

SIRUBA

電控參數說明書

ELECTRONIC CONTROL PARAMETER MANUAL

■ BT-373F/BT-1377F



前言

Preface

欢迎使用本公司产品，制衣行的正确投资选择！

Welcome to use the our products, it is the right investment choices in garment industry!

本说明书为本公司新研发的“一体步进+伺服控制箱”产品参考手册，请认真阅读此手册以更好的运用本公司产品！

This user manual is for our newly developed “Integrated step + servo control box” products reference manual, Please read this manual carefully, hope it can give you useful help!

阅读本说明前以下要求说明请注意：

Before reading the manual, please note the following requirements:

1：用户使用作业前必须可靠接地，保证人生安全！

The user must be grounded before operations to ensure safety

2：非专业人士请勿拆卸控制箱

Non-professionals do not disassemble the control box

3：控制箱与电机远离强磁高辐射环境

The control box and motor away from the magnetic high radiation environment

4：不要在过热环境中作业

Do not work in hot environment

5：不要在过于潮湿环境中作业

Do not work in humid environments

6：220V 电控：【220V 接入供电时电压稳定在（AC200V~260/单相）之间】

220V electronic control: [220V access to power supply voltage stability between (200V~260V)]

电源供电电压 Voltage	220V 单相 1 phase
频率 Frequency	50~60HZ
电机转速 Speed	200-4000RPM
电机扭矩 Motor torque	$\leq 3.5\text{N.M}$

110V 电控：【110V 接入供电时电压稳定在（AC100V~130/单相）之间】

110V electronic control: [110V access to power supply voltage stability between (100V~130V)]

电源供电电压 Voltage	110V 单相 1 phase
频率 Frequency	50~60HZ
电机转速 Speed	200-4000RPM
电机扭矩 Motor torque	$\leq 3.5\text{N.M}$

安全叮嘱：

Safety requirement:

- 1: 电机电控接通电源时（开机状态）请不要把脚放在脚踏板上
Do not put your feet on the pedals when the control box and motor is switched on (boot status)
- 2: 本产品请专业人士安装调试
Let professionals to install and debug this product
- 3: 严禁在通电时打开控制箱与电机端盖
Do not open the control box and the motor cover when energized
- 4: 换针，穿线或更换底线时请关闭电源
Please turn off the power when changing the needle, threading or replacing the bottom line
- 5: 安装，拆卸维修时请拔掉电源插头
During installation and removal service, please turn off the power and pull the plug
- 6: 翻抬缝纫机时请关闭电源
Please turn off the power when turn lift sewing machine
- 7: 使用本产品请远离高频电磁波和电波发射器等，以免所产生的电磁波干扰伺服驱动器而发生错误动作。
When use this product, please stay away from high-frequency electromagnetic waves and radio wave transmitters, etc., in case the electromagnetic waves generated interfere with the servo drive to occur wrong action .

郑重申明：

Solemnly Declare:

- 1: 不遵守安全使用说明操作规章，发生意外后果自负。
Do not comply with the manual book operating regulations and the safety requirements, all accidental occurrence should be taken by yourself.
- 2: 未经本公司授权，请勿擅自改动产品，由此而引起的后果本公司不负任何责任。
Without our authorization, please do not alter our products, our company is not liable for any consequences arising therefrom.

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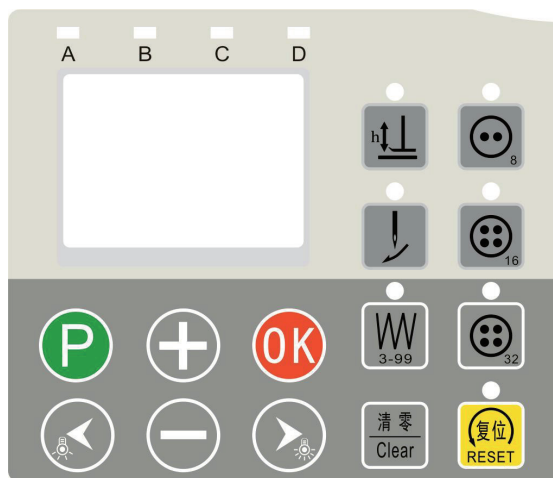
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1: 显示屏常用操作介绍

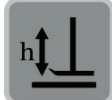
Introduction of display screen's common operations



功能介绍:

Function Description:

序 号 No. 1	按键图标 Button Icons	功 能 说 明 Function Description
1		1. 短按 P 键，进入密码界面；输入正确密码即进入参数界面。 Short press the P key to enter the password interface; enter the correct password to enter the parameter interface. 2. 长按 P 键，进入控制箱软件版本号。 Long press the P key to enter the control box software version number.
2		1. 参数确定保存键 Parameter determines the Save button 2. 长按“OK”键 3 秒钟，显示当前控制箱的电机状态、调速器状态及当前输入电压。 Long press the "OK" button for 3 seconds to display the current control box motor status, governor status and current input voltage.
3		1. 向上键； Up key; 2. 修改参数号时加 when need add the parameter value 3. 速度加。 Speed increase.
4		1. 向下键； Down key; 2. 修改参数号时减 when need reduce the parameter value 3. 速度加。 Speed reduction.
5		1. 向左键； To the left; 2. 在调节参数界面为参数值减小； In the parameter interface is reduced to the parameter data. 3. 照明灯亮度减弱。 The brightness of the light is weakened.

