GLK SERIES

寶獅牌工業用縫紉機 INDUSTRIAL SEWING MACHINE

MODEL

GLK430DX

GLK438DX

COMPUTER CONTROL BARTACKING MACHINE, COMPUTER CONTROL BUTTON SEWING MACHINE(ELECTRONIC CONTROL PARAMETER MANUAL)

User Manual

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Foreword

Thank you for using our Computerized Control System for Special Sewing Machine.

It is appreciated that you do read this manual carefully in order to operate the machine correctly and effectively. If the user operates the machine contrary to regulations herein, thus cause loss to user or third party, we will not take responsibility. Besides, you should keep this manual for future use. For any fault or problem of machine, please ask the professionals or the technicians authorized by us for repair service.

Safety Matters for Attention

1、Signs & Definitions of Safety Marks

This Operation Manual and the Safety Marks printed on the products are to enable you to use this product correctly so as to be away from personal injury. The signs and definitions of Marks are shown in below:

Danger	The incorrect operation due to negligence will cause the serious personal injury or even death.
Caution	The incorrect operation due to negligence will cause the personal injury and the damage of mechanism.
	This kind of mark is “Matters for Attention”, and the figure inside the triangle is the content for attention. (Exp. The left figure is “Watch Your Hand!”)
	This kind of mark is “Forbidden”.
	This kind of mark means “Must”. The figure in the circle is the contents that have to be done. (Exp. The left figure is “Ground!”)

2、Safety Matters for Attention

Danger	
	For opening the control box, please turn off the power and take away the plug from socket firstly, and then wait for at least 5 minutes before opening the control box. Touching the part with high voltage will cause the person injury.
Caution	
Usage Environment	
	Try not to use this sewing machine near the sources of strong disturbance like high-frequency welding machine. The source of strong disturbance will affect the normal operation of the sewing machine.
	The voltage fluctuation shall be within 10% of the rated voltage. The large fluctuation of voltage will affect the normal operations of sewing machine, Therefore a voltage regulator is needed in that situation.
	Working temperature: 0℃~45℃. The operation of the sewing machine will be affacted by environment with temperature beyond the above range.
	Relative Humidity: 35%~85%(No dew inside the machine), or the operation of sewing machine will be affected.
	The supply of compressed gas shall be over the consumption required by the sewing machine. The insufficient supply of compressed gas will lead to the abnormal action of sewing machine.
	In case of thunder, lightning or storm, please turn off the power and pull plug out the socket. Because these will have influence on the operation of sewing machine.
Installation	
	Please ask the trained technicians to install the sewing machine.
	Don’t connect machine to power supply until the installation is finished. Otherwise the action of sewing machine may cause personal injury once the start switch is

	pressed at that situation by mistake.
	When you tilt or erect the head of sewing machine, please use both of your hand in that operation. And never press the sewing machine with strength. If the sewing machine loses its balance, it will fall into floor thus causes the personal injury or mechanical damage.
	Grounding is a must. If the grounding cable is not fixed, it may cause the electric-shock and mis-operation of machine
	The entire cables shall be fixed with a distance at 25mm away from the moving component at least. By the way, don't excessively bend or tightly fixed the cable with nails or clamps, or it may cause the fire or electric shock.
	Please add security cover on the machine head.
Sewing	
	This sewing machine can only be used by the trained staff.
	This sewing machine has no other usages but the sewing.
	When operating the sewing machine, please remember to put on the glasses. Otherwise, the broken needle will cause the personal injury in case the needle is broken.
	At following circumstances, please cut off the power at once so as to avoid the personal injury caused by the mis-operation of start switch: 1.Threading on needles; 2. Replacement of needles; 3. The sewing machine is left unused or beyond supervision
	At working, don't touch or lean anything on the moving components, because both of the above behaviors will cause the personal injury or the damage of the sewing machine.
	During working, if the mis-operation happens or the abnormal noise or smell is found at the sewing machine, user shall cut off the power at once, and then contact the trained technicians or the supplier of that machine for solution.
	For any trouble, please contact the trained technicians or the supplier of that machine.
Maintenance & Inspection	
	Only can the trained technicians perform the repair, maintenance and inspection of this sewing machine.
	For the repair, maintenance and inspection of the electrical component, please contact the professionals at the manufacturer of control system in time.
	At following circumstances, please cut off the power and pull off the plug at once so as to avoid the personal injury caused by the mis-operation of start switch:. 1.Repair, adjustment and inspection ; 2.Replacement of the component like curve needle, knife and so on
	Before the inspection, adjustment or repair of any gas-driven devices, user shall cut off the gas supply till the pressure indicator falls to 0.
	When adjusting the devices needing the power supply and gas supply, users can' t be too careful to follow the entire Safety Matters for Attention.

	If the sewing machine damages due to the unauthorized modification, our company will not be responsible for it.

CONTENTS

1 General Information

Technical Parameters of GLK430DX

No.	TYPE / ITEM	GLK430DX
1	Purpose	Bartacking / Button Lockstitch
2	Sewing Area	X(lateral) direction 40mm × Y(longitudinal) direction 30mm
3	Max. Sewing Speed	3200rpm
4	Stitch Length	0.1mm – 12.7mm (adjustable by 0.1mm)
5	Cloth Feed	Intermittent Feed(2-axis drive by pulse motor)
6	Needle Bar Stroke	41.2mm
7	Needle	DP ×5 #14 (DP×5 #11(F,M), (DP×17#21 thick cloth))
8	Type of Lifting Presser Foot	Driven by pulse motor
9	Height of Presser Foot	14mm (Standard), Max. 17mm
10	Total Number of Standard Patterns	100
11	Wiper Type	To work together with Presser Foot driven by Pulse Motor
12	Thread Catching Device	Standard : 0
13	Needle Thread Tension	Manual Thread Holding Device/Electrical Thread Tension Release (MASC211)
14	Shuttle	Standard Semi-rotary Hook or Semi-rotary Double Hook
15	Lubricating Method	Rotary Part: Lubricate with minimum amount
16	Lubricating Oil (Liquid)	Ordinary Sewing Machine Lubricating Oil (Liquid)
17	Grease	Ordinary Sewing Machine Grease
18	Data Memory	Flash Memory
19	Scaling Function	20%~200%(by 1%) in X direction and Y direction respectively
20	Scaling Method	By increasing/decreasing the stitch length
21	Max. Sewing Speed Limitation	200-3200rpm (by 100rpm)
22	Pattern Selection	Importing External Patterns (100-199)
23	Bobbin Thread Counter	Up/Down Type (0 – 999999)
24	Sewing Machine Motor	500W Compact AC Servomotor (Direct Drive)
25	Dimensions	228mm×110mm×61.8mm
26	Weight	10 Kg
27	Rated Power	600W

28	Temperature Range	0℃ - 45℃
29	Humidity Range	35% - 85% （No Dew Condensation）
30	Line Voltage	AC 220V ± 10%; 50-60Hz

※ Please reduce the max. sewing speed in accordance with the sewing conditions.

※ Effective standard for product: QCYXDK004—2022 "Computerized Control System for Industrial Sewing Machine"

1.1 Display Mode

Using black and white dot matrix LCD screen and LED display mode.

1.2 Panel Layout

The quadrate Panel can be divided into two parts, the display part and the operation part. The display part consists of 1 lattice LCD and 4 LEDs and the operation part consists of 17 keys. Refer to the picture of the panel.

1.3 Standardization

The function keys use standard images recognizable and popular within the industry. Image is an international language that can be understood by any nation.

1.4 Operation Mode

Function keys include READY key, RESET key, MODE key, WINDING key, COUNTER key, EDIT key, THREADING/PRESSER FOOT HEIGHT key, SELECTION key, UP/DOWN key, RETURN key and other keys for special functions. See operation instruction for detailed operating methods.

2 Operation and Debugging

2.1 Instructions of Operation Panel

（1）LCD

Display pattern number, shape and various other data.

（2）Test

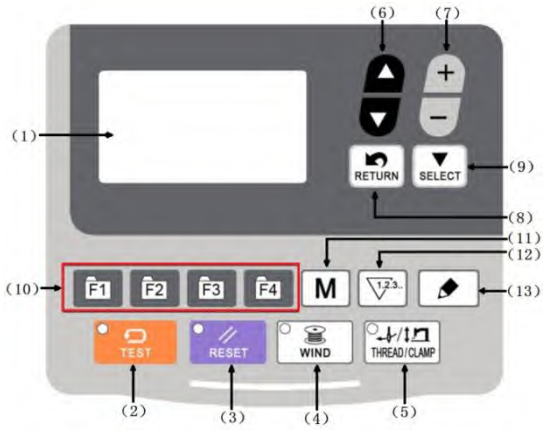
To press this key under sewing ready status (with presser foot at upper position) is to enter pattern trial sewing function interface.

（3）Reset

This key is used for canceling error or returning the set value to the initial value.

（4）Wind

This key is used for winding (bobbin thread).



（5）Threading/Clamp

Lift up or lower down the presser foot. When presser foot goes up, move the needle bar to the origin; and, when presser foot goes down, move the needle bar to the right side. Then, press  to enter the function of presser foot height setting.

（6）Item Selection

This key is used to select among various pattern types, menu items or parameters.

（7）Data Modification

This key is used to modify the parameter value. Under trial sewing mode, this key is used to move single needle and feed cloth.

（8）Return

Return to the previous interface.

（9）Select

This key is used to enter the selected item or make cyclic shift among various items.

（10）Pattern Shortcut (select pattern fast)

According to the set value of parameters, these keys can be used to make quick selection of patterns or for some special purposes.

（11）Mode (M Key)

Enter the function menu interface.

（12）Counter

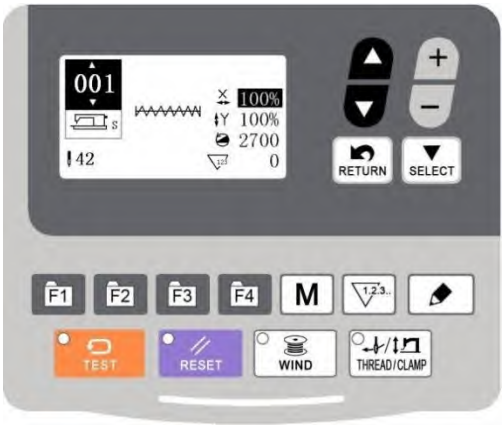
Under sewing editing mode (unready for sewing), press it to enter counter setting mode directly.

