



**BECS-A15**

**OWNER'S MANUAL**

[www.butterflyemb.com](http://www.butterflyemb.com)



## Contents

|  |           |
|--|-----------|
| <b>Chapter 1 General Information</b> . . . . .                             | <b>1</b>  |
| 1.1 Warnings and Cautions .....  | 1         |
| 1.2 Main Features .....  | 3         |
| 1.3 Technical Specifications .....   | 6         |
| <b>Chapter 2 Embroidery Guide.</b> . . . . .                               | <b>7</b>  |
| 2.1 Structure and Usage Instruction of Control Panel.....                  | 7         |
| 2.2 Instruction of the Main Interface .....                                | 8         |
| 2.3 Basic Procedure of Embroidery.....                                     | 15        |
| 2.4 Normal Embroidery, Returning and Patching .....                        | 19        |
| 2.5 Embroidery Operation .....   | 19        |
| 2.6 Thread-Breakage Detection .....  | 19        |
| 2.7 Working Status.....  | 20        |
| <b>Chapter 3 U Disk Management</b> . . . . .                               | <b>22</b> |
| 3.1 Select U Disk .....  | 22        |
| 3.2 Pattern Preview .....  | 24        |
| 3.3 Pattern Input.....   | 25        |
| 3.4 Directory Operation .....  | 26        |
| 3.5 Formatting U Disk .....  | 26        |
| 3.6 Delete Objects from U Disk (including pattern file and directory)..... | 27        |
| 3.7 Create a New Directory in the Current Directory .....                  | 28        |
| <b>Chapter 4 Common Parameters and Color-Changing Order</b> . . . . .      | <b>29</b> |
| 4.1 Settings of Common Parameters .....                                    | 29        |



|   |           |
|---|-----------|
| 4.1.1. Settings of X-Y Scale .....  | 30        |
| 4.1.2. Settings of Rotate Angle.....  | 31        |
| 4.1.3. Pattern Direction .....  | 32        |
| 4.1.4. Prior Mode .....   | 32        |
| 4.1.5. Rep. Mode .....  | 32        |
| 4.1.6. Rep. Order .....   | 32        |
| 4.1.7. X-Y Rep. Times.....  | 33        |
| 4.1.8. X-Y Rep. Interval.....   | 33        |
| 4.2 Settings of Color-changing Order .....  | 33        |
| 4.2.1. Color-changing Interface.....  | 33        |
| 4.2.2. Settings of Color-Changing Order .....   | 35        |
| 4.2.3. Set Needle Bar Color .....   | 35        |
| <b>Chapter 5 Settings of Embroidery Parameters . . . . .</b>                                  | <b>37</b> |
| 5.1 Procedure for Setting General Parameters .....  | 38        |
| 5.2 Instruction on Some Functions within General Parameters.....                              | 39        |
| 5.2.1. Cyclic Embroidery Function.....  | 39        |
| 5.2.2. Brake Adjustment (A Must for New Machine).....   | 39        |
| <b>Chapter 6 Memory Pattern Management . . . . .</b>  | <b>40</b> |
| 6.1 Memory Pattern Management Interface and Other Memory Pattern<br>Operation Interfaces..... | 40        |
| 6.2 Select Pattern for Embroidery .....   | 42        |
| 6.3 Memory Pattern Preview.....   | 42        |
| 6.4 Pattern Output.....   | 44        |
| 6.5 Copy the Memory Pattern .....   | 46        |



|   |           |
|---|-----------|
| 6.6 Create Outline Pattern.....                     | 48        |
| 6.7 Create High-speed Pattern.....                  | 48        |
| 6.8 Divide Pattern.....                             | 48        |
| 6.9 Create Parameter Pattern.....                   | 49        |
| 6.10 Mosaic Pattern.....                            | 50        |
| 6.11 Create Combined Pattern.....                   | 51        |
| 6.12 Satin Stitch Adjustment.....                   | 54        |
| <b>Chapter 7 Letter Pattern Operation . . . . .</b> | <b>55</b> |
| 7.1 Enter Main Interface for Letter Embroidery..... | 55        |
| 7.2 Input Letter String for Embroidery.....         | 55        |
| 7.3 Adjust Letter Pattern.....                      | 56        |
| 7.4 Save Letter Pattern.....                        | 60        |
| <b>Chapter 8 Assistant Operation . . . . .</b>      | <b>62</b> |
| 8.1 Frame Selection.....                            | 62        |
| 8.2 Clear XY Displacement.....                      | 63        |
| 8.3 Positioning Idling.....                         | 63        |
| 8.3.1. Low Speed Idling Forward.....                | 63        |
| 8.3.2. Low Speed Idling Backward.....               | 64        |
| 8.3.3. High Speed Idling Forward.....               | 64        |
| 8.3.4. Go to Next Color.....                        | 64        |
| <b>Chapter 9 Other Functions. . . . .</b>           | <b>65</b> |
| 9.1 Statistics.....                                 | 65        |
| 9.2 Set Frame Origin.....                           | 67        |



|   |    |
|---|----|
| 9.3 Language .....  | 68 |
| 9.4 Machine Information.....  | 68 |
| 9.5 Machine Debugging .....   | 69 |
| 9.6 Date and Time .....   | 70 |
| 9.7 Touch Screen Correction .....   | 70 |
| Chapter 10 Online Update of Main Software .....   | 72 |
| Chapter 11 Update of Software in Peripheral Board.....                                      | 75 |
| Appendix 1 Parameter List .....   | 79 |
| Appendix 2 Directions of U Disk Operation .....   | 86 |
| Appendix 3 Automatic Position Limitation Function Instructions for Apparel Embroidery ..... | 87 |
| Appendix 4 A15 Controller Operation Quick Guide .....                                       | 93 |

There will be no further notice in case of any change of specifications.



# Chapter 1 General Information

Thank you for using Dahao Computerized Control System for Embroidery Machine.

Please read this manual carefully so as to operate the machine correctly and effectively.

Besides that, you should keep this manual properly for future use.

## 1.1 Warnings and Cautions

In order to avoid fire, electrical shock or unpredicted injuries, you should follow the listed safety rules.

| <b>Matters for Attention on Usage</b>                      |  |
|--|--|
| ⚠ Danger   | During the operation, do not try to open the machine box. The high voltage contained in some parts is deadly. The rotating parts may cause serious injury. |
| ⊘ Forbidden  | Don't expose the machine to humidity gas, poisonous gas, water, and dust.  |
| ⊘ Forbidden  | Don't store or operate the machine in the vibration area, which may cause trouble to the machine.  |
| ⚠ Attention  | Please abide all the warnings and safety requirements to ensure the security.  |
| ⚠ Attention  | LCD screen is fragile. Do not use the hard or sharp item to click the screen.  |
| ⚠ Attention  | Please insert U disk correctly and don't force it in, otherwise, USB interface or U disk may get damaged   |
| ⚠ Attention  | We will add appendix if necessary. If there is any difference between the manual and appendix, the content in the appendix shall take precedence.          |
| <b>Matters for Attention on Transportation and Loading</b> |  |
| ⚠ Attention  | When moving the machine, please not to hold the cable.   |
| ⚠ Attention  | Please abide all the warnings and safety requirements to ensure the security.  |
| ⚠ Compulsory Requirements                                  | Overloading may cause serious loss. Please load according to the instruction on the box  |



| <b>Matters for Attention on Installation</b>  |   |
|---|---|
|  Attention   | Don't jam the vent on the device. Don't insert other items into the machine, or it may get fire.  |
|  Attention   | Make sure the installation direction is correct.  |
|  Attention   | Don't expose the machine to humidity gas, corrosive gas, water, and other flammable material.   |
| <b>Matters for Attention on Cable Connection</b>  |   |
|  Forbidden   | Don't test the insulation of the circuit loop.  |
|  Forbidden   | Never try to connect the overloaded electronic device on the connectors (like sockets or terminals).  |
|  Attention  | The insulation condition of each cable (no matter signal cable or power cable) should be ensured.   |
|  Attention | The signal cables and power cables should be separated. Never tie them together.  |
|  Attention | All the cables should be well fixed. Don't put any strength on cables. Make sure each turning point of cable is well protected. Add shelter pipes to increase insulating capability if necessary. |
|  Attention | Machine should be grounded reliably. The resistance should be smaller than 10 $\Omega$ .  |
| <b>Matters for Attention on Operation</b>   |   |
|  Danger    | Don't operate the machine when there is any damage on the shelter of the running parts.   |
|  Forbidden | When machine is running, do not touch any running part.   |
|  Attention | Make sure the configuration of power supply is in normal. Use stabilized voltage power supply when the change of voltage is beyond the range of -10%~10%.   |
|  Attention | In case of warning, please check out the problem. Operation can only be carried out again when problem is solved.   |
|  Attention | The power supply switch has over-current protection function. If the over-current switch is activated, the switch can only be closed after 3 minutes.   |



| <b>Matters for Attention on Maintenance and Inspection</b> |   |
|--|---|
| ⚠ Warning  | If you need to open the machine cover, please cut off the power supply at first. Due to the capacitance, operator must wait at least one minute before opening the machine cover. |
| ⚠ Attention  | Circuit boards can be damaged by static. The circuit boards can only be disassembled by professional technicians.   |
| ⚠ Attention  | If machine is inactive for a while temporarily, users must power on the machine regularly (once by every 2 or 3 days, more than an hour for each time).                           |
| ⚠ Attention  | If machine is inactive for a long time, users should have the machine checked before power-on.  |
| <b>Matters for Attention on Rejection</b>                  |   |
| ⚠ Attention  | Rejection should obey the rules and regulations set by national industrial electronic standards.  |

## 1.2 Main Features

### 1. User-friendly Interface on Touching Panel

The adoption of the touching panel technology offers user the delightful operation and easy learning. The beautiful screen display turns everyday work into joyful experiences.

### 2. Huge Memory Capacity

The memory capacity reaches 100 million stitches, which can meet demands of different customers.

### 3. Maximum Stitch Amount of One Pattern Reaches Two Million

At present a single pattern in the system has the maximum of 2 million stitches and 1,000 times of automatic color changing.

### 4. Multi-Task Parallel Operation and Free Shift among Tasks

During the embroidery, actions like pattern input & output, preparation for the following patterns and modification of parameters can be carried out.

### 5. Storage of Frequently Used Parameters and Color-Changing Order for Each Pattern

Pattern will be saved along with its parameters, color-changing orders and needle bar colors. System can save the operational details for each pattern. Users can set parameters for a



pattern during the embroidery process of the previous pattern, which will save time and improve efficiency. Moreover, it is one basis to realize network management.

### 6. Pattern Input/Output via USB

Customers can use USB disk for data transfer. USB disk supports DIR operation, which is easy for pattern management. For each directory, system supports operation of 400 patterns or sub-directory. There is no limitation of directory levels. Patterns in the formats of Binary, Ternary and Z-nary can be loaded.

### 7. Patch Embroidery

This function can set a patch point at the position of color code or stop code, and when the machine embroiders to the patch point, it will halt and move out frame for patching. After sticking a patch, user would press the start key to return the frame and continue embroidering.

### 8. Brake Adjustment

User can adjust the parameter of brake to let the main shaft stop at the correct position according to the characters of his own machines.

### 9. Save Start Point

This function can save the start point of each pattern, which saves the work of user to search the start point manually at embroidering the identical pattern.

### 10. Mechanical Maintenance and Debugging

This function is to easily judge the malfunctions at maintaining and debugging the machine, such as encoder testing, main shaft speed testing, machine parts testing and the main shaft stopping at any position, etc.

### 11. Multi-Language Support

Currently, the system only supports Chinese and English; Arabic, Spanish, Turkish, Russian, Portuguese, French and many other languages are under developing.

### 12. Pattern Output

Patterns can be output and saved into USB disk. Adoption of TAJIMA's binary format enjoys the advantage of data transmitting through the World Wide Web (other formats may not be transmitted directly).



### 13. Repetition Embroidery

The user can increase embroidery productivity by using the function of repetition embroidery, which can also be used with cyclic embroidery.

### 14. Cyclic Embroidery

With this function, the machine can automatically return to the origin and start the same embroidery again when finishing the pattern one time. User also can increase productivity rapidly by combining this function with special pattern-making function or repetition embroidery function.

### 15. Pattern Compiling

#### (1) Compiling the Data of Selected Pattern to Generate New Pattern

Users can compile any pattern according to zoom ratio, rotate angle, normal repetition or partial repetition to generate a new pattern and save it to memory. The newly generated pattern can be used for embroidering, output or other operations.

#### (2) Compiling the Combined Pattern

After setting the combined pattern, the system can compile that pattern to generate a new one and save it to memory. The newly generated pattern can be used for embroidering, output or other operations.

### 16. Letter Pattern

There are 28 built-in font libraries. Users can make letter groups and change letter orders according to different tasks. This operation is vivid, simple and easy managing.

### 17. Pattern Edit (under developing)

### 18. Speed Adjustment

The highest speed for embroidery can be preset. During embroidery, speed may change automatically along with the change of needle interval.

### 19. Thread-trimming

Thread-trimming can be manually operated. The machine can trim the thread automatically at the end of embroidery process or at color-changing.

### 20. Thread-breakage Detection



In case of thread breakage or running-out of bobbin thread, the machine will stop and give warning by indicator.

### 21. Color-changing

At the color-changing point, user can either perform the color-changing manually or let the system do it automatically according to the preset order.

## 1.3 Technical Specifications

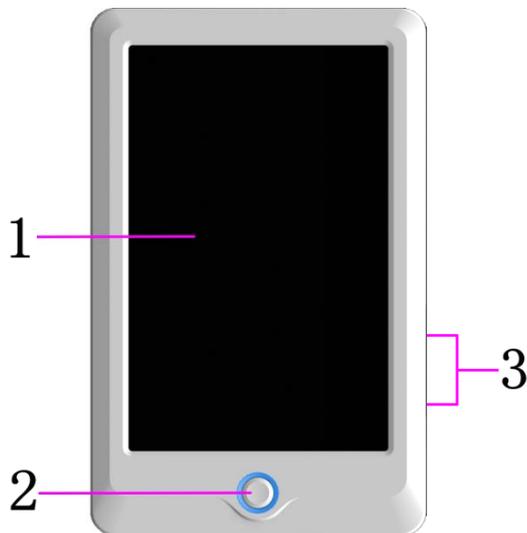
1. Maximum number of patterns saved in memory: 800
2. Memory capacity: 100 million stitches
3. Screen resolution ratio: 1280\*800
4. Network port speed: 100Mbps
5. Supported method for data exchange: USB disk, network (temporarily unavailable)
6. Control precision: Minimum controllable stitch interval is 0.1mm
7. Stitch range: 0.1mm~12.7mm



## Chapter 2 Embroidery Guide

### 2.1 Structure and Usage Instruction of Control Panel

#### I. Structure of Control Panel



##### 1. Touching Panel

It adopts high-luminance LCD displayer and touching screen man-machine interaction interface.

##### 2. Buttons

Press the keys to start the embroidery, pause the embroidery.

##### 3. Main USB Port

USB disk can be plugged for data input/output.

#### II. Instructions on Touching Panel

This machine uses the touching panel as its input device. In order to extend the service life of the panel and to maintain its performance, please don't apply too much pressure on the screen during operation. Neither can user use the sharp or hard tools to click the screen.

