

Interlock series manual V1.0

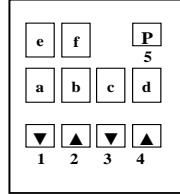
1. Safety instruction

Please read the operation manual and related sewing machinery datasheet carefully before correct use.

1.1 (1) Power voltage and frequency: please refer to motor and control box nameplate.
 (2) Interference from electromagnetic wave: please keep far away strong magnetic or high radiation environment in order to avoid obstructions and make to misoperation.
 (3) Grounding: to avoid the noise obstructions or leakage of electricity accident (including sewing machine, motor, control box and positioner).
1.2 Please make sure power off at least 1min and then can open control box cover, because there are dangerous high voltage.
1.3 Please turn off the power while repairing or wearing needle in order to protect operator's safety.
1.4 Used where potential dangers exist.
 Used where high voltage and electric danger exist.
1.5 Product warranty period of one year on condition that this machine is operated correctly and no man-made damage.

2. Operation panel instruction

2.1 The control box operation panel describe
 As shown in the right figure.



2.2 sewing function setting

Operation panel default mode:

Needle position, trimming, start bartack and end bartack
 1: choice of needle position a: 0 up needle position; 1 lower needle position
 2: choice of trimming b: 0 no-trimming trimming 1 trimming
 3: choice of start bartack c: 0 no; 1 AB double; 2 ABAB four
 4: choice of end bartack d: 0 no; 1 CD double ; 2 CDCD four

2.3 Function parameter setting

Press the P key long to enter the function parameter setting state at the default interface.
 Abcd position show parameter value, can be modified by the key 34; ef position show parameter index, can be modified by key 12.

Press P can save the current parameter values, then exit the parameter setting mode. Press 1234 key short time, then update every time, press long time, update continuance and faster.

Note: When the system is running, can not enter the parameter setting mode; unless you exit the parameter setting mode, otherwise the system can not run.

2.4 System monitor state

Press the P key, at the same time press key 1, can enter this interface at the default interface.

JJ	Work pieces	DX	Bobbin thread value	1	Motor speed	2	Motor current	3	Bus voltage
4	Pedal voltage	5	mechanical angle	6	motor angle	7	Software Version	8	machine model

3. Error codes

Error Code	Contents	Possible reasons	Checking and treatment
E011 E012 E013 E014	Motor signal error	Motor position sensor signal failure	If electric engine plug is well contacted; if electric engine signal detecting device has been broken; if sewing machine handwheel correctly installed.
E015	Model type error	Unable identify operating box model type	Check operating box
E021 E022 E023	Motor overload	motor stall motor overload	If electric engine plug is well contacted; if machine head or thread-cutting mechanism has been blocked completely; if materials are too thick; Electrical signal detection signal whether the normal.
E101	Hardware drivers fault	Current detection abnormal Driving hardware error	Current detection loop system is working properly; Whether the damage to the device driver.
E111 E112	Voltage too high	High input voltage Brake circuit fault Voltage detection error	System into line voltage is too high; Braking resistance are working properly; System voltage detection circuit are working properly.
E121 E122	Voltage too low	Actual low voltage Voltage detection is wrong	If the voltage on the inlet wire is too low Whether the system voltage detection circuit the normal work.
E131	Current circuit fault	Current detection abnormal	Current detection loop system is working properly.
E133	Oz circuit fault	Oz circuit fault	Oz circuit system is working properly.
E151	Magnet circuit error	Over current magnet circuit	If machine head magnet suffers short circuit; Electromagnet circuit is working properly.
E201	over current	Current detection error	Current detection loop system is working properly; Electrical signal is normal.
E211 E212	Abnormal motor operation	Current or voltage detection error	If electric engine plug is well contacted; If electric engine signal is matched.
E301	Communication error	Sci circuit error	if operation box plug is well contacted; if operation box components are damaged.
E302	Operation inner failure	Sci circuit error	To check whether the operating box is damaged.
E402	Pedal ID fault	Pedal verification fault	Pedal connection is loosen.
E403	Pedal zero position fault	The pedal zero position over range	The pedal is damaged or it is not under stop state when correction.
E501	Safety switch fault	Safety switch effective	Put down the head or check turned up switch.
P.off	Power off Display	Power off	Wait for power supply to resume.

Note: 1. Sewing abnormal action (speed electromagnet work abnormal) : in the control interface view model is correct;
 2. Turn up E501 fault when: sure it is normal to switch detection, temporary use can change the P-28 parameters;
 3. If the above according to check the project cannot rule out fault, please seek technical support.

