

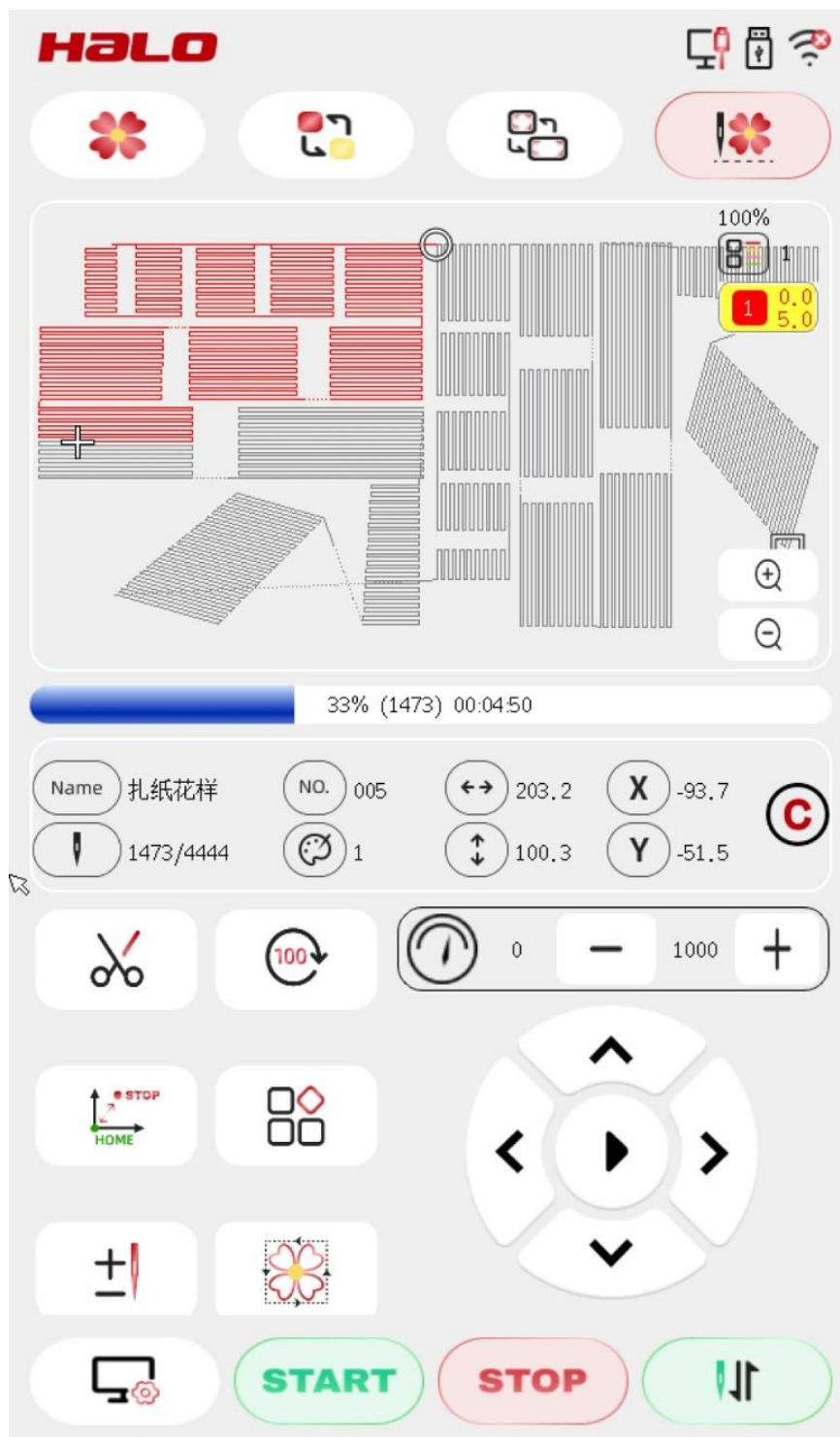
Embroidery Machine Computer Controller

Operation Manual

Model: HALO-1

Touch Screen Series

ZHUJI PHAFFON TECHNOLOGY CO.,LTD.



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Note: Product specifications are subject to change without prior notice!

1 Overview

Welcome to use the computerized embroidery machine control system produced by our company. Before operating this product, please read and understand this operation manual carefully to ensure correct and proper use of the machine. Keep this manual in a safe place for future reference.

1-1 Safety Warnings and Precautions

When using this product, to reduce the risk of fire, electric shock, and personal injury, the following basic safety precautions should always be followed.

Equipment Installation and Wiring Safety Instructions	
 Prohibited	Do not store, install or operate this equipment in damp, dusty, corrosive, flammable or explosive gas environments. Otherwise, it may cause equipment damage, and in severe cases, electric shock, ignition of flammable gases, fire and other hazards.
 Prohibited	Do not perform insulation tests on the input/output circuits of the equipment controller. Otherwise, it will cause direct damage to the electrical equipment.
 Prohibited	Do not connect overloaded electrical equipment to the power socket or terminals of the control box.
 Warning	Do not block the heat dissipation and exhaust vents of this equipment, and do not insert other objects or excess cables into the cabinet. Some high-temperature components inside the cabinet may ignite objects in contact due to poor heat dissipation, resulting in fire or electric shock hazards.
 Note	Signal cables and power cables of the equipment must be routed separately. They shall not pass through the same cable outlet on the cabinet or be bound together. Otherwise, power grid interference may cause abnormal operation of the equipment.
 Note	This equipment shall be reliably connected to the ground wire and firmly fixed to the embroidery machine frame. The grounding resistance between the equipment and the frame shall be less than 10 ohms. Poor grounding may adversely affect the safe and reliable operation of the

	equipment, and in severe cases, may cause electric shock hazards to personnel.
 Note	This equipment shall only be used with the power type specified on its nameplate. When connecting the power supply, follow the input markings strictly and ensure reliable connection. Incorrect or loose connections may cause equipment failure or even burn out the equipment.
 Note	When the power grid fluctuation in the user's area exceeds $\pm 10\%$, a voltage stabilizer that meets safety standards and has sufficient power rating must be installed. Poor power grid conditions may cause equipment malfunction.
 Note	The power input cables and plugs used for this equipment must comply with safety specifications. The input cables must be properly secured and protected, and must not be subjected to external forces.
 Note	All cables shall be properly fixed during installation. Avoid applying external forces on cables. When cables pass through structural holes or sharp surfaces, protective measures shall be taken to prevent cable damage. If necessary, additional insulation such as cable sleeves can be used to improve insulation performance. Ensure that all connecting cables (signal cables or power cables) have good insulation and undamaged outer sheaths.
Safety Instructions for Equipment Operation and Running	
 Prohibited	When the embroidery machine is operated by this embroidery electric control system, operators are prohibited from touching any moving mechanical parts. Otherwise, it may cause personal injury.
 Prohibited	Operators are prohibited from privately removing any protective covers from moving parts of the embroidery machine. If the protective covers for moving parts are defective, they must be repaired promptly. Otherwise, personal injury may occur.
 Note	The equipment generates heat after continuous operation. Avoid touching the drive heat sink and motor casing during operation and for a period after power-off to prevent burns.
 Note	When an alarm occurs on the equipment, please identify the cause first.

	Only after ensuring the safety of personnel and machinery can the equipment be restarted.
 Note	After the product is powered off, wait until the LCD screen is completely off before turning on the power again. Frequent power cycling in a short time may easily cause equipment failure.
 Note	The switching power supply of this equipment is equipped with overcurrent protection. In case of overcurrent protection actuation, the equipment must be powered off for two minutes before being switched on again.
Safety Instructions for Fault Handling	
 Note	In case the product shuts down due to overcurrent/overload protection, please disconnect the power to eliminate mechanical causes. After ensuring the mechanical fault is resolved, the product must remain powered off for at least two minutes before being powered on again.
 Note	If the product is confirmed to be damaged and requires disassembly for maintenance, the power supply must be disconnected for at least 3 minutes before disconnecting the power cord and other cables of the product.
 Note	Personnel involved in disassembly and maintenance must possess corresponding professional knowledge and competence. The circuit board of this product may be damaged by static electricity. Non-professional technicians are not allowed to disassemble the product casing or touch the circuit board without authorization.

1-2 Main Technical Specifications

- 1) display screen: 7-inch touch screen.
- 2) LCD Resolution: 7-inch (600X1024).
- 3) Operation Type: Touch Screen + Keypad.
- 4) Supported Languages: ZH, EN, ES, TR, DE, RU, FR, PT, AR, TH, VI, PL, KO, IT, NL, JA, UK, RO, BG, HE.
- 5) Control Precision: Minimum Control Stitch Length: 0.1 mm.
- 6) Stitch Range: 0.1 mm ~ 12.7 mm.
- 7) Maximum stitches in memory: 100 million stitches.

- 8) Maximum stitches per pattern: 30 million stitches.
- 9) Color changes: 4000 times.
- 10) Maximum speed: 1000 rpm.

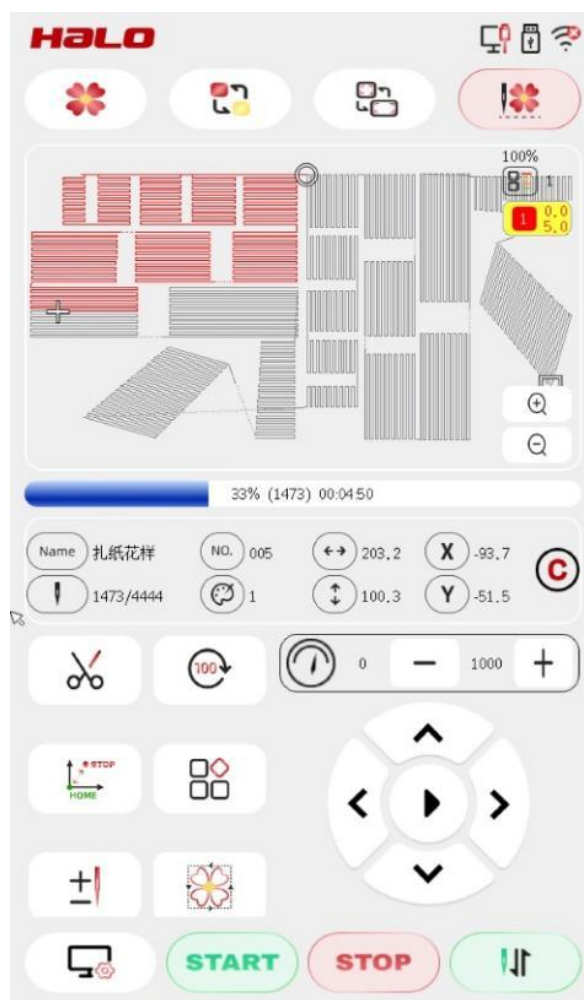
1-3 Main Functions Introduction

1. Pattern input, output and system software upgrade	1) This model supports the input of pattern files in DST, DSB, and DSZ formats via a USB flash drive connected to the operation panel's USB port. 2) Patterns stored in the system can be exported to a USB flash drive in DSB format via the operation panel's USB port. 3) The system software can be upgraded using a USB flash drive. Additionally, online software updates for the headboard and special embroidery control boards can also be performed via USB flash drive.
2. Multi-language Display	This model offers a selectable user interface in multiple languages, including Chinese, English, Spanish, Turkish, French, and Portuguese. This facilitates operation by users from different countries. Furthermore, the operation keys are represented by intuitive symbols, effectively overcoming language barriers.
3. Selection of Multiple Embroidery Processes	This model supports various embroidery techniques, including "Repeated Embroidery," "Combination Embroidery," and "Sequential Embroidery."
4. Powerful Pattern Compilation and Editing Functions	This model allows for the compilation of parameters for "Repeated Embroidery" and "Combination Embroidery" patterns to generate a new pattern for storage in memory. It also supports stitch-by-stitch editing of patterns stored in memory (excluding combination patterns), enabling users to conveniently modify specific parts of a pattern.
5. Extensive Auxiliary Embroidery Functions	This model allows for the addition of functions such as "Patch Embroidery," "Pattern Start Point Memory," "Border Embroidery," and "Cross Stitch." These features enrich the auxiliary embroidery functions, significantly enhancing

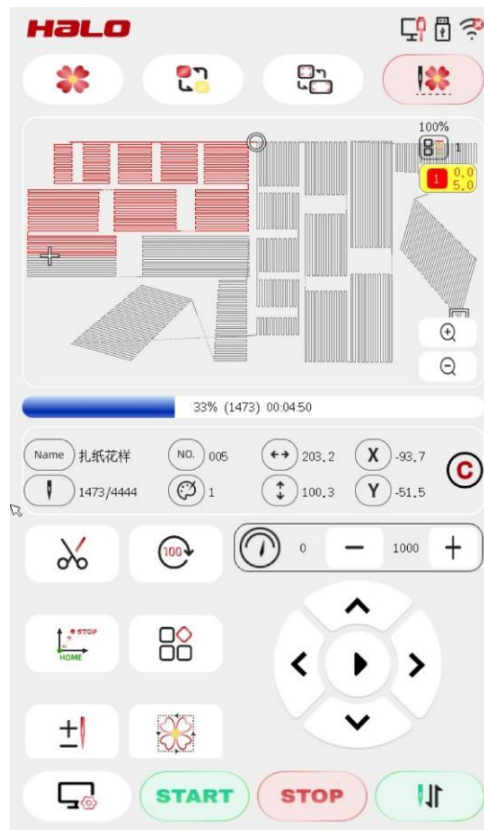
	embroidery techniques and efficiency.
6. Convenient Machine Maintenance and Debugging Functions	This model includes functions such as machine self-diagnosis, encoder self-diagnosis, spindle speed monitoring, machine component testing, and the ability to stop the spindle at any position. The implementation of these features makes debugging, maintenance, and fault diagnosis of the embroidery machine significantly more efficient and user-friendly.
7. Powerful Embroidery Parameter Memory Function	This model allows selected embroidery parameters—such as the color change sequence, pattern orientation, rotation angle, and repeat count—to be associated with a specific embroidery pattern and saved in memory. The next time this pattern is used for embroidery, these parameters can be directly recalled without the need for reconfiguration, thereby improving embroidery efficiency.

2 Description of the Embroidery Machine Control Operation Box

2-1 Embroidery Control Box Description



2-2 Embroidery Control Interface Descriptions

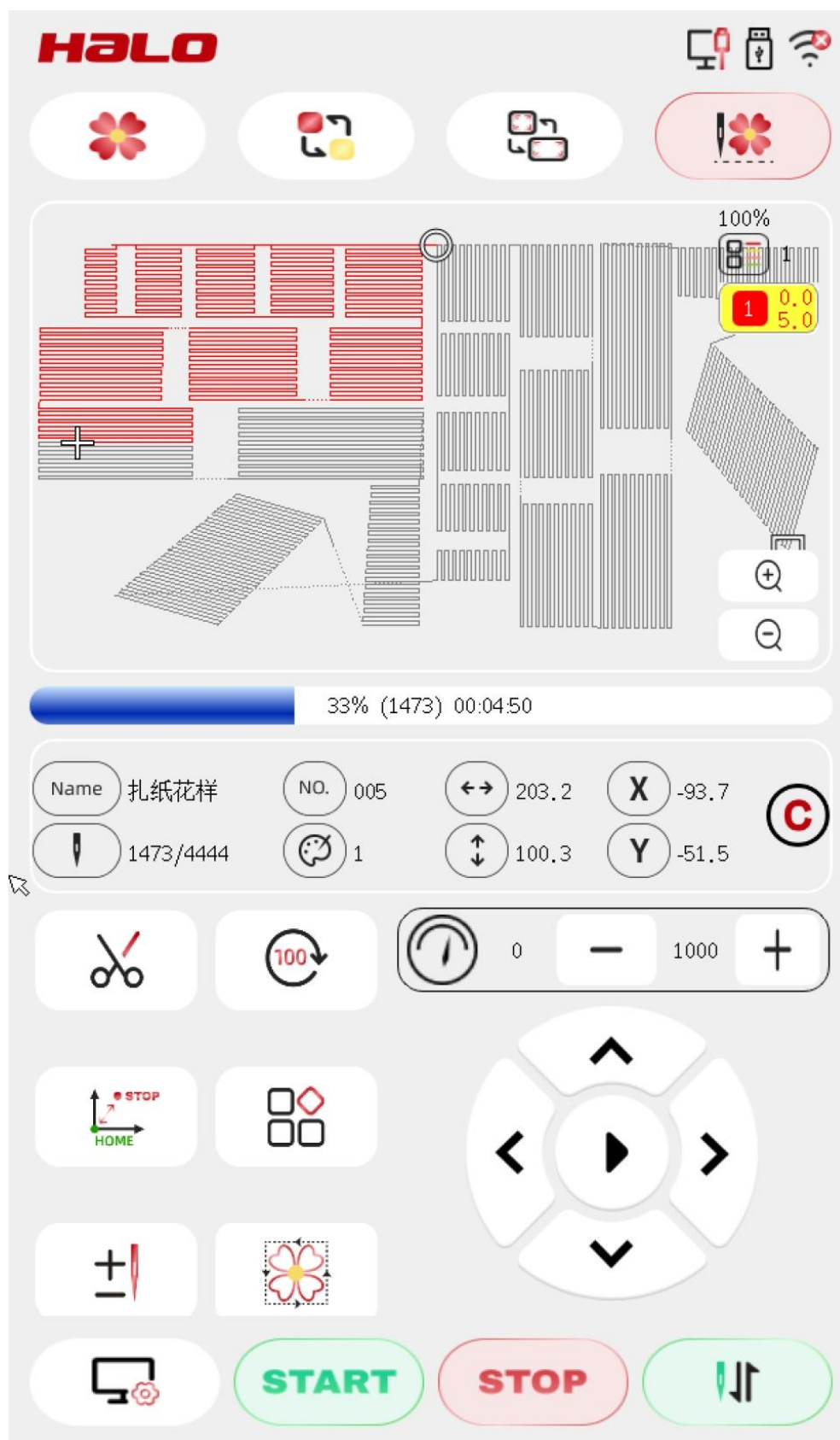


2-3 Button Functions on the Embroidery Control Panel

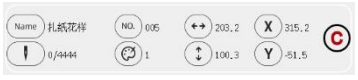
Button Labels	Button Functions
Start Button	① Starts the embroidery process.
Stop Button	① Stops the embroidery process.
Thread Trim Button	② Trims the thread.
Bobbin Winding Button	③ Winds the bobbin. ④ Press and hold to initiate screen calibration.

