

A2电控说明书

安全指示

- 1) 在安装或使用本产品前，使用者必须详细阅读本操作手册。
- 2) 本产品须由受过正确训练的人员来安装或操作。安装作业时必须关闭所有电源，切记不可带电操作。
- 3) 所有标有 符号的指示，必须特别注意并按照说明书上的执行，以免造成不必要的损害。
- 4) 为安全起见，禁止以延长线作电源座供应二项以上的电器产品使用。
- 5) 在连接电源线时，必须确定工作电压低于 AC 250V，且符合本产品标识中规定的额定电压值。
※注意：电控箱电源规格如为 AC220V 时，请勿插接至 AC380V 的电源插座上，否则将出现异常且电机无法动作。此时请立即关闭电源开关，重新检查电源。持续供应 380V 超过五分钟以上，将可能烧损电控箱内器件，而危及人身安全。
- 6) 请不要在日光直接照射的场所、室外及室温 45℃ 以上或 0℃ 以下的场所操作。
- 7) 请不要在暖气（电热器）旁、有露水的场所及在相对湿度 10% 以下或 90% 以上的场所操作。
- 8) 请不要在灰尘多的场所、具有腐蚀性物质的场所及有挥发性气体的场所操作。
- 9) 请注意所有电源线、信号线、接地线等接线时不要受压或过度扭曲，以确保使用安全。
- 10) 电源线的接地端须以适当大小的导线和接头连接到生产工厂的系统地线，此连接必须被永久固定。
- 11) 所有可转动的部分，必须以所提供的零件加以防范露出。
- 12) 在安装完成第一次开电后，先关闭切线功能以低速操作缝切机并检查转动方向是否正确、运转是否稳定。
- 13) 在进行以下操作前，请先关闭所有电源：
 1. 在控制箱与马达上插拔任何连接插头时。
 2. 穿针线时。
 3. 翻抬缝切机机头时。
 4. 修理或做任何机械上的调整时。
 5. 机器闲置不用时。
- 14) 修理或高层次的保养工作，仅能由受过训练的机电技师来执行。所有维修用的零件，须由本公司提供认可，方可使用。
- 15) 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装置而发生误动作。
- 16) 请不要以不当物体来敲击或撞击本产品及各装置。

保修期限

本产品保修期限为购买日期起一年内或出厂月份起两年内。

保修内容

本产品在日常使用情况且无人作为操作失误的前提下，于保修期间无偿为客户维修使能正常操作。

但以下情况于保修期间将收取维修费用：

1. 不当使用包括误接高压电源、将产品移做其它用途、自行拆卸、维修、更改、或不依规格范围使用、进水进油及插入异物于本产品。
2. 火灾、地震、闪电、风灾、水灾、盐蚀、潮湿、异常电压及其它天灾或不当场所造成的损害。
3. 客户购买后摔落本产品，或客户自行运输（或托付运输公司）造成的损害。

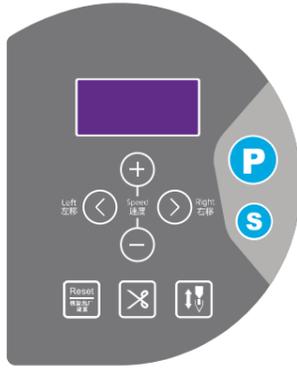
* 本产品在生产及测试上皆尽最大努力和严格控制使其达到高品质及高稳定的标准，但外部的电磁或静电干扰或不稳定的供应电源，仍可能对本产品造成影响或损害，因此操作场所的接地系统一定要切实做好，并建议用户安装故障安全防护装置（如漏电保护器）。