（13）Edit

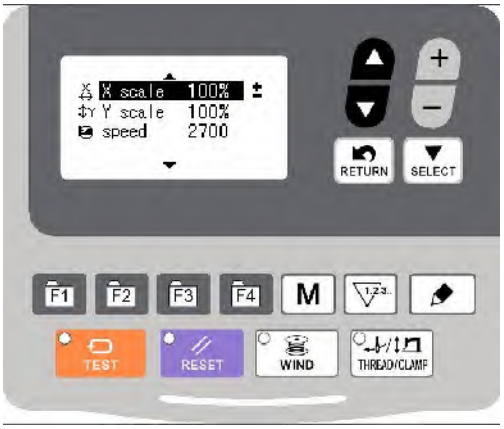
When selecting pattern status , press this key to enter the pattern parameter modification interface. For certain functions, this key can be used for special purposes.

2.2 Basic Operations

2.2.1 Pattern Number Setting

Open power swtich. On the left upper side of the screen will be displayed the pattern No., stitch number on the left lower side, pattern shape in the middle, and X/Y scale rate, sewing speed and counter value on the right side. Under this interface, press  to modify pattern No., press  and  to select the current pattern display data for modification;	

2.2.2 Pattern Parameter Settings

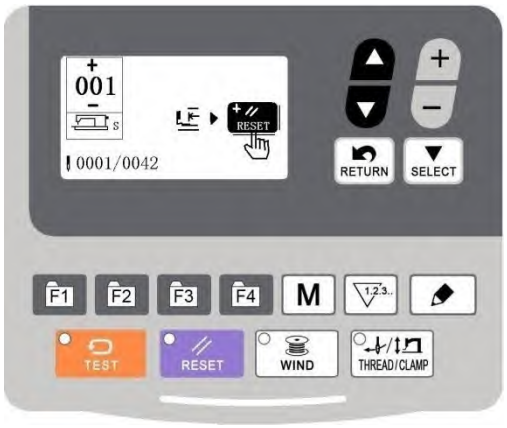
In the selected pattern state press  to enter the interface for pattern parameter modification, where user can press  or  to change the parameter and press  to modify the selected parameter. After modification, to quit the interface is to make effective the modification. (1) During modification of XY scale rate, please make sure the pattern is within the range of the presser foot. Otherwise, the needle may clash with the presser foot and break, which is very dangerous! (2) The maximum sewing speed is controlled by parameter K163 and shall be no higher than the set value of K163. (3) The setting of needle thread tension can only be displayed by machine type 211 when parameter K560 is set as 0.	

2.2.3 Confirmation of Pattern Shape (Test Function)

Warning!

1. After selecting patterns, user must check the pattern shape before sewing. Once the pattern is beyond the range of the presser foot, the needle would clash with the presser foot and break during sewing, which is very dangerous.

2. When checking the pattern shape, if user presses  **to move the frame when the needle bar is down, the needle bar will return to the stop position first before the presser foot starts to move.**



1) When the pattern is carried out on the pedal, the presser foot will lift up after the sewing point, and the software will enter the ready sewing state,, press  and the LED indicator on this button will light up.

2) Step pedal to level 1 to lower down the presser foot.

Press  to move on stitch forward along with the pattern shape, and holding pressing  will make the presser foot continue moving until the last stitch of the pattern. To press  and hold the key, the presser foot will move in the opposite direction of the pattern. After stepping on the pedal to the start gear, the presser foot will automatically move continuously

3) When presser foot is moved to certain stitch position, press  to make the presser foot return to the sewing start point and then lift up.

4) Move process press  , The sewing screen is displayed in the current position, and the presser foot does not lift.

Under this condition, step pedal to start sewing from the present position.

2.2.4 Sewing

Sewing:

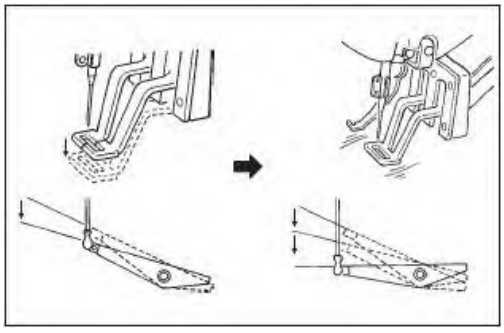
Press the pedal once to the start gear, move the presser foot device to the starting point of the current sewing pattern, and lift the presser foot;

1.Put sewing material under presser foot.

2.Step pedal to level 1 to lower the presser foot.

3.Step pedal to level 2 to start sewing.

4.At sewing end, presser foot will lift and return to sewing start.



2.2.5 Change to Other Pattern

Press  to change pattern No., At the same time, the system status will automatically switch to the selected pattern status ..XY scale rate, speed, etc. can be set in the same way as [2.2.1 item data setting]. Step pedal to level 2 and the control system will enter sewing ready status. Please confirm the pattern shape after pattern selection, in case the pattern is away from presser foot and needle will collide with presser foot and break during sewing.

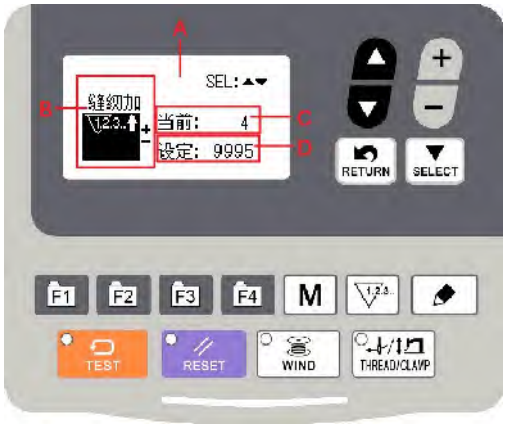
2.2.6 Bobbin Thread Winding

1) In the selected pattern status, press  to enter winding function mode 2) Under winding function mode, step pedal to level 2 and the main shaft motor will rotate and drive the winding device to wind. 3)Press the pedal again or press  the return key to stop the sewing machine. . 4) After pressing the winding key  , the spindle stops and the display switches to the sewing pattern interface.	

2.2.7 Sewing with Counter

(1) Counter Setting Method

1) Enter counter setting interface In the selected pattern status , press M mode key or  to enter sewing counter interface. Counter interface A will be displayed, where counter value can be set. 2) Select counter type Press  to shift the counter type (B) and press  to select proper counter.	

3） Change counter value Press  to change the set value of the counter (C) and press  to input the present sewing value. 4） Change the present counter value Press  to change the present value of the counter (D) and press  to clear the counter value. In addition, press  to edit the present value.	

(3) Counter Type

B01 Sewing Plus Counter

The present value will add 1 after sewing 1 shape.

Present value and set value

B02 Sewing Minus Counter

The present value will deduce 1 after sewing 1 shape.

When present value reaches 0, minus counter interface will be displayed.

B03 Cyclic Plus Counter

Calculate present value of 1 cyclic sewing by adding number. When present value equals with set value, counter interface will be displayed.

B04 Cyclic Minus Counter

Calculate present value of 1 cyclic sewing by deducing number. When present value reaches 0, counter interface will be displayed.

B05 Bobbin Thread Plus Counter

Add to the present value after every 10 stitches. When present value equals set value, counter interface will be displayed.

B06 Bobbin Thread Minus Counter

Deduce the present value after every 10 stitches. When present value reaches 0, counter interface will be displayed.

B07 Close Counter

(4)Counter Release

When the counter value is exhausted, counter interface will be displayed. Press RESET key to reset the counter and then the counter will start counting again.	

2.3 Settings of P Pattern and C Pattern

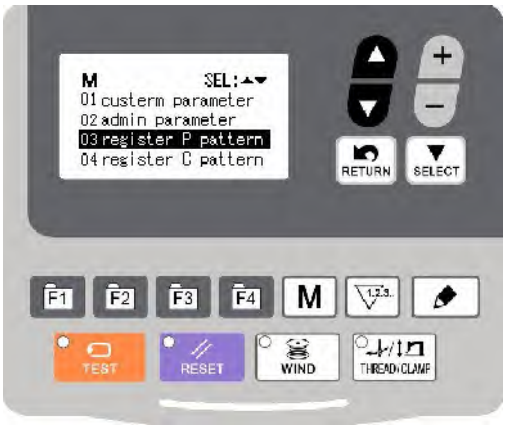
2.3.1 Settings of P Pattern

User can register patterns stored in memory or imported from external device (No.100-199) to P01-P99 and At the same time, the X / Y expansion and reduction rate, thread tension, maximum sewing speed and XY offset can be set.

Press M key to enter function list, where user can select “03 register/delete P patter” and press SELECT to enter the corresponding interface.

Under such interface, press ▲▼ to select P pattern number and press SELECT to select pattern number, scale rate and sewing speed, where user can press + − to change the value of the selected item.

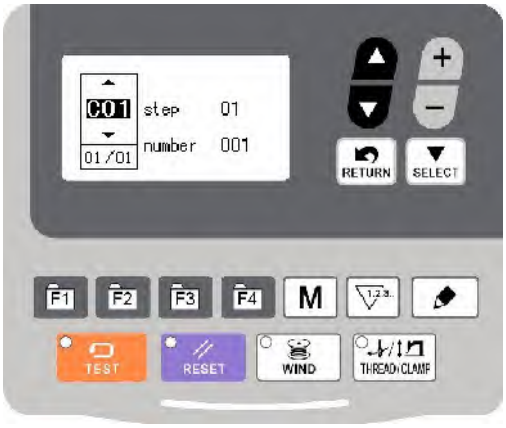
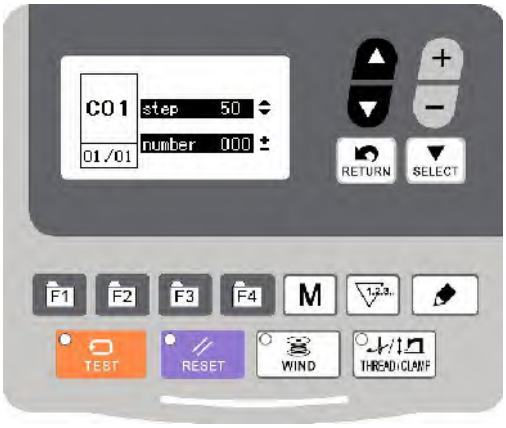
Example: register memory pattern No.3 to P2, with X scale rate being 50% and maximum speed being 2,000 sti/min.