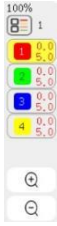
3 Icon Description of Embroidery Interface

The main screen display when the system is ready for operation is shown below:



No.	Icon Status	Description / Operation
1	 : Ready for embroidery  : Awaiting confirmation	Click "  "and "  " to switch embroidery modes.
2	 : Manages patterns stored in memory	Click this icon to switch to the Memory Pattern Management tab.
3	 : Pattern Color Sequence Editing	Click this icon to switch to the Pattern Color Sequence Editing tab page.
4	 : Embroidery Frame Selection Settings	Click this icon to switch to the Embroidery Frame Selection Settings tab page.
5	 : Pattern Embroidery Confirmation	Click this icon to access the Pattern Embroidery Confirmation interface.
6	 : Control Menu	Click this icon to access the Control Menu interface.
7	 : Start Lever	Click this icon; it has the same function as the physical start lever.
8	 : Stop Lever	Click this icon; it has the same function as the physical stop lever.
9	 : Return to Origin or Stop Point Operation	Click this icon to perform the "Return to Origin" or "Return to Stop Point" operation.
10	 : Manual Thread Trim Operation	Click this icon to perform the Manual Thread Trim operation.
11	 : Jog Operation	Click this icon to perform the Jog operation.
12	 : Common Shortcut Key Combinations	Click the"  "icon to display a set of shortcut keys, including the Needle Position LED On/Off key"  ",the Repeat Embroidery On/Off key"  ",the Thread Tension Adjustment key"  ",and the Operation Mode Adjustment key"  ".

13	 : Positioning Idle Running Operation	Click this icon to perform the Positioning Idle Running operation.
14	 : Move the embroidery frame along the pattern perimeter.	Click this icon, and the embroidery frame will move along the bounding rectangle of the pattern.
15	 : Manual High-Speed Frame Movement Mode  : Manual Low-Speed Frame Movement Mode	Click the middle area of the icon"  " or"  "to switch the frame movement mode.
16	 : Machine stopped in position.  : Machine not stopped in position.	Click the icon"  "to perform a jog operation and stop the machine in position.
17	 : Indicates that repeat embroidery mode is set.	Indicates whether repeat embroidery mode is enabled.
18	 : Sets the spindle speed.	Click the icon"  "or"  "to adjust the speed value.
19		Displays current pattern information (pattern number, pattern name, color change count, total stitch count, and coordinates). When the machine is stopped, click the"  "icon to reset X/Y displacement to zero and set the current position as the origin.

20	 The upper value indicates the current color being embroidered in the pattern. The lower value shows the color sequence for automatic color change (i.e., the color sequence table). The value on the right displays the presser foot information.	Indicates that the current color being embroidered is color 1. This value increases as the number of color changes increases.
21		Displays the current stitch count, completion percentage, and remaining time.
22	 : USB drive status icon.	When the icon is displayed, the USB drive is detected. When the icon is not displayed, the USB drive is not detected.
23	 : Network connection status icon.	When the icon is displayed, Ethernet port 0 is connected. When the icon disappears, Ethernet port 0 is not connected.
24	 : Power-Off Frame Protection Setting Indicator Icon	When the icon is displayed, power-off frame protection is set.

4 Basic Embroidery Operation Instructions

4-1 Three Working States of Embroidery Machine

① Embroidery ready state. → ② Embroidery confirmation state. → ③ Embroidery running state.

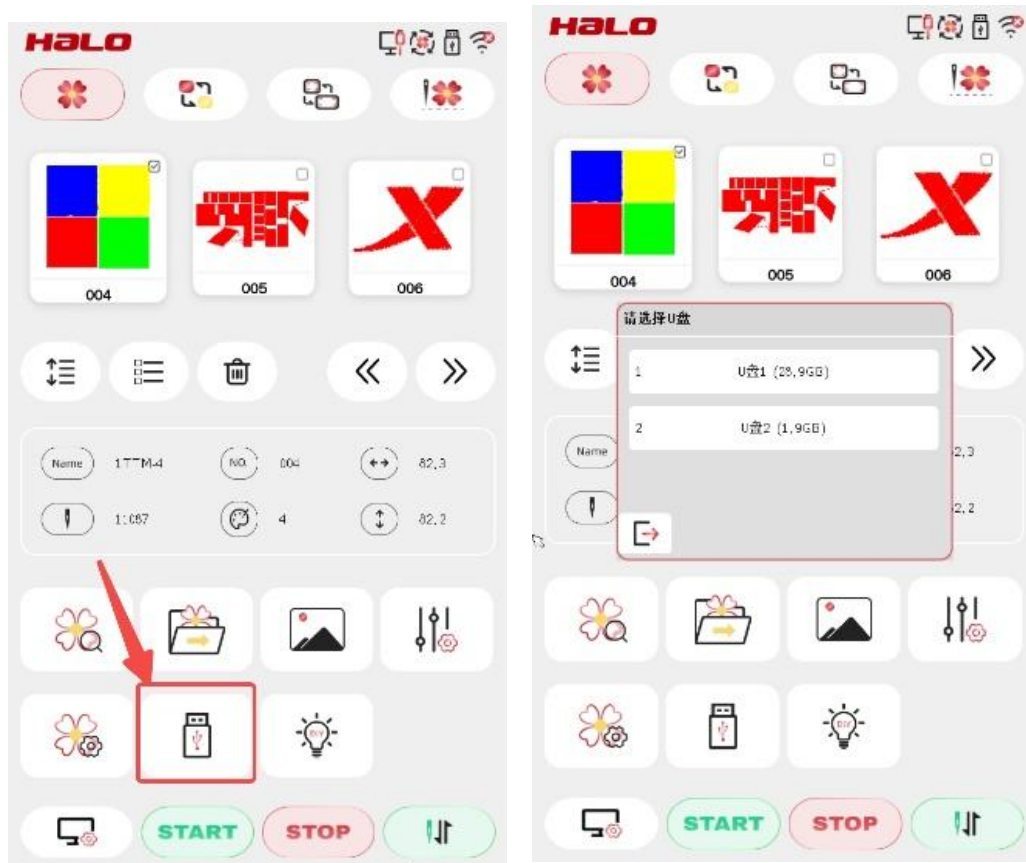
- ① **Embroidery ready state**—The process of preparing for embroidery by inputting or selecting an embroidery pattern in advance, as well as presetting various embroidery controls and parameters. This state is characterized by the machine being stopped, with the icon "" displayed in the lower-left corner of the main screen. In this state, pressing the start button is ineffective. If pressed, a dialog box will appear on the screen with an error message: "Pattern not confirmed."
- ② **Embroidery confirmation state**—First, select an embroidery pattern from the system and set various embroidery controls and parameters. Finally, click the icon "" to confirm before embroidering, putting the machine into ready-to-run mode. This state is characterized by the machine being stopped, with the icon "" displayed in the lower-left corner of the main screen. In this state, pressing the start button (default) begins embroidery using the current frame position as the origin.
- ③ **Embroidery running state**—When the icon "" appears in the lower-right corner of the main screen, pressing the start button (default) puts the machine into the running state. This state is characterized by the machine operating and embroidering, with the main screen displaying real-time embroidery status.

4-2 How to Input and Select a Pattern for Embroidery

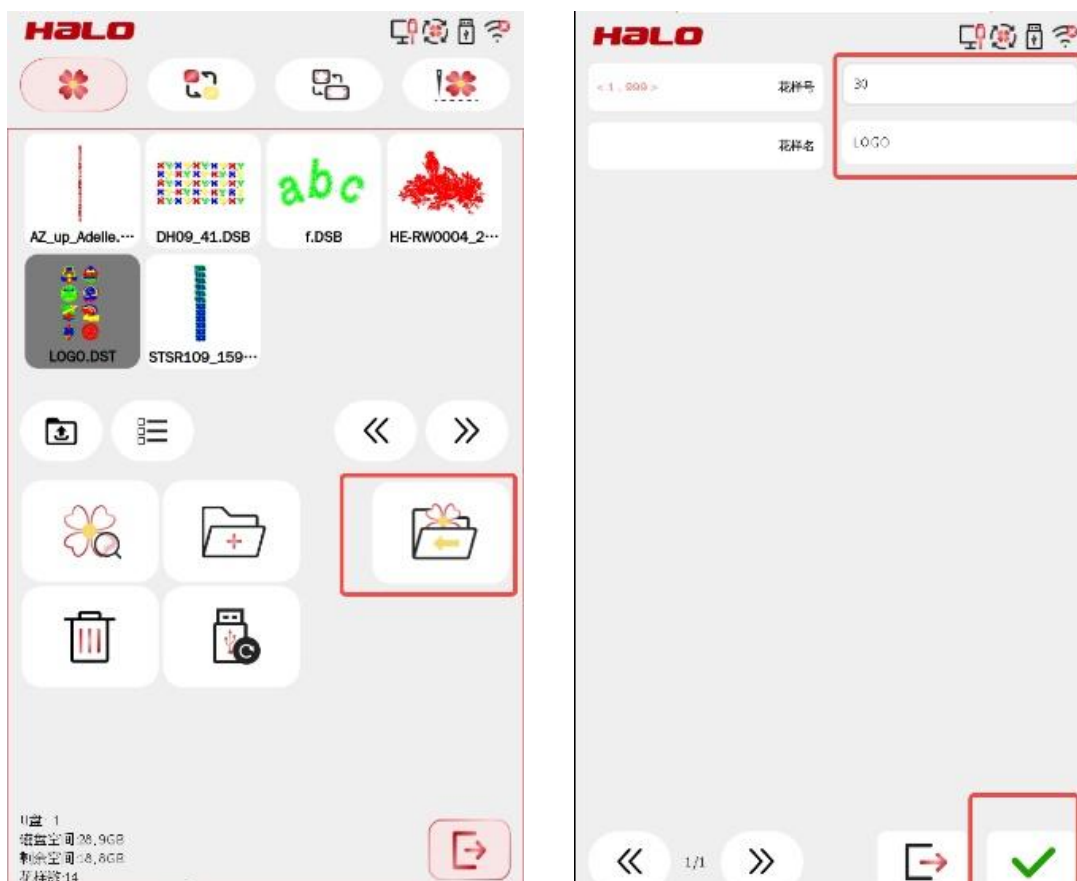
4.2.1 Load a single pattern from USB drive into memory.

1. Insert the USB flash drive containing the pattern into the "USB" port located on the underside of the touch screen.

2. Click the "" icon to enter the Memory Pattern Management interface, then click the "" icon. The system will read the pattern information from the root directory of the USB drive. Next, click to select the desired pattern, and then click the "" icon to start importing the pattern.



3. Then, in the pop-up pattern import interface, enter the pattern name and pattern number, and click Confirm to complete the pattern import.



4.If the pattern is stored in another directory on the USB drive, directly click the corresponding directory icon to enter it and select the desired pattern, then click "📁" to proceed. To return to the previous directory, click the "📁" icon. To return to the Memory Pattern Management interface, click the "➡" icon in the lower-right corner.

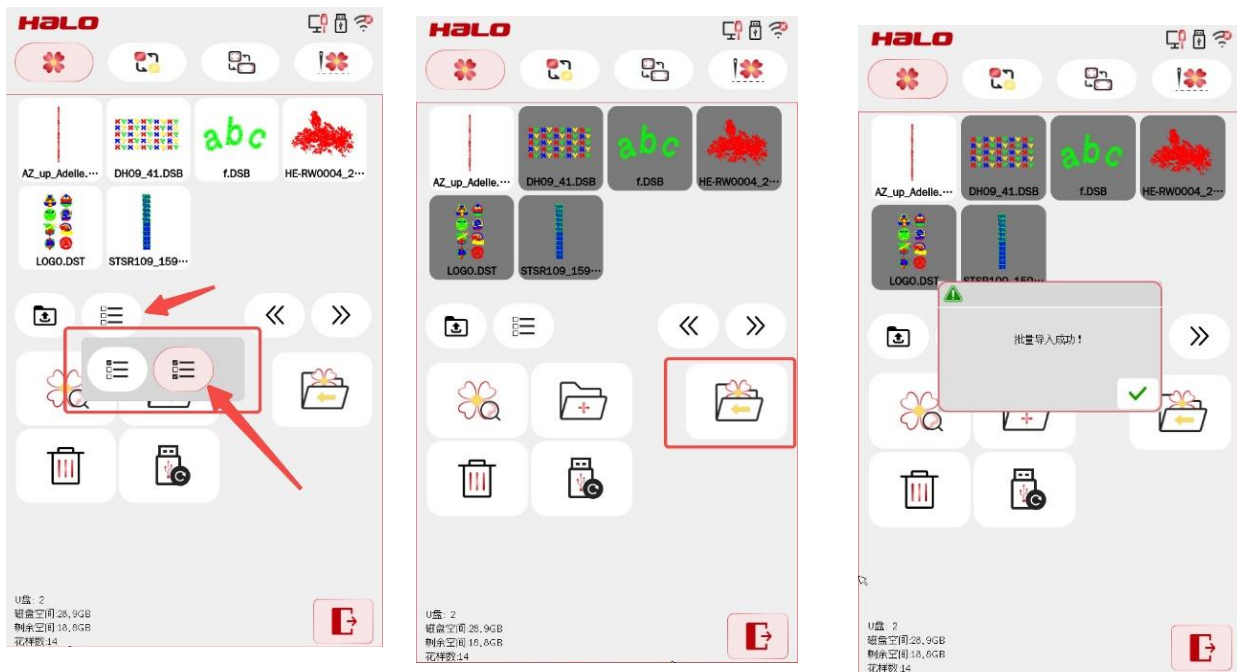
Step 1: After clicking "📁" the system displays an interface for entering the Pattern Number and Pattern Name. Use the number icons on the right to input the pattern number. To use the system's default pattern number and name, simply click the "✅" icon.



4.2.2 Load multiple patterns from USB drive into memory.

1, Insert the USB flash drive containing the pattern into the "USB" port located on the underside of the touch screen.

2, Click the "🌸" icon to enter the Memory Pattern Management interface, then click the "📁" icon. The system will read the pattern information from the root directory of the USB drive. If the patterns are stored in another directory, directly click the corresponding directory icon to navigate to the folder. Click the "☰" icon to open the selection mode list, then choose the desired mode. Select the multi-select mode icon "☰" to import multiple patterns simultaneously. The default mode is single-select, indicated by the "☰" icon. Finally, click the "📁" icon to complete the import.

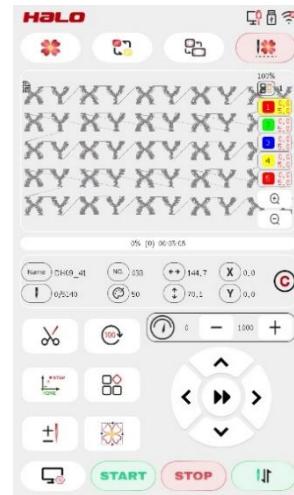


4.2.3 Select embroidery pattern

1. Click the "  " icon to enter the Memory Pattern Management interface. Click the "  " icon to select the sorting method and locate the desired pattern for embroidery. Then, click the desired pattern and click the "  " icon.



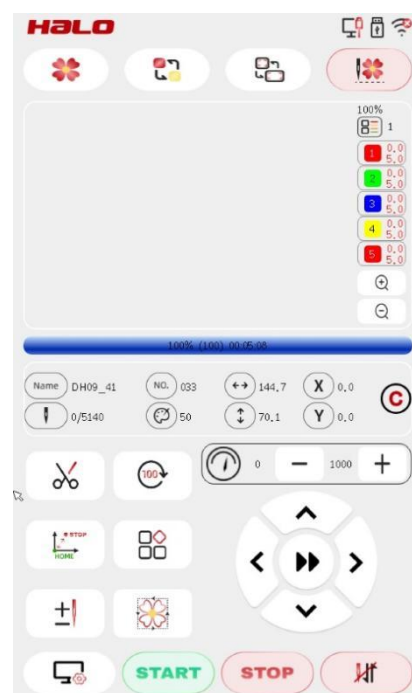
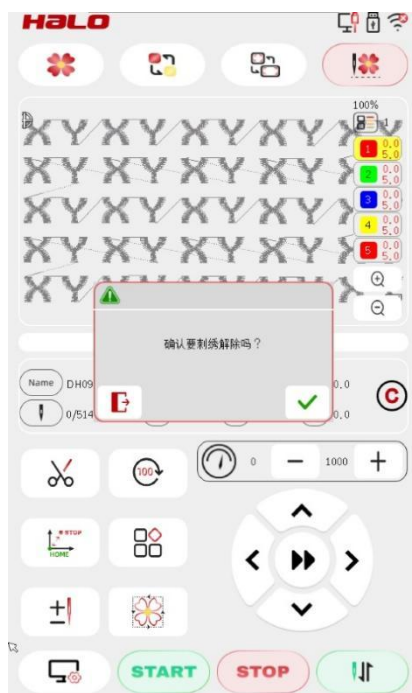
2. The system will then prompt you with the message "Confirm Embroidery?". To proceed without confirming, click the "  " icon. To confirm the pattern for embroidery, click the "  " icon. The pattern information panel will then display the selected pattern's number, name, color change count, total stitch count, and its dimensions. Only after this confirmation can you press the start button to begin embroidering.



4.2.4 Cancel pattern embroidery

When the current pattern embroidery is complete, or when you need to switch to a different pattern, modify settings such as the pattern's scaling factor, rotation angle, repeat count, or orientation, or perform partial machine self-diagnosis or edit patterns in memory, you must first cancel the embroidery mode. Operation Method:

On the main embroidery interface, click the "  " icon in the lower-left corner. A dialog box will appear on the screen prompting: "Confirm to cancel embroidery?". Click the "  " icon to confirm the cancellation. (When the embroidery status icon changes to "  " the system is in embroidery cancellation mode.)



4-3 Setting the Embroidery Pattern Start Point

Press the " or " arrow keys to move the embroidery frame and select a suitable pattern start point. Click the " icon to display the origin operation menu, where you can execute the following operations: Return to Pattern Origin, Return to Alternative Pattern Start Point, Automatically Locate Pattern Origin, or Return to Stop Point.



