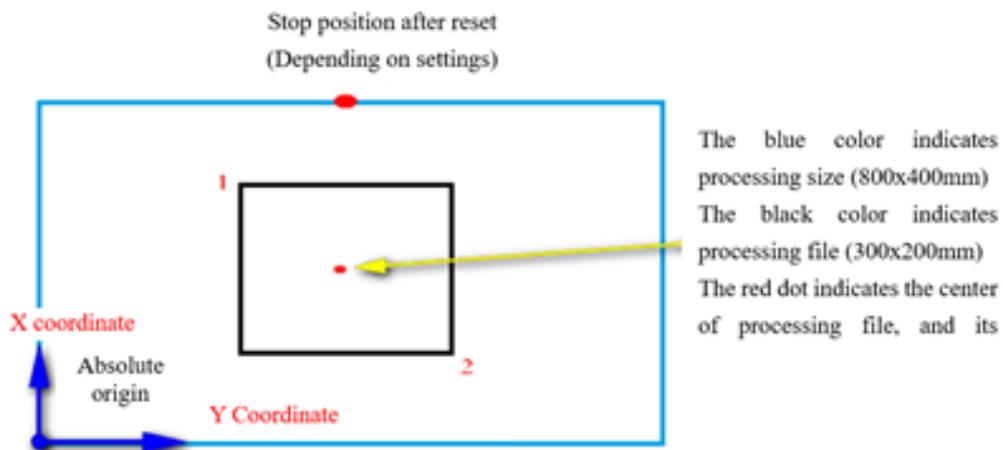
## 2.2.4 Description of the benchmark set screen

Press **Benchmark** on the home page screen to display the reference point setting screen.

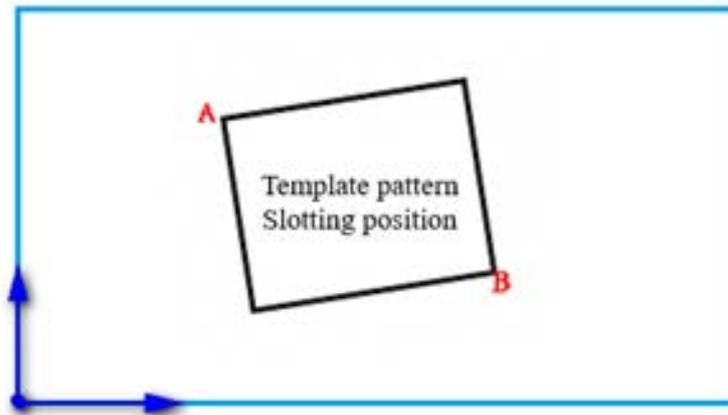
The template reference point can be set in this interface.



**Reason for reference point setup :** When the processing file generated through the pattern edit software is imported into the memory and previewed for the first time, the system puts the file at the center of the processing range (click the "Processing file preview area" to switch the display mode), and writes this position information into processing file.

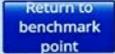
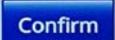


The fabricated template is placed on workbench in the position that may be as shown in the figure below:

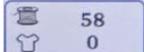


Hence, it's necessary to align reference point 1 with A, and reference point 2 with B. Adjust the position of processing pattern in the system so that it corresponds to the template slotting position.

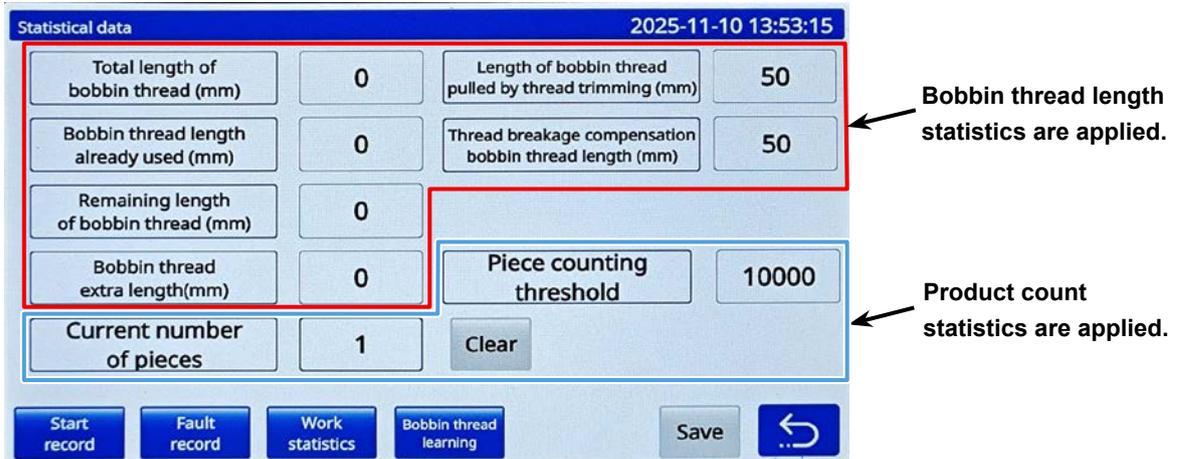
**Detailed steps are as follows :**

- 1) On the home page screen, select the file to align with the reference point and place the appropriate template.  
Click  to enter the reference point setup interface, and the system will automatically move the frame to reference point 1.
- 2) If two reference points are set in the pattern editing software, "Set reference point 1" appears in the upper left corner of this interface.  
See whether the reference point 1 is located at template slot A; in the case of offset, click the arrow keys to move the point until they coincide with each other.
- 3) Click  to finish the setup of reference point 1. The system automatically moves the frame to reference point 2, and "Set reference point 2" appears in the upper left corner of the interface.  
Click direction keys to move the frame so that reference point 2 coincides with the position of template B. To return to re-set reference point 1, click  key to switch to reference point 1 for setup.
- 4) Click  to finish the setup of reference point 2. The screen returns automatically to the home page screen.  
The system will write this position into processing file, while the processing preview area pattern will be adjusted to correspond to the position of template. Upon the completion of reference point alignment, additional alignment is not needed as long as you don't modify this file and template. If the higher-end machine software does not have double reference points set in the file, reference point 1 is used as the default starting point, pairing is performed at reference point 1, and the screen returns to the home page.  
By setting up system parameters, it is possible that reference alignment is not needed at the first use. Please consult the manufacturer for detailed settings.

## 2.2.5 Process Statistics Interface Display Instruction

On the home page screen, press  to enter the processing statistics interface.

In this interface, you can view the processing quantity, time, bobbin thread length and other information.



The screenshot shows a 'Statistical data' interface with a timestamp of 2025-11-10 13:53:15. It contains several data fields and buttons:

Total length of bobbin thread (mm)	0	Length of bobbin thread pulled by thread trimming (mm)	50
Bobbin thread length already used (mm)	0	Thread breakage compensation bobbin thread length (mm)	50
Remaining length of bobbin thread (mm)	0	Piece counting threshold	
Bobbin thread extra length(mm)	0		
Current number of pieces	1	Clear	

Buttons at the bottom include: Start record, Fault record, Work statistics, Bobbin thread learning, Save, and a back arrow.

Annotations in the image point to the top-right section (Bobbin thread length statistics) and the Piece counting threshold field (Product count statistics).

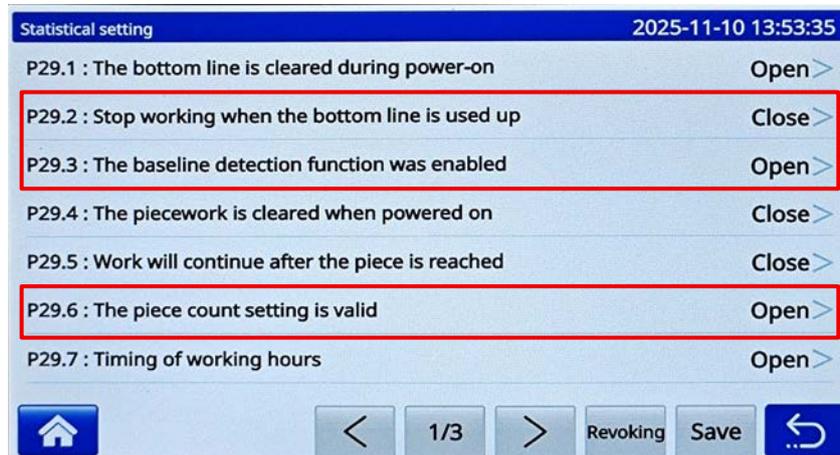
The interface is described as follows :

- Total length of bobbin thread (mm)** : Bobbin thread length (can be entered in bobbin thread setting mode)
- Bobbin thread length already used (mm)** : Used bobbin thread length (can be entered)
- Remaining length of bobbin thread (mm)** : Remaining bobbin thread length (automatic calculation, cannot be entered)
- Bobbin thread extra length(mm)** : The actual bobbin thread length is slightly longer than the set value; this allowance must be taken into consideration when setting the length.
- Length of bobbin thread pulled by thread trimming (mm)** **After sewing** : Estimated length of bobbin thread pulled up after thread trimming during normal operation (not applicable in bobbin thread sensor mode; can be entered).
- Thread breakage compensation bobbin thread length (mm)** **During sewing** : When a thread breakage error occurs due to a malfunction, the estimated length of bobbin thread to be pulled up is applied (not applicable in bobbin thread sensor mode; can be entered).
- Current number of pieces** : The number of thread trims is added to the total bobbin thread length. After learning is completed in bobbin thread learning mode and in bobbin thread setting mode, the number of thread trims is added to the used bobbin thread length.
- Clear** : Deletes the current number of items produced.
- Piece counting threshold** : Production target number (can be entered)

1. Before using the statistics function, set P29.2 to “ON” in “User parameters” → “Statistics settings”.

If this is not set, the notification function will be disabled once the statistical count is reached.

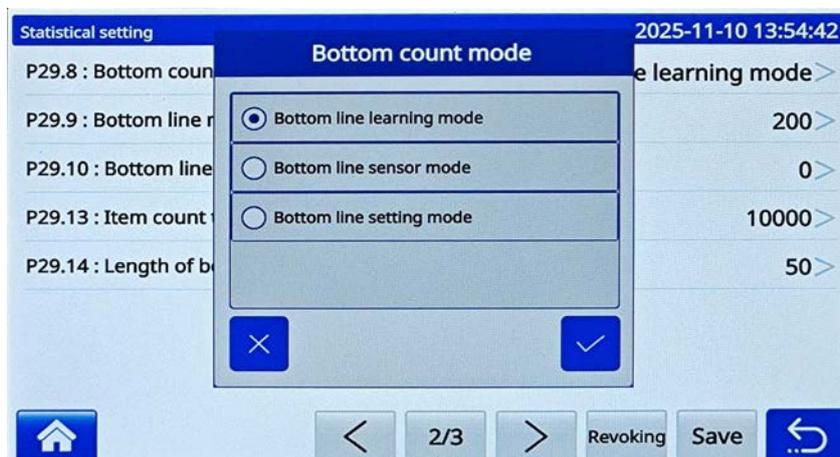
- ① For bobbin thread length statistics, set P29.3 to “ON”.
- ② For product count statistics, set P29.6 to “ON”.



2. Set P29.8 (Bobbin thread counting mode) under “User Parameters” → “Statistics Settings”.

There are three modes to choose from.

- ① Bobbin thread learning mode
- ② Bobbin thread sensor mode
- ③ Bobbin thread setting mode



### ① Bobbin thread learning mode

- 1) Set P29.8 to "Bobbin thread learning mode".
- 2) Enter the "Statistics" screen and press the "Bobbin Thread Learning" button.  
"Bobbin thread learning in progress" is displayed to the right of the "Bobbin Thread Learning" button.
- 3) Place the bobbin with the correct amount of thread into the sewing machine.
- 4) Return to the main screen and sew until an appropriate amount of thread remains on the bobbin, then stop sewing.
- 5) Enter the "Statistics" screen and press the "Bobbin Thread Learning" button again.  
The message "Bobbin thread learning completed" appears once. After that, "Total bobbin thread length" is automatically entered.

**Note :** Make sure there is no large variation in the amount of thread wound on each bobbin. If the data is significantly biased, it may not be possible to obtain stable statistics.

Statistical data		2025-11-10 13:55:04	
Total length of bobbin thread (mm)	0	Length of bobbin thread pulled by thread trimming (mm)	50
Bobbin thread length already used (mm)	0	Thread breakage compensation bobbin thread length (mm)	50
Remaining length of bobbin thread (mm)	0		
Bobbin thread extra length(mm)	0	Piece counting threshold	10000
Current number of pieces	1	Clear	

Buttons: Start record, Fault record, Work statistics, Bobbin thread learning, Bottom line learning, Save, Home



Bobbin thread learning    Bottom line learning completion

### ② Bobbin thread sensor mode

This mode can be used in combination with a bobbin thread remaining amount detector (sold separately).

Refer to the Instruction Manual for the bobbin thread remaining amount detector.

### ③ Bobbin thread setting mode

- 1) Set P29.8 to "Bobbin thread setting mode" under "User Parameters" → "Statistics Settings".
- 2) Enter the thread length in "Total bobbin thread length".
- 3) Set the limit value for P29.9 (Bobbin thread remaining amount warning threshold) under "User Parameters" → "Statistics Settings".



**"Start record" page :** "Start record" page: Power-on information can be recorded effectively. The power-on record can be erased by formatting.

Start record		2025-11-10 13:55:36	
1:	2025-11-10 13:39:12	▲	Home
2:	2025-11-10 12:26:32		
3:	2025-11-10 09:40:43		
4:	2025-11-07 16:01:41		
5:	2025-11-06 16:47:55		
6:	2025-11-06 16:39:10		
7:	2025-11-06 16:38:11		
8:	2025-11-06 16:37:13		

Buttons: Home, Back

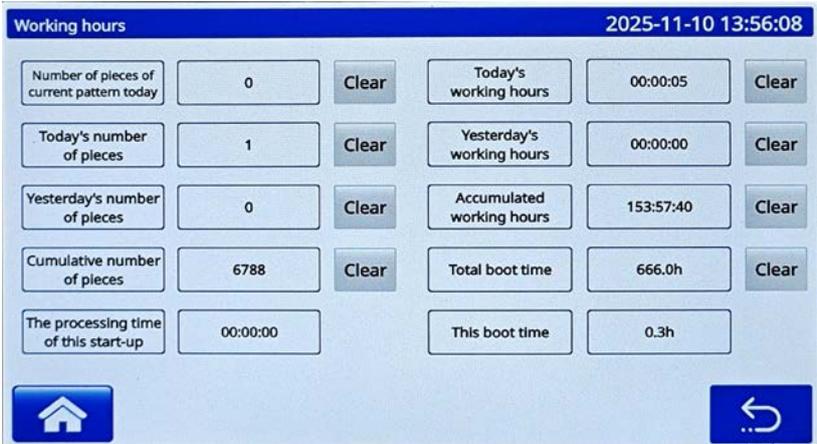
Fault record

**“Fault record” page** : All fault information can be automatically reported or exported. Up to 1,000 alarm records can be stored. When this limit is exceeded, the oldest alarm information is overwritten. Fault records can be erased by formatting.



Work statistics

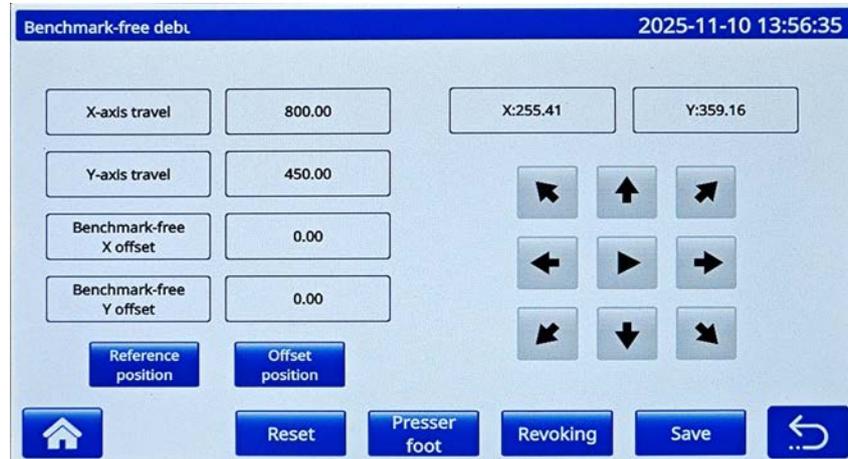
**“Work statistics” page** : Information such as the number of workpieces, man-hours, and power-on time can be recorded and cleared.



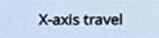
## 2.2.6 Description of the benchmark-free position adjustment screen

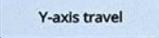
On the home page screen, press “Next page”, and then press  to display the benchmark-free position adjustment screen. This function eliminates the need to perform standard calibration for each file after a pattern is installed, allowing users to start sewing immediately.

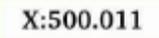
**Note :** Only effective for data for which the benchmark-free debugging setting has been enabled in the pattern editing software.

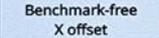


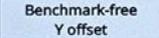
### Interface description

 **X-axis travel** : Displays the current movement distance of the X module of the sewing machine.

 **Y-axis travel** : Displays the current movement distance of the Y module of the sewing machine.

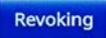
  **Current position display box** : Displays the coordinates of the current X and Y module positions.

 **X-axis offset** : Press the offset position to display the offset value directly in the numeric box. Press the numeric box to open an input box and enter the offset value.

 **Y-axis offset** : Same as above

 **Reference position** : Pressing the button moves the X and Y modules to the reference position of the current pattern. Performs benchmark-free debugging based on the existing settings.

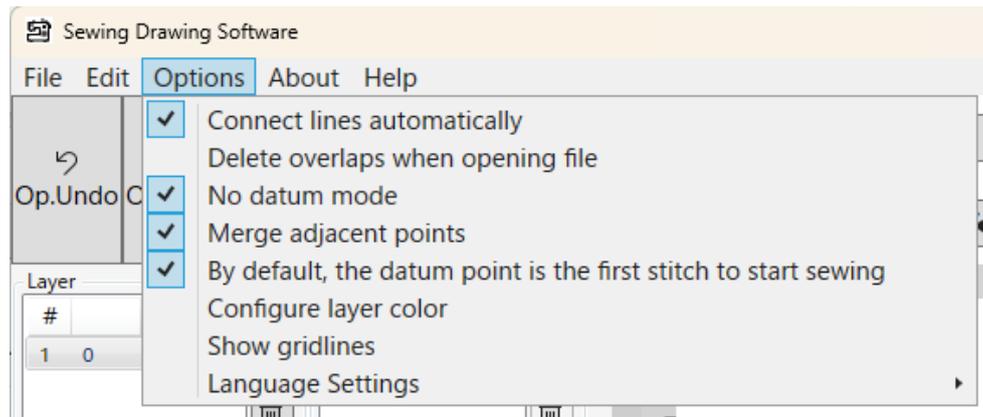
 **Offset position** : When this button is pressed, the offset coordinates of the current position relative to the reference position are displayed in the benchmark-free offset display box.

 **“Revoking” key** : Press this button to undo the current action.

 **“Save button” key** : Press this button to save the current benchmark-free debugging settings.

### Benchmark-free position adjustment :

- 1) Turn on No Datum Mode in the options menu bar of the pattern editing software, as shown in the image.

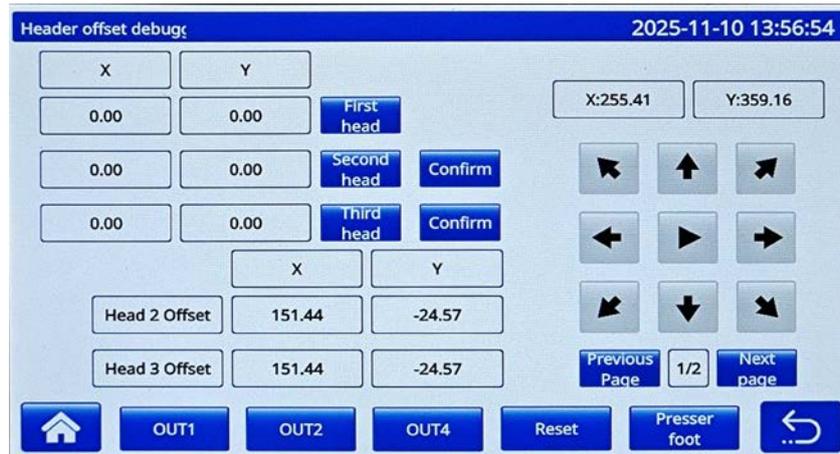


- 2) In the pattern editing software, convert the graphics that require the benchmark-free function into \*.sco files (compatible with \*.SLW files) and output them to a USB memory device.
- 3) Open the benchmark-free position adjustment screen on the panel, press the benchmark-free numeric box, set all the benchmark-free XY offset values to 0, and press the "Save" button.
- 4) Return to the file management page, import the pattern graphic with the benchmark-free function into the panel, then return to the main page and select this pattern.
- 5) Next, re-enter the Benchmark-free position adjustment screen and press "Reference position" to move the X and Y modules to their relative reference positions.
- 6) At this point, press the template of the selected pattern against the module for reference calibration. After calibration, press "Offset position" and the offset will be automatically entered into the numeric box. Press "Save" to finish.
- 7) Finally, delete the graphics used to adjust the benchmark-free position and re-import the benchmark-free pattern, and you will then be able to use the benchmark-free function normally.

## 2.2.7 Description of the head offset screen

On the home page screen, press “Next page”, and then press **Head offset** to display the head offset debug page. This page is used to set the head offset parameters for the laser head and the optional pen stick. To use the laser or pen stick feature, it is necessary to set the parameters here.

**Note :** The pen stick is an optional device for the PS810 that marks the fabric with a pen to position it for the next process.



**First head** **Second head** **Third head** : Records the coordinates of Head 1, Head 2, and Head 3 and calculates the corresponding head offset parameters.

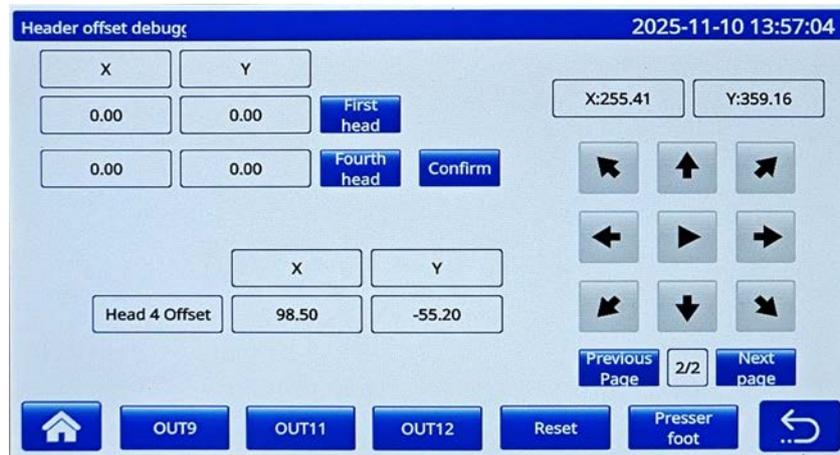
**Head 2 Offset** : Press this button to display the currently set X and Y offset parameters for Head 2 and Head 3.

**OUT1** : Press this button to move the pen stick up and down (optional).

**OUT2** : Press this button to control the laser lifting.

**OUT4** : Press this button to control the laser emission.

**Previous Page** **1/2** **Next page** : Use these buttons to switch between the previous and next head offset debug pages.



**Fourth head** : Records the coordinates of Head 4 and calculates the corresponding head offset parameters.

**Head 4 Offset** : Press this button to display the currently set X and Y offset parameters for Head 4.

**OUT9** : Press this button to control the lifting of the rotary knife.

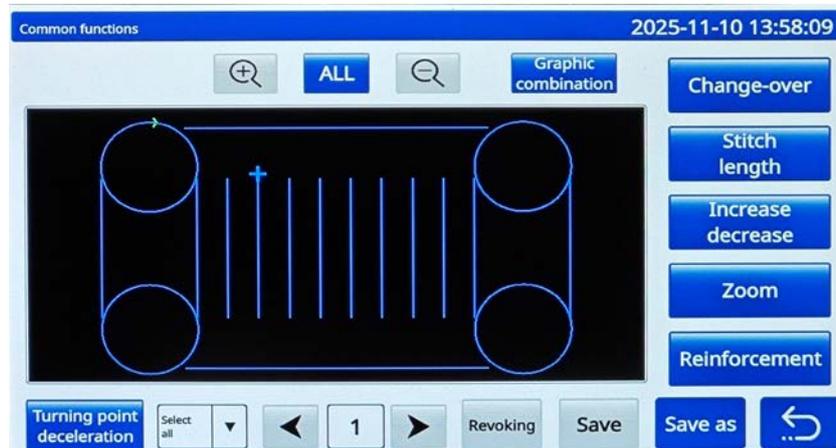
**OUT11** : Press this button to control the operation of the moving blade of the rotary knife.

