

ZB-H6 电控使用说明书

ZB-H6 electric control box manual

安全事项

- 在使用本产品之前，请先阅读《产品说明书》及所搭配的缝纫机机械说明书。
- 本产品必须由接受过专业培训的人员来安装或操作。
- 请尽量远离电弧焊接设备，以免产生的电磁波干扰本控制器而发生误动作。
- 请不要在室温 45°以上或者 0°以下的场所使用。
- 请不要在湿度 30%以下或者 95%以上或者有露水和酸雾的场所使用。
- 安装控制箱及其他部件时，请先关闭电源并拔掉电源插头。
- 为防止干扰或漏电事故，请做好接地工程，电源线的接地线必须牢固的与大地有效连接。
- 所有维修用的零部件，须由本公司提供或认可，方可使用。
- 在进行任何保养维修动作前，必须关闭电源并拔掉电源插头。控制箱里有高压危险，必须关闭电源五分钟后方可打开控制箱。

Safety Precautions

- Before using this product, please read the User's Guide and the manual of the machine attached with it.
- This product must be installed or operated by professionally trained personnel.
- Please keep away from the arc welding equipment to avoid the electromagnetic wave from interfering with the controller.
- Please do not use it at room temperature above 45° or below 0°.
- Please do not use it in places with humidity below 30% or above 95% or where there is dew and acid mist.
- When installing the control box and other parts, turn off the power and unplug the power plug.
- To prevent interference or electric leakage accidents, make a good grounding work. The grounding wire of the power cord must be firmly connected to the earth.
- All parts for maintenance must be supplied or approved by the Company before they can be used.
- The power must be turned off and the plug unplugged before any maintenance action is performed. There is a high-voltage danger in the control box. You must shut down the power for 5 minutes before opening the control box.

1 产品安装 Product Installation

1.1 产品规格 product specification

电源电压 Voltage	AC 220±20% V
电源频率 Supply frequency	50Hz/60Hz
最大输出功率 maximum output power	750W

1.2 接口插头的连接 The connection of interface plug

将脚踏板及机头的各连接插头安插到控制器后面对应的插座上，各插座名称如图 1-2-2 所示。连接好，请检查插头是否插牢。

Insert the connecting plugs of the foot pedal and the head of the machine into the corresponding socket at the back of the controller. Each socket names are shown in figure 1-2-2. Please check whether the plug is inserted.

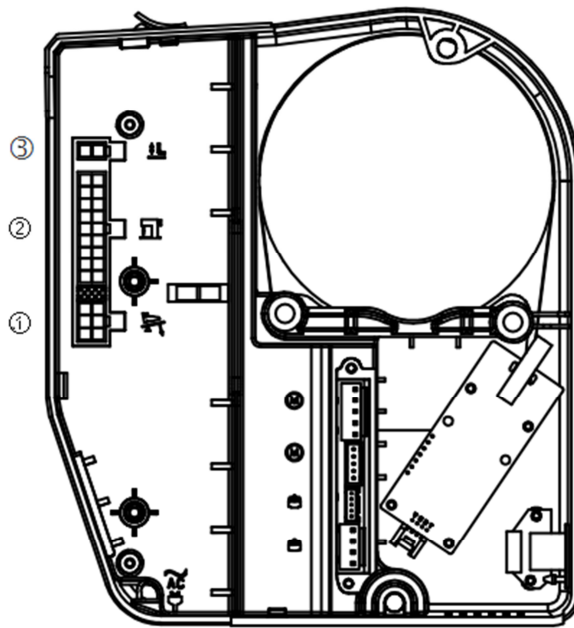


图 1-2-1 控制器图 (controller drawing)

- ① 脚踏板&升级插座 Socket of foot pedal and updating;
- ② 电磁铁、LED 灯、机头按钮插座 Socket of Electromagnet, LED Lamp and machine head
- ③ 抬压脚电磁铁接口 Socket of foot Electromagnet

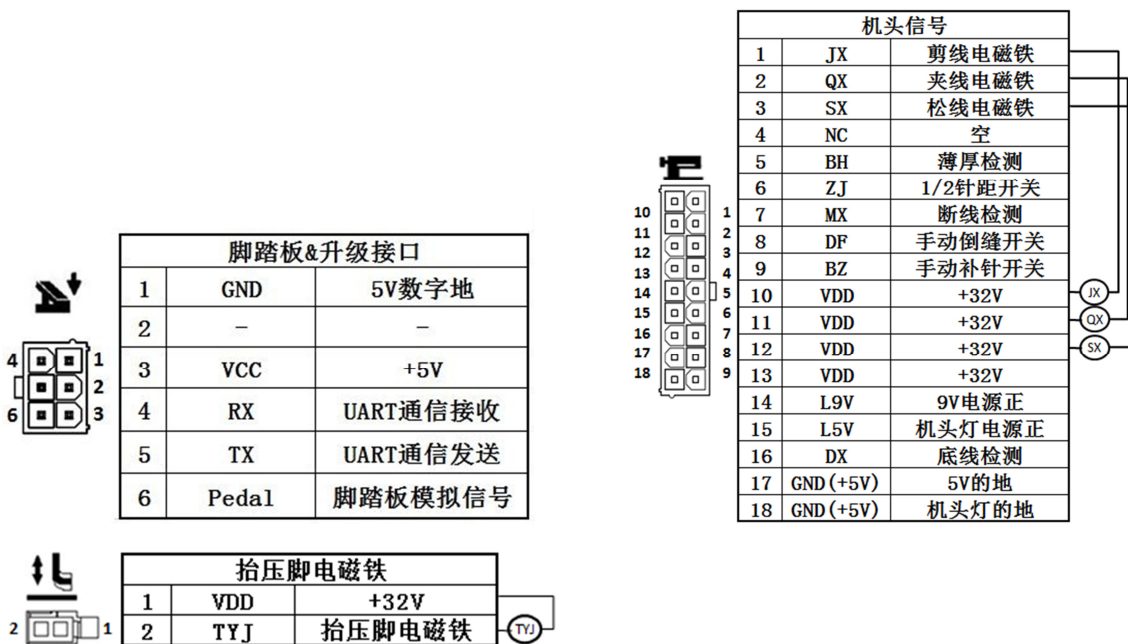


图 1-2-2 控制器接口定义 (controller connection plug definition)

注：使用正常力量插不进去时，请检查插头与插座是否匹配，插入方向或针的方向是否正确！

If it cannot be inserted normally, please check the plug and socket match or not, the direction of the insertion or the direction of the needle is correct or not.