参数项	中文说明	范围	初始值	内容值名称说明与备注
P63	C 项测试	0-1	0	的循环 C 项测试选项，设定后将按【P60. TV】所设定之速度执行无定位动能的启动-车缝-停车的循环
P64	测试 B、C 导通时间	1-250	20	B、C 项测试中，设置导通时间
P65	测试 B、C 停车时间	1-250	20	B、C 项测试中，设置停车时间
P66	机头保护开关检测	0-2	1	0: 不检测 1: 检测零信号 2: 检测正信号
P72	上停针位校正			
P73	下停针位校正			
P80	剪线进刀角度	0-359	18	剪线进刀角度设置（下定位为 0° 计算）
P81	剪线加力角度	0-359	140	剪线加力角度设置（下定位为 0° 计算）
P82	剪线退刀角度	0-359	172	剪线退刀角度设置（下定位为 0° 计算）
P84	厚料开始加力角度	0-359	9	
P85	厚料结束加力角度	0-359	57	
P92	编码器起始角度			按夹线键读取编码器起始角度，出厂已设置，请勿随意更改（随意更改会

4 错误代码表

错误码	内容	对策
E01	1) 电源 ON 时，主电压检测过高 2) 供应电源电压过高时	关闭系统电源，检测供应电源电压是否正确。（或是否超过使用规定的额定电压）。 若正确，请更换控制箱并通知厂方。
E02	1) 电源 ON 时，主电压检测过低 2) 供应电源电压过低时	关闭系统电源，检测供应电源电压是否正确。（或是否低于使用规定的额定电压）。 若正确，请更换控制箱并通知厂方。
E05	控速器接触异常	关闭系统电源，检查控速器接头是否松动或脱落，将其恢复正常后重启系统。若仍不能正常工作，请更换控速器并通知厂方。
E07	a) 马达插头配线接触不良导致不转 b) 车头机构死锁或马达皮带异物卷入卡死。 c) 加工物过厚，马达扭力不足无法贯穿。 d 模块驱动出力异常	转动机头电机手轮观察是否卡住。如卡住则先排除机头机械故障。 如转动正常，检查电机编码器接口和电机电源线接头是否松动。如有松动请修正。 如接触良好，检查供应电源电压是否异常或转速设置过高。如有请调整。 如正常，请更换控制箱并通知厂方。
E10	电磁铁过流保护	关闭系统电源，检查电磁铁（电磁阀）连接线或电磁铁（电磁阀）是否损坏。
E09 E11	定位信号异常	关闭系统电源，检查电机编码器接口是否松动或脱落，将其恢复正常后重启系统。若仍不能正常工作，请更换电机并通知厂方。
E14	编码器信号异常	关闭系统电源，检查电机编码器接口是否松动或脱落，将其恢复正常后重启系统。若仍不能正常

2.1 按键说明示意图



2.2: 按键说明

进入参数区功能键	P	1、一般模式下按下 P 键进入用户参数设置模式 2、在关机状态，按住 P 开机进入技术员参数模式
参数查看保存键	S	对所选参数号内容进行查看和保存；选择好参数号后按此键可以进行查看和修改操作，修改参数值后按此键则退出并保存参数
上调节键	▲	1、参数选择区内参数项递增键 2、参数内容区内设定数值递增键
下调节键	▼	1、参数选择区内参数项递减键 2、参数内容区内设定数值递减键
左位移键	◀	在参数选择区和参数内容区内，向左位移
右位移键	▶	在参数选择区和参数内容区内，向右位移
上下停针	↑ ↓	1、第二个小亮点表示停车时在上停针位 2、第二个小亮点表示停车时在下停针位
剪线开关	✂	1、长按键，第四个小亮点表示剪线打开 2、长按键，第四个小亮点表示剪线关闭
恢复出厂设置键	Reset	长按 3S 后恢复出厂设置

3 参数说明

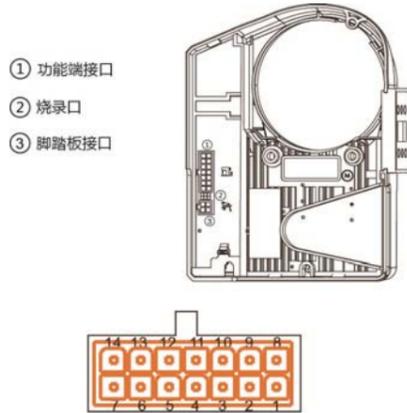
3.1 用户参数 (开机后 长按 P 键 3 秒进入)

