Fully Automatic Sewing Control System Operation Manual (Generation-II HMI)
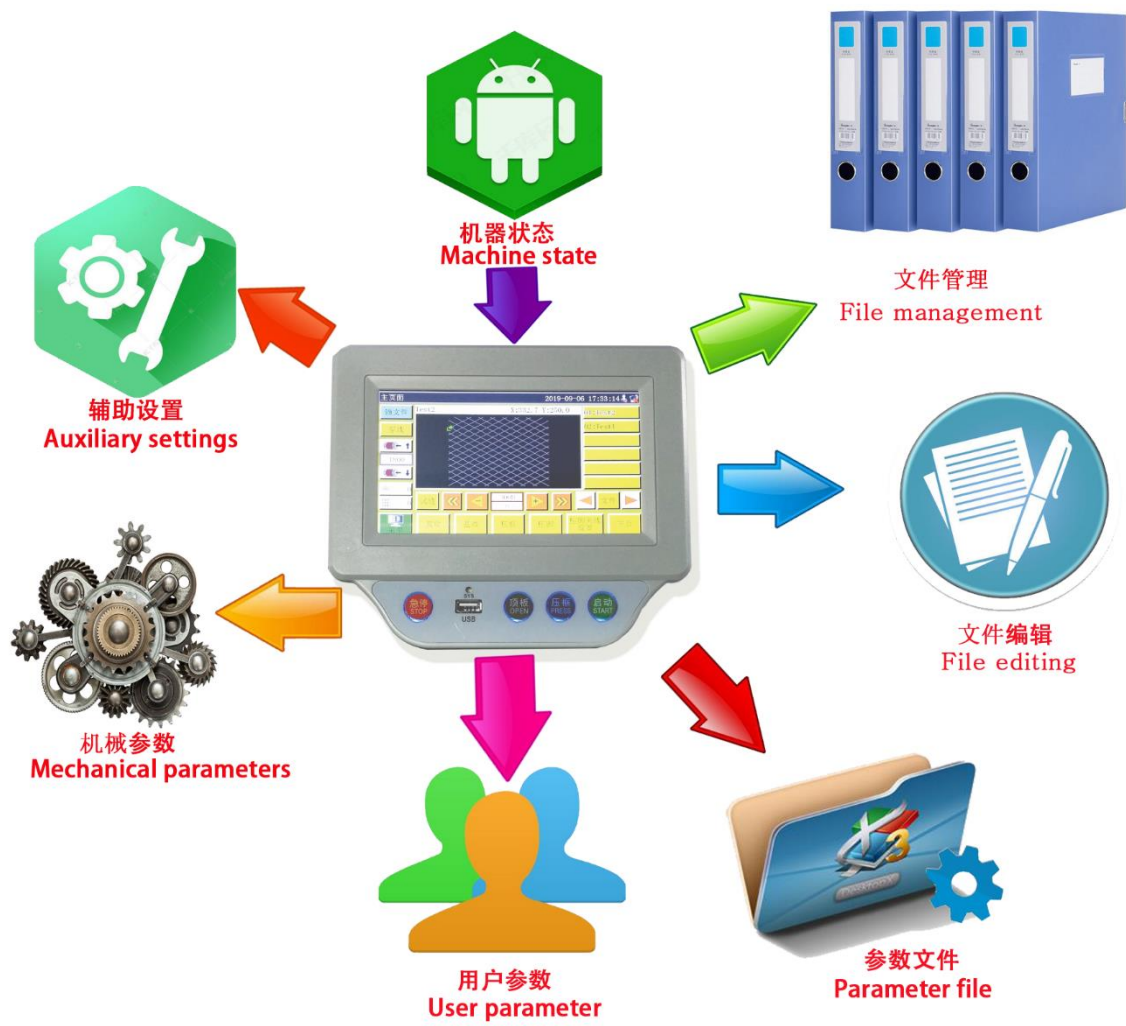
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Chapter I Introduction to Control System

1.1 Overview

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

This system can match with the various types of template machine, meeting different sewing requirements with satisfactory sewing effect for all sorts of cloth!

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.
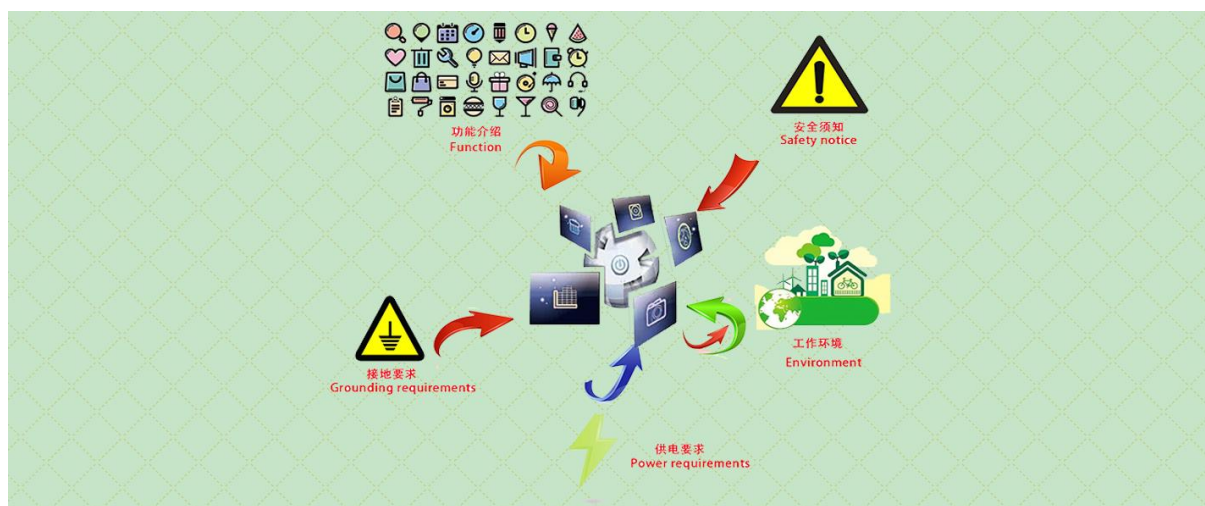
1.2 Functional Description

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

➢ Full automatic template sewing machine can replace many kinds of special machinery such as traditional lockstitch sewing machine, long arm sewing machine, bar-tacking sewing machine, embroidery machine, etc. in certain circumstances to achieve multi-usage.

➢ Just press the start button after putting the template, and it can be fully automated.It's quite simple to operate.

➢ 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, displays clear, and it's easy to touch.

➢ Support Chinese, Vietnamese, Korean, Japanese and English.

➢ Up to 128M file storage space, to store and process many files.

➢ Convenient file Collection (template making), modification, management functions.

(3) Precise motion control technology with efficient sewing

➢ Using international advanced DSP chip, high running speed of system, high hardware integration, stable performance.

➢ Support stepping, closed loop stepping, 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

➢ Such files in dxf, dst, dsb, ai, plt, edi, tzf format that are generated by software such as Autocad, Coredraw are 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.

➢ Some devices can expand the laser, draw lines, and automatically open the mold slot.

➢ Support automatic identification of template, U disk system upgrade, thread breaking detection, continue sewing in power down, processing statistics, forecast for lack of bobbin thread, system self-test, parameter backup and recovery, encryption lock machine, remote control and management...

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 parts inside the case have high pressure; after the system is powered on, please do not open the case cover, in order to avoid accidental injury.

- 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 take any responsibility for the consequences!

Warning:

- **If it really needs to open the case cover, it must be carried out 5 minutes after cutting off power and guided by professionals to contact components inside the electrical cabinet!**

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 40 ℃.

● Relative humidity in work space: 30% to 90% 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%.

● Equipment power is between 1.0 to 2.0KW according to different machine configuration.

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

Upon system power-up, the HMI displays the boot screen, when the spindle will automatically rotate for testing and reset other parts. The reset action is related to power-up reset parameters setup.

2.2 Main Interface of Processing

2.2.1 Display Instruction for Main Interface of Processing

The main interface of processing is automatically activated after the display of boot logo. The main interface of processing is shown below:
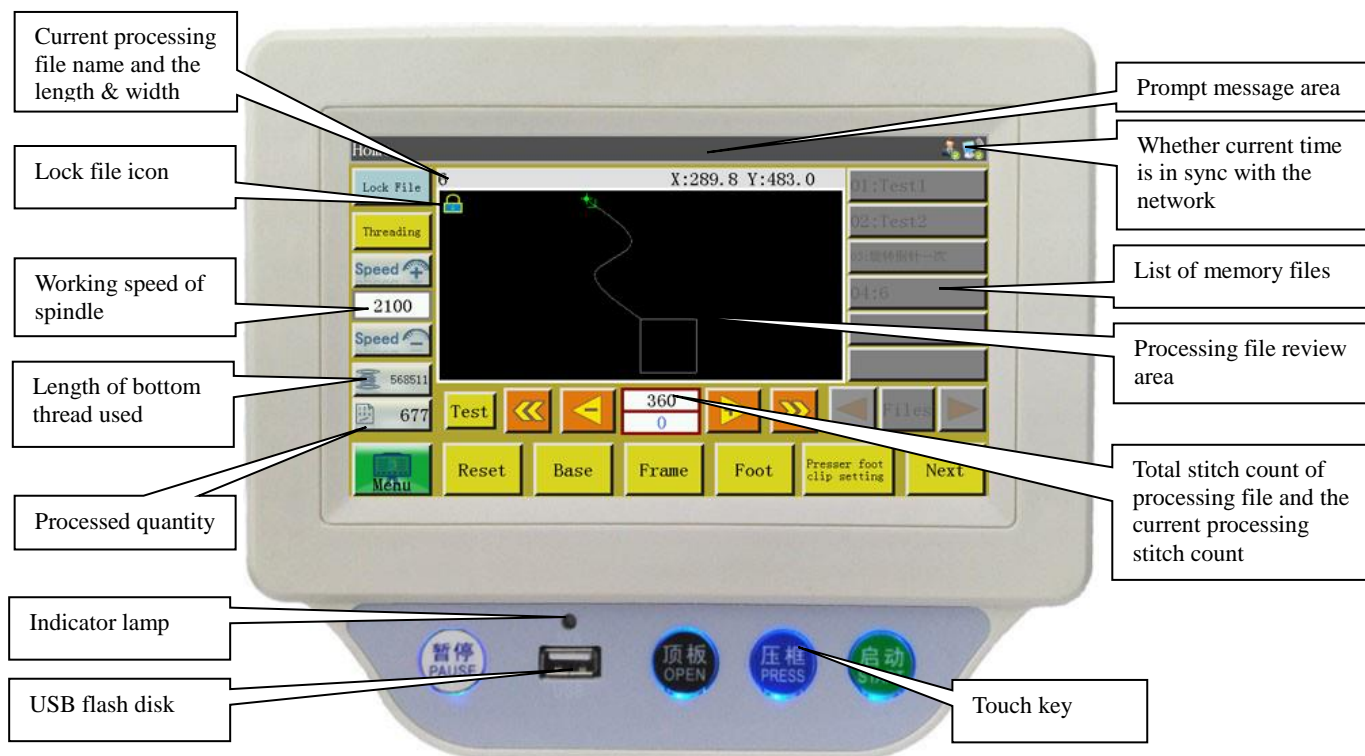
Fig. 2-1 Main interface of processing

Key functions in the main interface of processing are described as follows:

Processing file preview area: Show the currently selected file graph; click to switch between "full graph" (scale for optimal display) and "at ratio" (actual ratio to the processing range). When the processing graph is greater than 8,000 stitches, only "full graph" display mode is available.

List of memory files: Show the list of memory files; click to choose different processing files.

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

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. If the "template recognition mode" is set to "by file name", electronic tag (identifier) will be used to match the file name; if it is set to "by serial number of file", the serial number of file will be matched using a barcode scanner.

Threading :The needle-threading function. After entering the threading state, the presser foot is automatically lowered and the starting operation is automatically locked to prevent accidental start-up.

Speed + :"Acceleration" key.The rotating speed of spindle 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.

Speed − :"Deceleration" key.The rotating speed of spindle 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.

1100 : Display the current spindle 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.
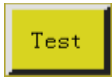
568511 :"Bobbin thread statistics" key.Show the used length of bobbin thread. Press the key to enter the processing statistics interface.
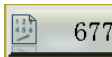
677 :"Processing statistics" key. Show the current number of completed machining. Press the key to enter the processing statistics interface.

Menu :Press the key to get into main menu interface.

Test :It is used to simulate the processing process based on graphical trajectory. When this key is depressed, XY axes rotate while the spindle is stationary.

≪ :" Line segment rewind " key.Manually move back without load to the starting point of the previous continuous curve. Return without load means the spindle remains stationary while XY axes move. This key is used to preview the designated needle location or start the processing from the designated needle location.

≫ :" Line segment fast forward" key.Manually move forward to the starting point of next continuous curve, when the spindle remains stationary.

◄ :"Single needle return without load" key. Press the key, and one stitch will retract at single step without load; continuous backward movement is activated when keep on pressing.

► :"Single needle forward without load" key.Press the key, and one stitch will go forward at single step without load; continuous forward movement is activated when this key is pressed and held.
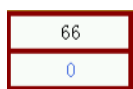
:"Total stitch count setup" key.The number in the upper line indicates the stitch count of processing file, while the number in the lower line indicates the current stitch count. Press the key, and the "Jump stitch" setup window pops up.

Note: "Jump Stitch" window description: 0 ... 9 : Number input for set value; CL : The set value returns to 0; ⊕ : The set value plus 1; ⊖ : The set value minus 1; ← : Delete a digit from right to left Cancel : Cancel current modification; OK : Confirm current modification.

: Connection with wireless network has been established.

: Connection with cloud server has been established.

: "Page left" key.Turn the page to the left to view memory files.

: "Page right" key.Turn the page to the right to view memory files.

Files : View all memory files.

Reset : Shafts start to rotate and machine resets when the key is pressed.

Base : Press the key to get into XY axes reference point setup page.

Frame : "Manual press frame up/down" key, Press the key to switch between lifting and pressing of press frame.

Foot : "Manual press foot up/down" key, Press the key to switch between lifting and pressing of press foot.

Presser foot clip setting : "Press foot thread clamp" setup key, Set press foot height or thread clamp strength. Note: This function is not available unless the press foot type is set to motorized press foot in parameter software.
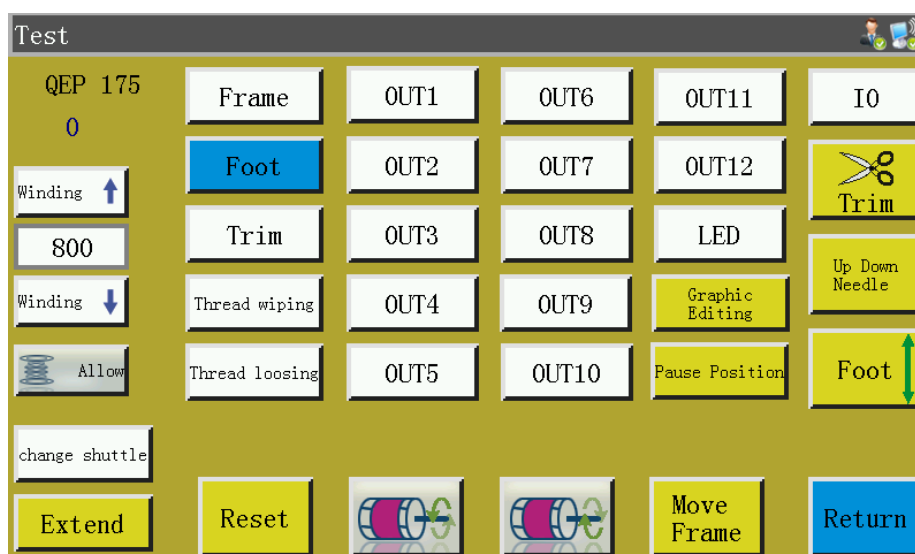
Next : "Next interface" key, Press the key to get into test interface.
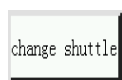
2.2.2 Test Interface Display Description

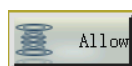Bottom thread winding and other manual operations can be performed in the processing assist

interface.

Key functions in the assist interface are described as follows:

change shuttle : Auto hook change. If the machine is designed with "auto hook change" feature, signal will be output for rotating hook change when the key is depressed.

Allow :"Bottom thread winding on/off" key: Press the key to switch between "allow" and "prohibit". Activate "Allow" and press the "Start" switch to start the winding operation, when the spindle will wind the thread at the speed set in this page. The winding will stop if the start switch or Return is depressed again or the set winding time elapses. "Prohibit" means thread winding is prohibited.

0 : Show current rotational speed of spindle.

QEP 0 : Show current angle of spindle (0-999).
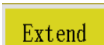
1800 : Set the winding speed of spindle.

: "Spindle Reverse" key.The spindle starts to reverse and move slowly when the key is pressed.

: "Spindle Forward" key.The spindle starts to rotate forward slowly when the key is pressed.

Up Down Needle : "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).
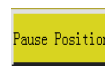
Extend : Expand multiple spindles.

Trim : trim the thread manully.

Frame , **Foot** , **Trim** , **Thread wiping** , **Thread loosing** : Press the key, when the corresponding output is turned on; lift the key, when the output is turned off.

LED , **OUT1** … **OUT12** : Press the key and the corresponding IO output function is always ON.Press again to turn off the output. For some electric control, the LED lamp will be always ON.
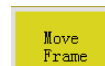
Note: Please don't press and hold the electromagnet control output for long. (e.g. **Trim** **Thread wiping** **Thread loosing**) Otherwise, the electromagnet connected with this output may get damaged due to overheating!
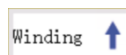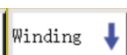
Pause Position : Press the button to enter the pause position interface. After inserting the "up pause" command in the graphic file, it will automatically move to the set pause position when the "up pause" command is executed during sewing. Up to 6 groups can be set, each corresponding to the order of the "up pause" command in the graphic file.

Return : Press the key to go back to the main interface of processing.

Move Frame : "Manual frame movement" key.Press the key to get into the manual frame movement operation interface.

Thread winding: Press touch key "Start" at the bottom of the screen in this interface, and confirm, when the spindle motor will rotate for thread winding at the set speed.When **Stop** key appears at original position of **Return** ,click it to stop winding. The winding operation can also be stopped by pressing "Start" and "Emergency stop" buttons. The speed can be regulated through **Winding ↑** **Winding ↓** during winding operation.

Graphic Editing : Zoom, increase, decrease, and set the stitch length for each line segment of the current drawing. The interface is as follows:
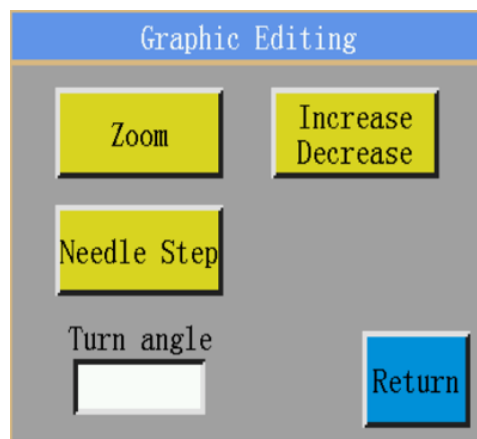
Scale Graph :To reduce or enlarge the current graphics as a whole, the width and length are the actual width and length of the reduced or enlarged graphics.

Add/delete graphic : For the beginning or end of each line segment of the current figure, the change depends on the stitch length of needles increases or decreases.It means to increase if the value is greater than 0, or vice versa.

Needle Spacing : Modify the length of the stitching needle of the current figure. Reserved Commands means that retain some functional code instructions inserted by users after modifying the length of needle spacing.

Turn angle : Set how many degrees the included angle of the graph line segment is, and set it as an inflection point action.
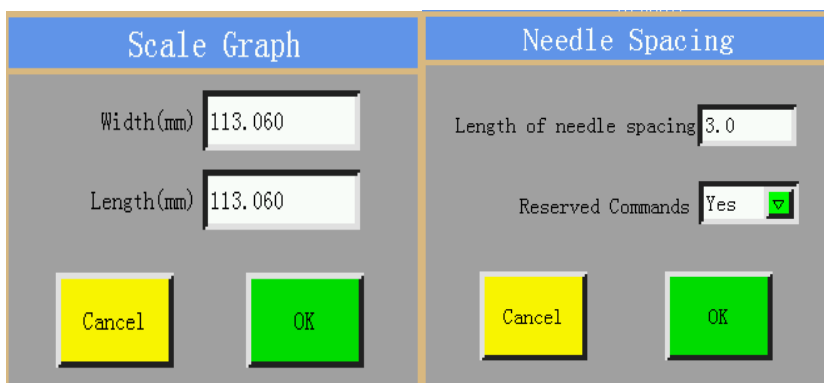
To start **To end** : The increased or decreased graphics can be moved directly to the start point or end point.

Move : Whether the graph moves to the increased or decreased position.

2.2.3 Display Instruction for Manual Frame Movement Interface

Click on **Next** and **Move Frame** successively in the main interface of processing to get into the manual frame movement interface. In the manual frame movement interface, it's possible to move the frame manually and control the rotation of each shaft.
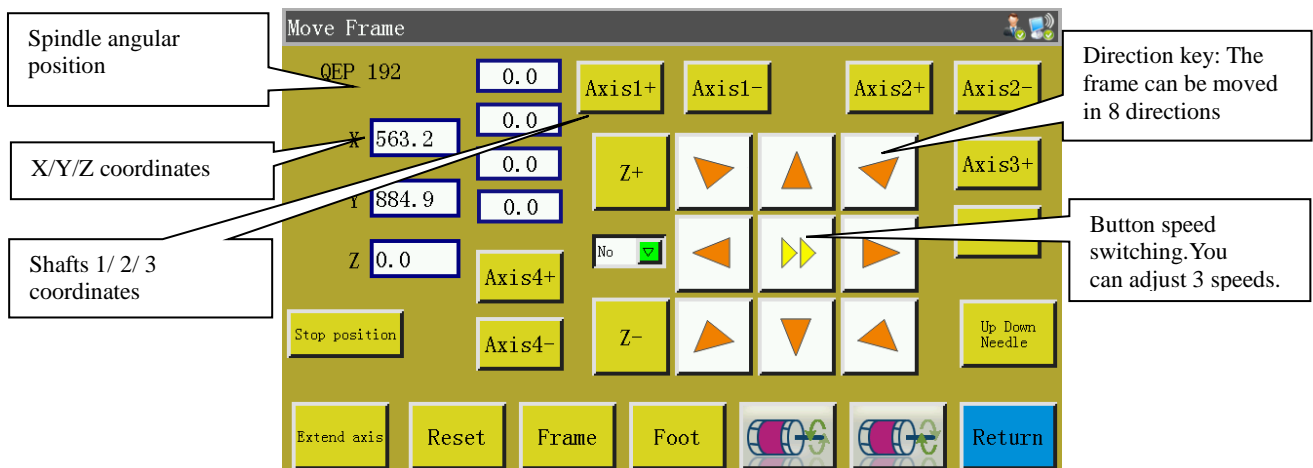
Key functions in the manual frame movement interface are described as follows:

▶ , ▷▷ , ▶▶▶ : "Frame movement speed switching" key.Click to switch among low, medium and high speeds. Correspond to patterning speeds 1, 2 and 3 in "user parameters".

16
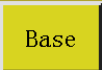
▶ : 8 direction keys,moving in X and Y directions.

"Z+", "Z-", "shaft 1+", ... "shaft 3-": Rotate corresponding shafts manually; some of the shafts have no effect on certain machines.

No ▽:The default is "No", indicating that the manual frame-shift operation cannot be performed before resetting. You can select "Yes" to perform a temporary manual frame-shift operation before reset. If it has been reset, this function is invalid.
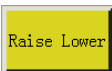
Stop position : The current X and Y coordinates are set to the stop coordinates of X and Y axes after resetting.