1.3 接线与接地

必须要做好系统的接地工程，请合格的电气工程人员予以施工。产品通电及投入使用前，必须确保电源插座 AC 输入端已安全可靠的接地。系统的接地线为黄绿线，该地线请务必可靠连接至电网安全保护接地上，以保证安全使用，并可防止出现异常情况。

The grounding of the system must be completed, and qualified electrical engineers shall be required to construct. Before the product is energized and put into use, it is necessary to ensure that the AC input already connected the grounding. The standard grounding line is the yellow and green line. The ground wire must be reliably connected to the grid safely to protect grounding and ensure safely using and to prevent abnormal conditions.

注：所有电源线、信号线、接地线等接线时不要被其它物体压到或过度扭曲，以确保使用安全。

All power wires, signal wires, ground wires and other wiring should not be pressed or distorted by other objects to ensure safety.

2 操作面板使用说明 Operation panel introductions

2.1 操作面板的显示说明 display introduction

根据系统工作状态，操作面板的液晶屏将显示当前的缝纫状态（包含停针位指示）。操作面板外观如下所示。According to the working status of the system, the LCD of the operation panel will display the current sewing status (including the needle position indicate).The appearance of the operation panel is shown as below.

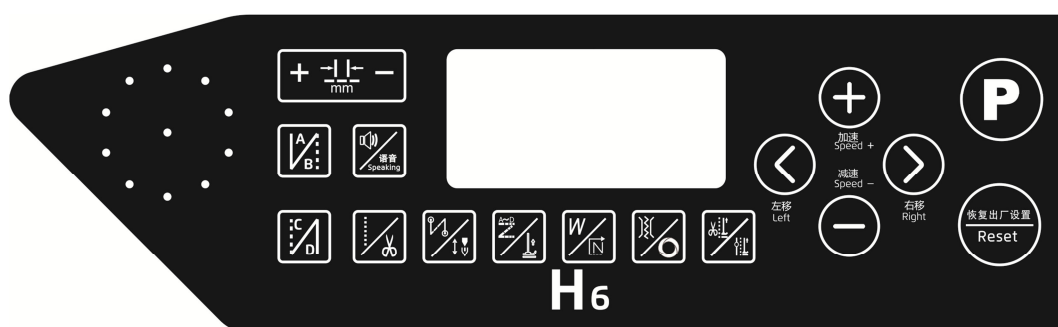










图 2-1 操作面板外观界面 appearance of operation panel

2.2 操作面板各按键功能说明 function declaration of each key

序号	外观	名称	功能描述
1		针距调节键 Stitch length adjustment key	针距调整按键，空闲状态时短按加减针距 Stitch length adjustment key, press to increase or decrease stitch length in idle state









2		<p>前加固键 Start tacking</p>	<p>1、前固缝选择键，每短按动一次，在设置前固缝、前双固缝、关闭之间循环选择，对应液晶屏图标点亮。选择对应的键可设置 A、B 段的针数。</p> <p>The start tacking key is selected for each short press, the cyclical selection is between the front tacking, the front double tacking and the closing, and the corresponding LCD screen is lit. Select the corresponding key to set the number of needles of A and B.</p>
3		<p>后加固键 Back tacking</p>	<p>1、后固缝选择键，每短按动一次，在设置后固缝、后双固缝、关闭之间循环选择，对应液晶屏图标点亮。选择对应的键可设置 C、D 段的针数。</p> <p>The back tacking key is selected for each short press, the cyclical selection is between the front tacking, the front double tacking and the closing, and the corresponding LCD screen is lit. Select the corresponding key to set the number of needles of C and D.</p>
4		<p>夹线键/自动触发键 Thread clamp/ Auto trigger key</p>	<p>1、短按此键，液晶屏夹线图标亮，夹线功能开启，再短按一次，夹线功能关闭；</p> <p>Press this key for short time, ico become lit, so thread clamp is working now, press again, the turn this function</p> <p>2、多段缝模式下长按此按钮，开启和关闭自动触发功能</p> <p>Long press this key in multi-segment sewing mode to turn on and off the automatic trigger function</p>
5		<p>抬压脚键 press foot lift key</p>	<p>1、短按此键，用于选择或取消剪线后抬压脚功能，选择时液晶屏幕下方会显示剪线后抬压脚状态标识；</p> <p>press this key for short time, choose or cancel this function. If choose this function, then will show press foot lift after trimmer</p> <p>2、长按此键，用于选择或取消中途抬压脚功能，选择时液晶屏幕下方会显示中途抬压脚状态标识；</p> <p>Press this key for long time, choose or cancel this function, if choose, will show press foot lift on halfway</p> <p>3、P 键+抬压脚键两个按键同时按进入监控参数。Press P+press foot lift key at same time, enter technician parameter</p>

			mode
6		自由缝键/ 剪线键 Free sewing/trimmer	<p>1、短按此键，液晶屏自由缝图标亮，选择自由缝模式； press for short time, icon become lit, choose free sewing function.</p> <p>2、长按此键，液晶屏剪线图标亮，自动剪线功能开启，再长按此键，自动剪线功能关闭。 Press for long time, icon become lit, trimmer function turn on, press again, trimmer function turn off.</p>
7		W 缝键/ 多段缝键 W sewing/ Multi-segment Tacking	<p>1、短按此键，液晶屏图标亮，表示当前是 W 缝模式。选择对应的键可设置 A、B、D 参数； Press this key for short time, icon is lit, so now is W sewing mode, choose the corresponding key to set A,B,C,D</p> <p>2、长按此键，液晶屏 图标亮，表示当前是多段缝模式。选择对应的键可设置多段缝总段数、每段针数。 Press the key for long time, icon is lit, means now is Several Segment Tacking mode, choose corresponding key to set all steps, and all stitches of each step.</p>
8		锁针键/上下停 针位键 Lock stitch key/Needle position section key	<p>1、短按此键，锁针功能依次切换为前锁针，后锁针，前后锁针，关闭锁针； Press short time to this key, the lock stitch function will switch to front lock, rear lock, front and back lock, close;</p> <p>2、长按进入上/下停针位选择键 Press long time to enter needle position function</p>
9		花样缝键/抬压 脚开关键 Pattern sewing key/Presser foot lifting key	<p>1、短按此键进入花样缝模式，花样缝模式中短按此键，切换花样缝界面和花样缝设置界面 Short press this key to enter the pattern sewing mode, short press this key in this mode to switch between the pattern sewing interface and the pattern sewing setting interface</p> <p>2、长按此按键切换抬压脚功能开关，对应图标亮灭，图标亮表示抬压脚功能开 Long press this button to switch the presser foot lifting function switch, the corresponding icon is on and off, and the icon is on to indicate that the presser foot lifting function is on</p>