参数项	中文说明	范围	初始值	内容值名称说明与备注
P01	最高转速 (rpm)	200-5000	3500	车缝时的最高转速设定
P02	加速曲线调整 (%)	10-100	80	控速器爬升斜率设定 斜率值愈大，速度愈陡；斜率值愈小，速度愈慢

		工作，请更换电机并通知厂方。
E15	电力模块不正常过流保护	关闭系统电源，再重新开启。若仍不能正常工作，请更换控制箱并通知厂方。
E17	机头保护开关没到正确位置	关闭系统电源，检查机头是否掀开，控制箱内滚珠开关是否移位或损坏。
E20	开机电机启动失败	关闭系统电源，检查电机编码器接口和电机电源接口是否松动或脱落，将其恢复正常后重启系统。若仍不能正常工作，请更换控制箱并通知厂方。

5: 端口示意图

5.1: 各个端口说明:



- ① 剪线电磁铁：1、8
- ② 衣车灯：4、11
- ③ 手动补针：7、14

参数项	中文说明	范围	初始值	内容值名称说明与备注
P03	针停定位选择	0-1	1	0: 上停针 1: 下停针
P07	慢速起缝速度 (rpm)	200-1500	800	慢速起缝时的速度设定
P08	慢速起缝针数 (针)	0-99	1	慢速起缝时的针数设定
P14	慢速启动	1	0-1	1: 慢速启动功能开启 0: 慢速启动功能关闭
P15	补针方式	0-2	2	0: 半针, 1: 一针, 2: 连续补半针;
P21	脚踏板前踏点电压	30-1000	520	
P22	脚踏板中踏点电压	30-1000	480	
P23	脚踏板半反踏点电压	30-1000	240	
P24	脚踏板反踏点电压	30-500	110	
P29	剪线后刹车力度	1-50	20	
P35	计件数模式选择	0	0-1	0: 手动计件数 1: 自动计件数
P38	剪线出力功能设定	0-1	1	ON: 有剪线动作 OFF: 无剪线动作
P41	车缝件数与针数查看项	0-9999	0	自动累计完成件数或针数。
P42	信息显示	N01-N07	N01	N01 电控版本号 N02 选针盒版本号 N03 转速 N04 脚踏板 AD N05 上定位角度 N06 下定位角度 N07 母线电压 AD

3.2 技术员参数内容表 (按 P 键+S 键开机进入)

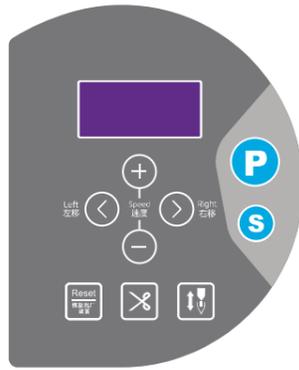
参数项	中文说明	范围	初始值	内容值名称说明与备注
P44	刹车力度	1-50	25	机器停车时的力度选择。
P46	剪线后，反转提针角度的功能选择	0-1	0	ON: 切完线后，自动作反转的功能。（角度由【P47. TR8】调整决定） OFF: 无作用
P47	剪线后，反转提针角度的调整	50-200	160	切完线后，由针上算起以反向运转作提针的角度调整。
P48	低速（定位速度）(rpm)	100-500	210	定位速度设定
P49	剪线速度 (rpm)	100-500	270	调整剪线周期时的电机速度
P54	剪线动作时间 (ms)	5-990	200	剪线时序所需的动作时间
P56	开电后自动找上定位	0-2	2	0: 始终不找上定位 1: 始终找上定位 2: 若电机已经处于上定位位不再找上定位（仅限于有磁钢电机）
P58	上定位调整	0-1799	1125	上定位调整，数值减少时会提前停针，数值增加时会延迟停针
P59	下定位调整	0-1799	225	下定位调整，数值减少时会提前停针，数值增加时会延迟停针
P60	测试速度 (r/s)	100-4000	2000	设置测试速度
P61	A 项测试	0-1	0	A 项测试选项，设定后将按【P60. TV】所设定之速度持续运行
P62	B 项测试	0-1	0	B 项测试选项，设定后将按【P60. TV】所设定之速度执行启动-车缝-停车-剪线