4-4 Embroidery Pattern Parameter Settings

4.4.1 Embroidery Pattern Parameter Settings

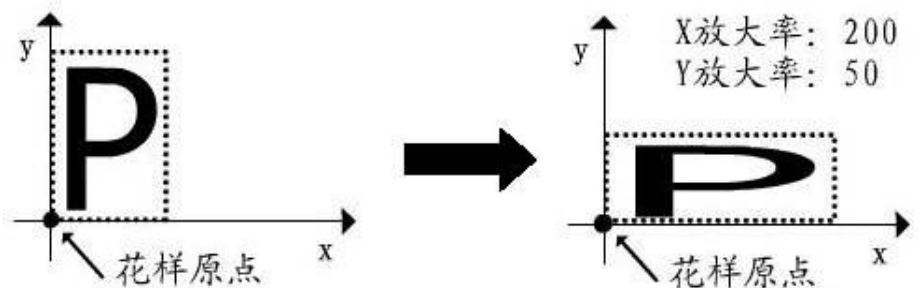
Click the " button to enter the Pattern Management interface. Select the pattern whose parameters you want to modify, then locate the " icon. Click this icon to enter the Embroidery Pattern Parameter Settings interface. In this interface, you can configure parameters such as pattern orientation, pattern rotation angle, scale X/Y, priority direction, repeat mode, repeat sequence, repeat count X/Y, and repeat spacing X/Y. This interface also displays pattern information, including pattern number, pattern name, total stitch count, total

number of color changes, pattern width, and pattern height.

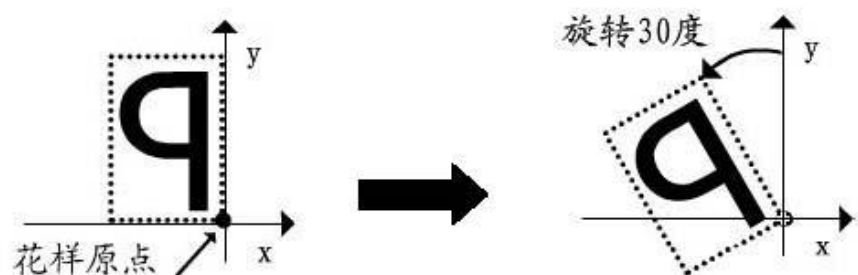
Note: Parameters of a pattern that has already been confirmed for embroidery cannot be edited.



(1)(2) X, Y Scaling Factor: This parameter controls the scaling factor of the pattern in the X (horizontal) and Y (vertical) directions, enlarging or reducing the pattern by a percentage.



(3) Rotation Angle: This parameter specifies the counterclockwise angle of the embroidered pattern relative to the selected pattern orientation.



(4) Pattern Orientation: This parameter sets the direction of the pattern during embroidery. The

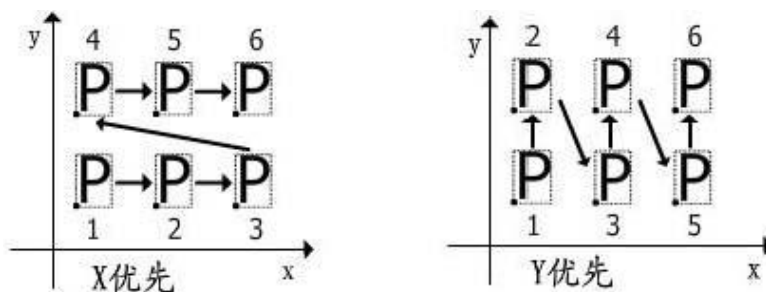
relationship between the pattern and the pattern orientation is illustrated below using the letter "P" as an example.

图案方向	P	ᵀ	ᵁ	ᵂ	ᵃ	ᵄ	ᵅ	ᵆ	P
刺绣结果	F	ᵇ	ᶜ	ᵈ	ᵉ	ᶜ	ᵈ	ᵇ	F

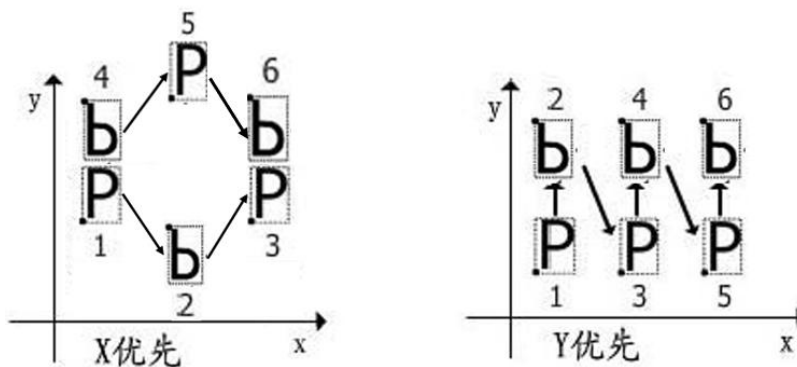
(5) Priority Mode: When the X and Y scaling factors are set to different values and a rotation angle is also applied, the priority mode determines the order of operations. If the priority mode is set to Rotation First, the pattern will be rotated first and then scaled. If the priority mode is set to Scaling First, the pattern will be scaled first and then rotated. Different priority mode settings will produce different embroidery results.

(6) Repeat Mode:

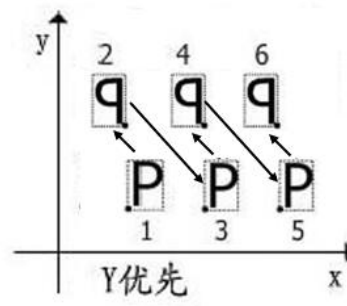
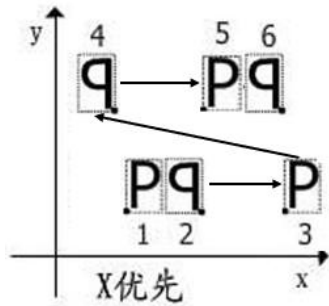
Normal: In repeat embroidery, after completing one full pattern, the embroidery frame moves to the next set position to embroider the same pattern again. That is, the pattern is repeated as a whole unit.



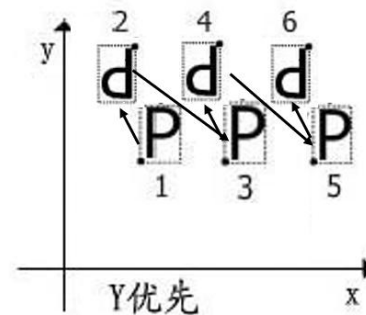
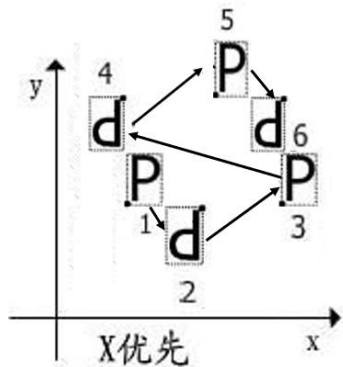
X-axis Mirror: Performs mirror repeat along the X-axis.



Y-axis Mirror: Performs mirror repeat along the Y-axis.



180° Rotation:



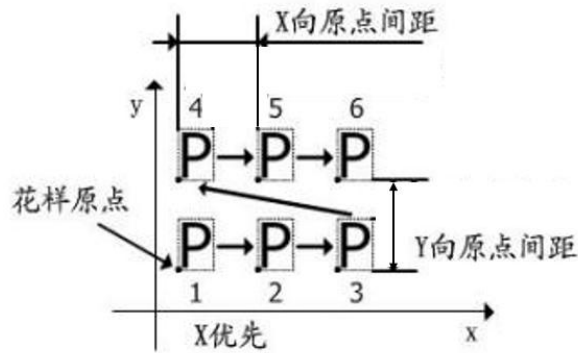
(7) Repeat Sequence:

X Priority: Indicates that the repeat embroidery is performed row by row in the horizontal direction, with mirroring prioritized along the X-axis.

Y Priority: Indicates that the repeat embroidery is performed column by column in the vertical direction, with mirroring prioritized along the Y-axis. The diagrams above illustrate the meanings of X Priority and Y Priority.

(8) (9) **X, Y Repeat Count:** The X repeat count sets the number of times the pattern is embroidered in a row, and the Y repeat count sets the number of times the pattern is embroidered in a column.

(10) (11) **X, Y Repeat Spacing:** The X repeat spacing indicates the distance between two adjacent patterns in the horizontal direction; the Y repeat spacing indicates the distance between two adjacent patterns in the vertical direction. The diagram below illustrates the meaning of the repeat spacing types.

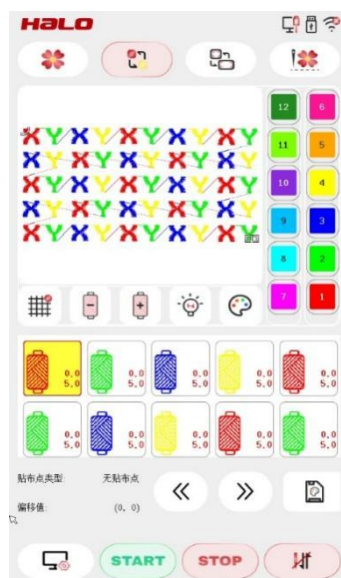


4-5 Embroidery Pattern Color Sequence Table Settings

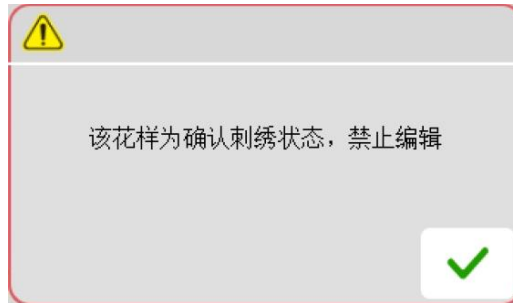
4.5.1 Setting the Pattern Color Sequence Table

The operation steps are as follows:

- 1, When in the non-confirmed state, click the "  " icon in the tab bar at the top of the screen to enter the Input and Repeat interface and set the color sequence table. Click "  " to toggle the highlight of pattern colors. Use the number icons below to input the desired needle positions for color changes in sequence. Finally, click the "  " icon to confirm and save the pattern color sequence information. For example, after entering 1, 2, 3 and then clicking "  " the color change sequence will repeat cyclically as 1, 2, 3, 1, 2, 3, 1, 2, 3..., and the system will automatically save the current color sequence.



2, When in the embroidery confirmed state, clicking Edit Color Sequence or Save Color Sequence Parameters will prompt the message: "Pattern is confirmed for embroidery, editing is disabled."



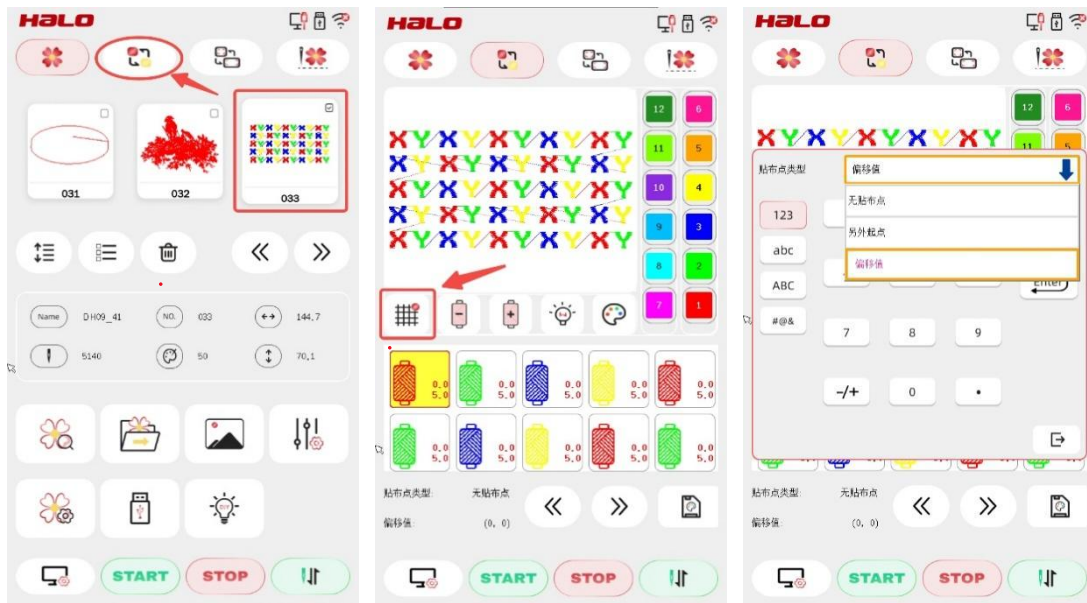
5 Adding Patch Embroidery to Pattern

When a pattern requires the patch embroidery function, the system offers two operation methods: manual frame movement and automatic frame movement.

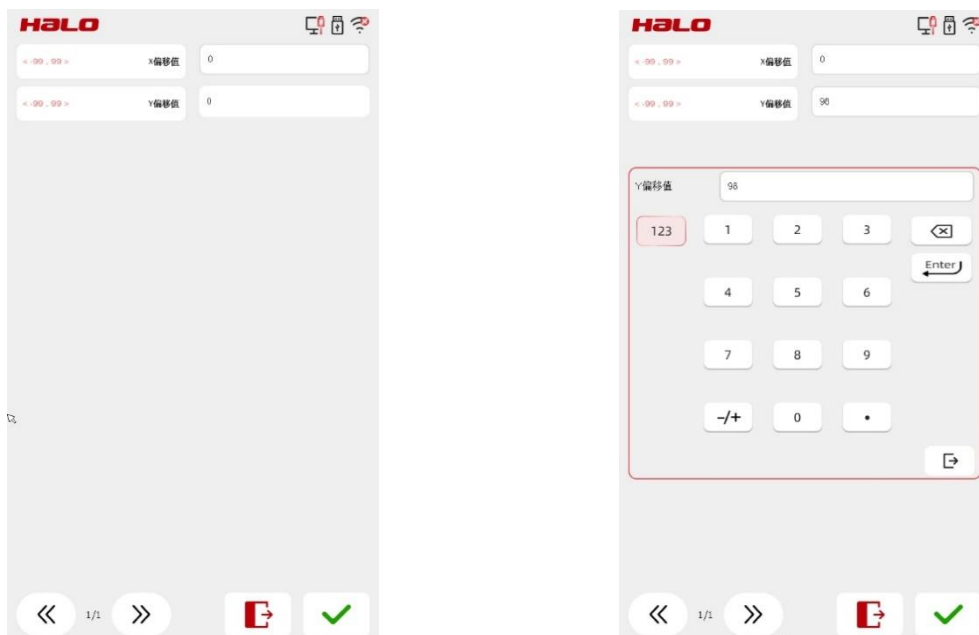
Manual Frame Movement Operation Method: During embroidery, the machine will automatically stop when it encounters a stop code. At this point, press the " " or " " arrow keys to move the embroidery frame to the desired position for patch placement. After placing the patch, click the " " icon, then select "Return to Stop Point" from the option list to confirm the frame returns to the stop point. Finally, press the start button to resume embroidery.

Automatic Frame Movement Operation Method: Set the "Patch Embroidery" function for the pattern, then select the pattern for embroidery. When the machine encounters the patch embroidery function during embroidery, it will automatically move the frame to another starting point or a preset patch position. You can then perform the patch placement. After completing the patch placement, press the start button, and the frame will automatically return to the point before it moved out and continue embroidering. The specific steps are as follows:

- 1, Click the " " icon to enter the Memory Pattern Management interface and select the pattern to which you want to add patch embroidery..
- 2, Click the " " icon to enter the Color Change interface as shown in the figure below.
- 3, Click the " " icon to enter the Patch Point Type interface. After selecting the patch point type, click the " " icon to confirm.



4, Click the " ✓ " icon to set the point as a patch point. Click the " ✖ " icon to cancel the patch point.



5, After completing all settings, click the " 📁 " icon, and the system will automatically save the patch data. To embroider the pattern with the patch settings, click the " 🧵 " button in the lower-left corner to confirm embroidery. If not, you may continue selecting other patterns or performing other operations.

※ If a pattern has both an patch point and an alternative start point set, when the patch point is encountered, you can choose either to move the frame uniformly to the alternative start point or to move the frame according to the set frame movement value.

※ To add the "patch embroidery" function to a pattern, if you later do not require frame movement, you need to cancel the patch point.

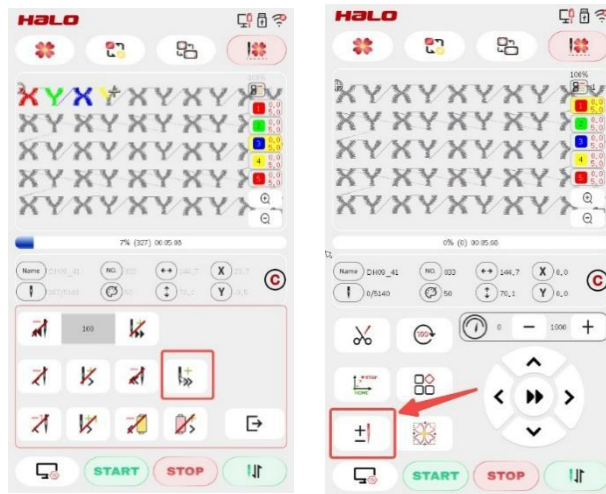


※ If the frame over-travels during the frame movement process, simply click the "  " icon manually after placing the patch, select "Return to Stop Point" to go back to the stop point, and then the machine can resume normal embroidery.

6 Normal Embroidery and Idle Running

6-1 The Relationship Between Normal Embroidery and Idle Running

To facilitate repair embroidery, the system is equipped with idle running and backtracking functions. Depending on the operational requirements, the user may select low-speed, high-speed, or positioning idle running. Correspondingly, backtracking can be performed in low-speed, high-speed, or positioning idle running modes. Press the "  " button on the main embroidery interface to display the idle running operation menu.



6-2 Low-speed idle running

Operation: When the machine is stopped, click the "  " icon to start low-speed continuous idle running forward. The spindle does not rotate, and the embroidery frame moves forward along the pattern stitch path. Click the "  " icon to start low-speed continuous idle running backward. The spindle does not rotate, and the embroidery frame moves backward along the pattern stitch path.

6-3 High-speed idle running.

Operation: When the machine is stopped, click the "  " icon to start high-speed continuous idle running forward. The spindle does not rotate, the embroidery frame remains stationary, and the stitch count increases. Click "  " to stop high-speed idle running forward; the embroidery frame will then move directly to the actual position corresponding to the current stitch count. Click the "  " icon to start high-speed continuous idle running backward. The spindle does not rotate, the embroidery frame remains stationary, and the stitch count

decreases. Click " " to stop high-speed idle running backward; the embroidery frame will then move directly back to the actual position corresponding to the current stitch count.

6-4 Positioning idle running.

It allows the embroidery frame to move forward (or backward) directly to a specified stitch count position, or to move forward (or backward) directly to the most recent color change point.

Operation:

1) Click the number "100" at  to display the specified idle running stitch count. After entering the desired stitch count, click " "to confirm the positioning idle running stitch count. Then click the " " or " " icon to move the embroidery frame forward or backward to the specified stitch count position.

2) Click the " " or " " icon to move the embroidery frame forward or backward to the next or previous color change point.