4. System parameter sheet

BEN: interlock BEN2: cylinder bed interlock sewing machine

BAO: overlock PIN: lockstitch

No	Project	Content	Applicable models	Setting range	The default value	Level
1	Pedal the fastest	Set the maximum speed of the pedal	BEN BEN2 BAO PIN	200~6000(rpm)	4000	I
2	Soft-start function	Low-speed sewing needle sewing start function 0: No soft-start function 1~9: Soft start stitches		200~9000(rpm)	5000	
4	Fixed-length seam maximum speed	Set as long slit maximum speed		200~5000(rpm)	2000	
5	Sewing mode	The sewing mode setting (without a nose operation box) 0: Free sewing; 1: Simple Sewing; 2: Fixed stitches; 3: Overlapped sewing	BEN BEN2 BAO PIN	0~2	0	I
10	The number of steps of the fixed stitches	The number of steps of the fixed stitches (without nose operation box)	BEN BEN2 BAO PIN	1~7 (SEGMENTS)	1	I
11	Step 1 stitches		BEN BEN2 BAO PIN	1~99 (NEEDLE)	15	I
12	Step 2 stitches		BEN BEN2 BAO PIN	1~99 (NEEDLE)	15	I
13	Step 3 stitches		BEN BEN2 BAO PIN	1~99 (NEEDLE)	15	I
14	Step 4 stitches		BEN BEN2 BAO PIN	1~99 (NEEDLE)	15	I
15	Step 5 stitches		BEN BEN2 BAO PIN	1~99 (NEEDLE)	15	I
16	Step 6 stitches		BEN BEN2 BAO PIN	1~99 (NEEDLE)	15	I
17	Step 7 stitches		BEN BEN2 BAO PIN	1~99 (NEEDLE)	15	I
18	The fixed stitches one-shot mode	The fixed stitches one-shot mode (without nose operation box set) 0: Invalid 1: Effective	BEN BEN2 BAO PIN	0/1	0	I
21	Soft-start speed 1	The first stitch speed	BEN BEN2 BAO PIN	100~3000(rpm)	600	I
22	Soft-start speed 2	The second stitch speed	BEN BEN2 BAO PIN	100~3000(rpm)	1000	I
23	Soft-start speed 3	The third stitch speed	BEN BEN2 BAO PIN	100~3000(rpm)	1500	I
24	Pressure decreased Jiaoruan function	Prevent damage to the fabric, slowing down the rate of decline of the presser foot set 0: Invalid 1: Valid	BEN BEN2 BAO PIN	0/1	0	I
25	Presser foot lift to enable	Presser foot lift enable set 0: Invalid 1: Valid	BEN BEN2 PIN BAO	0/1	1	I
26	Enable automatic presser foot lift	Automatic presser foot lift can be set 0: Invalid 1: Shut down automatically when the presser foot lift		0/1	0	
27	Power-positioning	Power-positioning head first needle position automatic operation function is set0 0: Invalid 1: Valid	BEN BEN2 BAO PIN	0/1	0	I
28	Raising the safety switch signal mode	Head turned lift or safety switch signal mode is set 0: Normally open 1: NC 2: remove protection	BEN BEN2 BAO PIN	1 0/1/2 0	I	
29	The pressure decreased Jiaoruan time	The pressure decreased Jiaoruan (the longer the presser foot drop, the slower time setting)				
30	Unit of bobbin thread counting down	Unit of bobbin thread counting down 0: Invalid 5/10/15/20: count5/10/15/20 stitches	BEN BEN2 BAO PIN	0/5/10/15/20	0	I
31	The bobbin thread initial total	The bobbin thread initial total	BEN BEN2 BAO PIN	200~4000	1600	I
35	Cutting rate	0: No function 1~20: Every cutting rate 1~20, workpiece plus 1	BEN BEN2 BAO PIN	0~20	1	I
36	Thread-cutting speed time	Thread-cutting speed setting	BEN BEN2	0~800(ms)	120	I
37	Thread wiping operation time	Thread wiping operation time	BEN BEN2	0~800(ms)	40	I
38	Thread-cutting delay time	Thread-cutting delay time setting	BEN BEN2	0~200(ms)	0	I
39	Thread wiping operation delay time	Thread wiping operation delay time setting	BEN BEN2	0~300(ms)	40	I
40	Presser foot delay time	Presser foot delay time	BEN BEN2	0~800(ms)	30	I
41	Slow speed	The pedal the lowest speed	BEN BEN2 BAO PIN	100~400(rpm)	200	I
42	Pedal curve selection	Pedal speed control function to adjust: 0: Normal 1: Accelerate the slow; 2: Acceleration	BEN BEN2 BAO PIN	0/1/2	0	I
46	Delay Sewing time,when presser foot down	Delay Sewing time,when presser foot down	BEN BEN2 BAO PIN	0~800(ms)	200	II
47	Time of presser foot magnet full voltage output	Time of presser full voltage output	BEN BEN2 BAO PIN	0~800(ms)	150	II
48	Presser foot magnet voltage output duty cycle	Presser foot voltage output duty cycle	BEN BEN2 BAO PIN	0~100	40	II
49	Presser foot magnet lift holding time	Presser foot magnet lift holding time		0~100	30	
69	Down needle position	Down needle position	BEN BEN2 BAO PIN	0~240	177	I
75	Needle position adjustment	Down needle positioning position ; this parameter interface can tread pedal running	BEN BAO PIN BEN2	0~240 120	II	
79	Parameter restore	Set to 5: Restore the current level of the factory parameters				
80	Sewing maximum speed	Sewing maximum speed	BEN BEN2 BAO PIN	200~6000(spm)	5000	II
81	Lubrication prompts	0: Invalid; 50~1000: Suggestion time		200~9000(spm)	8000	
83	Retry function	This function is used when needle cannot pierce materials. 0: Normal; 1: Retry function is provided.		200~5000(spm)	4200	
92	Pedal presser foot lift confirm time	Pedal presser foot lift confirm time	BEN BEN2 BAO PIN	0~1000 (Hour)	0	II
			BEN BEN2 BAO PIN	10~300(ms)	80	II

