

## ⚠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) 在安装完成第一次通电后，先关闭切线功能以低速操作缝纫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. 翻抬缝纫机机头时。
  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) 请不要以不适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

本产品在正常情况使用且无人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确实做好，并建议用户安装故障安全防护装置（如漏电保护器）

## 1. 按键显示及操作说明











### 1.1 按键说明

| 名称       | 按键  | 注明   |
|----------|---|--|
| 起始回缝键    |    | 执行起始回缝 B 段或执行起始回缝 (A、B 段) 1 次<br>执行起始回缝 (A、B 段) 2 次  |
| 终止回缝键    |    | 执行终止回缝 C 段或执行终止回缝 (C、D 段) 1 次<br>执行终止回缝 (C、D 段) 2 次  |
| 自由缝键     |    | 一旦踏板往前踏下就正常车缝，当踏板回到中立时，立即停止车缝。当踏板往后踏时，就自动完成切线 / 扫线等动作。   |
| 连续回缝键    |    | 连续回缝功能设定。  |
| 一段定针缝键   |    | 执行 E 段定针缝  |
| 多段定针缝键   |    | 连续按键，将循环切换四段缝、七段缝、八段缝、自定义多段缝模式，显示屏显示相应图标。  |
| 参数查看保存键  |    | 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。   |
| 提针 / 补针键 |  | 车缝中途停止时，按一下则作提针或往前补半针。   |
| 自动触发键    |  | (只在定针缝中有效) 当触发功能打开时，显示屏显示图标。<br>触发脚踏板，自动走完设定的缝纫过程。   |
| 切线开关     |  | 设定使用或取消切线功能。   |
| 功能参数编辑键  |  | 进入或退出功能参数的编辑。  |
| 参数递增键    |  | 增大参数   |
| 参数递减键    |  | 减小参数   |
| 停针位置选择键  |  | 1:  图标亮表示停车时在上停针位<br>2:  图标亮表示停车时在下停针位   |
| 自动抬压脚设定键 |  | 1、  图标亮时，切完线后压脚自动抬起。<br>2、  图标亮时，车缝中马达停止时压脚自动抬起。<br>3、2 个图标都亮时，切完线后和车缝中马达停止时压脚都自动抬起。<br>4、当 2 图标都不亮时，无自动抬压脚功能。 |
| 慢速起缝键    |  | 设定使用或取消慢速起缝功能。   |
| 夹线开关     |  | 设定使用或取消夹线功能。   |
| 速度增减键    |  | 加速键：提高运行速度   |



























|   |            |
|---|------------|
|  | 减速键：降低运行速度 |
|---|------------|

## 1.2 液晶显示字体与实际字体对照表

数字字体部分：




|      |   |   |   |   |   |   |  |   |   |   |
|------|---|---|---|---|---|---|--|---|---|---|
| 实际数值 | 0   | 1   | 2   | 3   | 4   | 5   | 6  | 7   | 8   | 9   |
| 液晶显示 |  |  |  |  |  |  |  |  |  |  |

英文字体部分

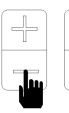
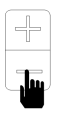
|      |   |   |   |   |   |   |  |   |   |   |
|------|---|---|---|---|---|---|--|---|---|---|
| 英文字母 | A   | B   | C   | D   | E   | F   | G  | H   | I   | J   |
| 液晶显示 |  |  |  |  |  |  |  |  |  |  |
| 英文字母 | K   | L   | M   | N   | O   | P   | Q  | R   | S   | T   |
| 液晶显示 |  |  |  |  |  |  |  |  |  |  |
| 英文字母 | U   | V   | W   | X   | Y   | Z   |  |   |   |   |
| 液晶显示 |  |  |  |  |  |  |  |   |   |   |

## 1.3 手动调整定位







|   |  |
|---|--|
| <p>按住  键开机，进入P72项上针位校正参数</p> | <p>进入参数内容，将手轮调整至上针位（参数会随着手轮位置而变化），按  键可保存参数（保存后，下针位会自动进行相应调整），若不保存则按  键退出参数。</p> |
|---|--|

## 1.4 恢复出厂设置




|                     |                      |
|---------------------|----------------------|
| <p>按住左边两个【-】键开机</p> | <p>双击【S】键确认，关机重启</p> |
|---------------------|----------------------|

## 1.5 电机角度校正

按住  键，同时开启电源，屏幕显示【P-92】，按  键进入参数项，再按 ，然后电机会自动运转并计算电机角度，等电机停下来后，参数值将自动变化，按  键保存即可。