#### III. Instructions on USB Disk

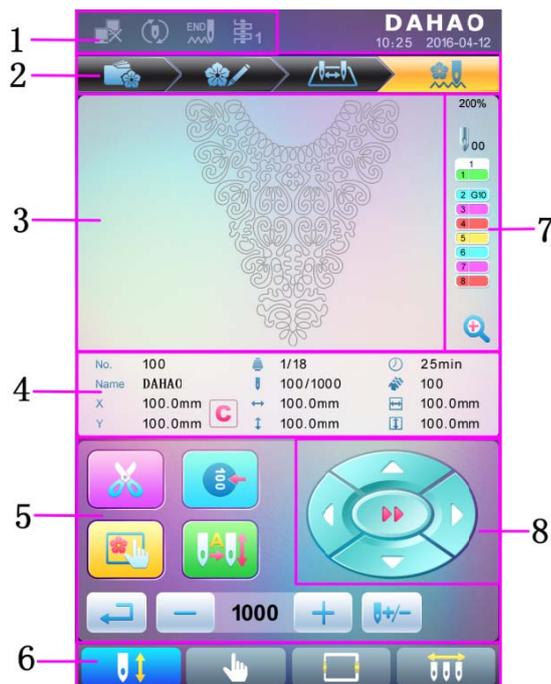
Please pay close attention to electrostatic phenomenon. Don't forget to discharge (we suggest you should touch the machine stand or frame to discharge the static) before plugging in/out the USB disk.

Pay attention to the direction of the USB disk at plug-in. Don't pull out the USB disk when system loads data from or write data to it. If the USB disk is pulled out or the power is

cut off during the data input/output, the data could be lost. In that case, please check the integrity of data in the USB disk and repair it before using.

Attention: During the process of initialization, if the power is cut off or the USB disk is pulled out, the USB disk may be damaged permanently.

## 2.2 Instruction of the Main Interface



| No. | Icon | Name                              | Description  | Reference Page |
|-----|------|-----------------------------------|--|----------------|
| 1   |      | Network Connection Failure Status | Network Status (disconnected , connected , successful registration )   |                |
|     |      | Cyclic Embroidery                 | Cyclic embroidery is currently available. Press user parameter  or specialist parameter  to enter the parameter setting interface, where user can change the setting of cyclic embroidery. |                |
|     |      | Thread Breakage                   | This figure will appear when the machine stops due to the thread-breakage.   |                |



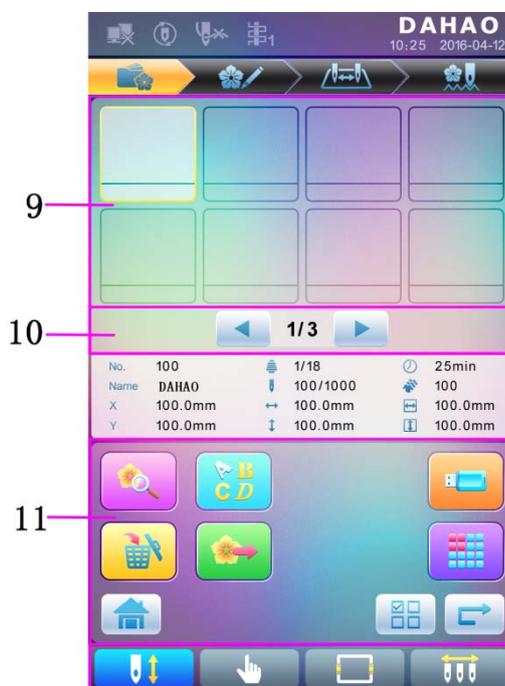
| No. | Icon | Name                            | Description  | Reference Page |
|-----|------|---------------------------------|--|----------------|
| 2   |      | Pattern Management              | Interface for pattern management   |                |
|     |      | Parameter Setting               | Interface for parameter setting  |                |
|     |      | Color-changing Order Setting    | Interface for color-changing order setting   |                |
|     |      | Main Interface                  | Main interface   |                |
| 3   |      | Pattern Display Area            | The pattern for embroidery will be displayed in this area.   |                |
| 4   |      | Basic Pattern Data              | Basic data of the current pattern will be displayed here.  |                |
|     |      | Clear X/Y Displacement          | Clear the current value of X/Y displacement  |                |
| 5   |      | Manual Thread-trimming          | After machine stop, user can click this key for the operation of manual thread-trimming (including bobbin thread trimming).  | Section 2.3    |
|     |      | Main Shaft Manual Adjustment    | After stop, if the main shaft is not at the proper position , press this key to adjust the main shaft to the right position  | Section 2.3    |
|     |      | Frame Selection and Position    | Frame selection and position   |                |
|     |      | Auto Color-changing, Auto Start | <p>If the machine is set at Auto Color-changing, user should set the color-changing order in advance.</p> <p>When user presses the start key for embroidery, no matter where the current needle rod locates, the machine will change the needle according to the set color-changing order and perform the embroidery.</p> <p>When encountering color-changing code, the machine will stop automatically and shift to the pointed needle position according to the auto</p> |                |

| No. | Icon  | Name   | Description   | Reference Page |
|-----|---|--|---|----------------|
|     |   |  | color-changing order. If the machine is set at auto start, the machine will begin the embroidery automatically; if it is set at manual start, the user needs to press the start key for embroidery.   |                |
| 5   |    | Manual Color-changing, Manual Start              | In this status, select the needle position with manual color-changing (  ) to select the needle position and then press start key for embroidery.<br>When encountering color-changing code, the machine will stop automatically. Icon  appears, and the system awaits the manual color-changing. At this moment, user needs to perform manual color-changing (  ) to shift to the needed needle position, and press the start key for embroidery. |                |
|     |  | Return   | Return to the previous interface  |                |
|     |  | Main Shaft Acceleration, Main Shaft Deceleration | For setting the main shaft acceleration/deceleration. When the main shaft reaches the highest/lowest speed, this key will be unavailable.   |                |
|     |  | Idling   | Used to move the frame to appointed position without embroidery   |                |
| 6   |  | Embroidery Ready Status, Confirm the Embroidery  | When the machine is in Ready Status, user can carry out preparation work of the embroidery, such as pattern selection, setting scale parameter, setting repetition parameters and so on. Click this key to confirm, and the machine will turn from Embroidery Ready Status  into Embroidery  |                |



| No. | Icon  | Name  | Description  | Reference Page |
|-----|---|---|--|----------------|
|     |    | Embroidery Confirmation Status, Cancel the Embroidery | Confirmation Status  . Currently, the machine is under Embroidery Confirmation Status, and user can start embroidery at any time. When the machine stops, user can click this key and confirm the cancelling of Embroidery Confirmation Status. And the machine will return to Embroidery Ready Status  from Embroidery Confirmation Status  . |                |
|     |    | Other Function Operations                             | Press it to enter the interface for other function operations, such as statistic inquiry, frame origin setting, power-off recovery, soft limitation setting, machine authority management, touch screen calibration, and time management.  | Chapter 9      |
| 6   |  | Manual Color-changing                                 | When machine stops at correct position  , the operation is valid; press it to enter manual color-changing interface, where user can click corresponding needle position number to make color-changing.  | Section 2.3    |
| 7   |  | Current Needle Position                               | This figure is for the actual needle position at present. 0 is for the invalid needle position.  |                |
|     |  | Current Color-changing Times                          | The initial value is 1. After the embroidery starts, this value will add 1 at each finish of successful color-changing.  |                |
|     |  | Color-changing Order                                  | This order is the sequence of the needle rods for changing color. The 3D figure is for the current needle position.  |                |
|     |  | Scale Up Pattern                                      | Scale up pattern in the pattern display area. Hold pressing for 2s to shift to  .   |                |

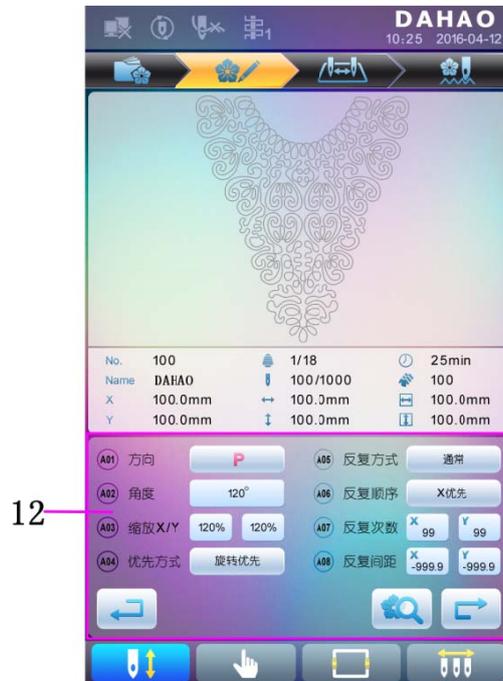
| No. | Icon  | Name                | Description  | Reference Page |
|-----|---|---------------------|--|----------------|
| 8   |  | Manual Frame-moving | The frame will move along with the direction keys. |                |



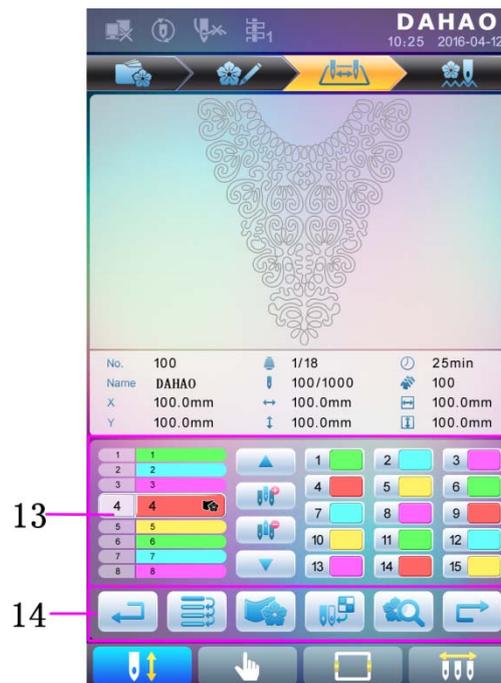
| No. | Icon  | Name                   | Description  | Reference Page |
|-----|---|------------------------|--|----------------|
| 9   |   | Pattern List           | Display patterns by figures for users to select  |                |
| 10  |  | Previous/Next Page     | Display patterns in different pages  |                |
| 11  |  | Memory Pattern Preview | Used to check pattern details, scale up/down pattern, move or make analog display of pattern |                |
|     |  | Letter Pattern         | Letter pattern and its parameter setting   |                |
|     |  | Pattern Deletion       | Used to delete selected patterns   |                |
|     |  | Pattern Output         | Used to transfer memory patterns to USB disk   |                |
|     |  | Home                   |  |                |
|     |  | U Disk Management      | Press it to enter the U disk management interface for operations related to U disk.          |                |
| 11  |  | Other Functions        | Used to open other operation interfaces for memory patterns, such as pattern copy, deletion, |                |



| No. | Icon | Name                      | Description   | Reference Page |
|-----|------|---------------------------|---|----------------|
|     |      |                           | combination, edit, etc.   |                |
|     |      | Single/Multiple Selection | Shift between single selection mode and multiple selection mode |                |
|     |      | Next                      | Enter the next operation interface                              |                |



| No. | Icon | Name                     | Description   | Reference Page |
|-----|------|--------------------------|---|----------------|
| 12  |      | Common Parameter Setting | User can adjust these parameters to control the final embroidery effect of the pattern. |                |
|     |      | Pattern Preview          | Load the selected pattern, display the pattern data and draw up the pattern shape.      |                |



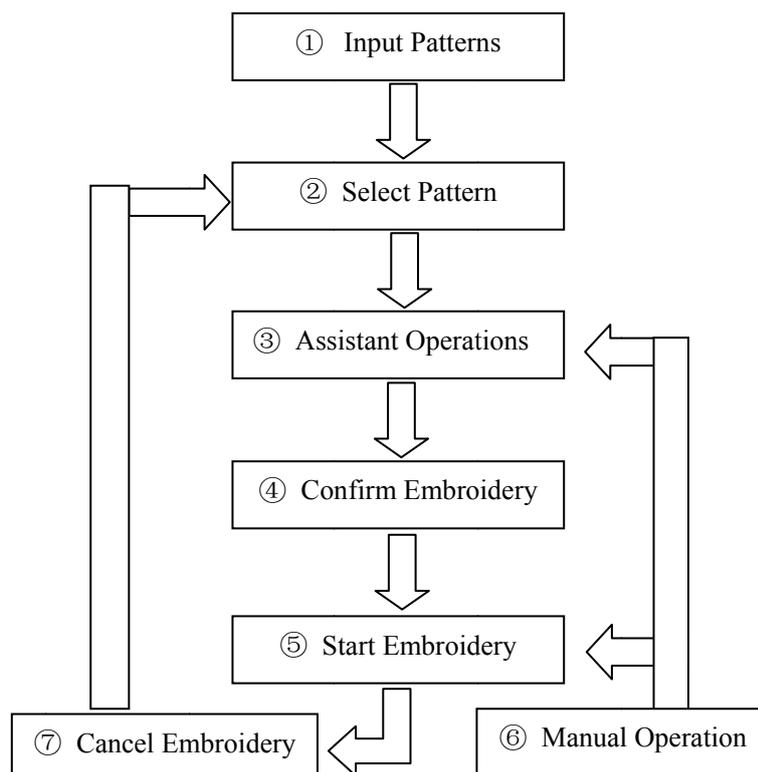
| No. | Icon | Name                            | Description  | Reference Page |
|-----|------|---------------------------------|--|----------------|
| 13  |      | Current Operation Position      | Set, insert or delete needle bar number here.  |                |
|     |      | Color Lump Number List          | Display the color lump number of the pattern   |                |
|     |      | Needle Bar Number and Color     | Display the needle bar number and needle bar thread color of the corresponding color lump          |                |
|     |      | Move Up                         | Move up the color-changing list in order to select the color lump to be set                        |                |
|     |      | Insert Needle Bar Number        | Press this key and then press needle bar number to insert it to the current needle bar number list |                |
|     |      | Delete Needle Bar Number        | Delete the current needle bar number from the needle bar number list                               |                |
|     |      | Move Down                       | Move down the color-changing list in order to select the color lump to be set                      |                |
|     |      | Needle Bar Color Selection Area | Select the color for the selected needle bar number  |                |
| 14  |      | Repetition                      | Repeat the color-changing order  |                |
|     |      | Patch Embroidery                | Set as patch embroidery pattern  |                |



| No. | Icon | Name                     | Description                                  | Reference Page |
|-----|------|--------------------------|--|----------------|
|     |      | Needle Bar Color Setting | Set the neeble bar color from default colors |                |

## 2.3 Basic Procedure of Embroidery

The machine carries out embroidery based on the patterns saved in memory. The following figure is the basic procedure of the embroidery:



### I. Input Patterns

User can input patterns through network or USB disk. Only with (successful registration) displayed, can it be possible to transmit patterns by network. For U disk operation, in pattern management interface, press to enter U disk management interface.

### II. Select Pattern

In pattern management interface, user can select needed pattern for embroidery.

### III. Assistant Operations

After selecting the pattern for embroidery, user can make assistant operations according to need before embroidery.

1. Set repetition, rotation and scaling — press  to enter parameter management interface.
2. Set color-changing orde — press  to enter color-changing setting interface.
3. Set patch embroidery — press  to enter color-changing setting interface and set patch embroidery of the pattern according to hints.
4. For border inquiry, border idling, pattern outline — press  to enter frame selection and position operation.
5. Locate pattern at frame center — press  to enter frame selection and position operation. Please note this function is to locate pattern at the frame center set by soft limitation.
6. Set cyclic embroidery — press  to enter other function operation. Press  to enter parameter management interface. Then press “Embroidery Assistant Parameters” and set cyclic embroidery according to hints.

#### IV. Confirm Embroidery

1. After assistant operations, press  to display a hint window, where user can select  to confirm and turn  (cancel embroidery) to  (confirm embroidery), which indicates the machine has entered Embroidery Ready Status.

If user selects , the machine will stay at Embroidery Cancel Status. At this time, the machine will not work even when user presses the start key. A hint window will display on the screen for user to confirm the embroidery.

#### 2. Set Color-changing and Start Mode

User can shift between  (auto color-changing and auto start) and  (manual color-changing and manual start).

## V. Manual Operation

### 1. Manual Thread-trimming:

When the machine stops, press  in the main interface to display a hint window, where user can press “Trim Upper&Bobbin Thread” to trim threads, or click “Trim Bobbin Thread” to trim the bobbin thread only. Press  to quit the thread-trimming operation.