**OUT12** : Press this button to control the lifting of the rotary knife auxiliary presser foot.

## 2.2.8 Description of the common function setting screen

On the home page screen, press “Next page”, and then press **General functions** to display the common function setting screen. This function is mainly used to set the pitch and perform zoom, increase/decrease, combination, reinforcement, and changeover operations for the entire processing file.

If you want to process each graphic, refer to page 51.



**Turning point deceleration**

**Turning point** : You can set the turning point angle and turning point speed.

Select all

**Selection mode switch** : Switches the thread selection mode.

1

: The graphic segment where the cursor is currently located.



**Thread switch button** : In single selection mode, selects the previous thread.

In multi-select mode, selects multiple threads from the current thread to the thread above.



**Thread switch button** : In single selection mode, selects the next thread.

In multi-select mode, selects multiple threads from the current thread to the thread below.

Revoking

**Revoking button** : Press this button to undo the current pattern modification action.

Save

**“Save” keys** : Press this button to save the current change. This will overwrite the original pattern.

Save as

**Save As button** : Press this button to save the current modified pattern as a new pattern file.



**Zoom button** : Press this button to zoom in the pattern currently in the canvas.

ALL

**Show All button** : Press this button to display all patterns across the canvas.



**Zoom Out button** : Press this button to zoom out the pattern in the current canvas.

Graphic  
combination

**Graphic combination button** : Press this button to split or combine the selected pattern.

Change-over

**Changeover button** : Press this button to convert the selected pattern between sewing mode and idle travel mode.

Stitch  
length

**Pitch button** : Press this button to set the needle pitch of the graphic to be operated. (Needle pitch range : 0.05 to 12.7)

Increase  
decrease

**Increase/Decrease button** : Press this button to open the increase/decrease graphic interface and set the increase or decrease for all continuous processing curves at the same time.

Zoom

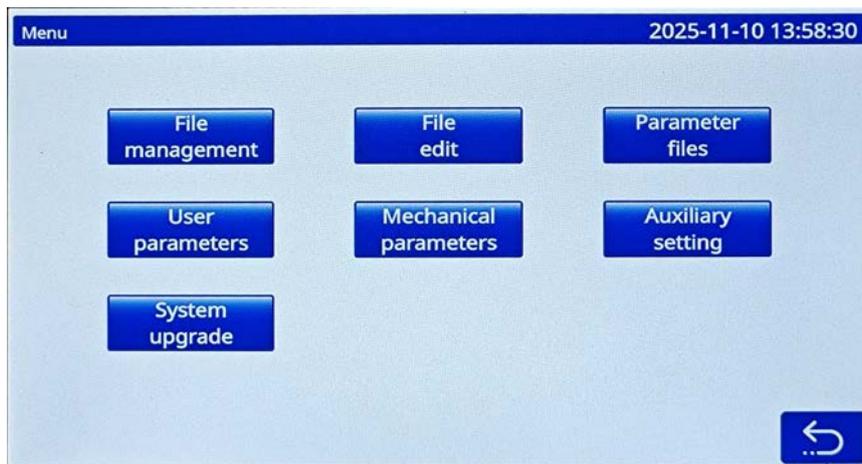
**Zoom button** : Press this button to zoom the selected curve by the specified curve ratio.

Reinforcement

**Reinforcement preset button** : When compiling files, press this button to set reverse feed stitching, short stitches, and zigzag stitching for sewing multi-layer sections of the graphic.

## 2.3 Menu screen

Press **Menu** on the home page screen to display the menu screen.



**File management** : Used to manage memory files and USB files and carry out file export and import operations.

**File edition** : Used to create a new graphic for sewing or edit and correct the existing graphics.

**Parameter file** : Write parameters into the system, and export system parameters in the form of file; the transfer of files between memory and USB flash disk, etc.

**User parameters** : Used to change the settings of parameters used frequently by the user.  
Machine parameters : Only accessible to machine assemblers.

**Assist settings** : Used for processing assist settings and testing, etc.

**Network file** : (Temporarily unavailable)

**Machine state** : When a malfunction occurs, this key is used to allow the remote administration equipment to report the machine status to the relevant engineers and wait for solutions from them.

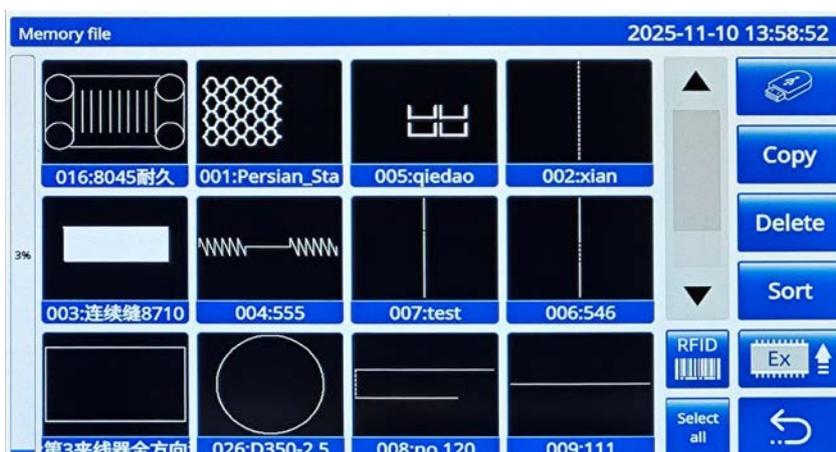
**System upgrade** : Upgrades the electrical control software version.

# Chapter III File Management

File management is performed to import, export and delete files in USB flash disk and memory. The system only recognizes the processing files with extensions .SCO and .SLW. Processing files are created with PC graphic edition software delivered with machine or through file capture. (PS800 SLW data can be applied automatically. If special settings are required, editing must be done.)

## 3.1 Memory File Management

From the home page screen, press “Menu”, and then press  to open the file management interface.



The system memory can store up to 999 processing files, of which the total size shall not exceed 128M. Support file names in Chinese and English (case sensitive); each file name can consist of up to 15 Chinese characters or 30 characters (the displayed number of characters may vary depending on the interface). In the case of wrong format of processing file or file corruption, no preview is displayed here.

Click to select a file, when the selected file turns red; the selected file shall be handled as needed.

### Key description :

 **Copying file** : Copy the currently selected file. File copy can be created by clicking “Copy” and entering the new file name.

 **Deleting selected file** : Delete the currently selected one or more files.

Sort

**File sort order setting** : Press this button to set the file sort order to pattern input

time order, pattern number order, or user-defined order (default).

**Chronological order** : Data files are sorted by input time.

(If an existing file is overwritten, the order will change.)

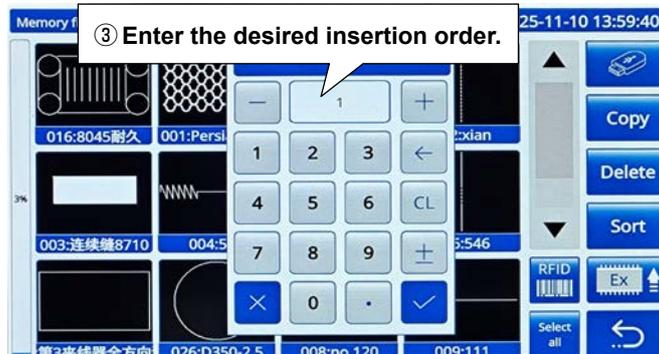
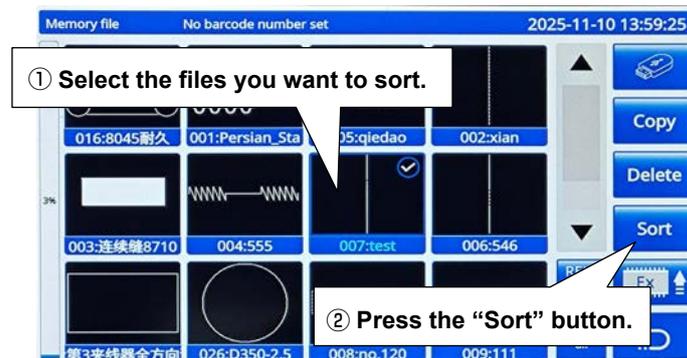
**Pattern number order** : Patterns are arranged according to the numbers preceding the data file name. (If an existing file number is changed, the order will change.)

**User-defined order** : When data files are input from USB, they are sorted in the order selected by the user.

(Even if you overwrite an existing file or change the number, the order will not change.)

To switch from the user-defined order (default order) to a different order in the settings, press and hold the “Sort” button.

**Note** : Press and hold a pattern file to change the number preceding the file name.





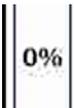
**“Electronic label (RFID) and barcode write” key** : The function is determined by “User parameters” - “Other settings” - “Template recognition mode : By electronic label/barcode”. If the recognition is by “barcode”, it means the processing file is matched by scanning barcode with scanner. Method of binding processing file to barcode : Click this key after selecting the processing file, enter the desired barcode value into the pop-up “Barcode” window, and click OK to return. At this point, the set barcode value is displayed on the graphic. If “By electronic label” is selected, it means the file name in IC card is recognized using electronic label reader so as to match processing file. Method of binding processing file to electronic label: Click this key after selecting the processing file, and click “Yes” in the pop-up confirmation window; when the card reader beeps once, it means the file name has been successfully written into electronic label; at this point, the interface title bar shows that file name. Refer to "4. PREPARATION OF THE SEWING MACHINE" in the Instruction Manual for the main body of sewing machine => "4-21 RFID" or to "6. SUBCLASS MODEL" => "6-1. Barcode reader".



**Select all files** : U Select all files under the directory.



**Export file** : Copy one or more files from the memory into the root directory of USB flash disk. If a file exists with the same name in the USB flash disk, a message will appear reading “The file already exists. Do you want to overwrite it?”



The current storage space occupancy ratio, through which you can make clear understanding of the storage occupancy.



**File in USB flash disk** : Click to enter the “U-disk file” interface.

## 3.2 Management of Files in USB Flash Disk

Insert a USB memory device, press “File” on the home page screen, and then press  to open the USB file management interface.



USB flash disk file management supports up to 15 Chinese characters or 30 characters display. If USB flash disk is accessed through file management, the files and folders in .sco formats under root directory of the USB flash disk are displayed by default; if USB flash disk is accessed through parameter file, the files and folders in .qxp format under root directory of USB flash disk will be displayed by default. Support multi-level folder operation; it is recommended that folders be used for classification management where there are a lot of files. Click to select a file, when the selected file turns light blue; the selected file shall be handled as needed.

### Key description :

 **Refresh button** : Press this button to refresh the screen.

 **Import files** : Copy the selected one or more files from USB flash disk to the memory space, and replace the file with the same name (if any).

 **“Delete” key** : Delete one or more selected files.

 **“Select all” key** : selects all files in the USB flash disk.

 **File View button** : When selecting the pattern file you need, press “File” to display all \*.sco files on the USB memory device for easy importing.

 **Folder View button** : If there are too many \*.sco files, press “Folder” to search for specific \*.sco files.

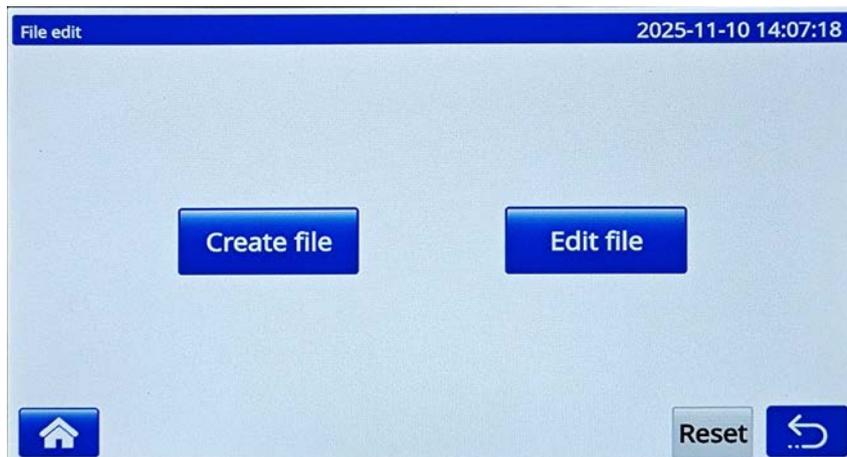
 **“Return” key** : Return to the main menu interface or parent folder.

# Chapter IV File Editing

The File Editing is used to create new processing files or to add sewing paths to the existing processing files. Where it's necessary to create complex and accurate graphics, the included sewing control software is recommended for better results.

## 4.1 Main Interface of File Editing

From the home page screen, press “Menu”, and then press  to open the file editing main interface.

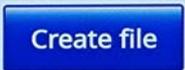


: Create new capture file.



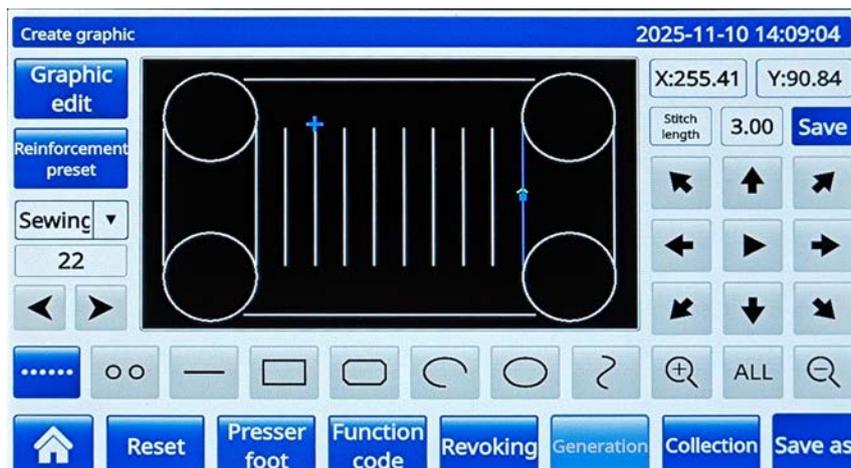
: Make modification or other edits based on the file selected in the main processing interface.

## 4.2 Capturing Graphics

Pressing  in file editing interface pops up a new file naming window. See the figure below.



press  or  or  to enter graphic capture interface as shown in the figure below.



**The function keys of capture interface are as follows :**

  : Indicate the coordinates of the current cursor point.

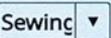
  : The distance between stitches in sewing settings; the standard value is 3.0 mm. The setting range is from 1 to 50 mm.

 **“Frame movement speed switching” key** : Click to switch among low, medium and high speeds.

 **“Graphic Edit” key** : The key will only light up when graphic is captured. Press the key to enter the curve editing interface for curve editing.

 **“Reinforcement preset” key** : key into reinforcement preset settings, open preset and click

"OK", collection page "Reinforcement preset" into blue characters. Close the default and click "Cancel" to change the "Reinforce the default" of the collection page to black, and the default is "Close". When the reinforcement preset is set up, the corresponding reinforcement is automatically carried out for each new line segment collected. If you want to reinforce the edited graphics, you can operate in "Graphic Edit".

 **“Graphic type” key** : Select the type of graphic to create from the drop-down menu.

**Sewing** : Stitching line

**Jump feed movement** : Jump feed

**Head 2** : Pen stick

**Head 3** : Laser

**Head 4** : Rotary knife

 : Indicates the graphic number in the processing file.

 **“Curve selection decrease” key** : Press this key to select the previous curve.

 **“Curve selection increase” key** : Press this key to select the next curve.

 **“Idle capture” key** : When you press the button and the background turns blue (**note: if the red/black interface style is selected, it will turn red, and so on**), the current captured segment is changed to a jump feed movement.

The corresponding part is displayed as a dotted line.

 : When you press this key, the background color turns blue to make the current capture segment to a single needle.

 : Press the key once, when the background turns blue, the current capture segment is straight line.

 : Press the key once, when the background turns blue, the current capture segment is rectangle (determined with 2 points).

 : Press the key once, when the background turns blue, the current capture segment is polyline segment.

 : Press the key once, when the background turns blue, the current capture segment is arc (arc determined with 3 points).

 : Press the key once, when the background turns blue, the current capture segment is circle (circle determined with 3 points).

 : Press the key once, when the background turns blue, the current capture segment is curve (curve determined with more than 3 points).

 **“Zoom-out” key** : Press the key to zoom out of the captured file graphic. Click on the graphic preview area to move the graphic.

 **“Zoom-in” key** : Press the key to zoom into the captured file graphic.

 **“Display switch” key** : Press the key to switch between full-scale display and proportional display.

 **“Command” key** : Used to start the command code insertion operation.

 **“Cancel capture” key** : Press the key once to cancel the capture of previous step.

 **“Curve generation” key** : When polyline segment and curve are captured, press the key to finish the capture of current segment.

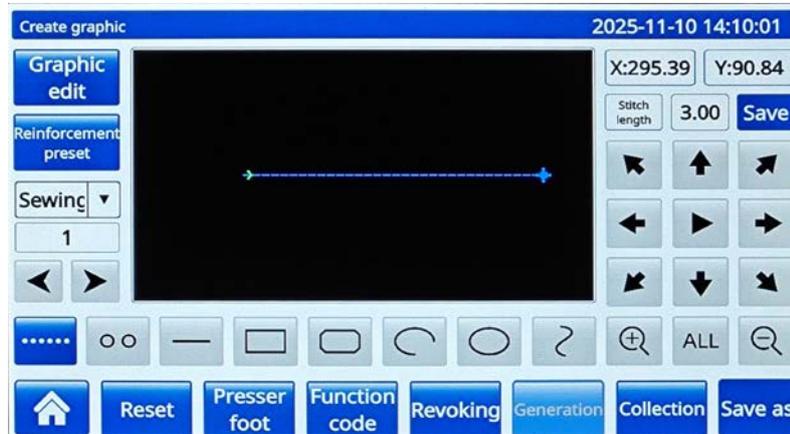
 **“Capture” key** : Press the key to determine the current cursor location or finish the capture of current segment. If some areas of the generated graphics go beyond the processing range, they can't be generated.

 **“Save file” key** : Press the key to save the current capture file. The saved file can be displayed directly in the preview area of main interface.

 **“New file creation” key** : Press this key to save the current graphic to a file with a different name.

## 4.3 Idle Capture

Press  key on the graphic capture interface to change the background color to yellow (the mode is switched to the idle (movement without load) mode), indicating that the current segment is in the idle mode (only the frame is moved while the main shaft is not engaged in sewing).



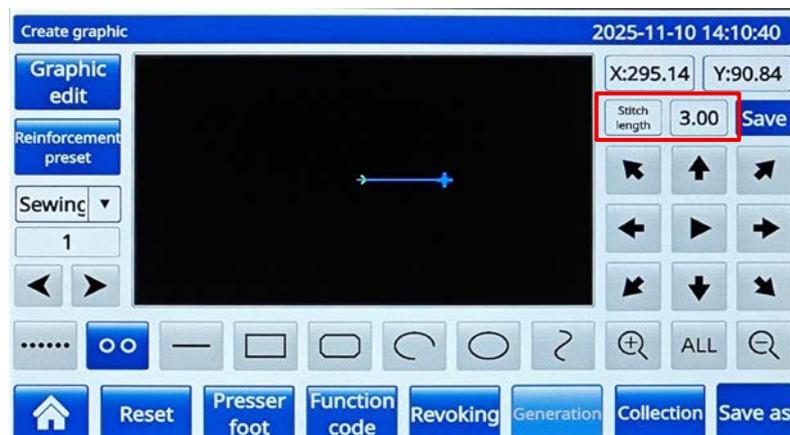
In the case of idle capture, two points generate an idle segment.

The absolute origin or the end point of previous capture segment is the first point of idle capture and displayed as blue cursor. Press the key to move cross cursor to desired position, and press  key to generate idle segment.

If it is necessary to insert a command at the end of this segment, refer to the command setting operation procedure.

## 4.4 Single needle capturing

Press  on the interface for capturing a graphic to change the key background color to yellow, indicating that the current segment is in the single needle mode.



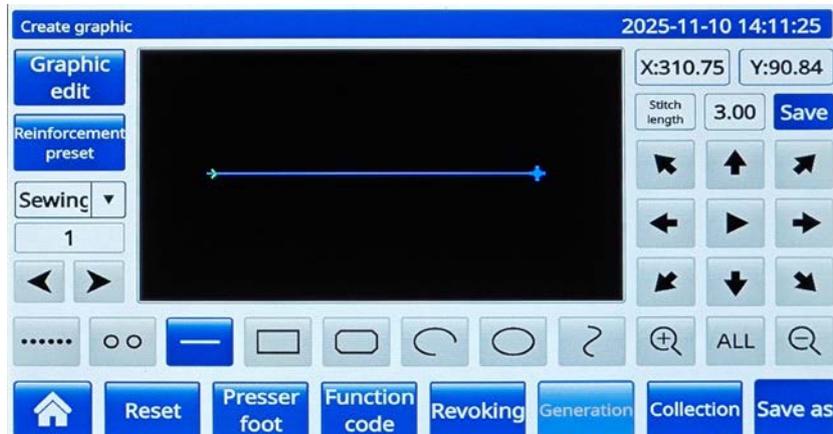
Before using single-needle collection, set the temporary stitch length to “12.7”. With this setting, two points generate a straight line consisting of one stitch.

### Caution:

- ① The maximum length is 12.7 mm. Any length greater than this will be invalid.
- ② If the temporary stitch length is shorter than the XY movement distance between two points, the number of stitches between the two points increases according to the stitch length.

## 4.5 Single needle acquisition

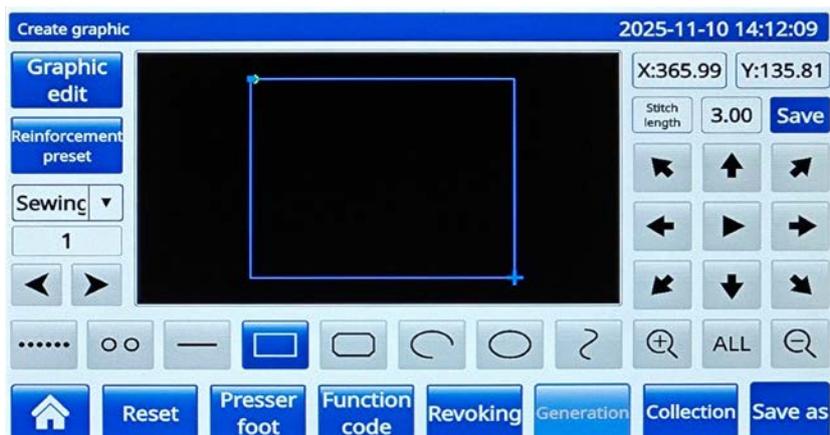
Depress the  key in main interface of file capture, when the key background turns blue, which means the capture of current segment is in straight line mode as shown in the figure :



In the case of straight line capture, two points generate a segment of straight line. The absolute origin or the end point of previous capture segment is the first point of straight line capture. Press the key to move cursor to desired position, and press  key to generate straight line.

## 4.6 Rectangle Capture

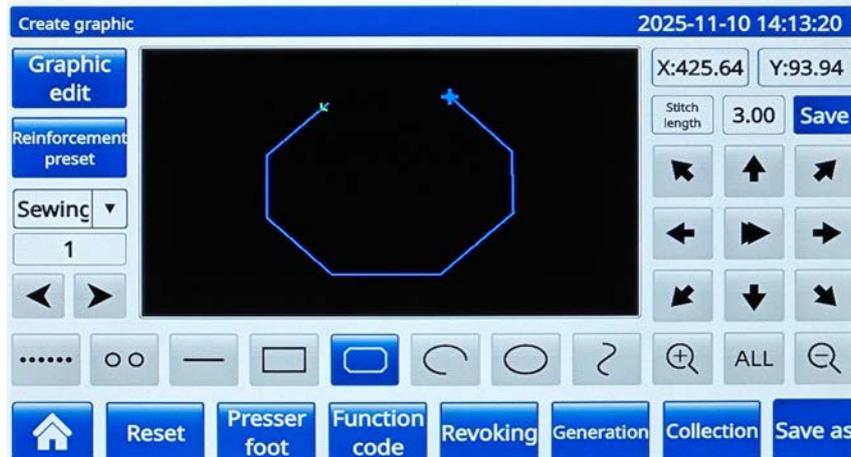
Press  key in main interface of file capture, when the key background turns blue, which means the current segment capture is in rectangle mode as shown in the figure :



In the case of rectangle capture, two points with different X and Y coordinates generate a rectangle. The absolute origin or the end point of previous capture segment is the first point of rectangle capture. Press the key to move cursor to desired position, and press  key to generate rectangle.