10		开机语键/语音键 Start speech key/voice key	1、没有报错时短按此按键切换开机语开关，长按此键开关语音功能，有对应语音提示和图标亮灭显示 When no error is reported, short press this button to switch the start-up language switch, long press this button to switch the voice function, there are corresponding voice prompts and icons are displayed on and off 2、报错时短按此键播放对应的报错语音导航 When an error is reported, short press this button to play the corresponding error notification voice navigation
11		进入参数区功能键 parameter mode	参数功能进入键 enter the parameter function
12		参数加键(速度加) Up key(speed up)	在进入参数功能参数号/值加，初始待机下速度加 Enter this mode, adjust this key, increase speed
13		参数减键(速度减) Down key(speed down)	在进入参数功能参数号/值加，初始待机下速度减 Enter this mode, adjust this key, decrease speed
14		左移键 key left	参数设定中，向左选择参数范围 turn to left to choose parameter
15		参数设定中，向右选择参数范围	参数设定中，向右选择参数范围 turn to right to choose parameter
16		恢复出厂设置键 reset key	长按 3S 后恢复出厂设置 press 3 seconds, then back to factory setting

3 参数调节 Parameter adjustment

3.1 进入操作员参数模式及保存 enter parameter mode and saving

空闲模式下，长按  键进入操作员参数模式。按  或  移动光标，相应位数值闪烁，再按  或  修改该位数值，按  键，保存参数。如果参数未修改，按  键退出参数模式；如果参数已经修改，第一次按键保存参数，第二次按  键退出参数模式。

Press **(P)**, enter parameter mode, then press **(←)** or **(→)** to move the lit, corresponding number flashing, then press **(+)** or **(-)** to modify this value, press **(P)**, save the parameter. If not modified, press **(P)** to log out parameter mode, if already modify, firstly save parameter, then press **(P)** to log out parameter mode.

3.2 进入技术员参数模式及保存 Enter technician parameter mode and save it

按住**(P)**键开机进入技术员参数模式。参数调节方式同操作员参数调节方式。

Press **(P)** and turn on the machine to enter technician parameter mode. The methods is same as parameter mode.

3.3 速度调节 Speed adjustment

在空闲模式下，按下键**(+)**下键**(-)**调速度。向上调快，向下调慢，每按一次调整数值 50，可以长按连续加减。

Press **(+)** and **(-)** to adjust the speed. For up, to adjust fast, for down, to adjust slow. each adjustment value is 50.

3.4 恢复出厂设置 factory setting

长按**(恢复出厂设置 Reset)**恢复出厂设置，作为恢复出厂设置的快捷方式。

Press the **(恢复出厂设置 Reset)** for a long time, back to the factory setting.

3.5 进入监控模式 enter monitoring system

在空闲模式下，按**(P)** + **(监控键)**键进入，按上下键调整监控参数项，按**P**键退出。（若为 24、25、26、28 项，长按**P**键保存当前监控值为对应参数，若保存成功，显示 OK，短按**P**键退出监控模式）

Press **(P)** + **(监控键)** to enter this mode, press up and down key to adjust this parameter, press **P**, then can log out. (if it is 24、25、26、28, then press **P** to save this monitoring value as the corresponding parameter, if save successfully, show OK, press **P** for short time to log out this mode.)

注：上停针位置设置：进入监控参数项 24，将手轮调整至上停针（参数会随着手轮位置而变化），长按**(P)**键保存参数（保存后，下针位会自动进行相应调整），按**(P)**退出监控模式。

PS: Needle position setting, enter monitoring mode number 24, move the hand wheel to up needle position (the value will be changed with hand wheel position), press **(P)** for long time to save it (after save it, down needle position will be adjust automatically), press **(P)** to log out this mode.

3.6 进入计针、计件快捷显示及修改 enter the quick display and modify of needle counting and piece counting

在空闲模式下，按 $\text{P} + \text{+}$ 键进入计针、计件快捷显示及修改界面，在该界面按 < 或 > 键切换计针、计件显示界面，可通过按 + 或 - 键直接修改针数或件数，按 $\text{P} + \text{-}$ 键清除当前计针或计件数，短按 P 退出当前界面。

Press $\text{P} + \text{+}$ to enter the quick display and modify of needle counting and piece counting, in this interface, you can press < or > key to switch the needle counting and pieces counting display interface, press + or - modify the counting directly. Press $\text{P} + \text{-}$ to clear the current data, press P short to log out this interface.

3.7 进入针距补偿比例调节模式

在空闲模式下，长按 $\text{P} + \text{+}$ 针距加进入正缝参数修改界面，长按 $\text{P} + \text{-}$ 针距减进入倒缝参数修改界面。在参数修改界面短按 < 或 > 键切换修改的参数位，按 + 或 - 键修改针距补偿参数大小，修改后短按 P 键保存针距补偿比例，面板显示 ok 表示参数设置成功，短按 P 键退出当前界面。

In idle mode, long press $\text{P} + \text{+}$ stitch length plus to enter the forward sewing parameter modification interface, and long press $\text{P} + \text{-}$ stitch length minus to enter the reverse stitch parameter modification interface. In the parameter modification interface, short press the < or > key to switch the modified parameter position, press the + or - key to modify the stitch length compensation parameter size, short press the P key to save the stitch length compensation ratio after modification, the panel displays ok to indicate that the parameter setting is successful, short press the P key to exit the current interface.

3.8 参数表 Parameters list

3.8.1 操作员参数(长按 P 键进入) technician mode parameter (long press P key to enter)

参数项 Parameter List	参数描述 Description	默认值 Default Value	参数范围 Parameter range	参数项 Parameter List	参数描述 Description	默认值 Default Value	参数范围 Parameter range
P00	起缝速度(r/min) start sewing speed	200	100-800	P22	补针时倒缝关闭阀值 Value of backstitch during half stitch	8	0-9999
P01	自由缝最高转 (r/min) Max speed of free sewing	2200	200-3000	P23	脚踏板控速曲线模式 curve mode of pedal 0: 直线 straight 1: 两段斜率 Slope 2: 曲线 curve (平方 square、开方 extraction of a root) 3: S 曲线 S curve	0	0-3
P02	多段缝速度 (r/min) Multi-segment sewing speed	2000	200-2200	P24	踏板剪线位置 Pedal position of trimming	150	0-4095
P03	上下停针选择 Needle position 0: 上停针 up 1: 下停针 down	1	0-1	P25	后固缝针迹补偿 1 Stitch compensation of back tacking 1 (吸合 actuation)	2	1-10