### 2. Manual Frame-Moving:

When the machine stops, press direction keys (, , , ) to move frame along the corresponding direction. Press the two neighboring keys at the same time to move the frame in the direction of the angle bisector.  is the speed key for manual frame-moving. Press to shift between  (high speed) and  (low speed).

### 3. Clear the Frame Coordinates

When the machine stops, press  to clear the XY displacements displayed in the main interface. The function can be used with manual frame-moving.

### 4. Manual Color-Changing

When the machine stops, press  in the main interface to enter manual color-changing interface. Then click the needle number for color-changing, and the machine head will automatically move to the corresponding needle position.

Please note: if the user wants to automatically save the order of the manual color-changing, user should operate it in the manual color-changing interface on the

touch screen.

### 5. Adjust Main Shaft Manually

Usually, the main shaft needs to stop at 100° at needle/color-changing, frame-moving and beginning embroidery. User can manually turn the main shaft to 100° when it hasn't reached there. Press  in the main interface to carry out this function.

After the operation,  (not in position) will changing into  (in position).

### 6. Back to Origin

Press  in the main interface to enter idling interface, where user can press  to return the frame to origin.

### 7. Back to Stop Point

Press  in the main interface to enter idling interface, where user can press  to return the frame to stop point.

### 8. Positioned Idling

Use this function after embroidery confirmation. Positioned idling enables the machine to move to the appointed position without embroidering according to the user's requests. Press  to set idling backward or forward at the color-changing code or stop code by one stitch or continuously.

## VI. Cancel Embroidery

When the machine stops, press  to display a hint window, where user can select  to turn  (embroidery confirmation) to  (cancel embroidery confirmation).



## 2.4 Normal Embroidery, Returning and Patching

In embroidery confirmation status (  is displayed), press  to start normal embroidery, and during embroidery, press  to stop embroidery.

When the machine stops, press  to return the frame back along with the original embroidery path; one press, one stitch back; hold pressing for 2s to return continuously, even without holding ; press  again to stop.

The purpose of returning is for patching, and when the machine stops returning, press  to start normal embroidery.

## 2.5 Embroidery Operation

When the machine stops, press  to start embroidery;

When the machine is embroidering, press  to stop embroidery.

## 2.6 Thread-Breakage Detection

Based on different working principles, thread-breakage detection devices have three types: thread take-up spring type, thread winding wheel (chopper wheel) type and mixed type.

For thread take-up spring type, it detects the thread-breakage by searching connection of take-up spring and contact point. When thread breaks, the spring will close to the contact point. In normal condition, this detecting type is sensitive to the face thread breakage, but can hardly detect bobbin thread run-out. In case you change the embroidery thread, or thread tension

changes, you need to adjust spring pressure between the take-up spring and contact point. When the spring pressure is too large, there will be False Alarm; when the spring pressure is too small, there will be Missing Alarm.

For thread winding wheel type, it judges thread-breakage by detecting the winding wheel angle. It is very sensitive in case of face thread breakage; in most cases of bobbin thread run-out, the consumption of face thread will reduce, as a result, system will judge by statistic method and send out warning. Though it can almost avoid False Positive, it is not as sensitive as the spring-type.

For the mixed type method, the two can complement each other with their advantages, which results in sensitive and stabilized detecting effect.

### 2.7 Working Status

There are three working statuses:

1. Embroidery Ready Status  —— preset parameters, choose embroidery patterns and make other preparation work for embroidery.
2. Embroidery Confirmation status  —— confirm the parameter settings to enter the quasi-running status.
3. Embroidery Running Status  —— embroidery.

Shift among these three working statuses:

In embroidery ready status (  is displayed in the main interface), if users have selected pattern and related parameters, press  and then press  to confirm, and the system will enter embroidery confirmation status (  is displayed in the main interface). At this time, press start key to start embroidery, when the machine is under embroidery running status (  is displayed in the main interface).

In embroidery running status (  is displayed in the main interface), press stop key to



stop embroidery and return to embroidery confirmation status, where user can press start key again to enter embroidery running status.

In embroidery confirmation status ( is displayed in the main interface), press  and then press  to confirm, user can release the confirmation status and return to embroidery ready status ( is displayed in the main interface).

# Chapter 3 U Disk Management

In U disk management interface, user can input patterns from U disk to machine, and vice versa; meanwhile, user can undertake some common U disk managements, like erasing file or directory, initializing the disk, etc. User can save patterns data under different directories of the U disk based on different types. Patterns formats like DSB, DST and DSZ can be read by the system. For data output, patterns will be saved in the U disk as DSB format.

### 3.1 Select U Disk

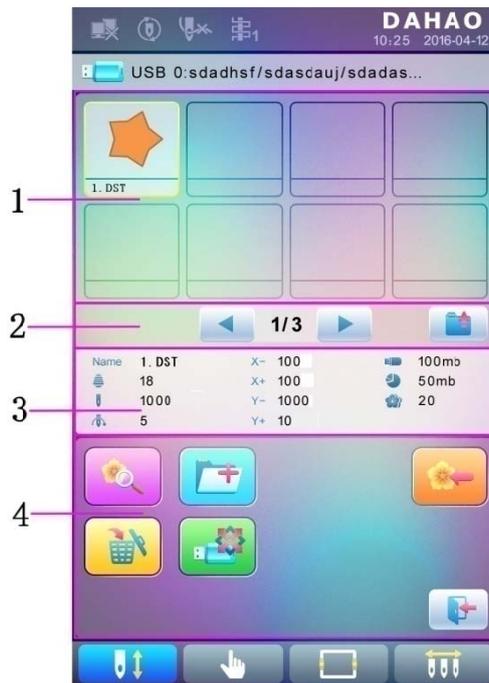
Since the system supports several storage devices, user need select the U disk for operation.

1. Press  in pattern management interface.
2. System will display “Select U Disk” window, where user need select U disk by pressing corresponding icon.



In this window all the storage devices will be displayed. Their information includes the icon, words and numbers. The icon is the device type. Icon  indicates U disk. The words are the label of the U disk (if the U disk has no label, the default letter will be used), and the number refers to the U disk's digital symbol.

3. Enter U disk operation interface.



| No. | Icon  | Name                | Description  |
|-----|---|---------------------|--|
| 1   |   | File List           | Display the pattern files and file folders within the U disk in icons. It's used to select files.                        |
| 2   |   | Page Information    | The current page number and total page number  |
|     |  | Back to Upper Level | Return to upper level  |
| 3   |   | Basic Pattern Data  | Display the basic data of current pattern  |
| 4   |  | Pattern Preview     | Load the selected pattern. Check its details, scale up/down the pattern, and move or make analog display of the pattern. |
|     |  | Create Directory    | Create new file folder   |
|     |  | Deletion            | Delete the file or file folder   |
|     |  | Formatting U Disk   | Formatting the U disk  |
|     |  | Pattern Input       | Import the patterns in the U disk to memory.   |
|     |  | Exit                | Exit U disk management.  |

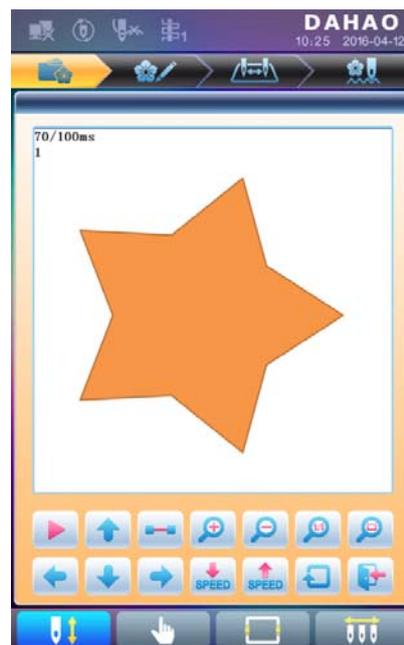
## 3.2 Pattern Preview

1. In the U disk management interface, press the pattern for preview.



Pattern files and directories are shown in figure in the list. One page of the list contains 8 items. If the amount of the object within the current directory is more than 8, the object list will be displayed in many pages. Click the key to turn page and look for patterns in another page. The selected object has a different frame and background color.

2. Press 





The system loads the data from the U disk and user can check details of the pattern, scaleup/down the pattern, move or make analog display of the pattern. For more information, please refer to section 6.3.

## 3.3 Pattern Input

To input patterns within the U disk to the machine's memory, user need select the pattern files to be inputted, and then input the number and name for the patterns to be saved in memory.

1. Select pattern files of the U disk;
2. Press  and the system will require input of pattern number and name;



3. Input the pattern number and name to be saved in memory;



The system provides the minimum available pattern number as the default value. User can use the keypad below to change the number.

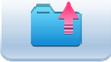
4. Press  to confirm;
5. The system will save the pattern data from the U disk to the memory.

### 3.4 Directory Operation

1. Enter directory:

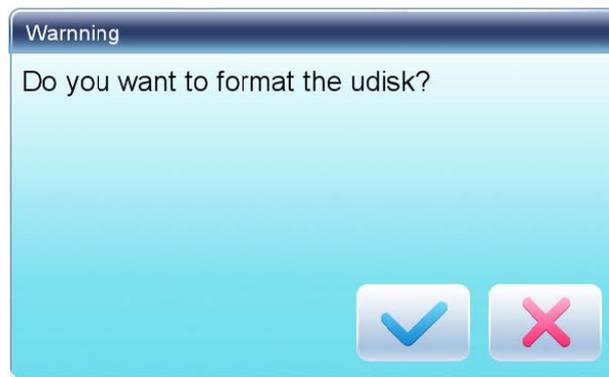
Double click the icon of the object directory to enter it, and the system will load the item list of the directory and refresh the display interface.

2. Return to Upper Level:

Press  to return to the upper level of directory and refresh the display interface.

### 3.5 Formatting U Disk

1. Select the U disk for formatting;
2. Press  to start formatting;



3. Press  to confirm

System will begin to format the disk and return automatically to U disk management interface after finishing formatting.

Note: system will format the U disk according to DOS format.

### 3.6 Delete Objects from U Disk (including pattern file and directory)

1. Select objects to be deleted;
2. Press  to delete;



3. System will ask user to confirm the deletion.



Note:

If the user wants to delete a directory, the system will delete all the files and sub-directories within this directory. In case of “Read Only” or “U Disk Write Protection”, the file will be unable to delete.

### 3.7 Create a New Directory in the Current Directory

1. Press 
2. Input the new directory name



3. Press 

System will create the corresponding directory in the U disk and refresh the current object list.



## Chapter 4 Common Parameters and Color-Changing Order

In this system each pattern has its own settings of the normal parameters (like scale and repetition) and color-changing order. When a new pattern is selected, the corresponding settings of normal parameters and color-changing order will become effective.

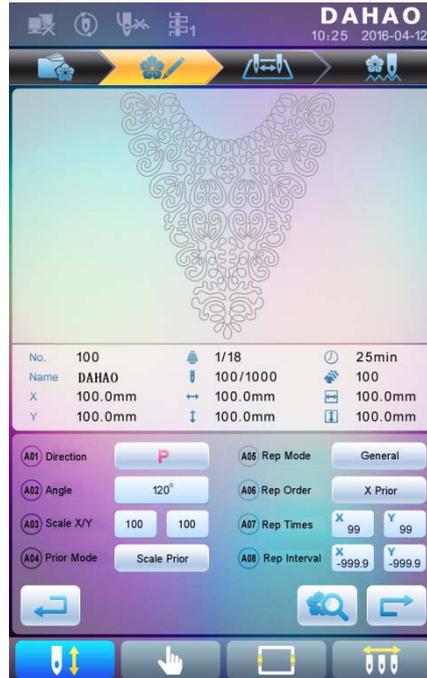
In this chapter, we will discuss the setting of the most frequently used parameters and color-changing order, in parameter setting interface (  ) and needle bar color-changing order setting interface (  ).

Since this system supports multi-task operation, user can set and modify the normal parameters and color-changing order of the patterns that are not embroidered at present. User can enter these operations via other operation interface under pattern management (see Chapter 6).

### 4.1 Settings of Common Parameters

These common parameters include: “Direction”, “Angle”, “Scale X/Y”, “Prior Mode”, “Rep. Mode”, “Rep. Order”, “Rep. Times”, and “Rep. Interval”. User can control the final embroidery results by adjusting these parameters.

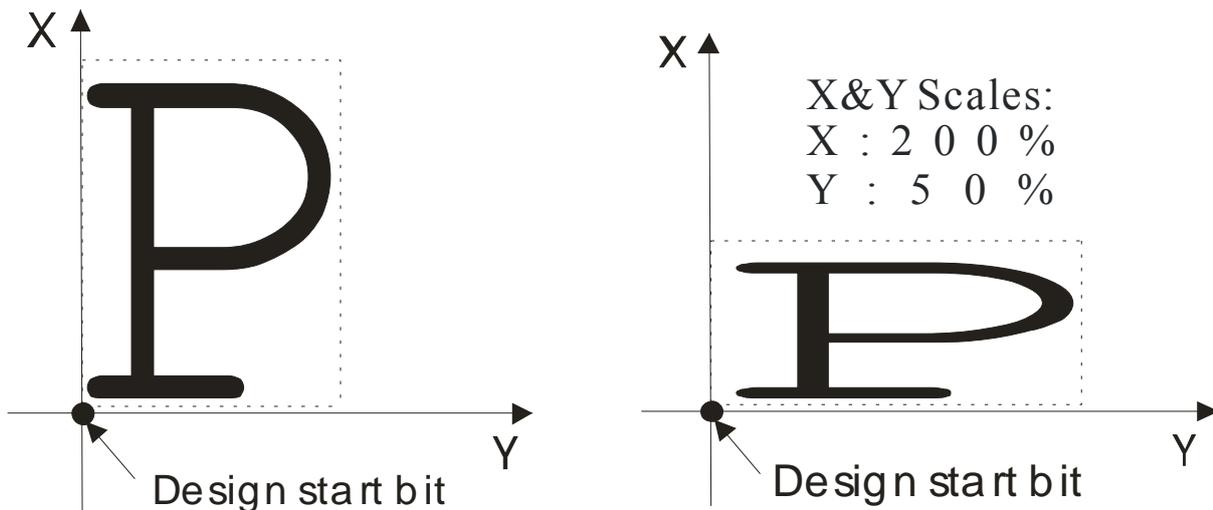
Press  to enter parameter setting interface:



The way for setting the parameter is similar to each other. This chapter will explain how to set the “X/Y Scale” as an example and give the definitions of other parameters (refer to 4.1.1 for setting method).

### 4.1.1. Settings of X-Y Scale

This parameter controls the scaling percentages on X (horizontal) and Y (vertical) direction, so as to scale up/down the patterns.



1. Press the function item of “Scale X/Y”



System will display independently the modification windows for X Scale and Y Scale for users to set respectively.

## 2. Adjusting X-Y Scales

User can press number pad to modify the scaling rate at X direction, press  to cancel the last input digit and press  to clear the input number.

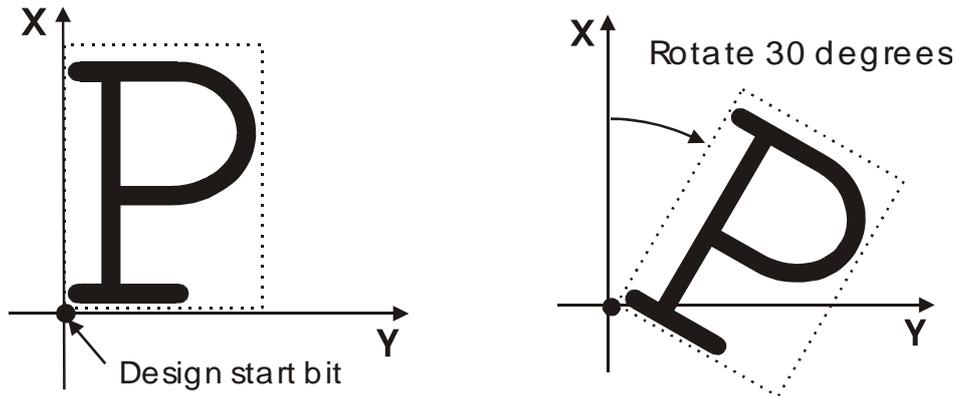


3. Press  to save the modification

The modification method of Y Scale is the same with that of X Scale.