1) Turn on the power and then press M to enter function menu. Press ▲▼ to select “03 register/delete P pattern” and press SELECT to enter the corresponding function interface. 2) Press ▲▼ to selected a set to P pattern number (e.g. P01), press SELECT to select pattern number and set it as 3 by data modification key. 3) The settings of scale rate and sewing speed are the	

same as the settings of pattern number,Press SELECT to switch options and + − to change data 4) After settings, press RETURN to quit.	

2.3.2 Register Cyclic Pattern (C Pattern)

This machine can be used to sew several patterns in order cyclically.
Up to 99 patterns can be inputted. It can be used to sew materials with various different patterns.
In addition, 99 data of group sewing can be registered.
(1) Cyclic Data Selection

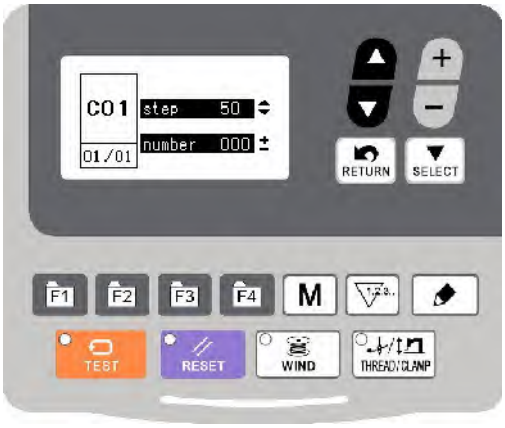
1) Enter cyclic pattern registration function Turn on power, press M to enter function menu, press ▲▼ to set 「04 register/delete C patter」 under selection, and then press SELECT to enter the corresponding function interface.	
2) Register cyclic pattern Press ▲▼ to select an unregistered C pattern number and then press SELECT to activate the step number and the sub-pattern number functions. Press ▲▼ to change the step number and press + − to change the sub-pattern number. After finishing one C pattern, press RETURN to quit. **Note: the step number shall be increased in order; otherwise the C pattern will not become effective.**	

3)Conduct sewing

In the C pattern selection pattern state , pressing the pedal to the second gear can make the system find the origin. Then the embroidery frame automatically moves to the starting point of the first sub pattern, the presser foot rises, and the system enters the sewing preparation state. At this time, press the pedal to the second gear to start sewing. After sewing, the embroidery frame automatically moves to the starting point of the next sub pattern, the presser foot rises, and the system enters the sewing preparation state again. C. after the pattern editing is completed,

the display returns to the pattern selection interface, and press + / - key to switch and display the current sub pattern; After stepping on the pedal to enter the waiting sewing state, press the + / - key to switch the sub pattern of the first sewing

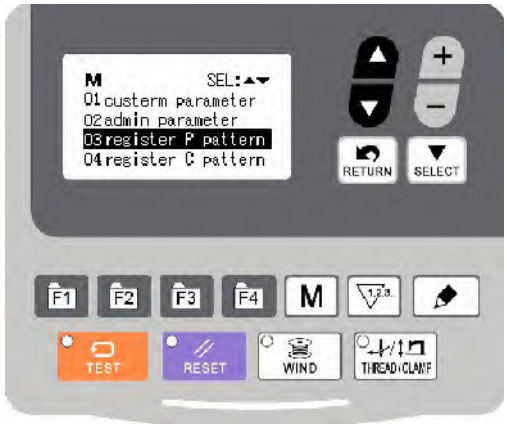
4)Cyclic Pattern Modification

1) Enter cyclic pattern registration function Press M key to enter function menu, select 「04 register/delete C patter」, and then press SELECT to enter the corresponding function interface. 2) Modify sub-pattern Press SELECT to activate step number and sub-pattern number, then press ▲▼ to change the step number and press + − to change the sub-pattern number. After modification, press RETURN to quit.	

2.4 Delete P Pattern and C Pattern

User can delete certain or all registered P patterns or C patterns.

2.4.1 Delete P Pattern

1)Press M to enter function menu, press ▲▼ to select “03 register/delete P pattern” and press SELECT to enter this mode.	

2)Press or reset key to the pattern number to be deleted and set it as 0 to delete it. Then press to quit.	

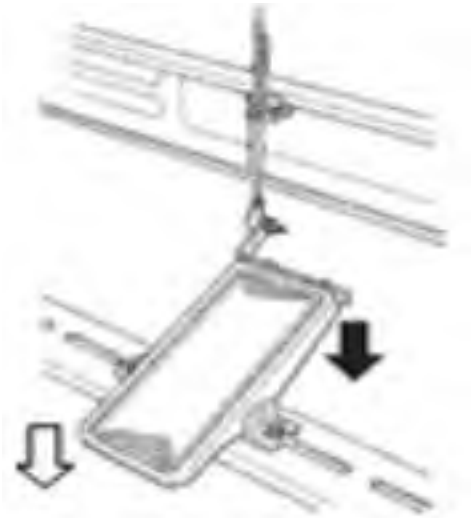
2.4.2 Delete C Pattern

1)Press to enter function menu, press to select “04 register/delete C pattern” and press to enter this mode. 2)Press to activate step number and sub-pattern number and press to set the sub-pattern number of step number 01 as 0 to delete this C pattern. Then, press to quit.	

2.4.3 Pause

Emergency Stop by Pedal

Set K280 to reverse pedal emergency stop,pedal has three levels: level 1 to lower the presser foot, level 2 to start sewing and level 3 (to step backward with heel) for emergency stop.

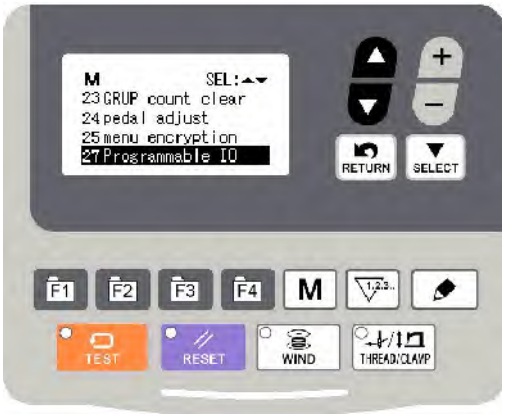
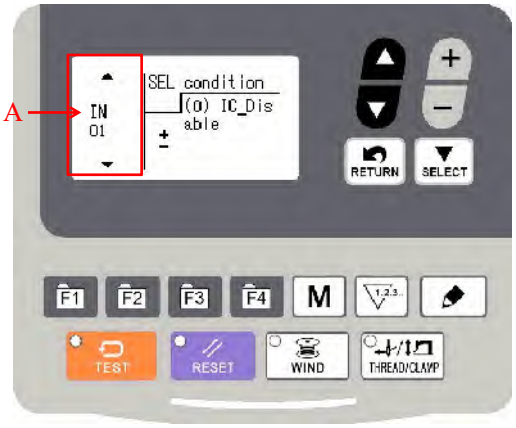
1） Under sewing ready status, step the pedal forward ⬇ to lower the presser foot; 2） Step the pedal forward again⬇ to start sewing; 3） During sewing, user can step the pedal backward to stop the machine emergently and the operation panel will display “E-002”. 4） When sewing machine stops, press RESET to release the error and the cloth feeding interface will be displayed. 1) There are three operations after release (here is the operation mode under manual thread cutting mode). The thread cutting mode after pause can be set by referring to parameter No. 572 in 3.2 administrator parameter table. 1. Step back on the pedal during sewing to enter the pause mode and press the reset key RESET. 2. Press the select key SELECT, after cutting, use the data change key ± to adjust the position, You can also press the pedal again to the second gear to start sewing. 3. Note: or press the select key SELECT to cut the thread, and then press the reset key RESET again to move the embroidery frame to the continuing point of the pattern.	

2.5 Programmable IO

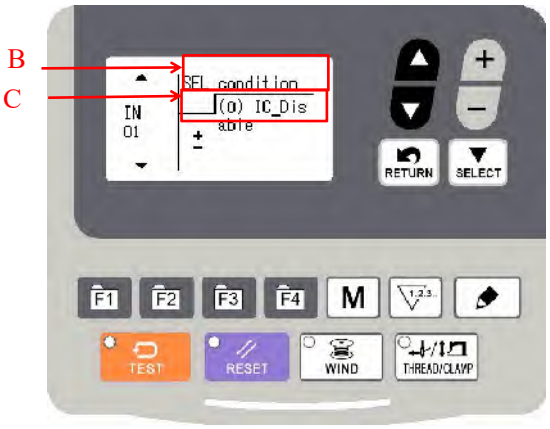
This function supports user-defined configuration of various input and output functions,as well as import or export programmable IO configuration and user-defined shortcut parameter configuration.

1.If the programmable IO option is not displayed in the function menu, you need to hold down the M key on the home page for 3 seconds. The system menu will automatically jump to the interface, and ‘02 administrator parameter’ will be displayed. In administrator parameters, set K239=1, that is, the function is enabled and takes effect after restarting.

2.If programmable IO needs to use OUT5 output,first set K139=-1 to turn off the needle cooling function,to prevent the output timing cannot be executed normally according to the setting.

（1）Turn on the power, press the M key to enter the system menu, press the key to select "27 Programmable IO", and then press the SELECT key to enter the mode.	
（2）Press the key to select A,including:input signal 01~05,output signal 01~10,import, export(programmable IO configuration/shortcut parameter configuration).	

2.5.1 Input Settings

1) Press the key to select a number in the input signal 01~05. 2) Press the SELECT key to select input signal parameter B. Input signal needs to set 3 parameters, including:① input condition ② input level ③ input port 3) Press the key to customize each parameter C.	