2.2.4 Display Instruction for Reference Setup Interface

Click Base in the main interface of processing to get into the reference point setup interface. The template reference point can be set in this interface.
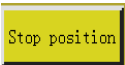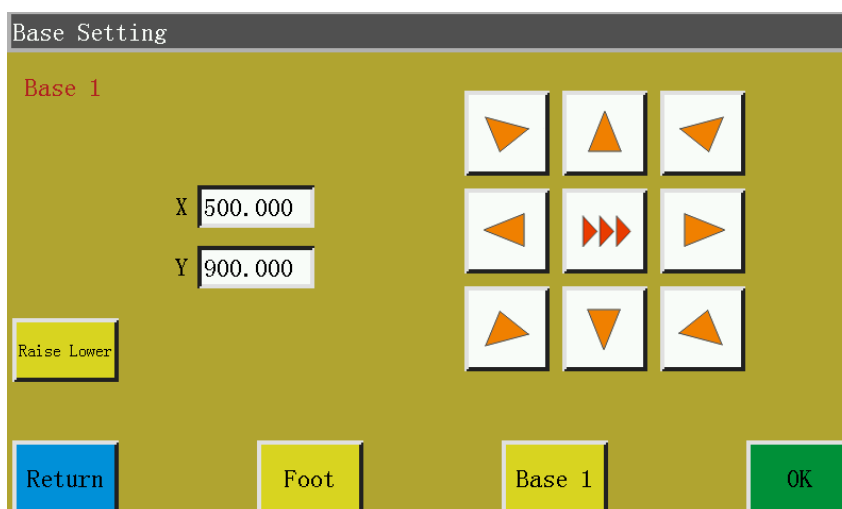

Raise Lower : Rise/fall function is mainly used for "rotary head" type machine, outputting IO corresponding to the set parameters (P249).High and low level switch each other.

Foot : As mentioned earlier (all foot pressing functions on the interface are the same)

Reason for reference point setup:When the processing file generated through the software in upper computer 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. As shown in the figure below:

Stop position after reset
(Depending on settings)

1

2

X coordinate

Absolute origin

Y Coordinate

The blue color indicates processing size (800x400mm)
The black color indicates processing file (300x200mm)
The red dot indicates the center of processing file, and its
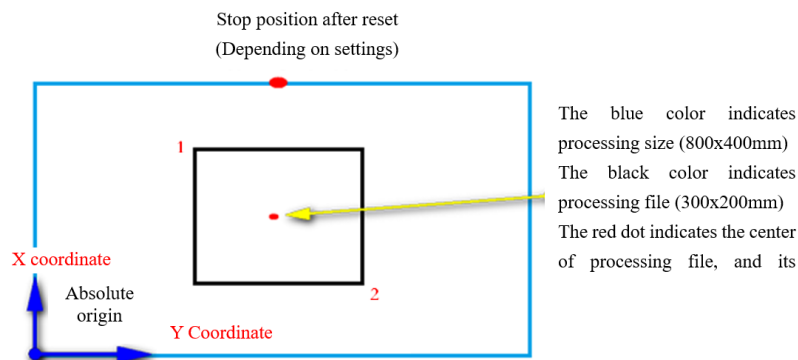
The fabricated template is placed on workbench in the position that may be as shown in the figure below:

A

Template pattern
Slotting position

B
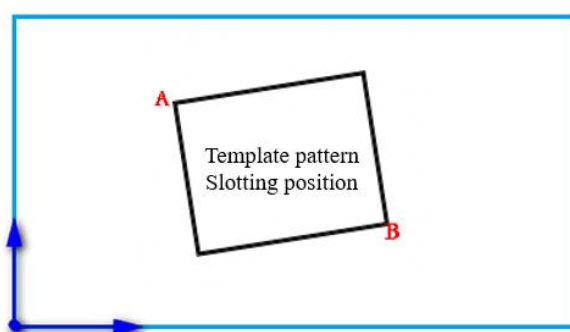
Hence, it's necessary to align reference point 1 with A, and reference point 2 with B. Adjust the position of processing pattern in the system so that it corresponds to the template slotting position.
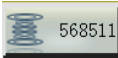
Detailed steps are as follows:
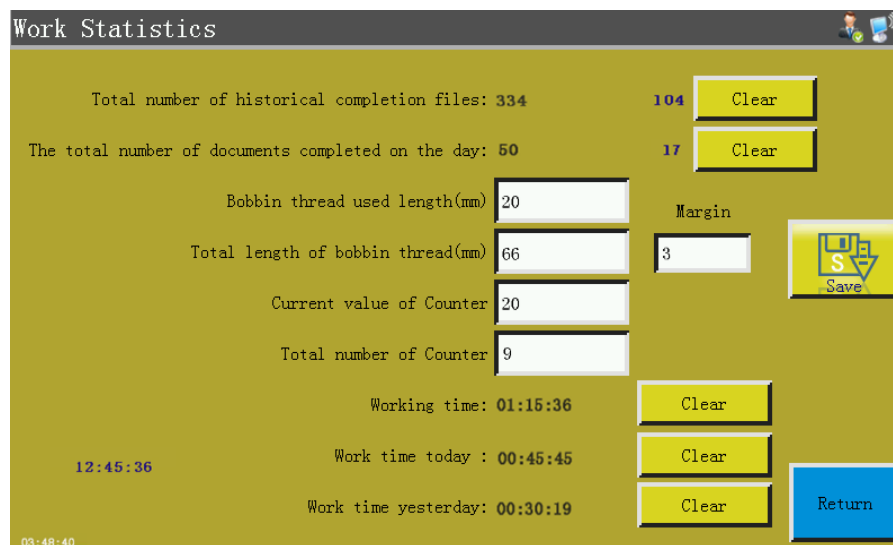
1) Select the file for which the reference point should be set up in the main interface of processing, and place the corresponding template. Click Reset to enter the reference point setup interface, and the system will automatically move the frame to reference point 1.If dual reference points are set up in upper computer software, the upper left corner of the interface will indicate "set up reference point 1". 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.

2) Click OK to finish the setup of reference point 1. The system automatically moves frame to reference point 2, when the upper left corner of interface indicates "set up the second reference point". 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 Base 1 key to switch to reference point 1 for setup.

3)   Click OK   to finish the setup of reference point 2, when the system automatically returns to the main interface of processing. 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 upper computer does not set up dual reference points, the sewing start point will be taken as reference point 1 by default, in which case the system will return to main interface of processing after the alignment of reference 1. 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

Click 568511 or   677   in the main interface of processing to enter the processing statistics interface. In this interface, you can view the processing quantity, time, bobbin thread length and other information.

The interface is described as follows:

Total number of historical completion files: 334   104 The number on the left represents the total processing times;The number on the right represents the total processing times in 7 days of the current figure. Click "Clear" to clear the total processing times both the whole file and 7 days of the current graphics.

The total number of documents completed on the day: 50   17 The number on the left indicates the total processing times on that day. The number on the right indicate the cumulative processing

times on the day of the current figure. Click "Clear" to clear the total processing times of the current graphics and file processing times.

Bobbin thread used length(mm): Refers to the length of the bobbin line that has been used up. After setting it to the,it will accumulate bobbin line length of the current file when processing begins.

Total length of bobbin thread(mm): Refers to the total length of the initial bobbin line in the spindle. When winding, it can be estimated that the total length is equal to the average circumference of the spindle multiplied by the speed multiplied by the winding time.

Current value of Counter: Refers to the total number of processed documents. Each time the processing is completed, it will automatically add 1, which cannot be closed.

T*otal number of Counter*: Refers to the target number of times a processing document has been completed.

Working time: Show the total processing time. Just count the time when in the "working..."state.

Work time today : Show the processing time of the day. Click "Clear" to 0.

Work time yesterday: It shows the processing time yesterday. Click "Clear" to 0.
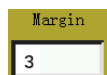
[Margin 3] : Refers to the error margin of the remaining length of the bobbin line. (Bobbin line length detection device for special purpose).

[12:45:36] : The blue character in the lower left corner indicates the last processing time.

[03:48:40] : The white words in the lower left corner indicate the total time of starting this time.

2.3 Main Menu Interface

Press [Menu] key in main interface of processing to enter the main menu interface, as shown in the figure:
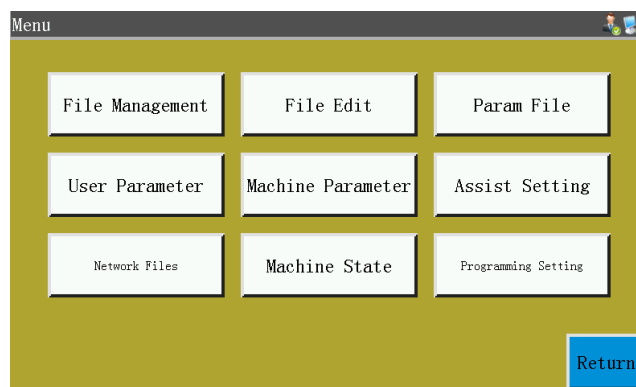
File Management: Manage, import and export the files in memory and USB flash disk.

File Edit: Create new sewing graphs or edit & modify original graphs.

Parameter File: Import, export, delete, or write to a parameter file. The import is to imported from the USB flash drive to the display, and the export is to exported from the display to the USB flash drive.Delete is to delete the parameter file on the display or U disk. Write is to write the selected parameter file to the system and apply the parameters.

User Parameter: Parameters are adjusted based on processing requirements to realize convenient processing and improve processing efficiency.

Machine Parameter: Only accessible to machine assemblers.

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

**Machine State:** For remote administration device to report various status of machine for solutions.

Programming setting: The entry for self-programming setting parameters corresponds to the self-programming software and calls the self-programming software parameters.

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 .SLW. Processing files are created with PC graph edition software delivered with machine or through file capture.
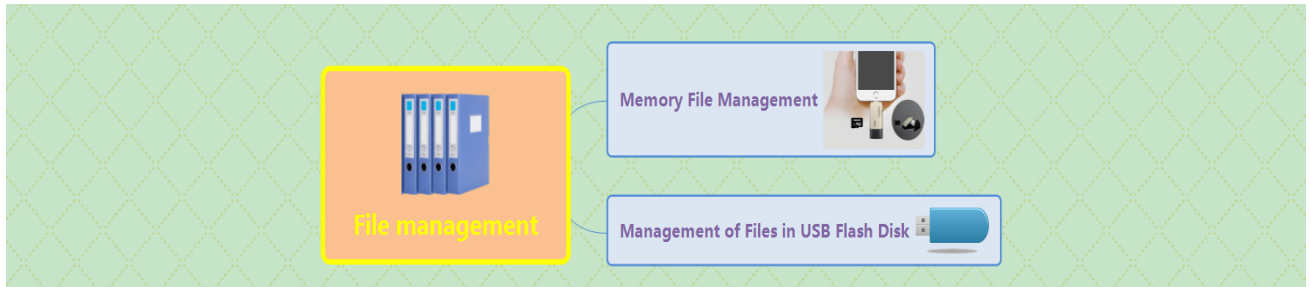
3.1 Memory File Management

Press File Management key in main menu interface to enter file management interface as shown in the figure below:
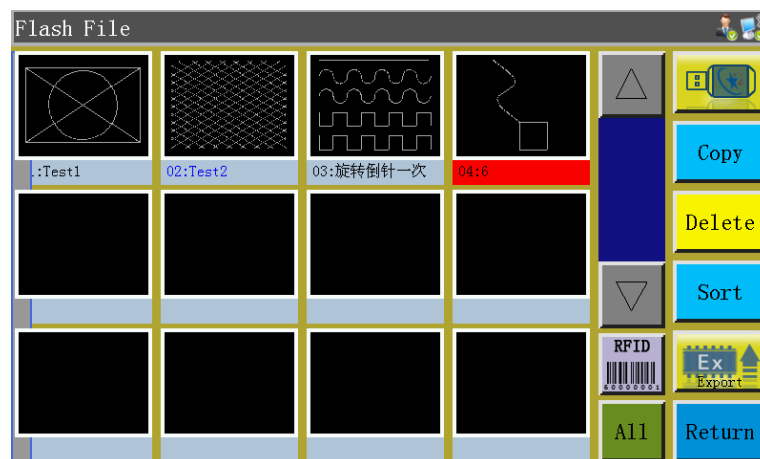
The system memory can store up to 999 processing files, of which the total size shall not exceed 128M. Support file names in Chinese and English (case sensitive); each file name can consist of up to 15 Chinese characters or 30 characters (the displayed number of characters may vary depending on the interface). 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:

Copy : Copy the currently selected file. File copy can be created by clicking "Copy" and entering

the new file name.

: Delete the currently selected one or more files.

: Sorting file, Insert the currently selected one or more files into designated location. For example, select "002:TEST2", click , enter "1" into the pop-up dialog box, and click "OK". The file ranks first and turns into "001:TEST2".

: "Electronic tag and barcode write" key.The function is determined by "User parameters" - "Other settings" - "Template recognition mode: By file name/file number".

If the recognition is "by file number", 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 is displayed on the graph.

If "By file name" is selected, it means the file name in IC card is recognized using electronic tag reader so as to match processing file. Method of binding processing file to electronic tag: 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 tag; at this point, the interface title bar shows that file name.

: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 "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.

: Click to enter the "U-disk file" interface.

3.2 Management of Files in USB Flash Disk

Insert the USB flash disk, and press key in memory management interface to switch to

the USB flash disk file management interface as shown in the figure:

USB flash disk file management supports up to 15 Chinese characters or 30 characters. If USB flash disk is accessed through file management, the files and folders in .slw 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 .xhp 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 red; the selected file shall be handled as needed.

Key description:

: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.

:Delete one or more selected files.

:Select all the files in the U-disk directory with the full key.

:Return to the memory file interface.

:Return to the main menu interface or parent folder.

: Return to the previous directory.

Note: If the processing file in .SLW format can't be recognized or imported, please upgrade the motherboard program directly to the latest version. See section 8.8.

Chapter IV File Editing

 File capture (patterning) is used to create new processing files, or to add sewing paths for existing processing files, etc. If it's necessary to create complex and accurate graphs, the included sewing control software is recommended for better results.
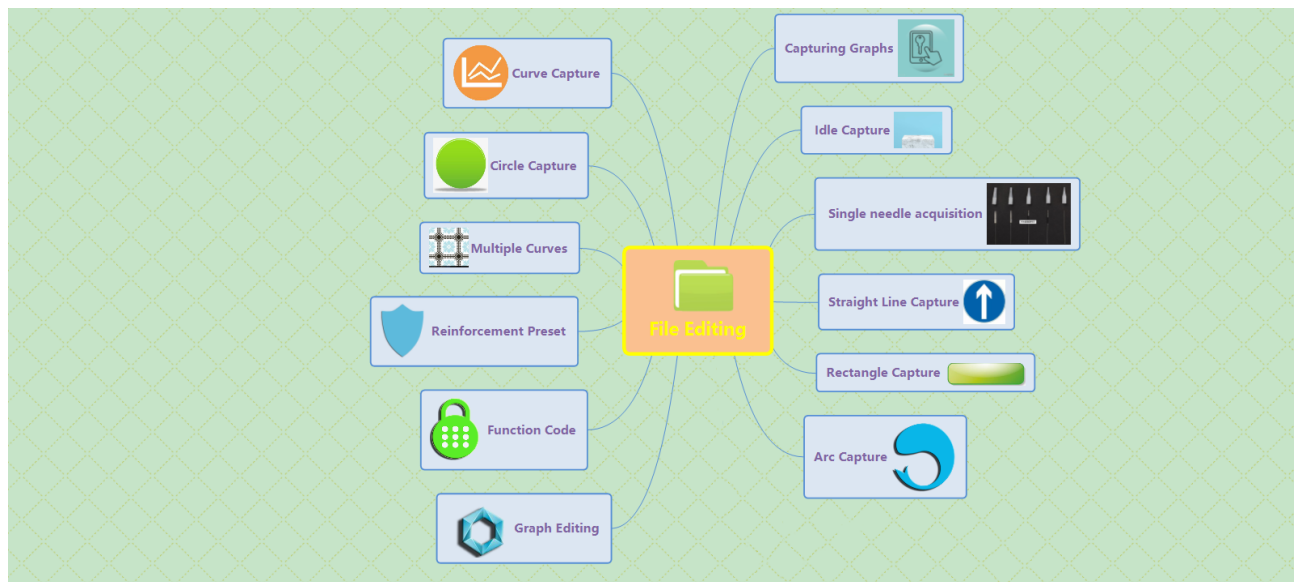
4.1 Main Interface of File Editing

 Press | File Edit | key in the main menu interface to enter the main interface of file editing as shown in the figure:
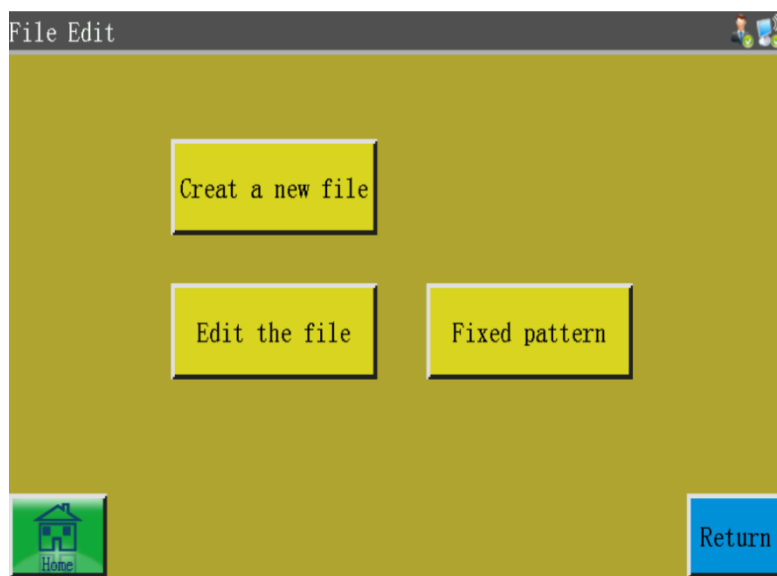
Create a new file : Create new capture file.
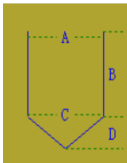
Edit the file : Make modification or other edits based on the file selected in the main processing interface.

Fixed pattern : It is used to generate corresponding graphics according to the set graphics parameters.
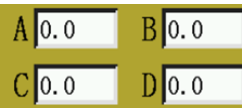
By clicking the **Pocket 1** button to switch between different graphics modes, the graphics that can be generated include: sleeve fork 1, sleeve fork 2 (inverted), bag type 1, bag type 2, bag type 3, open bag, parallel line and foot fork. The operation flow to enter the fixed graphics page is: Menu -> File Edit -> Fixed Graphics, the interface is as shown in the figure below:
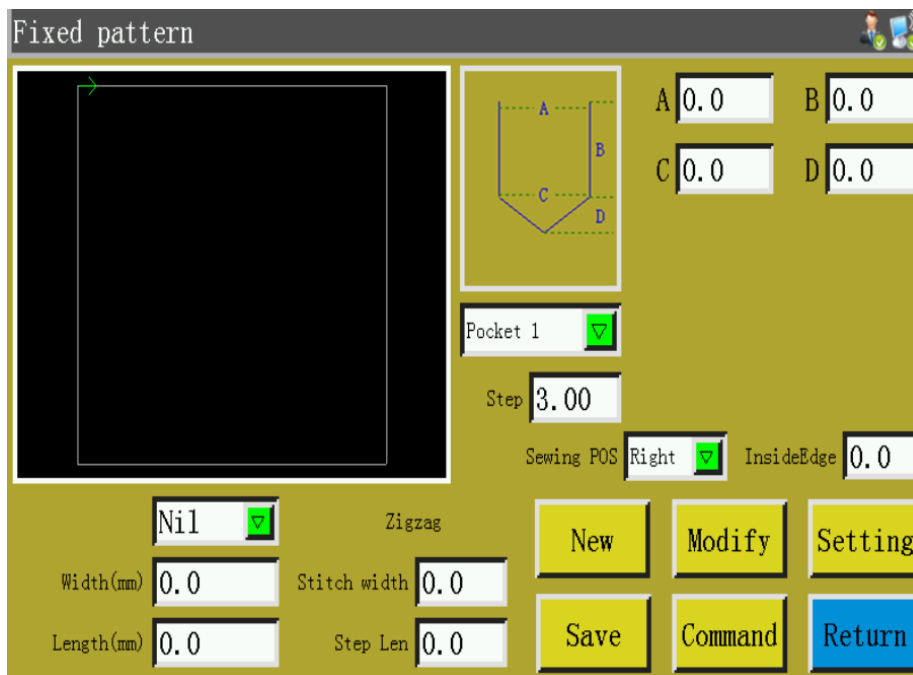
Function module area:

1、 : Graphic display area, real-time display of the graphics after "new" or "modification".

2、 : In the graphic parameter teaching area, after switching between different graphic

modes by clicking the [Pocket 1 ▽] button, the teaching area will display different teaching shapes.

3、[A 0.0 B 0.0 / C 0.0 D 0.0]：In the graph parameter area, after switching among different graph modes
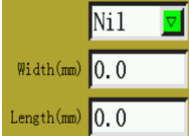
by clicking [Pocket 1 ▽], the number of different parameters will be displayed.

Features
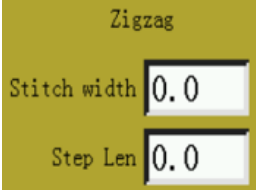
Buttons on the main page

1、[New]: Indicates that a new graph is regenerated according to the currently set parameters.

2、[Modify]: It means to modify the current graph according to the current parameters.

3、[Setting]: Indicates to enter the page for setting the "reference" or "Backstitch" function.

4、[Save]: Means to save the current new or modified graph.

5、[Command]: Means to enter the "default command" page.

6、[Return]: Indicates to exit the fixed graphics page.

Main page parameters
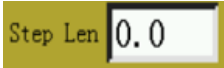
1、[Nil ▽ / Width(mm) 0.0 / Length(mm) 0.0] Reinforced shape function, suitable for graphics generated from " Pocket 1",

"Pocket 2", " Pocket 3", " Pocket 4" and " Pocket 5" shapes, used to generate the line segments of the bag shape at the beginning and end Reinforcement shape, can generate "triangle" and "rectangle" reinforcement shapes. The parameter "width" indicates the horizontal distance of the shape, and the parameter "length" indicates the vertical distance of the shape. When the reinforcement shape is set to "None" or the width and length values are 0, this function will not take effect.

2、[Zigzag / Stitch width 0.0 / Step Len 0.0]：Bar tacking function, on the basis of the "reinforced shape" function,

whether the upper line of the reinforced shape uses the tacking stitch mode. The parameter "Stitch width" indicates the length of the bar tacking width in the longitudinal direction, and the parameter
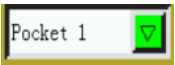
"Step Len" indicates the length of the bar tacking stitch in the horizontal direction. When the value of the two parameters is 0, the function does not take effect.

3、 Step Len `0.0` *Step Len* means the stitch length during sewing after the graphics are generated according to the set parameters. The value range of the stitch length is 1.00mm-20.00mm.

4、 Sewing POS `Right` The sewing start position indicates the sewing direction of the graphic. It can be set to start sewing from the "left" or "right" side line.

5、 InsideEdge `0.0` *InsideEdge* Inner edge line means that the inner edge line segment is automatically generated according to the line segment of the graph, and the value of the parameter expresses the width of the distance between the inner edge line and the outer edge line segment of the graph. This function is applicable to the graphics generated by " Pocket 1", " Pocket 2", " Pocket 3", " Pocket 4" and " Pocket 5".

Graphics mode

The graphics mode is switched by clicking Pocket 1 on the interface, including graphics: sleeve 1, sleeve 2 (inverted), Pocket 1, Pocket 2, Pocket 3, Pocket 4, Pocket 5 and parallel lines.

1. Sleeve 1 mode:

Parameter A: Indicates the length of the upper half of the graph. When the value is positive, the graph is upright.When the value is negative, the graph is upside down, and when the value is not 0, it means starting from the left.

Parameter B: indicates the length of the upper half of the graph, starting from the right, but it is valid when the value of parameter A is set to 0, the graph is upright when the value is positive, and the graph is upside down when the value is negative.

Parameter C: represents the bottom half length of the graph, from the bottom of section A to the bottom of the graph.