## 4.1.2. Settings of Rotate Angle

User can rotate patterns to a certain angle by this parameter.



### 4.1.3. Pattern Direction

|      |   |   |   |   |   |   |   |   |   |
|------|---|---|---|---|---|---|---|---|---|
| 图案方向 | P | Q | d | σ | q | σ | b | Q | p |
| 刺绣结果 | F | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | ⊥ | F |

### 4.1.4. Prior Mode

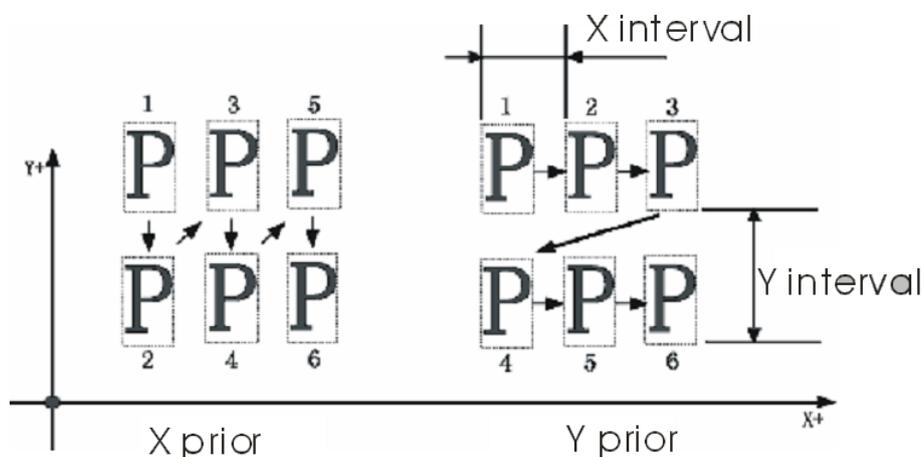
There are two modes: “rotation prior to scaling” and “scaling prior to rotation”. When user has set the parameters “Scale X/Y” and “Rotate Angle”, the patterns will rotate first and then scale up/down, if “rotation prior to scaling” mode is selected. Otherwise it will scale up/down first and then rotate.

### 4.1.5. Rep. Mode

There are two repetition modes: normal and partial.

### 4.1.6. Rep. Order

There are two modes: X first and Y first.





### 4.1.7. X-Y Rep. Times

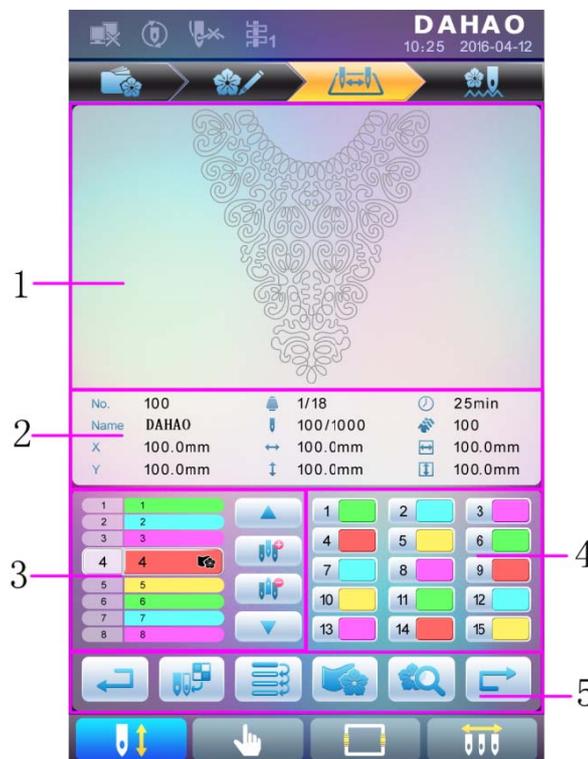
X repetition times represent the number of columns, while Y repetition times the number of lines; as shown in the above picture, X repetition times are 3 and Y repetition times is 2. The largest set value is 99\*99.

### 4.1.8. X-Y Rep. Interval

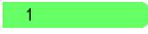
The above picture has explained the meaning.

## 4.2 Settings of Color-changing Order

### 4.2.1. Color-changing Interface



| No. | Icon | Name                       | Description  |
|-----|------|----------------------------|--|
| 1   |      | Pattern Display Area       | Display the pattern according to real-time setting of color-changing order, for the preview of the result of color-changing. |
| 2   |      | Basic Pattern Data         | Display the basic data of the pattern  |
| 3   |      | Current Operation Position | User can set, insert or delete needle bar number in current position.  |

| No. | Icon  | Name                        | Description   |
|-----|---|-----------------------------|---|
| 3   |    | Color Lump Number List      | Display the number of the color lumps of the pattern                                |
|     |    | Needle Bar Number and Color | Display the needle bar number and thread color of each corresponding color lump     |
|     |    | Move Up                     | Move upward the color-changing list to select the color lump for setting            |
|     |    | Insert Needle Bar Number    | Click this key and a needle number to insert it in the current list of needle list. |
|     |    | Delete Needle Bar Number    | Delete the needle number of the current operation position in the needle list.      |
|     |    | Move Down                   | Move downward the color-changing list to select the color lump for setting          |
| 4   |   | Color Selection Area        | Select the color for the needle bar number to be set                                |
| 5   |    | Return                      | Return to the previous operation interface  |
|     |  | Repetition                  | Repeat color-changing order   |
|     |  | Patch Embroidery            | Set the patch embroidery of the pattern   |
|     |  | Set Needle Bar Color        | Select default colors to set the color of each needle bar                           |
|     |  | Pattern Preview             | Load the selected pattern, check the pattern data and create the pattern icon       |
|     |  | Next                        | Enter the next operation interface  |

The pattern display area displays the pattern under color-changing setting. After changing the color-changing order, the display will be renewed at same time to show the modification effect.

Color-changing order display area shows color lump numbers, needle bar numbers and needle bar colors.

Pattern display can be in parallel with the setting, insertion and deletion of needle bar number, which means that users can set and change the color-changing order along with the display.



### 4.2.2. Settings of Color-Changing Order

1. Press  to enter color-changing setting interface.
2. Input the needle bar numbers in order in the needle bar number selection area. The pattern display and the color list will be refreshed after each input.
3. Press   to check whether the inputted color-changing order is correct.
4. To change a certain needle bar number, press   to move to the item to be modified and then press the new needle bar number.
5. To insert a new needle bar number, press   to move to the position below the position to be inserted, and then  to insert the needle bar number.
6. Press  to delete a needle bar number.

### 4.2.3. Set Needle Bar Color

To make the display effect close to the actual embroidery effect, this system allows settings of color for each needle bar and such settings can be saved together with the color-changing order of the pattern.

1. Press  to enter color-changing setting interface.
2. Press  to enter needle bar color setting interface.



45 default colors for selection in the setting interface

3. To set the needle bar color, select the needle bar first and then select the color from the 45 default color lumps. The corresponding color of the needle bar button will be refreshed.

4. Press  to save the settings and return to the color-changing order setting interface; or press  to quit setting without saving and return to color-changing order setting interface.



## Chapter 5 Settings of Embroidery Parameters

Parameters are grouped according to different functions (see Appendix 1 Parameter List)

Press  in the main interface and press  (for user) or  (for specialist) to enter parameter setting interface.



1. After system enters parameter setting interface, user can select the parameter for setting.



Note: the number, name and current value of each parameter are displayed in the parameter list window.

## 5.1 Procedure for Setting General Parameters

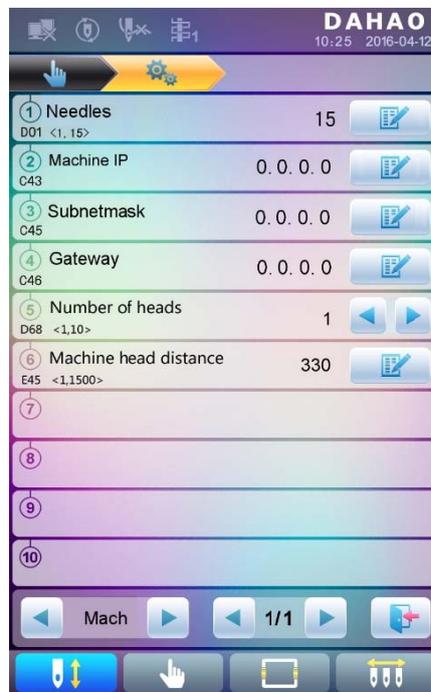
The setting procedure is similar for each general parameter. You can follow the guide of this section to set all parameters.

### 1. Select Parameter Type

User can use the keys at the bottom of the screen (parameter type key and page key) to look for the parameter.

If you want to modify the number of needles whose parameter number is D01, press

 to find machine configuration parameter and the its parameter list will be displayed.



### 2. Press the parameter to be set and input the new value by the number keys.





3. Press  to finish the setting.

## 5.2 Instruction on Some Functions within General Parameters

There are brief descriptions of parameters in the appendix 1. Here, we will introduce some functions mainly used in embroidery.

### 5.2.1. Cyclic Embroidery Function

This function is to increase the embroidery productivity.

When the parameter “To Do Cyclic Emb.” is set as “Yes”, the cyclic embroidery function is activated and the icon  will appear in the main interface. If this function is activated, the machine will automatically embroider the patterns again without any operation when completing it.

Usually, cyclic embroidery should accompany repetition embroidery and specially made patterns, and the parameter “Auto Origin” should be also set as “Yes”. Thus when the machine is embroidering the back fabric, the front one can be replaced. After embroidering the patterns, the frame will automatically return to the start point and the machine will automatically embroider the front fabric again and at this time it's possible for user to replace the back one.

### 5.2.2. Brake Adjustment (A Must for New Machine)

This function is to adjust the control parameters for braking, so as to fit machines with different mechanical characters, which is also able to change with the machine running. Thus this function can help the machinery parts to work better with the computer. The function depends on the parameters “Set Brake Para”.

“Set Brake Para” is to adjust the stop position of the main shaft. When the main shaft often stops at the position below 100 degree, the user can increase the parameter value. When the main shaft often stops at the position over 100 degree, the user can decrease the parameter value. Thus the user can adjust the value to let the main shaft stop close to 100 degree. The value can be set between 0 and 30.

After adjusting this parameter, the user can click the task swift key on the panel to return to the main interface. Click  and  to make the adjustment and check the effects of the parameter adjustment. If the user is not satisfied with the effects, he can press the swift key on the panel to return to the parameter setting interface, where he can adjust the parameter setting again. Close the parameter setting interface in the end.

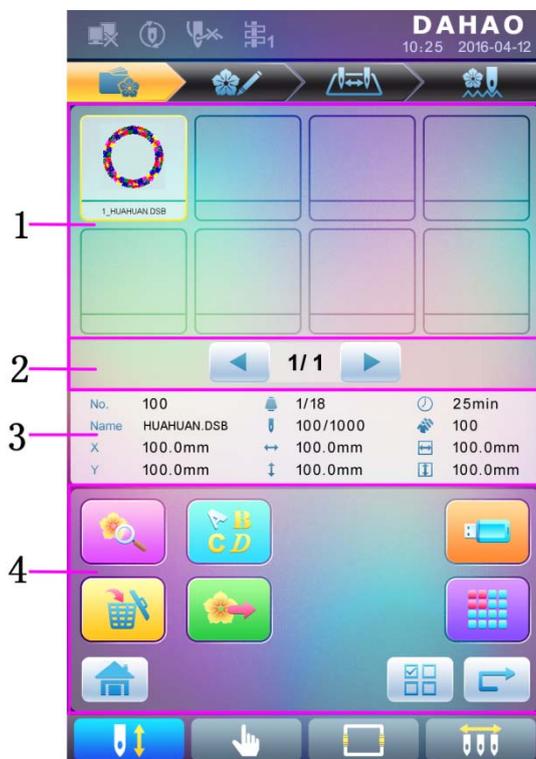
## Chapter 6 Memory Pattern Management

Memory pattern management includes selection of embroidery patterns, settings of patterns, change of patterns and operations for creating patterns.

### 6.1 Memory Pattern Management Interface and Other Memory Pattern Operation Interfaces

Press  to enter memory pattern management interface.

The memory patterns management interface contains: patterns image display area, navigation and pagination area, information area and management operation area. The patterns image display area can show 8 patterns at most. If the total number of the patterns is beyond 8, more pages will be needed. Navigation and pagination area can help switch to the patternsated page. The management operation area is to preview patterns and set their order.



| No. | Icon | Name                 | Description  |
|-----|------|----------------------|--|
| 1   |      | Pattern Display Area | Display the pattern files in memory by icons. It's mainly for selection. |



| No. | Icon | Name                            | Description  |
|-----|------|---------------------------------|--|
| 2   |      | Previous/Next Page              | Used to shift to appointed page number   |
| 3   |      | Information Area                | Display the detailed information of the selected pattern and the memory information.   |
| 4   |      | Pattern Preview                 | Check the details of the pattern; scale up/down, move or simulate the pattern.   |
|     |      | Letter Pattern                  | Set letter embroidery and its parameters   |
|     |      | Delete Pattern                  | Delete the selected pattern  |
|     |      | Pattern Output                  | Save the memory pattern to U disk  |
|     |      | Home                            |  |
|     |      | U Disk Management               | Press it to enter U disk management interface to make related operations.  |
|     |      | Other Operations                | Click to open the other operation interface, where user can perform copy, deletion, combination, edition and other operations. |
|     |      | Single/Multiple Selection Shift | Shift between single selection and multiple selections.  |
|     |      | Next                            | Enter the next operation interface   |

Press  to enter the interface for other operations of memory pattern (to deal with any single pattern, user need select the pattern first).



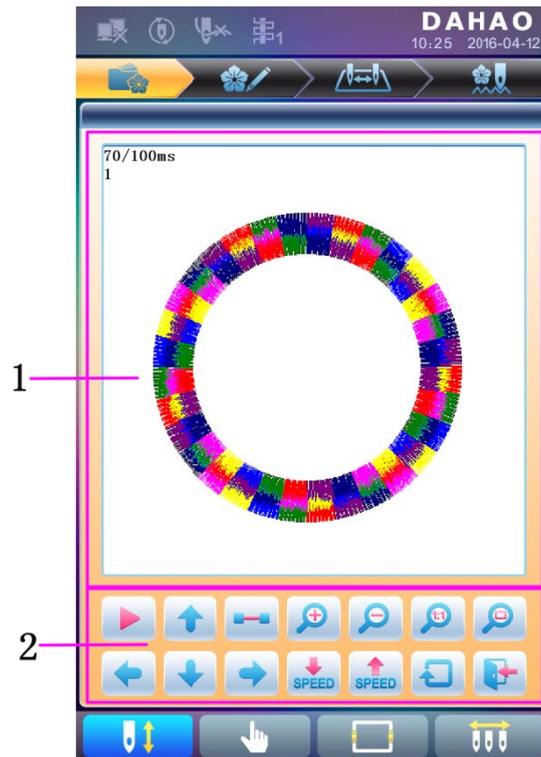
In this interface, press each operation to enter the corresponding interface. Please read the following paragraphs for detailed explanation. Press  or  to turn page, and press  to return to memory pattern management interface.