Input signal parameter table

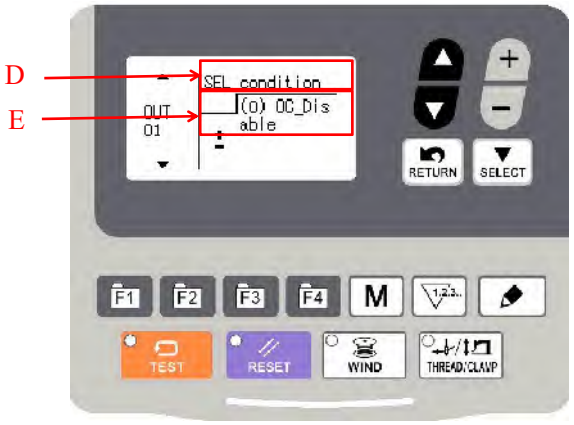
Input condition			
parameter	**Function**	**parameter**	**Function**
（0）IC_Disable	Disable the output function.	⑴IC_BlkMPDWPS1	Stand by pedal in gear 1 and wait for an input signal before lowering the external pressor foot.
⑵IC_BlkMMSIR	In the ready state press pedal 2 and wait for an input signal before starting sewing.	⑶IC_Blk FJ	Wait for an input signal before any XY feeding action (entering the ready to start sewing point, sewing halfway, sewing point at the end of sewing, and single step test sewing are included).
⑷IC_Blk MMST	Wait for an input signal before starting all spindle operations	⑸IC_Blk MMSP	Wait for an input signal after all spindle operation stops
⑹IC_Blk MPD	Wait for an input signal before lowering all external pressors	⑺IC_Blk MPL	Wait for an input signal before lifting all external presser feet
⑻IC_Pat Ext In1	When sewing encounters pattern input function code 1 (if the stitch will automatically stop) wait for an input signal.	⑼IC_Pat Ext In2	When sewing encounters pattern input function code 2 (if the stitch will automatically stop) wait for an input signal
⑽IC_Pat Ext In3	When sewing encounters pattern input function code 3 (if the stitch will automatically stop) wait for an input signal	⑾IC_Pat Ext In4	When sewing encounters pattern input function code 4 (if the stitch will automatically stop) wait for an input signal
⑿IC_Pat Ext In5	When sewing encounters pattern input function code 5 (if the stitch will automatically stop) wait for an input signal	⒀IC_Pat Ext In6	When sewing encounters pattern input function code 6 (if the stitch will automatically stop) wait for an input signal
Input level			
parameter	**Function**		
Low	When the input port signal pin is short-circuited with the GND pin, the input level is considered to be low		
High	When the input port signal pin is short-circuited with the GND pin, the input level is considered to be high		
Input port：ZH、IN1、IN2			

2.5.2 Output Settings

1) Press the key to select a number in the input signal 01~10.

2) Press the SELECT key to select input signal parameter D. Input signal needs to set 5 parameters, including:① input condition ② input level ③ input port ④ Pre-t1 ⑤ Post-t2

3) Press the key to customize each parameter E.



Output signal parameter table

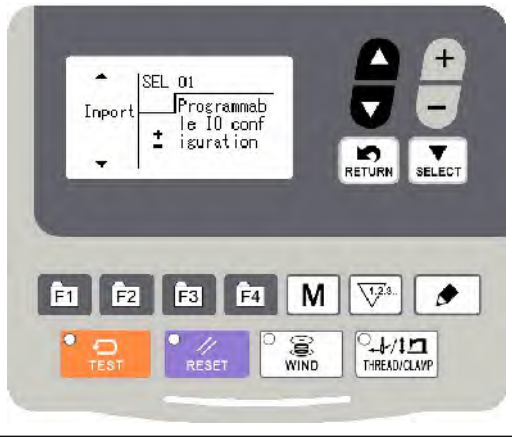
Output condition			
parameter	**Function**	**parameter**	**Function**
(0) OC_Disable	Turn off this output function	(1)OC_Mm Ang Trim	Output a signal when the split action is reached
(2)OC_Mm Sta Rotation	Output a signal after the spindle starts running	(3)OC_Sys Sta READY	Output a signal when ready for sewing
(4)OC_Sys Sta RUN	The system outputs a signal during sewing	(5)OC_Sys Sta ERROR	The system outputs a signal when an error is reported
(6)OC_Sew Evt BERW	The system outputs a signal before entering the ready state	(7)OC_Sew Evt AERM	The system outputs a signal when it enters the ready state
(8)OC_Sew Evt BSRS	Output a signal before starting sewing	(9)OC_Sew Evt BSER	Output a signal before returning to the starting point at the end of sewing
(10)OC_Sew Evt BMMS	Output signal before spindle starts	(11)OC_Sew Evt AMMS	Output signal after spindle stops
(12)OC_Sew Evt BBTS	In the middle of the test sewing or after the sewing emergency stop, press the reset key to return to the sewing point and output a signal	(13)OC_Sew Evt BMPD	Output a signal before the external presser foot is lowered
(14)OC_Sew Evt BMPL	Output a signal before the external presser foot is lifted	(15)OC_Sew Evt Pause	Output a signal after a crash stop
(16)OC_Sew Evt Thbrk	Output a signal after a break occurs	(17)OC_Pat ExtOut1	When sewing encounters pattern output function code 1, output a signal
(18)OC_Pat ExtOut2	When sewing encounters pattern output function code 2, output a signal	(19)OC_Pat ExtOut3	When sewing encounters pattern output function code 3, output a signal
(20)OC_Pat ExtOut4	When sewing encounters pattern output function code 4, output a signal	(21) OC_Pat ExtOut5	When sewing encounters pattern output function code 5, output a signal

(22) OC_Pat ExtOut6	When sewing encounters pattern output function code 6, output a signal	(23) OC_Sew Evt Bobbin Empty	Output a signal when an error is detected after the bottom line of the panel report is insufficient
(24) OC_Sys Sta FREE	The system is in the non-ready state, that is, the pattern bottom on the dot matrix LCD panel is black, and the touch screen is output a signal under an orange background	(25) OC_Sew St i Ang	Output a signal when sewing to the number of stitches set by the front delay t1 parameter and the Angle set by the back delay t2
Output level			
parameter	**Function**		
Low	After reaching the state of the output condition, a low level of the signal is output, while the state of the non-output condition remains high		
High	After reaching the state of the output condition, a high level of the signal is output, while the state of the non-output condition is kept low		
Reversal	After the state of the output condition is reached, a signal is output that is opposite to the state before the output condition, for example, the output condition is a branch line, that is, if the level is high before the branch line, the output will be low when the branch line is reached, and if the level is low before the branch line, the output will be high when the branch line is reached		
parameter	**Function**		
Pre-t1	Used to control the timing of the signal. If it is set to 0, the output condition is reached immediately, if it is set to 200, the output is reached after 200ms delay, and the negative number cannot be set, that is, the output signal cannot be output before the output condition		
Post-t2	The holding time after the output of the signal is set to 0, that is, the output level is maintained after the output condition is reached.		
Output Port：V5，V6，V7，V8，V9，24V（UP）			

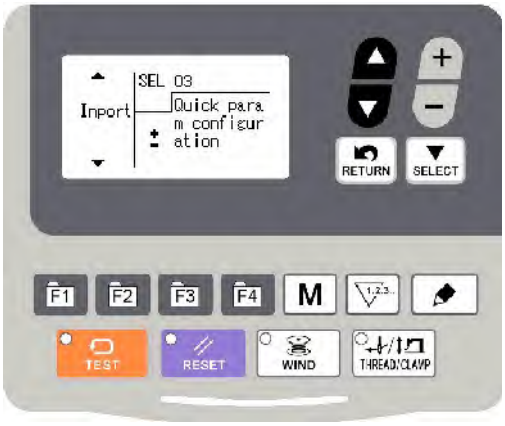
2.5.3 Input/Output（Programmable IO configuration）

All the data of the 5 input items and 10 output items can be automatically packaged and exported. The files need to be saved in the update directory of the USB flash drive. The file names are configured as PioCfg on the panel first.

The general operation method is as follows: After the function configuration is complete, export the configuration and save the configuration file properly. Then import the configuration file to a machine with the same configuration.



2.5.4 Input/Output（Quick parameter configuration）

If you need to frequently modify Pre-t1 and Post-t2, you can go to the "Quick Parameter Settings" menu to quickly access and modify the Pre-t1 and Post-t2 of the 10 output items in programmable IO. This function can be used to import the configured content in "Quick Parameter Settings" to the USB flash drive, and then directly import the configuration file to a machine with the same configuration.	

2.6 System Input Test

1）In the selected pattern state , press M to enter menu function interface, then press ▲▼ to select “11 output test”, and then press SELECT to enter the output test function.	

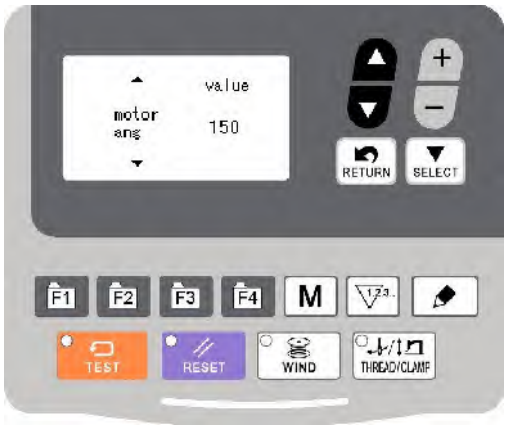
2）Press ▲▼ to change test item, and for each test item, press + - to make the test. Functions for test are as follows:

Test Item	Function
X Motor	First press the reset select key to return the motor to the original point,Press + - keys to test whether X motor can rotate normally clockwise or anti-clockwise.
Y Motor	First press the reset select key to return the motor to the original point,Press + - keys to test whether Y motor can rotate normally clockwise or anti-clockwise.
Presser Foot Motor	Step on the pedal to the second gear to find the origin of the motor,Press + - keys to test whether presser foot motor can rotate normally clockwise or anti-clockwise.
Thread Catching Motor	Step on the pedal to the second gear to find the origin of the motor,Press + - keys to test whether thread catching motor can rotate normally clockwise or anti-clockwise (only for 211).
Thread Trimming Solenoid	Press + - keys to test whether thread trimming solenoid can work normally.