P04	前固缝速(r/min) Start tacking speed	1200	200-1800	P26	后固缝针迹补偿 2 Stitch compensation of back tacking 1 (释放 release)	2	1-10
P05	后固缝速(r/min) Back tacking speed	1200	200-1800	P27	感应抬压脚模式选择 sensor press foot lifter mode selection 0: 关闭 close 1: 打开 open	0	0-1
P06	W 缝速度(r/min) W sewing	1200	200-1800	P28	感应抬压脚保护时间 (s) protection time of sensor press foot lifter	5	1-20
P07	慢速起缝速 (r/min) Soft start sewing speed	400	100-2000	P29	幂次控速曲线辅助参数 Power Control Curve Auxiliary Parameters 0: 平方 square 1: 开方 extract a root	1	0-1
P08	慢速起缝针数 Soft start sewing stitch	2	1-9	P30	电机低速加力功能开关 switch for supplying power with low speed 0: 正常 normal 1: 电机加力 motor supplies more power 2: 电机加力+反拉控制 powerful motor + backwards to control	0	0-2
P09	慢速起缝开关 Soft start sewing switch 0: 关闭 off 1: 打开 on	0	0-1	P31	剪线加力系数 (电机加力) Trimmingr strength coefficient (motor force)	20	10-60
P10	W 缝针迹补偿 1 (吸合) stitch compensation 1	2	1-10	P32	夹线电磁铁全出力时间 thread clamp magnet work time	40	1-200
P11	W 缝针迹补偿 2 (释放) stitch compensation 1(release)	2	1-10	P33	夹线电磁铁每周期开通时间 thread clamp magnet dredging time	6	1-10
P12	补半针延迟时间 (ms) Delay time for half stitch	150	1-180	P34	多段缝运动模式选择 Multi-segment sewing motion mode selection. 0: 一键触发功能关 one key start function off 1: 一键触发功能开 one key start function on	0	0-1
P13	补一针延迟时间 (ms) Delay time for one stitch	180	150-250	P35	夹线开关 Thread clamp switch	1	0-1
P14	补针速度(r/min) Half stitch speed	200	100-500	P36	面线检测结束角度 threads testing ending angle	25	1-360
P15	按键补针模式 mode of half stitch 0: 按时间补针 Half stitch according to time	0	0-2	P37	夹线电磁铁每周期关闭时间 thread clamp magnet closing time	4	2-10

	to 1: 补半针 half stitch 2: 补 一针 one stitch						
P16	预留 reserved	10	1-30	P38	剪线开关 trimmer switch 0: 关闭 off 1: 打开 on	1	0-1
P17	预留 reserved	20	1-90	P39	缝中抬压脚开关 press foot lifter in halfway 0: 关闭 off 1: 打开 on	0	0-1
P18	前固缝针迹补偿 1 Start back tack stitch compensation 1	2	1 - 10	P40	剪线后抬压脚开关 switch of auto press foot lifter after trimming 0: 关闭 off 1: 打开 on	0	0-1
P19	前固缝针迹补偿 2 Start back tack stitch compensation 2	2	1 - 10	P41	计针数计数单位 unit of counter	1	1-50
P20	预留 reserved	345	1-360	P42	计针数总数设定 setting of total counter	9999	1-9999
P21	手动倒缝最高 (r/min) max speed of manual reverse sewing	2200	200-2200	P43	计针数模式选择 counter mode 0: 关闭 off 1: 升序循 环计数 Ascending cycle count. 2: 降序循环计数 Descending cycle count. 3: 升序计数, 计满报 警并停止运行 Ascending accounting to full, alarm and stop running 4: 降序计数, 减为 0 报警并停止运行 Descending accounting to 0, alarm and stop running) 5: 升序计数, 计满报警 提示, 继续运行 (Ascending accounting to full, remind and keep running) 6: 降序计数, 减为 0 报警提示, 继续 运行 (Descending accounting to 0, alarm and keep running) 注: 短按 P 取消报警 (note: press P shortly to cancel alarm)	0	0-6

3.8.2 技术员参数表 (按住 P 键再开机进入) Technician Parameter list (Press P and switch on to enter)

参数 项 Para meter	参数描述 Description	默认 值 Defa ult	参数 范围 Parame ter	参数 项 Para mete	参数描述 Description	默认 值 Defa ult	参数 范围 Parame ter
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List		Value	range	r List		Value	range
P44	轻前踏抬压脚确认延迟时间 0: 关闭 1-300: 根据延迟时间开启 press the pedal forward lightly to confirm delayed time 0: off 1-300:start according to the delayed time	0	0-300	P108	防断针开始机械角度 Safety needle break starting mechanical angle	20	0-359
P45	倒缝电磁铁每周期开通时间(ms) starting time of backstitching electromagnet	1	1-10	P109	防断针结束机械角度 Safety needle break finished mechanical angle	90	0-359
P46	倒缝电磁铁每周期关闭时间(ms) closing time of backstitching electromagnet	2	2-10	P110	定针缝中途剪线后加固缝功能选择开关 fixed stitches trimmer in sewing and then bartack selection switch 0: 关 No 1: 开 Yes	0	0-1
P47	剪线后反拉 after trimmer and pull back	360	200-360	P111	起缝压脚微抬功能选择开关 starting sewing presser foot lifter move-up selection switch 0: 关 No 1: 开 Yes	0	0-1
P48	倒缝电磁铁保护时间(s) protection time of backstitching electromagnet	10	1-60	P112	起缝压脚微抬开始角度 starting sewing presser foot lifter move-up start angle	80	0-359
P49	剪线速度(r/min)trimmer speed	250	100-500	P113	起缝压脚微抬结束角度 starting sewing presser foot lifter move-up finished angle	200	0-359
P50	抬压脚电磁铁全出力时间 working time of electromagnet of press foot lifter(ms)	250	100-500	P114	起缝抬压脚开持续时间限制(ms) time limitation for starting sewing presser foot lifter open(ms)	60	0-1000
P51	抬压脚电磁铁动作占空比	37	0-100	P115	剪线上停针模式处理 Cut thread stop mode processing 0: 关 off 1: 开 on	0	0-2
P52	放压脚延迟时间 (ms)delaying time of down presser foot lift	2	0-500	P116	单固缝功能开关 Single seaming function switch 0: 关 off 1: 开 on	0	0-1
P53	抬压脚功能选择 0: 关闭 Off 1: 开启 On	0	0-1	P123	抬压脚全开通阶段占空比 Duty cycle of full opening phase of the presser foot	100	0-100
P54	背光亮度 Backlight brightness	100	0-100	P124	起始密缝针距 Starting condense stitch length	5	0 - 50