Safety Instruction

- Users are required to read the operation manual completely and carefully before installation or operation.
- All the instruction marked with sign must be observed or executed; otherwise, bodily injuries might occur.
- The product should be installed and pre-operated by well trained persons
- For perfect operation and safety, it is prohibited that using extension cable with multi-outlet for power connection
- When connecting power supply cords to power sources, it is necessary to make sure that the power voltage is lower than 250V AC and matches the rated voltage indicated on the motor's name plate.
 - Attention:** If the Control Box is AC 220V system, please don't connect the Control Box to AC 380V power outlet. Otherwise, the error will occur and motor will not work. If that happens, please turn off the power immediately and check the power voltage. Continue supply 380V power over 5 minutes might damage the fuse F2, burst the electrolytic capacitors and the power module U14 of the main board and even might endanger the person safety.
- Please don't operate in direct sun light, outdoors area and where the room temperature is over 45°C or below 5°C.
- Please avoid operating near the heater at dew area or at the humidity below 30% or above 95%.
- Please don't operate in area with heavy dust, corrosive substance or volatile gas.
- Avoid power cord being applied by heavy objects or excessive force, or over bend.
- The earth wire of power cord must be connected to the system ground of the production plant by proper size of conductions and terminals. This connection should be fixed permanently.
- All the moving portions must be prevented to be exposed by the parts provided.
- Turning on the machine in the first time, operate the sewing machine at low speed and check the correct rotation direction.
- Turn off the power before the following operation:
 - Connecting or disconnecting any connectors on the control box or motor.
 - Threading needle.
 - Raising the machine arm.
 - Repairing or doing any mechanical adjustment.
 - Machine is out of work.
- Repairing and high level maintenance work should only be done by electronic technicians with appropriate training.
- All the spare parts for repairing work must be provided or approved by the manufacturer.
- Don't use any objects to hit or ram the product.

Guarantee Time
 Warranty period of this product is 1 year dated from purchasing, or within 2 years from ex-factory date.
Warranty Detail
 Any trouble found within warranty period under normal operation, it will be repaired free of charge.
 However, maintenance cost will be charged in the following cases even if within warranty period:
 1. Inappropriate use, including: wrong connecting high voltage, wrong application, disassemble, repair, modification by incompetent personnel, or operation without the precaution, or operation out of its specification range, or inserting other objects or liquids into the product.
 2. Damage by fire, Earth quake, lightning, wind, flood, salt corrosive, moisture, abnormal power voltage and any other damage cause by the natural disaster or by the inappropriate environments.
 3. Dropping after transportation by customer himself or by customer's shipping agency.
 * Note: We make our best effort to test and manufacture the product for assuring the quality. However, it is possible that this all a failsafe device. (Such as residual current breaker).

2.1 Keys illustration diagram



2.2: Keys illustrations

Enter to parameter area function key		1. Under the normal mode press P key enter to user parameter setting mode 2. In the shut-off condition, press P to turn on the machine enter to the technician parameter mode.
Parameter check and save key		To check and save the parameter item contents: after select parameter item then press this key can check and modify operation, after modified the parameter value press this key to exit and save the value.
Up adjustment key		1. In the parameter selection area parameter item increment key 2. In the parameter contents area setting value increment key
Down adjustment key		1. In the parameter selection area parameter item decrement key 2. In the parameter contents area setting value decrement key
Left key		In parameter item and parameter contents, turn left moving
Right key		In parameter item and parameter contents, turn right moving
Up/down needle position		1. The second decimal point LED ON indicate on the up needle position when stop machines. 2. The second decimal point LED OFF indicate on the down needle position when stop machines.
Trimming switch		1. Long press this key, the fourth decimal point LED ON indicate trimming is open 2. Long press this key, the fourth decimal point LED OFF indicate trimming is off.
Restore factory setting		Long press 2 sec restore factory setting