Thread Tension Solenoid	Press + - keys to test whether thread tension solenoid can work normally (only for 211).
Main Shaft Motor	Press SELECT or RESET to activate or stop the main shaft motor. Press + - keys to set the rotation speed of the main shaft.

3)Press RETURN deleting the selected text does not take effect. deleting it will terminate the test and return to the status of.

2.6.1 System Input Test

1)This function is used to test the input status of panel keys, pedal switch and various sensors. Select “10 System Input Test” and press SELECT to enter. 2)Under this mode, press ▲▼ to change test item and the status of the test signal is displayed at the right side of the screen. This function can be used to test thread breakage signal, head tilt signal, emergency stop signal, pedal signal and main shaft angle.	

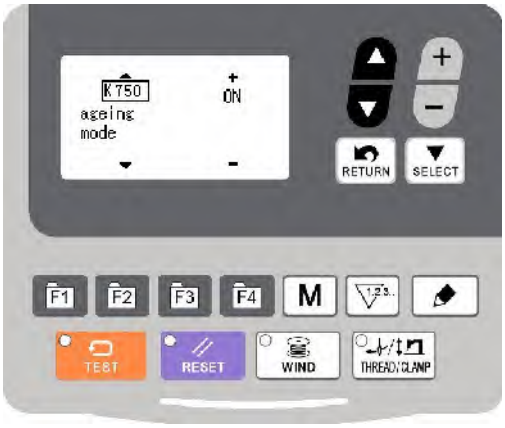
2.6.2 Stepping Origin Adjustment

This function can be used to adjust the origin of X, Y, presser foot or thread catching motor. Select “12 stepping origin adjustment” in the menu and press SELECT to enter.

X motor origin adjustment Step pedal to level 2 first. The presser foot will lower down and X origin detection will be made. Then, the current adjustment value (C) will be displayed on the screen. Press + − to move X stepping motor step by step. The adjustment value will change accordingly. Observe the center of the presser foot and the position of needle hole press toggle SELECT to determine the calibration position. When they overlap, the adjustment is finished. If no other stepping motor needs adjusting, press RETURN key to return to the previous menu. If other stepping motor needs adjusting also, press ▲▼ to select other stepping motor. The adjusting method is	

the same.	

2.6.3 Aging Mode

Under aging mode, the machine will repeat sewing the same pattern. Hold pressing M for 3 seconds under the origin detection standby status, then select “02 administrator parameters” and change parameter No.750 as ON. Press RETURN the key to return to the pattern selection state. Step pedal to level 2 to make the machine enter sewing ready status. Step pedal to level 2 again to make the machine repeat sewing the same pattern. Turn off the power to quit the aging mode.	

Setting of Aging Interval Time:

Under the function interface of “02 administrator parameters”, select parameter No.751, and then press + − to set the interval time between two operations.

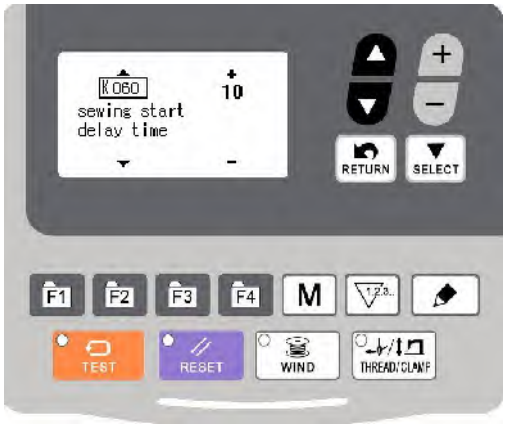
Range: 10-20 the setting unit is 100ms; The default parameter is 20, that is, 2000ms.

2.6.4 Panel Test

In output mode, SELECT PANEL_CHK and press + − to turn on all LED lights on the panel and make the LCD display in full screen. Press SELECT again to return to normal display.The u901 function in the user parameters can modify the LCD brightness;

2.7 Modification of User or Administrator Parameters

1)In the selected pattern status, press M to enter menu function and display “01 user parameters”, or hold pressing M for 3 seconds to display “02 administrator parameters”. 2) Enter parameter modification interface Press ▲▼ to select “01 user parameters” or “02 administrator parameters” and press SELECT to enter corresponding modification interface.	

3) Select parameter number Press  to select the parameter number to be modified. 4)Change the parameter value Press  to change the value. The set value will become effective directly after modification. After modification, pres RETURN key to return to the previous menu.	

2.7.1 User Parameter List

No.	Function	Range	Default	Setting unit	Remarks
U001	lifting type of presser foot after sewing	0~2	1	1	
U402	display XY scale	0,1	0	1	
U405	display C pattern	ON,OFF	ON		
U406	select function type F keys to switch pattern number	0～3	0	1	
U407	pattern number for F1 key	1~C30	1		
U408	pattern number for F2 key	1~C30	2		
U409	pattern number for F3 key	1~C30	3		
U410	pattern number for F4 key	1~C30	4		
U596	machine turn over check function	0~2	0	1	
U900	Language	CH，EN	CH		
U901	display brightness setting	0~30	15	1	
U902	up counter alarm	ON，OFF	OFF		

3 Settings of Administrator Parameters

Administrator parameters are different from normal parameters and usually are not allowed to change by users. These parameters are for technicians to debug the machine.

3.1 Modification of Administrator Parameters

In the selected pattern state , hold pressing M for 3 seconds until buzz sound is heard, and then “02 administrator parameters” will be displayed on the function menu.

The modification method of administrator parameters is the same with that of user parameters, please refer to section 2.6.

3.2 Administrator Parameter List

No.	Setting Content	Setting Range	Default Value	Setting unit	Remarks
Related to pedal and button clamp(001-099)					
60	Sewing start delay time	0～3000	10	10	
70	Pedal type: 1:single pedal 2:double pedal 3:double pedal only use start switch	1～3	1	1	
71	Single pedal work mode 1:presser no halfway; 2:presser halfway	1～2	1	1	
73	pedal sensitivity	0~15	0	1	
Motor(100-199)					
125	OC length	2025~2625	2325	1	
126	OD length	1778~2378	2078	1	
127	BD length	720~920	820	1	
128	Step motor driver type	0~63	0	1	
129	Step motor driver mode	0~15	12	1	
130	XY feed synchronization mode	0~1	1	1	
136	XY feed start angle limit	0~200	0	1	
137	Sew start clamp on angle	-150~150	0	1	

No.	Setting Content	Setting Range	Default Value	Setting unit	Remarks
138	Trimming clamp on time	-2~1	-2	1	
139	Needle cooling -1:disable; >-1:enable,value is delay off time	-1~30	0	1	
141	Tension release solenoid ON power	-20~20	0	1	
142	Tension release solenoid hold power	-40~40	0	1	
146	Trimming clamp on angle	0~200	0	1	
147	Trimming clamp on time	0~200	0	1	
150	Reverse needle lifting function 0:no reverse; 1:reverse needle lifting; 2:reverse needle lifting and return to the parking position	0~2	0	1	
151	Sew start first stitch speed	200~3200	800	100	
152	Sew start second stitch speed	200~3200	1200	100	
153	Sew start third stitch speed	200~3200	3200	100	
154	Sew start fourth stitch speed	200~3200	3200	100	
155	Sew start fifth stitch speed	200~3200	3200	100	
156	Sew end fourth stitch speed	400~3200	3200	100	
157	Sew end third stitch speed	400~3200	3200	100	
158	Sew end second stitch speed	400~3200	3200	100	
159	Sew end first stitch speed	400~2400	1500	100	
163	Max sewing speed	1200~3200	3200	100	
164	Disable trimming function	ON，OFF	OFF		
171	Servo lock function 0:disable; >0:enable,the bigger value the greater lock force	0~9	0	1	
177	servo lock function	0~9	0	1	
178	test speed	0~10	1	1	
182	C motor find org mode 0:encoder reverse; 1:encoder opposite; 2:no motion;	0~4	0	1	

No.	Setting Content	Setting Range	Default Value	Setting unit	Remarks
	3:ext.sensor opposite; 4:ext.sensor reverse				
183	P motor find org mode 0:encoder reverse; 1:encoder opposite; 2:no motion; 3:ext.sensor opposite; 4:ext.sensor reverse	0~4	0	1	
Cloth Feeding Device(200-299)					
227	Main motor type	0~7	0	1	
229	Main motor panetration mode	0~1	0	1	
231	pedal continuous sew	0~255	0	1	
239	Programmable IO	0~1	0	1	
240	Expansion peripheral 0:disable; 1:enable,without ext.controller; 2:enable,with ext.controller	0~2	0	1	
250	Origin detection after sewing ON:yes OFF:no	ON，OFF	OFF		
252	Stop speed adjust	50~400	280	10	
253	Enter sewing ready status 0:pedal level 2(double pedal use start switch); 1:press RESET key	0~1	0	1	
258	XY feed start angle adjust -:advance feeding; +:delay feeding	-30~30	0	1	
259	XY feed end angle adjust -:advance feeding; +:delay feeding	-30~30	0	1	
260	XY feed timing for all stitch -:advance feeding; +:delay feeding	-30~30	0	1	
261	XY feed timing for 1st stitch -:advance feeding; +:delay feeding	-30~30	0	1	
262	XY feed timing for 2nd stitch -:advance feeding; +:delay feeding	-30~30	0	1	