## 6.2 Select Pattern for Embroidery

1. Press  to enter memory pattern management interface.
2. Select the pattern in the memory pattern image display area.

## 6.3 Memory Pattern Preview

The selected pattern can be previewed in the memory pattern preview interface to check more details.



| No. | Icon | Name                              | Description  |
|-----|------|-----------------------------------|--|
| 1   |      | Pattern Preview Area              | Display the pattern in the appointed method and speed  |
| 2   |      | Draw/Pause Switch                 | Shift between drawing pattern and pausing display  |
|     |      | Move up                           | Move the pattern upwards   |
|     |      | Single Step Display               | Draw the pattern by drawing single steps   |
|     |      | Scale up                          | Enlarge the pattern in the preview area  |
|     |      | Scale down                        | Reduce the pattern in the preview area   |
|     |      | Actual Display                    | Display the pattern in the actual size. So the size of the pattern on the screen is the actual size of the pattern after embroidery. |
|     |      | Display to the Size of the Window | Display the pattern accordint to the size of the pattern preview area.   |
|     |      | Move left                         | Move the pattern leftward  |

| No. | Icon  | Name         | Description                                     |
|-----|---|--------------|---|
| 2   |  | Move down    | Move the pattern downward                       |
|     |  | Move right   | Move the pattern rightward                      |
|     |  | Deceleration | Lower the display speed of patterns             |
|     |  | Acceleration | Fasten the display speed of patterns            |
|     |  | Redraw       | Redisplay the selected pattern                  |
|     |  | Quit         | Quit the operation in pattern preview interface |

1. Press  to enter memory pattern management interface.
  2. Select a pattern in the memory pattern image display area.
  3. Press  to open memory pattern preview interface.
  4. Press     to control the size of the pattern display.
- Press     to control the display position. Press   to control display speed. Press  to shift to the pause status, where the single step of pattern can be displayed. Press  to redisplay the selected pattern.

## 6.4 Pattern Output

User can transfer the pattern data in memory to U disk.

1. Press  to enter memory pattern management interface
2. Select the memory patterns to be outputted
3. Press 



4. System will display the window to “Select U disk” and press to make the selection.



4. Input the pattern name saved in the U disk.



The system provides the minimum available pattern number as the default value. User can use the keypad below to change the number.

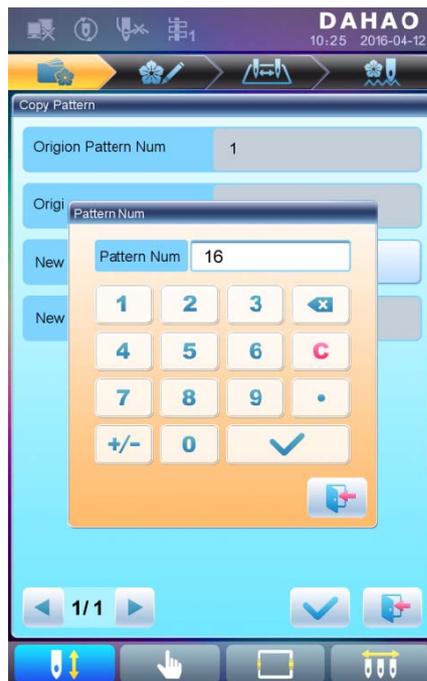
5. Press  of the completion hint.



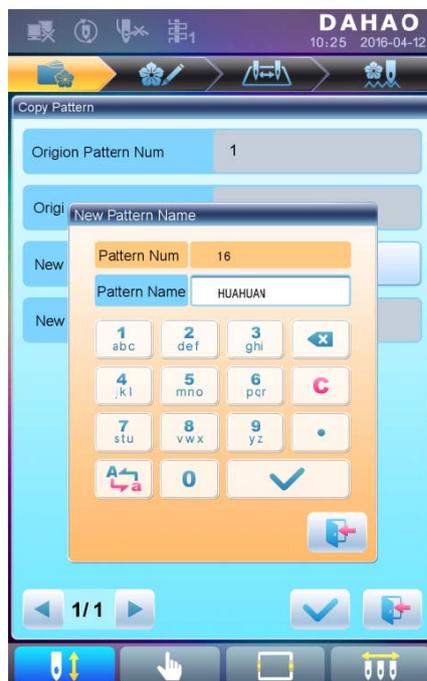
6. Press  to return to pattern management interface.

### 6.5 Copy the Memory Pattern

1. Press  to enter memory pattern management interface.
2. Select a pattern in the memory pattern image display area.
3. Press  to enter memory operation selection interface.
4. Click “Copy Pattern” to enter its operation interface. The system will automatically provide the smallest available pattern number and default pattern name. If the user doesn't want to change them, please press .
5. To input a new pattern number, click “New Pattern number” and input the new number in the pop-up window.



6. To change the new pattern name, click “New Pattern name” and input the new name in the pop-up window.



7. Press  to copy the pattern and return to pattern operation selection interface. Press  to cancel the copy operation and return to pattern operation selection interface.

### 6.6 Create Outline Pattern

This operation can generate a new pattern based on the outline of the designated pattern.

1. Press  to enter memory pattern management interface.
2. Select a pattern in the memory pattern image display area.
3. Press  to enter memory operation selection interface.
4. Press “Create Outline Pattern” to enter the operation interface.
5. User can press to input new pattern number and name instead of default ones.
6. Press  to create the outline pattern and return to pattern operation selection interface. Press  to quit the creating operation and return to pattern operation selection interface.

### 6.7 Create High-speed Pattern

This function can be used to divide long stitch into short ones, so as to prevent speed reduction due to long stitches.

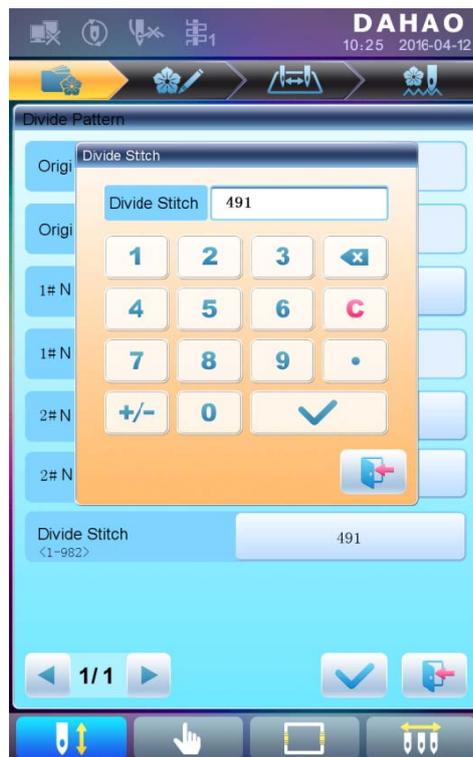
1. Press  to enter memory pattern management interface.
2. Select a pattern in the memory pattern image display area.
3. Press  to enter memory operation selection interface.
4. Press “Create High-speed Pattern” to enter the operation interface.
5. User can press to input new pattern number and name instead of default ones.
6. Press  to create the high-speed pattern and return to pattern operation selection interface. Press  to quit the creating operation and return to pattern operation selection interface.

### 6.8 Divide Pattern

This operation is to divide one pattern into two new patterns.



1. Press  to enter memory pattern management interface.
2. Select a pattern in the memory pattern image display area.
3. Press  to enter memory operation selection interface.
4. Press “Divide Pattern” to enter the operation interface.
5. User can press to input new pattern number and name instead of default ones.
6. Press “Divide Stitch” to input the stitch number of the division position.



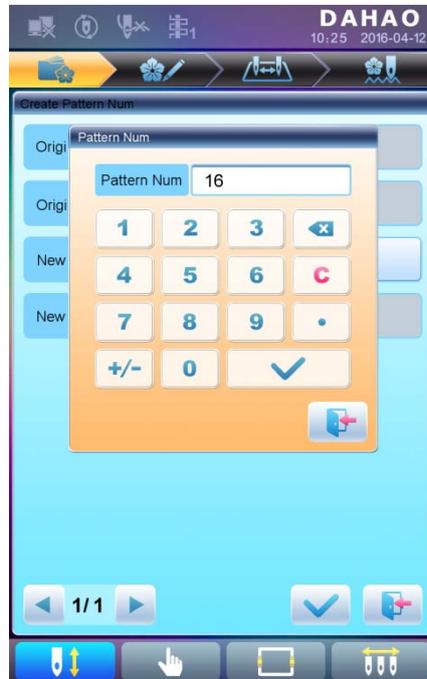
7. Press  to divide the pattern into two new patterns and return to pattern operation selection interface. Press  to quit the dividing operation and return to pattern operation selection interface.

## 6.9 Create Parameter Pattern

This operation is to create a new pattern from the selected pattern together with the settings of its common parameters and color-changing order.

1. Press  to enter memory pattern management interface.

2. Select a pattern in the memory pattern image display area.
3. Press  to enter memory operation selection interface.
4. Press “Create Parameter Pattern” to enter the operation interface.



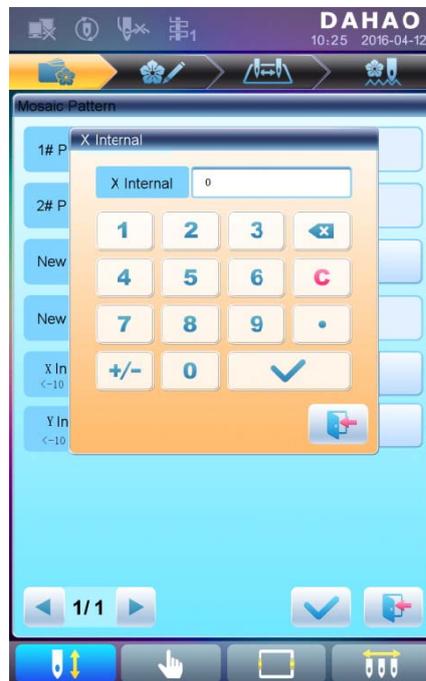
5. User can press to input new pattern number and name instead of default ones.
6. Press  to create the parameter pattern and return to pattern operation selection interface. Press  to quit the creating operation and return to pattern operation selection interface.

## 6.10 Mosaic Pattern

This operation is to combine two patterns into one new pattern. The interval of patterns refers to the distance between the end of the first pattern and the start of the second pattern.

1. Press  to enter memory pattern management interface.
2. Select the two patterns to be combined and record their pattern numbers.
3. Press  to enter memory operation selection interface.
4. Press “Mosaic Pattern” to enter the operation interface.

5. User can press to input new pattern number and name instead of default ones.
6. Press “X Interval” to input the value. Press “Y Interval” to input the value.



7. Press  to combine patterns and return to pattern operation selection interface. Press  to quit the combining operation and return to pattern operation selection interface.

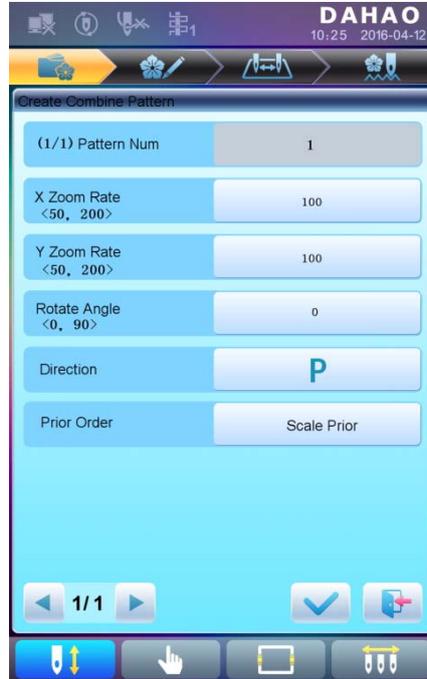
## 6.11 Create Combined Pattern

The combined pattern means a pattern group combined from several certain (less than 99) memory patterns after setting their parameters. The combined pattern is set as automatic continuous embroidery. To embroider a combined pattern, user need return to the memory pattern management interface after creating or editing the combined pattern, where user can select the combined pattern, and then after embroidery confirmation, press start to embroider.

1. Press  to enter memory pattern management interface.
2. To edit existing combined patterns, select a combined pattern; to create a new combined pattern, just follow the instructions below.
3. Press  to enter memory operation selection interface.

4. Press “Create Combined Pattern” to enter the operation interface.

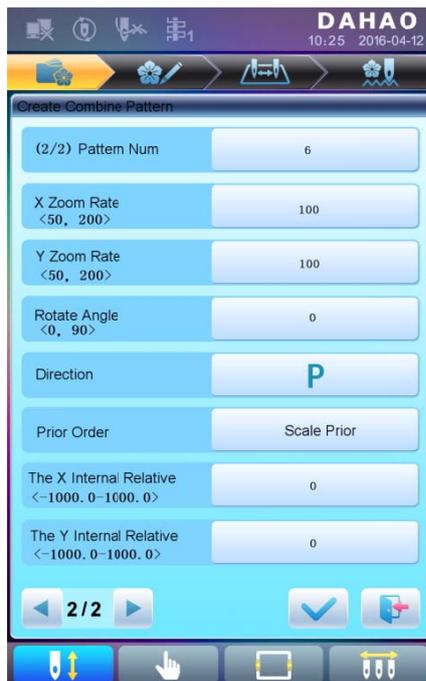
The combined ID shows the current pattern number and how many patterns the combined pattern is composed of. Display form is “pattern number (the total amount of patterns)”.



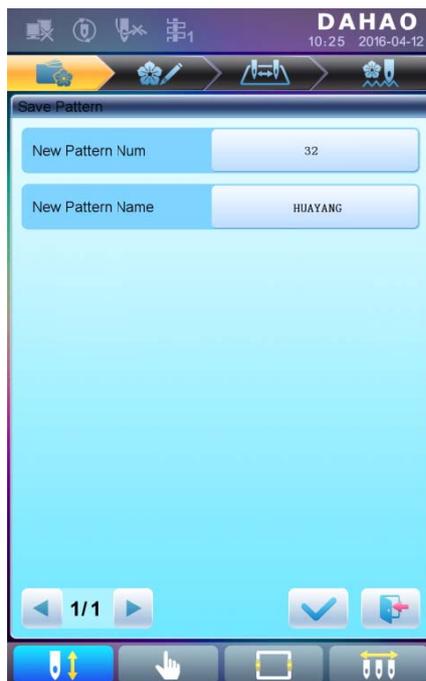
5. Set the parameters of the first pattern, including pattern number, scaling ratio, rotating angle, pattern direction and priority mode. Please refer to Chapter 4 for details of the settings.

6. Press  to set several patterns for packing. And press  to go back to change the parameters of combined patterns.

If the current pattern is not the first of the combined pattern, user need set the interval between it and the first pattern. Please refer to Chapter 4 for details of inputting parameters.



7. Press  to enter the operation interface.



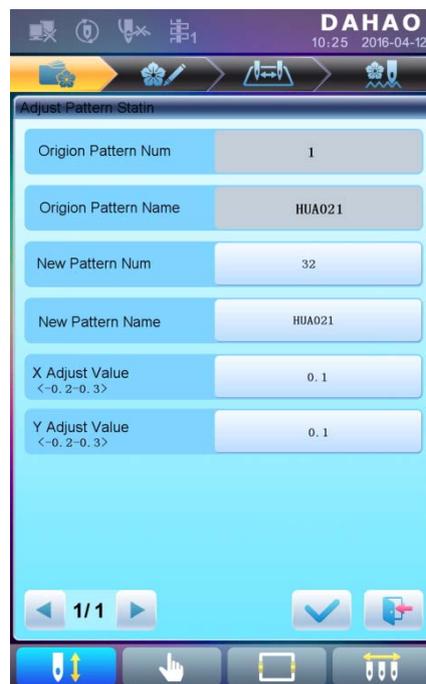
The system will hint user to input the new pattern number and the new pattern name.

8. Press  to save the combined pattern and return to pattern operation selection interface. Press  to quit saving and return to pattern operation selection interface.

## 6.12 Satin Stitch Adjustment

This operation is to adjust the satin width in the design according to the need.

1. Press  to enter memory pattern management interface.
2. Select a pattern in the memory pattern image display area.
3. Press  to enter memory operation selection interface.
4. Press “Satin Stitch Adjustment” to enter the operation interface.



5. User can press to input new pattern number and name instead of default ones.
6. Press “X Adjust Value” and “Y Adjust Value” to input the value respectively.
7. Press  to make the satin stitch adjustment and return to pattern operation selection interface. Press  to quit the adjusting operation and return to pattern operation selection interface.

## Chapter 7 Letter Pattern Operation

System can generate letter pattern based on the built-in font libraries.