7 Frame Movement Operations

7-1 Access the Frame Movement Interface

On the main embroidery interface, click the "  "button to enter the Frame Movement Interface. Click the "  " icon to access the Frame Selection Interface, choose the desired embroidery frame, and click "  " to confirm the frame selection. If no frame is currently available, click the "  "icon in the Frame Movement Interface to enter the Frame Management Interface. Click "  "to add a new frame. In this interface, set the frame parameters, including frame type, width, height, corner radius, and center position.





7-2 Frame Movement Interface Operations

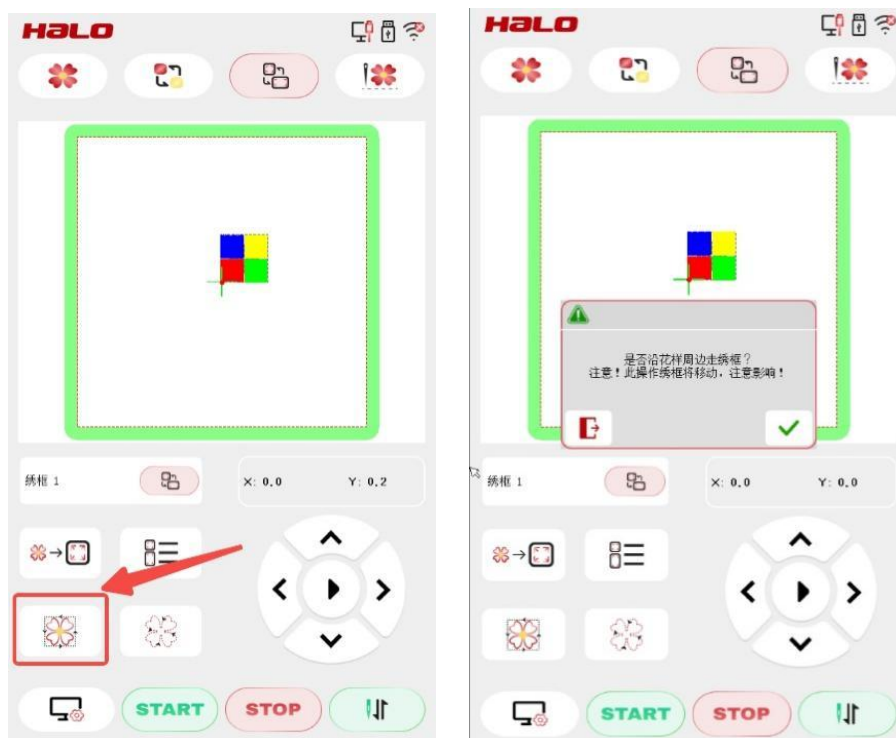
In the Frame Movement Interface, press the " " or " " arrow keys to move the embroidery frame at different speeds. After a pattern is selected and the machine starts embroidery, you can observe the relative position of the pattern within the frame in this interface and check whether the pattern can be embroidered safely within the frame. When the pattern is within the frame boundaries, the frame is displayed in green; when the pattern exceeds the frame boundaries, the frame is displayed in red. Click the " " icon, and a dialog box will appear prompting: "Move pattern to frame center?" Click the " " icon to move the pattern's center point to the center of the frame. When embroidery is confirmed and started, the pattern will be embroidered at the exact center of the frame.



7-3 Frame movement along the pattern perimeter

After selecting a pattern and before starting embroidery, perform this operation to move the embroidery frame along the pattern perimeter for one cycle to check for overruns. The specific steps are as follows:

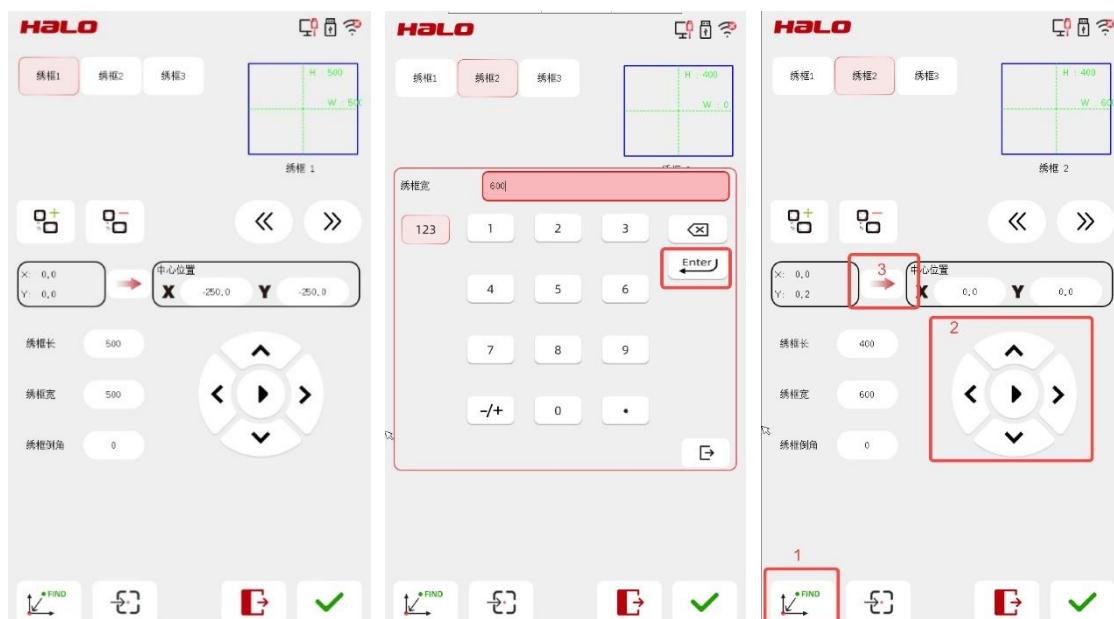
1. In the Frame Movement Interface, click the "  " icon. A dialog box will appear prompting: "Move frame along pattern perimeter?" as shown in the figure below:



2. When the "✓" icon is clicked in the "Move frame along pattern perimeter?" prompt, the system will automatically move the embroidery frame along the pattern perimeter starting from the current position as the origin, and check for any "over-limit" conditions. If the current pattern origin would cause the frame to exceed the limit, the system will automatically display a warning. The operator must then readjust the frame's origin position and use this function again to verify whether the "over-limit" condition is resolved. If no over-limit occurs, the operator can press the start button to begin embroidering the pattern from the current position. If the "↶" icon is clicked at this point, the "Move frame along pattern perimeter" operation will be canceled.

7-4 Setting and Adding Frame Parameters

In the Frame Movement Interface, click the "📏" icon to enter the Frame Editing and Settings Interface. In this interface, you can add or delete frames, as well as modify their relevant parameters. After adding a new frame, first click the "📍" icon to locate the mechanical origin. Then measure the physical dimensions of the frame and mark its center point. Next, use the "⬅️" or "➡️" arrow keys to move the frame until the needle position aligns with the physical center point of the frame. At this point, click the "➡️" icon to save the current frame position as the frame center point parameter. Finally, click the "✓" icon to confirm and add the new frame.



- (1) To add a new frame, click the "  " icon in this interface. A new frame will appear in the upper-left area of the interface, and all frame parameters will be set to a default value of 0. The user must then enter the actual length and width of the frame (in units of 0.1 mm) based on its actual dimensions. If the frame has rounded corners, the corner radius value should also be entered. (Note: For safety reasons, it is recommended to set the length and width values 30–50 units less than the actual frame dimensions to ensure mechanical safety.)
- (2) To determine the center coordinate position of the frame, first click the "  " icon in this interface to locate the mechanical origin. When the dialog box "Find frame origin?" appears, click the "  " icon, and the embroidery frame will move to the mechanical origin position. Then, use the "  " or "  " arrow keys to move the needle to the physical center point of the frame. The X and Y values displayed on the embroidery interface indicate the center point coordinates of the frame at this position. Click the "  " icon to save the frame's center point to the frame parameters. Finally, click the "  " icon in the lower-right corner of the interface to save the frame.

7-5 Return to stop point

After stopping the machine during embroidery, if the frame has been moved manually (e.g., for Patch Embroidery), this function allows the frame to return to the original stop point once the operation is complete. The specific steps are as follows:

- (1) After stopping the machine during embroidery, press the arrow keys to move the frame outward (e.g., for Patch Embroidery).
- (2) After completing the Pattern number operation, click the "  " icon. The stop point operation dialog box will appear on the main interface.



(3) Click the Return to Stop Point option. When the dialog box appears, click " ✓ " to automatically return the embroidery frame to the stop point and wait to resume embroidery. (Click " ↵ " to cancel the operation.)

7-6 Return to Origin Operation

If the machine is stopped during embroidery and the frame has been moved manually, or if the automatic return to origin was not set after embroidery completion, this operation allows the frame to return to the pattern origin. The specific steps are as follows:

(1) Click the "  " icon to display the Return to Origin Operation menu, as shown in the figure below:



(2) Click "Return to Origin" to automatically return the embroidery frame to the origin. Click "  " to cancel the operation.

8 Parameters Related to Embroidery Speed

During embroidery, the machine's spindle speed is automatically adjusted by the computer based on the stitch length of the pattern. Long stitches are embroidered at low speed, while short stitches are embroidered at high speed. However, the maximum achievable speed of the machine is set by the user, referred to as the **"Maximum Speed"** setting. Within the set maximum speed range, the speed up/down keys can be used to control the current maximum embroidery speed.

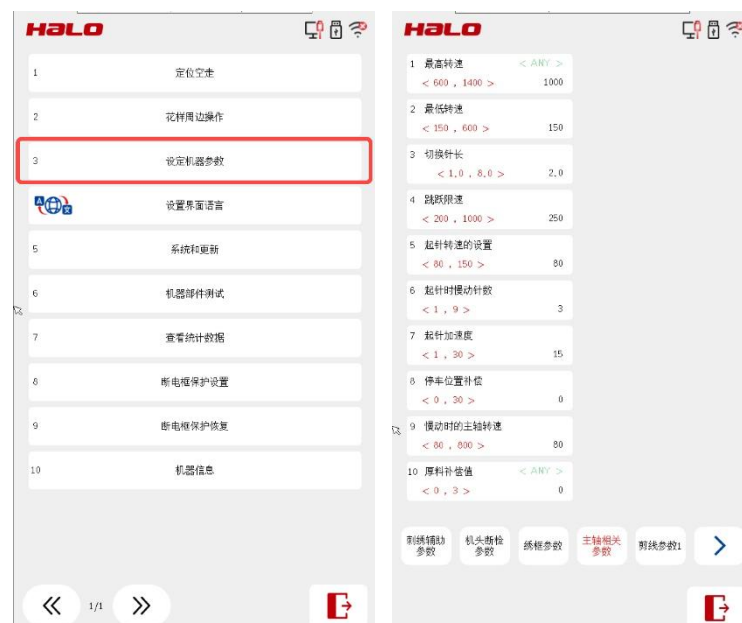
The machine's maximum speed can be set within a range of 600 to 1,000 rpm, depending on the user's requirements. When selecting the maximum speed, no margin needs to be reserved. For example, if the machine is normally used at 900 rpm for embroidery, it is recommended to set the maximum speed to 900 rpm.

8-1 Setting Maximum and Minimum Speed

Function: This setting determines the machine's maximum and minimum speed limits.

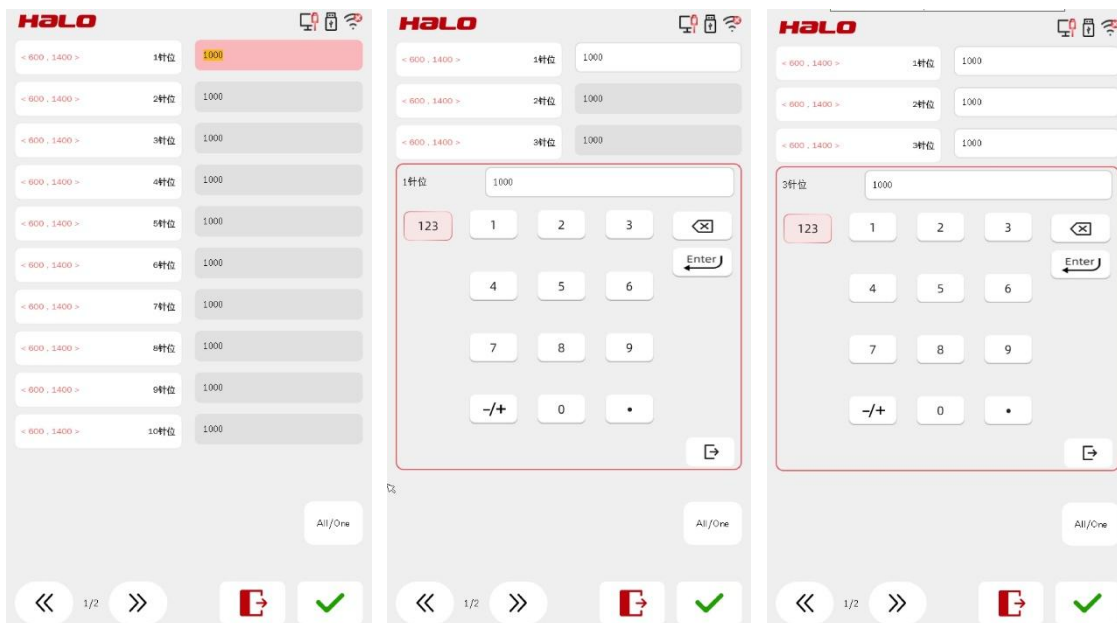
Operation:

1. Click the " " icon at the bottom of the interface to enter the menu interface. Click the "Machine Parameter Settings" icon to access the Machine Parameter Settings interface, then click "Spindle-Related Parameters" to enter the Spindle-Related Parameters interface.



2. Click the "Maximum Speed" item or the "Minimum Speed" item to set the specific speed according to user requirements.

Operation: Click the "Maximum Speed" option, then click "All/One" to switch between uniformly setting the maximum speed for all needle numbers or individually modifying the maximum speed for specific needle numbers as needed. Enter the desired speed using the number icons, then click the "✓" icon to confirm the change. Click the "Minimum Speed" option. The minimum speed can only be set uniformly for all heads. Enter the desired speed using the number icons, then click the "✓" icon to confirm the change. Click the "✗" icon to cancel the modification.



Note: It is recommended to use the factory settings for the maximum speed.

8-2 Setting the Embroidery Speed

Function: Sets the operating speed during embroidery.

Operation:

- (1) Tap the "+" icon. Each tap increases the speed by 10 rpm. Press and hold for continuous rapid increase until the preset maximum speed is reached.
- (2) Tap the "-" icon. Each press decreases the speed by 10 rpm. Press and hold for continuous rapid decrease until the preset minimum speed is reached.

8-3 Description of Spindle-Related Parameters

No.	Parameter Name	Description / Operation
1	Maximum Speed	Sets the maximum operating speed during embroidery.
2	Minimum Speed	Sets the minimum operating speed during embroidery.
3	Switch Needle Length	Range: 1.0–8.0. When the stitch length exceeds this value, the machine automatically reduces the operating speed. This parameter also affects the machine's maximum speed. Default 4.0: If the stitch length is less than 4.0, the machine runs at the set speed. If the stitch length exceeds 4.0, the machine automatically slows down. At the same time, the maximum allowable speed is limited to 950 rpm (even if the system is set to 1100 rpm, the actual operating speed cannot exceed 950 rpm).
4	Jump Stitch Speed Limit	Limits the maximum spindle speed during jump stitches. Default: 850 rpm Range: 400–1000 rpm
5	Setting the Start Needle Speed	Sets the spindle starting speed when beginning embroidery. Default: 80 rpm Range: 80–150 rpm
6	Number of Slow Start Stitches	Sets the number of slow start stitches when beginning embroidery. Default: 3 stitches Depending on the elasticity of the thread and the trim length, increasing this value appropriately can prevent the top thread from pulling out at the start of sewing.

7	Start Needle Acceleration	Range: 1–30 , Sets the acceleration rate from start speed to the control speed. Increasing this value allows the machine to speed up more quickly after the start lever is engaged. When using an inverter-driven spindle, this parameter may have little effect due to the inverter's built-in acceleration limits. When using a servo-driven spindle, the effect is more noticeable. However, setting the value too high is not recommended, as the frame acceleration may not keep up, potentially causing misalignment during speed changes.
8	Stop Position Compensation	Fine-tunes the spindle stop position. Range: 0–30 . A higher value moves the stop position further backward.
9	Spindle Speed During Slow Run	Sets the spindle speed when the right lever is engaged for slow running. Default: 300 rpm, Range: 80–800 rpm
10	Thick Fabric Compensation Value	Range:0–3, Default: 0

9 Auxiliary Functions and Parameter Modifications

9-1 Pattern Peripheral Operations

No.	Parameter Name	Description / Operation
1	Embroidery Along the Pattern Outline	After selecting an embroidery pattern (before confirming and starting embroidery), this function automatically generates a square border around the current pattern and returns to the main screen. The user can then engage the start lever to begin embroidery. The machine will stitch the square border at the current position and automatically return to "Ready Mode" upon completion.
2	Machine Cross-Stitching	In the embroidery ready state, this function allows the user to input the length of the crosshair in the X and Y directions (in millimeters). The system then automatically returns to the main screen. The user can engage the start lever to begin embroidery. The machine will stitch a cross using the current position as the origin and automatically return to "Ready Mode" upon completion.
3	Machine Straight Line Stitching	In the embroidery ready state, this function allows the user to input a stitch length value. Use the "◀▶" and "↕" keys to move the hoop to the start point and confirm, then move the hoop to the end point and confirm. The system will connect the start and end points to form a straight line and automatically return to the main screen. The user can engage the start lever to stitch this line. Upon completion, the machine automatically returns to "Ready Mode".
4	Stitching the Pattern Outline	After selecting an embroidery pattern (before confirming and starting embroidery), this function automatically generates an approximate outline of the current pattern and returns to the main screen. The user can then engage the start lever to begin embroidery. The machine will stitch the pattern outline at the current position and automatically return to "Ready Mode" upon completion.