No.	Setting Content	Setting Range	Default Value	Setting unit	Remarks
263	XY feed timing for 3rd stitch -:advance feeding; +:delay feeding	-30~30	0	1	
264	XY feed timing for last 3rd stitch -:advance feeding; +:delay feeding	-30~30	0	1	
265	XY feed timing for last 2nd stitch -:advance feeding; +:delay feeding	-30~30	0	1	
266	XY feed timing for last stitch -:advance feeding; +:delay feeding	-30~30	0	1	
267	XY sync. 0:starts together; 1:ends together; 2:starts and ends together; 3:middle coincide	0~3	0	1	
269	Air presser move delay	-80~80	0	1	
270	Thread breakage detect	0~1	0	1	
271	Presser foot standby position	OFF~ON	OFF		
274	Presser foot speed(down) -:slower; +:faster	-30~9	0	1	
275	Presser foot speed(up) -:slower; +:faster	-30~9	0	1	
276	Presser foot speed(up)at sewing end -:slower; +:faster	-30~2	0	1	
277	Wiper type	0~1	1	1	
278	Presser foot-wiper linkage action impulse number	-20~20	0	1	
279	Presser foot control type 0:air valve off down; 1:motor; 2:air valve off down; 3:air valve off lift	0~4	0	1	
280	Emerage stop control	OFF~ON	OFF		
281	XY origin detect speed	0~100	0	1	

No.	Setting Content	Setting Range	Default Value	Setting unit	Remarks
282	Presser foot up timing	0~30	20	1	
350	Pat change limit	0~7	0	1	
Program Equipment(400~499)					
458	X area limit[+]direction	0~45	20	1	
459	X area limit[-]direction	0~45	20	1	
460	Y area limit[+]direction	0~30	15	1	
461	Y area limit[-]direction	0~30	15	1	
462	DIP	-100~100	0	1	
465	Pattern start position 1:clear when power off or switch pat.; 2:save when hold pat.,clear when switch pat.; 3:disable	1~3	1	1	
470	P pattern presser foot height	OFF、ON	OFF		
471	Presser height	10~17	14	1	
472	presser section	-30~30	0	1	
Device Equipment(500~599)					
551	Sew start thread tension open control	0~3	0	1	
560	Thread tension control mode 0:solenoid holding; 1:solenoid loosing; 2:motor holding; 3:motor loosing	0~3	1	1	
568	Trimming Solenoid ON power	10~60	60	1	
569	L R presser foot control mode 0:simultaneous descent; 1:first left then right; 2:first right then left	0~2	0	1	
570	Presser motor 0 not install 1 install	0~1	1	1	
571	Modulation time of thread trimming solenoid attracting current	0~2	1		
572	Trimming at emergent stop	0~2	1	1	
573	Feed speed	0~5	0	1	
580	Thread catcher timing at sewing start	-10~10	0	1	

No.	Setting Content	Setting Range	Default Value	Setting unit	Remarks
585	Thread tension value of 1st stitch	0~200	200	1	
590	Thread tension value at trimming	0~200	0	1	
591	Trimming timing	-10~10	0	1	
592	Trimming speed	200~700	600	100	
593	Wiper speed	-3~3	0	1	
594	Main motor stop position	-20~20	0	1	
595	Tension release time when trimming	-40~40	0	1	
Error Handling Equipment(600~699)					
657	GREASE UP WARNING stitch	4000~6100	6000	10	
658	GREASE UP ERROR stitch	4100~6200	6100	10	
659	grease up	OFF，ON	OFF		
Equipment Maintenance(700~799)					
750	Aging mode	ON，OFF	OFF		
751	Aging mode interval time	10~20	20	1	
756	Thread wind speed limit	ON，OFF	ON		
Specifications and Corresponding Cloth(800~899)					
850	Machine type 03:normal; 05:thick; K:knit; F:femal underwear; BUTN:button; 13:fishing net; 15:Tang suit; 17:9060	03~17	03		
890	Extended model ID	0~255	0	1	
Auxiliary equipment）（900~999）					
991	DIP	-100~100	0	1	
992	DIP	-100~100	0	1	
993	DIP	-100~100	0	1	
994	X motor find org mode 0:encoder reverse; 1:encoder opposite;	0~4	0	1	

No.	Setting Content	Setting Range	Default Value	Setting unit	Remarks
	2:no motion; 3:ext.sensor opposite; 4:ext.sensor reverse				
995	Y motor find org mode 0:encoder reverse; 1:encoder opposite; 2:no motion; 3:ext.sensor opposite; 4:ext.sensor reverse	0~4	0	1	
996	Polarity of emergency stop switch	0~1	1	1	
997	Stitch number of thread break	0~5	0	1	
998	Wiper solenoid delay time	-128~127	0	1	
999	DIP	-100~100	0	1	

Note: the above parameters are for the use of repairers only and user should not change them without caution.

3.3 Restore Default Settings

If the user changes some parameters by mistake, which are properly set at delivery, the function of "restore default settings" can be used to restore the system.

Note: At restoring the default settings, the entire parameters that are set by user before will be covered. Therefore, please take caution in using this function. If necessary, please contact the technicians of the manufacturer, and operate the machine with the instruction from the professionals.

The specific operation procedure is as follows:

Press 

after power on, then press  to select "09 restore default settings" and then press 

to enter the function. Press  to select the item to be restored and then press 

to confirm and execute the operation. The panel will hint "executing, please do not turn off the machine", which means the recovery operation is undergoing and the power supply shall not be shut down. After completing the restoring operation, the panel will automatically return to origin detection standby status.

Note: During the restoring process, if the power supply is shut down by accident, the restoring process has to be aborted and the restoring operation will fail.

3.4 Software Version Display

Under origin detection standby status or sewing ready status, press 

and then press  or  to select "20 software version inquiry", and press 

to enter the inquiry interface, to display the software version

in the following order:

Main control: machine type-MC-manufacturer code-version number

Operation panel: machine type- LKD2-manufacturer code-version number

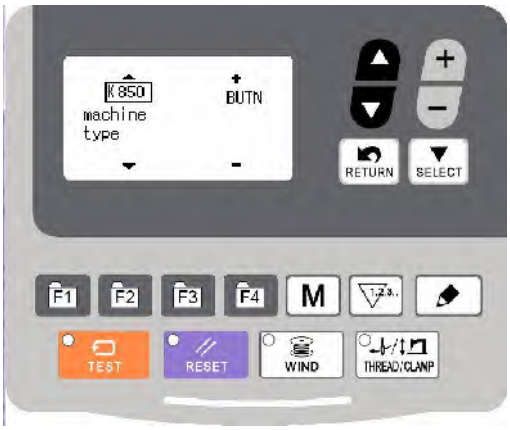
Stepping 1: machine type- MD1-manufacturer code-version number

Stepping 2: machine type- MD2-manufacturer code-version number

Spindle program: Model_ MM_ Manufacturer code_ Version number

4 Button Sewing Function

4.1 Button Sewing Function Setting

1. In the selected pattern status, hold pressing M for 3 seconds, to enter function menu; 2. Press ▲▼ to select “02 administrator parameters”, press SELECT to enter, and press ▲▼ again to select parameter No.K850; 3. Press + − to change the value into “Fastener Model Code:BUTN”, and then press RETURN to confirm and quit. At this time, the panel will hint “please wait” and user must not cut off power supply. After a while, the panel will automatically return to the function menu, which means the operation is successful, and user can press RETURN key to return to origin detection standby status.	

Note: the button sewing function of the machine requires special presser foot and other auxiliary external devices. For more information, please contact your machine manufacturer or its agents.

Note: please refer to appendix for the list of standard button sewing patterns.

5 Update Pattern Data by USB Disk

Support import (addition) of single VDT pattern:

(1) Import pattern: import (add) pattern, and cover the pattern of the same number with imported pattern;

(2) Export pattern: export all external patterns to USB storage device;

(3) Delete pattern: clear (format) the panel's storage area for external patterns;

5.1 Import Pattern

User can import VDT format patterns to the control system via U disk, with the updated pattern number from 101 to 200. User can also export existing patterns numbered 101~200 that are stored in the control system to U disk.	

1)Use pattern-editing software to make pattern file in VDT format and name it by "XXX.VDT". (Note: XXX shall be a number between 101~200 which at the same time is the updated pattern number.)

2)Create a new file folder named DH_PAT under the root directory of U disk, and save the pattern made at the previous step under the directory of DH-PAT (many patterns can be imported at one time).

3)In the selected pattern status , press M to enter system menu, press ▲▼ to select "06 External Pattern Management" and press SELECT to enter.

4)Press ▲▼ to select "import pattern to control system" and insert the U disk containing patterns to the USB interface at the right side of the panel.

5)Press SELECT and the panel will hint "operation executing, please do not turn off the power", which means the patterns are being imported.

Note: before this operation, please confirm that U disk has been connected to USB interface; if not, this update operation cannot be done and the panel will hint "please check the U disk". At this time, press RETURN to return.

6)After the update, the panel will display "Operation succeeded!" and the system will automatically return to the interface for importing patterns.

Note: if there are already patterns numbered 100~199 in the panel, patterns named with different numbers can be added to the system via U disk following the above operations; if the pattern numbers in the U disk are the same with those in the panel, the patterns with the same number in the panel will be replaced.

In addition, apart from the pattern update import operation, user can also select the function to export patterns to U disk or delete imported patterns. To export patterns to U disk means to back up imported patterns in U disk, while to delete imported patterns means to delete all imported patterns numbered 100~199.

If the size of single pattern goes beyond 1000 stitches or 6 kb, such pattern will be filtered out by the software automatically when imported.