### 7.1 Enter Main Interface for Letter Embroidery

Press  in the pattern management interface to enter the main interface for letter embroidery.



### 7.2 Input Letter String for Embroidery

Press  in the main interface for letter embroidery to enter letter string input interface.



The upside of the window is the display area and the downside is the operation area. After inputting the letter string, press  to save.

## 7.3 Adjust Letter Pattern

### 1. Letter Pattern Adjustment Interface



There are 4 rows of operation keys in the interface, the first two rows are the file and view



functions keys, the third row are keys for adjusting letter arrangement, and the fourth row are keys for adjusting letter string. In the middle of the interface is the letter pattern display area.

Generally, user should set the parameters, such as whole arrangement method, rotate angle and letter interval of the letter string; then select certain letter to adjust its arrangement parameters.

Letter pattern display window: the crosses in the centre are the coordinates and the intersection represents the origin (0, 0). The letter will be arranged around the origin automatically.

## 2. Keys for Adjusting Selected Letters



“Letter String”: edit letter string.



“Change Font”: change the font of selected letters. Press this key to display a dialog box, where user can select a desired font and confirm it.



“Color-changing Shift”: set or cancel color-changing before the selected letter.



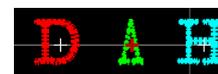
“Selection Shift”: shift among selected letters. A letter must be selected before any edit. If a red “+” appears on a letter, it means the letter is selected, such as . The system will select all letters as default. Press this key to select the first letter, and press it again to select the second one, and so on. After selecting the last letter, press this key again to select all letters.



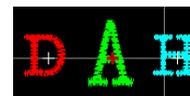
“Increase Width”: increase width of selected letter.



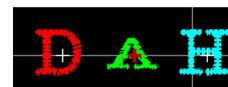
“Reduce Width”: reduce width of selected letter.



“Increase Height”: increase height of selected letter.



“Reduce Height”: reduce height of selected letter.



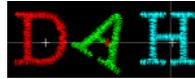
“Horizontal Overturn”: overturn the selected letter horizontally.



“Vertical Overturn”: overturn the selected letter vertically.



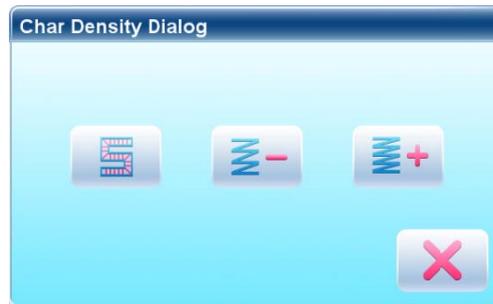
“Clockwise Rotation”: use the letter as centre (“+” in the centre of letter), and rotate the selected letter clockwise.



### 3. View and File Operation



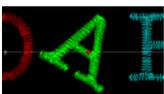
“Letter Density”: adjust the density of the letter string. Press this key to display the density dialog box, where user can set stitch form, increase or decrease density.



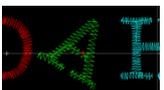
“Stitch Form”: show/hide the stitch form. Hiding the stitch form can improve operation speed.



“Increase Density”: increase the satin stitch density of the created letter pattern.



“Reduce Density”: reduce satin stitch density of the created letter pattern.



“Left”, “Right”, “Up” and “Down”: move letter pattern toward each direction.



“Reduce”: reduce to the display window of letter pattern.



“Enlarge”: enlarge to show the detailed part of the letter pattern.



“Actual”: show the letter pattern in the actual size. At this time, the size of pattern in interface is equal to actual size.



“Center”: scale up/down the view, so as to show the whole pattern for checking.



“Save”: it is used for saving the edited letter pattern. After pressing this key, the system will display the window for user to input the pattern number and name. According to need, change the pattern name and number (the number is not recommended to be changed), then press confirmation key to start saving.



“Exit”: quit from “Create Letter Pattern”.

## 4. Keys for Adjusting Whole Arrangement

If you adjust the parameters for whole rank after the edition of the individual letter, the edition of the individual letter will be probably replaced.



“Horizontal”: rank the letters horizontally



Press this key to shift among “horizontal”, “vertical”, “up arc”, and “down arc”. Only in case of “up arc” and “down arc” can “fix letter direction”, “increase radian” and “decrease radian” be adjusted.



“Vertical”: rank letters vertically



“Up Arc”: rank letters in arc bending upwards



“Down Arc”: rank letters in arc bending downwards



“Fix Letter Direction”: when user ranks the letters in arc, the letter angle will not



change along with the position of arc, but fix at a certain angle



“Increase Radian”: when user ranks the letters in arc, this key can enlarge the

radian of the reference arc



“Reduce Radian”: when user ranks the letters in arc, this key can reduce the radian

of the reference arc



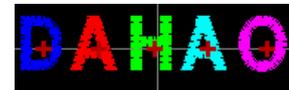
“Whole Clockwise Rotate”: rotate the whole letter string clockwise



“Enlarge Letter Interval”: increase the interval between letters



“Reduce Letter Interval”: reduce the interval between letters



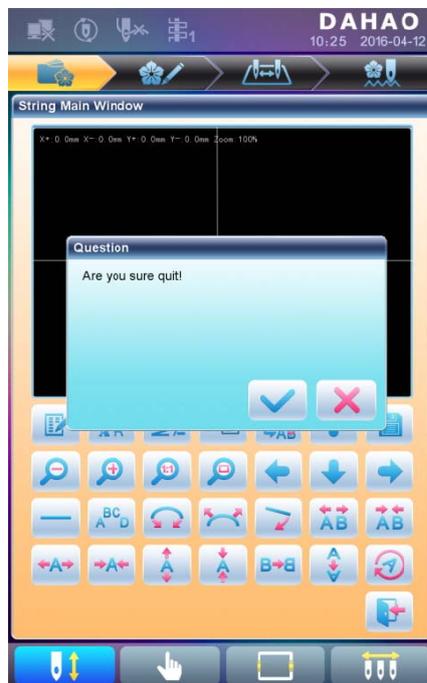
### 7.4 Save Letter Pattern

After finishing the letter pattern edit, user can press  to display a window for user to input pattern number and name, and then press  again to save.



After saving, system will return to the main interface for letter embroidery.

If there is no need to edit letter pattern, press  to quit and the following hint will be displayed.



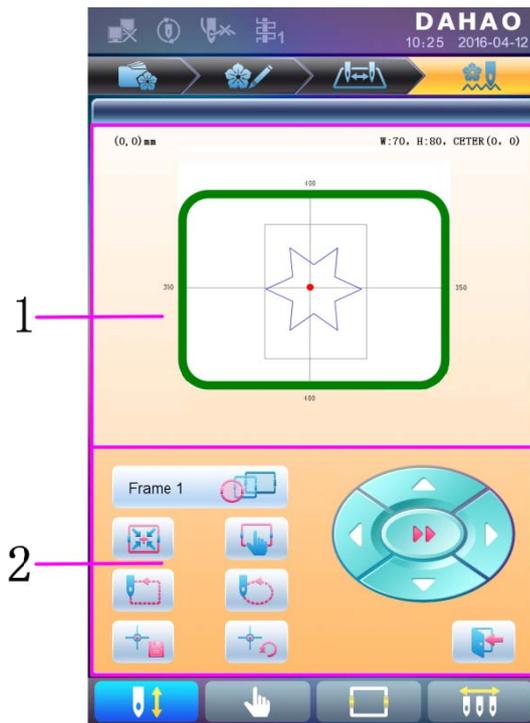
Press  to save or press  to cancel saving, and return to the pattern management interface.

## Chapter 8 Assistant Operation

User can perform some common assistant operations by pressing keys.

### 8.1 Frame Selection

User can press "" key to enter the interface for frame selection and position.



| No. | Icon  | Name  |
|-----|---|---|
| 1   |   | Pattern Range Display                       |
| 2   |  | Frame Type Selection                        |
|     |  | Position Pattern to the Center of the Frame |
|     |  | Frame Parameter Setting                     |
|     |  | Move Frame along Pattern Outside            |
|     |  | Move Frame along Pattern Outline            |
|     |  | Memory of Pattern Origin                    |

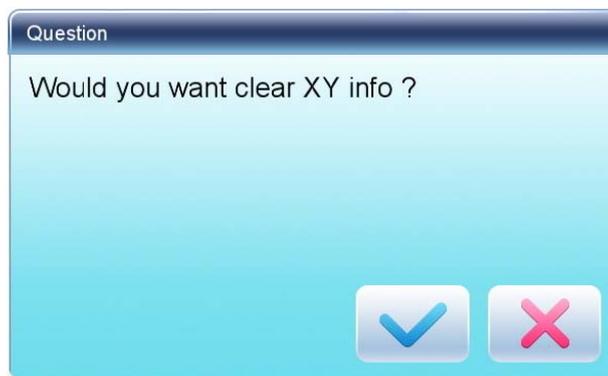


| No. | Icon  | Name                       |
|-----|---|----------------------------|
| 2   |  | Recovery of Pattern Origin |
|     |  | Manual Pattern Movement    |
|     |  | Exit                       |

## 8.2 Clear XY Displacement

This function is to clear the X and Y displacements.

- In the main interface , press 



- System will set current X/Y value to 0.

User can check the current X/Y value on the main interface.

## 8.3 Positioning Idling

This operation can only be undertaken under embroidery confirmation status .

This function can move the frame to certain position without embroidering according to user's need. User can select color-changing code or stop code as reference to idle forward (or backward).

### 8.3.1. Low Speed Idling Forward

- In the main interface , press 

- Press 

- (1) Press  once to idle forward by one stitch
- (2) Hold pressing  for 2s to idle forward continuously

### 8.3.2. Low Speed Idling Backward

1. In the main interface , press 
2. Press 
  - (1) Press  once to idle backward by one stitch
  - (2) Hold pressing  for 2s to idle backward continuously

### 8.3.3. High Speed Idling Forward

1. In the main interface , press 
2. Press  to idle forward at high speed

Note: the operation method of high speed idling backward is the same with here.

### 8.3.4. Go to Next Color

1. In the main interface , press 
2. Press  to idle to the next color-changing code

Note: the operation method of “go to previous color” is the same with here.

## Chapter 9 Other Functions

These functions can be used during the usage, including machine maintenance, information inquiry and system settings.

Press  to enter the interface for other function, where a list of function keys will be displayed for user to operate by pressing.



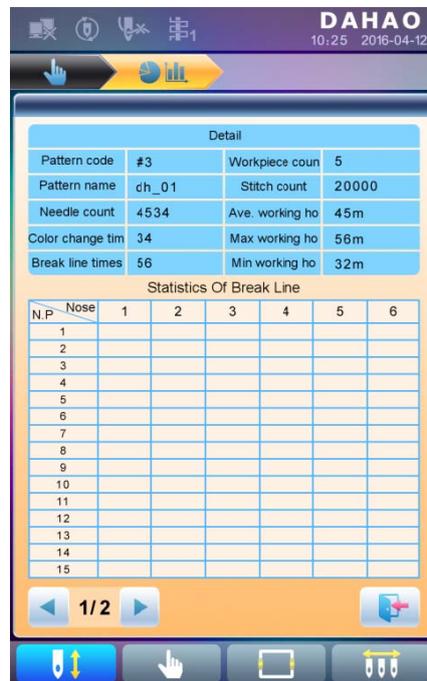
The words on the keys can help user understand the functions.

### 9.1 Statistics

1. Press  to enter the interface for other functions.
2. Press  to enter the interface of statistics.



In the above interface, the statistic information is displayed in a chart. If user need check details of each pattern, press to enter the corresponding interface.



Press to return to the interface of statistics. Press to delete statistic information and press to return.

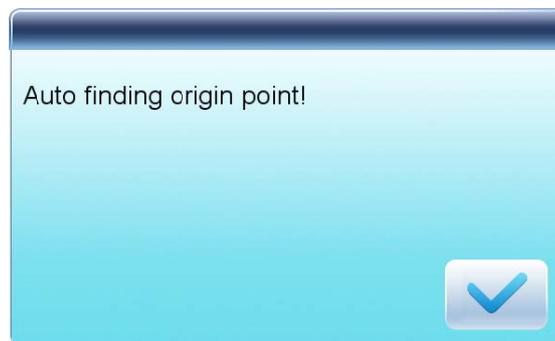
## 9.2 Set Frame Origin

Setting the frame origin is the premise for saving the pattern's start point and setting frame protection at sudden power-off. So after the installation or maintenance of machine, it's necessary to set the frame origin.

1. Press  to enter the interface for other functions.
2. Press  to enter debugging interface.



3. Select “Auto Find Origin Point”



System will move the frame automatically and determine the origin according to the limit switch. So please ensure that the limit switch has been installed into the machine and activated.

## 9.3 Language

System supports Chinese, English, Turkish, Spanish, and so on.

1. Press  to enter the interface for other functions.
2. Press  to enter language interface.

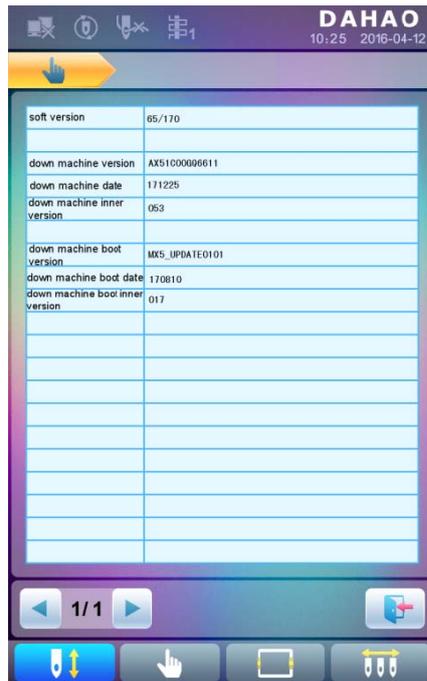


Select the language you want and system will enter the main interface in the selected language.

## 9.4 Machine Information

Operation Procedures:

1. Press  to enter the interface for other functions.
2. Press 



This function will help user check machine software information. Press  to quit.

## 9.5 Machine Debugging

 *This operation is only for repairman, ordinary users are banned to undertake these operations. Because these operations involve some mechanical work, please pay attention to the personal safety and equipment security during the operation.*

Debugging function is to mainly used for testing, maintenance and fault inspection of the machine, which include the following function (debugging items will be different for the different models):

| Debugging Interface 1 | Debugging Interface 2   |
|-----------------------|---|
| Main Shaft            | Main Shaft Speed And Encoder Test                                       |
|                       | Main Shaft to Any Angle   |
|                       | Main Shaft Angle  |
| Trimming              | Trimming solenoid/Motor   |
|                       | Hold solenoid/Motor   |
|                       | Hook Solenoid/Motor   |
| Breakage Detection    | Change needle position, needle bar color and adjust main shaft manually |
| Head Solenoid/Motor   | Up, down, combined test   |



| Debugging Interface 1       | Debugging Interface 2  |
|-----------------------------|--|
| Facial Suture Clamp         |  |
| Driver Parameter Test       | X-axis parameter test  |
|                             | Y-axis parameter test  |
|                             | Main shaft parameter test  |
|                             | Save driver parameters   |
|                             | Load driver parameters   |
| Sensor Status Test          | Test pull bar switch, frame limit, knife origin, knife maximum point, thread-hooking origin, and needle position display, etc. |
| Peripheral board Management | Peripheral board upgrade   |
|                             | All Peripheral Board Write Address   |
|                             | Single Peripheral Board Write Address  |
|                             | All Peripheral Board Address Check   |
|                             | Single Peripheral Board Address Check  |
|                             | Peripheral Board Information   |
| Boot Loader Upgrade         |  |
| Auto Find Origin            |  |
| Other                       | External CAN communication test  |
|                             | External communication test  |
|                             | Touch screen correction  |
| Param Export/Import         | Import machine parameters  |
|                             | Export machine parameters  |
| Param Init                  |  |
| Clear All Patterns          |  |

### 9.6 Date and Time

In date and time interface, user can check and modify the date and time of the system.