9-2 Head Thread Break Detection Parameters

No.	Parameter	Description	Default
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1	Thread Break Detection	Sets whether the system enables thread break detection for the embroidery machine.	ON
2	Start Stitches - No Break Detection	Sets the number of stitches at the start of embroidery for which thread break detection is disabled. This parameter is typically set to 3. For machines prone to false alarms at start-up, this value should be increased accordingly.	3 stitches
3	Thread Break Back Stitch Count	Sets the number of stitches the machine automatically reverses after a thread break to facilitate re-embroidery on the stopped head. Set to 0 to disable auto-reverse. Adjustable according to on-site requirements.	0 stitches
4	Back Stitch Count for Re-embroidery	Back Stitch Count for Re-embroidery on the Broken Thread Head. Sets the number of stitches for re-embroidery on the head where the thread is broken. Range: 0–10 stitches. If Thread Break Back Stitch Count is set to 3 and Back Stitch Count for Re-embroidery is set to 1: After reversing 3 stitches, the broken head re-embroider 2 stitches, while all other heads re-embroider 1 stitch. If the Back Stitch Count for Re-embroidery is greater than the Thread Break Back Stitch Count, all heads will perform re-embroidery.	0 stitches
5	Re-embroidery End Action Mode	Determines how the machine operates after re-embroidery is completed. This parameter is effective only when "Re-embroidery on All Heads" is set to OFF. Normal: The machine continues embroidering at the original speed after re-embroidery ends. Slow Down: The machine reduces speed before re-embroidery ends. After re-embroidery is completed, it runs at a lower speed for three stitches, then accelerates back to the original speed.	Slow Down

		Stop: The machine automatically stops when re-embroidery ends and waits for the start lever to be engaged. If set to Stop, and no heads are lit red after reversing, all heads will perform re-embroidery collectively.	
6	Jump Stitch Break Detection Bypass Count	Sets the number of stitches after a jump stitch during which the system does not check for thread breaks. Because the upper thread is typically pulled longer after a jump stitch, the first few needle penetrations may cause false thread break detections. Default: 3 stitches If false alarms occur frequently after jump stitches, increase this value accordingly. Range: 1–15 stitches.	3 stitches
7	Upper Thread Break Detection Sensitivity	Adjusts the sensitivity of upper thread break detection. A lower value increases sensitivity. Range: 1–15.	10
8	Bobbin Thread Break Detection Sensitivity	Adjusts the sensitivity of bobbin thread break detection. A lower value increases sensitivity. Range: 1–15.	10
9	Upper Thread Break Detection Debounce Count	A higher value reduces sensitivity and minimizes false alarms. A lower value increases sensitivity but may lead to more frequent false detections.	3 stitches
10	Bobbin Thread Break Detection Debounce Count	A higher value reduces sensitivity and minimizes false alarms. A lower value increases sensitivity but may lead to more frequent false detections.	3 stitches
11	Thread Break	Sets the type of thread break detection.	Spring

	Detector Type	Options: Spring + Wheel: Upper thread detection + Bobbin thread detection Spring Only: Upper thread detection only Wheel Only: Bobbin thread detection only	+ Wheel
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9-3 Frame Parameters

No.	Parameter	Description	Default
1	Incremental Frame Movement	Determines whether the frame moves in single steps when executing long jump stitches.	OFF
2	Frame High-Speed Feed Rate	Sets the speed coefficient for high-speed frame movement. When set to the second gear, the high-speed frame movement becomes faster.	Second Gear
3	Frame Traverse Speed	Sets the speed for frame movement during jump stitches, color changes, or when returning to the origin after embroidery completion. It is generally recommended to keep the default setting. Setting this value too high may cause the frame drive to lose synchronization.	50
4	X-Direction Frame Angle A	Internal parameters for technician use only. Effective for servo-driven frame movement on high-speed machines. End users should not adjust to avoid affecting embroidery quality.	250
5	X-Direction Frame Angle B	Same as above	250
6	Y-Direction	Same as above	250

	Frame Angle A		
7	Y-Direction Frame Angle B	Same as above	250

9-4 Thread Trim Parameters

No.	Parameter	Description	Default
1	Jump Stitch Trimming	Range: 0–7. Set to "No Trim" to disable trimming during jump stitches. To reduce the number of floating threads on the fabric surface, set the minimum number of jump stitches that will trigger a trim. Different parameters can be set for different needle positions.	3-Stitch Trimming
2	Trim Length	Range: 1–8 Higher values result in a longer trim length.	3
3	Trimming Speed	Range: 60–120 rpm A lower trimming speed results in a longer upper thread trim length. Default: 80 rpm	80
4	Post-Trim Start Speed	Range: 60–150 rpm	80
5	Post-Trim Slow Stitch Count	Range: 1–7 Sets the number of slow-running stitches for the spindle when restarting after trimming.	2
6	Lock Stitch Length (mm)	Range: 0.3 – 1.5 mm Sets the stitch length for lock stitches when restarting after trimming. Default: 0.7 mm A higher value increases the lock stitch length, helping to prevent the thread end from pulling out at the start.	0.7

7	Post-Trim Lock Stitch Count	Range: 0 – 6 Sets the number of lock stitches when restarting after trimming. Default: 2 stitches Helps prevent the thread end from pulling out at the start. Set to 0 to disable lock stitches after trimming.	2
8	Post-Thread Trim Action Mode:	After trimming, the system can be set to Off, X-Axis Shift, Y-Axis Shift, or Reposition Needle.	None
9	Temporarily Disable Thread Trim	The system can also set whether to temporarily disable thread trimming for different needle positions.	No
10	Lock Stitch Length Before Trimming (mm)	Parameter Range: 0.5-2.0mm. Sets the lock stitch length when "Lock Stitch Before Trimming" is enabled. Default: 0.7mm.	0.7
11	Pre-Trim Lock Stitches	Parameter Range: 0-4. Sets the number of lock stitches performed before thread trimming to prevent thread loosening. Default: 2 stitches. Set to "0" to disable lock stitching before trimming.	2
12	Starting Thread Wiper Times	Parameter Range: A–C . Number of face thread clamp actions at start of embroidery. Default: C When set to "A", the face thread clamp does not actuate.	C
13	Trimmer Knife Angle Adjustment	Parameter Range: 0-25. Adjusts the trimmer knife extension angle of the stepping motor. A higher value results in a later knife extension for thread trimming.	15
14	Trimmer Knife Closing Angle Adjustment	Parameter Range: 0-25. Adjusts the trimmer knife return angle of the stepping motor. A higher value results in a later knife return angle.	15
15	Trimmer Speed Adjustment	Parameter Range: 0-9. Sets the trimmer knife return speed. A higher value results in a slower return speed.	9

16	Trimming Mode	Parameter Range: High Speed, Standard	Standard
17	Trim During Repair?	Parameter: Yes/No	No
18	Trimmer Return Speed Adjustment	Parameter Range: <0, 6>	6
19	Manual Trim Stitch Compensation	Parameter: Yes/No	Yes
20	Lock Stitch Mode	Parameter Range: Default, 53, 54, 55	Default
21	Start Lock Wipper A Angle	Parameter Range: <0, 360>	41

9-5 Embroidery Auxiliary Parameters

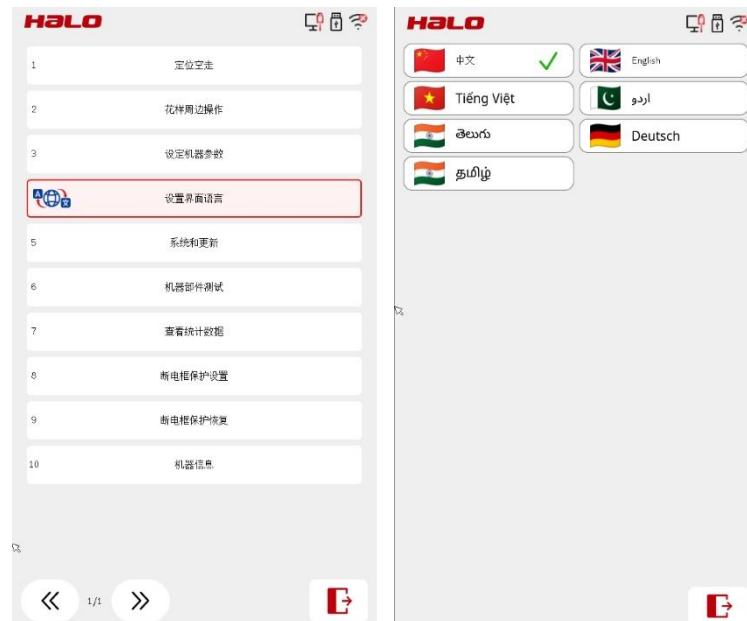
No.	Parameter	Description	Default
1	Return to Origin After Embroidering	Whether the embroidery frame automatically returns to the start point of the design after embroidery is completed.	Yes
2	Display Stitch Count	Whether to display the total stitch count of the design and the embroidery progress.	Yes
3	Whether to filter empty stitches.	When loading a design into memory, this setting determines whether to filter out empty stitches from the design. Empty stitches generally refer to empty running stitches (3,0,0) and empty jump stitches (4,0,0). Empty running stitches following a jump stitch are not filtered. All empty running stitches at the start of the design are filtered.	Yes
4	Auto-start	When the same color needle bar appears	Yes

	selection when same color.	consecutively in the color sequence, this setting determines whether embroidery starts automatically. If set to "No," the system will automatically stop when encountering the same color needle bar, waiting for manual intervention or another pull of the start handle to resume embroidery.	
5	Whether to remember manual color changes.	Yes: The manual color change value is recorded into the color change sequence and saved. No: The manual color change value is not recorded into the color change sequence. When set to "Yes," it automatically reverts to "No" after the completion of one design.	NO
6	Whether to display the total stitch count of the design.	Yes: Displays the total stitch count of the design. No: Does not display the total stitch count of the design.	NO
7	Whether to enable 3D display.	Yes: Displays the design in 3D mode. No: Displays the design in standard mode.	No
8	Filtered Short Stitch Length During Embroidery	Parameter Range: (0.0 - 1.5)	0.3
9	Whether to trace during idle run.	Yes: Traces the pattern during idle run. No: Does not trace the pattern during idle run.	NO
10	Whether to set the speed by needle bar.	Parameter Range: Yes / No	Yes
11	Whether to prompt to return to the	Parameter Range: Yes / No	Yes

	stop point after manual frame movement.		
12	Short Stitch Filter Mode	Parameter Range: High Efficiency / Standard	High Efficiency

9-6 Language Selection

Click the "  "icon to enter the System Menu. Click the Set Interface Language menu, then directly select the desired language. The system will automatically return to the main interface, and the information will be displayed in the selected language. To cancel the operation, click the"  " icon to exit.

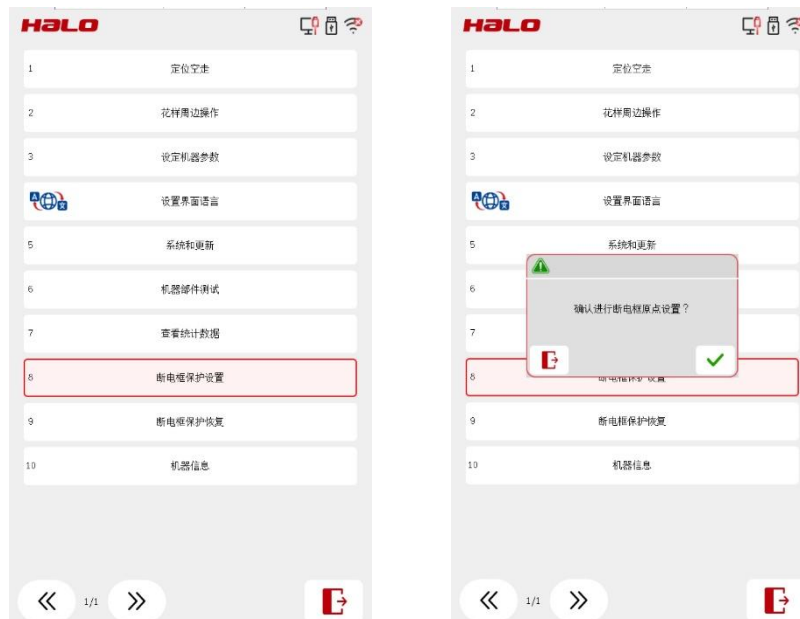


9-7 Power-Off Frame Protection Setting

Power-Off Frame Protection Setting must be configured when no design is loaded. Before saving the current embroidery frame position, the user can first use the frame movement keys on the panel to move the frame to the desired origin position. Then, use the Power-Off Frame Protection Setting function to save this position. The specific operation is as follows:

- 1, Click the "  " icon to enter the System Menu.
- 2, Click Power-Off Frame Protection Setting. The system will display a dialog box: Confirm to set power-off frame origin?

3, To proceed, click the "  " icon. The device frame will automatically move in the X and Y directions until it reaches the frame limits in both directions. The system will then save the current position coordinates. Therefore, when using the Power-Off Frame Protection Setting, the embroidery machine must be equipped with functioning limit switches; otherwise, frame collision or memory errors may occur. Click the "  " icon to exit the operation.



4, After this setting is configured, if an emergency stop occurs due to a malfunction during embroidery, or if a sudden power failure happens while embroidering, or if the embroidery frame is manually moved after a power failure—or any other abnormal situation—the position of the embroidery frame can be restored using the frame coordinate data saved before the power failure.

9-8 Power-Off Frame Protection Recovery

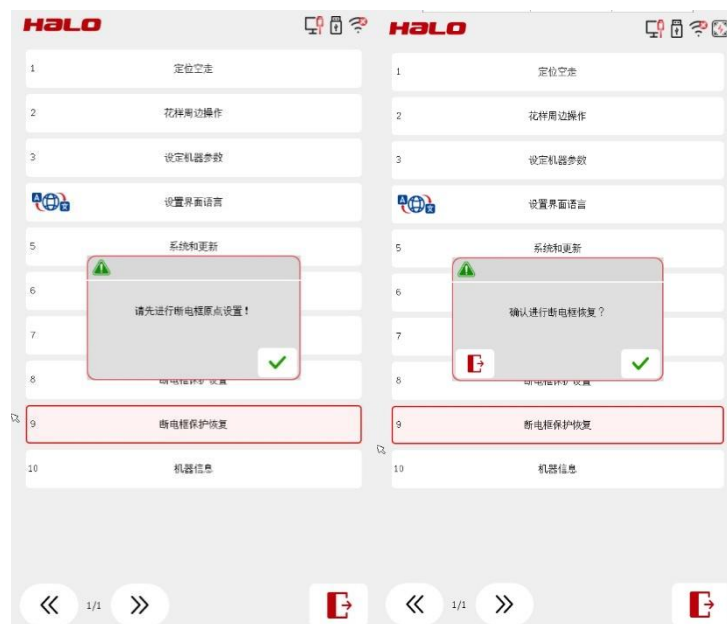
If the embroidery frame was moved after a power failure, this function can be used to restore the frame to its position before the power failure when the machine is powered on again. The effectiveness of this operation depends on the Power-Off Frame Protection Setting having been configured beforehand.

Operation method:

- 1.Ensure the main shaft is stopped at the 100-degree position.
- 2.Click the "  " icon to access the Auxiliary Functions menu. Click Power-Off Frame

Protection Recovery. The system will prompt: Confirm power-off frame recovery?

3.To proceed, click the " ✓ " icon. The device frame will automatically move in the X and Y directions until it contacts the limit switches in both directions. The system will then restore the frame position based on the coordinate data saved before the power failure. Therefore, when using Power-Off Frame Protection Recovery, the embroidery machine must be equipped with functioning limit switches; otherwise, frame collision or recovery errors may occur. Click the " E " icon to exit the operation.



9-9 Other Auxiliary Functions

No.	Parameter	Description	Default
1	Whether to lock the main shaft when stopped.	On certain machine models where the main shaft has low resistance, locking the main shaft is necessary to prevent it from being affected by inertia after high-speed stopping, ensuring it stops stably at the stop position. In this case, the Lock Main Shaft When Stopped function should be enabled.	yes
2	Log File	This function is used to view the error information log files saved by the system, making it easier for system administrators to identify the cause of faults.	

10 Memory Patter Management

10-1 Embroidery Pattern Selection

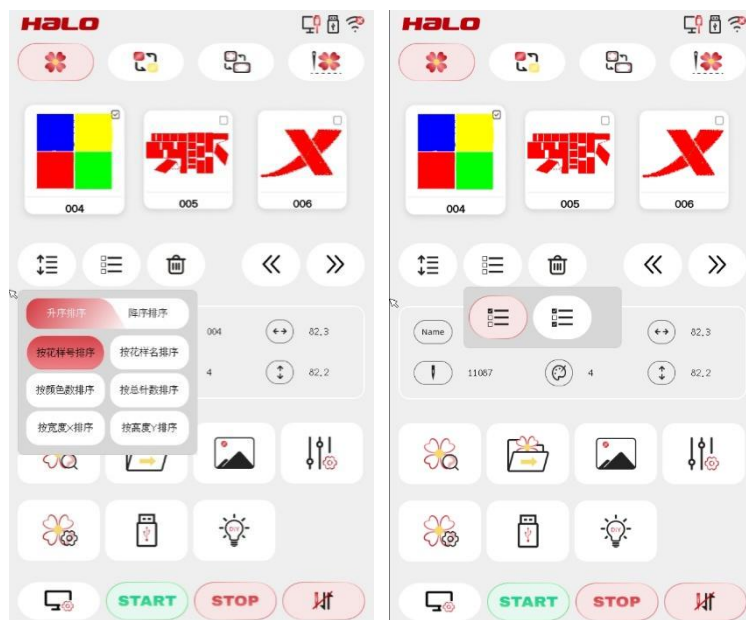
This function is used to select a pattern from the system memory as the design to be embroidered. The interface displays a thumbnail preview of the design for easy browsing. For detailed operation, please refer to Section 4-2-3.