## 4.7 Polyline Segment Capture

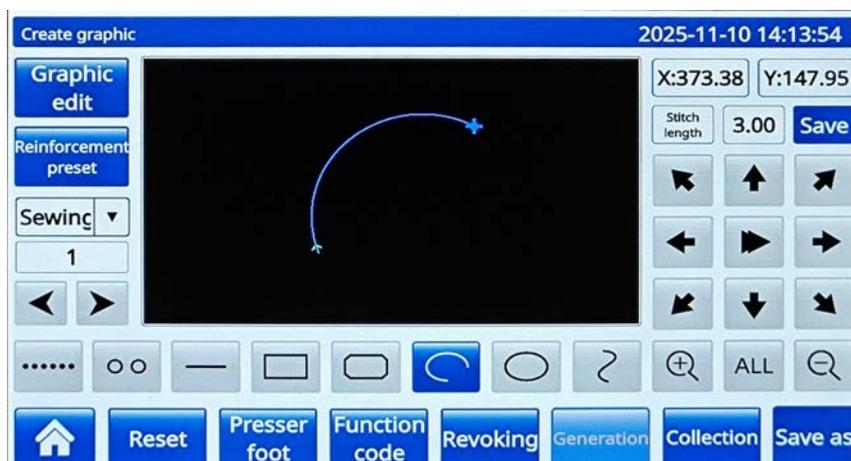
In the file capture interface, press . The button background will turn blue, indicating that the current segment is a multi-line pattern.



In the case of polyline segment capture, up to 127 consecutive points can be handled, and the line segment will be generated by two points determining straight line. The absolute origin or the end point of previous capture segment is the first point of polyline segment capture. Press the key to move cursor to desired position, press  key to identify the capture point, and move for several times to determine capture points; upon completion, press  key to generate the polyline segment linking the points up.

## 4.8 Arc Capture

In the file capture interface, press . The button background will turn blue, indicating that the current segment is an arc pattern.



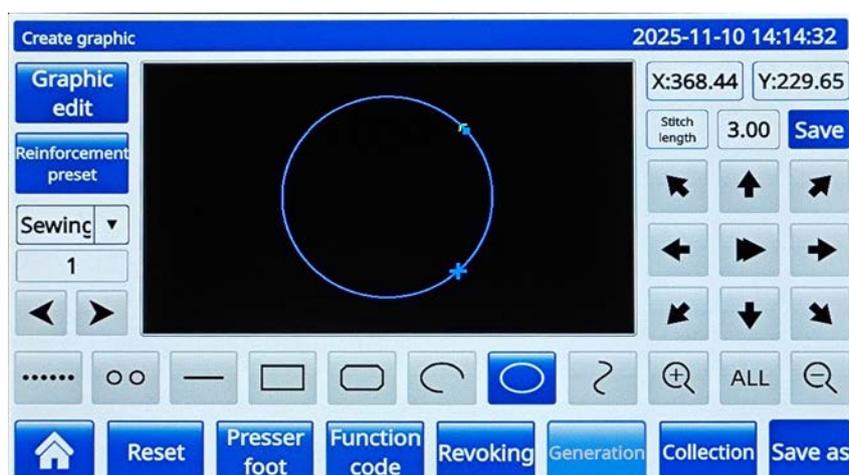
In the case of arc capture, any 3 points that are not in the same straight line generate an arc: The first point is the start point of arc, the second point being the height reference point of arc, and the third point being the end point of arc.

The absolute origin or the end point of previous capture segment is the first point of arc capture. Press the key to move cursor to desired position, and press **Collection** key to identify the arc height reference point; press key to move to the desired position, and press **Collection** key to determine the end point of arc to generate the arc.

To draw accurate arc, reference coordinate values are needed, and it's necessary to make the height reference point in the perpendicular bisector of line between start point and end point.

## 4.9 Circle Capture

In the file capture interface, press . The button background will turn blue, indicating that the current segment is a circular pattern.



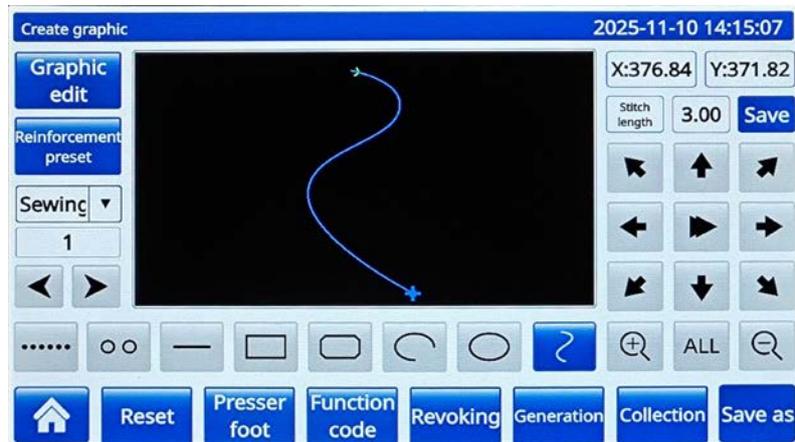
In the case of circle capture, any 3 points that are not in the same straight line generate a circle. The processing sequence: The first point (start point) > The second point > The third point > The first point (end point).

The absolute origin or the end point of previous capture segment is the first point of circle capture (the start point and end point of circle). Press the key to move cursor to desired position, and press **Collection** to identify the second reference point; press the key to move to

the desired position, and press **Collection** key to determine the third reference point to generate the circle automatically. In the meantime, the press frame moves to the start point of circle. Where accurate circle is needed, it is recommended that the distance between the first and second points should be the diameter of circle; the third point should be in the perpendicular bisector of the diameter line determined by the first and second points, and its distance from the diameter line should be the radius of circle.

## 4.10 Curve Capture

In the file capture interface, press . The button background will turn blue, indicating that the current segment is a curved pattern.



In the case of curve capture, up to 127 consecutive points can be handled, and the Bezier is generated by the degree of arc of the neighboring 4 points. The capture point shall be as dense as possible at the turning so as to achieve optimal curve effect. The capture of less than 3 points can generate curve.

The absolute origin or the end point of previous capture segment is the first point of curve capture. Press the key to move to desired position, press  key to identify the capture point, and move for several times to determine capture points; upon completion, press  key to generate the curve.

## 4.11 Reinforcement presets

The reinforcement preset is used when it is necessary to sew graphics with overlapped at the time of capturing a file.

Press  on the main interface of capturing files to open the Reinforcement setting interface.

After you have completed setting, press the "OK".



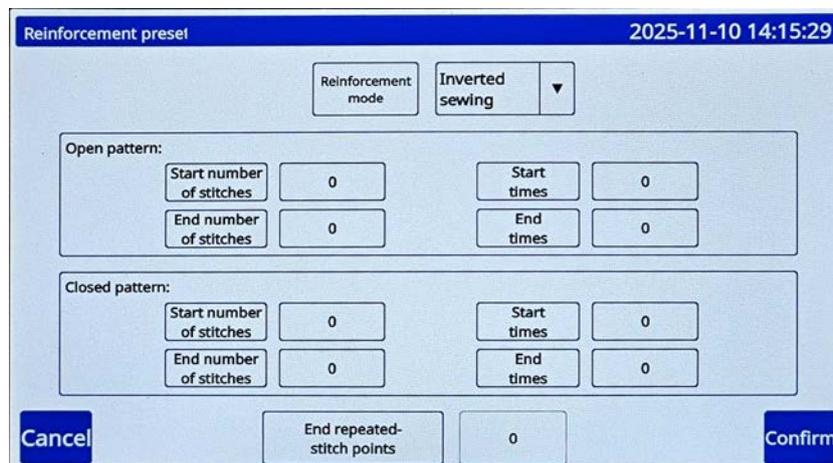
**Selection of the reinforcement mode** : There are three modes avail-

able: reverse feed stitching, condensation stitching, and bartacking stitching.

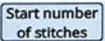
The modes are as described below.

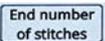
**Backstitch** : Seam of a graphic near its starting and end points are sewn in repetition.

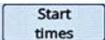
For closed graphics (such as rectangles or circles), select the option "Apply to closed graphics only".

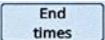


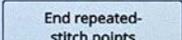
The screenshot shows the 'Reinforcement preset' dialog box with a title bar containing the date and time '2025-11-10 14:15:29'. At the top, there are two dropdown menus: 'Reinforcement mode' and 'Inverted sewing'. Below these are two sections: 'Open pattern:' and 'Closed pattern:'. Each section contains four input fields: 'Start number of stitches', 'End number of stitches', 'Start times', and 'End times', all currently set to '0'. At the bottom, there are three buttons: 'Cancel', 'End repeated-stitch points' (with a value of '0'), and 'Confirm'.

 : Set the number of backstitches to be sewn at the starting point of sewing.

 : Set the number of reverse feed stitches to be sewn at the end point of sewing.

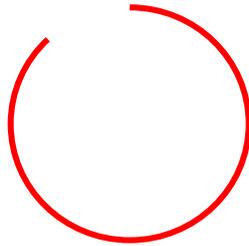
 : Set the number of times of sewing in the forward and backward directions to be performed at the starting point of sewing.

 : Set the number of times of sewing in the forward and backward directions to be performed at the end point of sewing.

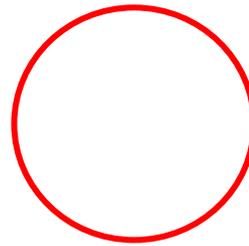
 : Set the number of stitches to be sewn with overlapped at the end point of sewing.

**Shot stitch** : Based on the currently-set stitching pitch, seams are reinforced by sewing with a reduced stitching pitch.

**Unclosed graphic:** A graphic in which the beginning and ending stitches are not connected.

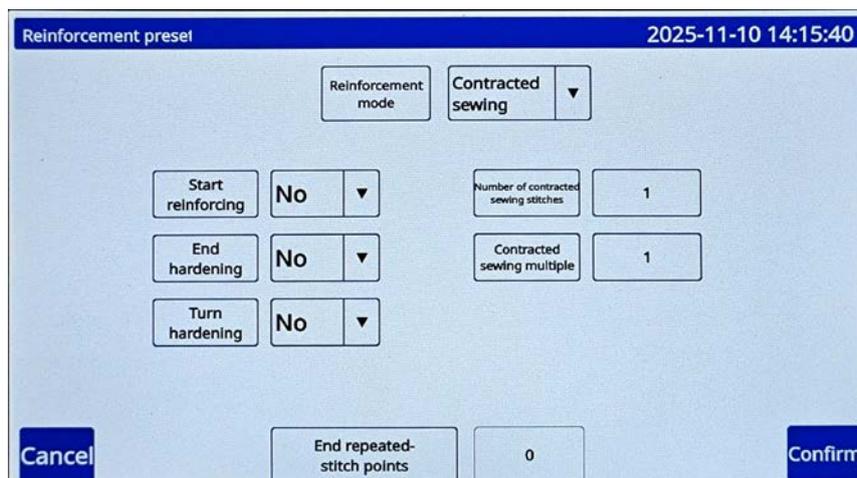


**Closed graphic:** A graphic in which the beginning and ending stitches are connected.



**Note :** When reverse feed stitching is set at the end of a closed graphic, the stitching extends from the final sewing point back to the beginning of the stitching. The number of stitches and the number of repetitions correspond to “End number of stitches” and “End times”. Therefore, reverse feed stitching is added on both sides of the final sewing point.

**Condensation stitching :** Based on the currently-set stitching pitch, seams are reinforced by sewing with a reduced stitching pitch.



**Start reinforcing** **End hardening** : When you select "Yes", reinforcement is carried out at the starting and end points of sewing.

**Turn hardening** : When you select "Yes", seams are reinforced at corner portions.

**Number of contracted sewing stitches** : The number of condensation stitches is a parameter used to calculate the condensation stitch length: Condensation stitch length = Number of condensation stitches x Pattern pitch

**Contracted sewing multiple** : The condensation stitch multiplier is a parameter used to calculate the pitch after shrinkage: Pitch after shrinkage = Pattern pitch / Condensation stitch multiplier

**Example :**

**Original pattern :**

Number of stitches : 3    Pattern pitch = 4 mm



**Reinforcement setting pattern :**

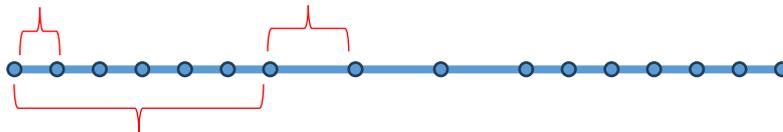
Number of condensation stitches : 3

Condensation stitch multiplier : 2

**Pitch after shrinkage**

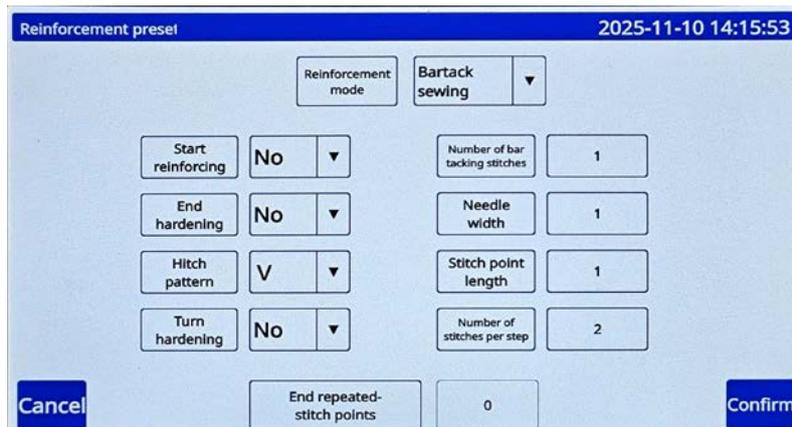
=  $4/2 = 2$  mm

**Pattern pitch**



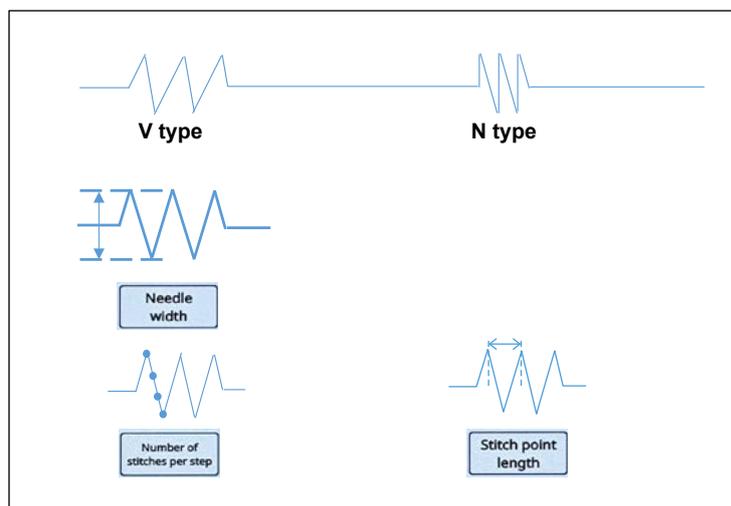
Shrinkage stitch length =  $4 \times 3 = 12$  mm

**Bartacking stitching :** Seams are reinforced by sewing stitches in V form or N form.



**Hitch pattern** : Select either V type or No type.

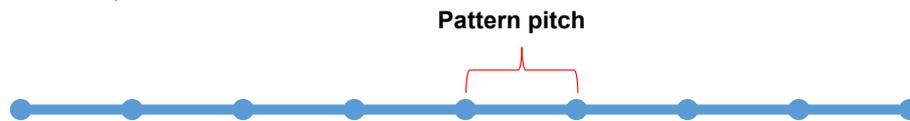
**Number of bartacking stitches** : The number of bartacking stitches is a parameter used to calculate the bartacking stitch length: Bartacking stitch length = Number of bartacking stitches x Pattern pitch



**Example :**

**Original pattern :**

Pattern pitch : 5mm



**Reinforcement setting pattern :**

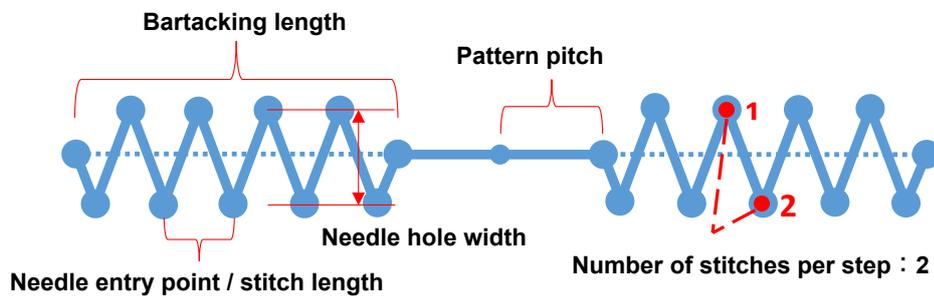
Bartacking pattern : V

Number of bartacking stitches : 3

Needle hole width : 5 mm

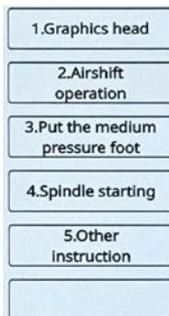
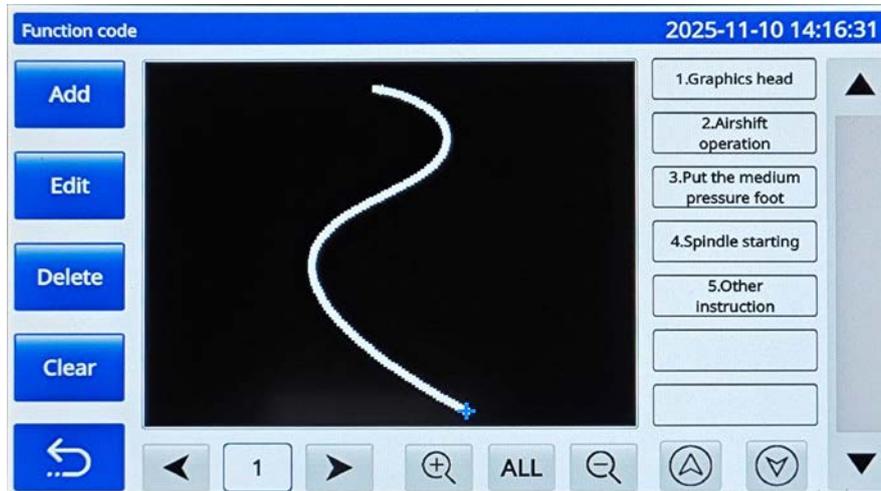
Needle entry point/stitch length : 3 mm

Number of stitches per step : 2



## 4.12 Commands

Pressing **Function cord** on the graphic creation screen will access the function code settings, allowing you to add function code settings to any point.



: Command that is added to the currently selected needle point is displayed.



: Used to select a needle point. The selected needle point is displayed in blue.



: Used to open the command addition interface.

Refer to the description given in the capture interface for details.



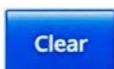
: Used to change the setting of the added command.

Move to the needle point to which you have added a command. When you select the command you want to change the setting and press this key, the Setting change screen is displayed.



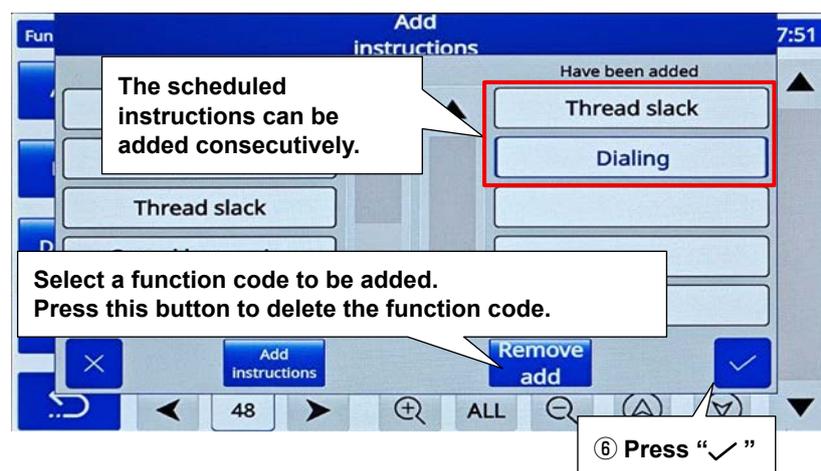
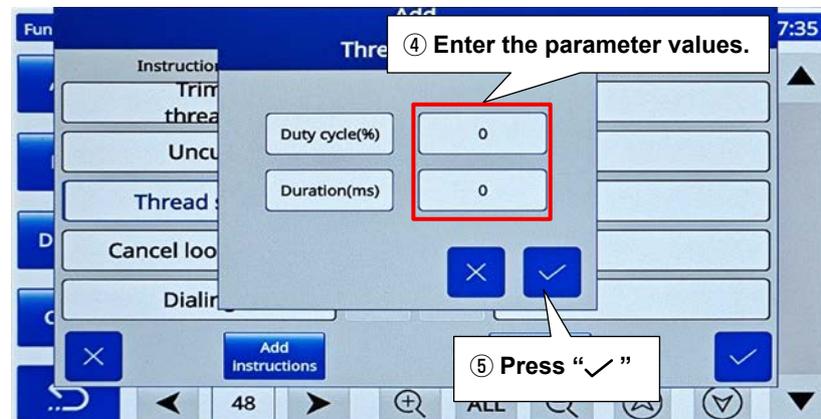
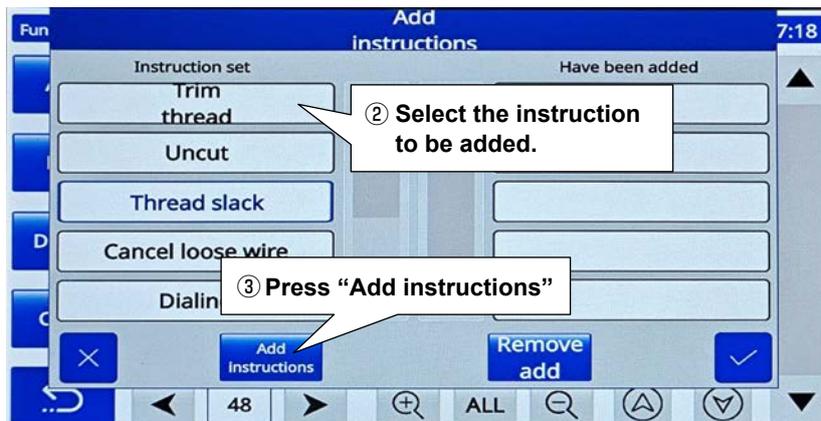
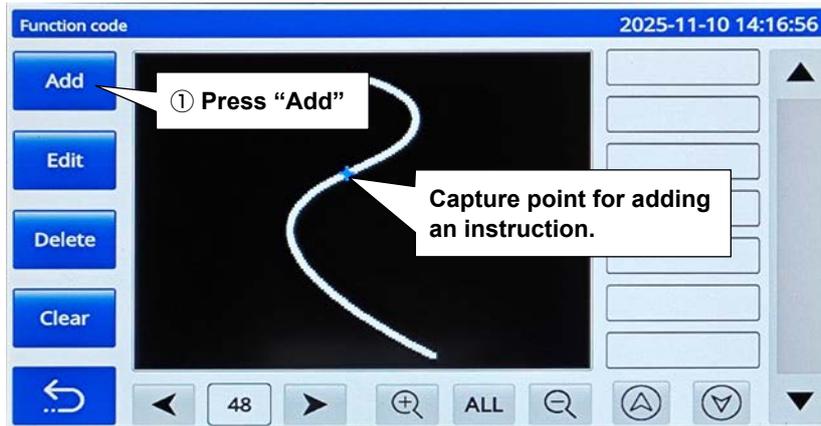
: Used to delete the added command.

Move to the needle point where the command was added, select the command you want to delete, and press this button to delete the command.



: Used to delete all of the added commands.

Follow the steps below to add a function code.



There are 34 or more types of commands.

**IO Output** : Used to set the IO number that needs to be output and its high and low levels. When this command is encountered, the IO level corresponding to the IO output is output.

**IO Input** : Used to set the level of the entered IO number needs to be detected. If the command is encountered, subsequent operations will be performed when the corresponding IO is at the high or low level.

**Delay** : Used to set the required extension time. The machine stops operation by the set time when the command is encountered.

**Return parking space** : The second origin command sets the secondary starting position when the command is encountered. Specify the state settings for each function.

**Upper pause** : For the upper pause command, the main shaft stops at the upper needle stop position when the command is encountered. Specify the state settings for each function.

**Down pause** : For the lower pause command, the main shaft stops at the lower needle stop position when the command is encountered. Specify the state settings for each function.

**Temporary spindle speed** : Once you have edited the main shaft speed, the main shaft speed is changed over to the set speed when the command is encountered.

**Restoring spindle speed** : If this command is encountered when the main shaft speed has been changed by the command, the speed will be restored to the speed before it is changed.