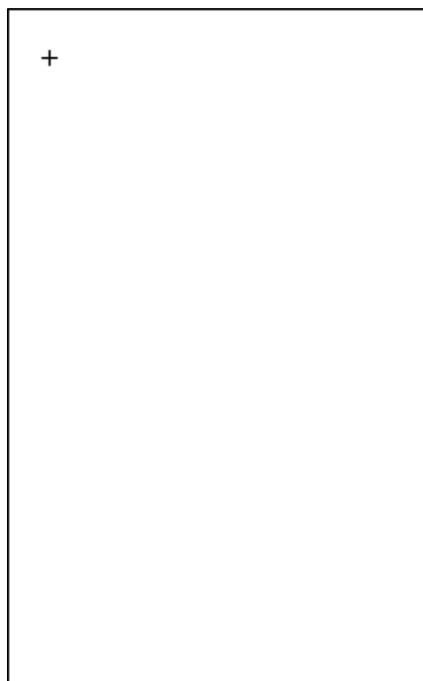
### 9.7 Touch Screen Correction

After using for a period, the touch screen may probably have the problem of the inaccurate operation. This problem can be resolved by touch screen correction. During the correction, please touch the very center of the cross displayed on the screen, or it may affect the future



operation. In order to avoid the trouble caused by the inaccurate correction, this operation is only for the person with authorization.

1. Press  to enter the interface for other functions.
2. Press  to enter debugging interface, where user can select “Other” to enter the corresponding interface.
3. Press “touch screen correction” to enter the correction interface.
4. Press the center of the crosses one by one.



During the process of correction, a lot of crosses will appear on the screen. User should press the center of them. System receives the data of those points and saves them as standard data for correction.

5. System will make correction according to the coordinates of points pressed by users.

System will make the correction and then return to the interface for other functions automatically.

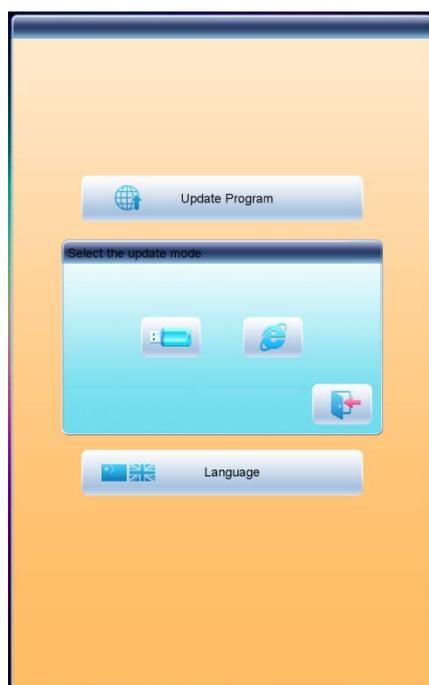
## Chapter 10 Online Update of Main Software

### Update Procedure:

1. Hold pressing  and power on.
2. The screen will display the following interface, where user should select “update program”



3. Select the update method  (via U disk)

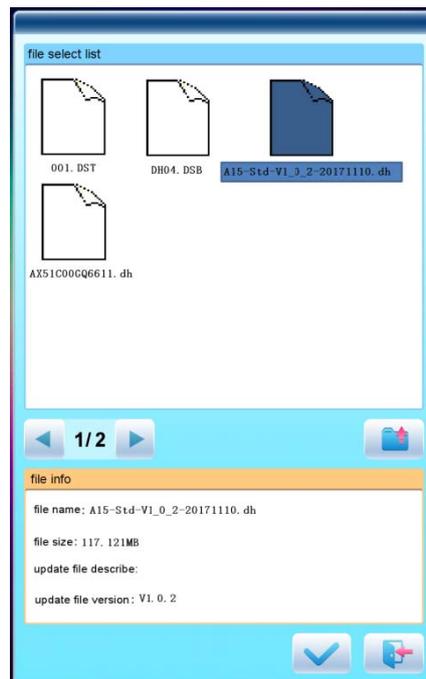




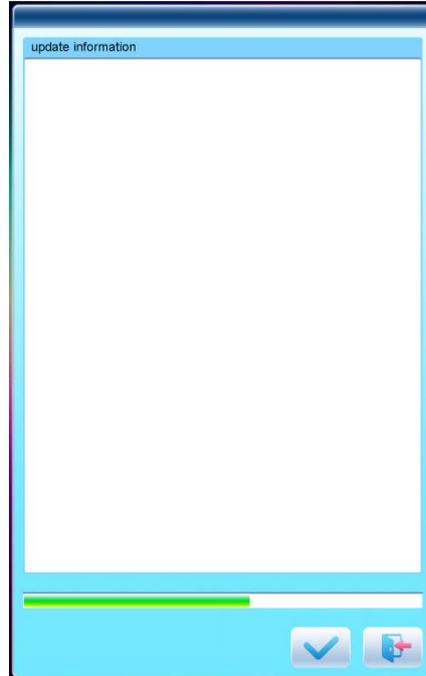
4. System will display the window to “Select U Disk”, and select the target U disk.



5. After entering the interface of the U disk, select the program to be updated.



6. Press  to update.



7. When finishing update, system will automatically display a hint “update completed, if no others, please restart”, and then please restart.



# Chapter 11 Update of Software in Peripheral Board

## Update Procedure:

1. Press  to enter the interface for other functions.



2. Press  to enter the interface of statistics.

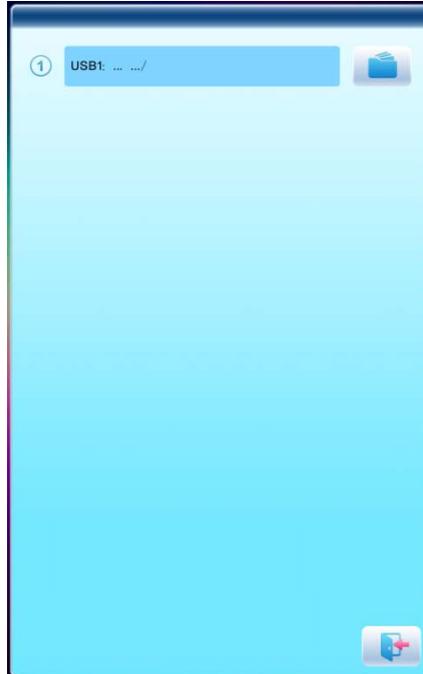




3. Select “peripheral board management” to enter the management interface, where user should select “peripheral board update”.



4. Press

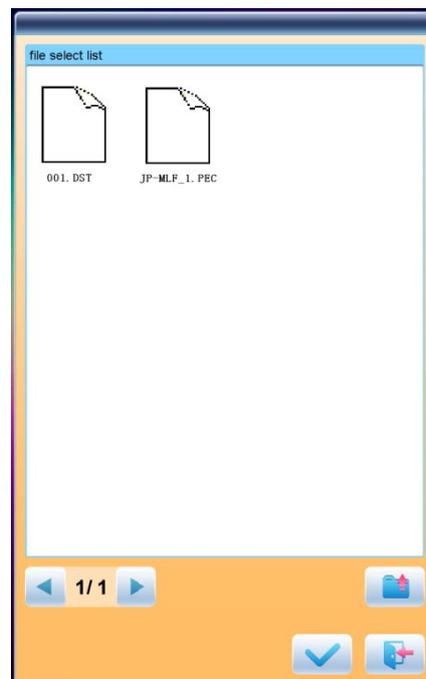




5. Select the U disk

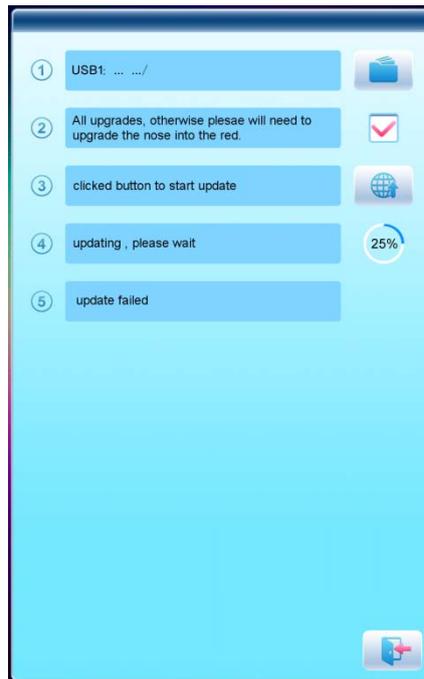


6. Select the program to be updated and press





- when system hint successful update, the update is completed.





## Appendix 1 Parameter List

| No.                                    | Name of Parameter       | Default Value | Range of Value   | Remarks   |
|--|-------------------------|---------------|--|---|
| <b>Common Parameters</b>               |                         |               |  |   |
| A01                                    | Direction               | P             | <input type="checkbox"/> P <input type="checkbox"/> A <input type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> Q <input type="checkbox"/> S <input type="checkbox"/> B <input type="checkbox"/> A <input type="checkbox"/> P |   |
| A02                                    | Rotate                  | 0             | 0~89   | Rotating angle of the design  |
| A03                                    | X&Y Scales              | 100/100       | 50%~200%   | Scale ratio of design in X /Y direction   |
| A04                                    | Prior Mode              | Rotate        | Rotate, Scale  |   |
| A05                                    | Rep. Mode               | Normal        | Normal Part  | Not used  |
| A06                                    | Rep. Prior              | X Prior       | X prior, Y prior   |   |
| A07                                    | X&Y Repts               | 1/1           | 1~99   |   |
| A08                                    | X&Y Interval            | 0.0/0.0       | -999.9~+999.9  |   |
| <b>Embroidery Assistant Parameters</b> |                         |               |  |   |
| B01                                    | Auto Origin             | Yes           | No, Yes  |   |
| B02                                    | To Do Cyclic Emb.       | No            | No, Yes  | Whether to automatically repeat embroidering the design. It often accompanies repetition or the special design.                 |
| B13                                    | Start for Same Colors   | Yes           | No, Yes  | Whether to start in color-changing way when the later needle position is same to the former one                                 |
| D15                                    | Slow STI. After Patch   | 0             | 0~3000   |   |
| D16                                    | Speed After Patch       | 850           | 80~1000  |   |
| B18                                    | Support 3D?             | Yes           | No, Yes  |   |
| C77                                    | Filter Short Stitch     | Yes           | No, Yes  | It is fit for high-speed machine using dahao servo-motor driver. It only get effective after user confirm the embroidery again. |
| C78                                    | Filtering Short Sti Len | 0.5mm         | 0.1mm~0.6mm  | The same as above   |
| C80                                    | Auto Jump Stitch Len    | 6mm           | 6.0mm~12.0mm   | The same to above   |
| U57                                    | Speed of Fast Idling    | 10            | 1~10   |   |



## Appendix 1 Parameter List

| No.   | Name of Parameter               | Default Value | Range of Value                    | Remarks  |
|---|---------------------------------|---------------|-----------------------------------|--|
| <b>Thread-breakage Detection Parameters</b> |                                 |               |                                   |  |
| B05   | T. B. Detect                    | No            | No, Yes                           |  |
| B11   | Sti. Not T.B. Detect            | 8 stitch      | 0 stitch ~15 stitch               |  |
| B06   | Stop after T.B. detect          | Yes           | No, Yes                           |  |
| B08   | T.B. Back Sti.                  | 0 stitch      | 0 stitch ~7 stitch                |  |
| B09   | Back&Patch Count                | 2 stitch      | 1 stitch ~9 stitch                | How many stitches to patch before the thread break point |
| B10   | Motion After Patch              | Speed Down    | Speed No Change, Speed Down, Stop |  |
| B14   | Set All Heads Patch             | No            | No, Yes                           | If “Yes”, all unclosed heads do patching when patching.  |
| B12   | T. B. Detect When Jump          | No            | No, Yes                           |  |
| C28   | T.B.Detect Debouncing Sti       | 1 stitch      | 1 stitch ~6 stitch                |  |
| C67   | Upper Line Det. Sensitivity     | 3             | 1~10                              |  |
| C68   | Bobbin line Det.Sensitivity     | 5             | 1~10                              |  |
| C69   | Upper Line Det. Debouncing Sti  | 1 Sti         | 1~10 Sti.                         |  |
| C70   | Bobbin line Det. Debouncing Sti | 5 Sti         | 1~10 Sti.                         |  |
| C90   | T.B.D Device Type               | Wheel         | Spring, Wheel, Spring+Wheel       |  |
| K1  | Fault det.board type            | PC2220        | PC2220,Other                      |  |
| C91   | Head motor Action Angle         | 0             | 0~10                              |  |
| <b>Frame Parameter</b>                      |                                 |               |                                   |  |
| C06   | Frame Curve & Angle             | F4            | F1~F6                             |  |
| B03   | Over frame by Step              | No            | No, Yes                           |  |
| C15   | High Frame-Shift Speed          | 16            | 1~30                              |  |
| C16   | Low Frame-Shift                 | 12            | 1~30                              |  |



| No.                          | Name of Parameter         | Default Value | Range of Value   | Remarks  |
|------------------------------|---------------------------|---------------|--|--|
|                              | Speed                     |               |  |  |
| D13                          | Speed When Over frame     | 16            | 0,1,2,...,30   |  |
| C74                          | X direction Frame Angle A | 230           | 230~280  | It is fit for high-speed machine using Dahao servo-motor driver.   |
| C75                          | X direction Frame Angle B | 230           | 230~280  | The same as above.   |
| C76                          | Y direction Frame Angle A | 230           | 230~280  | The same as above.   |
| C85                          | Y direction Frame Angle B | 230           | 230~280  | The same as above.   |
| <b>Main Shaft Parameters</b> |                           |               |  |  |
| C07                          | Max. Speed                | 1100          | 250, 300, 350,...,1200   |  |
| C09                          | Minimum Speed             | 400           | 250,300,350,...,600  |  |
| C08                          | Shift Stitch Length (mm)  | 3             | 1.0~10.0(common type machine), 3.0~6.0 (high-speed machine using Dahao servo-motor driver) | When the stitch length is longer than the set value, the machine will lower the speed.   |
| C10                          | Jump Stitch Speed         | 600           | 400~850(common type machine), 400~1100 (high-speed machine using Dahao servo-motor driver) | Set the rotation speed for jump stitch.  |
| C13                          | Set Run Speed             | 80            | 80, 90, ..., 150   |  |
| C12                          | Startup Stitches          | 2 stitch      | 1 stitch~9 stitch  | Set the startup stitch number before acceleration.   |
| D02                          | Startup Acce.             | 15            | 1,2,3,...,30   | Increase the value to bring a quicker speedup after pressing the start key.  |
| C25                          | Set Break Para.           | 5             | 0~30   | Range: 0~30. When the main shaft motor is an electromagnetic motor, the value is usually set at 9. When it is a servomotor, the parameter is usually set at 5-7. |
| C24                          | Main Motor Para.          | 4             | 0~30   | The parameter is invalid when it's a servomotor. When it's an electromagnetic motor, increase this parameter value   |