## 1.6 计数器显示

在一般缝纫模式下，长按 ，显示屏将显示计数器。每一次缝纫周期结束，记为完成一件加工件。

## 2. 参数表

| 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)     | 100-3500 | 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<br>斜率值愈大, 速度愈陡; 斜率值愈小, 速度愈慢   |
| P03 | 针停定位选择         | UP/DN    | DN   | UP: 上停针; DN: 下停针  |
| P04 | 起始回缝速度 (rpm)   | 200-3200 | 2000 | 前段回缝 (起始回缝) 时的速度设定  |
| P05 | 终止回缝速度 (rpm)   | 200-3200 | 2000 | 后段回缝 (终止回缝) 时的速度设定  |
| P06 | 连续回缝速度 (rpm)   | 200-3200 | 2000 | 连续回缝时的速度设定  |
| P07 | 慢速起缝速度 (rpm)   | 200-1500 | 400  | 慢速起缝时的速度设定  |
| P08 | 慢速起缝针数         | 0-99     | 2    | 慢速起缝时的针数设定  |
| P09 | 自动定针缝速度 (rpm)  | 200-4000 | 3500 | 触发自动功能键按下时的速度设定   |
| P10 | 定针缝后自动执行终止回缝功能 | ON/OFF   | ON   | ON: 在执行完最后一段定针缝后, 将自动执行终止回缝动作。即在任何缝制模式下, 终止回缝前不能作补针功能。<br>OFF: 在执行完最后一段定针缝后, 将无法自动执行终止回缝功能, 必须重新再作前或全后踏动作时始可。 |
| P11 | 手按回缝时功能模式选择    | J/B      | J    | J: JUKI 方式 (在车缝中和中途停止时均执行倒缝)<br>B: BROTHER 方式 (即在车缝中执行倒缝动作, 在停止时执行补针动作)                                       |
| P12 | 起始回缝运动模式选择     | 0-3      | 1    | 0: 受踏板控制, 可任意停止与启动;<br>1: 轻触踏板, 自动执行回缝动作;<br>2: 停顿, 装饰缝模式   |
| P13 | 起始回缝结束模式选择     | CON/STP  | CON  | CON: 起始回缝段完成后, 自动连续下一段功能<br>STP: 起始回缝段针数完成后自动停止   |
| P14 | 慢速起缝功能设定       | ON/OFF   | ON   |   |
| P15 | 补针方式           | 0-4      | 2    | 0: 半针; 1: 一针; 2: 连续补半针; 3: 连续补一针;<br>4: 连续补针, 快速停车  |
| P16 | 手动倒缝限速         | 0-3200   | 3000 | 数值为 0 时功能关闭   |
| P17 | 自动计件选择         | 0-1      | 0    | 0: P41 项计数器递增自动计数<br>1: P41 项计数器不自动计数   |
| P18 | 起始回缝补偿 1       | 0-200    | 101  | 起始回缝 A 段针迹补偿, 0~200 动作逐步滞后; 数值越大, A 短最后一针越长, B 段第一针越短   |
| P19 | 起始回缝补偿 2       | 0-200    | 155  | 起始回缝 B 段针迹补偿, 0~200 动作逐步滞后; 数值越大, B 段最后一针越长   |
| P20 | 终止回缝运动模式选择     | 0-3      | 1    | 0: 受踏板控制, 可任意停止与启动;<br>1: 轻触踏板, 自动执行回缝动作;<br>2: 停顿, 装饰缝模式   |
| P21 | 踏板前踩运行位置       | 30-1000  | 520  |   |
| P22 | 踏板回中位置         | 30-1000  | 418  |   |
| P23 | 踏板抬压脚位置        | 30-1000  | 270  |   |
| P24 | 踏板剪线位置         | 30-500   | 130  |   |
| P25 | 终止回缝补偿 3       | 0-200    | 101  | 终止回缝 C 段针迹补偿, 0~200 动作逐步滞后; 数值越大, C 段第一针越短  |
| P26 | 终止回缝补偿 4       | 0-200    | 151  | 终止回缝 D 段针迹补偿, 0~200 动作逐步滞后; 数值越大, C 段最后一针越长, D 段第一针越短   |
| P27 | 辅助功能设置         |          |      | N06 计数器切线次数<br>N12 开机显示计数器界面选择 (0: 关闭 1: 开启)<br>N13 计数器模式选择 (0: 加数缝制计数器 1: 减数缝制计数器)                           |
| P28 | 连续回缝运动模式选择     | 0-3      | 1    | 0: 受踏板控制, 可任意停止与启动;<br>1: 轻触踏板, 自动执行回缝动作;<br>2: 停顿, 装饰缝模式   |
| P29 | 切线停车力度         | 1-45     | 20   |   |
| P30 | 过厚力度           | 0-100    | 0    | 数值越大力度越大, 调整过大可能会引起电机异常。  |
| P31 | 剪线力度           | 0-100    | 30   | 数值越大力度越大, 调整过大可能会引起电机异常。  |