6		1. 向右键; To the right; 2. 在调节参数界面为参数值增大; In the parameter interface is added to the parameter data. 3. 照明灯亮度增强。 The brightness of the lighting is enhanced.
7		开机复位按键。 start reset button
8		当前工作个数清零键 Clear key for current number of jobs
9		进入步进抬压脚相关参数键 Enter the related parameter keys of stepping presser foot lifting
10		1. 短按此键，扫线功能开启/关闭。 Short press key to Switching sweep mode ON or OFF. 2. 长按此键，进入扫线相关参数调整。 Long press, enter the related parameter keys of sweep.
11		针数自定义按键。 Custom button for needle count.
12		当此功能开启时，钉扣机将运行在 8 针模式。 When this function is enabled, the stapling machine will run in 8-pin mode.
13		当此功能开启时，钉扣机将运行在 16 针模式。 When this function is enabled, the stapling machine will run in 16-pin mode.
14		当此功能开启时，钉扣机将运行在 32 针模式。 When this function is enabled, the stapling machine will run in 32-pin mode.
15	A 灯	当压脚放下到位时 LED 指示灯 A 亮起 When the presser foot is placed in place, the LED indicator light A lights up.
16	B 灯	当传感器感应到大盘磁钢后 LED 指示灯 B 亮起。 When the sensor senses indicator the large magnetic steel, the LED light B lights up.
17	C 灯	电机上针位指示 LED 灯。 Upper Needle Stop position indicator LED on the motor.
18	D 灯	绿灯：正常状态；Green：Normal ,No status; 红灯：报警状态；Red:Alarm status. 红绿灯交替闪烁：提示状态。Red and green lights flash alternately: prompt status.

2: 如何进入参数与如何修改参数

How to enter parameters and how to modify the parameters

系统参数进入解析:

System parameters enter the analysis:

1. 短按 (P) 键将进入 “系统参数”列表 (需要密码.****进入调整, 按 OK 进入)。
1. Short press the (P) key to enter the "system parameter" list (password required. **** to enter the adjustment, press OK enter).
2. 短按 (+) (-) 键, 切换参数编号, 在需要修改参数值请按 (←) (→) 键进行加或减,
2. Short press the (+) (-) key to switch the parameter number. When you need to modify the parameter value, press the (←) (→) key to add or subtract.
3. 修改完毕参数后需要按 (OK) 键保存参数并退出系统参数调节。
3. After modifying the parameters, you need to press the (OK) key to save the parameters and exit the system parameter adjustment.

注: 以上是进入方法, 具体参数号代表的参数意思详情如下 “3.操作参数说明表”

System parameters entering analysis:

Note: the upper is entry method, specific parameters No. on behalf of the parameters meaning as follows: “3: Operating Parameter Description Table”

3: 操作参数说明表: Operating Parameter Description Table

菜单号 System parameter list	功能说明 Function Description	功能参数默认值 Function parameter default values	功能参数范围 Function parameter ranges	参数说明 Parameter Description
P01	机型选择 Model selection	0:373E	0 — 5	0: 373E 1: 373F 2: 373G 3:1377E 4: 1377F 5:1377G
P02	复位速度 Reset speed	200rpm	200-800rpm	
P03	踏板加速曲线 Pedal acceleration curve	100	0 —100 %	
P04	中英文选择 Language switch	0: 中文 0: Chinese	0 — 1	0: 中文 1: 英文 0: Chinese 1: English
P06	慢启动选择 Slow Start Selection	0	0 — 1	0: 禁用 1: 启用 0: Disable 1: Enabled
P07	慢启动速度 Slow start speed	600	300~1000	转 / 分钟 Round / Minute
P08	慢启动针数 Slow start Stitches number	2	1 — 99	针数 Stitch number
P09	剪线传感器开关	0	0-1	0: 关闭 1: 开启