6 Appendix 1

6.1 Control System Error List

Code	Description
E-002	sewing stop press RESET
E-007	IPM over voltage
E-014	servo motor locked
E-017	thread break press return
E-032	Main motor encoder Z error
E-035	pedal position wrong
E-047	Stitches exceeds sewing pattern
E-052	machine turn over
E-056	main board communication wrong
E-057	X motor current over
E-058	X motor over position
E-059	X motor over speed
E-060	Y motor over current
E-061	Y motor over position
E-062	Y motor over speed
E-063	main board communication wrong
E-064	DSP2 first motor over current
E-065	DSP2 first motor over position
E-066	DSP2 first motor over speed
E-067	presser over current
E-068	presser over position
E-069	presser over speed
E-090	USB update stepmotor driver DSP error
E-093	Step motor driver DSP1(X25/X27)com check error
E-094	Step motor driver DSP1(X25/X27)com illegal command
E-095	Step motor driver DSP2(X21/X23)com check error
E-096	Step motor driver DSP2(X21/X23)com illegal command
E-103	Expansion peripher al communication abnormal
E-104	Abnormal operation of extended peripheral
E-105	Step motor driver DSP1(X25/X27)sync.mode error
E-106	Step motor driver DSP2(X21/X23)sync.mode error
E-131	main motor encoder wrong
E-132	main motor over speed
E-136	IPM over current 1
E-137	IPM over current 2
E-138	main motor blockage 1
E-139	main motor blockage 2

E-200	X motor find orgin over time
E-210	Y motor find orgin over time
E-218	mc programe not match main board
E-300	presser motor find orgin over time
E-450	machine board data wrong press RESET
E-453	DSP1 curve wrong
E-454	DSP2 curve wrong
E-455	mc data check err press RESET
E-501	pattern out of range
E-504	X over 127
E-690	clamp motor could not find orgin
E-705	slave power too low
E-706	fan error

6.2 Panel system fault information List

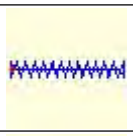
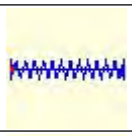
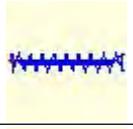
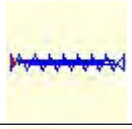
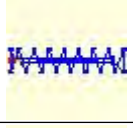
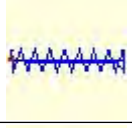
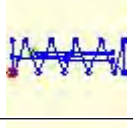
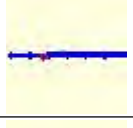
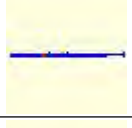
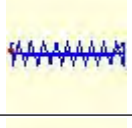
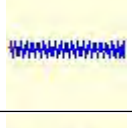
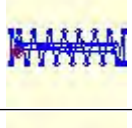
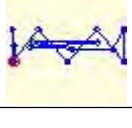
Error serial number	Information description
M-065	wrong key to be pressed
M-100	GREASE UP WARNING ,press RESET key
M-110	GREASE UP ERROR ,press RESET key
M-410	panel and main board ,communication wrong
M-411	panel and main board ,communication wrong
M-420	system parameter over range,press RESET
M-430	sew add cnt over,press RETURN key
M-431	sew dec cnt over,press RETURN key
M-432	loop add cnt over,press RETURN key
M-433	loop dec cnt over,press RETURN key
M-434	bottom add cnt over,press RETURN key
M-435	bottom dec cnt over,press RETURN
M-500	out of range,press RETURN
M-510	pattern wrong or not exist turn off
M-511	P pattern wrong,press RETURN key
M-512	pattern wrong,press RETURN key
M-513	P pattern wrong,press RETURN key
M-888	machine type not match,press RESET
M-1000	main board wrong or wrong key pressed

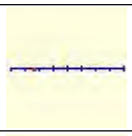
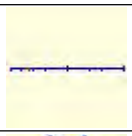
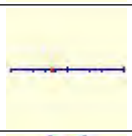
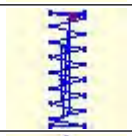
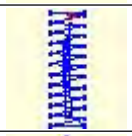
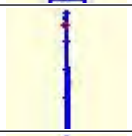
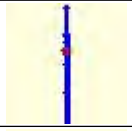
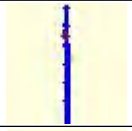
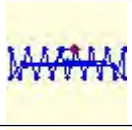
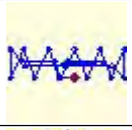
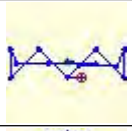
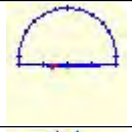
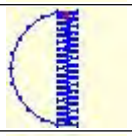
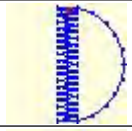
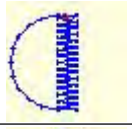
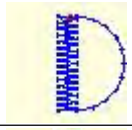
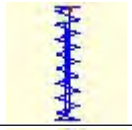
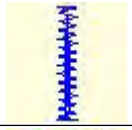
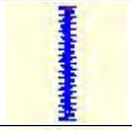
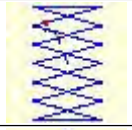
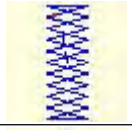
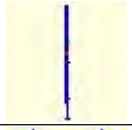
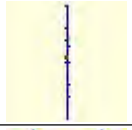
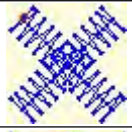
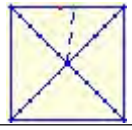
7 Appendix 2

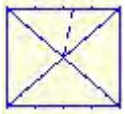
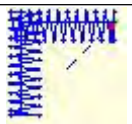
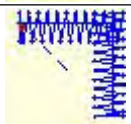
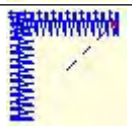
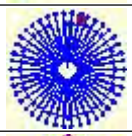
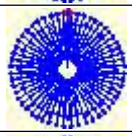
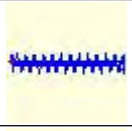
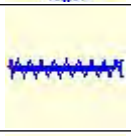
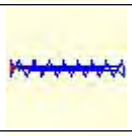
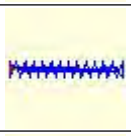
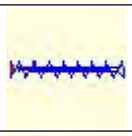
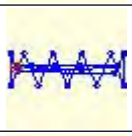
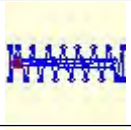
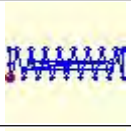
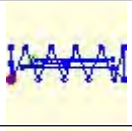
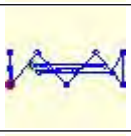
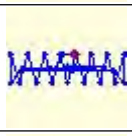
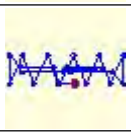
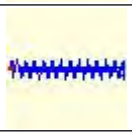
7.1 Sewing Pattern List (GLK430DX)

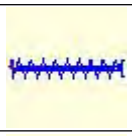
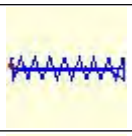
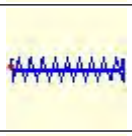
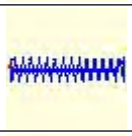
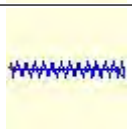
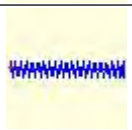
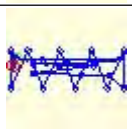
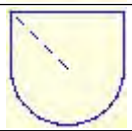
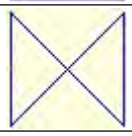
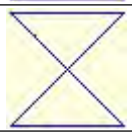
The following patterns are pre-set for users to select according to specifications. (If the work range of the presser foot and the cloth feeding plate can be confirmed, user can select any of the following sewing patterns.)

Please use the proper presser foot and cloth feeding plate. The sewing size is length under the scaling of 100%.

NO.	Pattern	Stitches	L×W (mm)	NO.	Pattern	Stitches	L×W (mm)
1		41	16×2	2		41	20×3
3		34	19.8×3	4		30	16×2
5		28	10×2	6		29	16×3
7		27	8×2	8		20	7×2
9		20	6.9×2	10		20	10×0.3
11		27	10×0.3	12		27	20×0.3
13		34	10×2	14		34	15.9×3
15		41	10×2	16		42	16×3
17		41	24×3	18		55	24×3
19		63	24×3	20		27	7×2
21		34	7×2	22		13	6.9×2

23		34	25×0.3		24		41	25×0.3
25		44	25×0.3		26		27	3×10
27		34	3×10		28		18	0.3×10
29		20	0.3×10		30		27	0.3×10
31		27	8×2		32		21	8×2
33		14	8×2		34		34	12×7.2
35		57	12×7		36		56	7×12
37		56	7×12		38		52	7×10
39		52	7×10		40		31	3×16
41		35	3×16		42		43	3×20
43		67	3×24		44		45	9×15
45		69	9×25		46		26	0.3×20
47		43	0.4×25		48		69	10×10
49		92	10×10		50		83	16×16

51		104	30×26		52		59	11×11
53		59	11×11		54		77	15×15
55		77	15×15		56		105	9×9
57		115	9×9		58		126	9×9
59		103	10×10		60		113	10×10
61		123	10×10		62		41	20×3
63		34	19.8×3		64		29	16×2
65		42	16×2		66		31	16×2
67		29	10×2		68		21	7×2
69		35	10×2		70		41	10×2
71		28	7×2		72		35	7×2
73		28	8×2		74		21	7×2
75		14	7×2		76		28	8×2
77		22	8×2		78		42	20×3

79		35	19.8×3		80		30	16×3
81		35	15.9×3		82		43	16×3
83		42	24×3		84		56	24×3
85		64	24×3		86		20	6×2
87		27	6×2		88		34	6×2
89		89	24×3		90		42	30×30
91		44	30×30		92		28	30×30
93		36	30×30		94		35	30×30

*These patterns (90-94) are only available for certain machine types.

7.2 Sewing Pattern List (GLK438DX)

The following patterns are pre-set for users to select according to specifications. (If the work range of the presser foot and the cloth feeding plate can be confirmed, user can select any of the following sewing patterns.)

Please use the proper presser foot and cloth feeding plate. The sewing size is length under the scaling of 100%.