Parameter D: Indicates the longitudinal distance from the sharp corner below the graph to the left line segment (when parameter B starts, it is the right line segment).

Parameter E: Indicates the horizontal distance from the sharp corner point at the bottom of the graph to the left line segment (when parameter B starts, it is the right line segment).

Parameter F: Indicates the longitudinal distance from the sharp corner below the graph to the right line segment (when parameter B starts, it is the left line segment). (Note: When generating flat-

bottom graphics, set parameter D and parameter F to 0).

Parameter G: the width of the table graph.

Parameter H: When the value is greater than 0, it means that a double line is generated, and the value is the distance of the downward offset. When the value is 0, no double line is generated.

Parameter I: When the value is greater than 0, it means repeating the end segment of the graph once, and when the value is 0, it means the repeat is off.

2.Sleeve 2 mode: This mode is similar to "sleeve 1" mode, the graphics are swapped upside down.

3.Packet 1 mode: equal-width sharp-angled bottom shape, parameter A: indicates the height of the figure. Parameter B: Indicates the height of the sharp corner. Parameter C: Indicates the width of the graph.

4.Packet 2 mode: Shrink the shape of sharp-angled bottom, parameter A: Represents the height of the figure. Parameter B: Indicates the width of the upper part of the graph. Parameter C: Indicates the width under the graph. Parameter D: indicates the angle of the sharp corner under the graph.

5.Packet 3 mode: equal-width flat-bottomed shape, parameter A: indicates the height of the figure. Parameter B: Indicates the width of the graph.

6.Open bag mode: the two ends of the line segment are split, and parameter A: indicates the length of the overall line segment. Parameter B and parameter D: the length of the split line segment. Parameter C and parameter F: the length of the undivided line segment. Parameter E and parameter G: indicate the horizontal length of the split line segment.

7.Fork mode: the rectangular shape with the same width and sharp corners is embedded in the bottom. Parameter A: indicates the height of the graphic. Parameter B and parameter E: represent the same height of the embedded rectangle. Parameter C: Indicates the height of the sharp corner. Parameter D: Indicates the graphic width. Parameter F: Indicates the width of the embedded rectangle. Parameter G: Indicates the distance from the height of the sharp corner to the embedded rectangle. Parameter H: Indicates the angle of the sharp corner below the graph.

8.Parallel line mode: horizontal straight line segment, parameter A: indicates the length of the horizontal straight line segment. The parameters B, C, D, E, F, G, and H indicate the distance from the previous straight line. A maximum of 7 straight lines can be generated. When the length of the line segment is 0, the line segment is invalid.

Settings page

This page is used to set the position of the default datum point and the back-stitch reinforcement function. These function settings are preset. After setting, the graphics are generated, and the corresponding functions are added to the graphics.

Benchmark setting

1. The parameter "Dot" indicates which node in the generated graph is used as the reference point. When the value of the point position is 0, the reference point position is not specified, and the first node is the default.

2. The parameter "reference X" indicates the position of the node in the X direction where the reference point is located after the graph is generated, and the button Read indicates to read the coordinate value of the current position of the X axis and use it as the value of the reference X.

3. The parameter "reference Y" indicates the Y-direction position of the node where the reference point is located after the graph is generated, and the button Read indicates to read the coordinate value of the current Y-axis position and use it as the value of the reference Y.

Backstitch setting

1. The parameters "Start stitches" and "Start repeat" indicate whether reverse stitching is set at the beginning of the graph. If one of the two parameter values is 0, reverse stitching is not set at the beginning of the graph.

2. The parameters "End stitches" and "End repeat" indicate whether reverse stitching is set at the end of the graph. If one of the two parameter values is 0, the reverse stitching will not be set at the

end of the graph.

3. The reverse stitching function can only set the start or end reverse stitch, or set both the start and the end of reverse stitch.

Default instruction page

This page is used to set the graphics default action instructions, which are automatically added to the graphics to realize the action flow required by the sewing process.
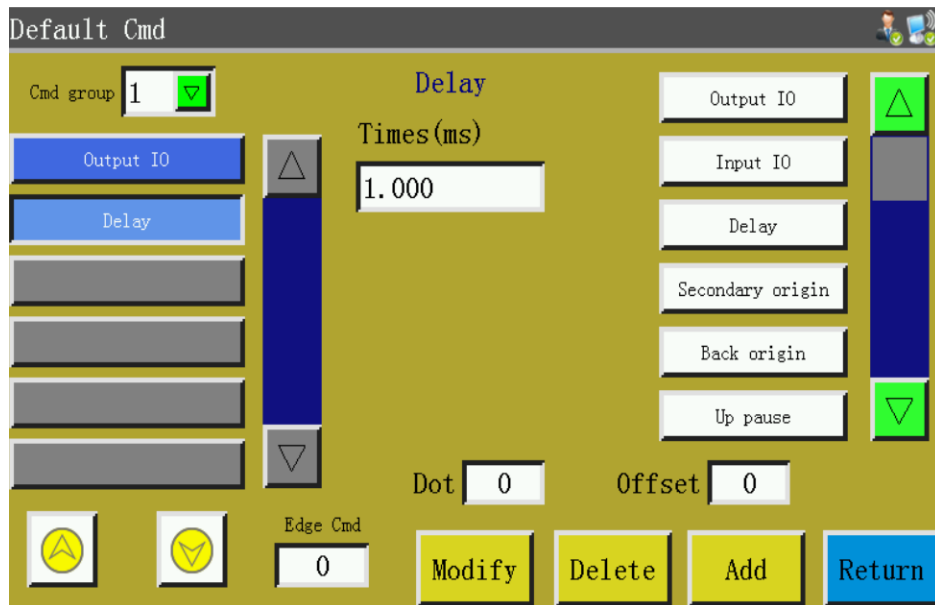
Function area
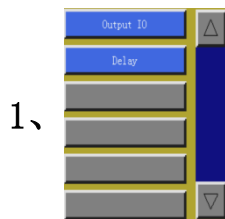
1、   The default command list area indicates the default commands, and displays all the added commands in the form of a list. When generating graphics, automatically apply the set instructions to the graphics.

2、   The original instruction list area indicates the instructions supported in the system. The instructions in the original instruction list can be added to the default instruction list area on the left.

3、 The command value display area indicates that the selected commands in the

"default command list area" and "original command list area" are displayed in real time, and the value represents the actual value of the current command.

Key Function

1、 "Sort up" is mainly to move up the commands in the "default command list area". You need to select a default command first, and then click the "Sort Up" button to move up the commands in the sort list.

2、 "Sorting down" is mainly to move down the instructions in the "default instruction list area". You need to select a default command first, and then click the "Sort Down" button to move down the commands in the sort list.
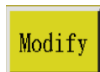
3、 Modify "Modify" is mainly to modify the commands in the "default command list area". You need to select a default command first, then modify the set command value in the "command value display area", and finally click the "modify" button to confirm the modification of the selected command.

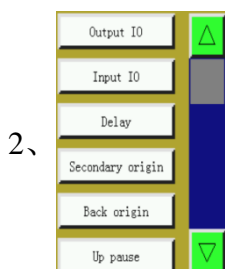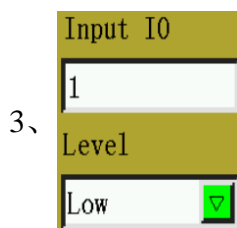4、 Delete "Delete" is mainly to delete the instructions in the "default instruction list area". You need to select a default instruction first, and then click the "Delete" button to delete the instruction in the selected default instruction list.
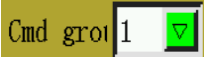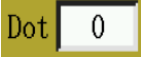
5、 Add "Add" is mainly to add the instructions in the "original instruction list area" to the instruction list in the "default instruction list area". You need to select an original command first, then modify the command value in the "command value display area", and finally click the "Add" button to add the selected original command to the default command list.

6、 Return Return to the default instruction page and return to the fixed graphics page.

Parameter function

1、 **Cmd grou** `1 ▽` Default command mode, there are 6 modes of default command, default command 1-6. Click to switch to different command mode, each mode is an independent command list, which can correspond to 6 different graph node positions, each mode is independent.The operation of adding, modifying and deleting instructions.

2、 **Dot** `0` The default instruction point indicates which node in the graph node automatically adds the instruction of the default instruction list. When the value is 0, the command mode is not enabled.

3、 **Offset** `0` The offset position indicates how many stitch points are shifted based on the "default command point", and then the command of the default command list is automatically added. A negative value indicates how many needle points are moved back based on the "point" position. A positive value indicates how many needle points are advanced on the basis of the "Dot " position.

Reminder: After the parameters in the "Settings" and "Commands" pages are modified, they will only be effective when you need to regenerate a new graphic. When a new graphic is generated, the system automatically reads the corresponding parameters and integrates it into the new graphic.

4.2 Capturing Graphs

Pressing **Create a new file** in file editing interface and it will pop up a new file naming window. See the figure below:

After entering the name, press [OK] or [Edit the file] to enter graph capture interface as shown in the figure below:
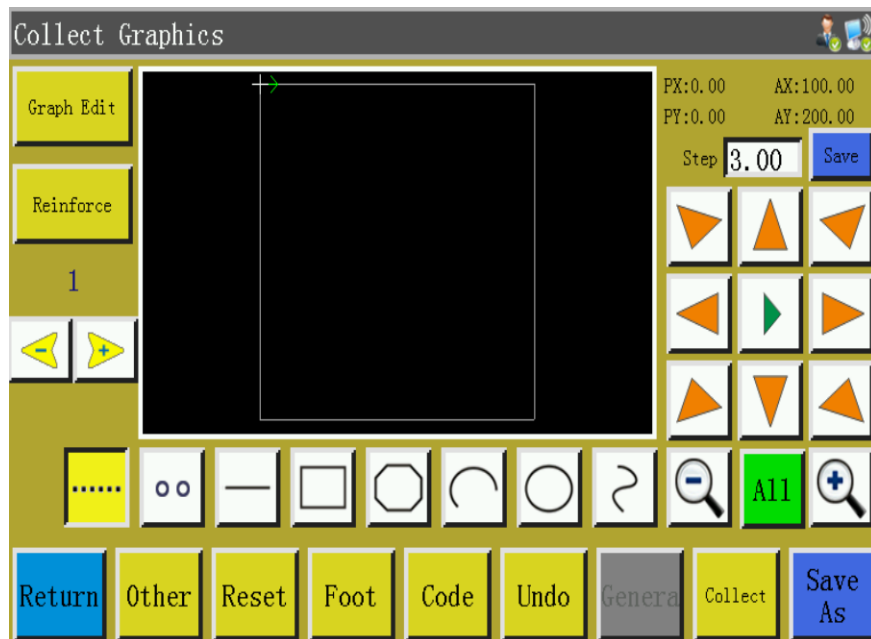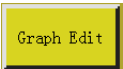
The function keys of capture interface are as follows:
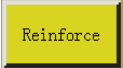
"PX", "PY": Indicate the X and Y coordinates of current cursor point with respect to the previous capture point.

"AX", "AY": Indicate the coordinates of current cursor point with respect to the absolute origin.

[Step 3.0]: The distance between stitches in sewing settings; the default is 3.0mm, while the range is 1~50mm.

[▶], [▷▷], [▶▶▶] Click to switch among low, medium and high speeds.

[Graph Edit]: The key will only light up when graph is captured. Press the key to enter the curve editing interface for curve editing.

[Reinforce]: Reinforcement preset key.Key into reinforcement preset settings, open preset and click "OK", collection page "Reinforce " 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 "Graph Edit".
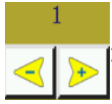
: The number "1" changes here, and the number of graphics displayed is displayed. The

serial number of the displayed graphics can be adjusted through the below.

: Single needle acquisition key, acquisition needle length, the maximum length is not more

than 12.7 mm.

: Idle capture key. Press the key once; when the background turns yellow, the current

capture segment is idle. It is displayed with dotted line.

: Press the key once, when the background turns yellow, the current capture segment is

straight line.

: Press the key once, when the background turns yellow, the current capture segment is

rectangle (determined with 2 points).

: Press the key once, when the background turns yellow, the current capture segment is

polyline segment.

: Press the key once, when the background turns yellow, the current capture segment is arc

(arc determined with 3 points).

: Press the key once, when the background turns yellow, the current capture segment is

circle (circle determined with 3 points).

: Press the key once, when the background turns yellow, 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 graph. Click on the graph

preview area to move the graph.

: "Zoom-in" key.Press the key to zoom into the captured file graph.

`All` : "Display switch" key.Press the key to switch between full-scale display and proportional display.

`Code` : "Insert function" key.Press the key to access function code inserting operation.

`Undo` : "Cancel capture" key. Back to the state before the last modification.

`Curve End` : "Curve generation" key.When polyline segment and curve are captured, press the key to finish the capture of current segment.

`Collect` : Press the key to determine the current cursor location or finish the capture of current segment. If some areas of the generated graphs go beyond the processing range, they can't be generated.

`Save As` : Rename the saved file, and the saved file can be directly displayed in the preview area of the main interface.

4.3 Idle Capture

Press `······` key in capture graph interface, when the key background turns yellow (idle mode is activated automatically when the capture interface is activated for the first time).It means the current segment of capture is in idle mode (idle: Only move frame, while the spindle doesn't sew) as shown in the figure below:
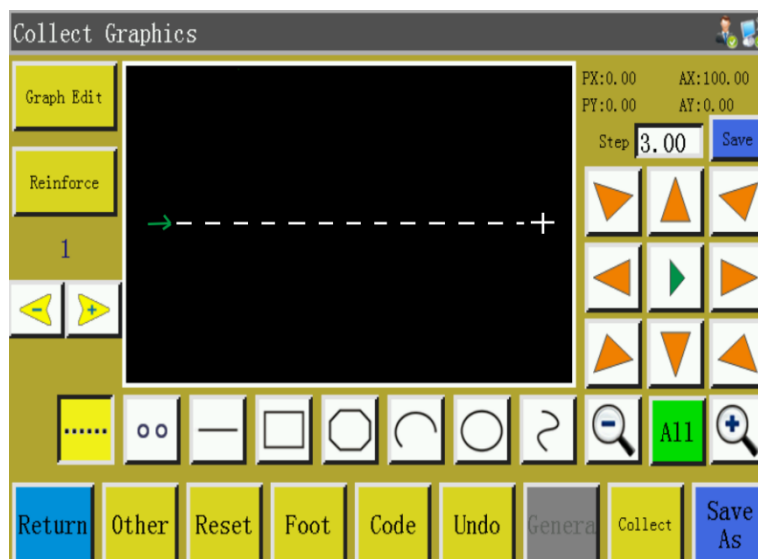
In the case of idle capture, two points generate an idle segment.

The absolute origin or the end point of previous capture segment is the first point of idle capture

and displayed as red cursor. Press the key to move cross cursor to desired position, and press [Collect] to generate idle segment.

If it's necessary to insert function code at the end of this segment, please refer to the operation procedure for function code setup. This operation can be performed at any time before the generation of graph.

4.4 Single needle acquisition

Depress the [o o] in main interface of file capture, when the key background turns yellow, it means the capture of current segment is in line segment mode as shown in the figure:
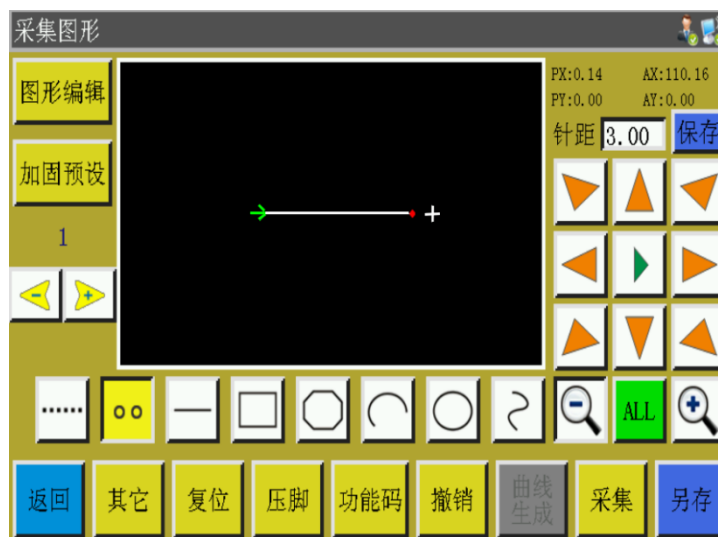
Taking the length of one needle per acquisition as a line segment, the maximum length is 12.7 mm, and the acquisition of more than 12.7 mm is invalid. Please refer to PX, PY value operation in the upper right corner. Click on the [Collect] key to create a needle length, press the [⊕] key to enlarge it, you can clearly see the collected line segment.

4.5 Straight Line Capture

Depress the [—] key in main interface of file capture, when the key background turns yellow, it means the capture of current segment is in straight line mode.As shown below:

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 Collect key to generate straight line.

4.6 Rectangle Capture

Press ▢ key in main interface of file capture, when the key background turns yellow, it means the current segment capture is in rectangle mode. As shown below:
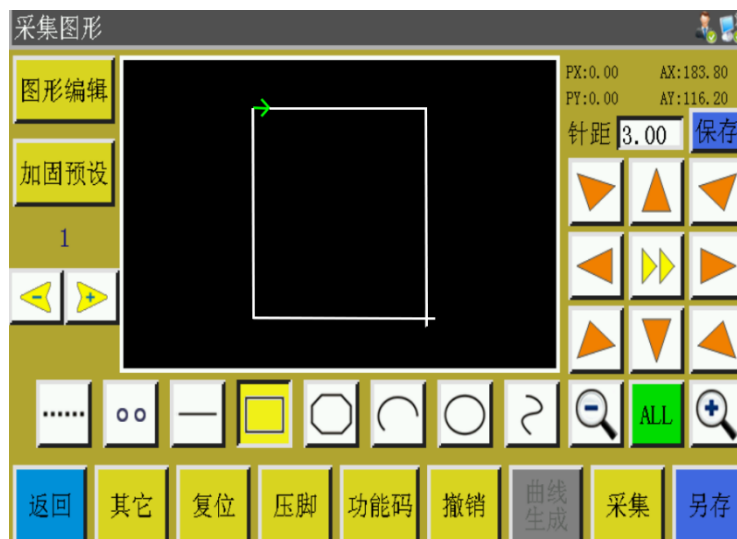
In the case of rectangle capture, two points with different X and Y coordinates generate a rectangle.

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 Collect key to generate rectangle.

4.7 Polyline Segment Capture

Press [⬡] key in main interface of file capture, when the key background turns yellow, it means the current segment capture is in polyline segment mode as shown in the figure:

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 [Collect] key to identify the capture point, and move for several times to determine capture points; upon completion, press [Curve End] key to generate the polyline segment linking the points up.

4.8 Arc Capture

Press [⌒] key in main interface of file capture, when the key background turns yellow, it means the current segment capture is in arc mode.As shown below:

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 [Collect] key to identify the arc height reference point; press key to move to the desired position, and press [Curve End] 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

Press [○] key in main interface of file capture, when the key background turns yellow, it means the current segment capture is in circle mode.As shown in the figure:
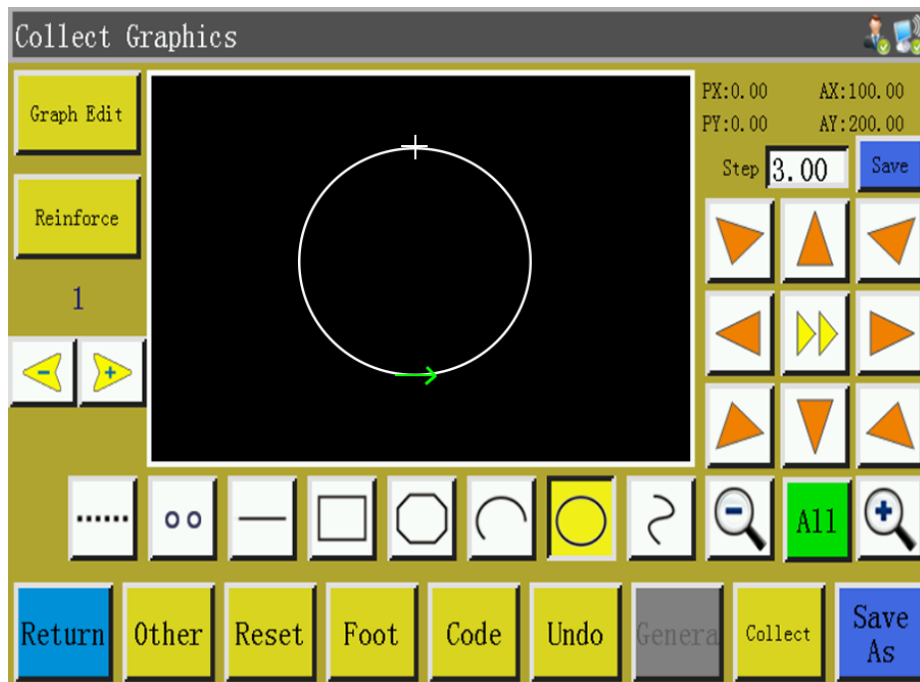
In the case of circle capture, any 3 points that are not in the same straight line generate a circle. The processing sequence: The first point (start point) > The second point > The third point > The first point (end point).