	trimming sensor switch			0: Disable 1: Enabled
P10	电机刹车参数 Motor brake parameters	2	0-3	数值越大步进越有力 The larger the value, the stronger
P014	上针位角度微调 Fine adjustment of upper needle position angle	15°	5° ~40°	
P15	输入电压检测开关 Input voltage detection switch	0	0 — 1	0: 禁用 1: 启用 0: Disable 1: Enabled
P16	剪线功能 trim function	1: 开启 1: Enabled	0 — 1	0: 关闭 1: 开启 0: Disable 1: Enabled
P17	剪线开启角度 Trim opening angle	320°	15° ~330°	
P18	剪线维持时间 trim maintenance time	80	0-999ms	
P19	风扇档位调节 Fan gear adjustment	2:调制 2: modulate	0-2	0: 关闭 1: 全开 2: 调制 0: Disable 1: Full open 2: modulate
P20	自动步进压脚开关 Automatic stepping presser foot switch	1: 开启 1: Enabled	0-1	0: 关闭 1: 开启 0: Disable 1: Enabled
P22	步进压脚原点位置 Origin position of stepping presser foot	1770	1500~1900	越大压脚越往下压 The larger the presser foot, the lower the press
P23	步进拍压脚高度 Step presser foot height	1350	900~1500	越小越往上顶 The smaller the top
P24	步进压脚最大电流 Step motor max current	35	1~80	数值越大步进越有力 The larger the value, the stronger the step
P25	步进压脚上拍速度 Step speed size	46	1~80	数值越大步进速度越快 The larger the value, the faster the stepping speed
P26	压脚抬起后自动放下时间 Automatic presser foot lifter down time	200 秒	0~500	秒 Second
P27	步进压脚延时启动 Step presser foot delay start	0ms	0~900ms	毫秒 ms
P28	步进压脚维持电流 Step presser foot maintains current	16	1~80	数值越大步进越有力 The larger the value, the stronger the step
P29	步进控制方式选择 Step control mode selection	0: 开环 0: open loop	0-1	0: 开环 1: 闭环 0: open loop 1: closed loop
P30	步进压脚释放速度 Step presser foot release rate	46	1~80	数值越大步进速度越快 The larger the value, the faster the stepping speed
P46	拨线动作延时启动时间 Sweep Action delay time	100ms	0~999ms	
P47	拨线动作时间 Sweep Action time	70ms	0~999ms	
P54	剪线出力角度	325°	230° ~330°	

	Thread cutting output angle			
P55	拨线功能开关 Sweep function switch	1: 开启 1:open	0-1	0: 关闭 1: 开启 0:close 1:open
P56	步进拨线开关 Step Sweep function switch	0: 关闭 0:close	0-1	0: 关闭 1: 开启 0:close 1:open
P61	放压脚后, 下机针延时 Put down the presser foot, needle delay times	50ms	1 ~ 900ms	

4: 控制箱端口说明 The control box Port Description

14P 多功能端口 14P multi-function port

14 GND	13 GND	12 GND	11 输入负 Input -	10 输入正 Input +	9 +30V empty	8 +30V
7 大盘信号 market signal	6 空 NC	5 剪线传感器 Cut signal	4 +5V	3 +5V	2 剪线/送扣信号 Trim/Send button signal	1 扫线 Sweep

5: 错误代码解析 : Error code analysis

显示的错误码 Display error code	错误码意思 Error code meaning	错误的产生 Various possible for the erro	解决错误 Solution
ER-01	找不到停针位 Can't find the needle	1:手轮和电机靠的不够近 2: 手轮上磁钢脱落 3: 手轮磁铁极性装反 4: 九针端子头接触不良 5: 电机霍尔损坏, 更换电机 1.The hand wheel and motor is not close 2.The hand-wheel falls off the magnet steel 3.The hand-wheel installs the reverse polarity 4.The terminal of nine needles connect badly 5. The motor is broken. Please change another one	1.电机插头与控制器接触是否良好; 2.更换电机。 1.Check whether motor plug and controller are well contacted. 2. Replace motor.
ER-02	脚踏板信号错误 Foot controller signal error	1: 开机时没插调速器 2: 调速器插反 3: 调速器线断开 4: 调速器损坏 1: Not plugged foot controller into control box 2: foot controller inserted upside 3: foot control box line broken 4: foot controller damage	1: 检查调速器信号线 2: 更换调速器 3: 更换控制器 1: check the foot controller signal line 2: change the foot controller 3: replace the foot controller
ER-03	电机相位信号错误 Motor phase signal error	1: 五针插头接触不良 2: 电机安装时霍尔和转子存在大偏差 3: 电机霍尔坏	1: 打开电机上的橡皮盖通过孔看电机转子与定子是否在同一平面保障误差不超过 1MM