10-2 Memory Pattern Display

This function displays a design from the system memory. The memory design display interface includes: Design Thumbnail View and Full-Screen Design View. The specific operation is as follows:

1. Click the "  " icon to enter the Design Management interface.

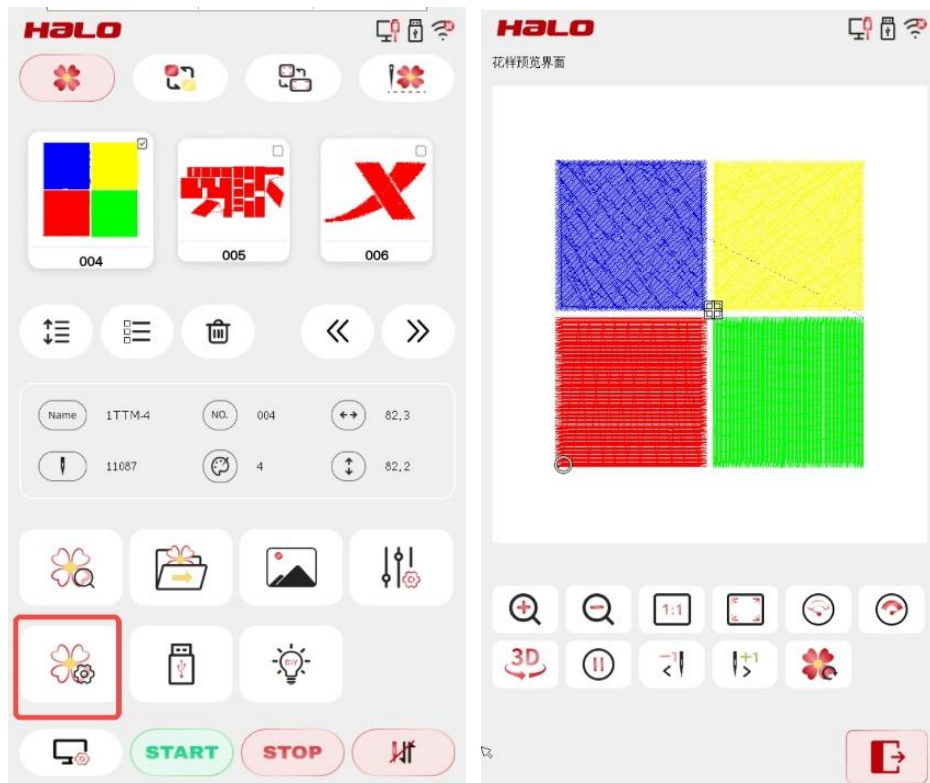
2. The upper part of the screen displays thumbnails of patterns in memory, while the lower part shows basic information of the selected pattern, such as pattern number, pattern name, and coordinate dimensions. If the pattern directory spans more than one page, use the "  "  " page flip icon to browse. Click "  " to select the sorting direction. Click the "  " icon to set the selection mode (single-select or multi-select).



3. At this point, clicking the "  " icon will enter the Full-Screen Display interface for the current pattern. The user can use the icons at the bottom of the interface to display the pattern in various ways, allowing for detailed inspection of the pattern, its details, color change

sequences, and specific stitches.

4. Click the "  " icon to exit the display.

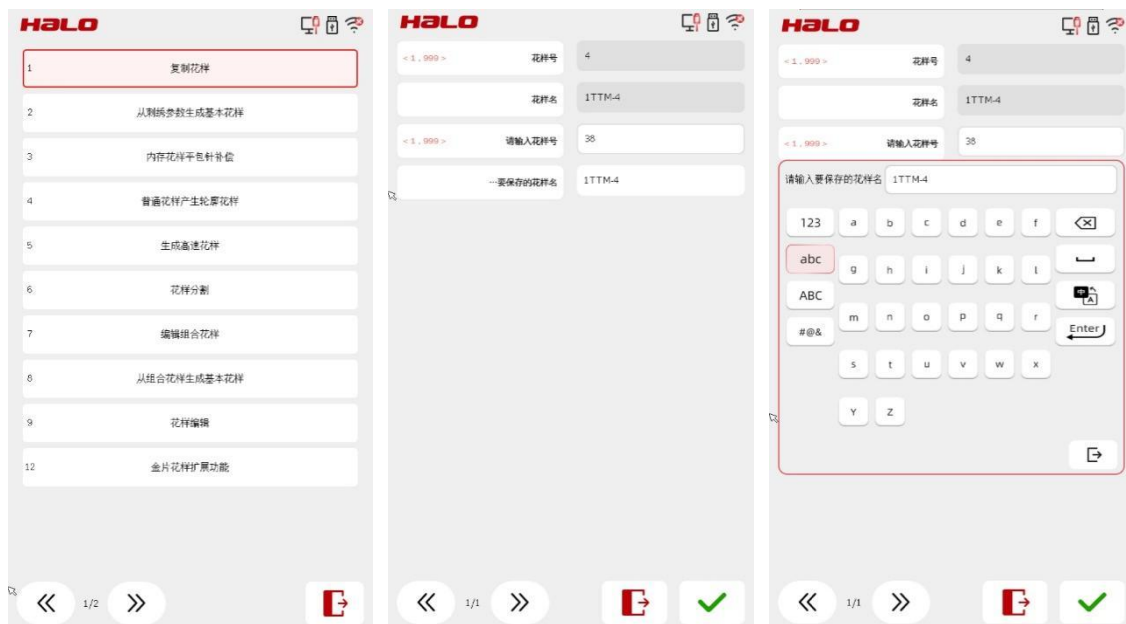


10-3 Copying Patterns in Memory

Procedure:

1. Enter the Memory Pattern Management interface. Use the "  "  " page flip icon to select the pattern to be copied, or directly click to select the desired pattern manually. Then, click the "  " icon to proceed to the next step. (To cancel the operation, click the "  " icon to return to the Pattern Management menu.)

2. The system will automatically assign the smallest available pattern number and retain the same pattern name. If no modification is needed, simply click the "  " icon, and the system will save the newly copied pattern with this pattern number and name. To enter a different pattern number, click the corresponding number icons to input the new pattern number, then click the "  " icon to confirm the change. The system will then save the newly copied pattern with the new pattern number and the same pattern name.



3.If the new pattern number entered already exists in memory, the system will prompt:
"Pattern number already exists. Please enter a different one."

10-4 Pattern Editing

Please refer to Chapter 11, Memory Pattern Editing, for related instructions.

10-5 Deleting Patterns from Memory

This function is used to delete a pattern from the machine's memory. The specific steps are as follows:

1.Click the "  "icon to enter the Memory Pattern Management interface. Use the "   "page flip icon to select the pattern to be deleted, or directly click to select the desired pattern manually. Then, click the "  "icon. The system will display a "Confirm pattern deletion?" prompt.

2.At this point, directly click the "  "icon to delete the selected pattern. To cancel, click the "  "icon to abort the deletion and return to the Memory Pattern Management interface.

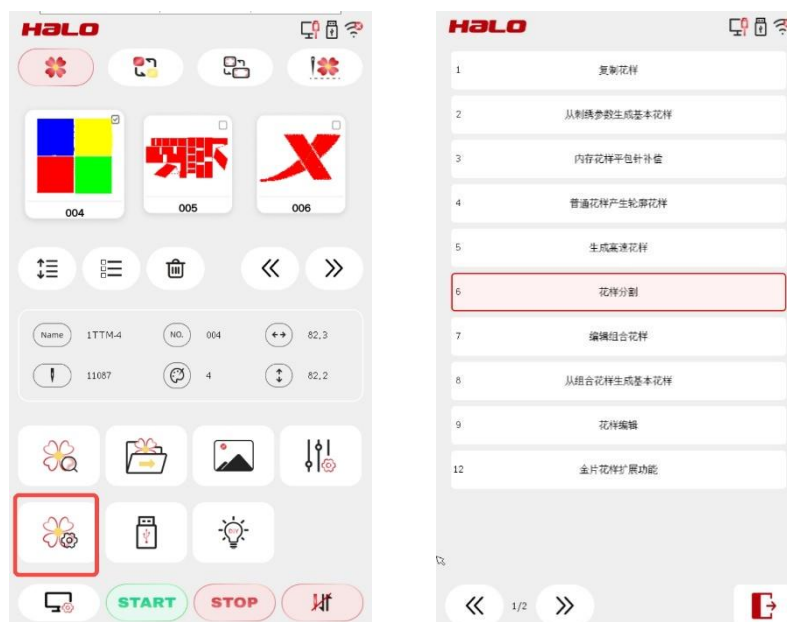
3.After the pattern is deleted, the system will remain in the Delete Pattern from Memory interface and highlight the next pattern available for deletion. To exit without further deletions, click the "  "icon. To continue deleting, repeat step 1 to select another pattern.



10-6 Splitting Patterns in Memory

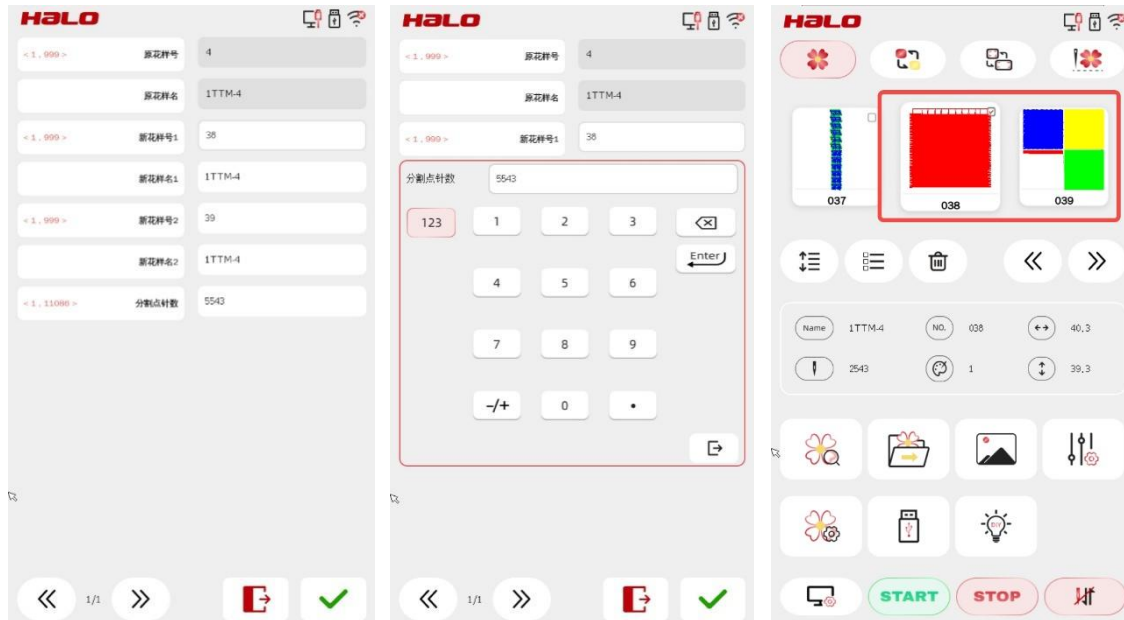
This function allows you to split any pattern stored in memory into two new patterns, while keeping the original pattern unchanged. The specific steps are as follows:

1. Enter the Memory Pattern Management interface. Use the " << >> "page flip icon to select the pattern to be split, or directly click to select the desired pattern manually. Click the "  "icon to access the Memory Pattern Management options, then select "Split Pattern" to enter the Pattern Splitting interface.



2. Use the number icons to enter the "Split Point Stitch Count", as well as the "Pattern Number" and "Pattern Name" for the first and second patterns after splitting. Then, click the

"  "icon to confirm. (Note: The system will automatically provide the smallest available pattern numbers and the same pattern name for both new patterns. If no changes are needed, simply click the "  "icon to confirm.)



3. After clicking the  "icon, the system will split the pattern and save it as two new patterns. To cancel the pattern splitting operation during this process, simply click the "  "icon.

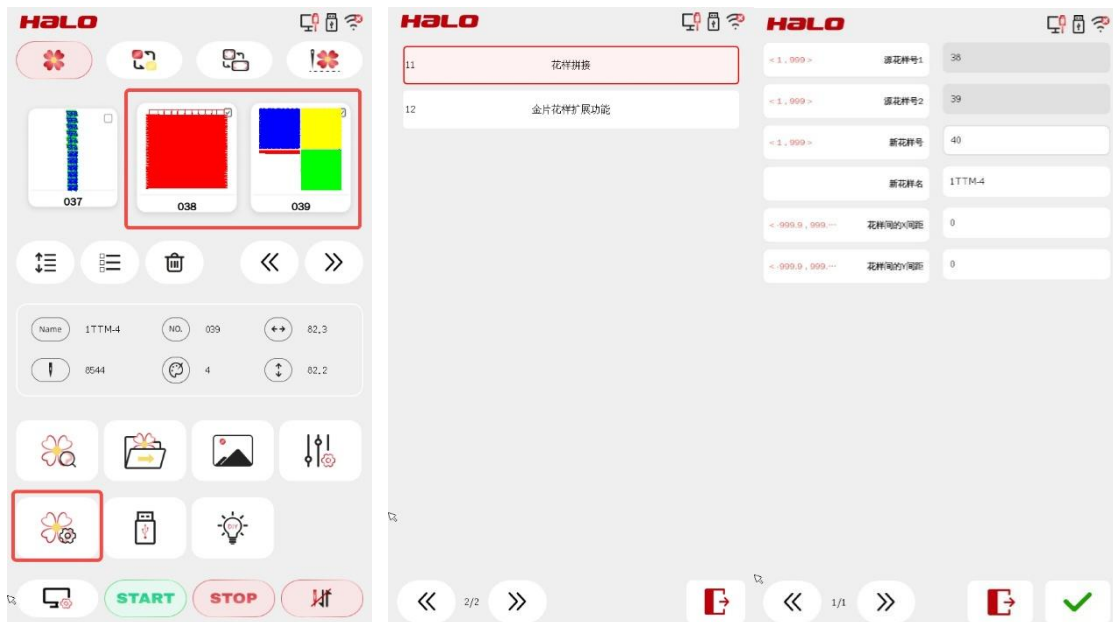
10-7 Merging Patterns in Memory

This function allows you to merge any two patterns stored in memory into a single new pattern. The spacing between patterns refers to the distance from the end point of the first pattern to the start point of the second pattern (unit: mm). The specific steps are as follows:

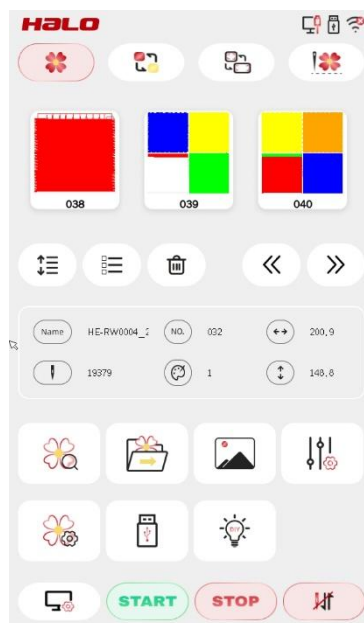
1. Click "  "to enter the Memory Pattern Management interface. First, click "  "to switch to the multi-select icon "  ", Then, use the "  "  "page flip icon or manually click to select the two patterns to be merged. After selecting, click "  "to access the Memory Pattern Management options, and select "Merge Patterns" to enter the Merge Patterns in Memory interface.

2. The system will then display dialog boxes for "New Pattern Number", "New Pattern Name", "X Spacing Between Patterns", and "Y Spacing Between Patterns". Based on actual requirements, the user can enter the pattern number, pattern name, and the X and Y spacing values (unit: mm) using the number keys. Alternatively, simply click the "  " icon, and the

system will save the newly merged pattern using the smallest available pattern number, the same pattern name, and the default spacing value (0 mm).



3. After completing the modifications and confirming, click the "" icon, and the system will proceed to merge and save the patterns." ✓ "icon, and the system will proceed to merge and save the patterns.



4. After the pattern merge is successfully saved, the system will automatically return to the Memory Pattern Management interface. To cancel the pattern merging process at any time, click the " " icon to exit.

10-8 Editing Combination Patterns in Memory

A combination pattern is a grouped set of up to 99 memory patterns, each with its own parameters. When embroidered, these patterns are stitched automatically in sequence. In the Memory Pattern Management interface, combination patterns are marked with the "🌈" icon. To embroider a combination pattern, after creating and saving it, return to the Memory Pattern Management interface. Select the desired combination pattern, click the "✂️" icon, and then confirm the embroidery setup. After that, you can start the embroidery by pulling the start lever. After that, you can start the embroidery by pulling the start lever.

1. Click "🌸" to enter the Memory Pattern Management interface. Click the "🌈" icon, then select the "Edit Combination Pattern" menu. The system will use the pattern number of the currently selected pattern for editing (if no pattern is selected, the system will default to pattern number 0).



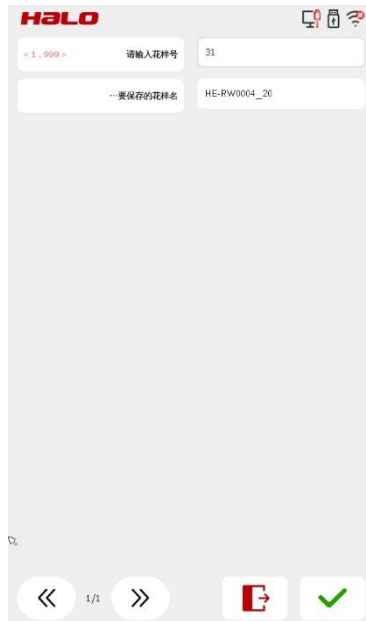
2. Use the "Pattern Number" of the selected pattern or modify it as needed. Then, set the "Rotation Angle", "Pattern Orientation", "X Scaling Factor", "Y Scaling Factor", and "Priority Mode" for the pattern. After completing the settings, click the "➡️" icon to edit the second pattern in the combination.



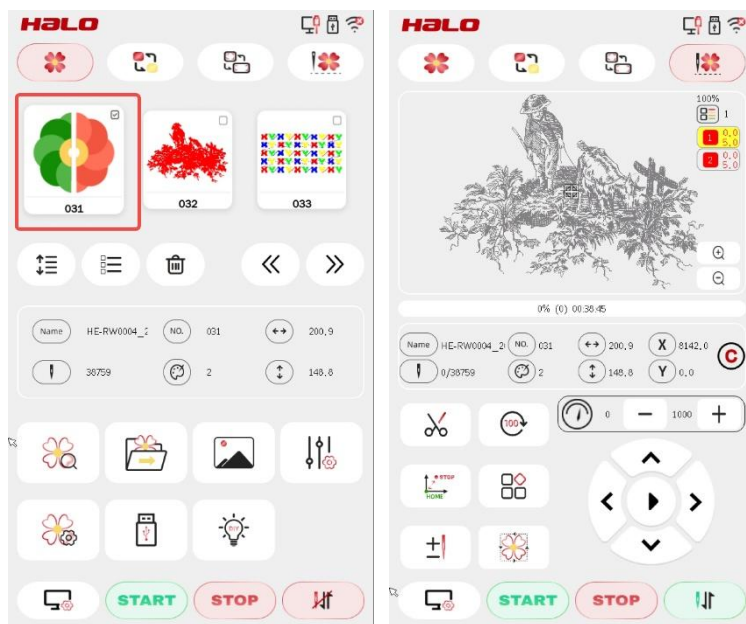
3. Enter the editing interface for the second combination pattern. First, input the pattern number for the second pattern to be combined, and set its parameters, including "Rotation Angle", "Pattern Orientation", "X Scaling Factor", "Y Scaling Factor", and "Priority Mode". Follow this process to continue adding and configuring multiple patterns for the combination. If the pattern being modified is not the first pattern in the combination, set the "X Spacing Relative to the First Pattern" and "Y Spacing Relative to the First Pattern" (unit: mm) as needed.



4. After modifying the embroidery parameters for all patterns, click the " ✓ " icon. The system will automatically assign the smallest available pattern number to save this combination pattern. Click the " ✓ " icon to save the combination pattern and its information. To exit without saving, click the " ↩ " icon.