P55	面线检测开关 Upper thread detection switch	0	0-1	P125	起始密缝方向 0-正缝 1-倒缝 Starting condense stitch direction 0- forward stitch 1- reverse stitch	0	0-1
P56	上电自动找上针位 connect power and finding needle position automatically 0: 不找 No 1: 找 Yes	1	0-1	P126	起始密缝速度 Starting condense stitch speed	1000	100 - 2500
P57	抬压脚电磁铁保护时间(s) Protecting time of the electromagnet for press foot.	10	1-30	P127	起始密缝针数 Starting condense stitch needle number	2	0 - 12
P58	上停针调整角度 adjustment angle of up needle position	24	0-359	P128	终止密缝针 Ending condense stitch needle	12	0 - 50
P59	下停针调整角度 adjustment angle of down needle position	165	0-359	P129	终止密缝速度 Ending condense stitch speed	1000	100 - 2500
P60	测试速度(r/min) testing speed	2200	200-2200	P130	终止密缝针数 Ending condense stitch needle number	2	0 - 12
P61	老化运行时间(s) Aging operation time	3	1-255	P131	终止密缝方向 Ending condense stitch needle number 0-正缝 1-倒缝 0- forward stitch 1- reverse stitch	0	0 - 1
P62	特殊运行模式 special running mode 0: 正常 normal 1: 简易缝 easy sewing 2: 初始角测试 initial angle testing 3: 自动测试模式 automatic testing mode	0	0-3	P132	花样缝最高速 Pattern sewing max speed	1200	200~1200
P63	老化停止时间(s) aging stopping time	2	1-255	P133	步进 Z 信号相对于 0mm 的偏移量 Step Z signal relative to 0mm offset	3080	0 -9999
P64	保留 reserved	0	0-1	P136	正缝 1mm 针距基准值 Reference value of 1mm stitch length for stitching	96	0-1500
P65	恢复出厂设置 back to the factory setting 0: 无操作 no operation 1:恢复参数为电控出厂参数 back to control box parameter 2:恢复参数为研发出厂参数 Back to R&D parameter	0	0-2	P137	倒缝 1mm 针距基准值 Reference value of 1mm stitch length for reverse stitching	134	0-1500
P66	机头保护开关检测 protection switch of machine head testing	1	0-1	P138	正缝 2mm 针距基准值 Reference value of 2mm stitch length for stitching	185	0-1500
P67	机头保护开关逻辑	1	0-1	P139	倒缝 2mm 针距基准值	260	0-1500

	protection switch of machine head				Reference value of 2mm stitch length for reverse stitching		
P69	面线检测连续针数 number of consecutive stitches for upper thread detection	5	0-100	P140	正缝 3mm 针距基准值 Reference value of 3mm stitch length for stitching	280	0-1500
P70	踏板抬压脚位置设定 setting of press foot lift position of pedal	800	0-4095	P141	倒缝 3mm 针距基准值 Reference value of 3mm stitch length for reverse stitching	310	0-1500
P71	起缝延迟时间 delay time of start sewing	260	0-900	P142	正缝 4mm 针距基准值 Reference value of 4mm stitch length for stitching	364	0-1500
P72	踏板前踩运行开始位置 (相对于回中位置) starting position of pressing the pedal forward	400	0-4095	P143	倒缝 4mm 针距基准值 Reference value of 4mm stitch length for reverse stitching	412	0-1500
P73	踏板低速运行结束位置 (相对于回中位置)end position at low speed	800	0-4095	P144	正缝 5mm 针距基准值 Reference value of 5mm stitch length for stitching	448	0-1500
P74	踏板模拟量最大值 Max value of pedal analog	4000	0-4095	P145	倒缝 5mm 针距基准值 Reference value of 5mm stitch length for reverse stitching	504	0-1500
P75	踏板回中位置设定 setting of pedal back to middle position	1650	0-4095	P146	正缝 6mm 针距基准值 Reference value of 6mm stitch length for stitching	524	0-1500
P76	倒缝电磁铁全出力时间 work time of backstitching electromagnet of (ms)	60	1-200	P147	倒缝 6mm 针距基准值 Reference value of 6mm stitch length for reverse stitching	585	0-1500
P77	电机方向 motor direction 0: 正转 forward1: 反转 reversal	0	0-1	P148	正缝 7mm 针距基准值 Reference value of 7mm stitch length for stitching	598	0-1500
P78	夹线开始角度 Thread clamp ending angle	182	10-359	P149	倒缝 7mm 针距基准值 Reference value of 7mm stitch length for reverse stitching	673	0-1500
P79	夹线结束角度 Thread clamp end angle	280	0-359	P150	正缝 8mm 针距基准值 Reference value of 8mm stitch length for stitching	677	0-1500
P80	剪线开始角度 trimming starting angle	7	0-359	P151	倒缝 8mm 针距基准值 Reference value of 8mm stitch length for reverse stitching	750	0-1500
P81	剪线加力角度 trimming strength angle	100	0-359	P152	正缝 9mm 针距基准值 Reference value of 9mm stitch length for stitching	741	0-1500
P82	剪线结束角度 Trimming ending angle	190	0-359	P153	倒缝 9mm 针距基准值 Reference value of 9mm stitch length for reverse stitching	806	0-1500
P83	踏板抬压脚确认时间 (ms) Pedal presser foot confirmation time.	150	1-500	P154	正缝 10mm 针距基准值 Reference value of 10mm stitch length for stitching	803	0-1500

P84	安全开关报警确认时间 (ms) The confirmation time of Safety switch alarm	300	1-500	P155	倒缝 10mm 针距基准值 Reference value of 10mm stitch length for reverse stitching	863	0-1500
P85	安全开关报警恢复时间 (ms) The recovery time of Safety switch alarm	50	1-200	P156	正缝 11mm 针距基准值 Reference value of 11mm stitch length for stitching	883	0-1500
P86	两段斜率转折点速度 (r/min) speed of two slopes at a turning point.	1500	0-4000	P157	倒缝 11mm 针距基准值 Reference value of 11mm stitch length for reverse stitching	949	0-1500
P87	两段斜率中间模拟量 Two slope intermediate simulation	2700	0-4095	P158	正缝 12mm 针距基准值 Reference value of 12mm stitch length for stitching	963	0-1500
P88	计件数计数单位 unit of counting	1	1-50	P159	倒缝 12mm 针距基准值 Reference value of 12mm stitch length for reverse stitching	1035	0-1500
P89	计件数总数设定 setting of total counting	9999	1-9999	P160	速度补偿参考针距 Speed compensation reference stitch length	60	0-120
P90	计件数模式选择 counter mode 0: 关闭 off 1: 升序循环 计数 Ascending cycle count. 2: 降序循环计数 Descending cycle count. 3: 升序计数, 计满报警 并停止运行 (Ascending accounting to full, alarm and stop running) 4: 降 序计数, 减为 0 报警并停 止运行 (Descending accounting to 0, alarm and stop running) 5: 升 序计数, 计满报警提示, 继续运行 (Ascending accounting to full, remind and keep running) 6: 降 序计数, 减为 0 报警提 示, 继续运行 (Descending accounting to 0, alarm and keep running) 注: 短按 P 取消报警 (note: press P shortly to cancel alarm)	0	0-6	P161	参考针距下正缝 800rpm 补偿值 800rpm compensation value for sewing under reference stitch length	5	0-300
P91	针数计数值 Stitch count value	0	0-9999	P162	参考针距下倒缝 800rpm 补偿值 800rpm compensation value for reverse sewing under reference stitch length	16	0-300
P92	件数计数值 Piece count value	0	0-9999	P163	参考针距下正缝 1500rpm 补偿值 1500rpm compensation	32	0-300