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 [Collect] to identify the second reference point; press the key to move to the desired position, and press [Collect] 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
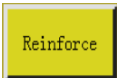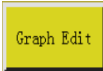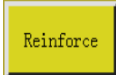
Press [⌇] key in main interface of file capture, when the key background turns yellow, which means the current segment capture is in curve mode as shown in the figure:
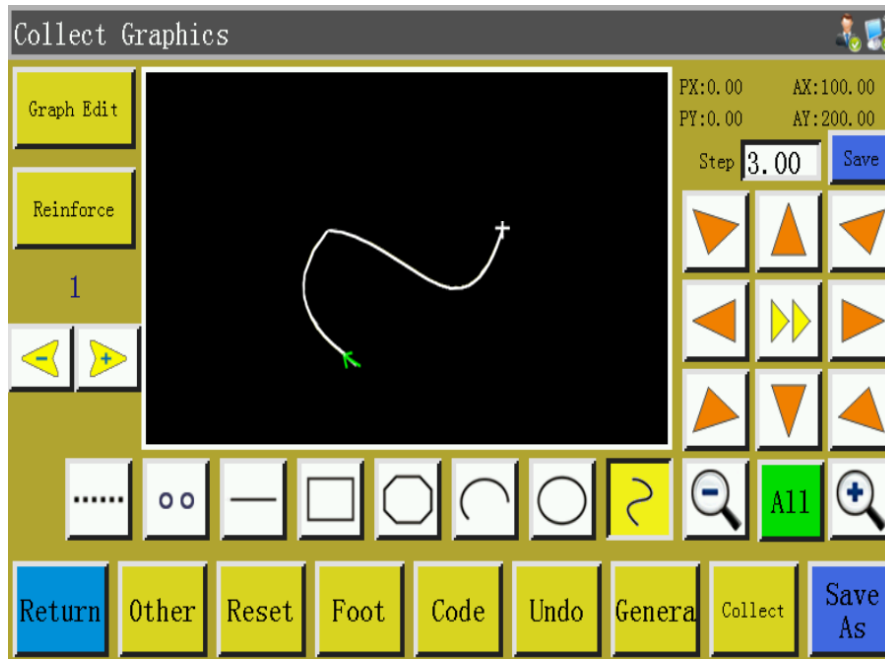
In the case of curve capture, up to 127 consecutive points can be handled, and the Bezier is generated by the degree of arc of the neighboring 4 points. The capture point shall be as dense as possible at the turning so as to achieve optimal curve effect. The capture of less than 3 points can generate curve.
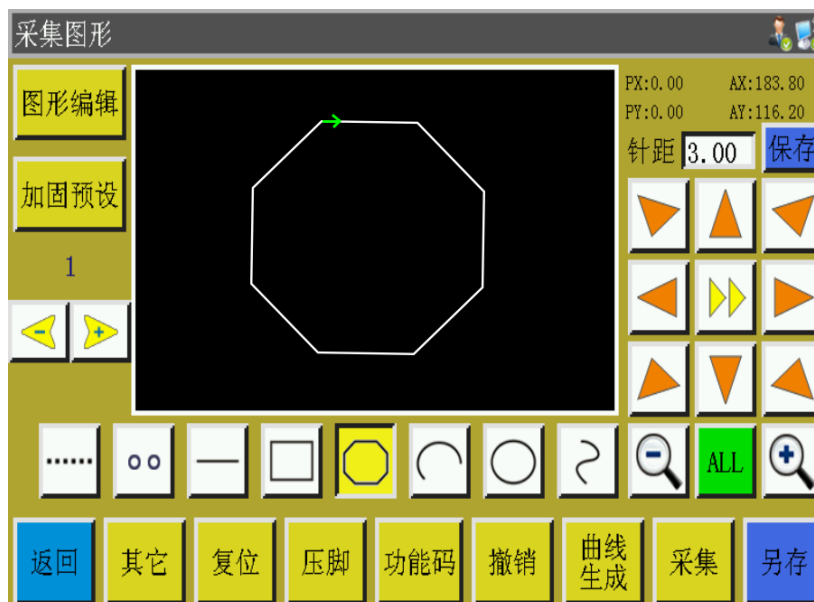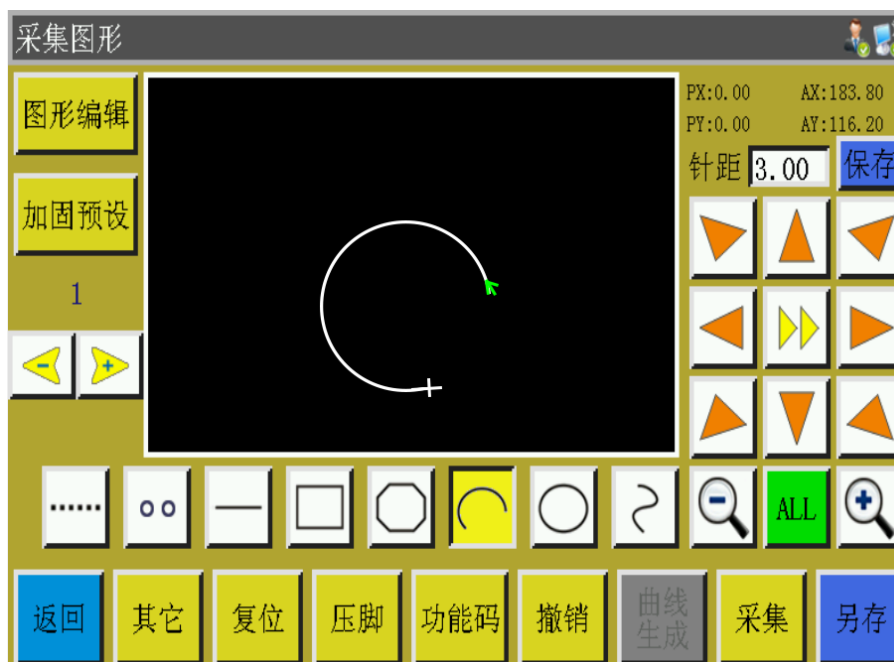
The absolute origin or the end point of previous capture segment is the first point of curve capture. Press the key to move to desired position, press [Collect] to identify the capture point, and move for several times to determine capture points; upon completion, press [Curve End] to generate the curve.

4.11 Reinforcement Preset

If the graph needs to be automatically reinforced during collection, click [Reinforce] to set the relevant parameters before collecting the graph. After collecting the graph, click [Graph Edit] and select [Stitch Edit] to enter the needle point editing interface, and you can see the reinforcement effect. If the subsequent graphics do not need to be reinforced, re-enter the [Reinforce] interface and set its value to 0 or click [Cancel].

Reinforcement Mode Backstitch ▽ : There are three reinforcement modes, which are *backstitch*, *shrinkage* and *zigzag*.

Backstitch: Repeat sewing back and forth several times for reinforcement near the start point or end point of the sewing curve. Set the number of reverse stitches and the number of stitches as required. If it is set to 0, it means that reverse stitching is not performed. After setting, press [OK] to save the current setting.

The closed pattern reinforcement means that after sewing to the end point (ie the starting point), continue to sew the specified number of stitches forward, and then return to the starting point, overlapping reinforcement between these two points. Closed figures refer to closed figures composed of circles, rectangles, and polygons that completely overlap the beginning and end points.
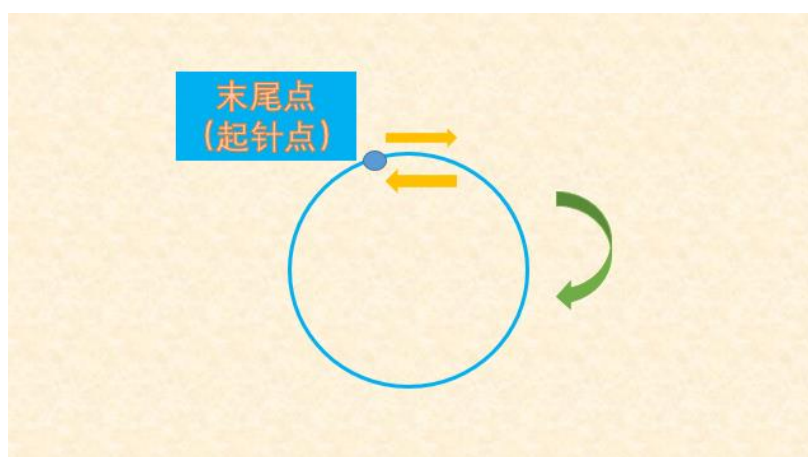
Shrinkage: reduce the stitch length on the basis of the default stitch length for reinforcement. If the default stitch length is 3mm. Setting the parameters as shown in the figure below means that all

stitch lengths within the 9mm length of the curve from the starting point are 1.5mm, and the other parts keep the default 3mm.

The number of ending repeated stitches 0 : Indicates how many stitches need to be repeated at the end of the line segment.

Zigzag: Reinforce sewing with V-shape or N-shape. Set the parameters as shown in the left picture below, and the actual reinforcement effect is shown in the right picture.
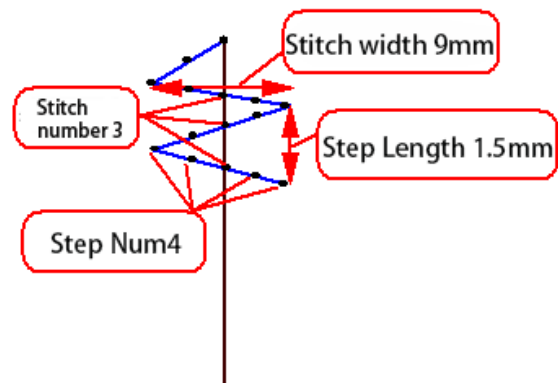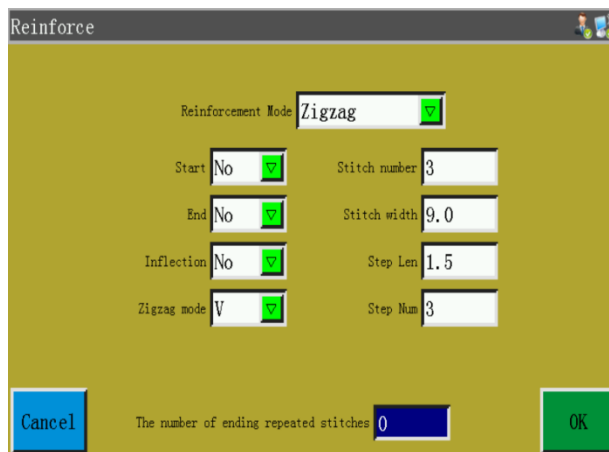
4.12 Function Code

If it's necessary to add function code the latest completed capture segment during file capture, you can press Code to enter function code setup interface as shown in the figure:
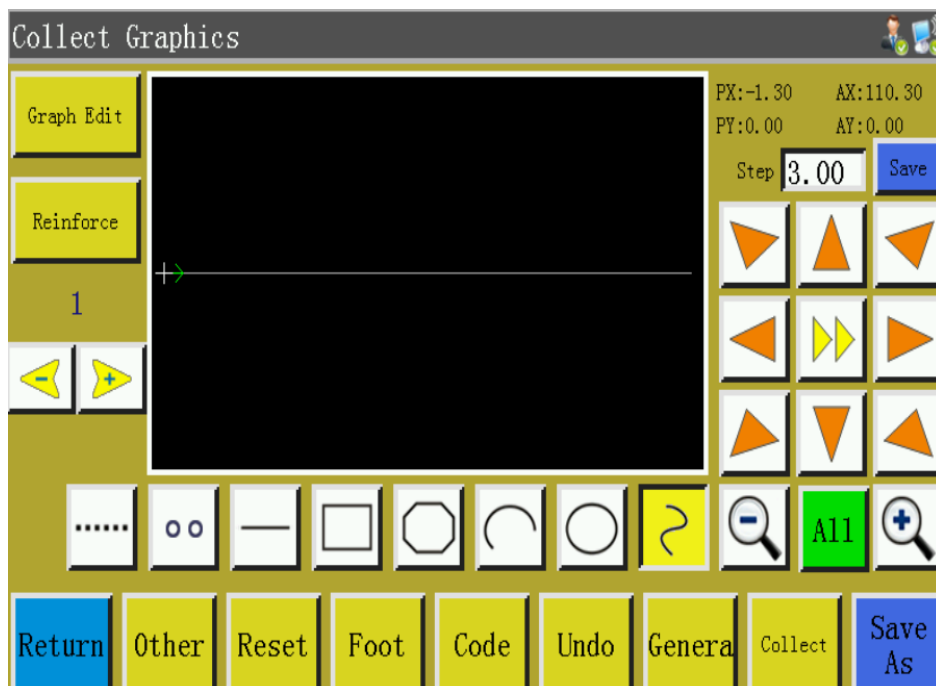
In the blue area of the figure below, you can add a single command, and the yellow area on the right is a command set. The command set can be customized and packaged into .xcc format file by "Xinghuo Graphics Command Software". Import and update files in the instruction upgrade mode.
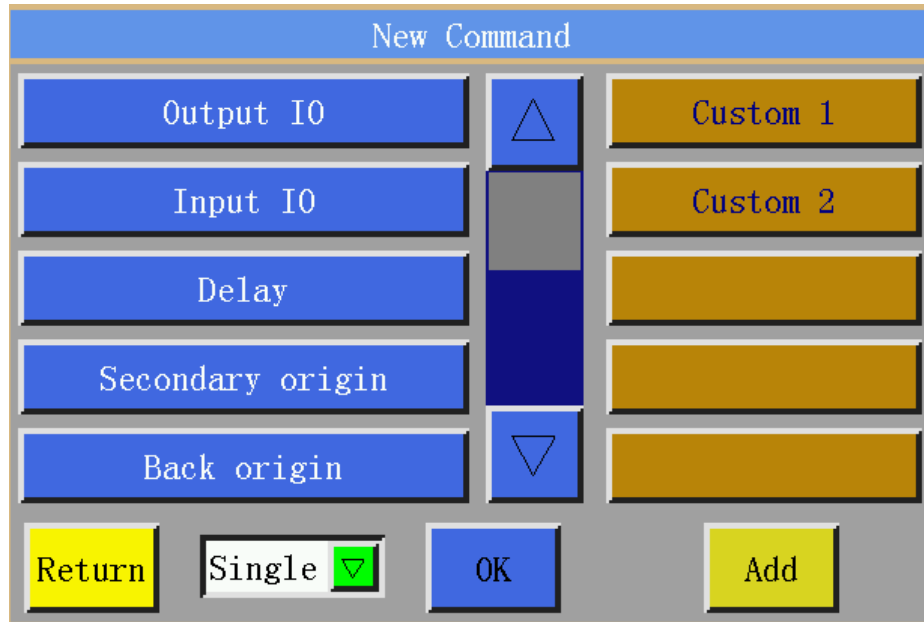
There are 29 function codes:

Output IO ：The "Output IO" instruction sets the corresponding output IO to a high level or a low level.

Input IO ：Set the level state detection corresponding to input IO. When input IO is high level or low level, it can continue to work.

Delay ： Set the delay time.Delay the waiting time for work.

Secondary origin：Move directly to the set sub-origin position.

Back origin：Return to the stop position after reset.

Up pause ：Upper pause function code; when this function code is encountered, the spindle stops at upper stop position.

Down pause ：Lower pause function code; when this function code is encountered, the spindle stops at lower stop position.

Main Speed :"spindle speed" instruction.It changes the current working sewing speed temporarily.

Move Speed ：The "idle speed" command temporarily changes the current working idle speed.

Recovery speed：The "Recovery Speed" instruction restores the speed at which the preamble is modified by the "Spindle Speed" instruction to the working speed set by the interface.

Cut ：Trim function code; when this function code is encountered, the thread is cut without stopping the spindle.

Z axis speed：The "Z axis speed" instruction temporarily changes the speed of Z axis.

Extend move：Temporarily change the running speed of the Z axis.

Extend speed：Move to the set coordinate position.

Up frame： when this function code is encountered, the press frame goes up, while the spindle stops at upper part.

Down frame： when this function code is encountered, the press frame goes down without spindle stopping at upper part.

Rotate ："Rotate along the trajectory" command, "Cutting trajectory" is used for rotary cutting of cutter, and "Sewing trajectory" is used for rotary sewing of machine head.

Rotate enable：Temporarily close or turn on the "Rotation along the Track" function.

Graph head：Switch the line segment header. Generally, head 1 is the sewing head, head 2 is the laser, and head 3 is the brush. Each head can switch different functions.

XY ABS Move ：The "XY Absolute Move" command moves to the set coordinate position. "XY movement" means moving the X axis and the Y axis simultaneously, "X movement" means moving only the X axis, and "Y movement" means moving only the Y axis.

Foot height：Temporarily changes the presser foot height.

Cancel foot up： Cancel the next presser foot lifting operation.

Cancel Cut ：Cancel the next trimming operation.

Frame Pause：The "press frame no pressure pause" command detects the current pressure frame state. When the pressure frame is in the raised state, it stops working and reports "the pressure frame is not pressed".

Clip thread 1：The "Clip thread 1" command temporarily changes the intensity of the first clip thread, the "electromagnet" means being clamped by the electromagnet, and the "motor" means being clamped by the motor.

Clip thread 2：The "Clip thread 2" command temporarily changes the intensity of the second clip thread, the "electromagnet" means being clamped by the electromagnet, and the "motor" means being clamped by the motor.

Turn Start：Knee start function code; when this function code is encountered, knee is started.

Turn Speed：Knee speed function code; when this function code is encountered, the spindle rotates at the function code speed.

Turn End：Knee end function code; when this function code is encountered, knee sewing comes to an end while the sewing speed is restored.

Press the key to add function code as needed; choose "Single " or "All" for adding function code. Select necessary instructions and set the corresponding requirements, and then click "Save" to add. Alternatively, you can edit the graphs in capture graph interface, click **Graph Edit** to enter graph editing interface, use **◁** **▷** to choose the graphs to be handled (the graphs turn blue when chosen), and click **Code** to get into the following interface:
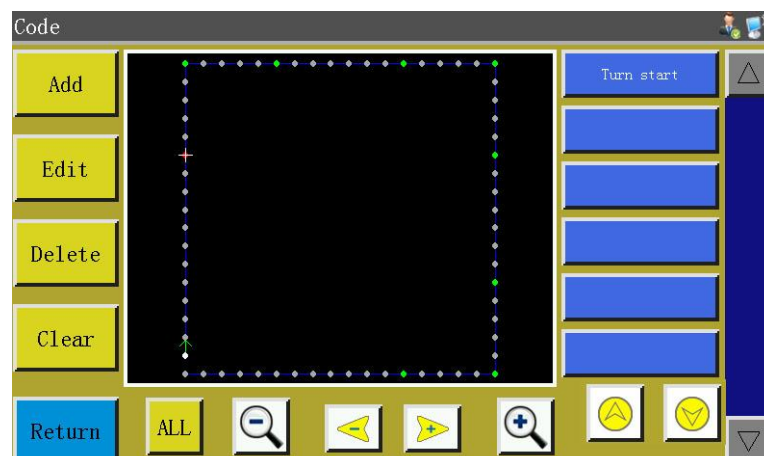
The function code page is displayed in pin point mode. If a pin point is displayed in green, it indicates that the pin point contains an instruction. The selected pin point can be switched by clicking the ◀ ▶ button. When the selected stitch point turns red, you can "Add" "Edit" "Delete" and "Clear" the pin point. When the black blank area is clicked, it indicates the position before the sewing of the line segment. All operations are performed on selected points or locations.

4.13 Graph Editing

"Curve editing" means to edit the captured graphs more comprehensively.

After editing the graphic, Graph Edit will light up, which means it can be edited. Click Graph Edit to enter the following interface:
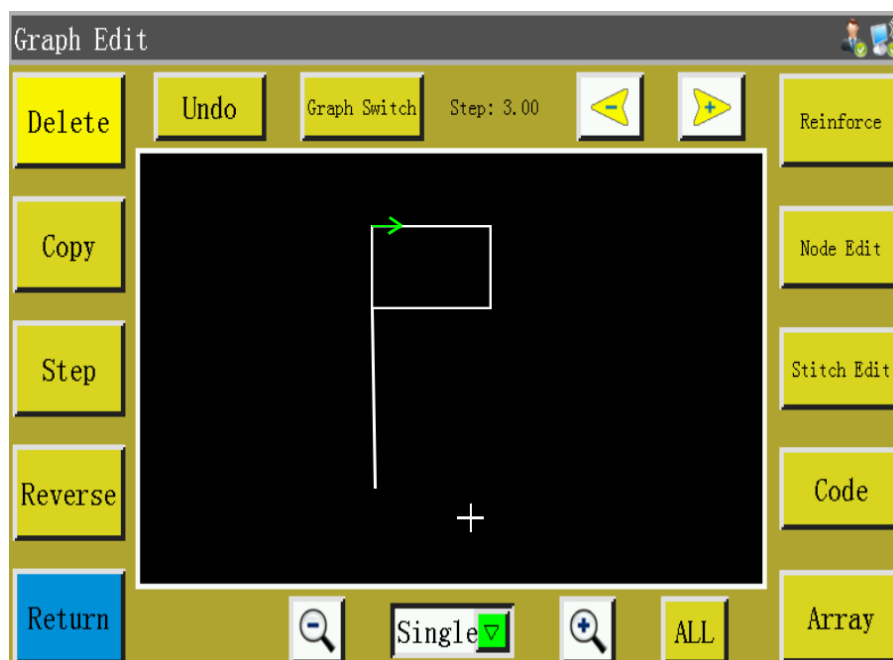
You can edit the interface function keys by pressing the button ◀ ▶ to select the graphic you want to operate (blue).

Undo : Back to the state before the last modification.

Delete : Delete the currently selected graph

Stitch length :Set the stitch length of graph to be handled (the stitch length ranges from 1 to 50).

Reverse :Reverse the sewing process of the selected graph, that is to say, the stitching is

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performed in reverse order.
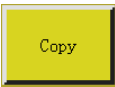
Copy : Select the image to be copied and set its offset, that is, determine the location of the

replicated image, as follows:
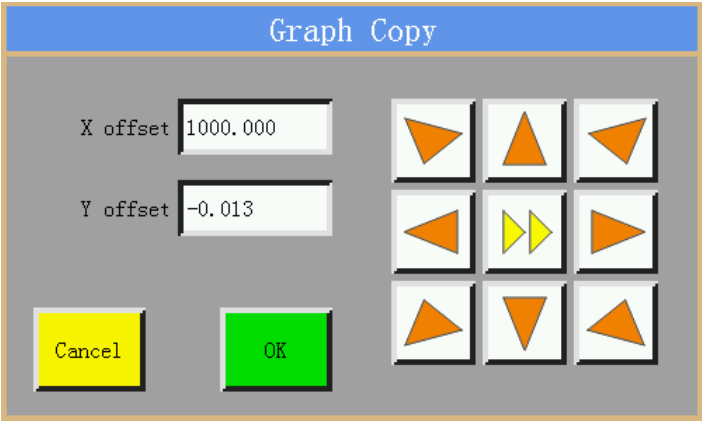
The effect before and after copying is as follows:
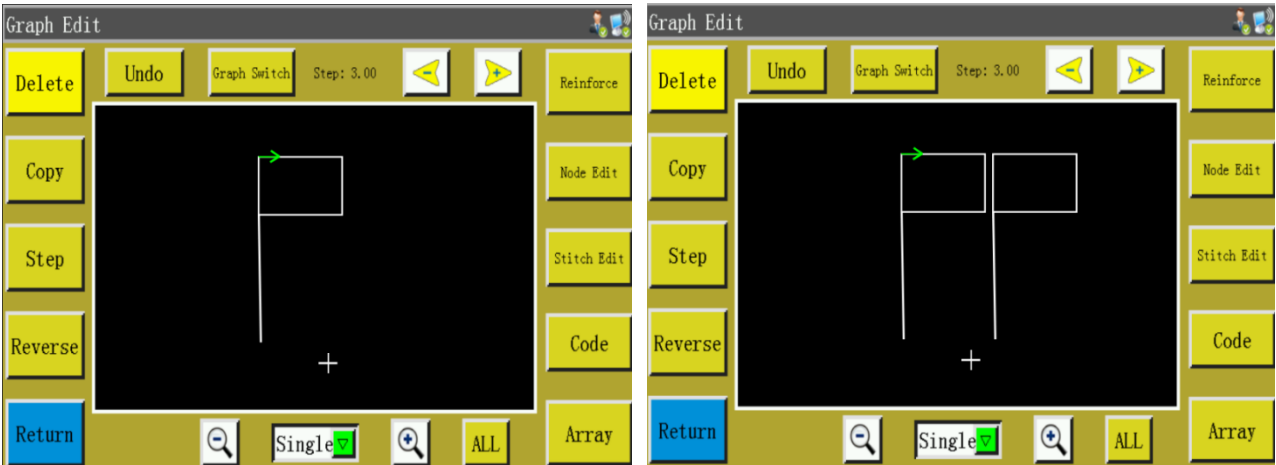
Reinforce : There are three reinforcing modes: backstitch, shrinkage and zigzag. See 4.12 for

details.
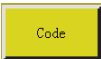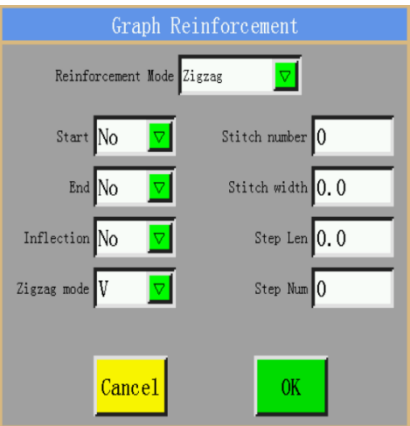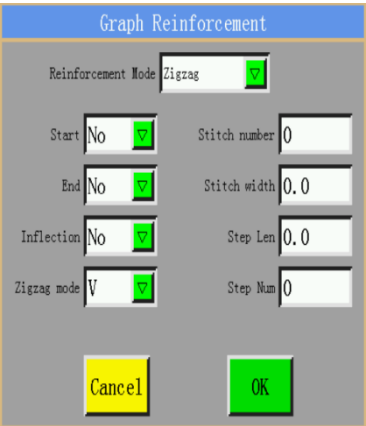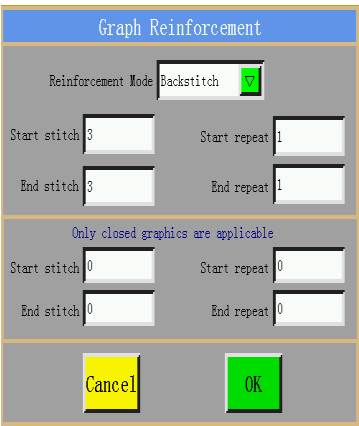
Code : Key to insert function code.See 4.12 for details.

Array : According to the set number of rows and columns and spacing, the alignment graph is automatically copied.

Represents the direction and arrangement of array graphics.

Mode 1 the graph matrix is generated according to the set number of rows, row spacing, column number and column spacing. The first point (X1, Y1) represents the offset of the initial position of the array.