|     |                       |         |      |  |
|-----|-----------------------|---------|------|--|
| P32 | 连续回缝补偿 5              | 0-200   | 95   | 起始回缝 A (C) 段针迹补偿, 0~200 动作逐步滞后; 数值越大, A (C) 段最后一针越长; B (D) 段第一针越短  |
| P33 | 连续回缝补偿 6              | 0-200   | 155  | 起始回缝 B (D) 段针迹补偿, 0~200 动作逐步滞后; 数值越大, B (D) 段最后一针越长, C 段第一针越短  |
| P34 | 定针缝运动模式选择             | A/M     | A    | A: 轻触脚踏板, 即自动执行定针缝动作<br>M: 受脚踏板控制, 可任意停止与启动  |
| P36 | 松线功能设定                | 0-11    | 5    | 0: 关闭<br>1~11: 松线力度逐步变大  |
| P37 | 自动拨线/夹线功能设定           | 0-11    | 8    | 0: 关闭<br>1: 拨线功能<br>2~11: 夹线功能, 数值越大动作力度越大   |
| P38 | 自动切线功能设定              | ON/OFF  | ON   | ON: 打开<br>OFF: 关闭  |
| P39 | 中途停车自动抬压脚设定           | UP/DN   | DN   | UP: 开启<br>DN: 关闭   |
| P40 | 切线自动抬压脚设定             | UP/DN   | DN   | UP: 开启<br>DN: 关闭   |
| P41 | 计数器显示                 | 0-9999  |      | 车缝完成件数显示; 长按减号键可计数清零;  |
| P42 | 信息显示                  |         |      | N01 电控版本号<br>N02 选针盒版本号<br>N03 转速<br>N04 脚踏板 AD 值<br>N05 机械角度 (上定位)<br>N06 机械角度 (下定位)<br>N07 母线电压 AD 值<br>N12 膝靠位置感应器 AD 值 |
| P43 | 马达转动方向设定              | CCW/CW  | CCW  | CW: 顺时针方向 CCW: 逆时针方向   |
| P44 | 正常停车力度                | 1-45    | 16   |  |
| P45 | 回缝出力的周期信号 (%)         | 1-50    | 30   | 回缝动作时, 以周期性省电输出, 避免电磁铁发烫   |
| P46 | 切线后, 反转提针功能选择         | ON/OFF  | OFF  | ON: 开启<br>OFF: 关闭  |
| P47 | 切线后, 反转提针角度的调整        | 50-200  | 160  | 切完线后, 由上针位算起, 以反向运转作提针的角度调整。   |
| P48 | 最低速度 (定位速度) (rpm)     | 100-500 | 210  | 最低速度限制调整   |
| P49 | 切线速度 (rpm)            | 100-500 | 240  | 调整切线周期时的电机速度   |
| P50 | 抬压脚全额输出的工作时间 (ms)     | 10-990  | 150  |  |
| P51 | 压脚出力的周期信号 (%)         | 1-50    | 20   | 压脚动作时, 以周期性省电输出, 避免电磁铁发烫   |
| P52 | 延迟马达启动, 保护压脚下放时间 (ms) | 10-990  | 120  | 踩下时延迟启动时间, 以配合自动抬压脚下放的确认   |
| P53 | 半后踏抬压脚功能取消            | ON/OFF  | OFF  | ON: 半后踏时, 无抬压脚<br>OFF: 半后踏时, 有抬压脚  |
| P54 | 切线动作时间 (ms)           | 10-990  | 200  | 切线时序所需的动作时间  |
| P55 | 拨 / 扫线动作时间/           | 10-990  | 30   | 拨 / 扫时序的动作时间   |
| P56 | 开电后自动找上定位             | 0-2     | 1    | 0: 始终不找上定位<br>1: 始终找上定位<br>2: 若电机已经处于上定位时不再找上定位  |
| P57 | 抬压脚保护时间 (s)           | 1-120   | 10   | 抬压脚保持时间后强制关闭   |
| P58 | 上定位调整                 | 0-1439  | 1120 | 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              | 0-1439   | 360  | 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 (rpm)         | 100-3500 | 3500 | 设置测试速度  |
| P61  | A 项测试              | ON/OFF   | OFF  | 持续运行测试模式  |
| P62  | B 项测试              | ON/OFF   | OFF  | 全功能启停测试模式   |
| P63  | C 项测试              | ON/OFF   | OFF  | 无定位、无功能启停测试模式   |
| P64  | 测试时测试运行时间          | 1-250    | 30   |   |
| P65  | 测试时测试停止时间          | 1-250    | 10   |   |
| P66  | 机头保护开关             | 0-2      | 1    | 0: 不检测 1: 检测零信号 2: 检测正信号  |
| P67  | 剪线保护开关             | ON/OFF   | OFF  | OFF: 不检测 ON: 检测   |
| P70  | 出厂机型选择             |          | 21   |   |
| P71  | 压脚释放缓冲占空比(%)       | 0-50     | 2    | 压脚下放时的力度调整  |
| P72  | 上定位快捷调整            | 0-1439   |      | 调整上停针位, 显示的数值会随手轮位置变化而变化, 按“S”键可保存当前位置(数值)为上停针位                           |
| P73  | 下定位快捷调整            | 0-1439   |      | 调整下停针位, 显示的数值会随手轮位置变化而变化, 按“S”键可保存当前位置(数值)为下停针位                           |
| P76  | 倒缝全额出力时间(ms)       | 10-990   | 250  | 倒缝开始动作时, 全额出力的动作时间  |
| P78  | 夹线器起夹角度            | 5-359    | 100  |   |
| P79  | 夹线器结束角度            | 5-359    | 270  |   |
| P80  | 剪线进刀角度             | 5-359    | 18   | 剪线进刀角度设置(下定位为 0° 计算)  |
| P81  | 剪线开始加力角度           | 5-359    | 140  | 剪线加力角度设置(下定位为 0° 计算, 需大于 P80 项参数值)  |
| P82  | 剪线退刀角度             | 5-359    | 172  | 剪线退刀角度设置(下定位为 0° 计算, 需大于 P81 项参数值)  |
| P84  | 过厚开始加力角度           | 0-359    | 9    |   |
| P85  | 过厚结束加力角度           | 0-359    | 57   |   |
| P92  | 电机电角度校正            |          | 160  | 查看说明书 1.5 章节<br>读取编码器起始角度, 出厂已设置, 请勿随意更改(参数值不可手动更改, 随意更改会导致控制箱、电机出现异常或损坏) |
| P93  | 半反踏功能延迟时间          | 10-900   | 300  |   |
| P99  | 终止回缝补偿 C1          | 0-250    | 120  | 剪线后防脱线头模式下, 终止回缝结束为 C 段时回缝一针的补偿   |
| P100 | 终止回缝补偿 D1          | 0-250    | 175  | 剪线后防脱线头模式下, 终止回缝结束为 D 段时回缝一针的补偿   |
| P101 | 松线开始角度             | 1-359    | 30   | 松线开始角度(下定位为 0° 计算)  |
| P102 | 松线结束角度             | 1-359    | 180  | 松线结束角度(下定位为 0° 计算, 需大于 P101 项参数值)   |
| P117 | 压脚释放缓冲延迟时间<br>(ms) | 0-990    | 12   |   |
| P119 | 电磁铁过流保护选择          | 0-1      | 1    | 0: 不检测 1: 检测  |
| P120 | 油位报警开关检测           | 0-1      | 1    | 0: 不检测 1: 检测  |
| P121 | 剪线模式选择             | 0-3      | 2    | 0: 普通模式<br>1: 短线头模式<br>2: 剪线后防脱线头模式<br>3: 短线头和防脱线头模式                      |