5. After the combination pattern is edited and saved, enter the Memory Pattern Management interface, where you will see that the pattern has been successfully saved in memory. However, this pattern cannot be previewed. It must first be selected and "Confirmed for Embroidery" before the system parses and displays it.



10-9 Clearing All Patterns from Memory



Note: This operation clears all patterns from memory and must be used with caution.

The specific steps are as follows:

1. Click the "  " icon to access the Memory Pattern Management menu. Click the "  " option and select "Clear All Patterns".

2.The system will display a confirmation prompt: "Clear all patterns?"

3.To confirm clearing all patterns from memory, click the "✓" icon; all patterns in memory will be deleted. To cancel, click the "✗" icon.



10-10 Loading Patterns from USB Drive to Memory

This operation transfers and saves patterns from a USB drive to the system memory for selection during embroidery. For detailed steps, refer to section 4.2.1 Loading Patterns from USB Drive to Memory.

10-11 Exporting Patterns from Memory to USB Drive

This operation exports a specific pattern from the embroidery system's memory to a USB drive. The detailed steps are as follows:

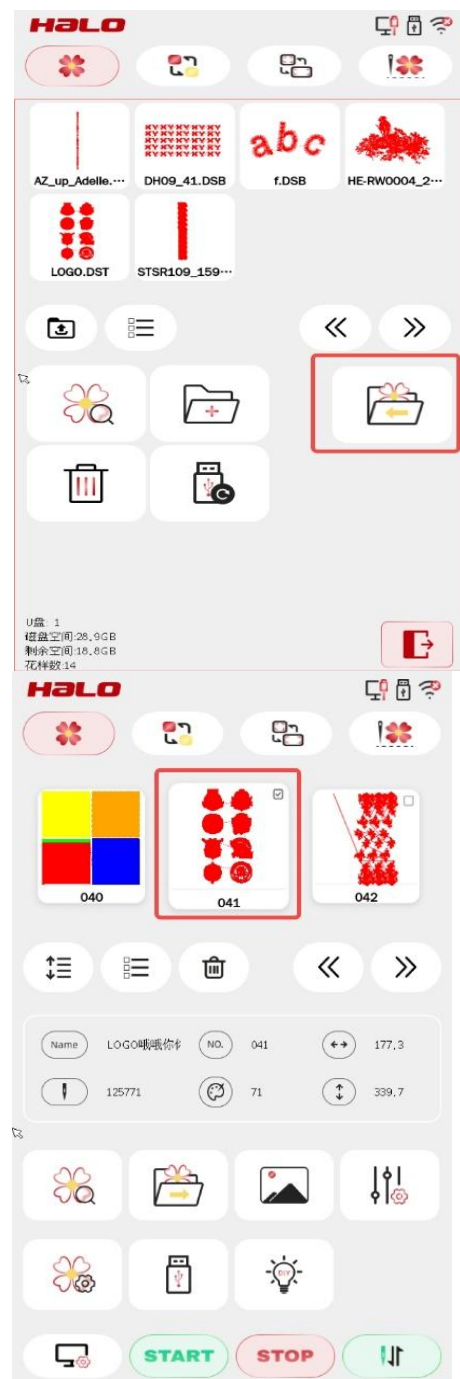
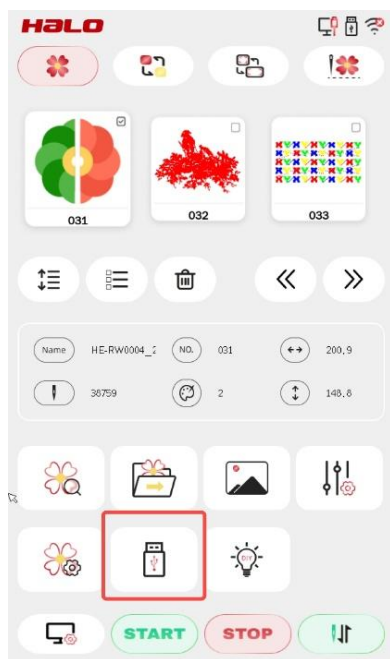
1.Insert the USB drive and click the "🌸" icon to enter the Memory Pattern Management interface.

2.The system will list and preview the patterns stored in memory. Use the "◀ ▶" page flip icon or manually click to select the pattern to be exported. After clicking the "📁" icon, the interface will display the disk directory. Select the desired folder for saving. (If saving to the root directory, move the cursor to any file within the root directory.)

3.Click the "📁" icon, The system will display a "Pattern Name" dialog box along with the corresponding letter and number icons on the keyboard. To modify the name, use the icons to

enter a new pattern name, then click the " ✓ "icon to confirm. The system will save the pattern to the USB drive using this new file name. If no modification is needed, simply click the " ✓ "icon to confirm, and the system will save the pattern to the USB drive using its original file name from memory. To exit, click the " ↵ "icon.

4.After confirming the output file name, the system will prompt you to select a destination directory on the USB drive. You can choose to save the pattern to the root directory or any other directory as needed.

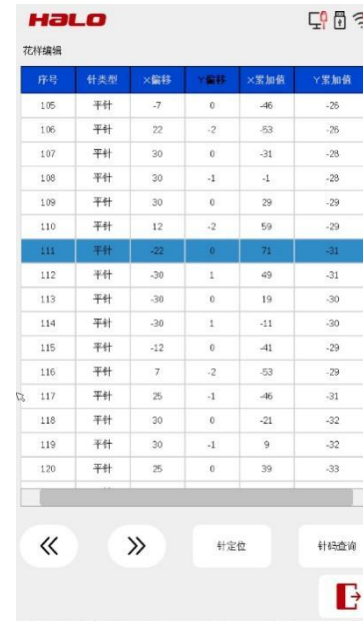
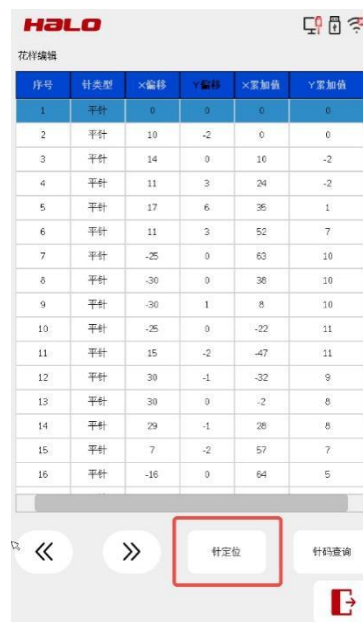


11 Pattern Editing

To meet user requirements, the embroidery system provides a convenient function for editing standard patterns stored in memory. This function allows you to make simple edits and modifications to existing patterns or create a new pattern.

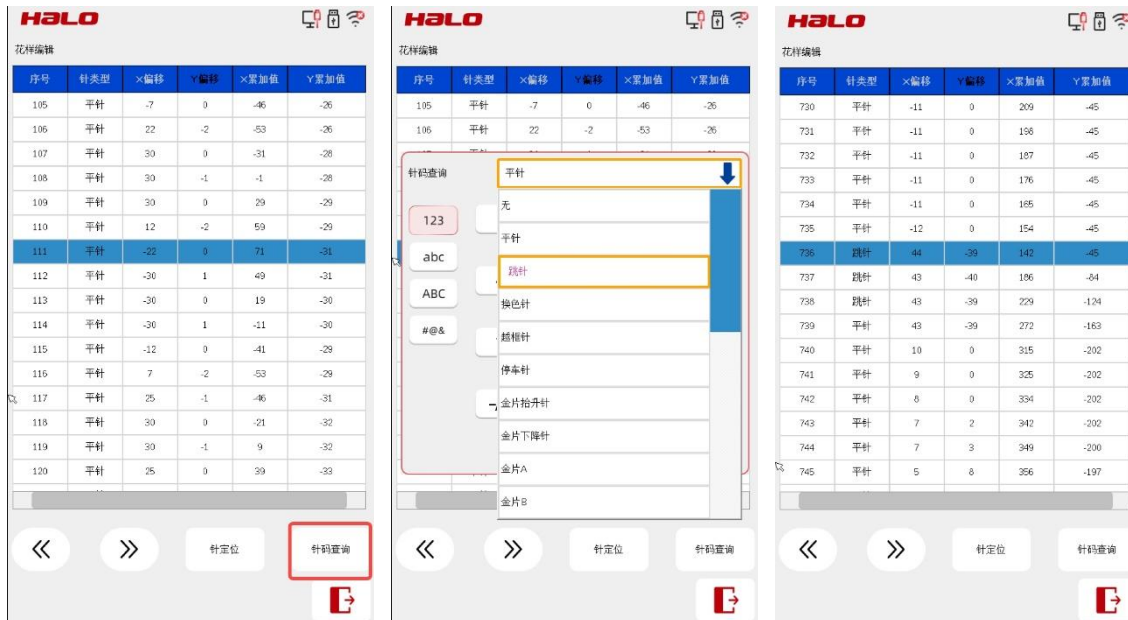
11-1 Needle Positioning

- 1、Click the "🌸" icon to enter the Memory Pattern Management interface. After clicking the "🌸" icon, select "Pattern Editing". In the Pattern Editing menu, you can use the function options to quickly locate a specific stitch. To find a particular stitch, click the "Needle Positioning" icon, enter the desired stitch number using the number icons, and the system will locate that stitch.



11-2 Stitch Length Query

Click the "Stitch Length Query" icon to enter the Stitch Length Query interface. Select the stitch length you wish to query, then click the "✓" icon to quickly locate the next stitch with that length.

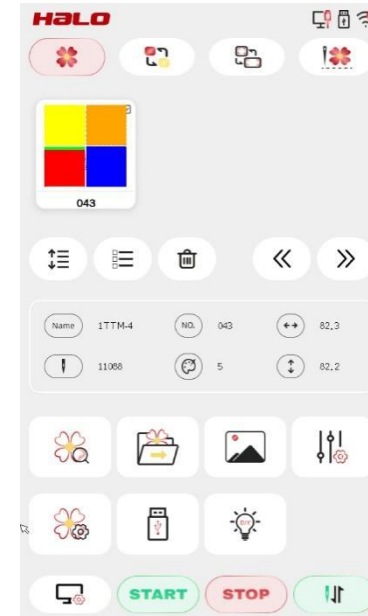
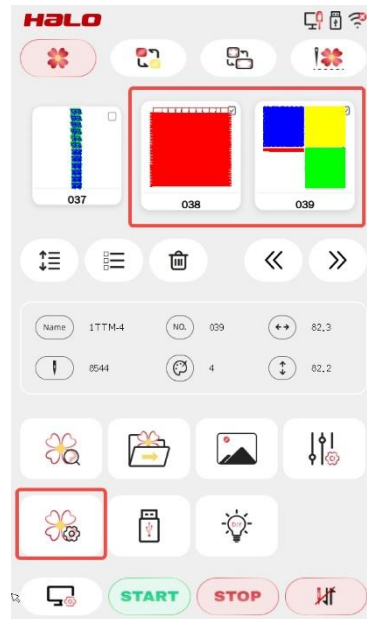


12 Compiling and Generating Special Patterns

12-1 Generating High-Speed Patterns

This operation splits stitches longer than 5 mm (system default) into shorter stitches, preventing speed reduction during embroidery caused by long stitches and thereby increasing the embroidery speed. The specific steps are as follows:

Click the "✿" icon to enter the Memory Pattern Management interface. Use the "⏪" "page flip icon or manually click to select the pattern for which you want to generate a high-speed version. After clicking the "✿" icon, select "Generate High-Speed Pattern". The system will display a "Enter Pattern Number" dialog box and automatically provide the smallest available pattern number along with the original pattern's name. If no modification to the pattern number is needed, simply click the "✓" icon, and the system will save the high-speed pattern using this pattern number and name.



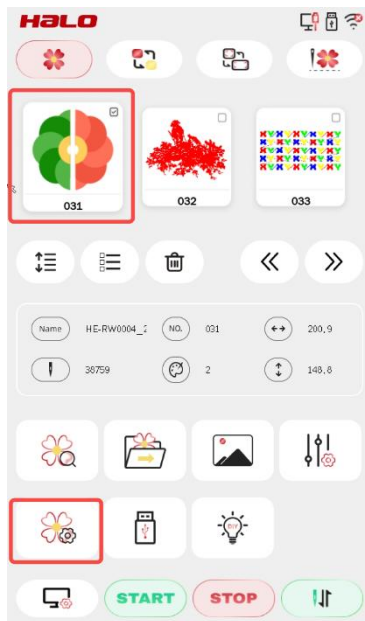
 **Note:** High-speed patterns should be generated based on the actual process requirements of the embroidery workpiece. Use caution when generating patterns that do not meet the process specifications. Blindly creating and embroidering high-speed patterns may result in process discrepancies and potential losses.

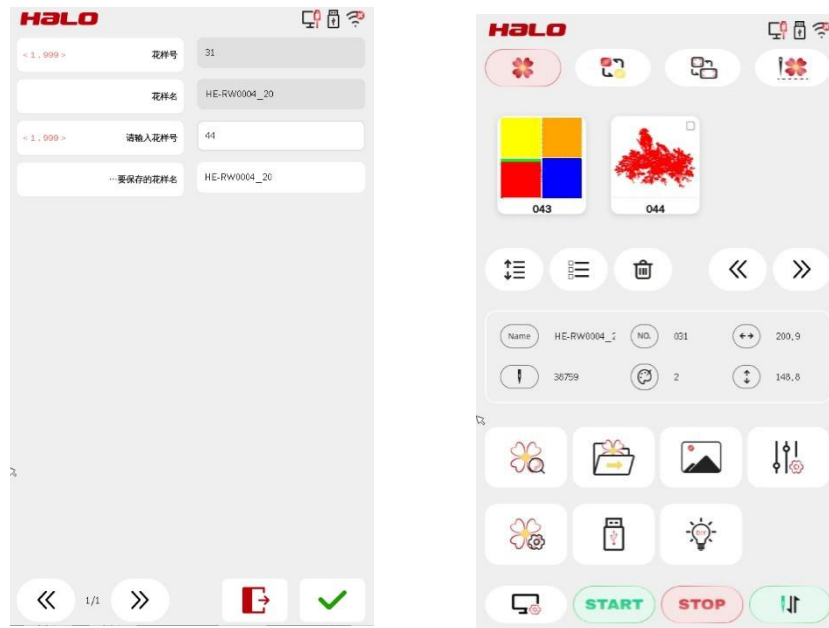
12-2 Generating Basic Patterns from Combination Patterns

As introduced in the previous section, 10-8 《Editing Combination Patterns》, the "Combination Pattern" generated by this system is essentially an information file that combines multiple patterns and parameters. It can only be embroidered after being parsed by this system. To transfer and embroider such patterns on embroidery control systems of different brands, a standard, readable basic pattern must be generated. This menu provides the operation for

generating a basic pattern from a combination pattern. The specific steps are as follows:

1. Click the "🌸" icon to enter the Memory Pattern Management interface. Use the "⏪ ⏩" page flip icon or manually click to select the combination pattern from which you want to generate a basic pattern. Combination patterns are identified by the "🌈" icon. (Note: Combination patterns cannot be previewed.) To select a combination pattern, you must remember its pattern number from previous use.) After clicking the "🌸" icon, select "Generate Basic Pattern from Combination Pattern". The system will display an "Enter Pattern Number" dialog box and automatically provide the smallest available pattern number along with the original combination pattern's name. If no modification to the pattern number is needed, simply click the "✅" icon. The system will save the generated basic pattern using this pattern number and the original pattern name. Once saved, the system will automatically return to the Memory Pattern Management interface.





2. After saving, to continue generating basic patterns, select a new combination pattern and repeat the process. To exit, press the "  " icon.

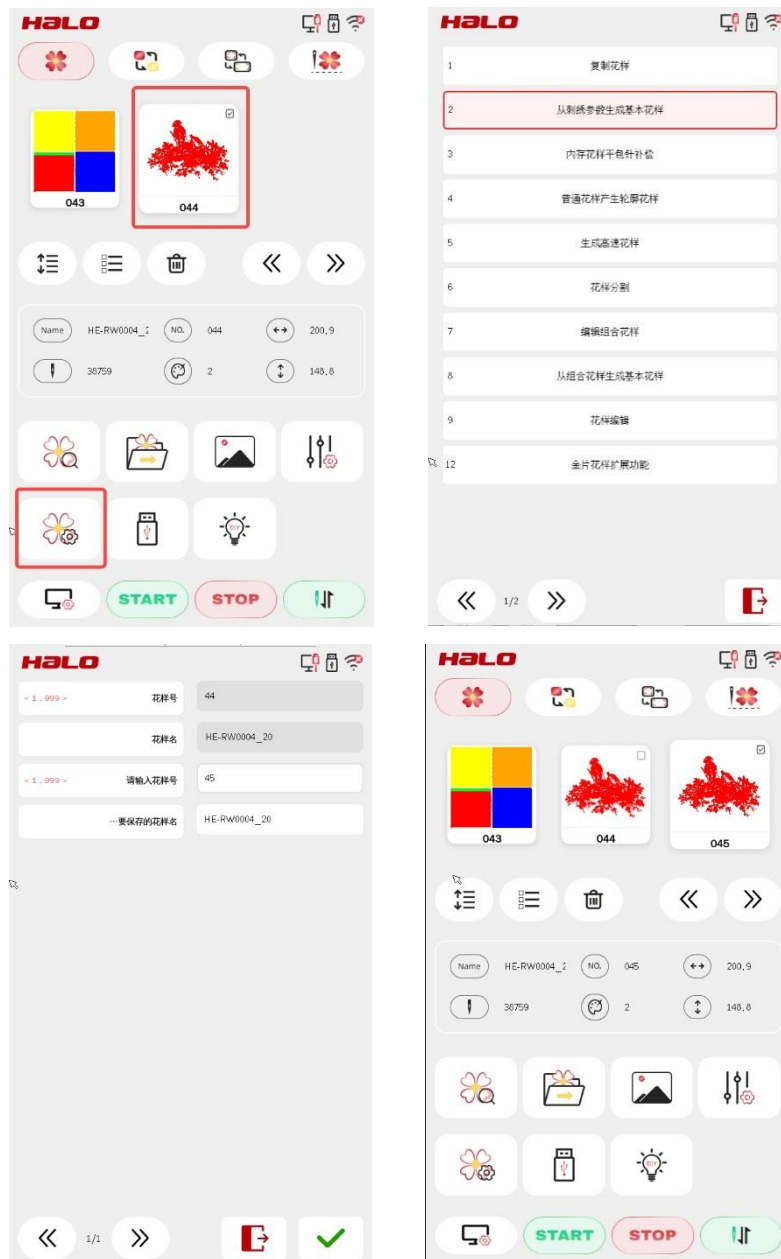
3. After generating a basic pattern from a combination pattern, you can enter the Memory Pattern Management interface and see that the basic pattern has been successfully created from the combination pattern.