模式二 according to the number of rows, columns and array area, the row spacing and column spacing are automatically calculated and the graph matrix is arrayed. The array region is the starting position of the first (X1, Y1) array and the height and width of the second (X2, Y2) array. The two points are diagonal vertices of the positive rectangle, and then the array region of the positive rectangle is calculated.

Mode3 according to the set number of rows, columns and array area, automatically calculate row spacing and column spacing and array graphics matrix. The array region is the starting position of the first (X1, Y1) array, the width and tilt angle of the second (X2, Y2) array, and the height of the third (X3, Y3) rectangular region. The rectangular (rectangular or non-rectangular) array region is calculated from the three points.

Note: Click **Mode1** to switch different modes.

Graph Array

Rows	2
R-space	2.000
Columns	1
C-space	4.000

X1: 0.000
Y1: 0.000

X 501.000
Y 898.000

Mode1   Coord1

Cancel   OK
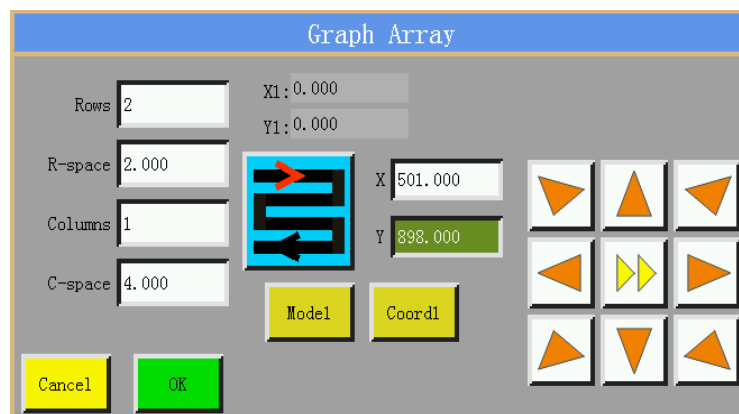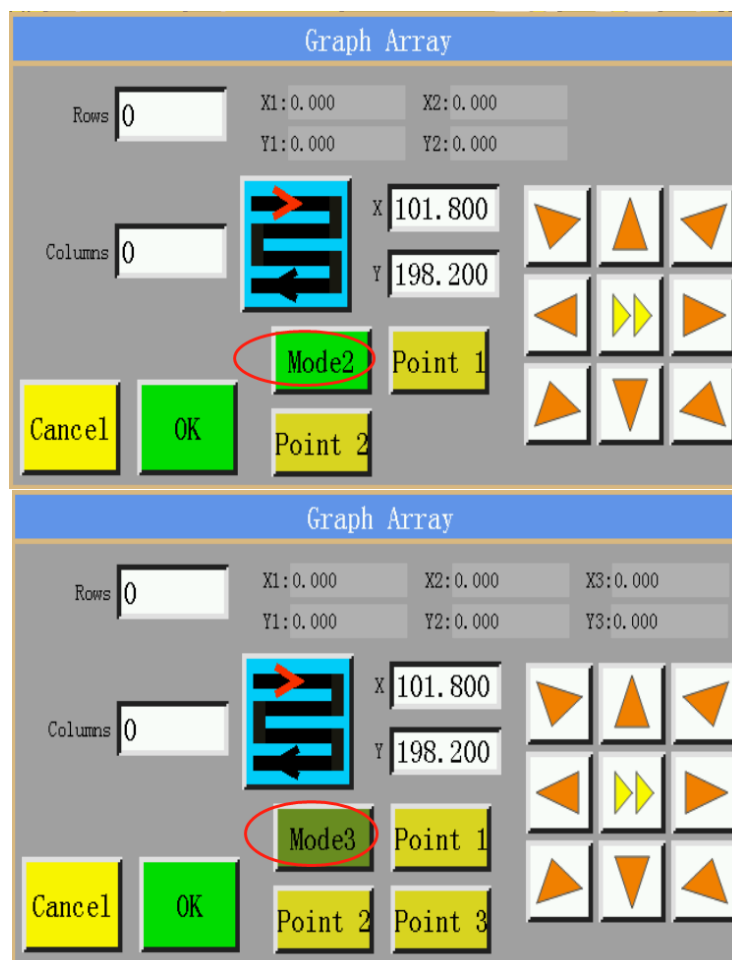
: Click this key after selecting the graph, when all needle points are displayed on the graph.The interface is as follows:
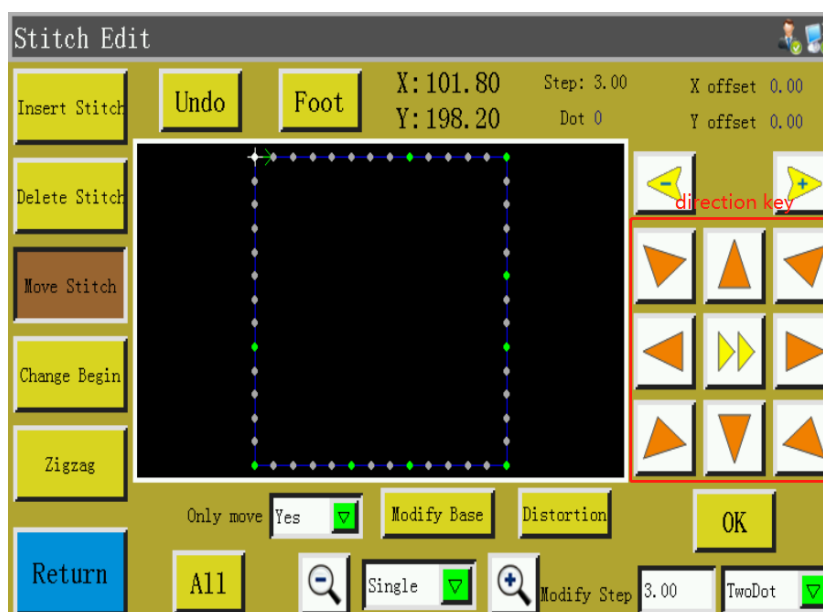
A certain needle point can be added, deleted, translated or changed (When a point turns green, it means the function code has been assigned to that point).Add needle point and translation needle

point.Select this function, then select a point through , the selected needle point becomes

red.Move the cursor to the position where needle point needs to be added or translation needle point

through the direction key, and then click the "OK" key to complete the corresponding operation.

Note: **Move Stitch** **When the button has a brown background, it indicates that the function is on (the direction keys return to the normal state). You can insert needle points or move needle points. Click again to return to the yellow background to turn off the function.(The direction keys are in the normal state when click Insert Node)**

Delete Stitch: Turn a point into a red one, and click on "Delete Stitch" to delete that point.

Change Begin: Change start point.Turn a point into a red one, and click "Change Begin" to set that point to the start point. (Closed graphics only)

Modify Benchmark page as follows:
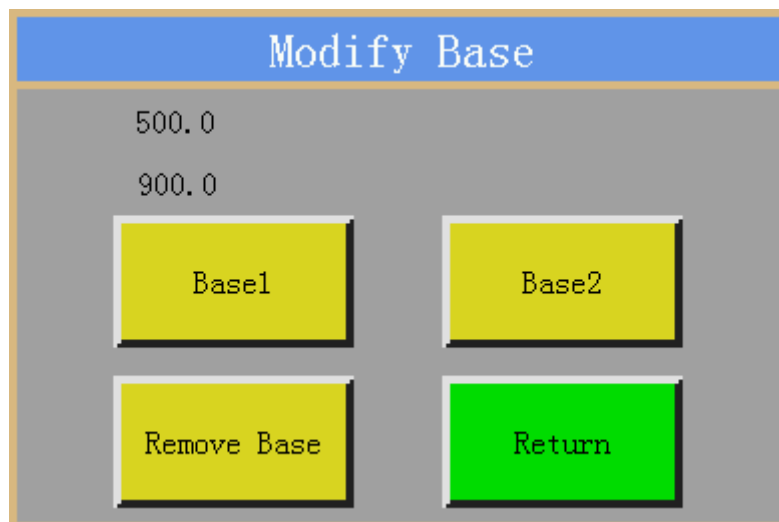
Modify Base: Set the current selected pin point as the reference point of the graph, the "Base 1" as the reference point 1, the "Base 2" as the reference point 2. "Remove Base" Clears all datum points that have been set.

Zigzag Sewing: Select "Multi" in , select more than two neighboring points that should be subjected to zigzag stitching. Select all options to indicate that the entire line segment is modified to a zigzag sewing. (Tip: When you can't see the needle point clearly, you can enlarge the image to the appropriate size by enlarging key.)
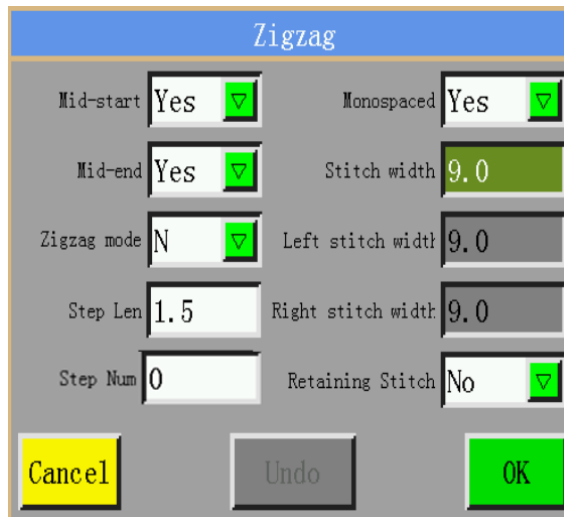
Set up the parameters of zigzag sewing, Mode V ▽ zigzag patterns are in V shape or N shape.

Click OK , and the result is as follows:
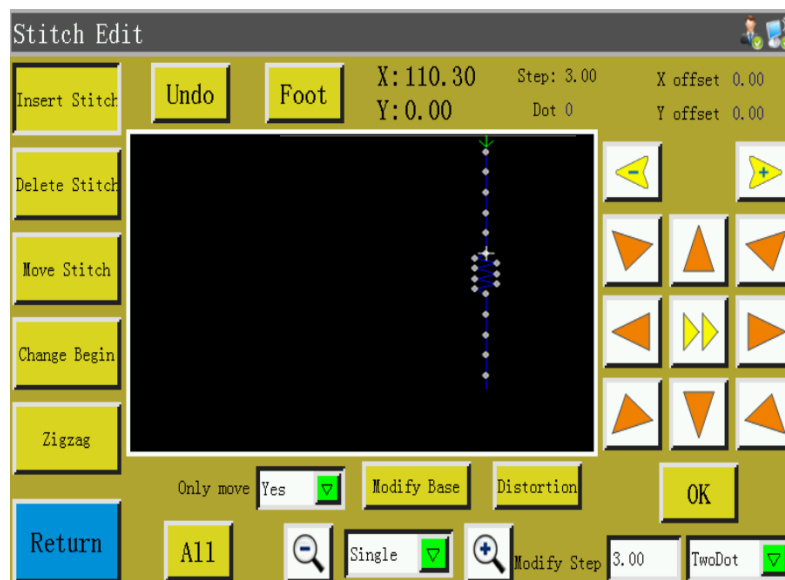
Node Edit : The entire curve is presented in the form of many nodes so that the curve can be changed by adding, deleting and translating the nodes. Moreover, even the start point and the direction of the entire curve can be changed (Each button operation method is the same as the pin point editing). The interface is as follows:

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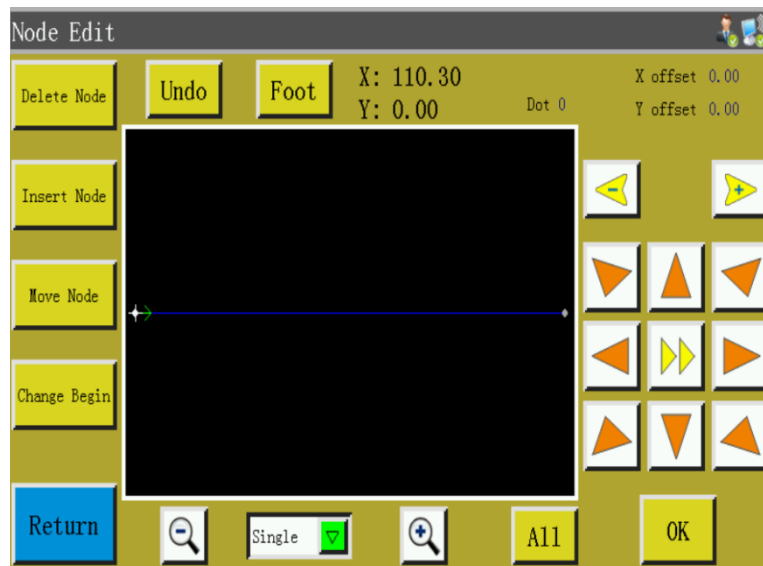
Copy ：Copy the same curve with certain X and Y offset from the original curve.

Graph Switch：Graph transformation.Enter the graph transformation interface as follows:

This graph can be changed or edited by setting up parameters such as pan, stretch, scale, rotation, mirroring, increase/decrease, and shear. In addition, you can also adjust the processing order of the changed line segments. **Single ▽** :Select the method and select the curve you want to edit through **◁** **▷** . **Undo** : Return to the state before the last modification. **Process Order** :Enter the processing sequence interface to view the processing sequence of graph.

Move ：Change the sewing position of the currently selected line segment. (Note: Click the **All** to switch to the actual format size mode to see the change in position.)

Before translation:
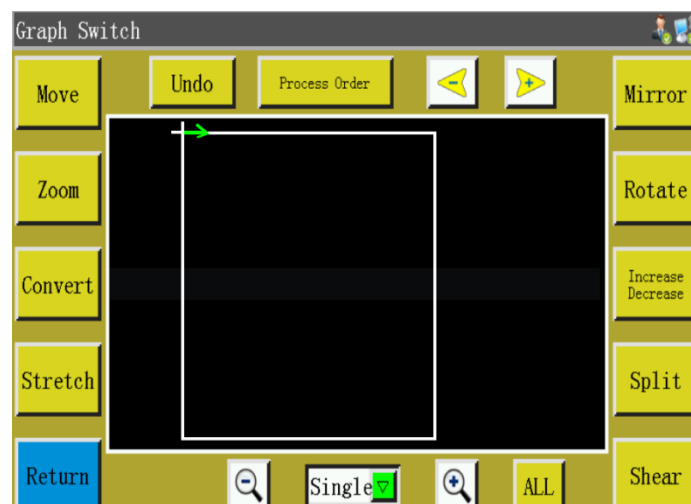
After translation:
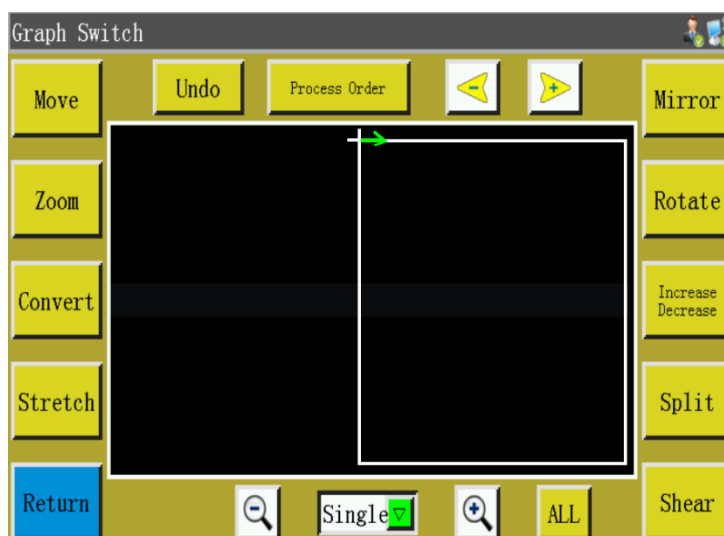
Stretch：Select the graph to be handled.Set the horizontal-to-vertical ratio of the graph, and click "OK", the graph will be stretched based on the set parameters.

Zoom：The selected graph is scaled by the set graph ratio.

Convert：The conversion type is *sewing* or *only move*. That is to say, the figure can be converted into the actual sewing figure shape, or it can be converted into the figure shape that moves in the idle state.

Mirror：Make horizontal and vertical mirroring changes to the selected graph. As follows:

Before the change:
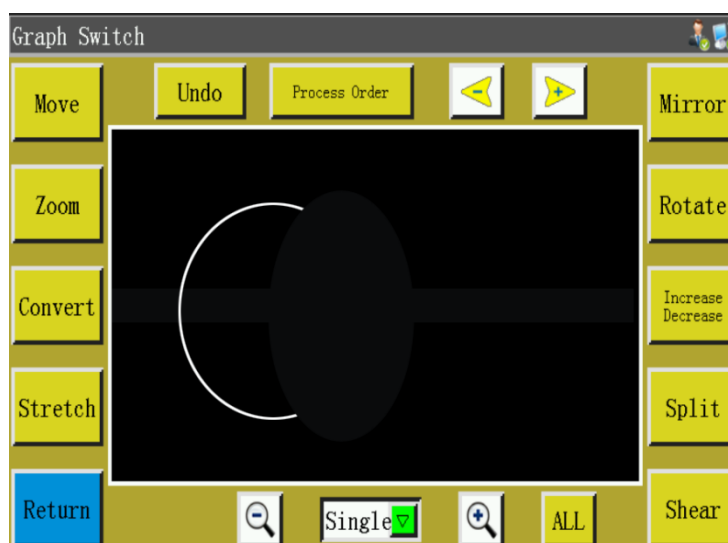
After horizontal mirroring change:
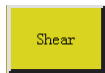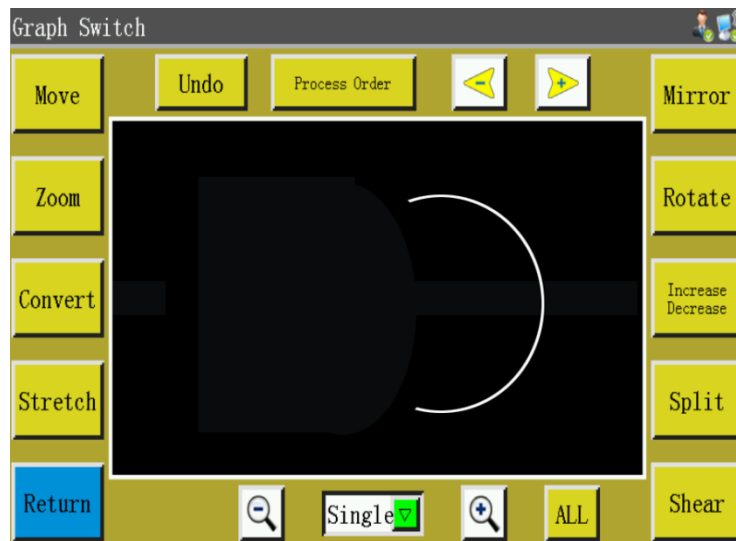
Shear：Cut the selected graph at a set angle as shown below:

Before cutting:
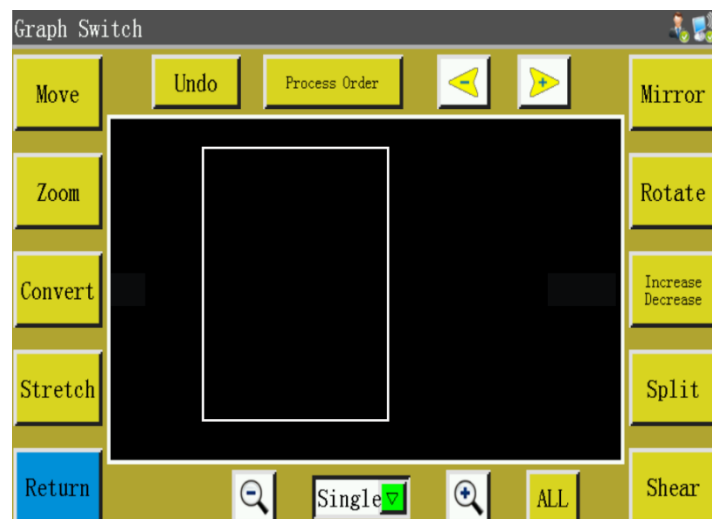
The graph vertically sheared by 45 degrees:
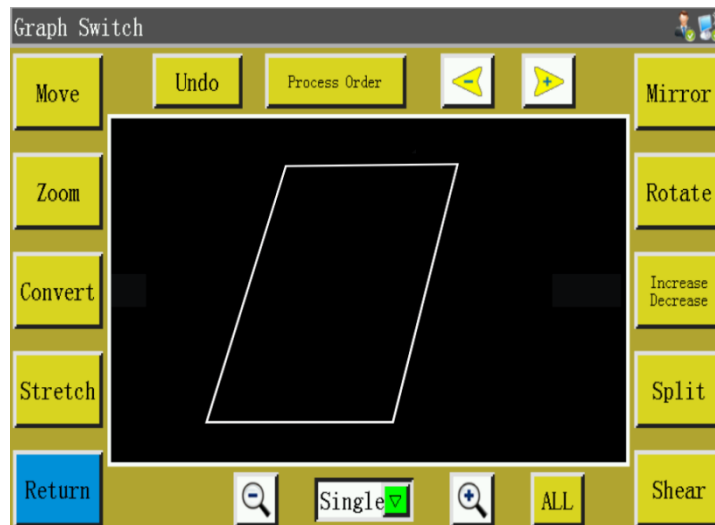
Increase Decrease: Choose to increase or decrease the graph by a number of millimeters at the start or end of the selected graph. Refer to Graph Edit in 2.2.2.

Split: Split the line segment into completely separate line segments. As shown in the figure below, you need to select "node" in advance to split, or you can add a node and then split it.
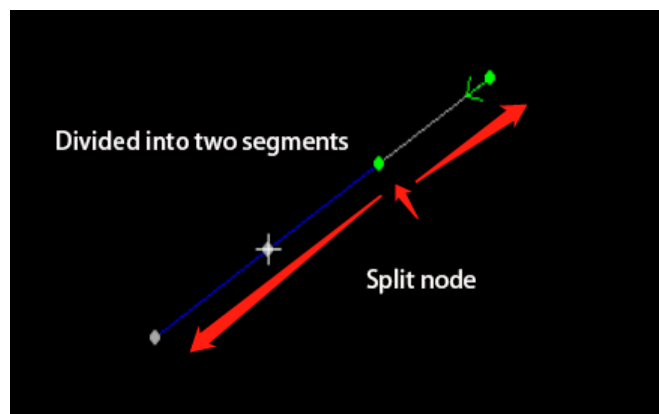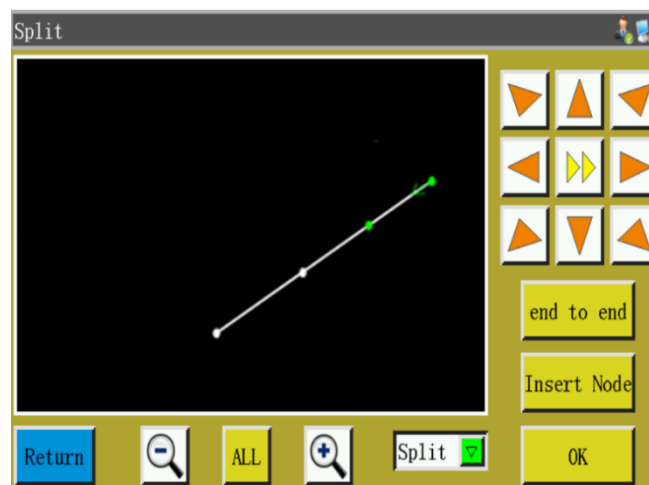
Chapter V Parameter File

The parameter file page is mainly for the management of parameter files, which can import, export, delete and write parameters. At the same time, you can save the spare parameters and write the corresponding parameters directly when needed.

Press [Param File] in the main menu interface to enter the memory parameter file interface as shown in the figure:

The interface displays parameters files stored in the system. Click on the file name to make it red, and then click [Write], 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 Parameter " and "Machine Parameter" will be modified by this parameter file.

The key functions are described as follows:

[Write]: The selected parameters are written to the system and the system is run with the new parameter configuration.