|      |                      |        |      |  |
|------|----------------------|--------|------|--|
| P122 | 剪线后防脱线头模式，剪线前倒缝动作的时机 | 0-1439 | 1000 | 参数值越大剪线前一针的针距越大  |
| P123 | 剪短线头模式，剪线过程中倒缝动作的时机  | 0-100  | 0    |  |
| P124 | 膝靠抬压脚释放缓冲占空比 1       | 0-50   | 1    | 当膝靠位置感应器检测到 AD 值处于 P125 项所设的 AD 值 1 与 P126 项所设的 AD 值 2 之间时输出阻力。数值越大阻力越大。 |
| P125 | 膝靠感应器 AD 值 1         | 0-1023 | 1000 | 影响压脚抬升效果   |
| P126 | 膝靠感应器 AD 值 2         | 0-1023 | 1000 | 影响压脚释放效果   |
| P127 | 膝靠抬压脚抬升助力占空比 2       | 0-50   | 20   | 当膝靠位置感应器检测到 AD 值大于 P126 项所设 AD 值 2 时输出助力。参数值为 0 时关闭助力。数值越大助力越大。          |
| P139 | 起缝时松线功能开关            | 0-1    | 0    | 0: 关闭<br>1: 开启   |
| P141 | 起缝时松线开始角度            | 1-359  | 1    | 起缝时松线开始角度（相对于上针位角度）  |
| P142 | 起缝时松线结束角度            | 1-359  | 35   | 起缝时松线结束角度（相对于上针位角度，需大于 P141 项参数值）  |
| P146 | 防鸟巢模式拨线延迟时间          | 0-990  | 150  |  |
| P147 | 防鸟巢模式拨线持续时间          | 0-990  | 120  |  |
| P148 | 防鸟巢模式拨线返程时间          | 0-990  | 30   |  |
| P151 | 钩线功能开关               | 0-1    | 0    | 0: 关闭；1: 开启  |
| P152 | 钩线延迟时间               | 0-990  | 100  |  |
| P153 | 钩线持续时间               | 0-990  | 30   |  |
| P154 | 钩线返程时间               | 0-990  | 30   |  |
| P155 | 钩线出力的周期信号（%）         | 0-100  | 90   |  |
| P156 | 起缝时压脚出力的周期信号（%）      | 0-100  | 0    | 参数值为 0 时功能关闭   |
| P157 | 起缝时压脚开始出力角度          | 1-359  | 1    | 起缝时压脚开始出力角度（相对于上针位角度）  |
| P158 | 起缝时压脚结束出力角度          | 1-359  | 300  | 起缝时压脚结束出力角度（相对于上针位角度，需大于 P157 项参数值）                                      |

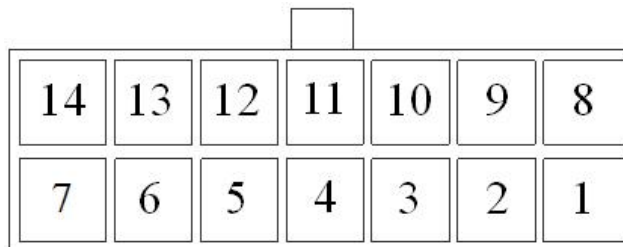
### 3.错误代码表

| 错误码 | 问题描述     | 解决措施  |
|-----|----------|---|
| E01 | 超电压      | 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）。<br>若正确，请更换控制箱并通知售后服务。 |
| E02 | 低电压      | 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）。<br>若正确，请更换控制箱并通知售后服务。 |
| E03 | CPU 通信异常 | 关闭系统电源，检查控制面板的连线是否松动或脱落，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售后服务。 |
| 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售后服务。   |

|            |                 |  |
|------------|-----------------|--|
| E07        | 电机堵转            | 转动机头手轮观察是否卡住。如卡住则先排除机械故障。<br>如转动正常，检查电机编码器接头和电机电源线接头是否松动。<br>如有松动请修正。<br>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。<br>若仍不能正常工作，请更换控制箱并通知售后服务。 |
| E08        | 手动倒缝动作时间超过 15 秒 | 倒缝电磁铁吸合时间过长，重启产品即可。<br>若重启产品后还是报 E-08，请检查手动倒缝开关是否损坏。   |
| E10        | 电磁铁过流保护         | 关闭系统电源，检查电磁铁（电磁阀）是否损坏或短路。  |
| E09<br>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，请更换电机并通知售后服务。   |
| 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。若仍不能正常工作，请更换电机并通知售后服务。   |
| 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售后服务。   |
| 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        | 电机启动失败（电角度错误）   | 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售后服务。   |
| oil        | 油量过低            | 关闭电源，检查缝纫机油量是否过低，将油量加满后重启系统。<br>若仍不能正常工作，请更换油位感应器并通知售后服务。  |

#### 4.端口示意图

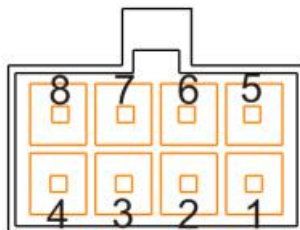
##### 4.1: 14P 功能端口说明



1. 剪线电磁铁：1、8（+32V）
2. 夹线（扫线）电磁铁：2、9（+32V）
3. 松线电磁铁：3、10（+32V）
4. LED灯：4（DGND）、11（+5V）
5. 倒缝按键：5（信号）
6. 倒缝电磁铁：6、13（+32V）
7. 补针按键：7（信号）
8. 风扇：12（DGND）、14（+5V）

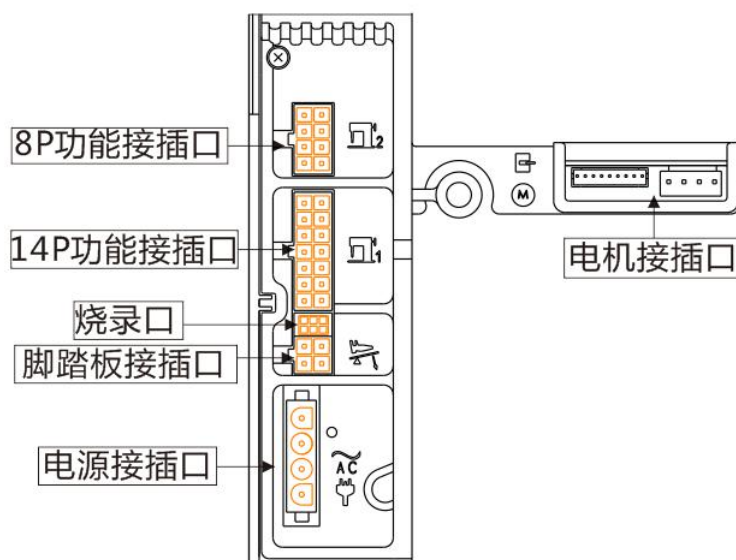


## 8P 功能端口说明



1. 油位感应: 5 (+5V)、6 (DGND)、2 (信号)
2. 压脚位置感应: 1 (+5V)、7 (DGND)、3 (信号)
3. 压脚电磁铁: 4、8 (+32V)

## 4.2 端口说明



### ⚠ Safety Instruction

1. Users are required to read the operation manual completely and carefully before installation or operation.
2. All the instruction marked with sign ⚠ must be observed or executed; otherwise, bodily injuries might occur.
3. The product should be installed and pre-operated by well trained persons.
4. For perfect operation and safety, it is prohibited that using extension cable with multi-outlet for power connection.
5. When connecting power supply cords to power sources, it is necessary to make sure that the power voltage is lower than 250 VAC 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.
6. Don't operate in direct sun light, outdoors area and where the room temperature is over 45°C or below 5°C.