**Trim thread** : For the thread trimming command, thread trimming is performed when the command is encountered without stopping the main shaft.

**Execution reset** : The reset command executes a reset when the command is issued.

**Spindle starting** : The main shaft start command starts the rotation of the main shaft when the command is issued. Specify the state settings for each function.

**Spindle stop** : The main shaft stop command stops the rotation of the main shaft when the command is issued. Specify the state settings for each function.

**Thread clamp** : The thread clamp command performs the clamping operation once when the command is issued.

**Unclamp** : The thread clamp cancel command cancels the execution of the clamping operation when the command is issued.

**Z axis travel distance** : Edit the Z axis movement distance and generate the function number. The Z then moves by the specified distance.

**Z-axis move** : If you have edited the Z axis coordinate, the Z axis will move to the edited coordinate position when the command is encountered.

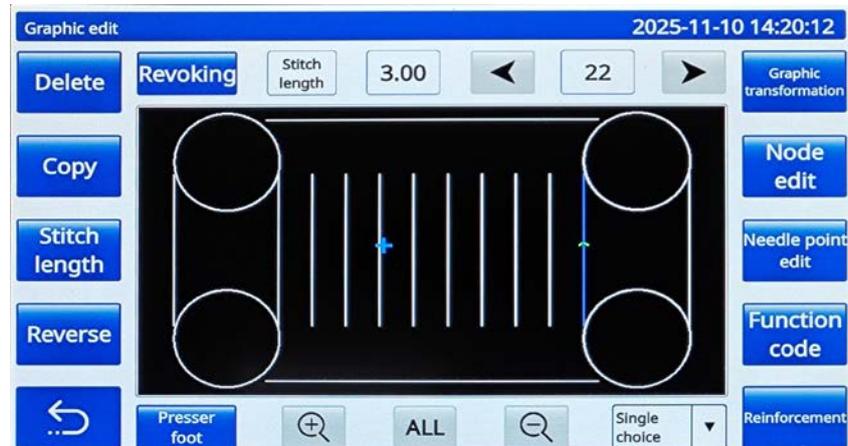
**Lift frame** : For the clamp lift command, the main shaft stops at its upper stop position and the clamp is lifted when the command is encountered.

- Drop frame** : For the clamp holder command, the clamp is lowered when the command is encountered.
- Graphics head** : When you have selected the head command and selected head 1, head 2 or head 3, the head is switched over to the selected head when the command is encountered.
- Cancel the press foot** : Used to cancel the command for lifting the presser foot. When the command is encountered, the presser foot lifting setting is canceled.
- XY absolute move** : When the command is issued, the machine moves to the specified X and Y coordinates.
- XY relative movement** : When the command is issued, the machine moves by the specified offset from the current X and Y coordinates.
- Lift the press foot** : The presser foot lift command raises the presser foot when the command is issued.
- Put the medium pressure foot** : The presser foot lower command lowers the presser foot when the command is issued.
- Press foot height** : The presser foot height command adjusts the presser foot height when it is encountered.
- Uncut** : Used to cancel the thread trimming cancellation command. When the command is encountered, thread trimming is canceled.
- Thread slack** : The thread tension release ON command allows the thread clamp to loosen the thread when it is encountered.
- Cancel loose wire** : The thread tension release OFF command allows the thread clamp to tighten the thread when it is encountered.
- Wiper** : The wiper ON command allows the wiper to operate after thread trimming when it is encountered.
- Press this button to cancel the wiper.** : The wiper OFF command prevents the wiper from operating after thread trimming when it is encountered.
- AT clamp** : The AT command temporarily adjusts the AT thread tension value when the command is issued.
- Turn off the third clamp** : The close third thread tension command closes the third thread tension when the command is issued.
- Open the third clipper** : The open third thread tension command opens the third thread tension when the command is issued.
- Turning point** : For the inflection point command, the main shaft rotates at the command speed when the command is encountered.

## 4.13 Graphic Editing

With the graphic editing, captured graphics can be edited in detail.

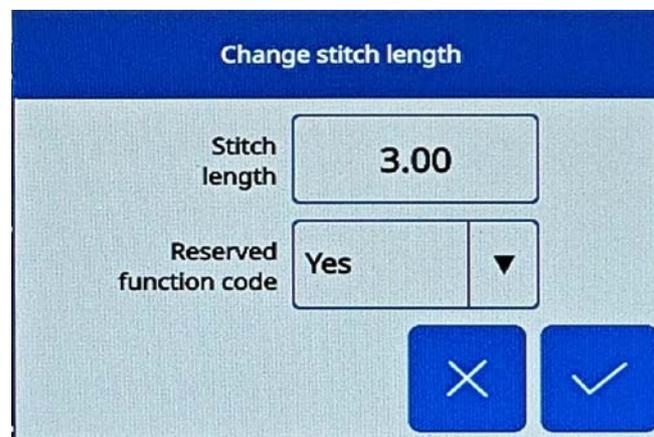
Click  to enter the following interface:



The function keys can't be edited unless the graphics to be handled are selected (turn blue if chosen) using   .

 : Used to set the stitching pitch of the selected graphic. (the stitch length ranges from 0.05 to 12.7)

**Note** : The stitch length change is applied only to stitching lines (displayed as solid lines on the panel). Other function lines (displayed as dotted lines on the panel) are not affected.



Stitch length  : Enter the changed pitch (mm) in this field.

Reserved function code   : Select "Yes" when you want to maintain the command you have added to the processing file even after having changed the pitch length.

**“Command” key** : Used to add a command.

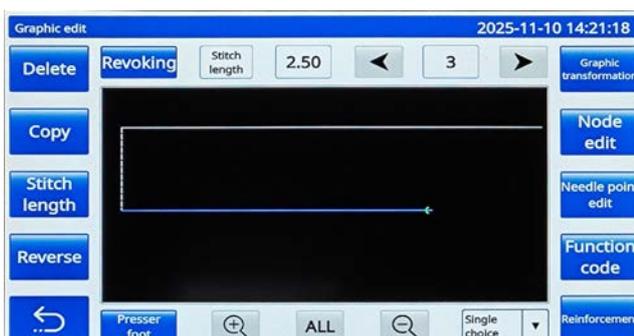
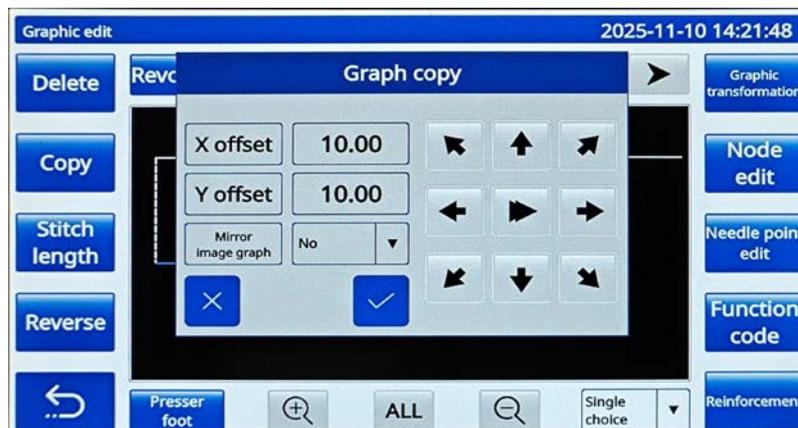
(Refer to P49 for details.)

: Reverse the sewing process of the selected graphic, that is to say, the stitching is performed in reverse order.

: **“Revoke” key** : back to the state before the last modification.

: Delete the currently selected graphic

: Select the image to be copied and set its offset, that is, determine the location of the replicated image, as follows :



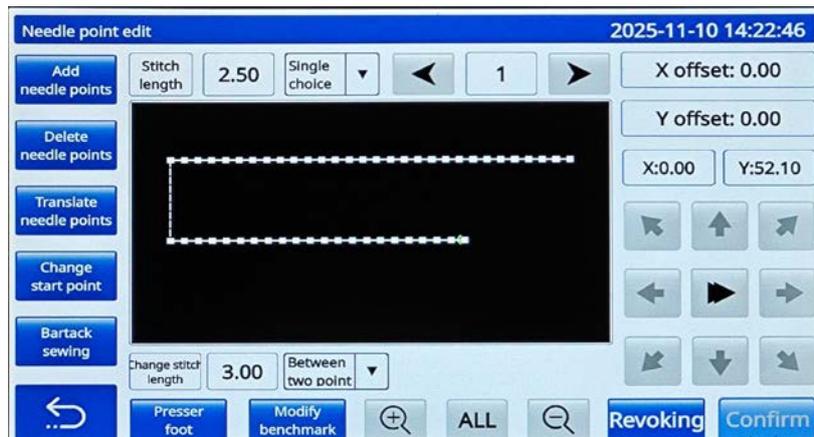
Before copying



After copying



: Click this key after selecting the graphic, when all needle points are displayed on the graphic; the interface is as follows:



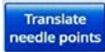
A certain needle point can be added, deleted, translated or changed. (The green dot indicates that a command is given to the dot.)



: Used to select an arbitrary needle point. Then, determine the position to which you want to add the needle point with the Direction keys and press the "OK" key to add the needle point.



: Used to select an arbitrary needle point. Press the "OK" key to delete the needle point.



: Used to select an arbitrary needle point. Then, determine the position to which you want to move the needle point with the Direction keys and press the "OK" key to move the needle point.



: Used to select a needle point you want to use as the starting point. Then, press the "OK" key to change the starting point.

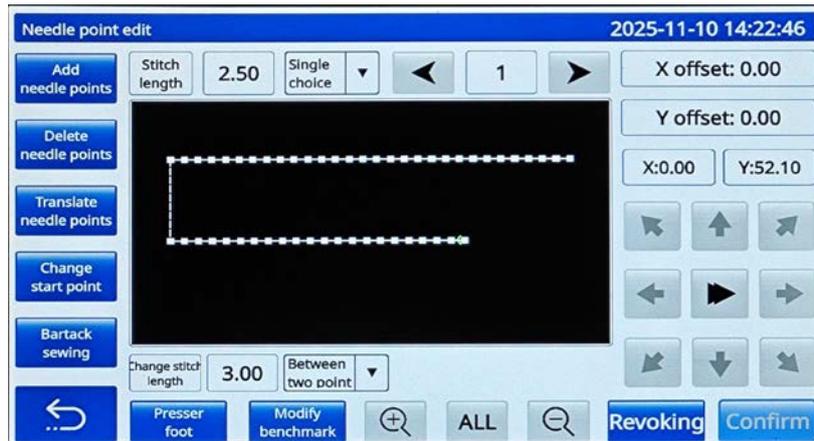
This applies only to closed graphics. For open graphics, it is limited to the sewing end point.



: Used to add a zigzag stitch to an arbitrary needle point.

**Modify benchmark** : Changes the reference point.

**Note:** You can change the reference point by moving to an existing needle entry point.



**reference point 1** : Sets the coordinates of the current needle entry point as reference point 1.

**reference point 2** : Sets the coordinates of the current needle entry point as reference point 2.

**Clear the criteria** : Returns the coordinates of reference point 1 to the initial position and deletes the coordinates of reference point 2.

**Return** : Returns to the needle entry point screen.

**Change stitch length** 3.00 : Changes the pitch.

**Between two point** Press this button to select the mode to change the pitch:

**Between two point** : Changes the stitch spacing between the two selected points.

**Current graph** : Changes the stitch spacing of the selected stitch in the current image.

**All graphs** : Changes the stitch spacing of all graphics in the current canvas.

**Node edit** : The entire curve is presented in the form of many nodes so that the curve can be changed by adding, deleting and translating the nodes. Moreover, even the start point and the direction of the entire curve can be changed (the key operation mode is the same as needle point editing). A node refers to a connecting point.



**Add node** : Used to select an arbitrary node. Then, determine the position to which you want to add the node and press the "OK" key to add the node.

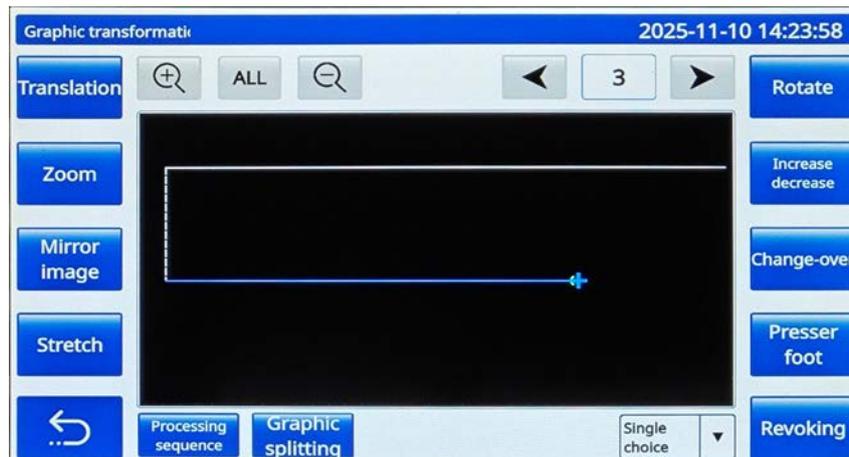
**Delete node** : Used to select an arbitrary node. Then, press the "OK" key to delete the node.

**Translate node** : Used to select an arbitrary node. Then, determine the position to which you want to move the node with the Direction keys and press the "OK" key to move the node.

**Change start point** : Used to select a node you want to use as the starting point. Then, press the "OK" key to change the starting point. This applies only to closed graphics.



Graphic transformation : When you get into the graphic transformation interface, the panel display will be as shown below.



You can modify or edit this curve by setting parameters such as linear movement, stretching, zooming, rotation, mirroring, scaling, and transformation.



: Select the method and select the curve you want to edit through  .



: Undo the edition of the previous step.



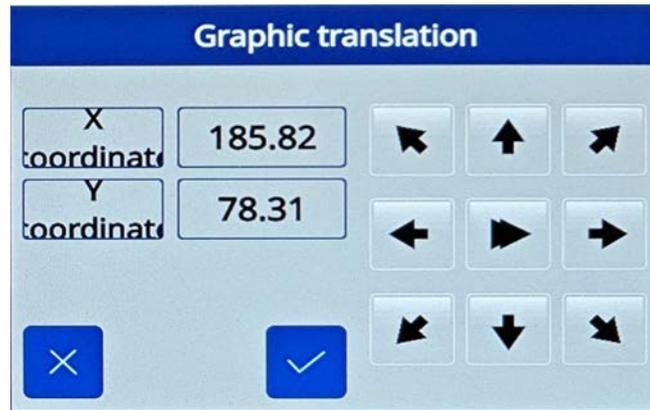
: Enter the processing sequence interface to view the processing sequence of graphic.



: Used to change the order of graphic processing.

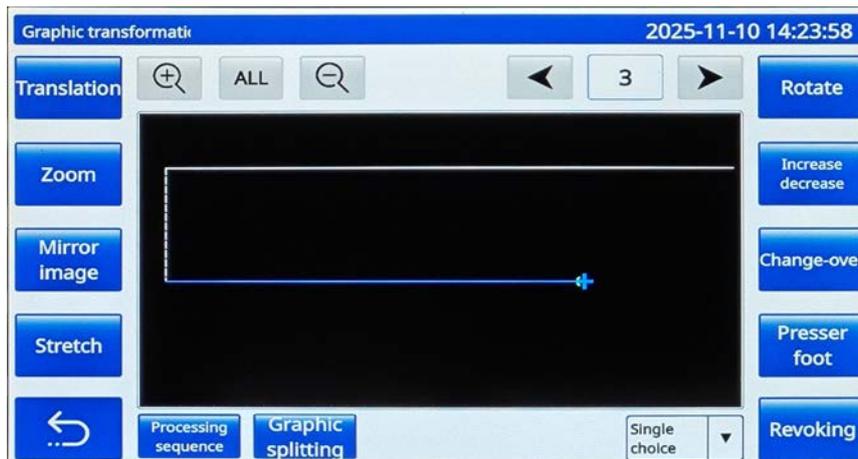
Select a graphic and press the key to change the order of graphic processing.

**Translation** : Used to move a graphic to the set XY coordinates.

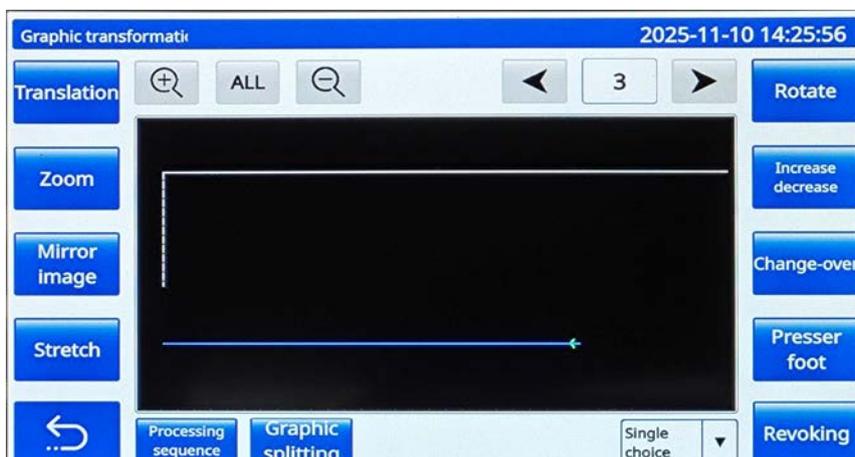


X coordinat 185.82  
Y coordinat 78.31 : Used to set coordinates of the destination.

Before translation :

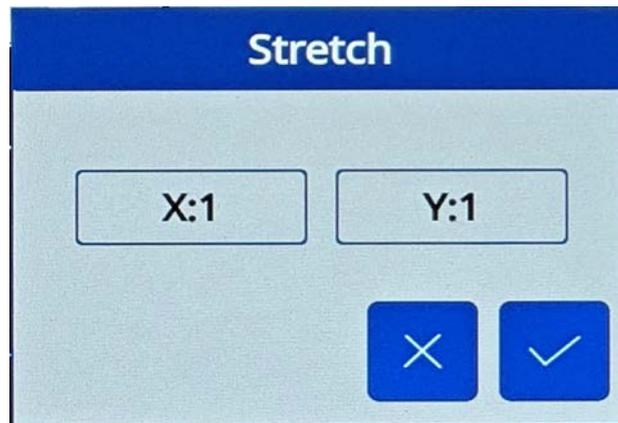


After translation :

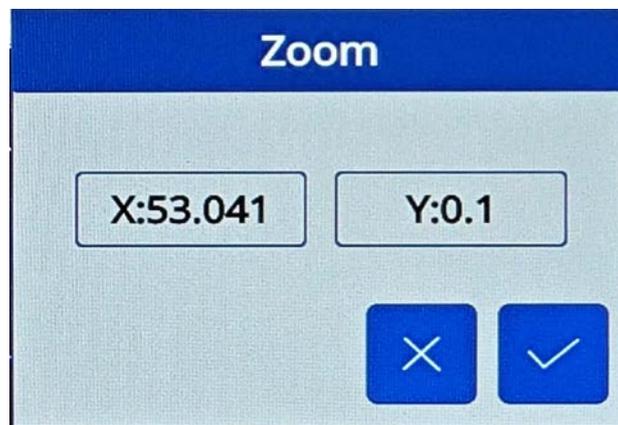


**Stretch** : Used to change the ratio of the selected graphic to expand/contract it.

\* The ratio in the initial state is "Vertical : Horizontal = 1:1".



**Zoom** : The selected graphic is scaled by the set graphic ratio.



**X:53.041** **Y:0.1** : Used to set the size of a graphic after it is expanded/contracted.

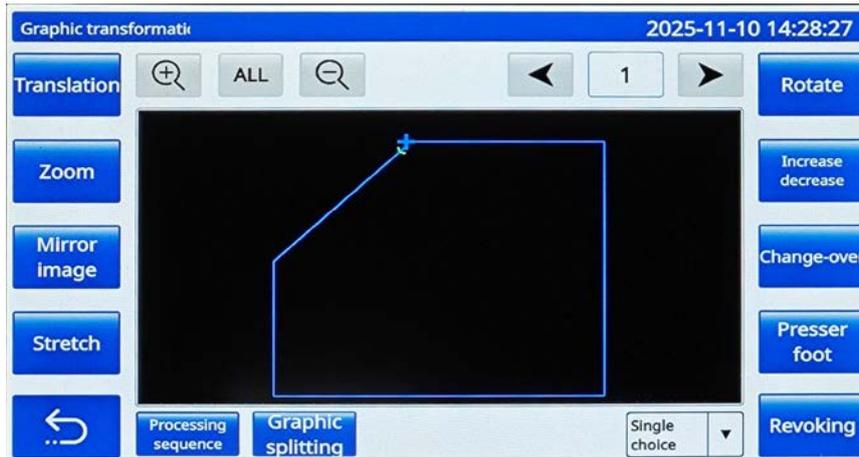
**Mirror image** : Make horizontal and vertical mirroring changes to the selected graphic. As follows:

Before the change:

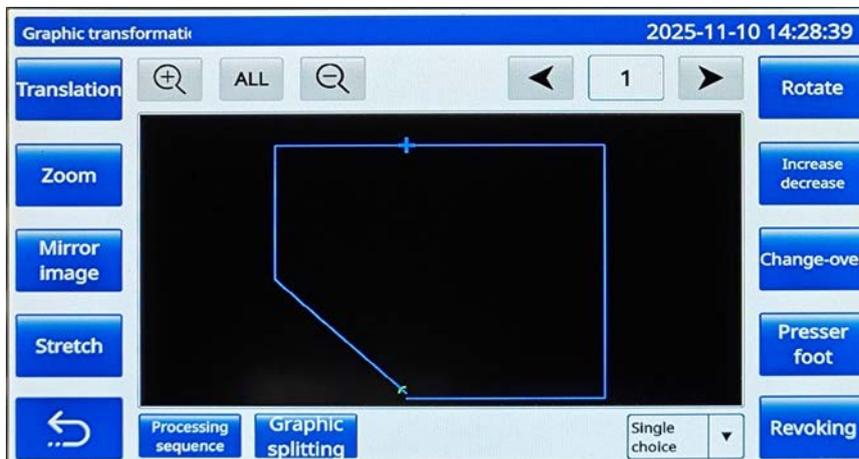


**Horizontal mirror image** ▼ : Used to select the direction of mirror inversion.

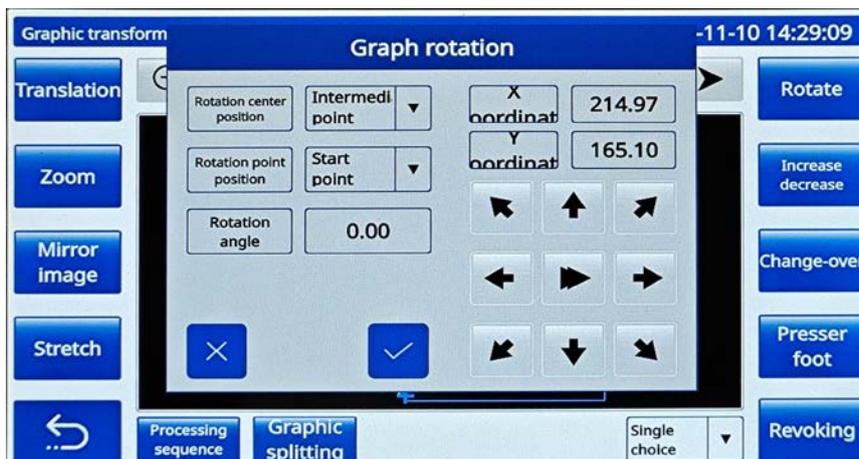
Before the change :



After horizontal mirroring :



**Rotate** : Rotates the selected graphic.



**Rotation center position** **Intermedi point** : Sets the rotation center of the selected graphic.

You can set the start point, midpoint, or node point.

**Rotation point position** **Start point** : The rotation point of the selected graphic is preset to the start point, midpoint, or node point.



: With the “Rotation point position” set, adjust the rotation point position.

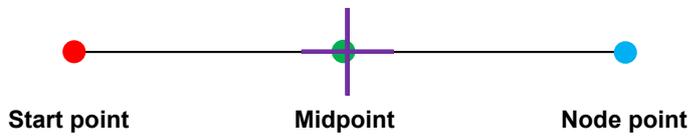


: Press this button to set the rotation angle. Direct input is also possible.

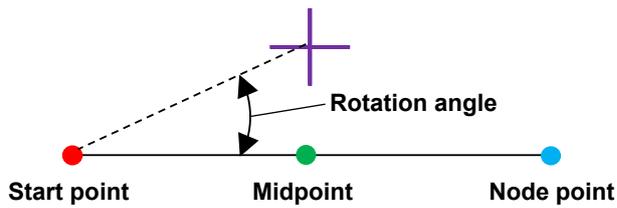
**Note:** When you adjust the rotation point, the rotation angle value also changes.