[Delete]: Delete one or more selected parameter files.

[Export]: Export all the parameters used by the current system to USB flash disk. Click "Export" to enter the new file name, and the specified file name will be generated in USB flash disk with

extension .xhp.

[Return] : Return to the menu page.

[Home] : Return to the main page.

[Export] :Copy one or more files from the memory into the root directory of USB flash disk**(Note: The parameter file exported here refers to the parameter file currently being used by the machine, that is, the exported file is the parameter file saved by the motherboard)**. If a file exists with the same name in the USB flash disk, a message will appear reading "The file already exists,overwrite ? " Make the choice at the end.

[U-Disk] : Click to enter the "U-Disk Paramter File" interface. The system will list the files and folders with extension .xhp, and support multi-level folder operations.

In the U disk parameter file interface, click the [Import] to import the currently selected parameter file into the display and save it for later use.

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. Therefore, after purchasing the machine, it is recommended to export the factory parameters for each machine and save them as different file names for future use.

The detailed steps for exporting parameters:
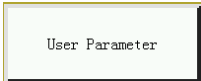
a) Insert USB flash disk;

b) Enter the "Parameter File" interface, and click "Export";

c) 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 Parameter

User parameters are principally used by users. Parameters are adjusted based on processing requirements so as to realize convenient processing and improve processing efficiency.
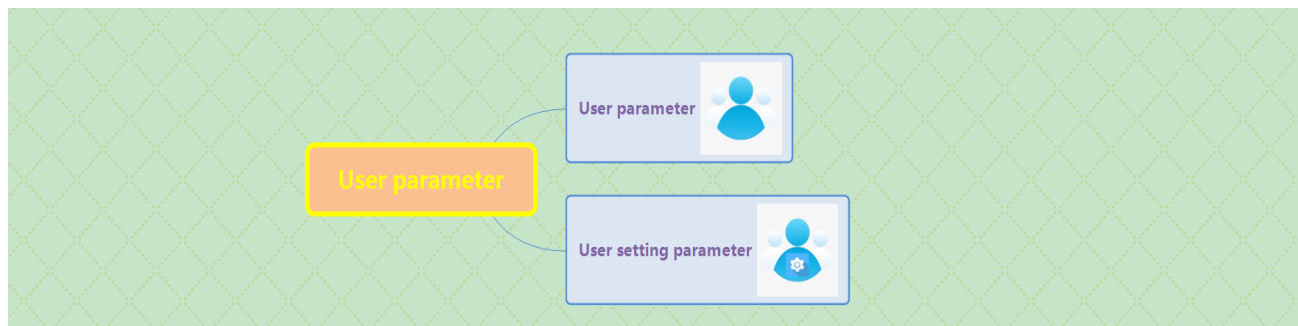
6.1 User Parameter Interface

Press [User Parameter] in main menu interface to enter the user parameters interface as shown in the figure:
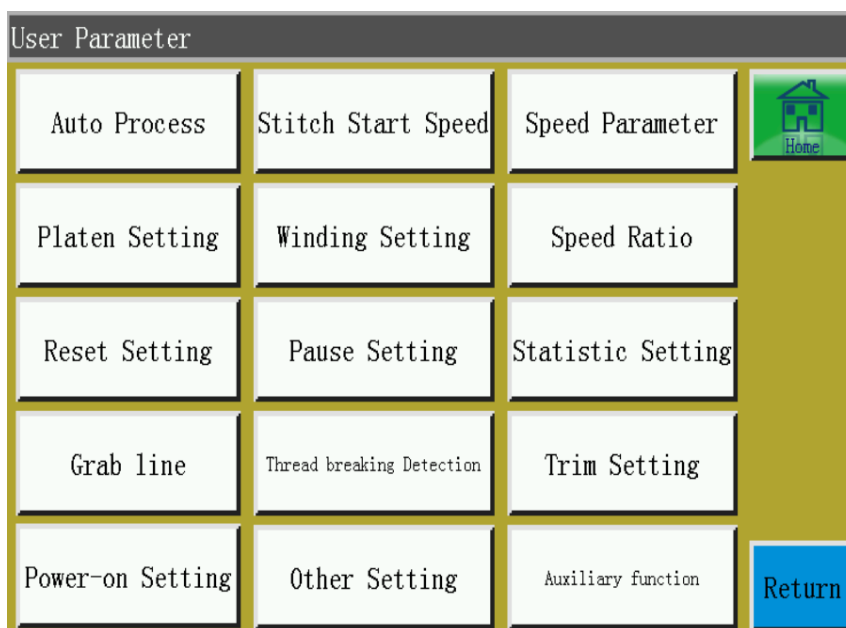
Parameter classification description:

Auto Process: Set the parameters of sheet pressing, thread cutting and foot pressing, etc. during automatic processing.

Stitch Start Speed: Set the start speed of the first stitches, and whether stitching should be started slowly or not.

Speed Parameter: Set the running speed of spindle and XY axes.

Platen Setting: Set relevant parameters for sheet pressing.

Winding Setting: Set winding parameters.

Speed Ratio: Set the spindle processing speed override.

Reset Setting: Set the speed at reset, whether the pressure plate is lowered, and other related parameters.

Pause Setting: Set the parameters used when pausing.

Statistics Setting: Set related parameters of processing statistics.

Grab line: Set the thread trimming and stitching start thread grab position parameters.

Thread breaking Detection: Set relevant parameters for break detection.

Trim Setting: Set relevant parameters for trimming.

Power-on Setting: Set the parameters that need to be initialized when the machine is powered on.

Other Setting: Set the relevant parameters for cyclic processing and interface display.

Auxiliary function: Set the relevant parameters of sewing start air blowing, end *air blowing* and *air blowing time*.

Take automatic processing as an example.The interface is as follows:

ROM Recover: The "Restore" key can be used to restore the pre-modification parameters before the set parameters are saved.

6.2 Introduction to User Setting Parameters
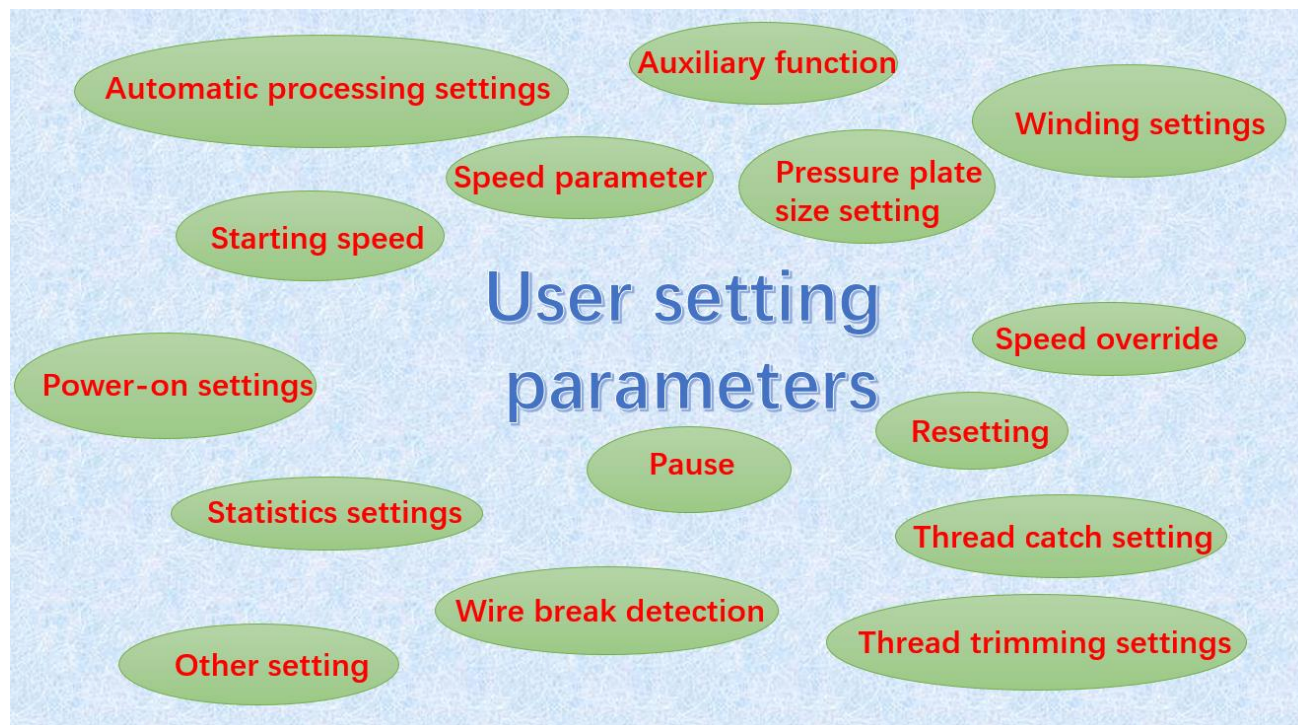
Parameter classification	Parameter name	Range	Default	Parameter meaning and remarks
Auto Process	Lift the platen up after auto process	Yes/No	Yes	
Auto Process	No. of stitches to lower for Start and End presser foot	0-8	0	
	Trimming after work end	Yes/No	Yes	
	Return to position after auto process	Origin/Secondary origin	Secondary origin	The "origin" means absolute coordinate origin; "Secondary origin" refers to the secondary origin (offset point) added to the file
	Whether to loosen during movement through the air	Yes/No	No	

	Set the base pressure foot to keep the same	Yes/No	No	
	Automatically press the frame when starting work	Yes/No	Yes	
	Press frame before manual move axis	Yes/No	No	
	Start needle repetition number	Close/1/2/3	Close	"1"/"2" means that when the stitching is started, the first needle position is sewn for 1/2 additional times before the sewing of next needle position. "Close" means the sewing is not repeated.
	No. of stitches for loose tension at start	0~255	0	
	Dynamic presser foot height at start of sewing	0.000-4.000	0.000	
	Dynamic presser foot height at end of sewing	0.000-4.000	0.000	
	First and last presser foot amplitude setting	Normal/Halve /Enlarge	Normal	
Auto Process	Trim motor reset after work	Yes/No	Yes	
	Dynamic presser foot reset after work	Yes/No	Yes	
	Shift the axis before the reference	Yes/No	Yes	
	Error if reference pressure frame doesn't press	Yes/No	Yes	
	End the work and output IO1	Nil/ OUT1— OUT12;Low/	OUT1;Low	

		High		
	End the work and output IO2	Nil/ OUT1—OUT12;Low/ High	OUT1;Low	
Stitch Start Speed	Speed of the first stitch (rpm)	100-3000	300	(Adjusted as needed) Acceleration from standstill to maximum sewing speed requires up to 5 stages. Excessively high acceleration may cause the initial stitches to be smaller.
	Speed of the second stitch (rpm)	100-3000	600	
	Speed of the third stitch (rpm)	100-3000	1000	
	Speed of the forth stitch (rpm)	100-3000	1600	
	Speed of the fifth stitch (rpm)	100-3000	2000	
	Rewinding needle changes speed	100-3000	1500	
	Start at a slow speed	Yes/No	No	
	The first two stitches start at a slow speed	Yes/No	No	Slow: Increased at fixed rate; above-noted acceleration settings are invalid
	The last two stitches end up with a slow speed	Yes/No	No	
Speed Parameter	The highest speed of the spindle (rpm)	100-4500	2800	Limit the max. working speed in the main interface of processing.
	The speed of frame moving through the air(mm/min)	100~100000	15000	The moving speed of press frame in idling segment during normal sewing operation
Speed Param	Pressing frame inching speed(mm/min)	100-20000	5000	Preview stitching press frame's moving speed when capturing or

				modifying files
	Simulation sewing speed(mm/min)	100-60000	8000	Moving speed of test sewing track
	Button of speed 1 (mm/min)	100-20000	500	The speed that corresponds to ▶ icon among the 8 direction keys during manual frame shift or file capture.
	Button of speed 2 (mm/min)	100-20000	1200	The speed that corresponds to ▶▶icon among the 8 direction keys.
	Button of speed 3 (mm/min)	100-20000	2600	The speed that corresponds to ▶▶▶icon among the 8 direction keys.
	Head 2 speed (mm/s)	0.000-2000.000	0.000	XY moving speed of head 2 (e.g., for laser cutting)
	Head 3 speed(mm/s)	0.000-2000.000	0.000	XY moving speed of head 3 (e.g., for laser cutting)
	Continuous inching speed	Reduce/Lowest/Normal	Reduce	
	Rverse speed(rmp)	0--3000	0	Working speed of reverse sewing
	limit speed starting from which inverted stitch	0--30	0	
	No pull line blowing output IO	OUT1—OUT8/无	无	
	limit inverted stitch speed	100--1800	0	
	Prohibit sewing when	Yes/No	Yes	

Platen Setting	uplifted			
	The frame must be pressed when moving	Yes/No	Yes	When the frame is lifted, the axis cannot be moved manually.
	Double frame lifting delay(ms)	0--10000	0	Interval time between main and auxiliary frame lifting
	Double frame pressing delay(ms)	0--10000	0	Interval time between main and auxiliary pressure frames when they are pressed down
	Pedal operating sequence	Normal/Special	Normal	
	Pedal operating mode	1STA/1STB/1STC/2ST/3ST	2ST	There are different operation modes for pedal switches of different mechanical structures (with or without self-locking, etc.).
	Sewing clip line start angle	1-990	1	
	Sewing clip line end angle	1-990	1	
	Trim clip line start angle	1-990	1	
	Trim clip line end angle	1-990	1	
Winding Setting	Winder status	Allow/Prohibit	Allow	Set the 🧵 允许 default state of processing assist interface
	Winder speed	100-4500	1200	Set the default rotation speed for winding in the processing assist interface
	Timing winder (s)	1-63000	70	Set the time from start to automatic stop of winding in processing assist interface
Speed	High speed radio (%)	1-100	100	Actual speed of spindle in main

Radio				interface = Set speed * High speed override
	Mid-high speed radio (%)	1-100	90	
	Mid-low speed radio (%)	1-100	70	
	Low speed radio (%)	1-100	60	
Reset Setting	Put down the platen when reset	Yes/No	Yes	
	Lift up the platen after manual reset	Yes/No	Yes	
	Return origin mode	XY /X priority/Y priority	XY	"XY " means to return to the origin simultaneously; "X priority" means X axis returns to the origin first, and then Y axis returns thereto.
	The speed of back to the origin(mm/min)	100-20000	100	X and Y axes speed when returning to the origin
	XY axis 0 bit buffer at reset	X Axis/XY Axis/Y Axis/No	X Axis	
	Extended axis reset speed(mm/s)	1.000-2000.000	1.000	
	Press reset alarm prompt	Yes/No	Yes	
	Output IO before reset	OUT1--OUT10/Nil	Nil	Output IO
		Low/High	Low	Level
	Output IO after reset	OUT1--OUT10/Nil	Nil	Output IO
		Low/High	Low	Level

Pause Setting	Automatic thread trimming during pause	Yes/No	Yes	"Yes": Automatic thread trimming. "No": No automatic thread trimming.
	Stitch position during pause	Down position/Up position	Up position	
	Lift the plate up during pause	Yes/No	Yes	
	Pause switch type	Self lock/Ordinary	Self lock	"Self lock" means the switch cannot automatically bounce when depressed;"Ordinary" means the switch can automatically bounce when depressed.
	The presser foot does not lift when paused	Yes/No	Yes	
Statistic Setting	The bobbin line is cleared at power-on	Yes/No	No	"Yes" means the "used length of bottom thread" is cleared after power-up.
	Stop working when run out of bobbin line	Yes/No	Yes	"Yes" means the operation is stopped when the used length of bottom thread reaches the total length.
	Piecework setting is valid	Yes/No	Yes	"Yes" means automatic statistics of the used length of bottom thread during operation.
	Piecework reset when power on	Yes/No	Yes	"Yes" means "current value of count by piece" is zero-cleared after power-up.
	Continue to work when the	Yes/No	Yes	"No" means the operation stops

	number of pieces reaches the requirement			when "current value of count by piece" reaches the "total count by piece".
	Effective of the piece alarm settings	Yes/No	Yes	
	Statistical working time	Yes/No	Yes	"Yes" means the processing time statistics feature is enabled.
	Bobbin line counting mode	IN1—IN7/ Default	Default	Non-default bobbin line detection device can select an input IO as the detection trigger signal.
	Bobbin line margin adjustment(mm)	0--600000	0	For special bobbin line detection device, the error residual length of the bobbin line residual length is set.
Grab line	Trim catching position	0.0-200.0	0.0	
	Sewing start catching position	0.0-200.0	0.0	
	Laser output IO	OUT1-OUT12/Nil	Nil	Used to specify the output IO state for a laser line segment.
	Coord position 1--4	0.000—6000.000	0.000	Used for "self-programming" functional mode, coordinate position of relevant axis-shifting instructions, dynamic modification and invocation.
	Attach parameter 1--4	0--100000	0	For the "self-programming" functional mode, some instructions need to be set and invoked dynamically.
Break	Automatic break detection	Yes/No	Yes	"Yes" means to stop the

Line Detection				operation and give a prompt when thread break is detected.
	Automatically trim thread after broken line	Yes/No	Yes	"Yes" means the thread is automatically cut upon detection of break.
	Ignore the number of stitches when sewing	1-255	3	No break detection is performed for the initial set stitch number.
	Detect the number of effective stitches when thread is broken	1-255	2	Thread break is confirmed by continuous detection of break at the set stitch number.
	Process delay at broken line detection (s)	0.01-255.00	0.20	Set the delay time and take actions against break after confirming thread break.
	Break thread and output IO	OUT1-OUT12/Nil	Nil	After the disconnection occurs, the corresponding output IO maintains a high level output for 1 second.
	Take QEP2 as bobbin thread detection	Yes/No	No	Some machines employ B encoder for bottom thread detection.
Trim Setting	Trimming spindle speed (rpm)	10-500	10	
	Trim starts to delay(s)	0.01-6.55	0.1	
	Duration of wiping thread(s)	0.01-6.55	0.1	
	lift up the presser foot during the delay of thread wiping	0.01-6.55	0.1	
	Delay of loosing thread(s)	0.01-6.55	0.01	

	Whether to trim when move empty after sewing	Yes/No	Yes	
	Whether to use wire feeder	Yes/No	Yes	"No" means the wiper is turned off.
Trim Setting	Motor trim thread mode	Back and forth/single	Back and forth	
	Motor trimming stroke	1.0-100.0	1.0	
	Flat knife grip delay (ms)	1-350	1	
	Return knife speed ratio	10-100	100	
	Thread loosing start mode	Angle/Delay	Angle	
	Thread loosing angle	0-999	850	
	Whether to segment speed when knife works	Yes/No	No	
	The first knife length	0.000-100.000	0.000	
	The knife first speed(mm/s)	0.000-100.000	0.000	
	The knife second speed(mm/s)	0.000-100.000	0.000	
Power-on Settings	The needle returns to the upper position at power-on	Yes/No	Yes	
	The frame automatically returns to the origin at power-on	Yes/No	No	
	Motor lock when powered on	Yes/No	Yes	
	Presser foot lifts when powered on	Yes/No	Yes	
Other	Air pressure detection	Yes/No	No	"Yes" means stoping and

Setting				alarming if the air pressure is low when working.
	Whether to work cyclically	Yes/No	No	"Yes" means the same file is processed in a cyclic manner after startup.
	Circular work time (min)	1-1440	1440	Total cycle time; cycle processing is stopped when time is up.
	Circular work gap(s)	0-20	2	The interval between the completion of processing and the restart of processing during processing cycle.
	Work end position	Origin/Right/ Sewing P0S/Default	Origin	Origin: The point where the XY axis coordinates are both 0 Right: Rightmost point of the processing range. Sewing P0S: The first sewing point of processing file. Default: Stop after processing.
	Template recognition mode	Barcode/RFID	RFID	File Number: Barcode recognition mode. File Name: Electronic tag recognition mode.
	Interface style	Classic/ Simplicity	Classic	Classic: Three-dimensional keys Simplicity: Flat keys
	Start up pre-work sport mode	XY /X priority/Y priority	XY	
	Moving mode through the air during working	XY /X priority/Y	XY	
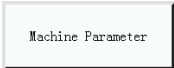
		priority		
	Spindle stops needling and retracts	0-160	0	
	Connect extension screen	1/2/No	No	"Yes" means the display screen can be connected to extension screen to display working files and other information.
	Voice prompt	Middle/High/ Low/Close	Close	
	Enable power-down Memory	Yes/No	Yes	After restarting the electricity, continue sewing progress before power failure, continue sewing.
	The file is valid when the RFID leaves	Yes/No	No	
Auxiliary function	The sewing start to blow	Nil/OUT1- OUT12	Nil	
	The sewing end to blow	Nil/OUT1- OUT12	Nil	
	Continuous blowing time	0-5000	0	

Chapter VII Machine Parameter

Mechanical parameters can meet the more complex requirements of users. Users can set mechanical motion attributes according to their own needs, but the premise is that it must be operated by mechanical assemblers.
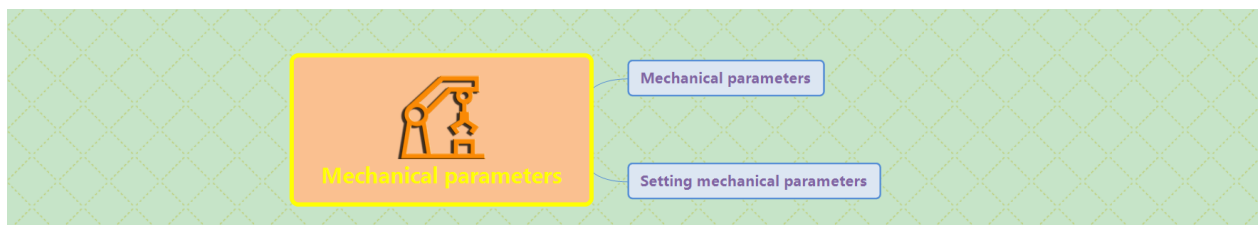
7.1 Machine Parameter Interface

Press [Machine Parameter] key in main menu interface to enter the machine parameter interface as shown in the figure:
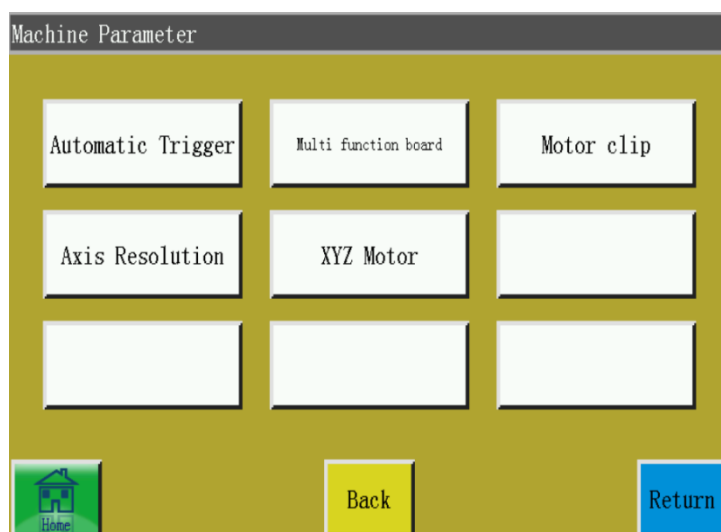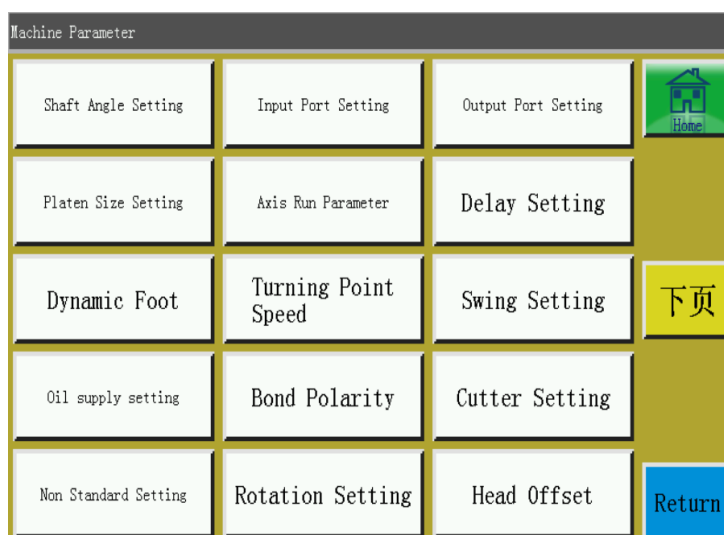
Description of parameter classification:

Shaft Angle Setting: The setting of angle values of feeding, trimming and machine needle.