5. accessory

NO	Product name	Amount	Specification	Confirm	Remarks
1	Pull rod	1			
2	Ctrrolling box	1			
3	Pedal	1	PL-303		Including stand
4	Screws accessory box	1	WR596		
5	Using instruction	1			
6	Certification	1			
7	Desiccant	1			

绷缝系列使用说明书 V1.0

1. 安全上的注意事项

使用前请详细阅读本技术资料与所搭配的缝制机械说明书，配合正确使用。

1.1 (1) 电源电压与工作频率：请遵照马达与控制箱铭牌所标之规格。

(2) 电磁波干扰：请远离高频磁波机器或电波发射器等，以免所产生的电磁波干扰本驱动装置因而发生错误动作。

(3) 接地：为防止杂讯干扰或漏电事故，请做好接地工程（包括缝纫机、马达、控制箱、定位器）。

1.2 拆卸马达或控制箱时，勿带电拔插；控制箱里面有危险高压电，所以关闭电源后要等 1 分钟以上方可打开控制箱盖。

1.3 为保证人身安全，请在维修机械或进行穿针作业时关闭电源。

1.4  这个标示符号表示机器安装时，如有错误恐会伤害到人体或机器会受到损坏。

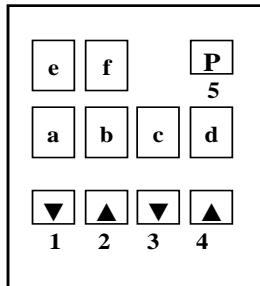
所以机器方面有危险性的地方会有此标志。

 这个标志符号表示有高压电等，电气方面有危险性的地方会有此标志。

1.5 本装置保证在正常工作情况且无人为失误的操作下，保修期为一年。

2. 机箱操作面板使用说明

机箱操作面板布局如图所示



2.1 缝纫功能设定

机箱操作面板的默认设定模式，通过按键 1234 和数码管 abcd 可以分别设定针位、剪线、前固缝、后固缝选择。

1: 针位选择 a: 0 上针位; 1 下针位

2: 剪线选择 b: 0 不剪线; 1 剪线

3: 前固缝选择 c: 0 无; 1 AB 双固缝; 2 ABAB 四固缝

4: 后固缝选择 d: 0 无; 1 CD 双固缝; 2 CDCD 四固缝

2.2 功能参数设定

在缝纫功能设定模式即机箱操作面板的默认模式下，长按 P 键进入功能参数设定状态。数码管 abcd 显示参数值，通过按键 34 修改；数码管 ef 显示参数编号，通过按键 12 修改，同时保存上一参数的值。按 P 键退出参数设定模式，并保存当前参数值。按键 1234 短按每次变更，长按可连续快速增减。（注：系统运行时无法进入参数设定模式；进入参数设定模式除非退出否则系统无法运行。）