7. Please avoid operating near the heater at dew area or at the humidity below 30% or above 95%.
8. Don't operate in area with heavy dust, corrosive substance or volatile gas.
9. Avoid power cord being applied by heavy objects or excessive force, or over bend.
10. 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.
11. All the moving portions must be prevented to be exposed by the parts provided.
12. Turing on the machine in the first time, operate the sewing machine at low speed and check the correct rotation direction.
13. Turn off the power before the following operation:
  - a) Connecting or disconnecting any connectors on the control box or motor.
  - b) Threading needle.
  - c) Raising the machine head.
  - d) Repairing or doing any mechanical adjustment.
  - e) Machines idling.
14. Repairs and high level maintenance work should only be carried out by electronic technicians with appropriate training.
14. All the spare parts for repair must be provided or approved by the manufacturer.
15. Don't use any objects or force 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, lighting, 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 purchasing or damage in 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 product can be damaged due to external magnetic interference and electronic static or noise or unstable power source more than expected; therefore the grounding system of operate area must guarantee the good earth and it's also recommended to install a failsafe device. ( Such as residual current breaker)

## 1 Button Displays and operating instructions











### 1.1.Key Description

| Name                       | key   | Indicate  |
|----------------------------|---|---|
| Start Back-Tacking Sewing  |  | Execution starting back seam B segment or execution starting back seam (A, B segment) 1 Execution starting back seam (A, B segment) 2 times.  |
| End Back-Tacking Sewing    |  | Execution terminates back seam C segment or execution terminates back seam (C, D segment) 1 Execution terminates back seam (C, D segment) 2 time.   |
| Free Sewing                |  | As the treadle is toed down, machine will start sewing. Once the treadle returns to neutral, machine will stop immediately. As the treadle is heeled back, machine will automatically start trimming cycle. |
| Consecutive Reverse Sewing |  | Set consecutive reverse sewing function.  |
| Constant Stitch Sewing     |  | Execute section E constant stitch sewing.   |



























|  |   |  |
|--|---|--|
| Multi-section Sewing                   |    | Continuous press the key,the function will in four section sewing,seven section sewing,eight section sewing and user-defined multi-section sewing between the switch.  |
| Setting Parameter Check And Save       |    | After setting the function code,press this key to check the preset parameter and then can edit the parameter accordingly;When the parameter is fixed,press key to save the setting and quit.   |
| Lift Or Fill Up Needle                 |    | When sewing stop,press this key to actuate lift or fill up needle function.  |
| Auto Function                          |    | Automatic function for constant stitch sewing.   |
| Thread trimming                        |    | Set used or cancelled thread trimming function.  |
| Function parameter Edit                |    | Press this key to enter or exit function parameter edit mode.  |
| Parameter Increase                     |    | Increase the parameter.  |
| Parameter Decrease                     |    | Decrease the parameter.  |
| Needle Stop Position Selection         |   | <ol style="list-style-type: none"> <li>The needle stop position is up position when  icon is lighting.</li> <li>The needle stop position is down position when  icon is lighting.</li> </ol>   |
| Automatic Presser Foot Lifting Setting |  | <ol style="list-style-type: none"> <li>Automatic presser foot lifting after trimming function when  icon is lighting.</li> <li>Automatic presser foot lifting after pause function when  icon is lighting.</li> <li>Automatic presser foot lifting after pause function or trimming function when  icon and  icon are lighting.</li> <li>Presser Foot is inactive when  icon and  icon are not lighting.</li> </ol> |
| Slow Launch Setting                    |  | Set used or cancelled slow launch function.  |
| Clamp Function Setting                 |  | Set used or cancelled clamp function.  |
| Speed Increase/Decrease                |  | Increase the sewing speed.   |
|  |  | Decrease the sewing speed.   |

## 1. 2.Comparison Table of LCD Display Fonts and Actual Fonts

Arabic Numerals:

|         |   |   |   |   |   |   |   |  |   |   |
|---------|---|---|---|---|---|---|---|--|---|---|
| Actual  | 0   | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   | 9   |
| Display |  |  |  |  |  |  |  |  |  |  |

English Alphabet:

|         |   |   |   |   |   |   |   |   |  |   |
|---------|---|---|---|---|---|---|---|---|--|---|
| Actual  | A   | B   | C   | D   | E   | F   | G   | H   | I  | J   |
| Display |  |  |  |  |  |  |  |  |  |  |
| Actual  | K   | L   | M   | N   | O   | P   | Q   | R   | S  | T   |
| Display |  |  |  |  |  |  |  |  |  |  |
| Actual  | U   | V   | W   | X   | Y   | Z   |   |   |  |   |
| Display |  |  |  |  |  |  |   |   |  |   |

## 1.3Manually adjust the positioning

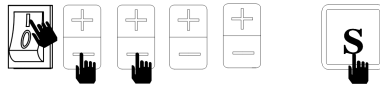


Press and hold the **[S]** key to boot into the needle position P72 term correction parameters



Enter the parameter content, the hand wheel adjustment supreme needle position (parameter will change with the hand wheel position), the **[S]** key to save the parameters (after saving, under the needle position will be automatically adjusted accordingly), the key **[P]** to exit without saving the parameters.