		1: Nine-pin terminal plug Poor connect 2: Hall and rotor has large deviations when the motor is mounted 3: Motor hall damage	2: 更换电机 3: 更换控制器 1: open the rubber cover on the motor through the hole to see whether the motor rotor and stator in the same surface to ensure the error is not more than 1MM 2: replace the motor 3: replace the control box
ER-04	电机堵转保护 Motor stall protection	1: 缝纫机过重或堵死 2: 电机过载 3: 电机 4 线驱动线没连接好或插反 1: Sewing machine overweight or blocked 2: Motor overload 3: 4-wire motor drive cable is not connected or inserted upside	1: 检查电机 4P 线 2: 检查缝纫机是否过重 3: 更换控制器 1: check motor 4P line 2: check whether the sewing machine is too heavy 3: replace the controller
ER-05	硬件过流保护 Hardware over current	1: 缝纫机过重或堵死 2: 电机过载 3: 电机相位信号线没连接好 4: 功率管损坏 1: Sewing machine overweight or blocked 2: Motor overload 3: Motor phase signal line is not connected 4: Power tube damage	
ER-07	过压 Over load	1.电机驱动电源电压过高, 220V 电源电压超过限定值 (AC310V), 或负载惯性过大导致再生电压超过限定值(DC440V),或电压检测回路故障。(110V 控制系统电源电压超过限定值 (AC155V), 或负载惯性过大导致再生电压超过限定值(DC220V)。 1. The motor drive power supply voltage is too high, the 220V power supply voltage exceeds the limit value(AC310V), or the load inertia is too large to the regenerative voltage exceeds the limit value(DC440V), or the voltage detection circuit fails.Note:(110V control system power supply voltage exceeds limit value(AC155V), or load inertia is too large to regeneration voltage exceeds limit value(DC220V).	过压 Over load
ER-08	欠压故障 Under voltage error	1.电机驱动电源电压过低, 220V 电源电压低于限定值 (AC91V), 或电机驱动电源电压低于限定值 (DC130V),或电压检测回路故障。 注: (110V 电源电压低于限定值 (AC45.5V), 或电机驱动电源电压低于限定值 (DC65V)) 1. The motor drive power supply voltage is too low, the 220V power supply voltage is lower than the limit value(AC91V), or the motor drive power supply voltage is lower than the limit value(DC130V), or the voltage detection	欠压故障 Under voltage error

		circuit fails. Note:(110 V power supply voltage is below the limit(AC45.5 V), or motor drive power supply voltage is below the limit(DC 65V))	
ER-10	主电机编码器故障 Main motor encoder failure	1.电机插头与控制器接触是否良好; 2.更换电机。 1.Check whether motor plug and controller are well contacted. 2.Replace motor.	
ER-11	大盘信号未检测到 The market signal is not detected	1: 转盘处感应器的传感器损坏 2: 大盘磁铁脱落或装反 1. The sensor of turn-plate's inductor damages. 2. The needle on the hand-wheel falls off the magnet or is installed reversely.	
ER-13	压脚保险 Presser foot sensor has no signal	1: 压脚传感器安装距离过远 2: 压脚传感器损坏 3: 压脚连杆上的磁铁脱落或 装反 1. The presser foot sensor installs too far. 2. Presser foot sensor damages. 3. Presser foot sensor falls off the magnet or is installed reversely.	
ER-14	步进通讯失败 Stepping communication failed		
ER-17	剪线信号未复位 The trim signal is not detected	检查剪线电磁铁是否复位 Check if the wire cutting electromagnet is reset	
ER-21	步进未检测到复位信号 Stepper motor did not detect reset signal		
ER-22	步进电机复位失败 Stepper motor reset failed		
ER-25	步进电机堵转 Stepper motor under pressure and locked rotor		
ER-26	步进板硬件过流 Stepper board hardware over current		
ER-27	步进板软件过流 Stepper board software over current		
ER-29	步进电机原点跑位 Stepper motor back to the origin blocked		

6: 装箱单

Packing List

序 号 No. 1	名称 Name	规格型号 Specification and model	数量 Quantity	备注
1	电控箱 Electric control box	BT-373F/BT-1377F	1	
2	显示屏 Control display panel	BT-373F/BT-1377F	1	
3	伺服电机 servo motor	80X80 550W	1	
4	步进电机 Stepper motor	60X60	1	
5	脚踏板 Foot pedals		1	
6	拉杆 Drawbars		1	
7	大盘感应组件 Electromagnet		1	
8	LED 照明灯组件 LED lighting component		1	
9	交流电源线 AC power cord		1	
10	零件附件螺丝包 Screw packet		1	
11	说明书 User manual		1	



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KAULIN MFG. CO., LTD.

由於對產品的改良及更新，本產品使用說明書中與零件圖之產品及外觀的修改恕不事先通知！
The specification and/or the equipment described in the instruction book and parts list
are subject to change because of modification with out previous notice
BT-1377F.MAY.2026