## Appendix 1 Parameter List

| No.                               | Name of Parameter        | Default Value         | Range of Value                                   | Remarks   |
|-----------------------------------|--------------------------|-----------------------|--|---|
|                                   |                          |                       |  | to avoid main shaft vibration during braking. Usually it's set as 1.  |
| D14                               | Stop Ok bef. Pull Bar    | Yes                   | No, Yes  |   |
| D10                               | Ratio of AC Induction    | 0                     | -15% ~ +15%                                      | The parameter is used when the main shaft uses induction motor. If the value is incorrect, the set rotation speed will be different from the virtual speed. |
| C05                               | Value for Thick Cloth    | 0                     | 0~3  |   |
| C26                               | Para. Of Needle Down     | 15                    | 0~30   |   |
| D53                               | Lock Motor When Stop     | Yes                   | No, Yes  |   |
| C14                               | Speed of Slow Emb        | 80                    | 80,400   |   |
| MS10                              | Emb.Speed                | Middle                | Low,Middle,H                                     |   |
| <b>Thread-trimming Parameters</b> |                          |                       |  |   |
| C01                               | Jump & Trim              | 3 Jump                | No Trim, 1 Jump~7 Jump                           |   |
| D04                               | Speed after Trim         | 80                    | 60,70,80...150                                   | The parameter sets the rotation speed for lock stitch.  |
| C11                               | Slow Stitches After Trim | 3 stitch              | 1 stitch ~7 stitch                               |   |
| C21                               | Length of Lock Sti. (mm) | 0.6                   | 0.3~1.5  |   |
| C19                               | Lock Num. After Trim     | 2                     | 0~3  | Set the lock stitch number at pulling the bar for embroidery after setting the trimming   |
| D06                               | Spin Rounds for Brake    | 1                     | 1,2  | 2 for most machines, 1 for mini type or machines with servo control main shaft motor.   |
| C23                               | Action after Trim        | Y<br>Frame-movin<br>g | X Frame-moving, Y<br>Frame-moving Move<br>Needle |   |
| C22                               | Frame after Trim         | No                    | No, Yes  |   |
| D03                               | Set Hold Startup         | -4                    | -4~3   |   |

# Appendix 1 Parameter List



| No.  | Name of Parameter            | Default Value  | Range of Value           | Remarks   |
|------|------------------------------|----------------|--------------------------|---|
|      | Para.                        |                |                          |   |
| D07  | Trim is OK                   | Yes            | No, Yes                  |   |
| D08  | Hook Angle by Motor          | -100           | -100~+100                | Set the hook angle by motor. When user increases the value, the hook angle is moved backward. |
| E39  | Hook Distance By Motor       | 150            | 0~180                    |   |
| C17  | Pause Trimming               | No             | No, Yes                  |   |
| C18  | Trim Length                  | 3              | 1~8                      | 1 is the minimum length and 8 are the maximum length.   |
| D05  | Speed When Trimming          | 80             | 80,90,100,...,250        |   |
| C20  | Lock When Trim               | Yes            | No, Yes                  |   |
| D48  | Lock Sti Len bef.Trim        | 0.7            | 0.3~2                    |   |
| D49  | Lock Sti bef.Trim            | 2              | 0~2                      |   |
| C81  | Cut action start angle       | 8              | 0~20                     | It is fit for the machine using stepping-motor for trimming thread.                           |
| C82  | Cut return angle adj         | 12             | 0~30                     | The same as above.  |
| C83  | Cut keeper return angle      | 0              | 0~99                     | The same as above.  |
| C84  | Hold voltage adj             | 1              | 1~3                      | The same as above.  |
| C95  | Speed At 1st Sti. Bef. Trim  | 400            | 60~600                   |   |
| C96  | Speed At 2st Sti. Bef. Trim  | 80             | 60~500                   |   |
| C93  | When the shear line surface  | Open           | Open, 1 times, 2times    |   |
| C94  | Emb surface clip action way  | Open           | Open, 1 times, 2times    |   |
| E99  | Patch emb surface when fully | No             | No, Yes                  |   |
| H05  | Trimming device type         | Stepping motor | Stepping motor, Solenoid |   |
| C110 | Trim Machine Type            | 360            | 180, 360                 | The same as above.  |

## Machine Parameters



## Appendix 1 Parameter List

| No.                   | Name of Parameter                   | Default Value | Range of Value    | Remarks   |
|-----------------------|-------------------------------------|---------------|-------------------|---|
| D01                   | Needles                             | 6             | 1,2,...,MAXNEEDLE | Set the value according to the machine situation. E.g. the value should be 9 for 9-needle machine. If the value is different from the machine needles, the color changing will be abnormal. |
| D12                   | Color-Change Speed                  | 12            | 0~30              |   |
| K2                    | Openloop stepper change color curve | 0             | 0~7               |   |
| C49                   | X compensation for mechanical gap   | 0             | 0,1               |   |
| C50                   | Y compensation for mechanical gap   | 0             | 0,1               |   |
| C29                   | Needle of Boring                    | No            | No, 1~7           |   |
| C71                   | Thread hold voltage adj.            | 1             | 1~10              |   |
| E1                    | DIP1                                | 0             | 0~255             |   |
| E2                    | DIP2                                | 0             | 0~255             |   |
| E3                    | DIP3                                | 0             | 0~255             |   |
| E4                    | DIP4                                | 0             | 0~255             |   |
| H06                   | Drive failure monitoring            | Yes           | No, Yes           |   |
| M100                  | Start needle light                  | no            | no,yes            |   |
| K3                    | Hat emb Speed limit                 | 800           | 80~800            |   |
| D68                   | Number of heads                     | 1             | 1~10              |   |
| E45                   | Machine head distance               | 162           | 1~1500            |   |
| <b>Net Parameters</b> |                                     |               |                   |   |
| C43                   | IP Address                          |               |                   | It is used for setting machine address when connected to PC. It is not different among different machines.  |
| C45                   | Subnet mask                         |               |                   | It is used for setting the subnet mask of IP address when connected to PC.  |
| C46                   | Gateway                             |               |                   | It is used for setting the gateway of machine when  |

# Appendix 1 Parameter List



| No. | Name of Parameter | Default Value | Range of Value | Remarks          |
|-----|-------------------|---------------|----------------|------------------|
|     |                   |               |                | connected to PC. |



### Appendix 2 Directions of U Disk Operation

| No | Operations  | Methods or Standards   | Remarks  |
|----|---|--|--|
| 1  | USB I/O   | Same as floppy disk  |  |
| 2  | Operation priority between USB disk and floppy disk | USB Disk   |  |
| 3  | Format supported by USB disk                        | FAT16 and FAT32  |  |
| 4  | Support long file name                              | Support, but not displayed   |  |
| 5  | File name format                                    | DOS 8.3 mode ( 8 digit prefix is viewable,suffix is 3 digits)                  | For instance: “清明上河图.DST” will be displayed as “清明上~1.DST” |
| 6  | Support file name in Chinese                        | Support  |  |
| 7  | Sub-directory operation                             | Support  |  |
| 8  | Sub-directory limitation                            | No. It could be countless in theory  |  |
| 9  | File number in one sub-directory                    | 400  |  |
| 10 | Reading & writing error/ change USB                 | Back to disk management or design management interface, insert the disk again. |  |
| 11 | Multi-logical disks in one USB                      | Support  |  |
| 12 | Formatting USB                                      | Support  |  |
| 13 | Installation of the letter base                     | Not Support  |  |
| 14 | Software update                                     | Support  |  |
| 15 | Special character in file name                      | Support, except “\$”.  |  |



## Appendix 3 Automatic Position Limitation Function Instructions for Apparel Embroidery

### A、 Working Principle

The automatic position limitation function of single-head embroidery machine controller is to determine the embroidery range of the frame by setting the distance from the center of the frame to the origin (that is X-/Y position limitation optical coupler) and the actual frame size (unit: mm). If embroidery is to be done beyond such range, the controller will activate automatic protection to prevent damage to the mechanical parts of the embroidery machine.

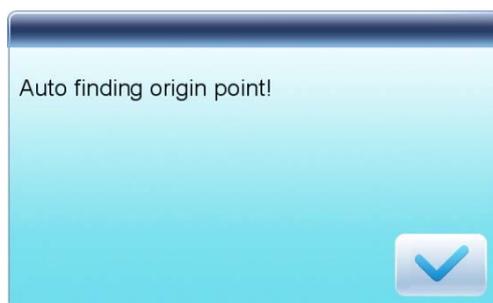
### B、 Setting Method

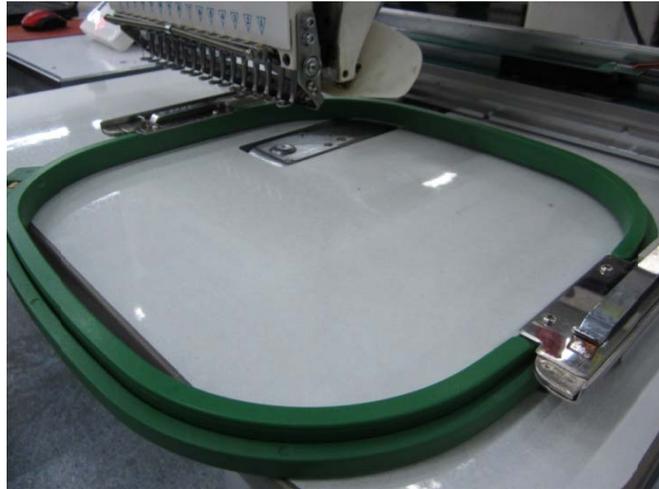
#### 1、 Set Frame Origin

Press  key, then press  key, to enter the following interface.



Select "⑨ Automatic Origin Search", to enter the interface to search origin automatically; the frame will search and determine the origin automatically; press " " key to quit.





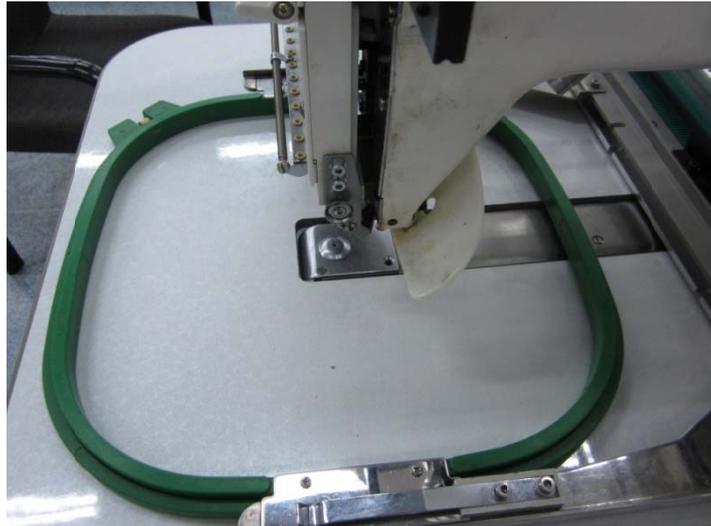
### 2、 Clear XY Displacement

In the main interface, press "C" key to clear the XY displacement displayed here.



### 3、 Manual Frame-moving

In the main interface, click the frame-moving key to move the frame to overlap its center with the needle hole.

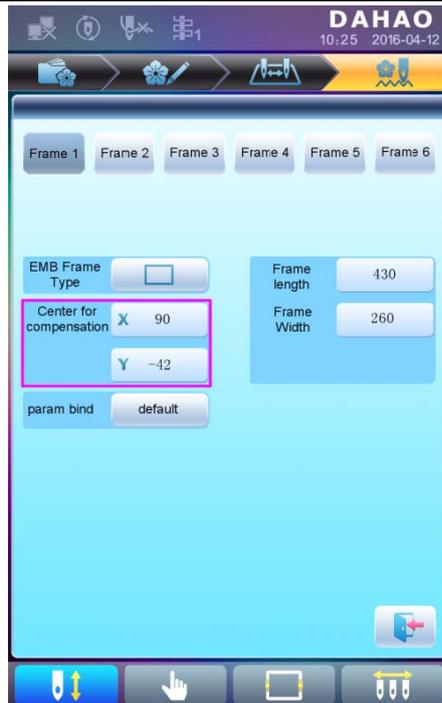


#### 4、 Set Frame Center and Size

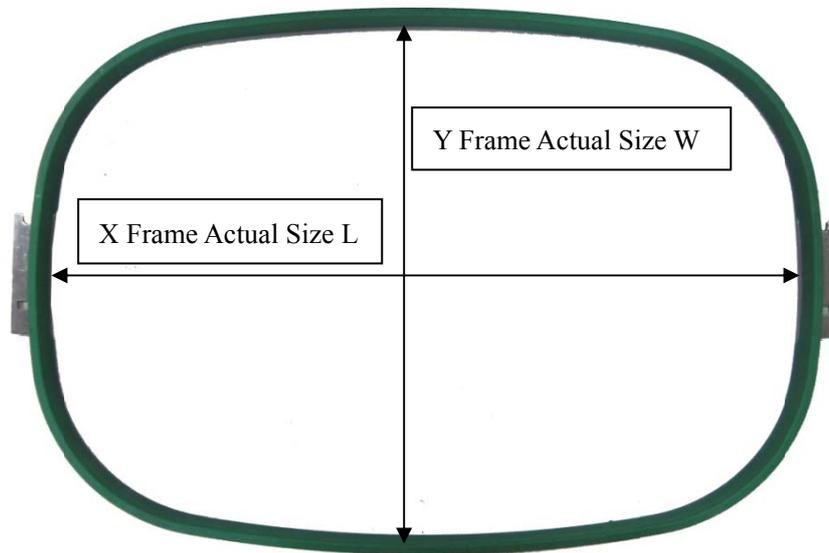
In the main interface, check the coordinates of XY, which is the position of frame center.



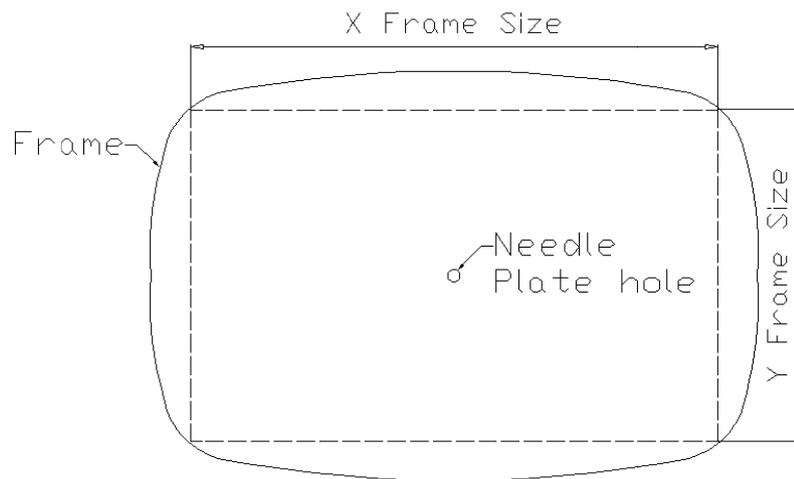
Press "  " key, to enter the interface for frame selection and position setting; then press "  " key, to enter the interface for setting related parameters, where user can input the coordinates of XY in the main interface.



There are four parameters: "X direction center" means the distance at X direction between the frame center and X- direction position limitation optical coupler; "Y direction center" means the distance at Y direction between the frame center and Y+ direction position limitation optical coupler. "X direction frame size" means the embroidery range of the frame at X direction; "Y direction frame size" means the embroidery range of the frame at Y direction.



"X direction frame size" and "Y direction frame size" should be set according to the actual size of different frames. Note: this parameter need be set according to the actual embroidery range of the frame, for the apparel frame is usually not square.



### C、 Cancel Position Limitation

Set "Frame Selection" as "No Frame", the position limitation function will be canceled and the software protection for the frame of flat embroidery will also become invalid.

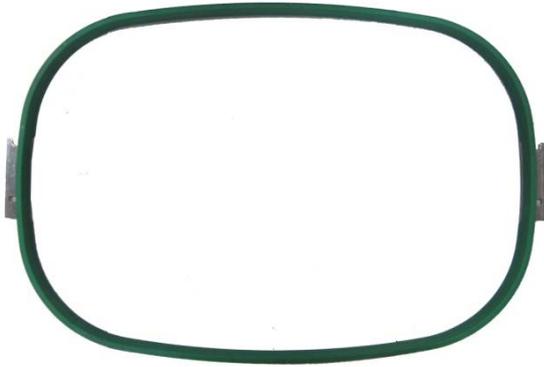


D、Common Frame Size (Unit: mm)

Frame 1:

Size: 550×375

Embroidery Range: 430×260



Frame 2:

Size: 290×290

Embroidery Range: 230×230



Frame 3:

Size: 200

Embroidery Range: 150



Frame 4:

Size: 150

Embroidery Range: 100



Frame 5:

Size: 120

Embroidery Range: 90



Frame 6:

Size: 90

Embroidery Range: 40