#### 1.4 Restore factory settings



Hold down the left two **[-]** key to boot

Double-click the **[S]** key to confirm it, shutdown restart

#### 1.5 Correct the electrical angle of motor

Press the  key, in the same time turn on the power, screen display **【P-92】**, press key **S** into the parameter, press the  key, then the motor will automatic running to calculate the electrical angle of motor. After the motor stops, the parameter will automatic change. Press key **S** to save.

#### 1.6 Counter display

Under sewing mode, long press , the display will show the counter.

### 2 User Parameter

| No. | Items  | Range    | Default | Description  |
|-----|--|----------|---------|--|
| P01 | Maximum Sewing Speed (rpm)                   | 100-3500 | 3500    | Maximum speed of machine sewing  |
| P02 | Set accelerated curve (%)                    | 10-100   | 80      | Set the acceleration slope   |
| P03 | Needle UP/ DOWN                              | UP/DN    | DN      | UP: Needle Stops at Up Position<br>DN: Needle Stops at Down Position   |
| P04 | Start Back-Tacking Speed (rpm)               | 200-3200 | 2000    | Set Start Back-Tacking Speed   |
| P05 | End Back-Tacking Speed (rpm)                 | 200-3200 | 2000    | Set End Back-Tacking Speed   |
| P06 | Bar-Tacking Speed (rpm)                      | 200-3200 | 2000    | Set Repeat Bar-Tacking Speed   |
| P07 | Soft Start Speed (rpm)                       | 200-1500 | 400     | Set Soft Start Speed   |
| P08 | Stitch Numbers for Soft Start                | 0-99     | 2       | Soft Start Stitches Setting  |
| P09 | Automatic Constant-Stitch Sewing Speed (rpm) | 200-4000 | 3500    | Speed adjustment for automatic constant-stitch sewing  |
| P10 | Automatic End Back-Tacking Sewing            | ON/OFF   | ON      | ON: After last seam of constant stitch sewing, it will automatic execute the End Back-Tacking sewing function. When turn on, the Stitch-Correction is invalid.<br>OFF: Automatic End Back-Tacking will not execute after last seam, but can be done by pedal manually. |
| P11 | Back-Tacking Mode Selection                  | J/B      | J       | J: JUKI Mode (Press TB switch will activate reverse solenoid when either machine is stopped or running).<br>B: BROTHER Mode (Press TB switch will activate reverse solenoid only when machine is running).   |
| P12 | Start Back-Tacking running mode selection    | 0-3      | 1       | 0: Could be arbitrarily stop and start<br>1: Automatically perform actions   |

| No. | Items   | Range   | Default | Description   |
|-----|---|---------|---------|---|
|     |   |         |         | 2:Pause mode  |
| P13 | Ending mode of Start Back-Tacking   | CON/STP | CON     | CON: Start Back-Tacking is completed automatically continued for next action.<br>STP: After the number of stitches is completed,stop automatically. |
| P14 | Slow start function selection   | ON/OFF  | ON      |   |
| P15 | Mending stitch mode   | 0-4     | 2       | 0:half stitch;<br>1:one stitch;<br>2:continuous half stitch;<br>3:continuous one stitch;<br>4:continuous one stitch,quick stop.                     |
| P16 | Back-Tacking speed limit  | 0-3200  | 3000    | When the parameter is 0,the speed limit function is OFF.  |
| P18 | Start Back-Tacking compensation 1   | 0-200   | 131     | Compensation for A part of Start Back-Tacking.  |
| P19 | Start Back-Tacking compensation 2   | 0-200   | 165     | Compensation for B part of Start Back-Tacking.  |
| P20 | End Back-Tacking running mode selection   | 1-3     | 1       | 1:Automatically perform actions<br>2:Pause mode   |
| P21 | The position of the pedal for running   | 30-1000 | 520     |   |
| P22 | The position of the pedal for the stop  | 30-1000 | 418     |   |
| P23 | The position of the pedal for lifting presser foot                              | 30-1000 | 270     |   |
| P24 | The position of the pedal for thread trimming                                   | 30-500  | 130     |   |
| P25 | End Back-Tacking compensation 3   | 0-200   | 101     | Compensation for C part of End Back-Tacking.  |
| P26 | End Back-Tacking compensation 4   | 0-200   | 151     | Compensation for D part of End Back-Tacking.  |
| P28 | Bar-Tacking running mode selection  | 0-3     | 1       | 0:Could be arbitrarily stop and start<br>1:Automatically perform actions<br>2:Pause mode  |
| P29 | The rate of thread trimming stop  | 1-45    | 20      |   |
| P30 | The strength of the motor torque when sewing                                    | 0-100   | 0       |   |
| P31 | The strength of the motor torque when thread trimming                           | 0-100   | 30      |   |
| P32 | Bar-Tacking compensation 5  | 0-200   | 95      | Compensation for A,C part of Bar-Tacking.   |
| P33 | Bar-Tacking compensation 6  | 0-200   | 155     | Compensation for B,D part of Bar-Tacking.   |
| P34 | Constant-Stitch Sewing running mode selection                                   | A/M     | A       | A: Automatically perform actions<br>M: Could be arbitrarily stop and start  |
| P36 | Thread slacking function selection  | 0-11    | 5       | 0: OFF<br>1-11:The strength of thread slacking  |
| P37 | Automatic thread wiping function / Automatic thread clamping function selection | 0-11    | 8       | 0 : OFF<br>1: Automatic thread wiping Function<br>2-11: Automatic thread clamping Function and the strength of automatic thread clamping.           |
| P38 | Automatic thread trimming function selection                                    | ON/OFF  | ON      |   |
| P39 | Automatic presser foot lifting when pause function selection                    | UP/DN   | DN      | UP: ON<br>DN: OFF   |
| P40 | Automatic presser foot lifting after trimming function selection                | UP/DN   | DN      | UP: ON<br>DN: OFF   |
| P41 | Counter display   | 0-9999  |         | Display the quantity of finished sewing piece.  |