### Setting example

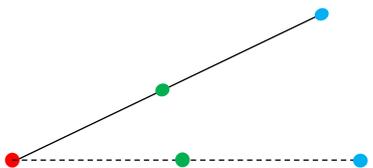
- ① Rotation center position : Start point  
Rotation point position : Midpoint

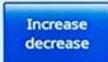


- ② Use the arrow buttons to move in the Y+ direction. The “Rotation angle” value changes.

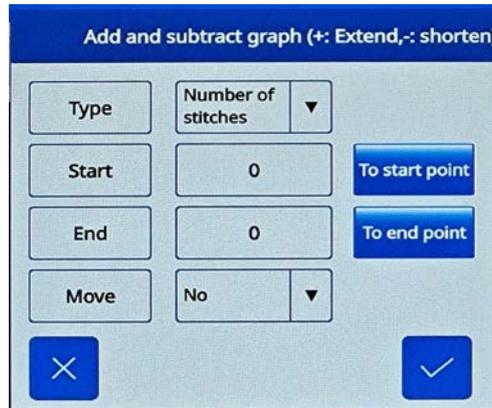


- ③ Press the  button to rotate the graphic.

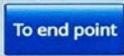




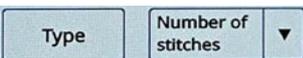
: Press this key to open the increase/decrease graphic interface and set the increase/decrease of all continuous curves of the processing curves simultaneously. The screen is as shown below :



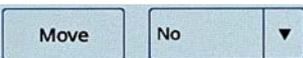
: Used to move the frame to the starting point of the processing file.



: Used to move the frame to the end point of the processing file.



: Used to set the increase/decrease mode and select the length or the number of stitches.



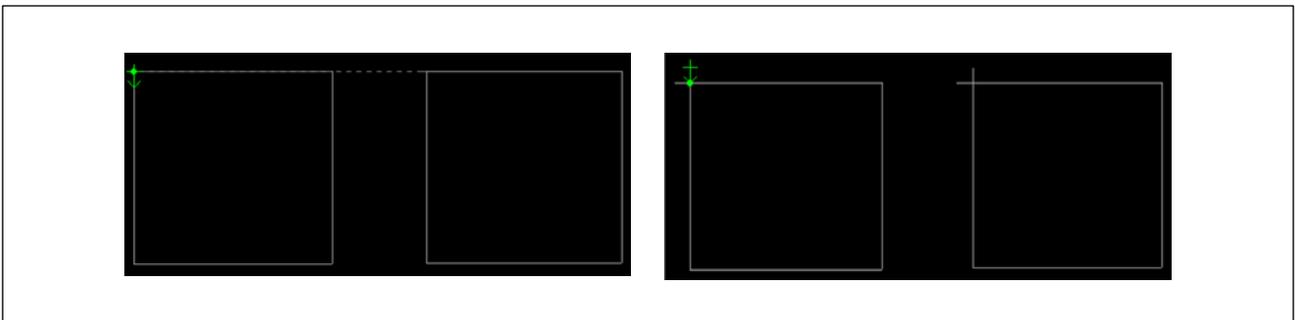
: If "Yes" is selected, the position moves to the start point of the graphic.



: Used to set a length (unit: mm) or the number of stitches to increase/decrease.

A positive number indicates extension of the curve. A negative number indicates shortening of the curve.

For example, if the stitch length of the current pattern is 3 mm, and the extension is set to 5 mm, the curve will be lengthened by one stitch. (If the extension is set to a value smaller than one stitch length, the setting will not take effect.) When you set as "Start: Yes", "End: Yes" and "Increase or decrease: 9" in the figure on the left, the figure will be changed to the figure on the right.



**Change-over** : The selected line can be changed to a stitching line, a jump feed, or a cutting line.

List of options

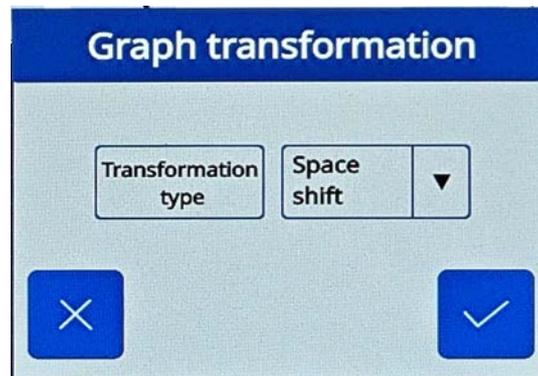
**Sewing** : Stitching line

**Jump feed movement** : Jump feed

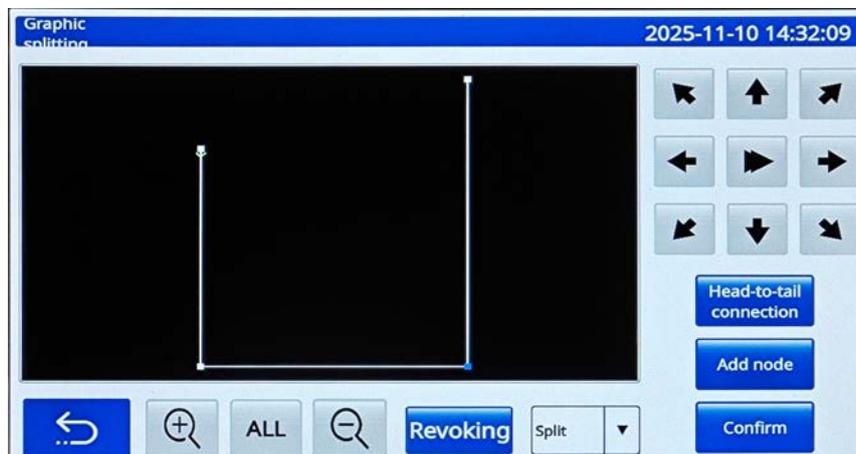
**Head 2** : Pen stick

**Head 3** : Laser

**Head 4** : Rotary knife

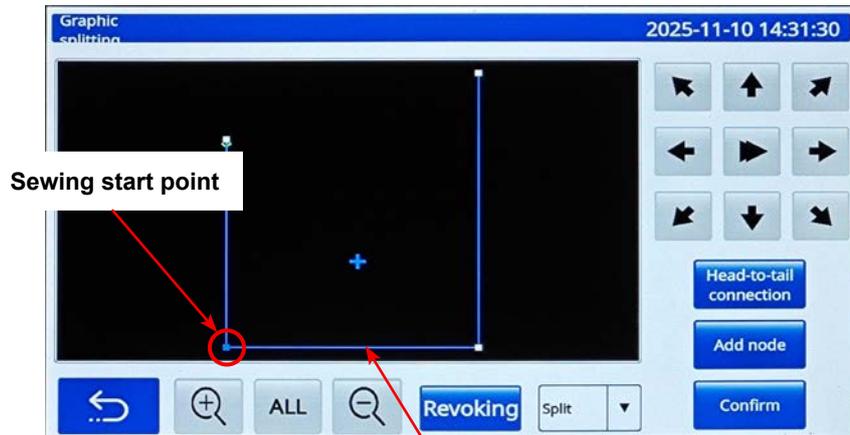


**Graphic splitting** : Splits or merges the selected graphic.



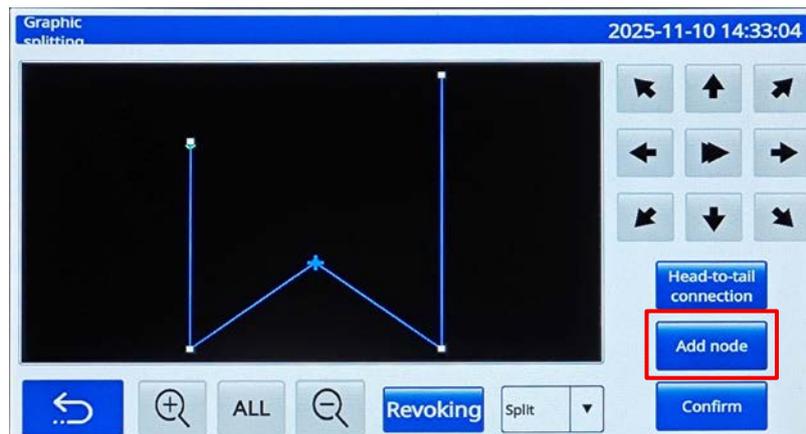
**Add node** : Adds a needle point. (Follow steps ① to ⑤ to add it.)

- ① Touch the starting node of the stitching line you want to modify with your finger. (The selected point turns blue.)



Corrected stitching line

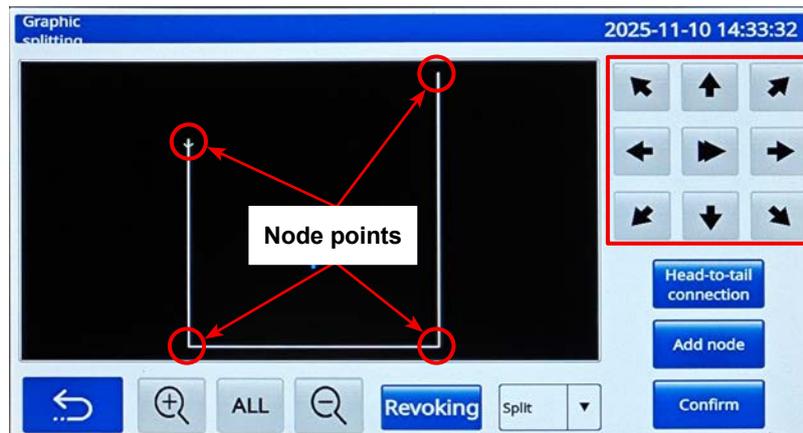
- ② Use the arrow buttons to move the node to be added, and press the "Add node" button.



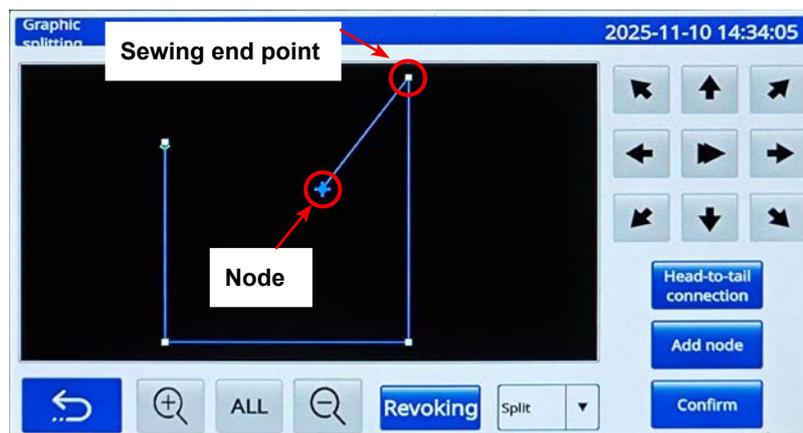
- ③ If you want to cancel the added node, press the "Revoking" button.



- ④ Press the “Revoking” button to hide all node points. Use the arrow buttons to display the node points again.



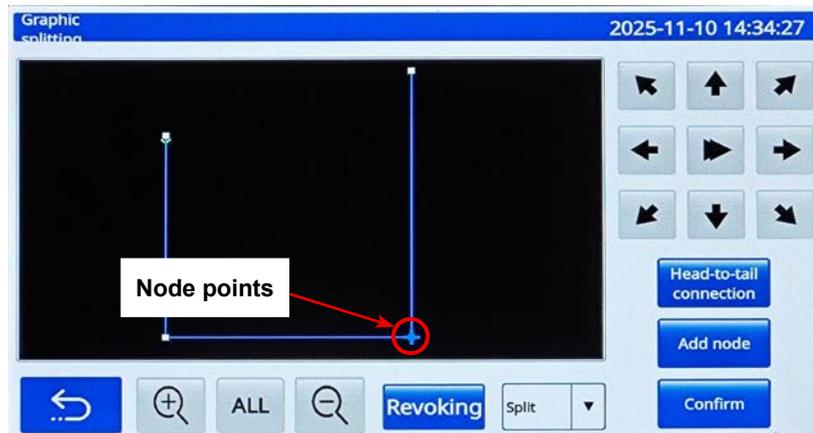
- ⑤ Selecting the end node point of the stitching line adds an extension line up to the added node.



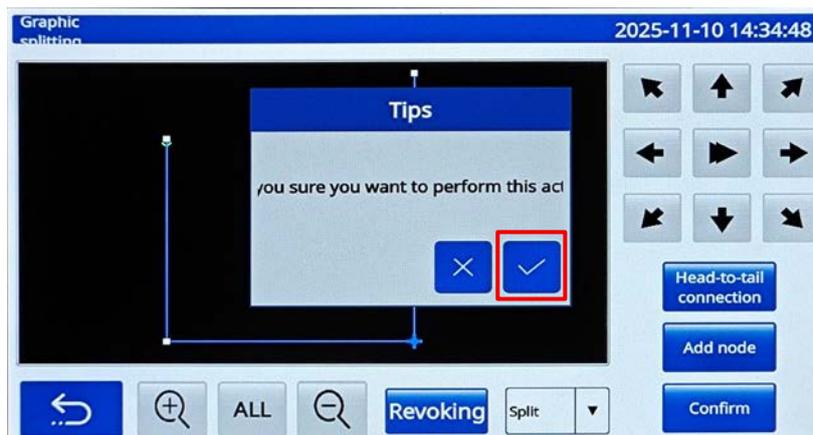
**Head-to-tail connection**

: Connects the start and end points of the selected graphic. (Follow steps ① to ③ to add it.)

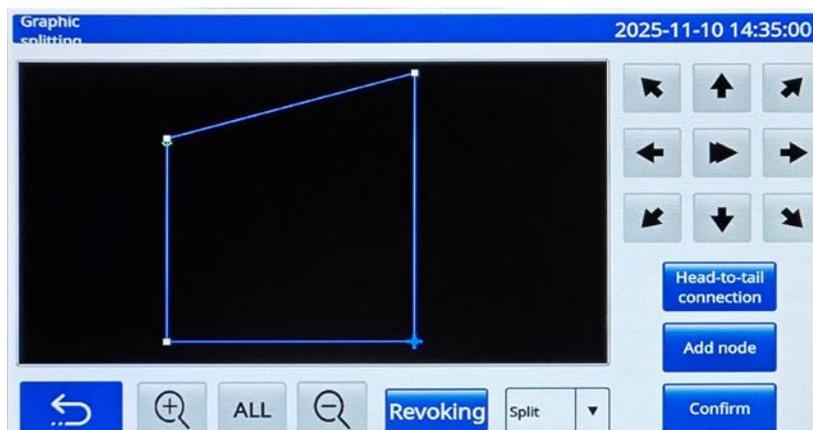
- ① Touch the node of the line to be connected to select the line. When selected, the line turns blue. Press the “Head-to-tail connection” button.



- ② Press the  button on the “Are you sure you want to perform this action?” prompt screen.



- ③ After the operation is completed, the sewing start and end points are connected.



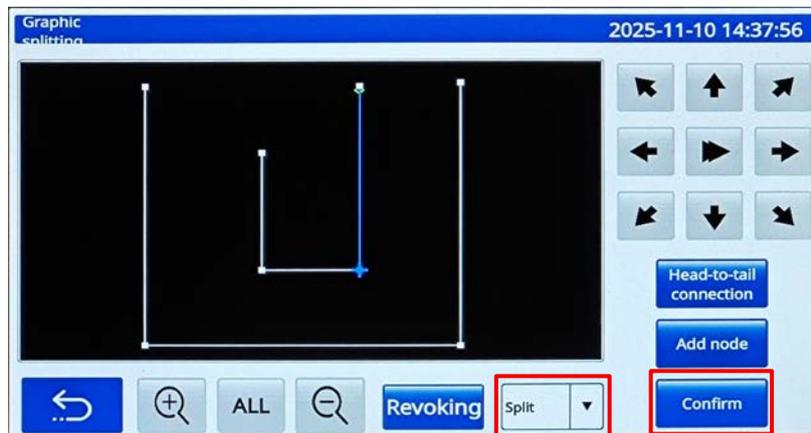
Split ▼ : Used to select either "Split" or "Combine".

In the case of split, one graphic as described above can be edited.

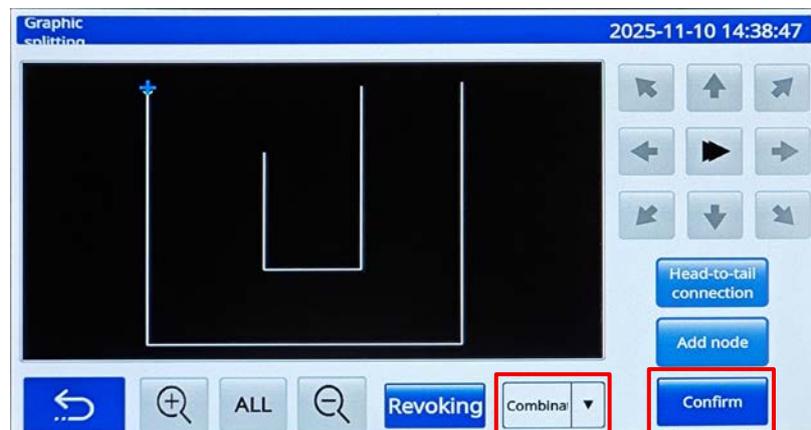
In the case of "Combine", two or more graphics can be edited so that they are connected. (Edit following the steps of procedure ① to ③ ).

\* Node editing cannot be performed when "Combine" is selected.

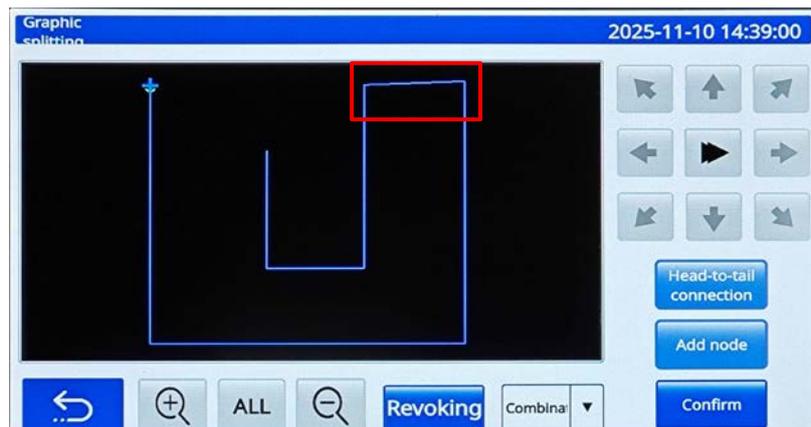
- ① In "Split" mode, select the node of the line to be split and press the "Confirm" button. The sewing line is split at the selected node.



- ② In "Combination" mode, select multiple lines with your finger and press the "Confirm" button.



- ③ The end of the previous line is connected to the start of the next line.



# Chapter V Parameter File

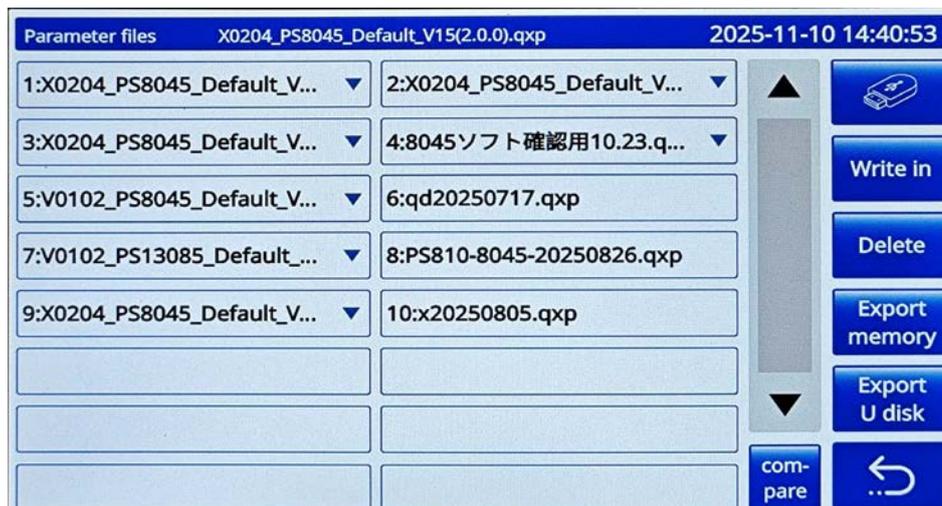
Parameters may vary depending on usage scenarios. The parameter file management interface is used to import and export parameter files, manage multiple parameter files, and select one of the parameters in memory as the parameter actually used in the system.

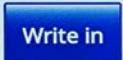
## 5.1 Memory parameter file interface

On the home page screen, press the “Menu” button, and then press  to display the password request screen for opening the parameter file.



\* At the time of shipment, the password is set to “11111111”.



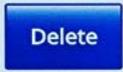
The interface displays parameters files stored in the system. Click on the file name to make it light blue, and then click , when a prompt message pops up reading "In progress, please wait..." and then reading "Operation succeeded"; then, the system returns to the main interface, which means the selected parameters have taken effect. All the set values and other hidden parameters in "User parameters" and "Mechanical parameters" will be modified by this parameter file.

**The key functions are described as follows:**



: Write the selected parameter file into control board as a parameter actually used.

The parameter file imported to the system from USB flash disk can't take effect unless "Write" is clicked on.



: Deletes the selected parameter file.



: Current parameter file. Press "Export memory" to display the virtual keyboard.

Enter the name of the parameter file to be generated using the keyboard, and press  to generate the parameter file in the parameter file preview interface.



: Return to the menu page.



: Copies a single selected file from the memory file interface to the USB memory

device. If a file with the same name already exists on the USB memory device, a message stating "The file already exists! Overwrite it?" will appear, prompting you to make a final selection.

When  is pressed, the USB parameter file interface is opened.

The system will list the files and folders with extension .xhp, and support multi-level folder operations.

Select the name of the parameter file to be imported into the machine in the USB flash disk parameter file interface, and click  to copy the file to the memory space. Select the

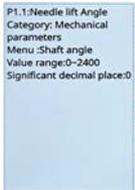
file in the way as mentioned above, and click  to make the parameter take effect.



: Select a parameter file in the parameter file preview interface and press this button to display the parameter comparison page, as shown in the figure.



ID	Active parameter	045_Default_V1:
P1.1	1700	1700
P1.2	760	760
P1.3	288	288
P1.4	1240	1240
P1.5	1650	1650
P1.6	100	200
P1.7	1040	1040
P1.8	607	607
P1.9	847	847
P1.10	1900	1450
P1.11	100	100
P1.12	100	100



**Parameter Information** : Displays parameter information such as parameter name, category, value range, and significant decimal places.

ID	Local parameter	Factory Default
P1.1	1700	1700
P1.2	760	760
P1.3	285	285
P1.4	1240	1240
P1.5	1650	1650
P1.6	199	200
P1.7	1040	1040
P1.8	607	607
P1.9	847	847
P1.10	1900	1450
P1.11	100	100
P1.12	100	100

**Parameter comparison list preview** : Displays a comparison list of local parameters and selected parameters.

Unselected parameters have a blue background.

P1.2	760	760
------	-----	-----

Selected parameters have a green background.

P1.1	1700	1700
------	------	------

If any parameters differ, their background color turns red.

P1.6	100	200
------	-----	-----



: When this button is pressed, it turns light blue and the comparison results for all parameters are displayed in the parameter comparison list.



: When this button is pressed, it turns light blue and the comparison results for all parameters with differences are displayed in the parameter comparison list.



: Jumps to the previous differing parameter.



: Jumps to the next differing parameter position.

**Note:** The parameter file varies depending on equipment model. Mixing is prohibited. Even the equipment of the same model may have different optimal factory parameter configurations due to slight differences in their mechanical structures. Hence, it is recommended, after the purchase of machines, to export factory parameters for each machine and save them with different file names for future use.

### The detailed steps for exporting parameters:

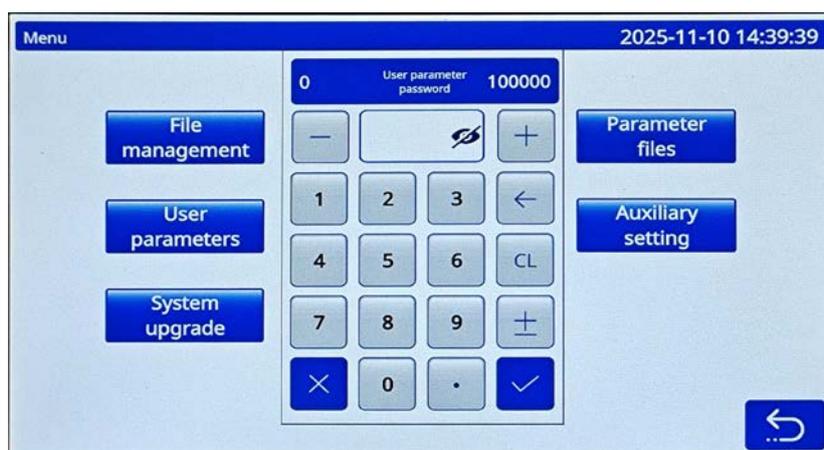
- 1) Insert USB flash disk;
- 2) Enter the "Parameter file" interface and press the [Output].
- 3) In the pop-up dialog box, enter numbers or letters as the file name of exported parameter, and click OK to save it to the USB flash disk.