12-3 Generating Basic Patterns from Embroidery Parameters

This operation generates a basic pattern that incorporates modifications such as scaling, rotation, and repeats, based on a pattern stored in memory with associated embroidery parameters. Therefore, this operation is only meaningful when changes such as scaling, rotation, or repeats have been applied; otherwise, the generated pattern will be identical to the original. The specific steps are as follows:

1. Click the "  " icon to enter the Memory Pattern Management interface. Use the "  " >> " page flip icon or manually click to select the desired pattern. After clicking the "  " icon, select "Generate Basic Pattern from Embroidery Parameters". The system will display an "Enter Pattern Number" dialog box and automatically provide the smallest available pattern number along with the selected pattern's name. If no modification to the pattern number is needed, simply click the "  " icon to confirm. Once saved, the system will

automatically return to the Memory Pattern Management interface.

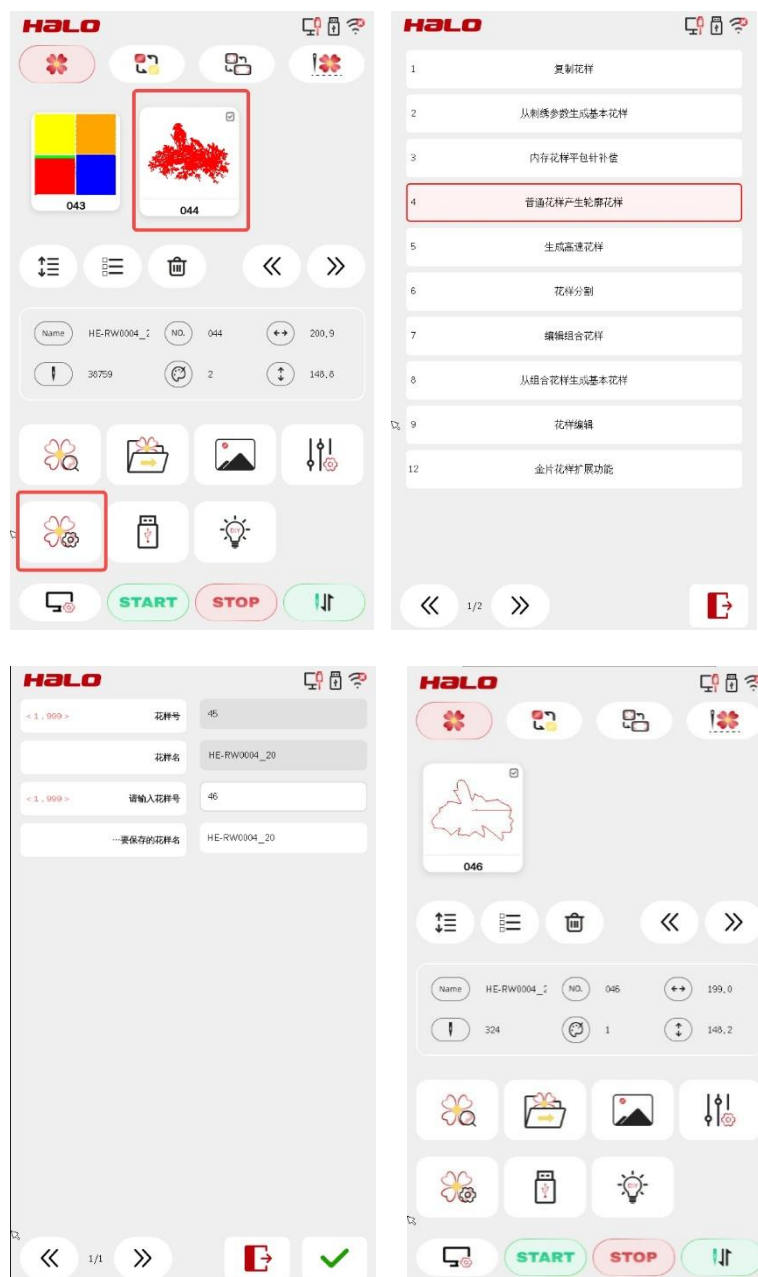


2.The system will then save the basic pattern generated from the embroidery parameters using this pattern number and the selected pattern's name. To continue generating more basic patterns, repeat the steps above. To exit, click the "  "icon.

12-4 Generating Outline Patterns from Standard Patterns

This operation generates an outline pattern based on the perimeter of a pattern stored in memory. If the original pattern has associated embroidery parameters (such as scaling, rotation, or repeats), the generated outline pattern will also reflect these modifications. The specific steps are as follows:

1. Click the "🌸" icon to enter the Memory Pattern Management interface. Use the "◀ ▶" page flip icon or manually click to select the desired pattern. After clicking the "🌸" icon, select "Generate Outline Pattern from Standard Pattern". The system will display an "Enter Pattern Number" dialog box and automatically provide the smallest available pattern number along with the selected pattern's name. If no modification to the pattern number is needed, simply click the "✅" icon to confirm. Once saved, the system will automatically return to the Memory Pattern Management interface.



2.The system will save the outline pattern generated from the basic pattern using this pattern number and the selected pattern's name. To continue generating more outline patterns, repeat the steps above. To exit, click the "  "icon.

13 Jog Operation of the Machine

 **Warning:** This operation involves the rotation of the machine spindle. Ensure personal safety.

13-1 Jog Operation

When the embroidery machine requires a slow manual rotation (e.g., one full turn) or needs to be automatically positioned at 100°, the jog operation can be used to meet these requirements. The specific steps are as follows:

Click the "  " or "  " icon, and the system will display the jog operation menu, as shown in the figure below:



A confirmation prompt will appear: "Confirm jog operation?" After clicking the "  "icon, the spindle will slowly rotate one full turn and stop at the 100° position.

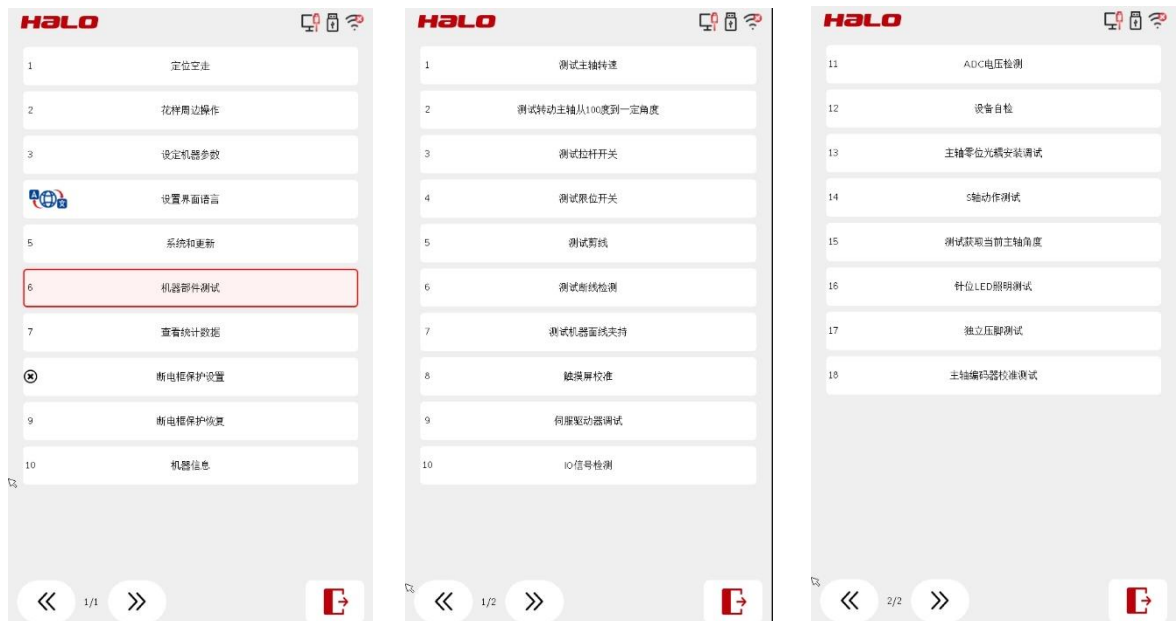
14 Machine Self-Diagnosis and Component Self-Diagnosis

 **Note:** The operations in this section are intended for use by professional maintenance personnel only and are not relevant for general embroidery operators. These operations involve mechanical movement and rotation. Therefore, exercise caution to ensure personal safety and

prevent equipment damage.

14-1 Machine Component Testing

The component tests in this section include: Spindle speed test、Spindle rotation test (from 100° to a specified angle)、Start lever switch test、Limit switch test、Thread trim test、Thread break detection test、Thread tension test、I/O signal test.



14-2 Spindle Speed Test

This self-diagnosis function rotates the spindle at a set speed and compares the set speed with the actual measured speed for debugging purposes. After entering the speed self-diagnosis interface, click the icons on "  "to increase or decrease the spindle speed. Compare the set speed and the measured speed displayed on the interface to evaluate the accuracy and stability of the spindle operation. To exit the test, click the"  "icon.



14-3 Testing spindle rotation from 100° to a specified angle

This operation allows the spindle to be rotated from 100° to any specified angle for machine maintenance and debugging. After entering the menu, the system will prompt: "Enter spindle angle". Use the number icons to input the desired angle, then click the " ✓ " icon. The spindle will rotate to that angle and stop. To rotate to another angle, simply enter a new angle using the number icons and confirm. To exit the operation, click the " Exit " icon.



15 System Software Upgrade Operation

To continuously improve system functionality and enhance the user experience, the company provides periodic system software upgrades for different machine models. The upgrade process is simple, convenient, and highly reliable. A properly performed system upgrade will not affect existing parameter settings or the embroidery patterns currently stored in memory.

15-1 Software Version Upgrade

The specific steps are as follows:

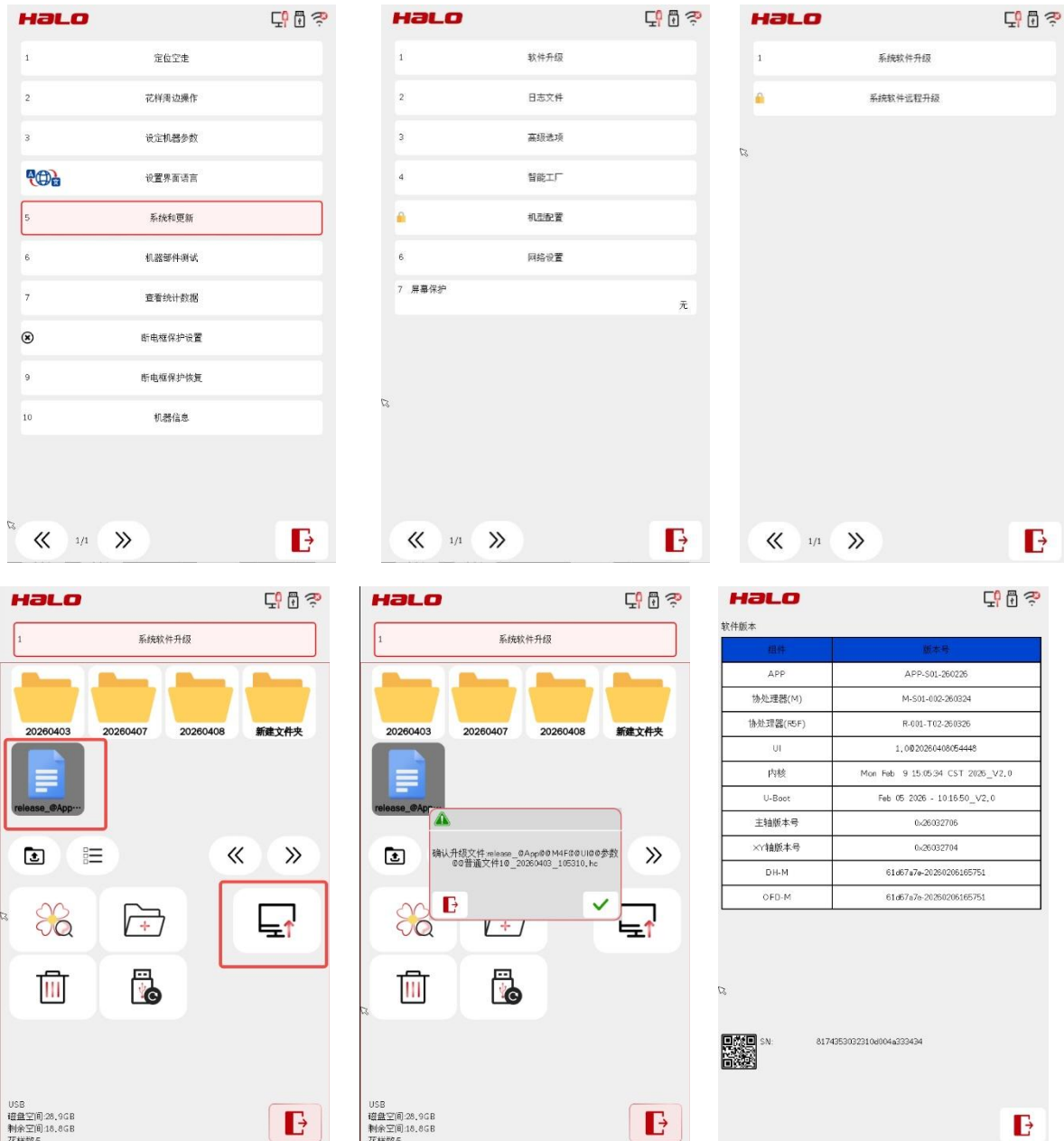
1. Insert the USB drive containing the system software into the "USB" port on the operation panel. Click the " "icon to enter the Auxiliary Function Menu. Select "System and Updates", then choose "Software Upgrade", and click "System Software Upgrade".

2. The system will enter the System Software Upgrade interface and automatically read the contents of the USB drive. Use the "  "page flip icon to select the upgrade software.

3. Click the "Software Upgrade" icon. The interface will display the prompt "Confirm upgrade file...". Click  icon, and the system will begin the software upgrade process. After the software upgrade is complete, the system must be powered off and then restarted for the update to take effect.

4. After the system software upgrade is complete, you can verify it by clicking the " "icon to enter the Auxiliary Function Interface, then selecting "Machine Information".

Note: Do not turn off the power during the system software update. Otherwise, the system may crash and fail to start.



15-2 Home Page Top-Left Corner and Boot Logo Settings

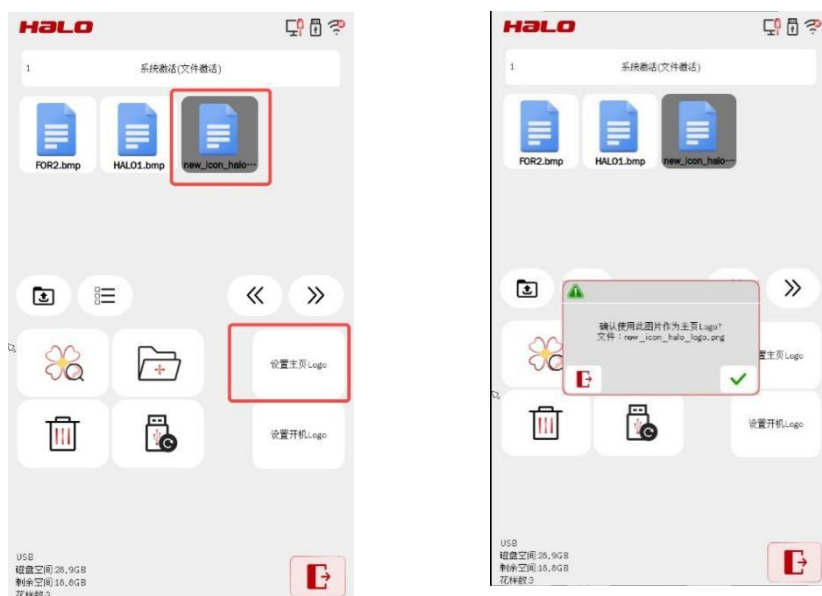
1.Home Page Top-Left Corner Logo Settings

(1) Insert the USB drive containing the system software into the "USB" port on the operation panel. Click the "  " icon to enter the Auxiliary Function Menu, then click "System and Updates".

(2) Next, click "Advanced Options", locate and select "Set Home and Boot Logo".

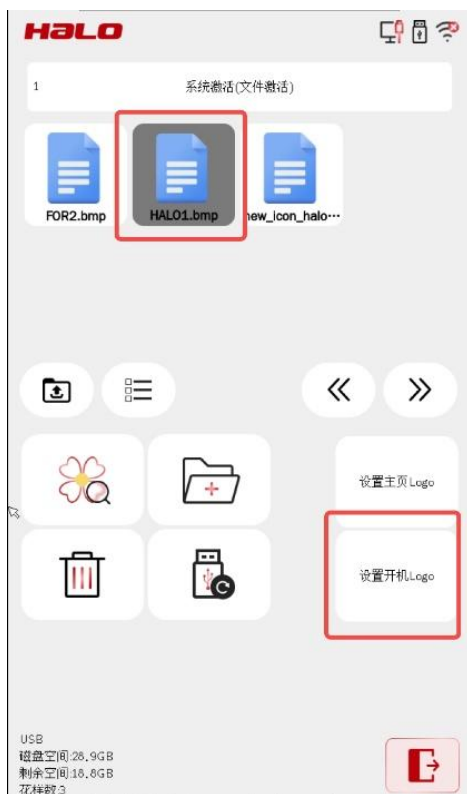
(3) Navigate to the USB drive, find the .png image to be used as the logo in the top-left corner

of the home page. After selecting it, click "Set Home Logo", then click the " ✓ " icon. The system will replace the top-left corner icon with this .png file.



2.Boot Logo Settings

- (1) Insert the USB drive containing the system software into the "USB" port on the operation panel. Click the "  " icon to enter the Auxiliary Function Menu, then click "System and Updates".
- (2) Next, click "Advanced Options", locate and select "Set Home and Boot Logo".
- (3) Navigate to the USB drive, find the .bmp image to be used as the boot logo. After selecting it, click "Set Boot Logo", then click the "  " icon. The system will replace the boot logo with this .bmp file. Note that the boot logo must be a native .bmp image (not a converted file from other formats), and the resolution must be 1024×600, as shown in the example image.



This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- - Reorient or relocate the receiving antenna.
- - Increase the separation between the equipment and receiver.
- - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- - Consult the dealer or an experienced radio/TV technician for help.ct.

This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.