| No. | Items  | Range    | Default | Description   |
|-----|--|----------|---------|---|
| P42 | Information Display  |          |         | N01 The control system version number<br>N02 The panel version number<br>N03 Speed<br>N04 The pedal AD<br>N05 The mechanical angle(up position)<br>N06 The mechanical angle(down position)<br>N07 Busbar voltage AD<br>N12 Kneeling device position sensor AD |
| P43 | Direction of Motor Rotation                                | CCW/CW   | CCW     | CW:Clockwise<br>CCW:Counter Clockwise   |
| P44 | The rate of normal stop                                    | 1-45     | 16      |   |
| P45 | Back-tacking operation duty cycle (%)                      | 1-50     | 30      | Back-tacking operate in duty cycle to save electricity and protect the electromagnet from over-heat.  |
| P46 | Motor stop with a reverse angle after trimming function    | ON/OFF   | OFF     |   |
| P47 | Adjust the reverse angle when motor stop after trimming    | 50-200   | 160     |   |
| P48 | The minimum speed Limit (rpm)                              | 100-500  | 210     | Adjust the minimum speed  |
| P49 | Thread trimming speed (rpm)                                | 100-500  | 240     | Adjust thread trimming speed  |
| P50 | Toot lifter operation time to full output (ms)             | 10-990   | 150     |   |
| P51 | Presser foot lifter operation duty cycle (%)               | 1-50     | 20      | Presser foot lifter operate in duty cycle to save electricity and protect the electromagnet from over-heat.   |
| P52 | Motor starting delay time (ms)                             | 10-990   | 120     | Delay the start time, with automatic presser foot down.   |
| P53 | Half back pedaling lifting presser foot function to cancel | ON/OFF   | OFF     | ON:Function to cancel<br>OFF:Half back pedaling lifting presser foot  |
| P54 | Thread trimming action time (ms)                           | 10-990   | 200     | Completion of the thread trimming action required time.   |
| P55 | Thread wiping action time (ms)                             | 10-990   | 30      | Completion of the thread wiping action required time.   |
| P56 | Power on and positioning                                   | 0-2      | 1       | 0: always not to find the up needle position<br>1: always to find the up needle position<br>2:If the motor is not into the up needle position,it will find the up needle position   |
| P57 | Hold time of presser foot lifter (s)                       | 1-120    | 10      | Forced shut-down after hold time.   |
| P58 | Up needle position adjustment                              | 0-1439   | 1120    |   |
| P59 | Down needle position adjustment                            | 0-1439   | 360     |   |
| P60 | Testing Speed (rpm)  | 100-3500 | 2000    | Setting testing speed.  |
| P61 | Testing A  | ON/OFF   | OFF     | Continuous running testing.   |
| P62 | Testing B  | ON/OFF   | OFF     | Start and stop testing with all functions.  |
| P63 | Testing C  | ON/OFF   | OFF     | Start and stop testing without all function.  |
| P64 | Running Time of Testing B and C                            | 1-250    | 30      |   |
| P65 | Stop Time of Testing B and C                               | 1-250    | 10      |   |
| P66 | Machine protection switch selection                        | 0-2      | 1       | 0: Disable<br>1: Testing zero signal<br>2: Testing positive signal  |
| P67 | Thread trimming protection switch selection                | ON/OFF   | OFF     | OFF: Disable      ON: Enable  |
| P70 | The factory Type Selection                                 |          | 21      |   |
| P71 | Presser foot release operation duty cycle (%)              | 0-50     | 2       | The buffer force of presser foot release operation.   |
| P72 | Up needle position adjustment                              | 0-1439   | 0       | Hand rotation manual to the appropriate position, press S   |

| No.  | Items   | Range  | Default | Description  |
|------|---|--------|---------|--|
|      |   |        |         | key to save  |
| P73  | Down needle position adjustment   | 0-1439 | 0       | Hand rotation manual to the appropriate position, press S key to save  |
| P76  | Back-tacking operation time to full output (ms)   | 10-990 | 250     |  |
| P78  | The start angle of thread clamping  | 5-359  | 100     |  |
| P79  | The stop angle of thread clamping   | 5-359  | 270     |  |
| P80  | The start angle of thread trimming  | 5-359  | 18      |  |
| P81  | The angle of the motor start to increase torque when thread trimming  | 5-359  | 140     |  |
| P82  | The stop angle of thread trimming   | 5-359  | 172     |  |
| P84  | The angle of the motor start to increase torque when sewing   | 0-359  | 9       |  |
| P85  | The angle of the motor stop to increase torque when sewing  | 0-359  | 57      |  |
| P92  | Correct the electrical angle of motor   |        | 160     | See the specification chapter 1.5  |
| P93  | The delay time of the half back pedaling function   | 10-900 | 300     |  |
| P99  | End Back-Tacking compensation C1  | 0-250  | 120     | Prevent taking off the thread after thread trimming mode, compensation for C part of End Back-Tacking.   |
| P100 | End Back-Tacking compensation D1  | 0-250  | 175     | Prevent taking off the thread after thread trimming mode, compensation for D part of End Back-Tacking.   |
| P101 | The start angle of thread slacking  | 1-359  | 30      |  |
| P102 | The stop angle of thread slacking   | 1-359  | 180     |  |
| P117 | The delay time of the presser foot release damping force (ms)   | 0-990  | 12      |  |
| P119 | Electromagnet overcurrent protection selection  | 0-1    | 1       | 0: OFF 1: ON   |
| P120 | The oil level alarm switch selection  | 0-1    | 1       | 0: OFF 1: ON   |
| P121 | Thread trimming mode selection  | 0-3    | 2       | 0: Normal mode<br>1: Small thread end mode<br>2: Prevent taking off the thread after thread trimming mode<br>3: Small thread end mode and prevent taking off the thread after thread trimming mode |
| P122 | Prevent taking off the thread after thread trimming mode, timing of back-tacking operation before thread trimming | 0-1439 | 1000    | The greater the value, The greater the one stitch before thread trimming.  |
| P123 | Small thread end mode, timing of back-tacking operation when thread trimming                                      | 0-100  | 0       |  |
| P124 | Kneeling presser foot release   | 0-50   | 1       | The greater the value the greater the resistance.  |