# Chapter VI User Parameters

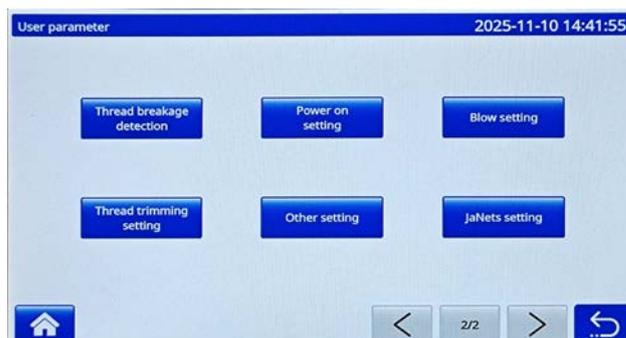
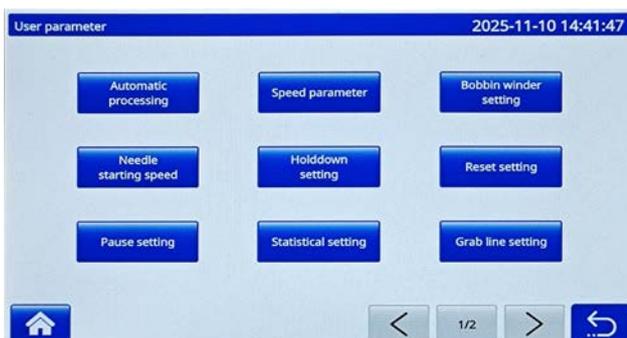
User parameters can be adjusted in accordance with processing requirements so as to meet them and improve processing efficiency.

## 6.1 User Parameters Interface

On the home page screen, press the “Menu” button, and then press  to enter the user parameter interface.

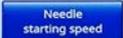


First, enter the user parameter password.  
(Initial setting: 11111111; 1x8)



### Parameter classification description :

 : Sets the presser foot, thread trimming, and AT device after automatic processing is completed.

 : Sets the speed and reverse feed stitching for the 1st to 5th stitches at the start of sewing.

 : Sets the maximum main shaft rotation speed, jump feed speed, and stitch speed for the 1st to 5th stitches at the end of sewing.

 : Sets the state of the presser plate at startup.

-  : Sets the bobbin winding operation.
-  : Sets the presser foot state and the home return state during resetting.
-  : Sets the state during a temporary stop.
-  : Sets the processing statistics and bobbin thread counting mode.
-  : Sets the third thread tension.
-  : Sets the thread breakage detection–related parameters.
-  : Sets the parameters for thread trimming.
-  : Sets the parameters at the power-on.
-  : Sets the voice guidance, sound volume, air detection, and other parameters.
-  : Sets whether or not to blow air at the start and end of sewing. Configures the air blow settings and time at the start and end of sewing.
-  : Configures JaNets function and notification parameters.

## 6.2 Parameter settings for using cycle mode

If you want to use the same pattern in cycle mode, set the following parameters.

- 1) User parameters → Other settings → P34.2 Set the cycle work mode to ON.  
**Note** : If the machine is restarted, the parameter P34.2 will reset to OFF and must be configured again.
  
- 2) User parameters → Other settings → P34.3 Set the cycle interval time (unit: s).  
**Note** : Based on the actual measured time required to remove the material, set a sufficient margin for the operator's work.
  
- 3) User parameters → Automatic processing → P21.1 Set whether the clamp rises after completion.  
 If template removal is required, set P21.1 to ON.  
 If template removal is not required, set P21.1 to OFF.
  
- 4) User parameters → Automatic processing → P21.6 Set the automatic clamp presser.  
 If P21.1 is set to ON, set P21.6 to ON. If P21.6 is set to OFF, the manual clamp button must be pressed.  
 If P21.1 is set to OFF, P21.6 does not need to be set.

## 6.3 Introduction to User Setting Parameters

Parameter group name	Parameter number	Parameter description	Parameter range	Default value
Automatic machining	P21.1	Presser plate lifting after automatic machining is completed	1:ON, 0:OFF	1
	P21.2	Thread trimming after automatic machining is completed	1:ON, 0:OFF	1
	P21.3	Return position after automatic machining is completed	0: Return to origin 1: Completion position 2: Return to stop position	2
	P21.4	AT device operates	1:ON, 0:OFF	0
	P21.5	The reference presser is set so that it does not change	1:ON, 0:OFF	0
	P21.6	Automatic frame clamp is enabled	1:ON, 0:OFF	0
	P21.7	The frame is clamped before the shaft is manually moved	1:ON, 0:OFF	1
	P21.8	Number of needle repeats at the start of sewing	0:OFF, 1 to 3	0
	P21.9	Number of stitches at the start of sewing with the thread tension release disabled	0 to 255	0
	P21.11	Presser follow-up reset after work completion	1:ON, 0:OFF	0
	P21.12	Reference axis movement is enabled	1:ON, 0:OFF	1
	P21.13	Setting for reporting a reference clamp not set error	1:ON, 0:OFF	0
	P21.14	Automatically outputs IOi1 after work is completed	0: No 1:15 (IO1 to IO15)	0
	P21.15	Automatically outputs IOi2 after work is completed	0: No 1:15 (IO1 to IO15)	0
	P21.16	Reference and sewing jump feed method	0: X and Y simultaneously, 1: X preference, 2: Y preference	0
	P21.17	Automatically returns to the reference point after shifting to the reference screen	1:ON, 0:OFF	1
	P21.18	Method for returning to the stop position	0: X and Y simultaneously, 1: X preference, 2: Y preference	0
	Sewing start speed	P22.1	First stitch startup speed (sti/min)	100 to 3000
P22.2		Second stitch startup speed (sti/min)	100 to 3000	800
P22.3		Third stitch startup speed (sti/min)	100 to 3000	1200
P22.4		Fourth stitch startup speed (sti/min)	100 to 3000	1600
P22.5		Fifth stitch startup speed (sti/min)	100 to 3000	2000
P22.6		Reverse feed rotation speed (sti/min)	100 to 3000	1000
P22.7		Slow startup is enabled	1:ON, 0:OFF	1
Speed parameter	P23.1	Main shaft maximum rotation speed (sti/min)	100 to 3000	3000
	P23.2	Jump feed speed (mm/s)	78 to 624	200
	P23.3	Test sewing speed (sti/min)	100 to 3000	2300
	P23.4	Head 2 speed (mm/s)	8 to 234	78
	P23.5	Reverse rotation speed (sti/min)	10 to 3000	10
	P23.6	Intermediate presser foot lifting speed (mm/s)	8 to 234	78

Parameter group name	Parameter number	Parameter description	Parameter range	Default value
Speed parameter	P23.7	Number of stitches at the end of sewing for which the speed setting is effective	0 to 5	5
	P23.8	First stitch speed at the end of sewing (sti/min)	100 to 3000	300
	P23.9	Second stitch speed at the end of sewing (sti/min)	100 to 3000	800
	P23.10	Third stitch speed at the end of sewing (sti/min)	100 to 3000	1200
	P23.11	Third stitch speed at the end of sewing (sti/min)	100 to 3000	1600
	P23.12	Fifth stitch speed at the end of sewing (sti/min)	100 to 3000	2000
	P23.13	Main shaft setting speed (sti/min)	100 to 3000	1600
	P23.14	Frame shift button position 1 offset distance (0.01 mm)	5 to 50	5
	P23.15	Frame shift button position 2 offset distance (0.01 mm)	50 to 100	50
	P23.16	Frame shift button position 3 offset distance (0.01 mm)	100 to 300	100
	P23.17	Resonance speed range lower limit (sti/min)	100 to 3000	8045/10045 : 2200 13085 : 100
	P23.18	Resonance speed range upper limit (sti/min)	100 to 3000	8045/10045 : 2400 13085 : 100
	P23.19	Clamp inching speed (mm/s)	8 to 234	39
	P23.21	Head 3 speed (mm/s)	8 to 351	78
	P23.22	Head 4 speed (mm/s)	8 to 351	78
	P23.23	Shaft 6 key gear 1 offset angle (0.1°)	1 to 10	1
	P23.24	Shaft 6 key gear 2 offset angle (0.1°)	10 to 50	10
P23.25	Shaft 6 key gear 3 offset angle (0.1°)	50 to 1800	50	
Presser plate setting	P24.1	Sewing is prohibited while the presser plate is lifted	1:ON, 0:OFF	1
	P24.2	The frame is always clamped during movement	1:ON, 0:OFF	0
	P24.4	Clamp lifting delay (ms)	0 to 10000	500
	P24.5	Clamp lowering delay (ms)	0 to 10000	500
	P24.6	The auxiliary presser foot is not lowered at startup	1:ON, 0:OFF	0
Bobbin winder setting	P25.1	Bobbin winder condition	1: Permitted 0: Prohibited	1
	P25.2	Bobbin winder setting speed (r/min)	100 to 3000	2500
	P25.3	Bobbin winder timer (s)	1 to 1800	270
Reset settings	P27.1	The presser plate is lowered during reset	1:ON, 0:OFF	1
	P27.2	The presser plate is raised after manual reset	1:ON, 0:OFF	1
	P27.3	Method for returning to the origin	0: X and Y simultaneously, 1: X preference, 2: Y preference (0 to 2)	0
	P27.4	X-axis origin return speed (mm/s)	8 to 234	117
	P27.5	Y-axis origin return speed (mm/s)	8 to 234	78
	P27.6	Errors are cleared when reset is pressed	1:ON, 0:OFF	1

Parameter group name	Parameter number	Parameter description	Parameter range	Default value
Reset settings	P27.7	Reset output IOi1 enabled	0:No 1:15 (IO1 to IO15)	0
	P27.8	Reset output IOi2 enabled	0:No 1:15 (IO1 to IO15)	0
	P27.9	Reset output IOi3 enabled	0:No 1:15 (IO1 to IO15)	0
	P27.10	Reset output IOi4 enabled	0:No 1:15 (IO1 to IO15)	0
	P27.11	Reset output IOi5 enabled	0:No 1:15 (IO1 to IO15)	0
	P27.12	Reset output IOi6 enabled	0:No 1:15 (IO1 to IO15)	0
	P27.13	The presser foot is lowered before resetting	1:ON, 0:OFF	0
Temporary stop settings	P28.1	Automatic thread trimming during temporary stop	1:ON, 0:OFF	0
	P28.2	Needle position during temporary stop	0: Upper position 1: Not set	0
	P28.3	The presser plate is raised during temporary stop	1:ON, 0:OFF	0
	P28.4	Temporary stop switch type	1: Normal 0: Self-locking	0
	P28.5	The presser plate is not raised during temporary stop	1:ON, 0:OFF	0
	P28.6	The last working position of the pattern is restored	1:ON, 0:OFF	0
Statistics settings	P29.1	The bobbin thread is reset on power-on	1:ON, 0:OFF	1
	P29.2	Operation is stopped as soon as the bobbin thread runs out	1:ON, 0:OFF	0
	P29.3	Bobbin thread detection is enabled	1:ON, 0:OFF	0
	P29.4	Production is reset on power-on	1:ON, 0:OFF	0
	P29.5	Operation is continued after production is achieved	1:ON, 0:OFF	0
	P29.6	Production counting setting is enabled	1:ON, 0:OFF	1
	P29.7	Operation time timer	1:ON, 0:OFF	1
	P29.8	Bobbin thread counting mode	0: Bobbin thread learning mode 1: Bobbin thread sensor mode 2: Bobbin thread setting mode	1
	P29.9	Remaining bobbin thread warning threshold (mm)	0 to 600000	200
	P29.10	Additional bobbin thread count length (mm)	-1000000 to +1000000	0
	P29.13	Production threshold	1 to 65000	10000
	P29.14	Length of bobbin thread drawn by thread trimmer (mm)	10 to 60000	50
	P29.15	Bobbin thread length (mm) corrected according to thread breakage	10 to 60000	50
P29.16	Bobbin thread sensor detection of remaining length (mm)	0 to 600000	500	
Thread clamp settings	P30.1	Third thread tension automatic action is enabled	1:ON, 0:OFF	0

Parameter group name	Parameter number	Parameter description	Parameter range	Default value
Thread breakage detection	P31.1	Thread breakage automatic detection	1:ON, 0:OFF	1
	P31.2	Automatic thread cutting when thread breaks	1:ON, 0:OFF	0
	P31.3	The number of stitches during sewing is ignored	1 to 255	3
	P31.4	Number of effective stitches is detected when thread breaks	1 to 255	5
	P31.5	Time delay is processed when thread breakage is detected	1 to 60000	100
	P31.6	QEP2 opening/closing is used for bobbin thread detection	1:ON, 0:OFF	1
	P31.7	Number of rollback stitches due to thread breakage	0 to 10	0
Thread trimming settings	P32.1	Thread trimming main shaft rotation speed (sti/min)	10 to 500	170
	P32.2	Thread trimming operation time (ms)	1 to 990	200
	P32.5	Main shaft reverse rotation/needle-up after thread trimming	1:ON, 0:OFF	1
	P32.6	Main shaft reverse rotation/needle-up angle adjustment (pulse) after thread trimming	0 to 10000	127
	P32.7	Thread trimming method selection	0: By electromagnet 1: By air pressure 2: By stepping motor	0
	P32.15	Whether thread trimming is required during automatic jump feeding after sewing	1:ON, 0:OFF	0
	P32.16	Wiper is enabled	1:ON, 0:OFF	1
	P32.17	Presser foot lifting time delay (ms) during wiper usage	1 to 990	170
	P32.21	Thread clamp is enabled during thread trimming	1:ON, 0:OFF	1
	P32.23	Thread slackening start delay (ms)	1 to 990	50
P32.28	Thread clamp function is enabled at the start of sewing	1:ON, 0:OFF	1	
Power-on settings	P33.1	Automatic reset when power is applied	1:ON, 0:OFF	0
	P33.2	Clamp is raised when power is applied	1:ON, 0:OFF	1
	P33.3	Presser foot is raised when power is applied	1:ON, 0:OFF	0
Power-on settings	P33.1	Automatic reset when power is applied	1:ON, 0:OFF	0
	P33.2	Clamp is raised when power is applied	1:ON, 0:OFF	1
	P33.3	Presser foot is raised when power is applied	1:ON, 0:OFF	0
Other settings	P34.1	Air pressure detection function is enabled	1:ON, 0:OFF	1
	P34.2	Cyclic work mode is enabled	1:ON, 0:OFF	0
	P34.3	Cycle machining interval (s)	0 to 100	1
	P34.4	Oil level detection function is enabled	1:ON, 0:OFF	0
	P34.5	Audio guidance method	0: Audio broadcast, 1: Buzzer	0
	P34.6	Sound volume	0:OFF, 1, 2, 3, 4, 5	3
	P34.7	Power failure memory retention function is enabled	1:ON, 0:OFF	0
	P34.8	File remains enabled even when separated from the electronic tag	1:ON, 0:OFF	1

Parameter group name	Parameter number	Parameter description	Parameter range	Default value
Other settings	P34.9	Function where imported patterns are not centered is enabled	1:ON, 0:OFF	0
	P34.10	Display of drawing number settings	1:ON, 0:OFF	0
	P34.11	OUTPORT for automatic conversion laser	1:ON, 0:OFF	1
	P34.12	Laser brush pattern type selection This parameter is enabled when PS800 pattern data (.SLW extension) is used.	0: Head 2 brush, Head 3 laser 1: Head 2 laser, Head 3 brush	1
	P34.13	OUTPORT for automatic conversion pen stick	1:ON, 0:OFF	1
	P34.14	Universal extension board is enabled	1:ON, 0:OFF	0
	P34.15	OUTPORT for automatic conversion rotary knife	1:ON, 0:OFF	1
	P34.16	RFID/barcode reader software function is enabled	0:OFF, 1:RFID 2:Barcode reader	1
	P34.17	External start button is enabled	1:ON, 0:OFF	1
Air blow settings	P35.1	Automatic air blow at the start of sewing	1:ON, 0:OFF	0
	P35.2	Automatic air blow at the end of sewing	1:ON, 0:OFF	1
	P35.3	Continuous air blow time (ms)	0 to 10000	150
JaNets settings	P36.1	JaNets function	1:ON, 0:OFF	0
	P36.2	JaNets announcement	1:ON, 0:OFF	1

\* For P34.2, when the cyclic work mode is used, it is automatically disabled (OFF) when the power is turned off. Therefore, set this parameter each time cycle machining is performed.

## 6.4 Error Code List

### 6.4.1 Motor failure

Error code	Error item	Problem cause	Solution
E100	X-axis motor lock	<ol style="list-style-type: none"> <li>1. The graphic data exceeded the X-axis range of motion, causing the X-axis motor to collide with the module.</li> <li>2. An incorrect setting of the X-axis "motor direction" parameter caused the X-axis motor to collide with the module.</li> <li>3. The X-axis motor was blocked by a mechanical obstruction.</li> <li>4. Deterioration of lubrication in the X-axis module caused excessive friction.</li> <li>5. An abnormal encoder signal caused the motor to run away.</li> </ol>	<ol style="list-style-type: none"> <li>1/2. F4.P1: Check that the X-axis stroke parameter setting is correct.</li> <li>3. Check that no object is jammed in the machine module.</li> <li>4. Protect the guide rails by applying lubricating oil.</li> <li>5. Check that the encoder is securely connected.</li> </ol>
E101	Y-axis motor lock	<ol style="list-style-type: none"> <li>1. The geometry data exceeded the Y-axis operating range, causing the Y-axis motor to collide with the module.</li> <li>2. An incorrect setting of the Y-axis "motor direction" parameter caused the Y-axis motor to collide with the module.</li> <li>3. The Y-axis motor was caught by a mechanical obstruction.</li> <li>4. Deterioration of lubrication in the Y-axis module caused excessive friction.</li> <li>5. A faulty encoder connection caused the motor to lock.</li> </ol>	<ol style="list-style-type: none"> <li>1/2. F4.P2: Check that the Y-axis stroke parameter setting is correct.</li> <li>3. Check that no object is jammed in the machine module.</li> <li>4. Protect the guide rails by applying lubricating oil.</li> <li>5. Check that the encoder is securely connected.</li> </ol>
E102	Z-axis motor lock	<ol style="list-style-type: none"> <li>1. The presser foot stroke exceeded the actual operating height, causing the Z-axis motor to collide with the throat plate.</li> <li>2. An incorrect setting of the Z-axis "motor direction" parameter caused the motor to lock.</li> <li>3. The intermediate presser foot motor was caught by an object.</li> <li>4. Check that the encoder is securely connected.</li> </ol>	<ol style="list-style-type: none"> <li>1/2. F7.P4: Check that the pressure foot stroke parameter is set correctly.</li> <li>3. Check that no object is jammed in the machine module.</li> <li>4. Check that the encoder is securely connected.</li> </ol>
E107	X-axis motor encoder Z-phase failure	<ol style="list-style-type: none"> <li>1. There is a poor connection in the encoder wire of the X-axis motor.</li> <li>2. The X-axis encoder is faulty.</li> <li>3. The electronic control board is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn the it back on.</li> <li>2/3. Contact after-sales service to replace the motor or electronic control board with a new one.</li> </ol>
E108	Y-axis motor encoder Z-phase failure	<ol style="list-style-type: none"> <li>1. There is a poor connection in the encoder wire of the Y-axis motor.</li> <li>2. The Y-axis encoder is faulty.</li> <li>3. The electronic control board is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn the it back on.</li> <li>2/3. Contact after-sales service to replace the motor or electronic control board with a new one.</li> </ol>
E109	Z-axis motor encoder Z-phase failure	<ol style="list-style-type: none"> <li>1. There is a poor connection in the encoder wire of the Z-axis motor.</li> <li>2. The Z-axis encoder is faulty.</li> <li>3. The electronic control board is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn the it back on.</li> <li>2/3. Contact after-sales service to replace the motor or electronic control board with a new one.</li> </ol>

Error code	Error item	Problem cause	Solution
E114	Abnormal AB count of the X-axis motor encoder	<ol style="list-style-type: none"> <li>1. There is a poor connection in the encoder wire of the X-axis motor.</li> <li>2. The X-axis encoder is faulty.</li> <li>3. The electronic control board is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2/3. Contact after-sales service to replace the motor or electronic control board with a new one.</li> </ol>
E115	Abnormal AB count of the Y-axis motor encoder	<ol style="list-style-type: none"> <li>1. There is a poor connection in the encoder wire of the Y-axis motor.</li> <li>2. The Y-axis encoder is damaged.</li> <li>3. The electronic control board is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2/3. Contact after-sales service to replace the motor or electronic control board with a new one.</li> </ol>
E116	Abnormal AB count of the Z-axis motor encoder	<ol style="list-style-type: none"> <li>1. There is a poor connection in the encoder wire of the Z-axis motor.</li> <li>2. The Z-axis encoder is damaged.</li> <li>3. The electronic control board is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, identify the cause, and then turn it back on.</li> <li>2/3. Contact after-sales service to replace the motor or electronic control board with a new one.</li> </ol>
E121	X-axis motor overcurrent	<ol style="list-style-type: none"> <li>1. Poor contact of the X-axis motor connector</li> <li>2. X-axis stepping motor failure or motor wiring short-circuit</li> <li>3. Electronic control board failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2/3. Contact after-sales service to replace the motor or electronic control board with a new one.</li> </ol>
E122	Y-axis motor overcurrent	<ol style="list-style-type: none"> <li>1. Poor contact of the Y-axis motor connector</li> <li>2. Y-axis stepping motor failure or motor wiring short-circuit</li> <li>3. Electronic control board failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2/3. Contact after-sales service to replace the motor or electronic control board with a new one.</li> </ol>
E123	Z-axis motor overcurrent	<ol style="list-style-type: none"> <li>1. Poor contact of the Z-axis motor connector</li> <li>2. Z-axis stepping motor failure or motor wiring short-circuit</li> <li>3. Electronic control board failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2/3. Contact after-sales service to replace the motor or electronic control board with a new one.</li> </ol>
E128	Main shaft motor lock	<ol style="list-style-type: none"> <li>1. The intermediate presser foot is not lowering properly.</li> <li>2. The electronic control board is faulty.</li> <li>3. The main shaft motor is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, turn it back on, and then check that the F20.P2/P27 main shaft motor parameters are set correctly.</li> <li>2/3. Contact after-sales service to replace the electronic control board or motor with a new one.</li> </ol>
E129	Abnormal signal from main shaft encoder	<ol style="list-style-type: none"> <li>1. There is a poor connection in the encoder wire of the main shaft motor.</li> <li>2. The main shaft encoder is faulty.</li> <li>3. The electronic control board is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, turn it back on, and then check that the P20.P3/P5/P6 main shaft motor parameters are set correctly.</li> <li>2/3. Contact after-sales service to replace the electronic control board or motor with a new one.</li> </ol>
E130	Main shaft motor overcurrent	<ol style="list-style-type: none"> <li>1. Poor contact of the main shaft motor connector</li> <li>2. Main shaft motor failure or motor wiring short-circuit</li> <li>3. Electronic control board failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, turn it back on, and then check that the F20.P2/P27 settings are correct.</li> <li>2/3. Contact after-sales service to replace the electronic control board or motor with a new one.</li> </ol>
E200	X-axis motor startup malfunction	<ol style="list-style-type: none"> <li>1. There is a poor connection in the base wiring of the X-axis motor.</li> <li>2. The X-axis motor is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2. Contact after-sales service to replace the motor with a new one.</li> </ol>
E201	Y-axis motor startup malfunction	<ol style="list-style-type: none"> <li>1. There is a poor connection in the base wiring of the Y-axis motor.</li> <li>2. The Y-axis motor is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2. Contact after-sales service to replace the motor with a new one.</li> </ol>