Input Port Setting: Setting for input IO polarity.

Output Port Setting: Output IO duty cycle and duration settings.

Platen Size Setting: Size of working breadth and setting of datum-free.

Axis Run Parameter: Setting for direction and polarity of spindle, XY axis, presser foot, etc.

Delay Setting: Settings of delay or time for foot pressing, plate pressing and shutdown.

Dynamic Foot: Set the working angle and height of the dynamic presser foot.

Turning Point Speed: Set the working speed at inflection point.

Swing Setting: The setting of the stroke of the swing needle rod and the extended shaft.

Oil supply setting: Set parameters such as the number of spindle turns, the number of oil supply turns, and the duration of oil supply.

Bond Polarity: XYZ axis key polarity, graphics mirror and spindle oil supply settings.

Cutter Setting: Set the relevant parameters such as "Cutter lilfting"、 "Cutter rotating".

Non Standard Setting: Non-standard special purpose related settings.

Rotation Setting: Settings of machine head rotation type.

Head Offset: The head offset interface is used to set the position of the head 2 and head 3 offset according to the head 1. The first head is the sewing head, the head 2 and head 3 can be defined as the required functions,sunch as laser cutting head, brush head, etc.

Automatic Trigger: Set IO, level, delay and other related parameters.

Motor clip: Set the clamping zero position and maximum stroke.

Axis Resolution: Set the resolution of the XYZ axis.

Note: The multi function board and the XYZ motor belong to the motor operation, you need to contact the after-sales personnel to assist in the modification to avoid the machine failure due to improper operation!
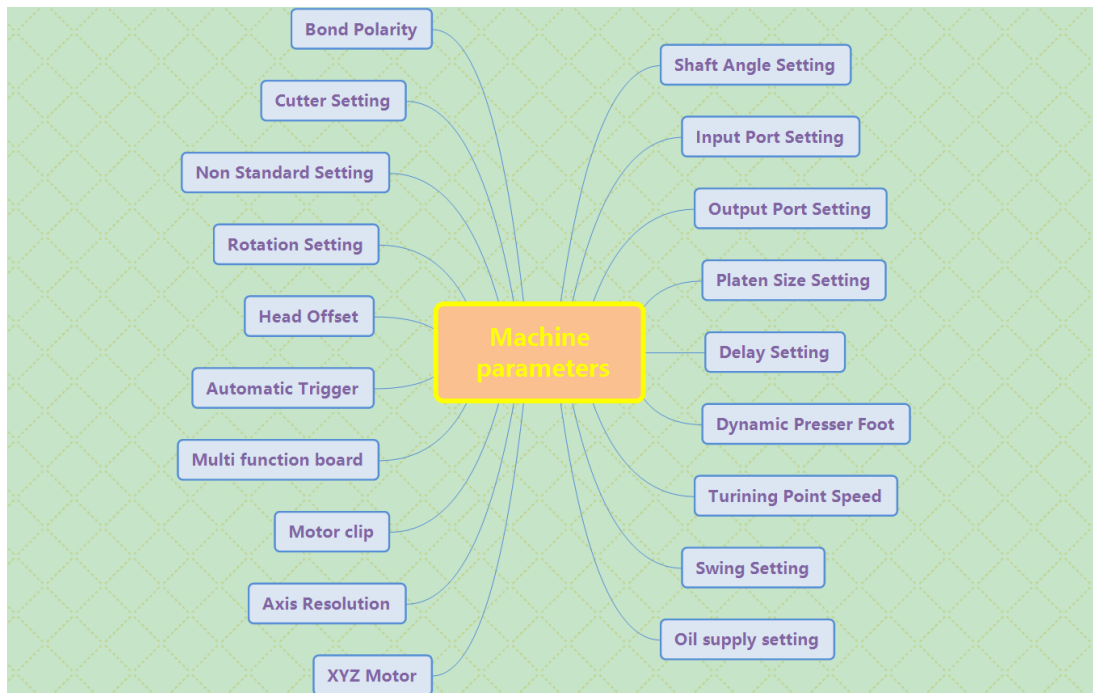
Taking the *shaft angle setting* and *platen size setting* as examples, the interfaces are as follows:

: Spindle inversion key. Spindle begins to invert slowly if clicked.

: Spindle forward key.Spindle begins to rotate slowly if clicked.
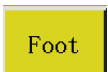
: Manual presser lift/fall button, the presser foot switches between lifting and pressing each time when the button is pressed.
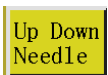
: Needle bar up and down keys, each time the needle bar is pressed, the needle bar is switched between the upper position (the highest point of the needle) and the lower position (the lowest

point of the needle).

: Perform the trimming operation manually.

Platen Size Setting

X+ limit 1000   P115   X 500.0   Y 900.0

X- limit 0   P116

Y+ limit 900   P117

Y- limit 0   P118

No datum offset X 0.000

No datum offset Y 0.000

Reference   Offset   Reset   Foot   Return
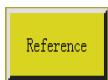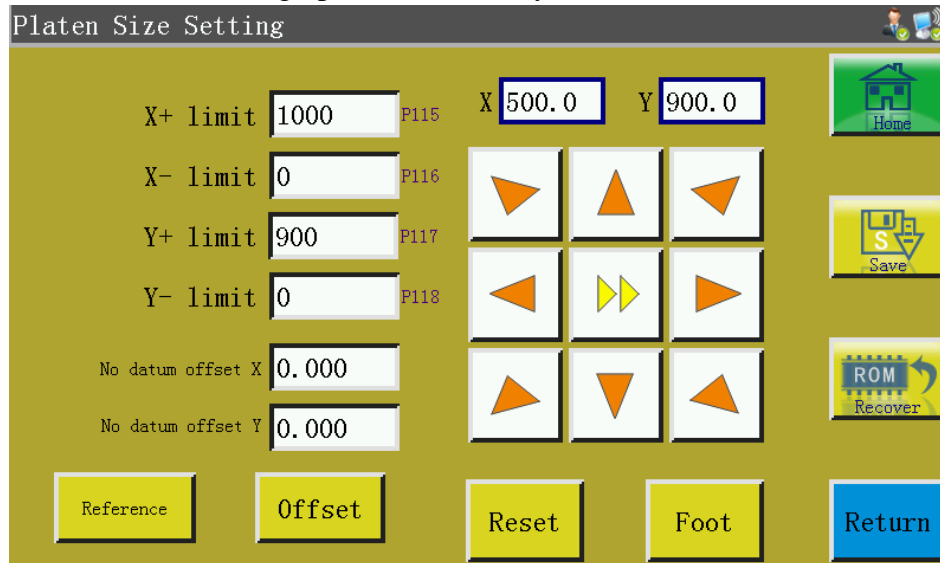
: When adjusting the benchmark-free offset position, you need to set the offset reference point first.

: According to the reference position, the reference-free offset position is automatically calculated and set.

：Restore key. The parameters set can be restored by the restore key before they are saved.

7.2 Introduction to Setting up Mechanical Parameters
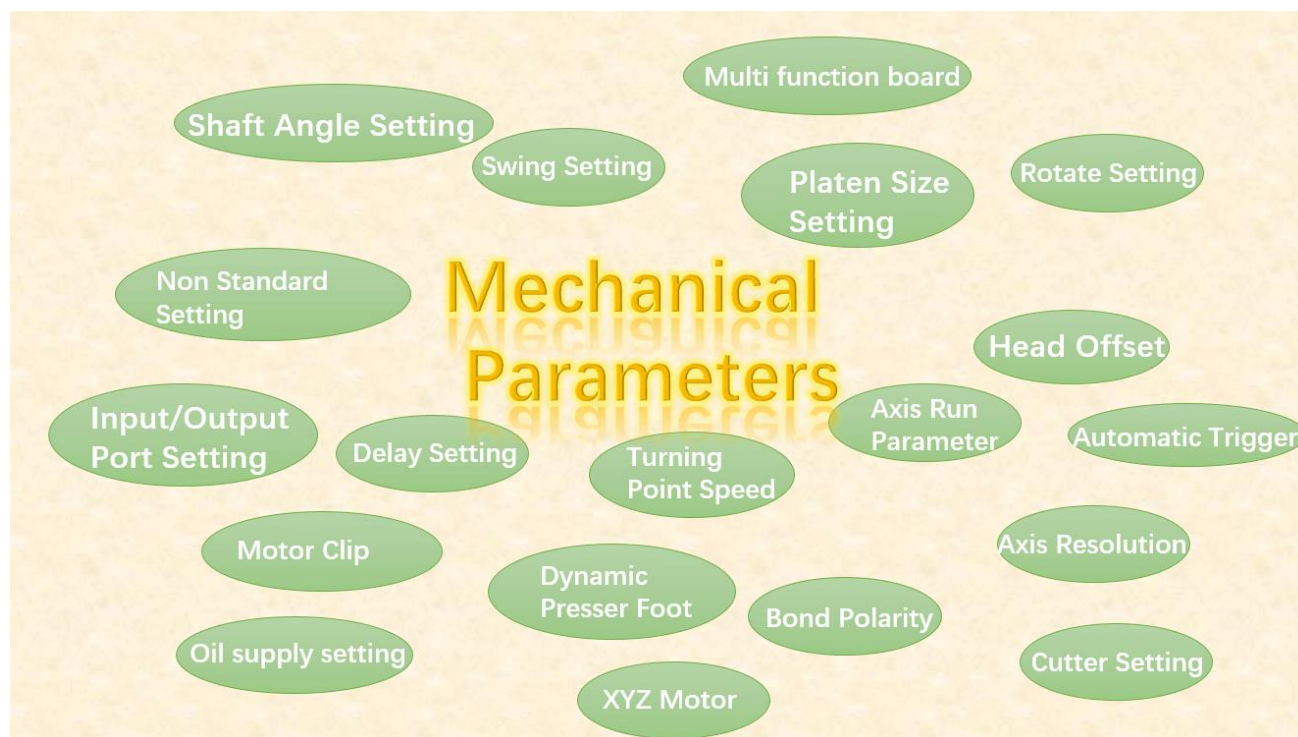
Parameter classification	Parameter name	Range	Default	Parameter meaning and remarks
Shaft Angle Setting	Feed start angle	0-999	0	
	Feed end angle	0-999	0	
	Trim start angle	0-999	0	
	Trim end angle	0-999	0	
	Wire feeded angle of upper thread	0-999	0	
	Needle up position	0-999	0	
	Needle down position	0-999	0	
	Spindle pause time	0-20	10	Spindle backoff delay 0-20 milliseconds, inversion delay.

Input Port Setting	Input 01--07	Open/Close	Open	Input IO polarity settings are currently only used for input 03 (pause), other standby.
Output Port Setting	Output duty ratio- Frame	25%；50%；75%；100%	25%	
	Output duty ratio – Presser foot			
	Output duty ratio - Trim			
	Output duty ratio – Thread wiping			
	Output duty ratio – Thread loosing			
	Output duty ratio - LED			
	Ouput mode	Ordinary/ Program	Ordinary	
	Output start duration (ms)	0-500	0	
	Thread-holding mode	Thread-loose/Thread-holding	Thread-loose	
Platen Size Setting	X+ limit	10-15000	10	Size in Negative Direction of Working Range X.
	X- limit	0-15000	0	Size in Negative Direction of Working Range X.
	Y+ limit	10-10000	10	Size in Negative Direction of Working Range Y.
	Y- limit	0-10000	0	Size in Negative Direction of Working Range Y.

	No datum X offset	-5000.000 —	0.000	
	No datum Y offset	5000.000		
Axis Run Parameter	Spindle motor direction	Positive/ Negative	Positive	
	Spindle encoder			
	X-Axis motor direction			
	Y-Axis motor direction			
	X polarity			
	Y polarity			
	Spdrate	ALL； 95%； 90%； 85%； 80%； 75%； 70%	ALL	
	Main motor type	1/2/3	1	
	Presser foot stroke	0-10000	0	
	Presser foot resolution	0-60000	0	
	Presser foot limit	Positive/	Positiv	

	polarity	Negative	e	
	Presser foot polarity	Positive/ Negative	Positive	
	M	200-500	200	
	N			
	X-axis rigidity	-6---6	0	
	Y-axis rigidity			
Delay Setting	Automatic processing delay	0-5000	0	
	Presser foot delays pressing down			
	Presser foot delays uplifting			
	Platen delays operating			
	Electromagnet presser foot dormancy time(s)	0--300	0	When the solenoid foot is idle, it will automatically enter the dormant state after exceeding the set time (corresponding to the low level of IO output) and turn off this function when the value is 0.
	Downtime of timeout(ms)	0-- 1800000	0	After the last work, if the work does not continue beyond the set time, the alarm will be prompted. Turn off this function when the value is 0.
	Work enable input IO	0--7	0	If the input IO is set at high level, it can work normally. Otherwise, it can not start or stop working. Turn this off when the value is 0.
	Input detection starts up			Only when the input IO is set at high level can the work be started. Turn this off when the value is 0.

Dynamic Presser Foot	Rise start angle	5-995	10	
	Rise end angle			
	Drop start angle			
	Drop end angle			
	Dynamic foot height(mm)	0.200-100.000	0.026	
	Y-Axis lifting start angle compensation	–300～300	0	
	Y-Axis lifting end angle compensation			
	Y-Axis droping start angle compensation			
	Y-Axis droping end angle compensation			
	Droping start angle is allowed to be setted limitedly	Yes/No	No	
Turning Point Speed	Inflection slow speed	Yes/No	Yes	
	Turning Point Speed	10--5000	0	
	The 1st speed after turning point	10-5000	1200	
	The 2nd speed after turning point		1300	
	The 3rd speed after turning point		1400	

	The 4th speed after turning point		1500	
	The 5th speed after turning point		1600	
Swing Setting	Swing start angle	0-999	0	
	Return start angle	0-999	0	
	Swing distance	0.00-360.00	0.00	
	X polarity of swing needle rod	Positive/ Negative	Positive	
	Y polarity of swing needle rod			
	Axis 2 maximum stroke(mm)	0.000-10000.000	0.000	
	Axis 3 maximum stroke(mm)			
	Add a special needle at the end of sewing(mm)	0.0-1.0	0.0	At the end of sewing, sew one more stitch.
Axis Resolution	Actual sewing length	1.0--99999.9	1.0	Distance from the actual movement of the corresponding axis.
	Theory length			The distance that the corresponding axis should theoretically move.
	X Axis resolution	1.0000000-200.0000000	1.0000000	According to the actual and theoretical input length values, the resolution can be calculated automatically by pressing ⟨⟨ keys.
	Y Axis resolution			
	Z Axis resolution			

	X Axis position	0.000—10000.000	0.000	Current absolute coordinate position of X-axis.
	Y Axis position			Current absolute coordinate position of Y-axis.
Bond Polarity	bond polarity of X axis	Positive/ Negative	Positive	
	bond polarity of Y axis			
	bond polarity of Z axis			
	Graphic horizontal mirror	Yes/No	No	X-Direction Mirror Display When Displaying Graphics.
	Graphic vertical mirror			Y-Direction Mirror Display When Displaying Graphics.
	The number of turns of oil supplied by spindle	100-90000000	100	After how many turns of the spindle are rotated, the oil supply operation is performed. That is, the corresponding output IO is high level.
	Oil supply duration(s)	0.00-650.00	0.00	The duration of oil supply to the spindle is the time when the output IO maintains a high level.
Motor Clip Setting	Clip line zero 1	0.000-100.000	0.000	
	Clip line zero 2			
	Clip line 1 maximum stroke	1.000—100.000	1.000	
	Clip line 2 maximum stroke			
Non Standard Setting	Head 3 mode	Ordinary/ Punching	Ordinary	Change the use of Head 3, generally for laser cutting.
	Output IO	OUT1—OUT6/Nil	Nil	When the first three modes are the punching modes, they are effective and correspond to the output IO of the punching device.

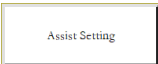|				
Input IO	IN1— IN6/Nil	Nil	When the head 3 modes are punching modes, the parameters are valid, and the IO of the input detection of the punching device corresponds to the IO of the punching device.
Delay（ms）	0.000- 100.000	0.000	When the head 3 modes are punching modes, the delay time is the interval between "output IO" and "input IO".
Start the output IO ahead of time(mm)	0.000- 8.000	0.000	The parameter "head 3 mode" is valid when the punching mode is used. Before reaching the punching position, the "output IO" is turned on as many distances as possible in advance.
Punching feeding length(mm)	0.000- 50.000	0.000	The head 3 mode is effective when the punching mode is used, and the length of the punching base material is currently used.
Punching feeding total length(mm)	0.000- 2000000.0 00	0.000	When the head 3 mode is the punching mode, it is effective, and the total length of the punching base material.
Z axis is used as cycloid	Yes/No	Yes	Special settings for sewing electric blankets.
Cycloid position	0.000- 80.000	0.000	The parameter "Z axis is used as cycloid" is valid when it is opened, and the magnitude of the cycloid's oscillation is large.
Right angle compensation length X(mm)	0.00-1.50	0.00	When the inflection point is right angle, the inflection point moves along the length of X direction.
Right angle compensation length Y(mm)			When the inflection point is right angle, the inflection point moves along the length of Y direction.
Frame to Other	Yes/No	No	The head 3 mode is effective when the parameter is punching mode, and the "pressing frame" operation of the main page is automatically changed to manual "punching" operation.

|	Rotate along the graph	Yes/No	No	Automatically insert the instruction "rotate along the graphic track" and rotate when sewing.
Rotate Setting	Rotary up and down IO	OUT1-OUT12/ Nil	Nil	Control the output IO of the rotating nose when rise or fall.
	Rotary delays upping and downing	0.0-3000.0	0.0	The duration of IO high level used for "spinning up and down IO".
	Upping and downing only at start and end	Yes/No	No	The lifting action is performed only at the beginning and end of the work.
	Rotation offset initial angle	0-360	0	Rotation-assisted migration starting angle.
	Rotation offset radius(mm)	0.000-0.500	0.000	Rotation-assisted migration radius.
Head Offset	Head 1-Head 5 Offset	--5000.000—5000.000	0.000	
Automatic Trigger	Input IO	Nil/IN1—IN7	Nil	
	Level	Low/High	Low	
	Auto frame only	Yes/No	Yes	Otherwise work automatically
	Effective detection delay(s)	0.00—650.00	0.00	
	Restart first disconnect delay(s)	0.0-25.5	0.0	

Chapter VIII Assist Setting

Assist settings are used to test hardware input & output, network, time and system upgrade, etc.

8.1 Assist Setting Interface

Press [Assist Setting] key in main menu interface to enter the assist operation interface as shown in the figure:
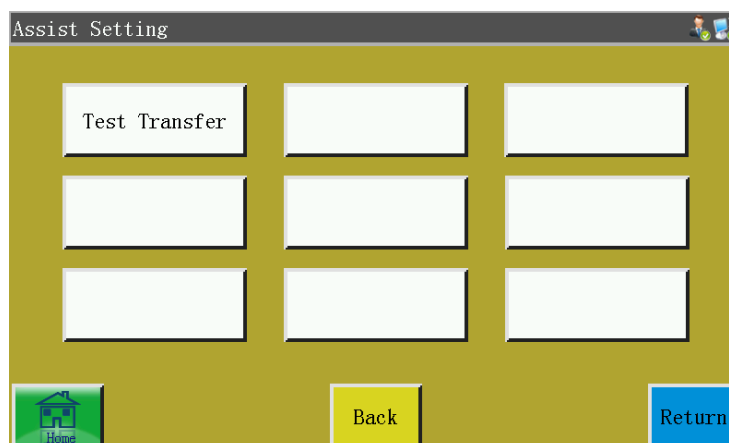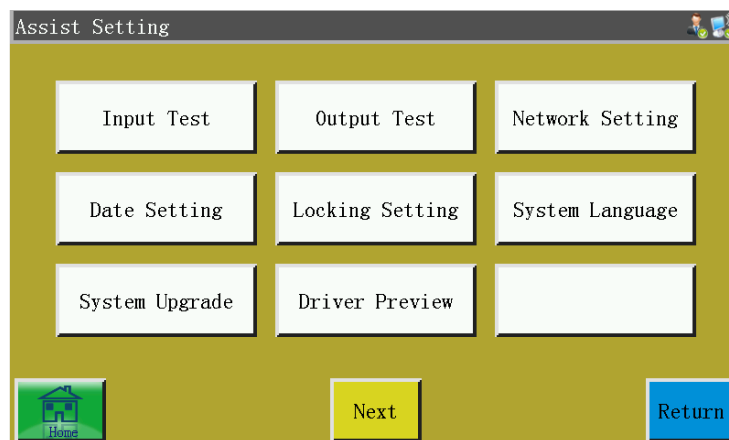
The key functions are described as follows:

Input Test: Test if input port is normal.

Output Test: Test if output port is normal.

Network Setting: Set wireless network and remote control, etc.

Date Setting: Set the system time.

Locking Setting: Set the administration password, use restrictions, staged unlocking and so on.

System Language: Set the system language of screen. There are six languages, i.e. Simplified Chinese, Traditional Chinese, English , Japanese, Korean and Vietnamese to be chosen from.

System Upgrade: Used to upgrade the firmware version of motherboard and display screen.

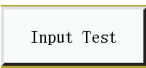Driver Preview: Preview current, subdivision and other parameters of drive for each shaft. (Modification is not available on screen)

Test Transfer: Used to test whether the communication between display screen and motherboard, and to view logs, etc.
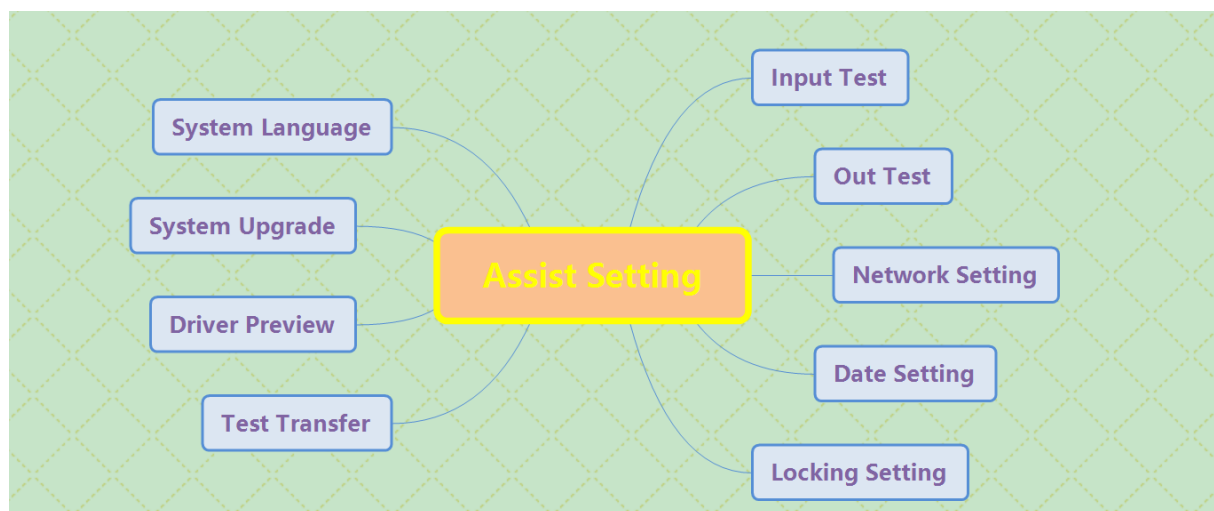
8.2 Input Test

Used to test if the external input circuit is in good condition.

Press ⬚ Input Test ⬚ key in the assist operation interface to enter the input test interface as shown in the figure:

You can manually trigger relevant sensors and check whether the input status has changed, and determine if the sensor or hardware is in good condition.