					value for sewing under reference stitch length		
P93	语音开关 Voice switch 0: 关 off 1: 开 on	1	0-1	P164	参考针距下倒缝 1500rpm 补偿值 1500rpm compensation value for reverse sewing under reference stitch length	39	0-300
P94	开机语开关 Start language switch 0: 关 off 1: 开 on	1	0-1	P165	参考针距下正缝 2200rpm 补偿值 2200rpm compensation value for sewing under reference stitch length	51	0-300
P95	语音国家切换 Voice country switching 0: 中文 1: 英文 0: Chinese 1: English	0	0-1	P166	参考针距下倒缝 2200rpm 补偿值 2200rpm compensation value for reverse sewing under reference stitch length	86	0-300
P96	语音音量 Voice volume	20	0-31	P167	参考针距下正缝 3000rpm 补偿值 3000rpm compensation value for sewing under reference stitch length	0	0-300
P97	主要部针距 Main part stitch length	60	0-100	P168	参考针距下倒缝 3000rpm 补偿值 3000rpm compensation value for reverse sewing under reference stitch length	0	0-300
P98	密缝模式选择 Condense stitch mode selection 0-关闭 1-前加密 2-后加密 3-前后加密 0-Close 1-Front encryption 2-Back encryption 3-Front and back encryption	0	0-3	P169	参考针距下正缝 4000rpm 补偿值 4000rpm compensation value for sewing under reference stitch length	0	0-300
P103	抬压脚释放放电时间 (press foot lifter release discharge time)	90	0-900	P170	参考针距下倒缝 4000rpm 补偿值 4000rpm compensation value for reverse sewing under reference stitch length	0	0-300
P104	抬压脚释放 PWM 占空比(缓放压脚力度) (press foot lifter release PWM duty ratio- lose press foot lifter slowly)	10	0-50	P171	正缝针距补偿比例 Stitching needle length compensation ratio	100	50-150
P106	前加固结束回走一针功能选择开关 (front bartack finished with one stitch back tack selection switch) 0: 关 No 1: 开 Yes	0	0-1	P172	倒缝针距补偿比例 Reverse stitching needle length compensation ratio	100	50-150
P107	防断针功能选择开关	1	0-1	P180	步进电机线数选择	1200	0-1200

	Safety needle break selection switch 0: 关 No 1: 开 Yes				Stepper motor thread number selection		
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3.8.3 物联网参数设置说明（按住 P 键再开机进入） IOT Parameter list (Press P and switch on to enter)

参数项 Parameter List	参数描述 Description	默认值 Default Value	参数范围 Parameter range	参数项 Parameter List	参数描述 Description	默认值 Default Value	参数范围 Parameter range
122	无线通信信道设置 Wireless communication channel Settings	1	1-31	P127	物联网功能开关 IOT function switch	1	0-1

3.8.4 监控参数表（开机后按 P 键+抬压脚键进入） Monitoring parameter list (press P + press foot lifter key to enter)

参数编号 number	参数描述 description	参数编号 number	参数描述 description
M10	针数计数值 stitches account number	M23	初始角度 Initial angle
M11	件数计数值 pieces account number	M24	机械角度 Mechanical angle
M13	操作面板软件版本号 panel version number	M25	踏板前踩模拟量最大值 Max value for pedal forward press
M18	控制器主板软件版本号 main board version number for control box	M26	踏板回中模拟量采样值 Sample value for pedal back
M20	母线电压 Generatrix Voltage	M28	踏板剪线模拟量采样值 Sample pedal value of trimming
M21	机头速度 Machine speed	M30-M37	历史故障代码 Historical Error number
M41	网络连接状态：0：正常连接，  信号图标显示；1：模块连不上网关，  信号图标闪烁（快闪）；2：网关连不上服务器，  信号图标闪烁（慢闪）；3：电控和模块断开，  信号图标不显示；Off：物联网功能关闭，  信号图标不显示。		

4 错误代码 Error code

4.1 故障代码表 Error code list

若系统出现报错或报警，请首先检查如下项：1 先确认机器的连接线是否连接完好；2 确认电控和机头是否匹配；3 确认恢复出厂是否准确。

if have Error or alarm, please check first as follows:1. Check the connection wire is connected or not; 2. Check the machine head is matched with the control box; 3. check reset is accurate or not.