Error code	Error item	Problem cause	Solution
E202	Z-motor startup malfunction	<ol style="list-style-type: none"> <li>1. There is a poor connection in the base wiring of the Z-axis motor.</li> <li>2. The Z-axis motor is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2. Contact after-sales service to replace the motor with a new one.</li> </ol>
E218	X-axis motor overload	<ol style="list-style-type: none"> <li>1. There is a poor connection in the base wiring of the X-axis motor.</li> <li>2. X-axis stepping motor failure or motor wiring short-circuit</li> <li>3. Control board failure</li> <li>4. The X-axis current exceeds the set upper limit.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2/3. Contact after-sales service to replace the motor with a new one.</li> <li>4. Check that the X-axis operates smoothly and is not stuck.</li> </ol>
E219	Y-axis motor overload	<ol style="list-style-type: none"> <li>1. There is a poor connection in the base wiring of the Y-axis motor.</li> <li>2. Y-axis stepping motor failure or motor wiring short-circuit</li> <li>3. Control board failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2/3. Contact after-sales service to replace the motor with a new one.</li> </ol>
E220	Z-axis motor overload	<ol style="list-style-type: none"> <li>1. There is a poor connection in the base wiring of the Z-axis motor.</li> <li>2. Z-axis stepping motor failure or motor wiring short-circuit</li> <li>3. Control board failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2/3. Contact after-sales service to replace the motor with a new one.</li> </ol>

## 6.4.2 Advanced failure

Error code	Error item	Problem cause	Solution
E300	Overvoltage	<ol style="list-style-type: none"> <li>1. The power supply does not meet the specified requirements.</li> <li>2. The control board is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check that the operating voltage of the power supply equipment is within the normal range.</li> <li>2. Contact after-sales service to replace the control board with a new one.</li> </ol>
E301	Insufficient voltage	<ol style="list-style-type: none"> <li>1. The power supply does not meet the specified requirements.</li> <li>2. The control board is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect the power supply equipment according to the requirements specified in Chapter 3.</li> <li>2. Contact after-sales service to replace the control board with a new one.</li> </ol>
E303	Electronic control system power loss	<ol style="list-style-type: none"> <li>1. The power cable is not inserted properly or is poorly connected.</li> <li>2. The control board is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, check the wiring condition, and then turn it back on.</li> <li>2. Contact after-sales service to replace the control board with a new one.</li> </ol> <p>Note: This error code is also displayed on the panel when power is actively shut off, but this is a normal behavior.</p>
E304	The main shaft motor electrical angle is not found.	<ol style="list-style-type: none"> <li>1. The electrical angle calibration of the main shaft motor was not performed during installation.</li> <li>2. The motor is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Go to Main Menu → Next Page → Output Test, click on the "Main Shaft Electrical Angle Calibration" button, and set the electrical angle automatic writing parameters.</li> <li>2. Contact after-sales service to replace the motor with a new one.</li> </ol>
E305	Head electromagnet overcurrent	<ol style="list-style-type: none"> <li>1. The electromagnet duty cycle is too high.</li> <li>2. The electromagnet is shorted.</li> <li>3. The control board is faulty.</li> <li>4. The AT device is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, turn it back on, then reduce the duty ratio of this function (Machine Parameters → Output Settings).</li> <li>2/3/4. Contact after-sales service to replace the electromagnet or control board with a new one.</li> </ol>

Error code	Error item	Problem cause	Solution
E306	Communication error between the main control chip and the X-axis	1. The upgrade file is invalid or the upgrade failed. 2. The control board is faulty.	1. Contact after-sales service to re-upgrade the software version. 2. Contact after-sales service to replace the control board with a new one.
E307	Communication error between the main control chip and the Y-axis	1. The upgrade file is invalid or the upgrade failed. 2. The control board is faulty.	1. Contact after-sales service to re-upgrade the software version. 2. Contact after-sales service to replace the control board with a new one.
E308	Communication error between the main control chip and the Z-axis	1. Firmware file error or upgrade failure 2. Control board failure	1. Contact after-sales service to re-upgrade the software version. 2. Contact after-sales service to replace the control board with a new one.
E317	Communication error between the main control chip and the IO chip	1. Upgrade file error or upgrade failure 2. Control board failure	1. Contact after-sales service to re-upgrade the software version. 2. Contact after-sales service to replace the control board with a new one.
E318	EEPROM read/write identification error	1. The EEPROM chip is malfunctioning and causing reboot due to a power outage. 2. The control board is faulty.	Turn the power off, and if the problem is not resolved after turning it back on, contact after-sales service to replace the control board with a new one.
E322	Communication error between the main control and the panel	1. Control board malfunction	1. Turn the power off, investigate the cause, and then turn it back on. 2. Contact after-sales service to replace the control board with a new one.
E323	High temperature alarm	1. The temperature sensor on the control board is faulty. 2. The temperature inside the control box is too high.	1. Contact after-sales service to replace the temperature sensor with a new one. 2. Turn the power off, allow the temperature inside the control box to drop, and then resume operation after turning the power back on.
E324	Machine head solenoid valve overcurrent	1. The solenoid valve is shorted. 2. The control board is faulty.	1/2. Contact after-sales service to replace the solenoid valve or control board with a new one.
E325	Expansion board communication failure	1. Firmware file error or upgrade failure 2. Control board failure 3. Communication cable failure	1. Contact after-sales service to re-upgrade the software version. 2. Contact after-sales service to replace the control board with a new one. 3. Contact after-sales service to replace the cable with a new one.
E326	IO board duty cycle error	1. Upgrade file error or upgrade failure (causing a communication failure) 2. Control board failure	1. Turn the power off, investigate the cause, and then turn it back on. 2. Contact after-sales service to replace the control board with a new one.
E329	IO board watchdog timer failure	1. Upgrade file error or upgrade failure (causing a communication failure) 2. Control board failure	1. Turn the power off, investigate the cause, and then turn it back on. 2. Contact after-sales service to replace the control board with a new one.
E600	Expansion board over-voltage	1. The power supply does not meet the specified requirements. 2. The control board is faulty.	1. Inspect the power supply equipment according to the requirements specified in Chapter 3. 2. Contact after-sales service to replace the control board with a new one.
E601	Expansion board insufficient voltage	1. The power supply does not meet the specified requirements. 2. The control board is faulty.	1. Inspect the power supply equipment according to the requirements specified in Chapter 3. 2. Contact after-sales service to replace the control board with a new one.

Error code	Error item	Problem cause	Solution
E602	Expansion board active reset	1. Software upgrade error 2. Control board failure	1. Turn the power off, investigate the cause, and then turn it back on. 2. Contact after-sales service to replace the control board with a new one.
E603	Expansion board insufficient voltage reset	1. The power supply does not meet the specified requirements. 2. The control board is faulty.	1. Turn the power off, investigate the cause, and then turn it back on. 2. Contact after-sales service to replace the control board with a new one.
E604	Expansion board watchdog timer failure	1. Software upgrade error 2. Control board failure	1. Turn the power off, investigate the cause, and then turn it back on. 2. Contact after-sales service to replace the control board with a new one.
E605	Extension motor 1 startup malfunction	1. There is a poor connection in the base wiring of the extended axis motor. 2. The extended axis motor is faulty.	1. Turn the power off, investigate the cause, and then turn it back on. 2. Contact after-sales service to replace the motor with a new one.
E606	Extension motor 1 encoder AB phase failure	1. There is a poor connection in the encoder wire of the extended axis motor. 2. The extended axis encoder is faulty. 3. The control board is faulty.	1. Turn the power off, investigate the cause, and then turn it back on. 2/3. Contact after-sales service to replace the motor or control board with a new one.
E607	Extension motor 1 encoder Z phase failure	1. There is a poor connection in the encoder wire of the extended axis motor. 2. The extended axis encoder is faulty. 3. The control board is faulty.	1. Turn the power off, investigate the cause, and then turn it back on. 2/3. Contact after-sales service to replace the motor or control board with a new one.
E608	Extension motor 1 overcurrent	1. There is a poor connection in the extension motor base wiring. 2. The extended axis stepping motor is faulty or the motor wiring is shorted. 3. Control board failure	1. Turn the power off, investigate the cause, and then turn it back on. 2/3. Contact after-sales service to replace the motor or control board with a new one.
E609	Extension motor 1 lock	1. The motor travel stroke exceeds the actual stroke range. 2. The extended axis motor is faulty.	1. Turn the power off, investigate the cause, and then turn it back on. 2. Contact after-sales service to replace the control board with a new one.
E610	Extension motor 1 correction error	1. There is a poor connection in the encoder wiring of extension motor 1. 2. The extension motor 1 encoder is faulty. 3. The control board is faulty.	1. Turn the power off, investigate the cause, and then turn it back on. 2/3. Contact after-sales service to replace the motor or control board with a new one.
E612	Extension motor 2 start malfunction	1. There is a poor connection in the base wiring of the extended axis motor. 2. The extended axis motor is faulty.	1. Turn the power off, investigate the cause, and then turn it back on. 2. Contact after-sales service to replace the control board with a new one.
E613	Extension motor 2 encoder AB phase failure	1. There is a poor connection in the base wiring of the extended axis motor. 2. The extended axis encoder is faulty. 3. The control board is faulty.	1. Turn the power off, investigate the cause, and then turn it back on. 2/3. Contact after-sales service to replace the motor or control board with a new one.
E614	Extension motor 2 encoder Z phase failure	1. There is a poor connection in the encoder wiring of the extended axis motor. 2. The extended axis encoder is faulty. 3. The control board is faulty.	1. Turn the power off, investigate the cause, and then turn it back on. 2/3. Contact after-sales service to replace the motor or control board with a new one.

Error code	Error item	Problem cause	Solution
E615	Extension motor 2 overcurrent	<ol style="list-style-type: none"> <li>1. There is a poor connection in the encoder wiring of the extended axis motor.</li> <li>2. The extended axis stepping motor is faulty or the motor wiring is shorted.</li> <li>3. Control board failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2/3. Contact after-sales service to replace the motor or control board with a new one.</li> </ol>
E616	Extension motor 2 lock	<ol style="list-style-type: none"> <li>1. The motor travel stroke exceeds the actual stroke range.</li> <li>2. The extended axis motor is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2. Contact after-sales service to replace the motor or control board with a new one.</li> </ol>
E617	Extension motor 2 correction error	<ol style="list-style-type: none"> <li>1. There is a poor connection in the encoder wiring of extension motor 2.</li> <li>2. The extended axis encoder is faulty.</li> <li>3. The control board is faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, investigate the cause, and then turn it back on.</li> <li>2/3. Contact after-sales service to replace the motor or control board with a new one.</li> </ol>
E619	Watchdog timer time-out	<ol style="list-style-type: none"> <li>1. Software upgrade error</li> <li>2. Control board failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off and then on again to complete the reset.</li> <li>2. Contact after-sales service to replace the control board with a new one.</li> </ol>
E620	Reset during operation	<ol style="list-style-type: none"> <li>1. Software upgrade error</li> <li>2. Control board failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off and then on again to complete the reset.</li> <li>2. Contact after-sales service to replace the control board with a new one.</li> </ol>
E621	Insufficient voltage reset	<ol style="list-style-type: none"> <li>1. Software upgrade error</li> <li>2. Control board failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off and then on again to complete the reset.</li> <li>2. Contact after-sales service to replace the control board with a new one.</li> </ol>

### 6.4.3 Minor malfunction

A minor malfunction is defined as a recoverable failure that can be cleared by resetting.

Error code	Error item	Problem cause	Solution
E401	X-axis position deviation too large	<ol style="list-style-type: none"> <li>1. The pattern reference exceeds the plate size.</li> <li>2. The X-axis lock current is too small.</li> <li>3. An AB code correction error has occurred.</li> </ol>	<ol style="list-style-type: none"> <li>1/2. Turn the power off, and if the problem is not resolved after turning it back on, contact after-sales service to confirm that you have the latest version of the software and the correct model settings.</li> <li>3. Contact after-sales service to replace the affected motor.</li> </ol>
E402	Y-axis position deviation too large	<ol style="list-style-type: none"> <li>1. The pattern reference exceeds the presser plate size.</li> <li>2. The Y-axis lock current is too small.</li> <li>3. An AB code correction error has occurred.</li> </ol>	<ol style="list-style-type: none"> <li>1/2. Turn the power off, and if the problem is not resolved after turning it back on, contact after-sales service to confirm that you have the latest version of the software and the correct model settings.</li> <li>3. Contact after-sales service to replace the affected motor.</li> </ol>
E403	Z-axis position deviation too large	<ol style="list-style-type: none"> <li>1. The Z-axis lock current is too small.</li> <li>2. An AB code correction error has occurred.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the power off, and if the problem is not resolved after turning it back on, contact after-sales service to confirm that you have the latest version of the software and the correct model settings.</li> <li>2. Contact after-sales service to replace the affected motor.</li> </ol>

Error code	Error item	Problem cause	Solution
E409	X-axis motor has not reached the target position.	<ol style="list-style-type: none"> <li>Poor connection of X-axis limit switch</li> <li>Incorrect X-axis motor wiring</li> <li>Incorrect presser plate size parameter setting</li> <li>Program version incompatibility</li> </ol>	<ol style="list-style-type: none"> <li>Check the connection condition and normal operation of the X-axis limit switch.</li> <li>Ensure that the X-axis motor wiring is properly connected.</li> <li>Check that the presser plate size is within the operating range of the applicable model.</li> <li>Contact after-sales service to upgrade the program.</li> </ol>
E410	Y-axis motor has not reached the target position.	<ol style="list-style-type: none"> <li>Poor connection of Y-axis limit switch</li> <li>Incorrect Y-axis motor wiring</li> <li>Incorrect presser plate size parameter setting</li> <li>Program version incompatibility</li> </ol>	<ol style="list-style-type: none"> <li>Check the connection condition and normal operation of the Y-axis limit switch.</li> <li>Ensure that the Y-axis motor wiring is properly connected.</li> <li>Check that the presser plate size is within the operating range of the applicable model.</li> <li>Contact after-sales service to upgrade the program.</li> </ol>
E411	Z-axis motor has not reached the target position.	<ol style="list-style-type: none"> <li>Incorrect Z-axis motor wiring</li> <li>Incorrect presser plate size parameter setting</li> <li>Program version incompatibility</li> </ol>	<ol style="list-style-type: none"> <li>Check the connection condition and normal operation of the Z-axis limit switch. Ensure that the Z-axis motor wiring is properly connected.</li> <li>Check that the presser foot follow-up operation is within the operating range of the applicable model.</li> <li>The program version is not the latest. Contact after-sales service to upgrade the program.</li> </ol>
E412	G code length error	A system startup error has occurred.	Turn the power off and then on again to complete the reset.
E414	Extension motor 1 has not reached the target position.	<ol style="list-style-type: none"> <li>Incorrect bobbin motor wiring</li> <li>Incorrect bobbin motor parameter setting</li> <li>Incorrect program version</li> <li>Poor contact of the motor cable</li> </ol>	<ol style="list-style-type: none"> <li>Check that the wiring is correct.</li> <li>Re-import the default parameter file.</li> <li>Rewrite (refresh) the program.</li> <li>Check for looseness of the connector.</li> </ol>
E415	Extension motor 2 has not reached the target position.	<ol style="list-style-type: none"> <li>Incorrect bobbin change motor wiring</li> <li>Incorrect bobbin change motor parameter setting</li> <li>Incorrect program version</li> <li>Poor contact of the motor cable</li> </ol>	<ol style="list-style-type: none"> <li>Check that the wiring is correct.</li> <li>Re-import the default parameter file.</li> <li>Rewrite (refresh) the program.</li> <li>Check for looseness of the connector.</li> </ol>
E416	G18 code length error	A system startup error has occurred.	Turn the power off and then on again to complete the reset.
E427	Electronic control cache code execution has ended.	Electronic control cache code execution has ended.	The control chip cache has reached its limit.
E428	Send data overflow	An error has occurred in the sewing count data.	Turn the power off and then on again to complete the reset.
E429	Sewing count overflow	An error has occurred in the sewing count data.	Turn the power off and then on again to complete the reset.

## 6.4.4 Warning

This error code is for warning purposes only and does not affect normal machine operation.

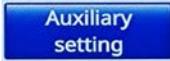
Error code	Error item	Problem cause	Solution
W500	Thread breakage warning	1. Thread breakage has occurred during sewing.	1. After canceling the warning on the warning pop-up screen or pressing the "Emergency Stop" button, promptly rethread the machine to continue operation. 2. You can disable the detection module in the "Thread Break Detection" setting under the user parameters.
W501	Insufficient air pressure	1. The air pressure detection wire is shorted. 2. The air pressure has dropped.	1. Check the wiring condition on the terminal block. 2. Check that the air pressure is within the normal range.
W503	Insufficient bobbin thread! Replace the bobbin.	1. The alarm has been activated because the bobbin thread counter has reached the threshold.	1. Press "√" on the warning pop-up screen to reset all "Used Bobbin Thread" values at once and continue machine operation. 2. You can disable the bobbin thread counting function in the "Statistics Settings" under the user parameters. 3. The alarm will be cleared upon receiving the warning clear command (only valid when the automatic bobbin change function is disabled).
W504	RFID module not detected	1. The RFID module is not connected correctly. 2. The RFID module function is not enabled. 3. The RFID module is faulty.	1. After checking the wiring of the RFID module, close the warning pop-up screen. 2. Enable the RFID module function in the parameter settings. 3. Contact after-sales service to replace the RFID module.
W505	Clamp not pressed warning	1. The clamp function interface is not connected correctly. 2. The automatic clamp operation function is not enabled. 3. The clamp is not operating properly due to insufficient air pressure.	1. After resetting, check that the clamp is operating normally. 2. Check that the "User Parameters → Auto Clamp Start" function is enabled. 3. Check that there is sufficient air pressure for the clamp to operate properly.
W506	RFID writing error	1. The RFID module is not connected correctly. 2. The RFID module function is not enabled. 3. The RFID module is faulty. 4. It is not possible to write when multiple graphics are selected. 5. The IC card is faulty.	1. After checking the wiring of the RFID module, close the warning pop-up screen. 2. Enable the RFID module function in the parameter settings. 3. Replace the RFID module. 4. When selecting design files, make sure that multiple files are not selected. 5. If the card write error persists, contact after-sales service to replace the RFID module or IC card.
W507	The number of workpieces has reached the set value.	1. The sewing count has reached the set threshold.	Cancel the warning on the warning pop-up screen and click "  58 )(Clear)" to reset the measurement count and resume normal operation. Bobbin changer error

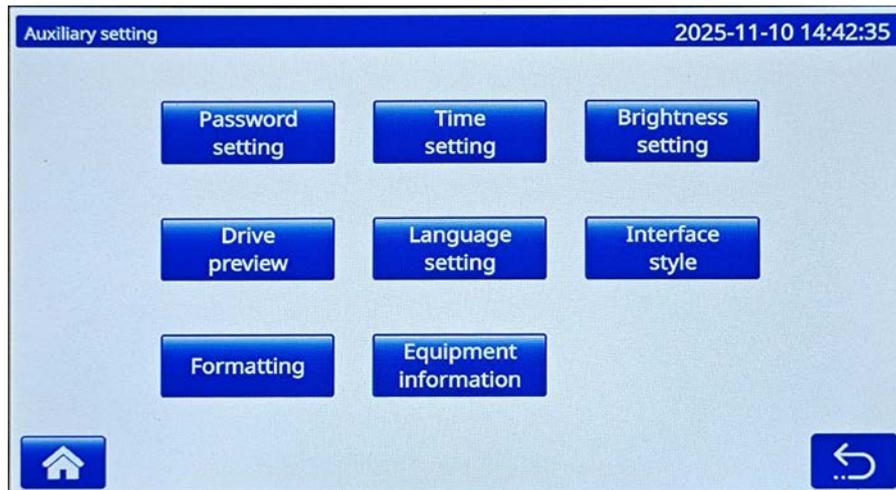
Error code	Error item	Problem cause	Solution
W509	Bobbin changer error	1. All bobbins on the bobbin holder have been used. Add bobbins. 2. An error occurred during the bobbin change process.	1. Check the automatic bobbin changer.
W510	BK change in progress	1. The automatic bobbin changer is changing the bobbin.	—
W511	Communication error between the main control and the expansion electrical equipment	1. Firmware file error or upgrade failure 2. Control board failure	1. Turn the power off and then on again. Contact after-sales service to re-upgrade the software version. 2. Contact after-sales service to replace the control board with a new one.
W512	Contact after-sales service to re-upgrade the software version. The bobbin is worn out.	There is no bobbin case in the bobbin holder.	Place a bobbin case in the bobbin holder.
W513	The bobbin disk is full.	There is no empty bobbin position in the bobbin holder.	Ensure there is at least one empty bobbin position.
W514	Wait until the bobbin change is complete.	The automatic bobbin change process has stopped and the change has not been completed. Press the Start button to resume.	Press the Reset/Bobbin Change button to complete the change process and then press the Start button.
W515	Bobbin change is not being performed at the initial position.	Before starting the bobbin change, the bobbin changer is not in the initial position.	Press the “Reset Changer” button on the Reset/Bobbin Change screen.

# Chapter VII Assist Setting

Auxiliary settings are used for machine password settings, machine locking, user Internet of Things (IoT) functions, driver real-time monitoring, and other functions.

## 7.1 Assist Setting Interface

On the home page screen, press the “Menu” button, and then press  to enter the auxiliary operation interface.



**The key functions are described as follows :**

**Password setting :** Sets passwords for machine parameters, user parameters, adjustment parameters, and debug group parameters.

**Time setting :** Sets the year, month, day, hour, minute, and second.

**Brightness setting :** Sets the screen brightness within a range of 0 to 100.

**Driver preview :** Displays the status of each drive unit in real time.

**Language setting :** Switches the panel display language and audio.

(Audio guidance is available in Chinese, English, and Japanese)

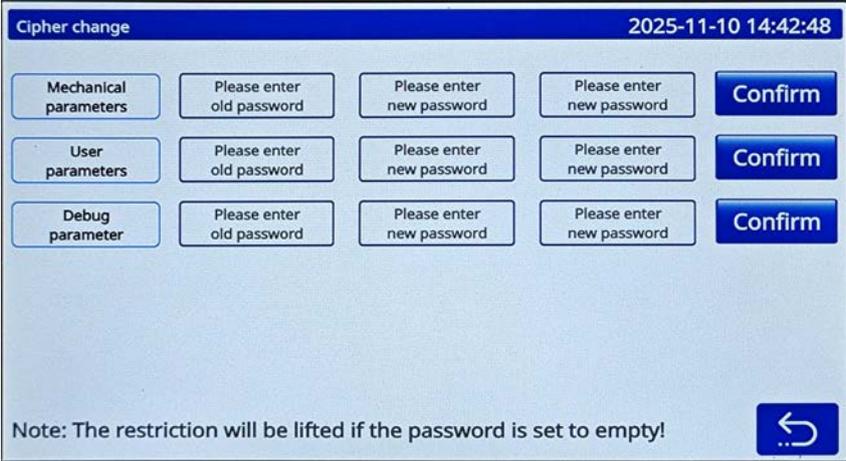
**Interface style :** Switches between different interface display styles, such as blue/black, blue/white, and red/black.

**Formatting :** Formats startup records, failure records, work statistics records, and pattern files.

**Equipment information :** Displays the model specifications and machine number.

## 7.2 Password setting

In the auxiliary setting interface, press  to enter the lock setting interface.



Parameter	Old Password	New Password	Action
Mechanical parameters	Please enter old password	Please enter new password	Confirm
User parameters	Please enter old password	Please enter new password	Confirm
Debug parameter	Please enter old password	Please enter new password	Confirm

Note: The restriction will be lifted if the password is set to empty!

There are three types of passwords for electronic control.

**Machine parameter password** : Enable this in “Auxiliary setting” → “Password setting”. After the machine parameter password is set, the correct password must be entered to access some setting interfaces in the “Machine parameters” setting interface.

**User parameter password** : Enable this in “Auxiliary setting” → “Password setting”. After the user parameter password is set, the correct password must be entered to access the “User parameters” setting interface.

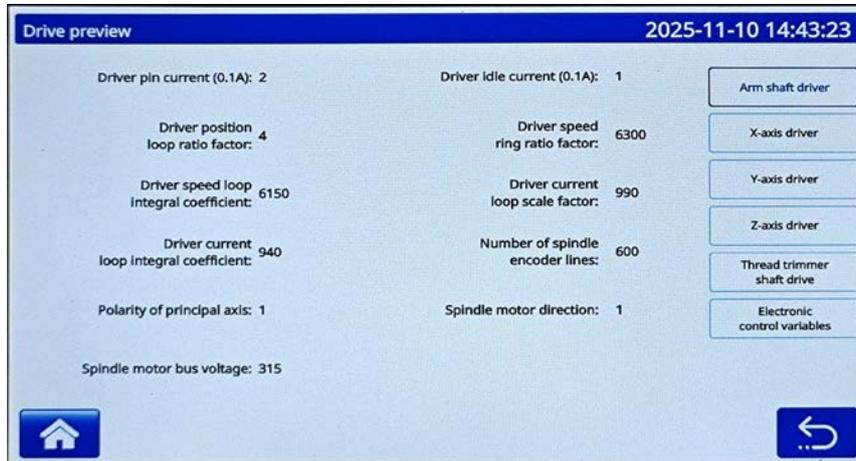
**Adjustment parameter password** : Enable this in “Auxiliary setting” → “Password setting”. After the adjustment parameter password is set, the correct password must be entered to access the new equipment parameters in the “User parameters” setting interface and the adjustment group setting interface in the “Machine parameters” setting interface.