| No.  | Items   | Range  | Default | Description   |
|------|---|--------|---------|---|
|      | buffer operation duty cycle 1   |        |         |   |
| P125 | Kneeling device position sensor AD 1                                    | 0-1023 | 1000    | Affect the presser foot lift effect.  |
| P126 | Kneeling device position sensor AD 2                                    | 0-1023 | 1000    | Affect the presser foot release effect.   |
| P127 | Presser foot lifter power assisting operation duty cycle 2              | 0-50   | 20      | Close the power assisting function when the parameter value is 0.<br>The greater the value the greater the power. |
| P139 | Thread slacking when start sewing function selection                    | 0-1    | 0       | 0:OFF<br>1:ON   |
| P141 | The start angle of function that thread slacking when start sewing      | 1-359  | 1       |   |
| P142 | The stop angle of function that thread slacking when start sewing       | 1-359  | 35      |   |
| P146 | Protect nest-type stitch mode,the delay time of thread wiping           | 0-990  | 150     |   |
| P147 | Protect nest-type stitch mode,the duration time of thread wiping        | 0-990  | 120     |   |
| P148 | Protect nest-type stitch mode,the back tracking time of thread wiping   | 0-990  | 30      |   |
| P151 | Thread hooking function selection                                       | 0-1    | 0       | 0:OFF<br>1:ON   |
| P152 | The delay time of thread hooking  | 0-990  | 100     |   |
| P153 | The duration time of thread hooking                                     | 0-990  | 30      |   |
| P154 | The back tracking time of thread hooking                                | 0-990  | 30      |   |
| P155 | Thread hooking operation duty cycle (%)                                 | 0-100  | 90      |   |
| P156 | Presser foot lifter operation duty cycle when start sewing              | 0-100  | 0       | Close the function when the parameter value is 0.   |
| P157 | The start angle of function that presser foot lifting when start sewing | 1-359  | 1       |   |
| P158 | The stop angle of function that presser foot lifting when start sewing  | 1-359  | 300     |   |

### 3 Error Code List

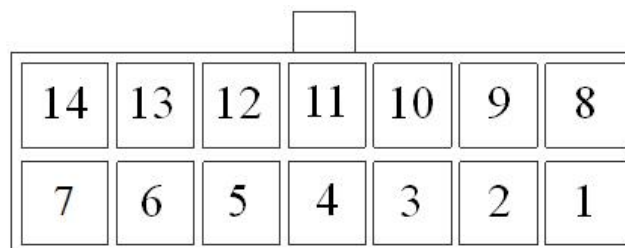
| Error Code | Problem description | Measure  |
|------------|---------------------|--|
| E1         | Over-voltage        | Turn off the machine,check the power supply voltage.(Or whether exceed the rated voltage of use).<br>If there are still errors,please replace the control box and call for customer service. |
| E2         | Low-voltage         | Turn off the machine,check the power supply voltage.(Or whether under the rated voltage of use).   |



|            |  |  |
|------------|--|--|
|            |  | If there are still errors, please replace the control box and call for customer service.   |
| E3         | CPU communication error                                  | Turn off the machine, please check if the operation panel in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.   |
| E5         | Pedal connection error                                   | Turn off the machine, please check if the pedal in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.   |
| E7         | Motor locked-rotor error                                 | Turn the machine handwheel, check if it is stuck. If it is stuck, you have to rule out the mechanical failure.<br>If turn normal, check if the encoder and motor in bad connection or is too loose. If yes, please correct.<br>If connection well, check if the power supply voltage is abnormal or sewing speed is too high. If yes, please adjust.<br>If there are still errors, please replace the control box and call for customer service. |
| E8         | Manual reverse feeding operation more than 15 seconds    | Back-Tacking electromagnet response time is too long, you have only to restart the machine.<br>If there are still errors E-08 after restart the machine, check if the manual reverse feeding switch is damaged.  |
| E09<br>E11 | Positioning signal error                                 | Turn off the machine, please check if the encoder in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.   |
| E10        | Solenoid over-current                                    | Turn off the machine, please check the related circuit is shorted or damaged.  |
| E14        | Encoder error  | Turn off the machine, please check if the encoder in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.   |
| E15        | Power supply module abnormal over-current                | Turn off the machine, then turn on again. If there are still errors, please replace the control box and call for customer service.   |
| E17        | Machine protection switch is not in the correct position | Turn off the machine, check if the machine is turn over, or the Mercury Switch is shifted or damaged.  |
| E20        | Motor failed to start(Electrical angle error)            | Turn off the machine, please check if the encoder and motor in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.   |
| oil        | Low oil  | Turn off the machine, check if the oil is too little. To fill it up and turn on.<br>If there are still errors, please replace the control box and call for customer service.   |

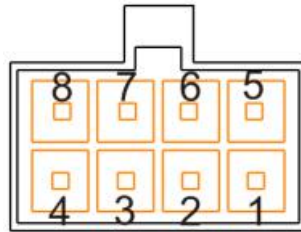
#### 4 Port Diagram

##### 4.1 14P function port description



- 1.Thread trimming electromagnet: 1、8 (+32V)
- 2.Thread wiping/ thread clamping electromagnet: 2、9 (+32V)
- 3.Thread slacking electromagnet: 3、10 (+32V)
- 4.LED Light: 4 (DGND) 、11 (+5V)
- 5.Reverse stitch key: 5 (signal)
- 6.Back-tacking electromagnet: 6、13 (+32V)
- 7.Mending stitch key: 7 (signal)
- 8.Fan: 12 (DGND) 、14 (+32V)

### 8P function port description



- 1.Oil level sensor: 5 (+5V) 、6 (DGND) 、2 (signal)
- 2.Presser foot position sensor: 1 (+5V) 、7 (DGND) 、3 (signal)
- 3.Presser foot electromagnet: 4、8 (+32V)

### 4.2 Port Description