8.3 Output Test

Used to test whether output control is in good condition.

In the auxiliary operation interface, press the [Output Test] key to enter the output test interface, as shown in the figure:

Test the corresponding output as needed.

For trimming, wiping and relaxation electromagnet outputs, click once, the device solenoid will switch once, and keep it open. Holding for too long may cause the electromagnet to heat up and damage.

For the output of the solenoid valve such as the presser foot and presser frame ,click the cylinder to move once, then click the cylinder to return to the initial state.

For OUT1, OUT2... functions depend on the specific device load, and some outputs are not used.

Light 1, light 2 is used to control the screen "SYS" indicator light on, corresponding to red and blue lights.

If you click [ALL TEST], the pop-up "Executing, please wait..." means that all the output tests are performed, and the prompt box will be closed after the test.

8.4 Network Settings

Used to set up wireless network connection.

In the network setting interface, press the [Network Setting] to enter the network setting interface, as shown in the figure:

Device address: Show the unique address code of current device. The companion APP "Xing Huo IoT" can be used to scan the QR code address of this interface to add the device to the APP for device management.

Server IP: Used to connect a server with a specified IP in LAN to perform LAN control & management. If one of the four input boxes is blank or 0, it means that an external cloud server is automatically connected.

Server port: Used to connect a server with designated IP and port on LAN. If the port is 0 or null, it means an external cloud server is connected.

WiFi : Click to enter the wireless network setup interface and automatically search for hotspots available for current location as shown in the figure below. Click Refresh , when WIFI hotspot is searched for again. The number at upper right corner of each hotspot indicates signal strength; the larger the number, the better the signal. Click on hotspot name and enter the password to connect the hotspot. Once the connection is established, the IP address obtained by the current device will be displayed. In the meantime, the [icons] in upper right corner of the screen indicates the established connection with wireless network and server.
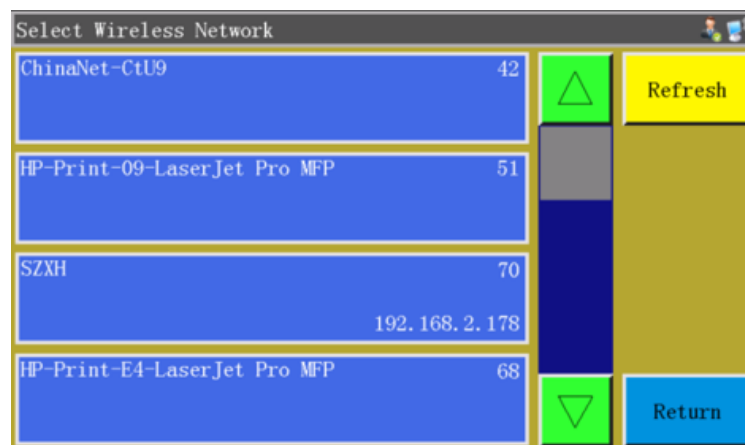

Authority : Click to enter the permission management interface. You can add and delete the mobile phone login account corresponding to modify the "Xing Huo IoT" application.
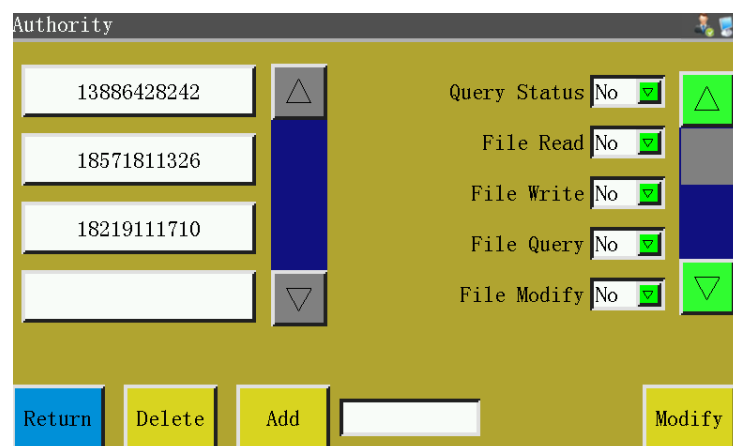
8.5 Date Settings

Used to set the system time (e.g., "year, month, day, hour, and minute") displayed in the upper right corner of the screen.

Enter the administration password to get into the setup interface. The interface is as follows:
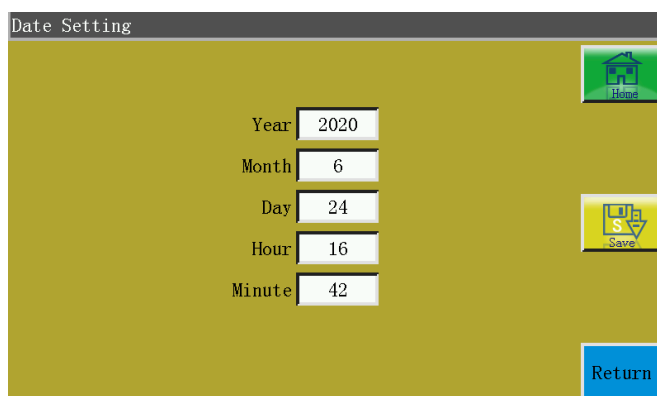
The time is displayed in a 24-hour system accurate to "second".

 : Click this key to save the set date and time. If the motherboard is equipped with a battery, the time is updated at next startup even if the power was turned off so as to ensure accurate time.

Accurate time helps sewing better, and enables the accurate recording of the time of problem in alarm log, thereby facilitating troubleshooting and problem analysis.

8.6 Locking Setting

Press and enter the administration password in the assist operation interface to enter the lock setup interface as shown in the figure:
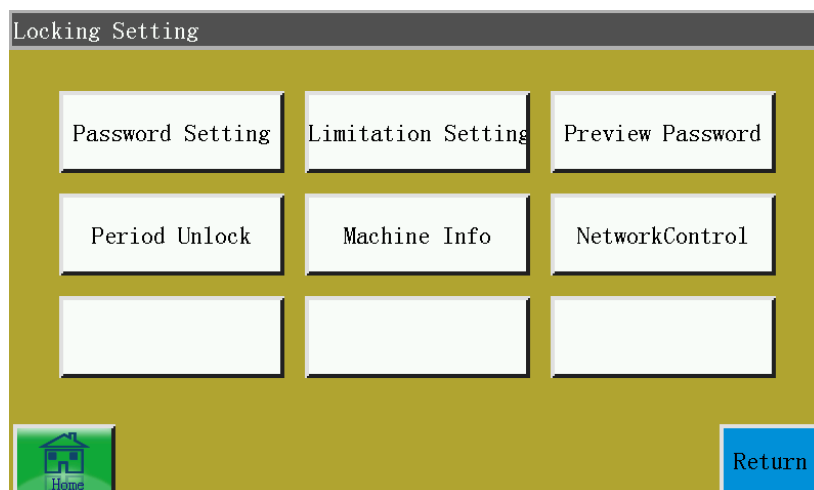
Note: The electric control is designed with four types of passwords, of which the functions are defined as follows:

Password Setting: Enabled in "Locking Setting" - "Limitation Setting". Administration password is the password with the highest privilege.

Machine parameter password: Enabled in "Locking Setting" - "Password Setting". Once the mechanical parameter password is set up, it's impossible to enter the "Machine Parameter" setup interface without entering the correct password.

User parameter password: Enabled in " Locking Setting " - " Password Setting ". Once the user parameter password is set up, it's impossible to enter the "User parameter" setup interface without entering the correct password.

Other password: Enabled in "Locking Setting" - "Password Setting". The settings can be established using upper computer parameters software. You have to enter "other password" in order to use file management, lock files, adjust the spindle speed in main interface, and delete processing statistics information.

Period Unlock: When the installment lock is valid, you can unlock it in advance.

NetworkControl: View or set the current device network control status. When turned on, it means accepting whether to lock the machine through a assigned network mode.

The lock setting interface is used to set timing lock, manage lock password and other related operations. It can realize time-limited use such as pay on installment function.

If the device is set to use the limit, when time's up, the processing interface will pop up a dialog box prompting for a specific unlock password to cancel the lock.

Note: This function is only for manufacturer instead of customers. Improper use may cause the machine to be locked up.

8.7 System Language

Set the system language of screen. There are eight languages, i.e. Simplified Chinese, Traditional Chinese, English,Vietnamese,Janpanese,Korean, Russian and Italian to be chosen. The interface is as follow:
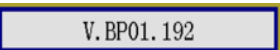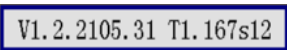
Click on the desired language, when a pop-up window reading "Prompt: Sure do it?" appears Select "Yes", and the language used in the screen will be changed to the set language.

8.8 System Upgrade

Press [System Upgrade] key in assist operation interface to enter the system upgrade interface as shown in the figure:
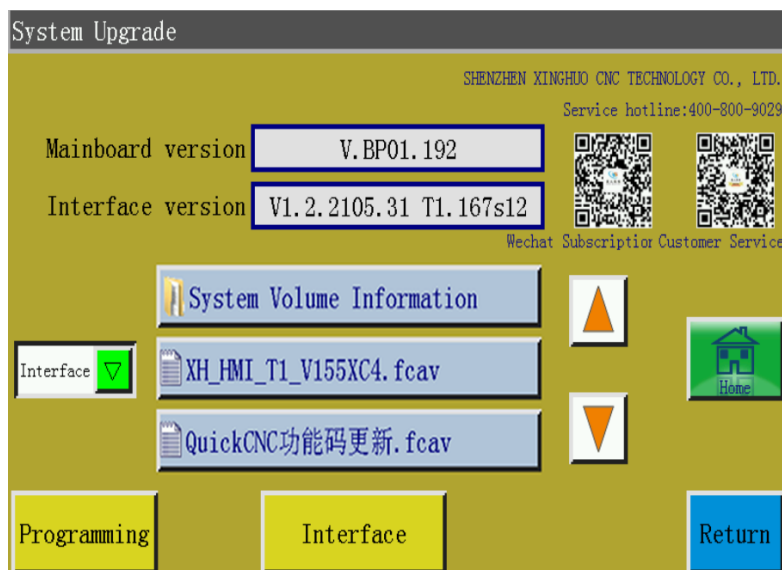
[Mainboard version V.BP01.192] : Show current motherboard version information. " BP01" is the system type and does not change after the upgrade; "192" is the branch version number, which can be changed by upgrading, can be upgraded to a higher version or back to a lower version.

[Interface version V1.2.2105.31 T1.167s12] : Display the current screen interface version information. "167s11" indicates the branch version number.

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Programming : Commands can be closed, deleted, written and other operations or through U disk operation.

Note: The "Fixed Graphics" function in file editing only works with the branch version number with "G". For example, the 155G version has the "Fixed Graphics" function.

Interface ▽ : Click to select the mainboard and display **Mainboard** . If you select the interface, display **Interface** . If you select the instruction, it'll display **Command update** . Select the file and click the button to upgrade.
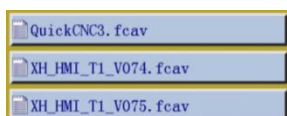
QuickCNC3.fcav
XH_HMI_T1_V074.fcav
XH_HMI_T1_V075.fcav : Upgrade package directory that is automatically read after the insertion of USB flash disk; Display the upgrade files of all folders and interfaces in the current directory or the motherboard.

The system upgrade steps in the figure are as follows:

1) Obtain the corresponding upgrade file from suppliers. The interface upgrade file is suffixed with .fcav (such as XH_HMI_T1_ V067.fcav), the motherboard upgrade file suffix is .TFL (such as TZD_CS01.TFL).Put them into the U disk.

2)Insert the USB flash disk and enter the "System upgrade" page.

3)Select the desired type of upgrade: Mainboard ,Command or interface.

4)Find the upgrade file and select the file to be upgraded,and click **Mainboard** 、

Command update or **Interface** .
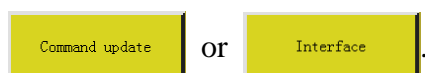
5) A pop-up prompt "upgrading, please don't power off! ", do not power off until this prompt disappears, otherwise it may need to be returned to the factory for repair.

6）In the case of motherboard upgrade, a progress bar **99%** will pop up to show the progress of the upgrade. It takes about 10 seconds to reach 99%. Wait for about half a minute, the motherboard will be restarted, and the buzzer will ring once to indicate successful upgrade. In the case of interface upgrade, no progress bar will appear. In about half a minute, the display screen will be restarted to indicate successful upgrade.

Description of related error prompts:

1) Upgrade interface prompt: "Error in upgrade file type"

Cause: a. The upgrade file is not selected; b. The upgrade file is corrupted or not suitable for the present system.

Solution: Reinsert the USB flash disk or put the correct upgrade file in it.

2) For the upgrade of motherboard, the prompt message reading "No valid upgrade file found" appears.

Cause: No upgrade file is selected.

Solution: Insert the USB flash disk, select a valid upgrade file, and click "Upgrade".

3) Upgrade motherboard prompts: "wrong upgrade file"

Cause: The upgrade file is corrupted or not suitable for the present system

Solution: Use the upgrade file of which the type is the same as current system type; for example, CS01 can only use the CS01 upgrade file. Check whether the upgrade file in USB flash disk is correct.

4) The progress bar remains at 1% after "Motherboard upgrade" is clicked.

Cause: The communication between screen and motherboard is abnormal

Solution: Check whether the connection wire between screen and electric control is in good condition, and restart. If the problem remains unsolved, the product should be returned to its manufacturer for troubleshooting.

8.9 Driver Preview

Display detailed parameters for each shaft of the system drive. The drive preview interface is as follows.

 : Select the drive parameter information to viewed. (The parameters can't be modified on the screen)

8.10 Test Transfer

Used to test whether the communication between screen and motherboard is in good condition. The test transmission interface is as follows:
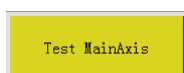

Enter the value you want to test in , and click or , the test result will appear on the left window. If the values of Total, Count, and Ok are the same or very close to each other (within a difference of 1%), it means the communication between screen and motherboard is normal.
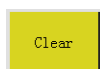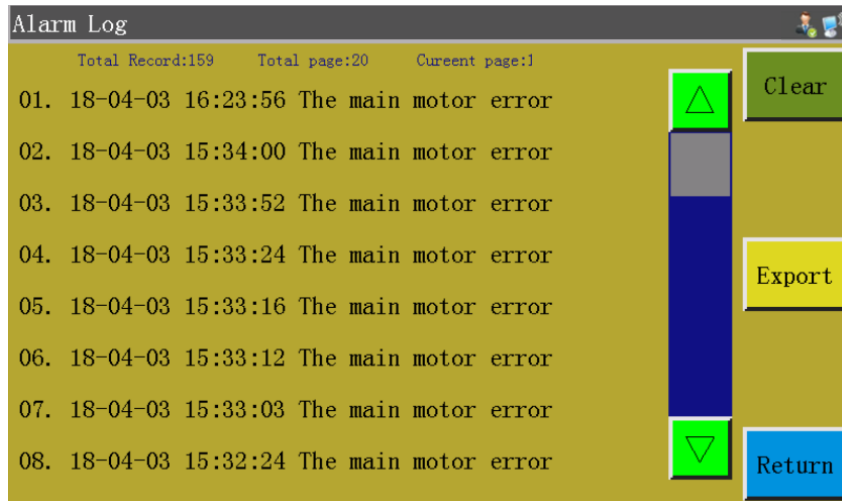
 : Clear the test result on the left.

 : Click this key once, the running current of spindle will decrease, and the normal
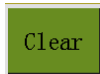
current can't be restored until the power is turned off and restarted. Used to test whether the spindle can work well without load.

Alarm Log : you can view the alarm log.The alarm log interface is as follows:

Export :Export the alarm log as a file to a USB flash disk for convenient troubleshooting and anomaly statistics.

Clear : Clear all contents of alarm log.
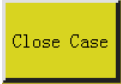
Chapter IX Machine State

When an operator finds any anomaly in equipment, the abnormal status of equipment can be reported to the LAN server through local area network to prompt technicians to perform maintenance; moreover, the current equipment status is displayed on the console in real time.

The machine status interface is as follows:
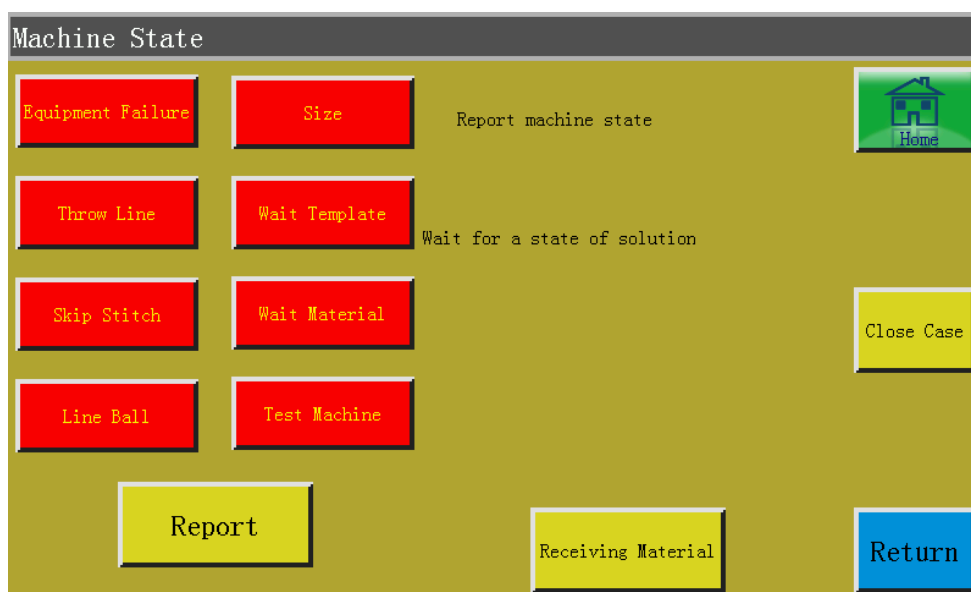
Operator chooses the machine status to report. Click [Report] to pop up the following interface:

Upon the arrival of technician at the equipment, he/she can click [In Place], when the machine status displayed on console reads "Waiting for solution". When [Close Case] is clicked after the removal of anomaly, the machine status displayed on console returns to normal.

Appendix I: Information Prompt and Solutions

1. "Pressure box didn't put down"

Cause: The press frame was not dropped before resetting, processing, file capture and file modification.

Solution: Click Frame to drop the frame.

2. "These is no reset"

Solution: Click Reset.

3. "X-axis drive open circuit"

Cause: a. X-axis motor is not connected. b. Loose motor interface.

Solution: Turn off the power and check the motor line for connection anomaly.

4. "The bottom thread has been used up"

Cause: The bottom thread required by pre-processed file is longer than the remaining bottom thread (total length of processing statistics interface - initial length of bottom thread).

Solution: a. Use the bottom thread statistics function to replace the bottom thread and modify relevant length information. b. Where the bottom thread statistics function is not used, you can click

ON to disable it. See Section 2.2.5 and "User Settings".

5. "The quantity of work is full"

Cause: In the processing statistics interface, the "Current value of Counter " increases to the "Total number of Counter" equal.

Solution: a. If the processing statistics function is used, it's necessary to modify the " Current value of Counter " or the " Total number of Counter " so that the former is less than the latter.b. Where the processing statistics function is not used, you can click ON to disable it directly. See Section 2.2.5 and "User Settings".

6. "File range out of bounds"

Cause: a. The length and width of the processing file are beyond the processing range.b. The

length and width of the processing file is within the processing range, but the absolute coordinates are beyond the processing range. (if imported first into a machine with large processing range, the file will incorporate absolute coordinates and then be exported to a machine with small processing range).

Solution: a. Reduce the size of processing file.b. Import the processing file generated directly through upper computer. See Section 2.2.4.

7.   "Opening state"

Cause: The touch key on top panel is pressed, thus the top panel being open.

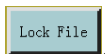Solution: Click the "top panel" key on touch key pad.

8.   "No working file"

Cause: The lock file is open.

Solution: Check whether the graphic interface indicates a lock file flag. If so, just click

Lock File .

9.   "The main motor error"

Cause: a.The spindle motor circuit is open or the encoder cable is not connected.b. Spindle motor is damaged.

Solution: a. Check if the motor cables are properly connected, and if the encoder cable is connected.b. If the motor cables are properly connected, it's necessary to replace spindle motor, test the spindle with in powered-on state, or manually rotate the motor to check if QEP changes on the screen.

10. "Connecting the main control board"

Cause: a: The connection between motherboard and screen is out of order.b: The screen goes wrong.c: The motherboard is damaged.

Solution: a: Check whether both ends of cable are properly connected, restart, and replace screen cable.b: Replace the screen to check if it functions properly.c: Change motherboard to check if the screen gives a similar alarm.

11. "Couldn't find X zero signal"

Cause: a. X motor direction error.b. X motor position sensor failure. c. Failure to move due to excessively large load in X direction of motor.

Solution: a. Enter the manual frame shift interface and test X motor rotation.b. Enter the "input test" interface, and manually trigger the position input signal to check if it can be detected.c. Turn off the power and manually push press frame to check if the load is too large and gets stuck.

12. "Motor scissors are not in place"

Cause: a. The encoder cable of motor with Z signal malfunctions.b. Parameter setting error.

Solution: a. Press [Trim] and check if the motor is properly connected or if the motor is in good condition.b. Rotate the motor manually to check whether the W axis/axis limit signal indicator of motherboard changes.c. Check if the parameter settings exhibit conflict.

13. "The main motor direction error"

Cause: Spindle rotation direction is wrong.

Solution: Use parameter modification software to correct the spindle moving direction or modify the spindle motor direction or spindle encoder direction in shaft operation mode in mechanical parameters.

14. "X-axis driver hardware over-current"

Cause: a: Poor contact of X-axis motor base. b: Damaged X-axis stepping motor or short circuit of motor cable. c: Motherboard hardware problem.

Solution: a: Confirm that the flashing mode of X stepping motor alarm indicator on motherboard is "1 green and 5 reds"; if not, it means false alarm.b: Reinsert X motor cable and restart the machine.

c: Change X axis motor.d: Change the motherboard.

15. "Motor foot in fault"

Cause: No motor limit signal is detected when motor press foot is reset.

Solution: Check motor press foot related base for looseness; check whether the z signal limit signal input changes in the input test interface.

16. "Head board cannot be connected"

Cause: a. The connection between head board and control board is out of order.b. Head board is damaged.

Solution: a. Check whether the connection is abnormal or replace connection cable.b. Change the head board.

17. "Air pressure is insufficient"

Cause:　a: Air supply equipment exception results in insufficient air pressure. b: Abnormal input of control board.　c: Abnormal parameter settings or wiring error.

Solution: a: Check whether the barometric pressure is normal.b: Short-circuit the input and GND with tweezers and check if the input changes at "Assist Setting" - "Input test" side.c: Check whether the parameters are set abnormally. In normal condition, the input is "normally closed". In the case of insufficient pressure, it should be opened, when the LED will light up for alarm.

18. "Electrical fault, please contact the manufacturer"

Cause:　Hardware failure.

Solution: Contact the manufacturer.

19. "Grab line motor is not in place"

Cause:　No motor limit signal is detected when motor press foot is reset.

Solution: Check motor press foot related base for looseness; check whether the z signal limit signal input changes in the input test interface; check whether the parameters are improper.

20. "Input IO1 timeout error"

Cause: No signal is detected at this input port.

Solution: Enter "input test" interface, and manually trigger the position input signal to check whether it can be detected.

21. "Foot follow error"

Cause: Press foot zero input port detects no signal.

Solution: Check the IO port set for follower press foot alarm in parameter setup software, manually trigger the IO port and check whether it can be detected.

Appendix II: Quick Start Guide

(1) Start the machine

Install the equipment and connect the power supply. Turn or press the power switch to start the machine. Get into the main interface of processing as described in Section 2.2.1 after the logo appears. Where bottom thread winding is needed, refer to Section 2.2.2.

(2) Set up processing file

Copy the .SLW 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 red, 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.

(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 Section 2.2.4

(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 Appendix I.

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.