3 Parameter definition

3.1 User parameter (turn on the machine long-press P key 3 sec to enter)

No.	Function parameter	Range	Default	Description
P01	Maximum Sewing Speed	200-5000	3500	Maximum sewing speed setting

No.	Function parameter	Range	Default	Description
P02	Speed Curve Adjustment (%)	10-100	80	The speed controller climbing slope setting. The large of slope value = the fast of the speed. The small of slope value = the slow of the speed.
P03	Needle UP / DOWN Selection	0-1	1	Same as panel shortcut function key 0: Needle Stops at Up Position 1: Needle Stops at Down Position
P07	Soft Start Speed (r/S)	200-1500	800	Soft Start Speed Adjustment
P08	Stitch Numbers for Soft Start (SLS)	0-99	1	Soft Start Stitches Setting (one unit = half stitch)
P14	Soft Start	1	0-1	1: Soft start function is turn on. 0: Soft start function is turn off.
P15	Stitch Compensation Mode	0-2	2	0: Fill half needle, 1: Fill a needle 2: Continuous half needle;
P21	The voltage of step prior to the pedal	30-1000	520	
P22	The voltage of half step prior to pedal	30-1000	480	
P23	The voltage of half heeling to pedal	30-1000	240	
P24	The voltage of reversing pedal	30-500	110	
P29	Brake pressure after trimming	1-50	20	
P35	Counting mode selection	0	0-1	0: Manual counting 1: Automatic Counting
P38	Trimmer Function Selection	0-1	1	ON: Trimmer Valid OFF: Trimmer Invalid
P41	Display the sewing finished quantity	0-9999	0	Counting the finished-sewing quantity
P42	Information Display	N01-N07	N01	N01 Electrically controlled version serial numbers N02 Selected needle cassette version N03 Speed N04 Pedals AD. N05 Positioning angle N06 Under the positioning angle N07 Bus voltage AD N12 Knee position sensor AD

3.2 Technician parameter contents list (Press P key + S key to turn on the machine access)

No.	Function parameter	Range	Default	Description
P44	Brake efforts	1-50	25	Adjustment of efforts while machine stop
P46	Inversion of the needle angle of choice after trimming	0-1	0	ON: motor automatic running after trimming(needle angle decided by the setting of 【P47.TR8】 OFF: inaction
P47	Adjustment of reverse angles after trimming	50-200	160	Reverse running is subject to the adjustment of needle angle after trimming
P48	Low (Positioning) Speed (rpm)	100-500	210	Setting Positioning Speed
P49	Trimming Speed	100-500	270	Adjustment of motor running speed while trimming proceeding

No.	Function parameter	Range	Default	Description
P54	Trimming Time (ms)	5-990	200	Setting time trimming sequence required
P56	Automatically find UP position	0-2	2	0: Never look for needle up position 1: Always look for needle up position 2: If in the needle up position, do not look for the position again
P58	Up Position Adjustment	0-1799	1125	Needle stops ahead of time with value decrease; Needle delayed stopping with value increase.
P59	Down Position Adjustment	0-1799	225	Needle stops ahead of time with value decrease; Needle delayed stopping with value increase.
P60	Testing Speed (rpm)	100-4000	2000	Testing speed setting.
P61	Testing A	0-1	0	After setting A, continuous running at the speed of 【P60.TV】.
P62	Testing B	0-1	0	Option of Testing B, after setting press 【P60.TV】 to set the speed execute the cycle of Start - Sewing - Stop - Trimming
P63	Testing C	0-1	0	Option of Testing C, after setting press 【060.TV】 to set the speed execute the cycle of Start - Sewing - Stop without positioning function
P64	Running Time of Testing B and C	1-250	20	Setting running time of testing B and C
P65	Stop Time of Testing B and C	1-250	20	Setting stop time of testing B and C
P66	Machine Protection Switch Testing	0-2	1	0: Disable, 1: Testing zero signal, 2: Testing positive signal
P72	UP needle position adjustment			
P73	DOWN needle position adjustment			
P80	Feeding angle of thread trimming	0-359	18	Feeding angle of thread trimming setting(Down position as 0°)
P81	Torque angle of thread trimming	0-359	140	Torque angle of thread trimming setting(Down position as 0°)
P82	Feeder back angle of thread trimming	0-359	172	Feeder back angle of thread trimming setting Down position as 0°)
P84	Starting torque angle of Thick material machine	0-359	9	
P85	Stopping torque angle of Thick material machine	0-359	57	
P92	Encoder start angle			Press cramping key to read the starting angle encoder. Don't change the factory settings. Freely change will lead to the control box, motor abnormal or damaged