故障代码 Error number	代码含义 Code meaning	解决措施 Solutions

Err-01	主轴电机硬件过流 Arm shaft motor hardware overcurrent	1、 关闭系统电源，30 秒后重新接通电源。 1. Turn off the system power, and turn it on again after 30 seconds. 2、 检查主轴电机编码器、电控是否有损坏等不良现象若有则及时更换。 2. Check whether the arm shaft motor encoder and electronic control are damaged or in other poor conditions. If so, replace them in time. 3、 排除后重启系统若仍不能正常工作，请联系当地服务商或拨打 4008876858 3. If the system still does not work properly after troubleshooting and restart. Please contact your local service provider or call 4008876858.
Err-03	系统欠压 System undervoltage	断开控制器电源，检查输入电源电压是否低于 176V。若电源电压低于 176V，请在电压恢复正常后重新启动控制器。若电压恢复正常后，启动控制器仍不能正常工作。 Disconnect the power supply of the controller and check whether the input power supply voltage is lower than 176V. If so, please restart the controller after the voltage returns to normal. If the voltage returns to normal, it still does not work properly after the controller starts up. 请联系当地服务商或拨打 4008876858。 Please contact your local service provider or call 4008876858.
Err-04	停机时过压 Overvoltage during shutdown	断开控制器电源，检查输入电源电压是否高于 264V。若电源电压高于 264V，请在电压恢复正常后重新启动控制器。若电压恢复正常后，启动控制器仍不能正常工作。请联系当地服务商或拨打 4008876858 Disconnect the controller power and check whether the input power voltage is higher than 264V. If so, please restart the controller after the voltage returns to normal. If the voltage returns to normal, it still does not work properly after the controller starts up. Please contact your local service provider or call 4008876858.
Err-05	运行时过压 Overvoltage during operation	断开控制器电源，检查输入电源电压是否高于 264V。若电源电压高于 264V，请在电压恢复正常后重新启动控制器。若电压恢复正常后，启动控制器仍不能正常工作。请联系当地服务商或拨打 4008876858 Disconnect the controller power and check whether the input power voltage is higher than 264V. If so, please restart the controller after the voltage returns to normal. If the voltage returns to normal, it still does not work properly after the controller starts up. Please contact your local service provider or call 4008876858.
Err-06	电磁铁回路故障 Electromagnet circuit failure	1、 关闭系统电源，检查电磁铁连线是否正确，是否有松动、破损等现象若有则及时更换 1. Turn off the system power, check whether the electromagnet connection is correct and whether there is any loose or damaged part. If so, replace it in time. 2、 拔掉电控上电磁铁接口确认电控是否正常，如电控正常请排查各路电磁是否损坏。 2. Unplug the electromagnet plug on the electric control to confirm whether the electric control is normal. If the electric control is normal, please check whether the electromagnetic circuits are damaged. 3、 排除后重启系统若仍不能工作，请联系当地服务商或拨打 4008876858 3. If the system still does not work after troubleshooting and restart. Please contact your local service provider or call 4008876858.
Err-07	主轴电机电流检测回路故障	关闭系统电源，30 秒后重新接通电源观察是否能正常工作。重试几次，若该故障频繁出现。请联系当地服务商或拨打 4008876858。

	Arm shaft motor current detection circuit failure	Turn off the system power, and turn on the power again after 30 seconds to see whether it can work properly. Try a few times again. If the fault occurs frequently, please contact your local service provider or call 4008876858.
Err-08	主轴电机堵转 Arm shaft motor stalled	1、 请检查是否有异物缠绕在机头上，检查机器旋梭是否有线头卡死，机器偏心轮是否有卡死现象 1. Please check whether there is any foreign object wrapped around the machine head, whether there is any thread residue stuck in the rotating shuttle, and whether the eccentric wheel of the machine is stuck. 2、 断开控制器电源，检查主轴电机电源输入插头是否脱落、松动、破损。 2. Disconnect the power supply of the controller and check whether the input plug of the arm shaft motor power supply is detached, loose, or damaged. 3、 排除后重启系统仍不能正常工作。请联系当地服务商或拨打 4008876858。 3. If the system still does not work properly after troubleshooting and restart. Please contact your local service provider or call 4008876858.
Err-10	面板通讯故障 Panel communication failure	1、 请检查操作面板与电控的连线是否脱落、松动、断裂。 1. Please check whether the connection between the operation panel and the electric control is drops off, loose, or broken. 2、 排除后重启系统若仍不能正常工作。请联系当地服务商或拨打 4008876858 2. If the system still does not work properly after troubleshooting and restart. Please contact your local service provider or call 4008876858.
Err-12	主轴电机初始角度检测故障 Arm shaft motor initial angle detection failure	1、 请进入参数项里检查主轴电机初始角度。 1. Please enter parameter setting to check the initial angle of the arm shaft motor. 2、 请断电后再尝试 2-3 次，若仍报故障。请联系当地服务商或拨打 4008876858。 2. Please try 2-3 times again after power off. If it still fails. Please contact your local service provider or call 4008876858.
Err-13	主轴电机零位故障 Arm shaft motor zero position fault	1、 关闭系统电源，检查主轴电机编码器接头是否松动或脱落，将其恢复正常后重启系统。 1. Turn off the power of the system, check whether the arm shaft motor encoder connector is loose, or drops off. Restore it to normal and restart the system. 2、 更换主轴电机编码器。 2. Replace the arm shaft motor encoder. 3、 排除后重启系统若仍不能正常工作请联系当地服务商或拨打 4008876858。 3. If the system still does not work properly after troubleshooting and restart, Please contact your local service provider or call 4008876858.
Err-14	主控 eeprom 元器件读写故障 Master control eeprom components read/write failure	关闭系统电源，30 秒后重新接通电源，控制器若仍不能正常工作，请联系当地服务商或拨打 4008876858 Turn off the system power, and then turn on the power again after 30 seconds. If the controller still does not work properly, please contact your local service provider or call 4008876858
Err-15	主轴电机超速保护 Arm shaft motor overspeed protection	
Err-16	主轴电机反转 Arm shaft motor	

	reverse	
Err-17	面板参数读写故障 Panel date read/write failure	关闭系统电源，30 秒后重新接通电源，控制器若仍不能正常工作，请联系当地服务商或拨打 4008876858 Turn off the system power, and then turn on the power again after 30 seconds. If the controller still does not work properly, please contact your local service provider or call 4008876858
Err-18	主轴电机过载 Arm shaft motor overload	检查主轴电机是否堵转，若未堵转，请联系当地服务商或拨打 4008876858。 Check whether the arm shaft motor is stalled. If not, please contact your local service provider or call 4008876858.
Err-19	电机类型不匹配 Motor type mismatch	关闭系统电源，30 秒后重新接通电源，控制器若仍不能正常工作，请联系当地服务商或拨打 4008876858 Turn off the system power, and then turn on the power again after 30 seconds. If the controller still does not work properly, please contact your local service provider or call 4008876858
Err-20	调速器异常	1、请检查脚踏控速器连接线是否脱落、松动或脚踏控速器是否损坏。 1、 Please check whether the connection cable of the pedal speed controller is drops off, loose, or damaged. 2、排除后重启系统仍不能正常工作。请联系当地服务商或拨打 4008876858。 2. If the system still does not work properly after troubleshooting and restart. Please contact your local service provider or call 4008876858.
Err-21	倒缝步进电机硬件过流 Backstitch step motor hardware overcurrent	1、关闭系统电源，30 秒后重新接通电源 1. Turn off the system power, and then turn on the power again after 30 seconds 2、检查机器倒缝步进电机、摆动座、牙齿是否卡死，恢复正常状态后，重启系统 2. Check whether the backstitch step motor, swing seat, and teeth are stuck. After returning to the normal state, restart the system. 3、排除后重启系统若仍不能正常工作。 3. If the system still does not work properly after troubleshooting and restart. 请联系当地服务商或拨打 4008876858 Please contact your local service provider or call 4008876858
Err-22	倒缝步进电机软件过流 Backstitch step motor software overcurrent	、关闭系统电源，30 秒后重新接通电源 1. Turn off the system power, and then turn on the power again after 30 seconds 2、检查机器倒缝步进电机、摆动座、牙齿是否卡死，恢复正常状态后，重启系统 2. Check whether the backstitch step motor, swing seat, and teeth are stuck. After returning to the normal state, restart the system. 3、排除后重启系统若仍不能正常工作。请联系当地服务商或拨打 4008876858 3. If the system still does not work properly after troubleshooting and restart. Please contact your local service provider or call 4008876858
Err-23	倒缝步进电机电流检测回路故障 Backstitch step motor current detection circuit failure	关闭系统电源，30 秒后重新接通电源，控制器若仍不能正常工作，请联系当地服务商或拨打 4008876858。 Turn off the system power, and then turn on the power again after 30 seconds. If the controller still does not work properly, please contact your local service provider or call 4008876858.
Err-24	倒缝步进电机堵转 Backstitch step motor stalled	1、关闭系统电源，30 秒后重新接通电源 1. Turn off the system power, and then turn on the power again after 30 seconds