具体参数见双针机系统参数表。)

2.3 系统监控状态

机箱操作面板默认模式下，按 P 键后同时按下键 1 进入此界面。数码管 abcd 显示监控值；数码管 ef 显示监控编号，通过按键 1、2 修改。显示为计件计数、上电计时或底线计数时，按键 3、4 可重设计数值。

JJ	计件计数值	DX	底线计数值	1	电机速度
2	电机电流	3	母线电压	4	踏板电压
5	机头机械角	6	电机初始角	7	程序版本
8	机头型号				

3. 故障代码

故障显示	故障内容	故障可能原因	检查项目、处理
E011			
E012	电机信号故障	电机位置传感器信号故障	电机插头是否接触良好 电机信号检测器件是否损坏 缝纫机手轮是否安装到位
E013			
E014			
E015	机型码故障	操作盒机型码下位机无法辨识	检查操作盒
E021			
E022	电机超负荷	电机堵转 电机超负荷	电机插头是否接触良好 机头或剪线机构是否卡死 是否缝制规格厚度以上布料 电流检测信号是否正常
E023			
E101	硬件驱动故障	电流检测非正常 驱动器件直通	系统电流检测回路是否工作正常 驱动器件是否损坏
E111			
E112	系统电压过高	实际电压偏高 制动回路故障 电压检测有误	系统进线电压是否过高 制动电阻是否工作正常 系统电压检测回路是否工作正常
E121			
E122	系统电压过低	实际电压偏低 电压检测有误	系统进线电压是否过低； 系统电压检测回路是否工作正常
E131	电流检测回路故障	电流检测非正常	系统电流检测回路是否工作正常
E133	OZ 回路故障	OZ 回路非正常	系统 OZ 回路是否工作正常
E151	电磁铁故障	电磁铁回路过流	机头电磁铁是否短路 电磁铁回路是否工作正常
E201			
E211	电机电流过大	电流检测非正常 电机运转非正常	系统电流检测回路是否工作正常 电机信号是否正常
E212	电机运转非正常	电机运转非正常	电机插头是否接触良好 电机信号是否不匹配
E301	操作盒通讯不良	机头操作盒通讯数据丢失	操作盒插头是否接触良好 操作盒器件是否损坏
E302	操作盒故障	操作盒内部故障	检查操作盒器件是否损坏
E402	踏板 ID 故障	踏板辨识故障	踏板接头松动
E403	踏板零位校正故障	踏板零位校正值超出范围	踏板损坏或者校正时踏板不是停止状态
E501	翻抬开关故障	翻抬开关有效	放下机头或者检查翻抬开关
P.oFF	掉电显示	电源关闭	等待电源重新开通
LoL	加油提示	运行超过加油提示时间	加油后长按 P 键取消提示状态
Lbob	底线提示	底线计数值为负	更换底线后长按 P 键取消提示状态
Try Time Over	试用时间结束	试用时间到	联系代理商