## 7.3 Drive unit preview

In the auxiliary settings interface, press  to enter the drive preview interface.

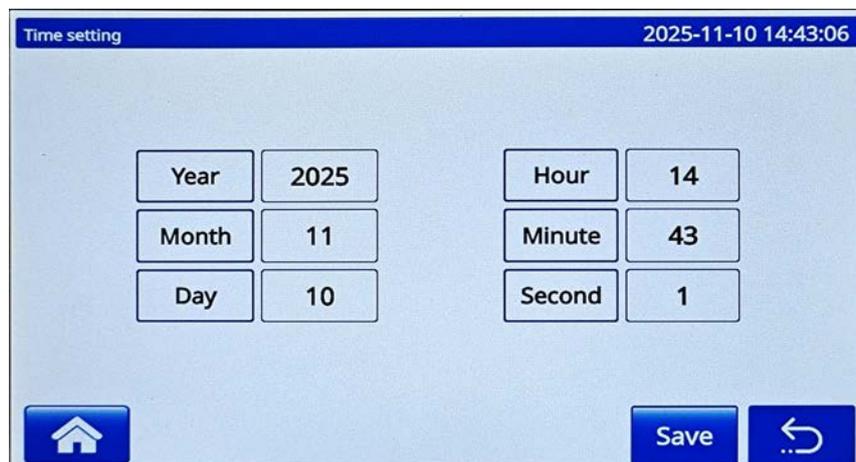
Displays detailed parameters for each axis of the system drive units.

The individual parameter screens cannot be changed on this screen.



## 7.4 Time setting

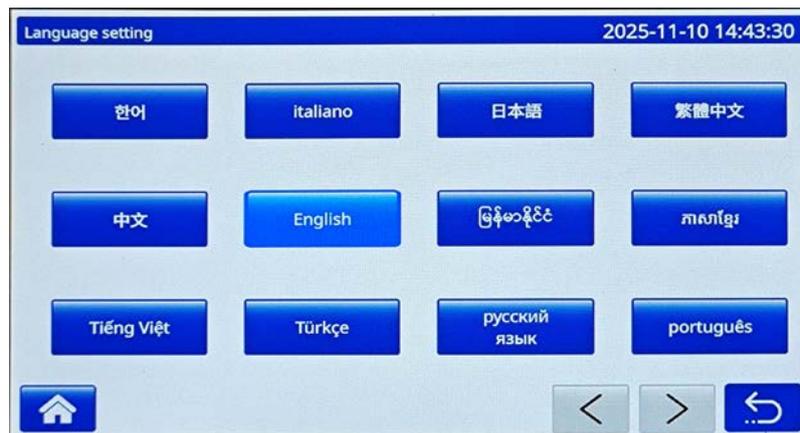
In the auxiliary operation interface, press  to enter the time setting interface. You can set the year, month, day, hour, minute, and second.



## 7.5 Language setting

In the auxiliary setting interface, press **Language setting** to enter the language setting interface.

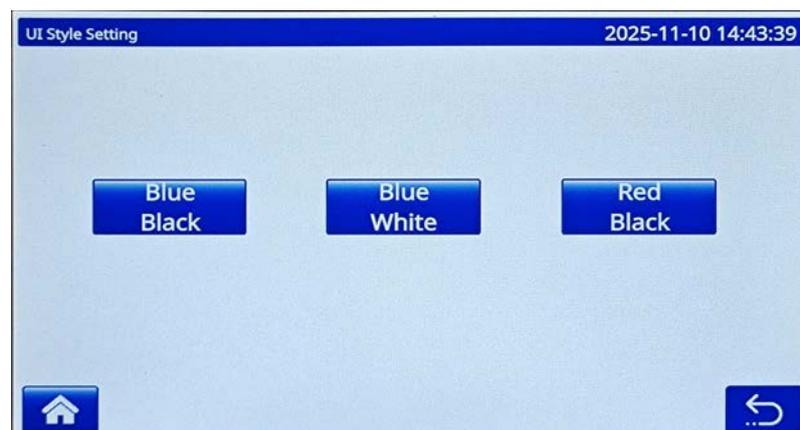
The system language displayed on the screen can be selected from the following 13 languages: Simplified Chinese, Traditional Chinese, English, Vietnamese, Japanese, Korean, Russian, Italian, Turkish, Myanmar, Khmer, Portuguese, and Spanish. The interface diagram is shown below.



## 7.6 Interface style

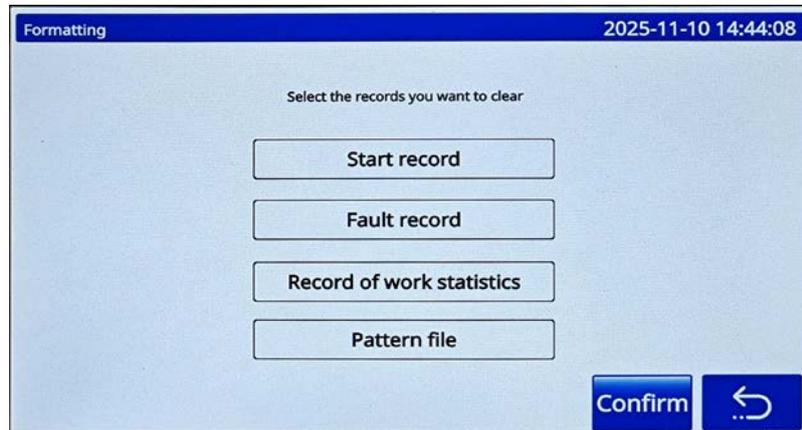
In the auxiliary operation interface, press **Interface style** to enter the interface style interface.

You can choose from three styles: blue/black, blue/white, and red/black. The interface diagram is shown below.



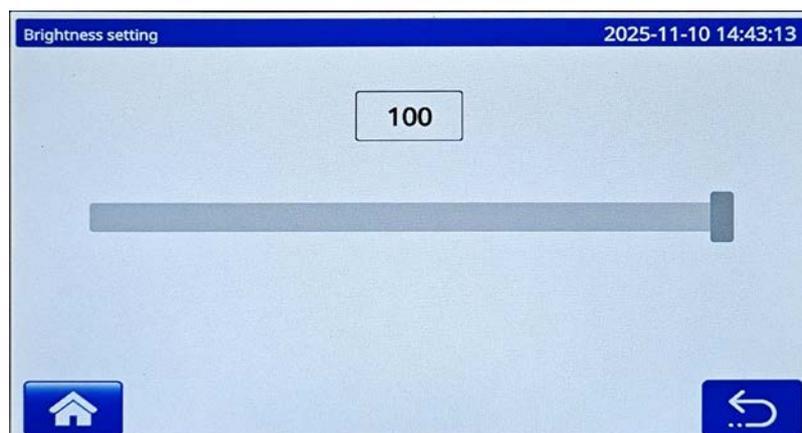
## 7.7 Formatting

In the auxiliary setting interface, press **Formatting** to enter the format interface. You can select individual or multiple data items, such as startup records, failure records, work statistics records, and pattern files, to perform the formatting operation.



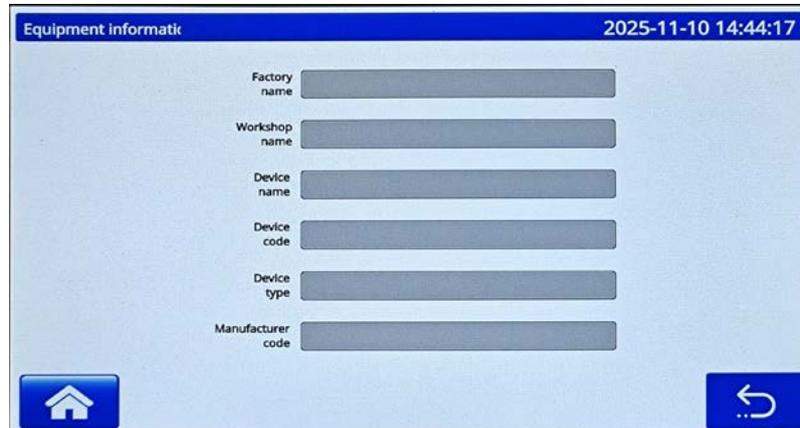
## 7.8 Screen brightness setting

On the auxiliary operation interface, press **Brightness setting** to enter the screen brightness setting interface.



## 7.9 Equipment information

In the auxiliary settings interface, press  to enter the equipment information interface. You can view the equipment number, equipment type, and other information.



The screenshot shows a web interface titled "Equipment informatik" with a timestamp of "2025-11-10 14:44:17". The form contains the following fields:

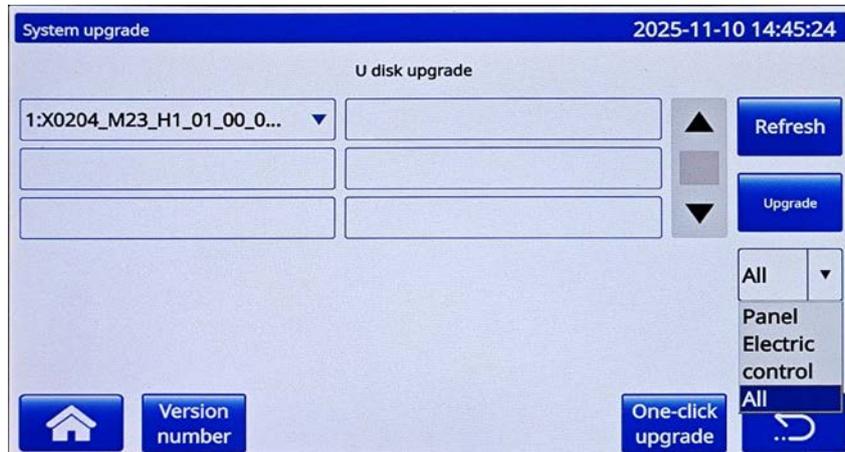
- Factory name
- Workshop name
- Device name
- Device code
- Device type
- Manufacturer code

At the bottom left, there is a home icon button, and at the bottom right, there is a back arrow button.

# Chapter IX Machine State

## 8.1 System upgrade

**Note :** Never turn off the power while the software is being updated.  
Turning off the power during the upgrade process may cause a system failure.  
On the home page screen, press “Menu” to display the system upgrade screen.

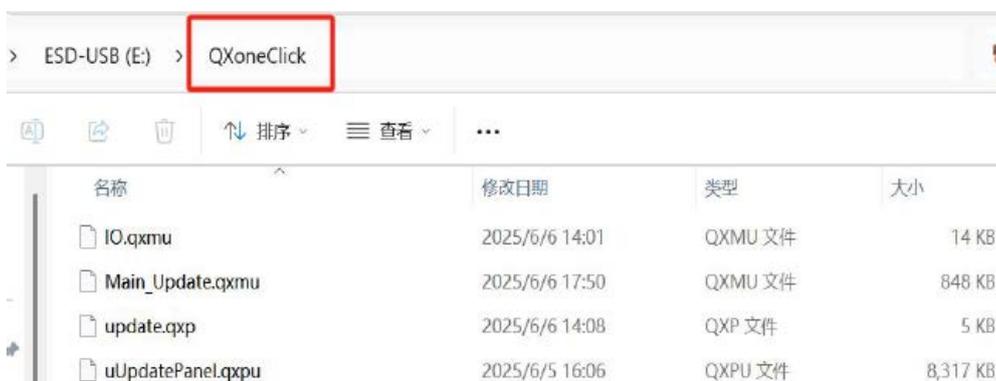


**1:X0204\_M23\_H1\_01\_00\_0...** : Select the software you want to upgrade.

**Upgrade** : Select the upgrade file and press this button to start the upgrade.

One-click upgrade procedure (Prepare the software to be upgraded on a USB memory device.)

(1) On the USB memory device, create a folder named “QXoneClick”, as shown in the figure.



- (2) Place the files to be upgraded into the folder, as shown in the figure. You can place the main software (electrical control file: .qxmu), panel software (.qxpu), and parameter file (.qxp) in the folder.

(Only one file per extension can be stored on a USB memory device.)



IO.qxmu	2025/6/6 14:01	QXMU 文件	14 KB
Main_Update.qxmu	2025/6/6 17:50	QXMU 文件	848 KB
update.qxp	2025/6/6 14:08	QXP 文件	5 KB
uUpdatePanel.qxpu	2025/6/5 16:06	QXPU 文件	8,317 KB

- (3) Insert the USB memory device into the panel and press . The panel automatically upgrades the files in the QXoneClick folder, as shown in the figure.

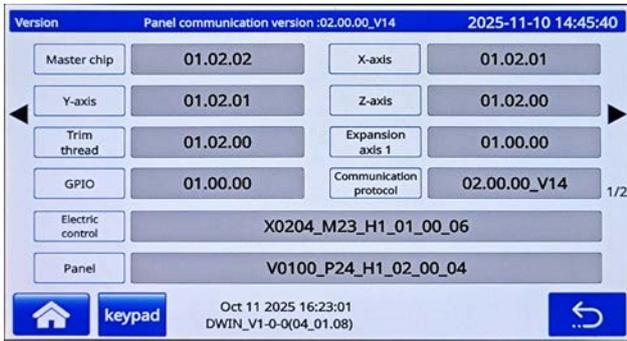
- (4) If the system upgrade is successful, a message will pop up as shown in the figure, and a power-off restart will be required.



Press  to view the files displayed on the USB interface or the panel.

 : You can upgrade the main software (control file), panel software, and parameter file.

 : You can check the current version of each software.



(Supplementary explanation) About file extensions

Main (control) software: .qxmu

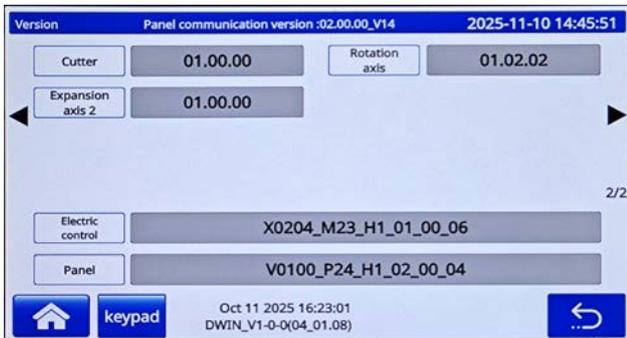
Panel software: .qxpu

Parameter file: .qxp

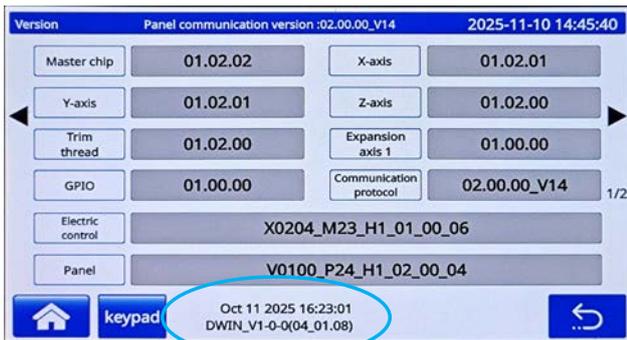
If the expansion electrical equipment has never been connected, the software version display for the expansion electrical equipment will show "00.00.00".

When the expansion electrical equipment is connected, the software version is read and displayed.

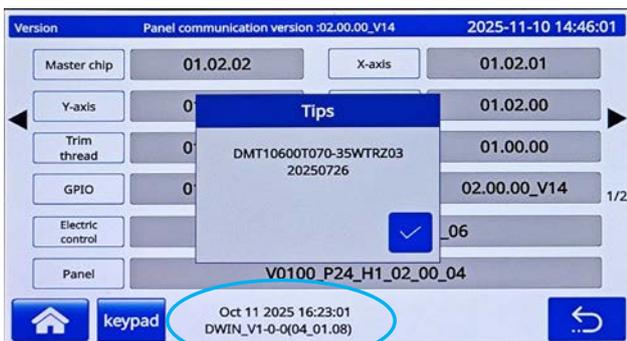
In addition, if the setting of Parameter group → Other Settings → P34:14 is set to 0: OFF, the text color turns gray to indicate that the function is not in use.



**keypad** Keypad: Press this button to play a voice announcement of the audio version number. If the version display text is shown in gray, it indicates that the function is not connected or not in use.



To check the version of the audio data, touch the blue circle shown in the image on the left. A pop-up screen will appear, as shown in the image at the bottom left.



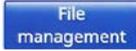
# Appendix I: Quick Start Guide

(1) Start the machine

After installing the device, turn on the power. Press the power switch to start the machine.

(2) Set up processing file

Copy the .SCO processing file generated by the PC sewing editing software into the USB flash disk; insert the USB flash disk into the USB interface of equipment; click 

→  →  in the main interface of processing to get into "USB flash disk" interface, click the name of the file to be processed to make it turn light blue, and click

 to copy the file into memory. Press  →  to return to the main processing interface. Select the file to be processed on the left, when the processing pattern can be previewed in the middle of interface.

If "file capture" function is used to create processing file, see **"Chapter IV File Editing" p.35.**

(3) Place the template

Put the fabric to be processed into the prepared template, click , and click  to make press frame get into rising state. Place the template under press frame, and click

 so that the press frame can go down and press the template.

(4) Align with reference

See **"2.2.4 Description of the benchmark set screen" p.18.**

(5) Start the processing

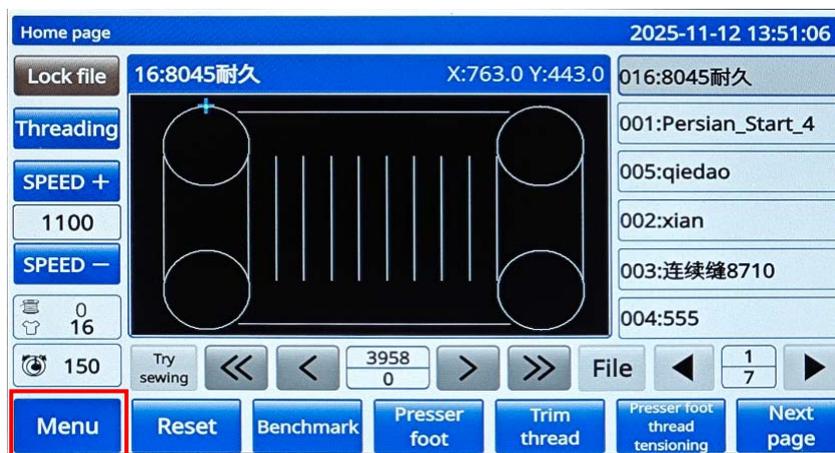
Press start button in the main interface of processing, and the machine will start the processing based on pattern. Upon completion of processing, the system automatically returns to the reset origin or other set points.

**Note:**

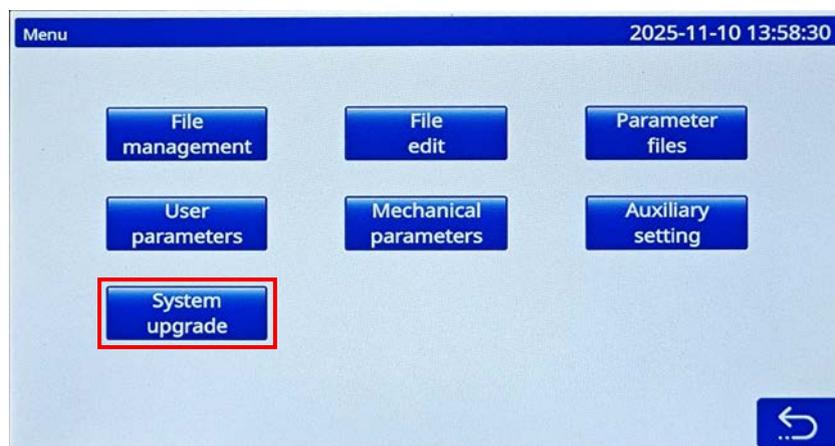
1. If the processing is not performed for the first time (it has been copied into memory for reference alignment, and the automatic template recognition function has been enabled), only two steps will be needed: Place the template → Start the processing
2. If other information prompts are displayed, refer to **"6.4.4 Warning" p.84.**
3. If the processing is repeated after processing, you have to click other buttons upon completion of one processing cycle and enter parameter setup interface to cancel cycle processing.

## Appendix 2: Software rewriting procedure

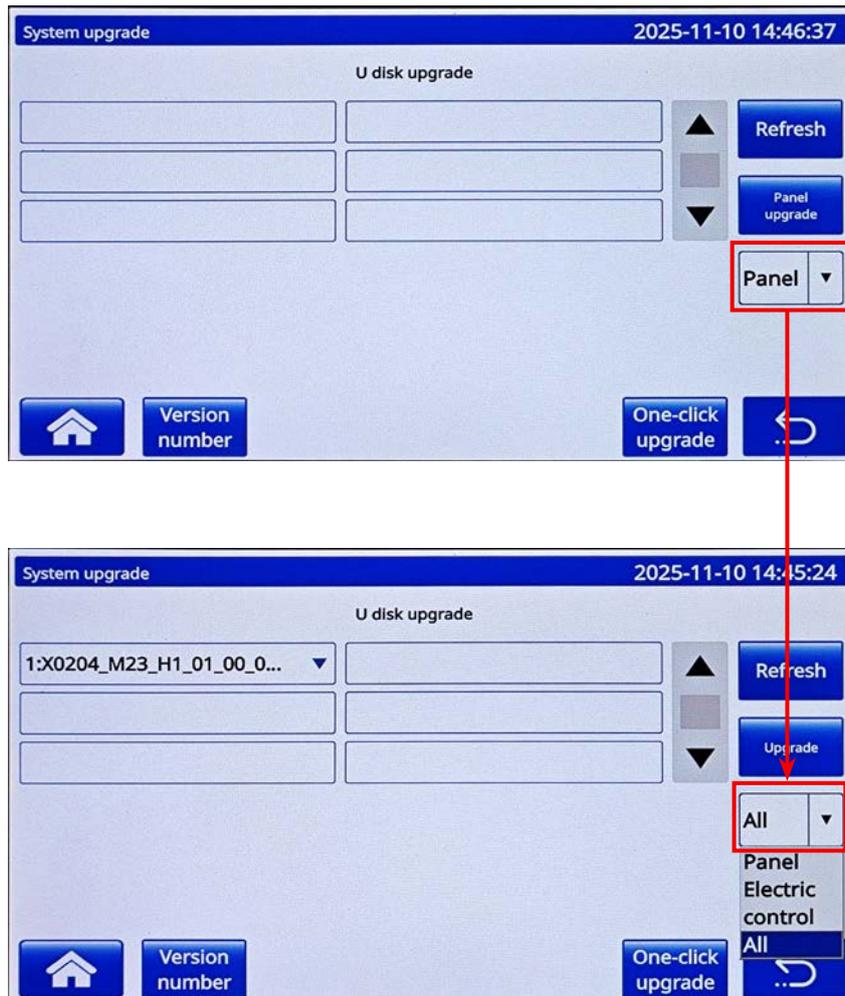
- (1) Write the software to a USB memory device.
- (2) Insert the USB memory device into the panel.
- (3) Press the “Menu” button on the panel main screen.



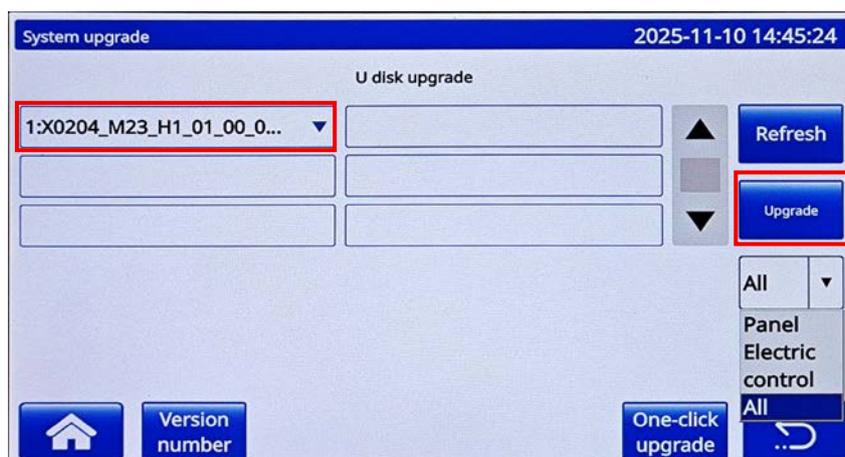
- (4) Press the “System upgrade” button.



- (5) Press and hold the “Panel” button, then drag downward to change the “Panel” display to “All”.



- (6) Select the software to be rewritten and press the “Upgrade” button.



- (7) After the software rewriting is complete, a message prompting a restart will appear. Turn off the power, then turn it back on.