		<p>2、检查机器倒缝步进电机、摆动座、牙齿是否卡死，恢复正常状态后，重启系统</p> <p>2. Check whether the backstitch step motor, swing seat, and teeth are stuck. After returning to the normal state, restart the system.</p> <p>3、检查倒缝步进编码器、电控是否有损坏等不良现象若有则及时更换</p> <p>3. Check whether the backstitch step encoder and electronic control are damaged or in other poor conditions. If so, replace them in time.</p> <p>4、排除后重启系统若仍不能正常工作。请联系当地服务商或拨打 4008876858</p> <p>4. If the system still cannot work properly after troubleshooting and restart. Please contact your local service provider or call 4008876858</p>
Err-27	<p>倒缝步进电机通讯异常</p> <p>Backstitch step motor controller communication failure</p>	<p>关闭系统电源，30 秒后重新接通电源，控制器若仍不能正常工作，请联系当地服务商或拨打 4008876858。</p> <p>Turn off the system power, and then turn on the power again after 30 seconds. If the controller still does not work properly, please contact your local service provider or call 4008876858.</p>
Err-28	<p>倒缝步进电机零位故障</p> <p>Backstitch step motor zero position fault</p>	<p>1、检查机器倒缝步进电机、摆动座、牙齿是否卡死，恢复正常状态后，重启系统</p> <p>1. Check whether the backstitch step motor, swing seat, and teeth are stuck. After the normal state is restored, restart the system.</p> <p>2、检查倒缝步进编码器是否有损坏等不良现象若有则及时更换</p> <p>2. Check whether the backstitch step encoder is damaged or in other poor conditions. If so, replace it in time.</p> <p>3、排除后重启系统若仍不能正常工作。请联系当地服务商或拨打 4008876858</p> <p>3. If the system still does not work properly after troubleshooting and restart. Please contact your local service provider or call 4008876858</p>

4.2 安全报警表 Safety alarm meter

报警代码 Alarm code	代码含义 Description	解决措施 Solutions
A-UP	翻抬开关报警 alarm of safety switch	摆正机头,确保翻抬开关复原 return machine head to normal position, to make sure safety switch rebound
ALR-1	机头按钮短路报警 Alarm of machine head button with short circuit	关闭系统电源，更换机头灯按钮 turn off system power and change the light button of machine head
ALR-2	计针数计满报警 Alarm when needle counting is fulfilled	短按 P 键取消报警 press P key with short time, alarm will stop
ALR-3	计件数计满报警 Alarm when needle counting is fulfilled	短按 P 键取消报警 press P key with short time, alarm will stop

5 脚踏板灵敏度调整 Pedal sensitivity adjustment

1) 脚踏板动作由初始位置①（75 号参数）开始，缓慢向前踩至②（72+75 号参数）开始低速缝纫，

继续前踩至③（75+73号参数）开始加速，再深踩至④（74号参数）达到最高速度。②③段之间维持起缝速度，③④段之间为无级调速过程；

1) pedal action from the initial position (1), (parameters 75), slowly stepped forward to (2) (72 + 75 parameter), and began to work at low-speed, continuing press to position(3) (75 + 73 parameter), then began to accelerate, deep step to position (4) (parameters 74) to achieve the highest speed. The speed of stitching between position ② and ③ is to maintain the starting sewing speed. The speed of stitching between position ③ and ④ is to increase the speed.

2) 当脚踏板由初始位置①（75号参数）开始，缓慢后踩至⑥（24号参数）时自动完成回到上停针动作；

2) when the pedal is started from the initial position (1) (parameter 75), the pedal will automatically return to the un needle position when it is slow to step on the (6)(24 parameter).

3) 各参数数值设置需保证（24号参数）<（75号参数）<（75+72号参数）<（75+73号参数）<（74号参数）；

3) the value setting of each parameter should be guaranteed (24 parameter) < (75+72 parameter) < (75+73 parameter) < (parameter 74);

4) 可通过监控模式下025、026、028号参数实时监测踏板模拟量最大值、踏板回中电压采样值、踏板倒踩电压采样值，操作方式同上停针位置设置方式，不同位置下的踏板采样数值作为各参数的参考值。如前踩很大距离机器还没有运转，可适当减小72参数（72+75号参数应大于回中位置参数75），即可提高前踩的灵敏度；若机器过于灵敏，轻触踏板机器就开始运行，可适当加大72参数；若不容易补针，稍微前踩，速度就迅速提高造成前冲多针，可适当增大73参数或减小72参数（即增大脚踏板低速范围），也可以适当降低初始起缝速度（00号参数）。

4) Under monitoring mode, parameters 025、026、028 can monitor the real-time pedal analog voltage sampling value in maximum, pedal back, pedal down step voltage sampling values. The setting is the same as above-mentioned needle position setting mode. Under different positions of the pedal, sampling values is for reference. If the machine has not been running after stepping forward, we can reduce parameter 72 properly (the parameters of 72+75 should be larger than 75), so as to improve the sensitivity of the front tread. If the machine is too sensitive, touch pedal lightly, machine will start running, you can increase parameters 72 appropriately. If it is not easy to add stitch, stepping forward little, speed will quickly improve to blunt stitches, can increase parameters 73 or reduce parameters 72 properly (i.e., increase low-speed range of the pedals), can also decrease initial starting speed (parameters 00)