当系统检测到有故障时，系统停止运转，同时机箱操作面板显示故障代码。数码管 abcd 显示故障编号。具体的故障见故障代码列表。

注意：1. 缝纫动作异常（速度、电磁铁动作异常等）：进入监控界面查看机型是否正确。

2. 翻抬故障 E501 时：确定开关检测是否正常，临时使用可更改 P-28 参数。

3. 若以上故障按检查项目不能排除，请寻求技术支持。

4. 系统参数表：

BEN: 缝纫机

BEN2: 小筒缝纫机

BAO: 包缝机

PIN: 拼缝机

No	项目	内容	适用机型	设定范围	默认值	级别
1	踏板最高速	设定踏板的最高转速	BEN BEN2	200~6000(rpm)	4000	I
			BAO	200~9000(rpm)	5000	
			PIN	200~5000(rpm)	2000	
2	软启动功能	开始缝纫时低速缝纫几针的功能 0: 无软启动功能 1~99: 软起动针数	BEN BEN2 BAO PIN	0~99	3	I
4	定长缝最高速	设定定长缝最高速度	BEN BEN2 BAO	3500		I
			PIN	200~5000(rpm)	2000	
5	缝纫模式	缝纫模式设定（不带机头操作盒时有效） 0: 自由缝纫；1: 简易缝纫 2: 定针缝纫；3: 连续缝纫	BEN BEN2 BAO PIN	0~2	0	I
10	定针段数	定针段数及各段针数设定（不带机头操作盒时有效）	BEN BEN2 BAO PIN	1~7 (段)	1	I
11	定针缝第 1 段针数		BEN BEN2 BAO PIN	1~99 (针)	15	I
12	定针缝第 2 段针数		BEN BEN2 BAO PIN	1~99 (针)	15	I
13	定针缝第 3 段针数		BEN BEN2 BAO PIN	1~99 (针)	15	I
14	定针缝第 4 段针数		BEN BEN2 BAO PIN	1~99 (针)	15	I
15	定针缝第 5 段针数		BEN BEN2 BAO PIN	1~99 (针)	15	I
16	定针缝第 6 段针数		BEN BEN2 BAO PIN	1~99 (针)	15	I
17	定针缝第 7 段针数		BEN BEN2 BAO PIN	1~99 (针)	15	I
18	定针缝触发模式		BEN BEN2 BAO PIN	0/1	0	I
21	软启动速度 1	软启动第 1 针速度	BEN BEN2 BAO PIN	100~3000(rpm)	600	I
22	软启动速度 2	软启动第 2 针速度	BEN BEN2 BAO PIN	100~3000(rpm)	1000	I
23	软启动速度 3	软启动第 3 针速度	BEN BEN2 BAO PIN	100~3000(rpm)	1500	I
24	压脚软下降功能	防止损伤布料，减慢压脚下降速度的设定 0: 无效 1: 有效	BEN BEN2 BAO PIN	0/1	0	I
25	抬压脚使能	抬压脚使能设定 0: 无效 1: 有效	BEN BEN2 PIN	0/1	1	I
			BAO	0/1	0	
26	自动抬压脚使能	自动抬压脚使能设定 0: 无效 1: 停机时自动抬压脚	BEN BEN2 BAO PIN	0/1	0	I
27	上电定位	上电时机头自动运转至上针位的功能设定 0: 无效 1: 有效	BEN BEN2 BAO PIN	0/1	0	I
28	翻抬或安全开关信号模式	机头翻抬或安全开关信号模式设定 0: 常开 1: 常闭 2: 取消保护功能	BEN BEN2		1	I
			BAO PIN	0/1/2	0	
29	压脚软下降时间	压脚软下降时间设定(时间越长压脚下降越慢)	BEN BEN2 BAO PIN	50~500(ms)	300	I
30	底线倍率	底线倍率设定 0: 无效 5/10/15/20: 底线倍率	BEN BEN2 BAO PIN	0/5/10/15/20	0	I
31	底线初值	底线初值设定	BEN BEN2 BAO PIN	200~4000	1600	I
35	计件倍率	计件倍率设定 0: 无计件功能 1~20: 每设定次剪线计件值加 1	BEN BEN2 BAO PIN	0~20	1	I
36	剪线动作时间	剪线动作时间设定	BEN BEN2	0~800(ms)	120	
37	拨线动作时间	拨线动作时间设定	BEN BEN2	0~800(ms)	40	
38	剪线延迟时间	剪线延迟时间设定	BEN BEN2	0~200(ms)	0	
39	拨线延迟时间	拨线延迟时间设定	BEN BEN2	0~300(ms)	40	
40	压脚延迟时间	压脚延迟时间设定	BEN BEN2	0~800(ms)	30	
41	低速速度	踏板最低速度	BEN BEN2 BAO PIN	100~400(rpm)	200	I
42	踏板曲线选择	踏板调速功能调整 0: 正常 1: 加速慢 2: 加速快	BEN BEN2 BAO PIN	0/1/2	0	I
46	放压脚延迟缝纫时间	为确认压脚已放下的延时	BEN BEN2 BAO PIN	0~800(ms)	200	II
47	抬压脚全压输出时间	抬压脚全压输出时间	BEN BEN2 BAO PIN	0~800(ms)	150	II
48	抬压脚输出占空比	抬压脚输出占空比	BAO PIN	0~100	40	II
49	抬压脚保持时间	抬压脚保持时间后强制关断	BEN BEN2 BAO PIN	1~60(s)	12	II
69	下停针位	下停针位位置调整	BEN BEN2 BAO PIN	0~240	177	I
75	机针位置调整	调整机针位置；此参数界面可以踩踏板运行	BEN BAO PIN	0~240	120	
79	恢复出厂参数	设置成 5: 恢复当前级别出厂参数	BEN BEN2 BAO PIN	0~15	0	I
80	缝纫最高速度	缝纫最高转速	BEN BEN2	200~6000(spm)	5000	II
			BAO	200~9000(spm)	8000	
			PIN	200~5000(spm)	4	