No.	Button Hole Number	Pattern	Line Number	Over-seam Line	Stitch Number	Size (mm)	
						X	Y
1	2		6	-	12	3.4	0
※154			6	-	12		
2			8	-	14		
※255			8	-	14		
3			10	-	16		
4			12	-	18		
※25			16	-	22		
※2			20	-	26		

6							
※1 56			6	-	11	0	3.4
※3 7			6	-	12		
※3 23			10	-	16		
※3 8			12	-	18		
※3 9	3		5-5-5	-	21	2.6	2.4
※3 24			7-7-7	-	27		
※3 25			5-5-5	-	21		
※3 26			7-7-7	-	27		
※1 57	4		6-6	1	18	3.4	3.4
10			6-6	1	19		
※1 58			8-8	1	22		
11			8-8	1	23		
12			8-8	3	25		
13			10-10	1	27		
27			12-12	1	31		
※4 14			6-6	0	24		
※5 36			6-6	0	24		
※4 28			8-8	0	28	3.4	3.4
※5 37			8-8	0	28		
※4 15			10-10	0	32		
※5 38			10-10	0	32		
※4 29			12-12	0	36		
※5 39			12-12	0	36		

※159			6-5	1	17		
16			6-5	1	18		
※160			8-7	1	21		
17			8-7	1	22		
30			10-9	1	26		
※161			6-6	1	18		
18			6-6	1	19		
※162			8-8	1	22		
19			8-8	1	23		
※163			10-10	1	26		
31			10-10	1	27		
45			12-12	1	31		
※420			6-6	0	24		
※540			6-6	0	24		
※432			8-8	0	28		
※541			8-8	0	28		
※433			10-10	0	32		
※542			10-10	0	32		
※164			6-6	1	18		
※321			6-6	1	19		
※334			10-10	1	27		
※3※422			6-6	0	24		
※3※543			6-6	0	24	2.4	3.4
※3※435			10-10	0	32		
※3※544			10-10	0	32		

46			6-7	1	19	3.4	3.4
47			8-9	1	23		
48			10-11	1	27		
49			12-13	1	31		
65	4		6-6	1	19	2.8	2.8
66			8-8	1	23		
67			8-8	3	25		
68			10-10	1	26	2.6	2.6
69			12-12	1	31		

※1 Used for small buttons

※2 Buttonhole's diameter shall be no less than 2mm.

※3 Button shall not be used to lift spring.

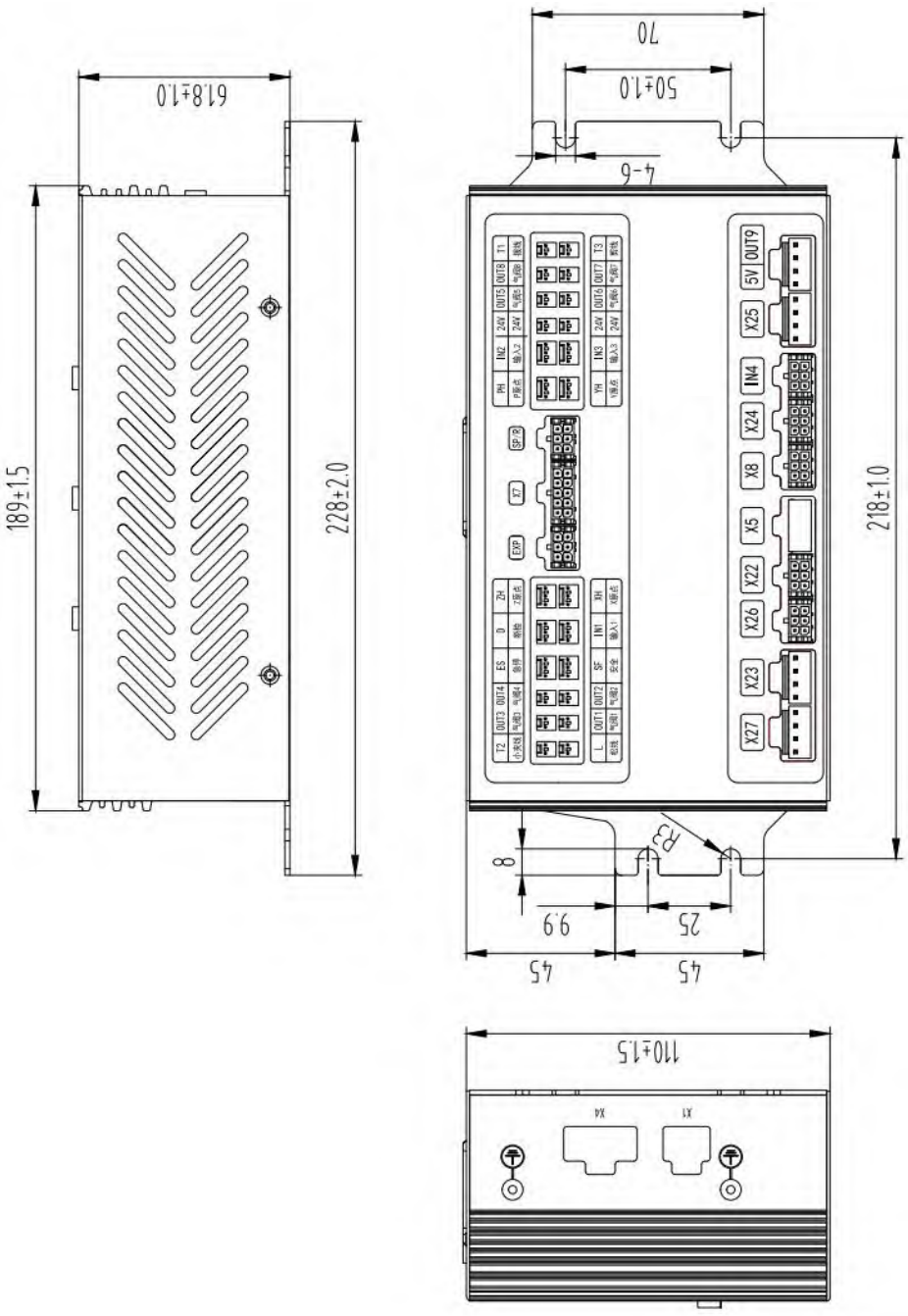
※4 After finishing sewing one side, the button clamp will lift and the wiper will act. In order to continuing sewing the other side, user need step the pedal again.

※5 If the button clamp doesn't lift and only the wiper acts after sewing one side, the sewing machine will continue sewing the other side.

Used for buttons with handles					
No.	Pattern	Line Number	Stitch Number	Size (mm)	
				X	Y
50		6	12	3.4	0
51		8	14		
52		10	16		
53		12	18		

8 Appendix 3

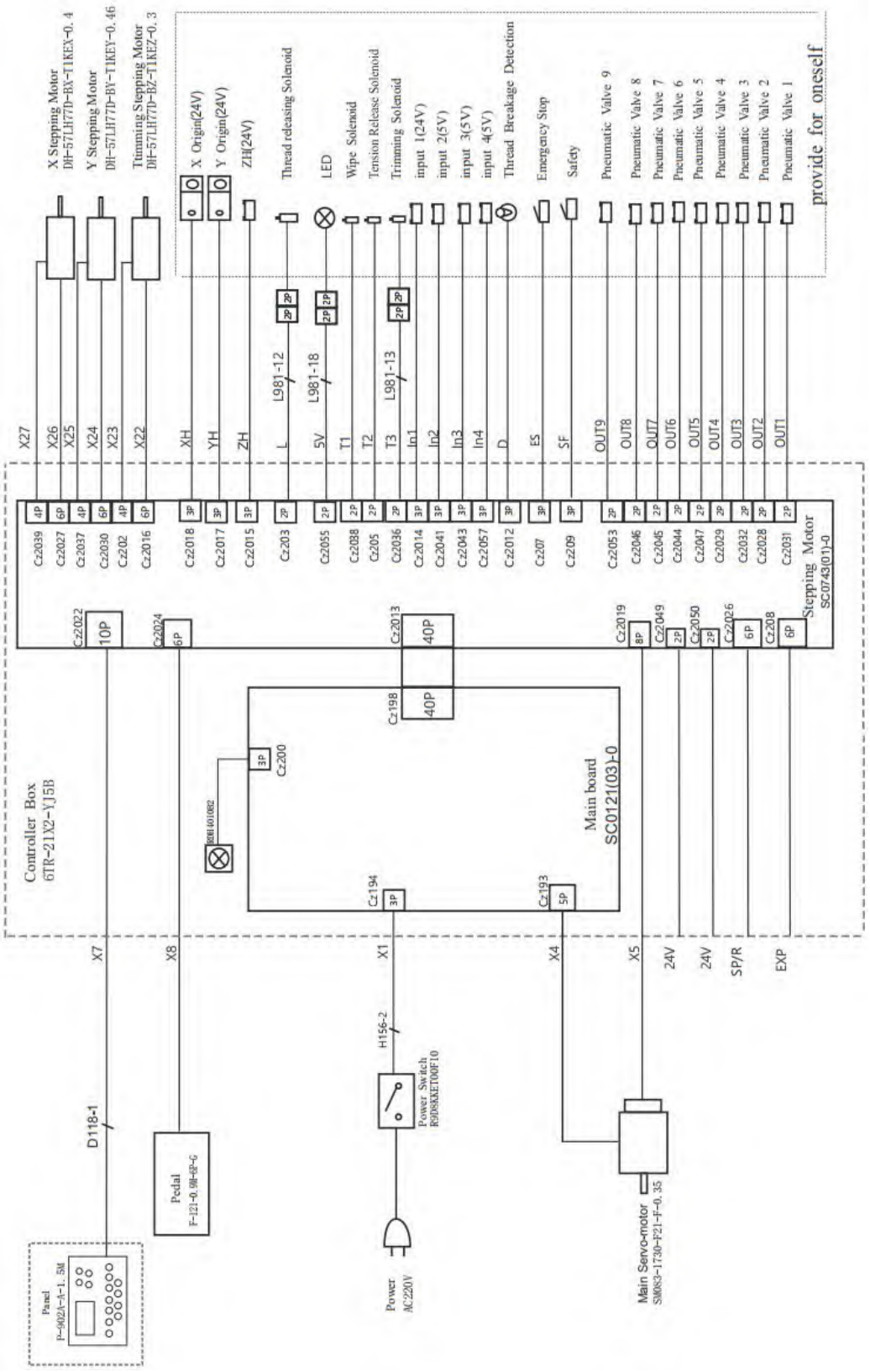
8.1 Installation Size of Control Box



8.2 Installation Size of Operation Panel

8.3 System Diagram

GLK430DX Control Box



NTD7701
4-Needle, 6-Thread Flat-Seamer,
Feed-Off-The-Arm Machine

MT4506P-064
6-Needle Double Chain Stitch Machine

UHU9304/TR025
Automatic chain cutter device direct-drive
cylinder bed top feed overlock fitted with
labor-saving rib folder

CXM2085-0-356M
Attaching Pre-Closed Flat Knit Elastic Band
Onto Waists Of Tubular Goods
(With Right Knife, Rear Puller & Chips Suction Pipe)

精機機械廠股份有限公司
CHING CHI MACHINE CO., LTD.