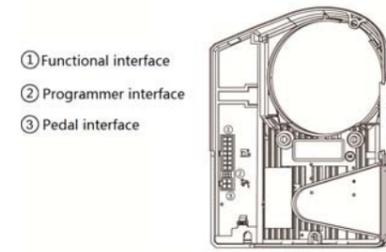
3 Error Code List

No.	Problem	STATUS / MEASUREMENT
E01	1) Power ON, the main voltage detection is too high 2) When the supply voltage is too high	Turn off the system power supply, and detect whether the supply voltage is correct. (Or exceed the rated voltage specified in use.) If correct, please replace the control box and inform the factory
E02	1) Power ON, the main voltage detection is too low 2) When the supply voltage is too low	Turn off the system power supply, and detect whether the supply voltage is correct. (Or exceed the rated voltage specified in use.) If correct, please replace the control box and inform the factory
E03	Operation panel and CPU transmission communication exception	Turn off the system power, check if the operation panel interface is loose If contact is good, please change the operation panel. If it is not operated, the control box is damaged, please change
E05	Abnormal contact of speed controller (pedal)	Off the system power supply, check if the connector is loose or fall off. Make the connector normal situation and restart the system. If it still can not work normally, please replace the speed controller and notify the manufacturer..
E07	a) Abnormal contact of motor plug b) Lock head or motor belt foreign body involved in c) The material is too thick, the motor torque is not enough. d) Output exception of module driven	Rotating the hand wheel of head motor and check if stuck. If it is stuck, there is no mechanical failure of motor head. If the rotation is normal, check if the motor encoder connector and motor power cable joints are loose or not. If any connector is loose, fix it. If connection is good, check if the supply voltage of the power is too high. If it is too high, adjust it. If it is normal, please replace the control box and notify the manufacturer.
E08	Continuous manual pour over 15 seconds	Restart the control box.
E10	Electromagnetic overcurrent protection	Power off the system. Check the solenoid (solenoid valve) connection line or if the solenoid (solenoid valve) is damaged.
E09 E11	Abnormal locating signal	Power off the system. Check if the motor encoder interface is loose or fall off. Fix it and restart system. If it still can not work normally, please replace the motor and notify the manufacturer.
E14	Abnormal Encoder signal	Power off the system. Check if the encoder interface is loose or fall off. Fix it and restart system. If it still can not work normally, please replace the motor and notify the manufacturer.
E15	Abnormal overcurrent protection of power module	Restart system. If it still can not work normally, please replace the motor and notify the manufacturer.
E17	Error position of head protection switch	Power off the system. Check if the machine head is opened, and the head protection switch is removed or damaged.

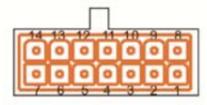
E20	Failure start of power motor	Power off the system. Check if the motor encoder interface and motor power connector is loose or fall off. Fix it and restart the system. If it still can not work normally, replace the control box and notify the manufacturer.
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5: Connector diagram

5.1: Each port illustration



- ① Functional interface
- ② Programmer interface
- ③ Pedal interface



- ① Trimmer : 1, 8
- ② LED/SV : 4, 11
- ③ Stitch Compensation : 7, 14