**一体机节能单抬压脚直驱使用说明书**

**All-in-one Direct Drive Instruction Book**

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“一体机节能单抬压脚直驱控制箱”产品参考手册，请认真阅读此手册以更好运用本公司产品。

**一、安全说明：General Safety Instructions**

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.

**二、产品介绍:Product Instruction**
 本产品由本公司自主研发,产品个性鲜明,真正体现出了机电一体化的概念,更是节能,高效,环保,优美集结于一身。可广泛适用于多种缝设备。
We desigh and manufacture the servomotor for the purpose of Mechanotronics. This motor features in energy-saving, high production efficiency, environmental and compact Could be used for different industrial sewing machines

1.组成部分:Construction
控制系统由控制器和电机两部分:
The servomotor is composed of control system and motor
A.控制器:控制箱和脚踏调速器。
A.Control system includes control box and pedal speeder

本控制系统体现出了超前的设计理念,系统操作简单易上手,整个控制系统性能优越。具有起步快,停车快、准等优点。而且电路模块保护功能完善:有欠压、过流、过压、掉电等一系列保护功能。踏调速器可实现无级调速。

This control system features is easy to use and features in excellent

performance, including quick start, quick stop (sewing machine),

accurate needle Position. Furthermore, the modular circuit has Self-

Protection System when against lower voltage,over current,over heat etc. Speed stepless is realized by the pedal speeder.

1. 220V/110V性能参数指标:Specifications

220V性能参数指标

|  |  |
| --- | --- |
| 电源供电电压 Voltage | 220V单相2 phase |
| 频率 Frequency | 50~60HZ |
| 电机转速 Speed | 200-6000RPM |
| 电机扭矩Motor torque | ≤2.2NM |

110V性能参数指标

|  |  |
| --- | --- |
| 电源供电电压 Voltage | 110V单相2 phase |
| 频率 Frequency | 50~60HZ |
| 电机转速 Speed | 200-6000RPM |
| 电机扭矩Motor torque | ≤2.2NM |

1. 系统按键图如下:The system key diagram is as follows



1. **控制面板使用说明:Installation for Control Pane**l
1.各按键的用途:Each key purpose

|  |  |  |
| --- | --- | --- |
| **序号** | **功能按键** | **功能说明** |
| 1 | （菜单键）(Menu button) | 此键有两大用法:第一个用处是直接按“”键显示屏面板上如图LED灯亮时为上停针；在按一下显示屏面板上如图LED灯亮时为下停针；再按一下LED不亮为无停针。**上停针**注：  **下停针**This key has two uses: The first use is to direct press""key to switch up or down needle position, if up pinhole lamp lights means up needle position, if down pinhole lamp lights means down needle position, if two lamps off means no needle position. |
| 2 | （确认键）(Confirm button) | 参数确定Parameter confirm button |
| 3 | （数值调整键）(Numerical adjustment key) | 向上键（修改数据时加）/（转速调整加）Up key (when increasing value) |
| 4 | （数值调整键）(Numerical adjustment key) | 向下键（修改数据时减）/（转速调整减）Up key (when increasing value) |
| 5 | （左移键）(Filter key) | 向左键（在进入参数项时光标向左移）Left key (when adjusting items) |
| 6 | （右移键）(Filter key) | 向右键（在进入参数项时光标向右移）Left key (when adjusting items) |
| 7 | （压脚功能键）(Presser foot switch) | 按一下显示屏面板上LED灯亮起时，自动抬压脚功能开启；再按一下显示屏面板上LED灯不亮时，自动抬压脚功能关闭。注：长按键，输入密码进入参数修改选项 |
| 8 | （吸风功能键）(Trimmer switch) | 按一下显示屏面板上LED灯亮起时，吸风功能开启；再按一下显示屏面板上LED灯不亮时，吸风功能关闭。注：长按键，输入密码进入参数修改选项 |
| 9 | **（**机头灯调整键）(Machine LED button) | 按一下键，LED灯亮起时，机头灯功能开启；再按一下显示屏面板上LED灯不亮时，机头灯功能关闭。 |

1. 进入参数的操作方法:

|  |
| --- |
| 例如：怎样把电机的顺时针转调到逆时针转Example: How to change the motor from clock wise to Counterclockwise The first step: Open the power；第一步:先打打开电源;第二步:先按“”键不放,再用另一只手按“”号键,此时画面会显示P-00第三步:此时按“”号键,画面会显示P-02,(P-02)就是电机正反转参数(常用参数表上有)。第四步:此时按“”键画面会显示“1”第五步:此时按“”号键把“1”调到“0(“1”为顺时针转,“0”为逆时针转,常用参数表上有)。第六步:按“”键确定参数调整完毕并退出参数。2.To enter the parameter method of operationStep two: Press the ""key, no leave, and use the other hand press the“”key, the screen will display the p-00The third step: press""key, the screen will display p-02, (p-02)is a motor clockwise or Counterclockwise wise parameters (common parameter list has)Step Four: Now press""key (enter into parameter)screen will display “1”Fifth step: press“”key, change“1”to“0”(“1” clockwise"0"for the counter-clockwise,common parameters list has)Step Six: Press the “S"key to determine the parameters, save and exit the parameter. |

3.恢复出厂设置:Restore factory settings:

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| --- |
| 恢复出厂设置方法:先按“P”键不放,再用另一只手按“+”号键、此时画面会显示P-00,再长按“S”键约3秒即可,(恢复出厂设置值在常用参数表里)。 Restore factory settings: Press the P key, no leave, and use the other hand press the"+"key, the screen will display the p-00, then press"S” key seconds, it will Restore factory settings. |

1. **电机常用参数设置: Commonly used parameter setting**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 序号 The serial number | 参数编号Parameters of the code | 参数名称 The parameter name  | 参数范围 Adjusting range | 出厂设置The factory Settings  | 备注 Other |
| 1 | P-01 | 最大速Maximum peed lock  | 200-6500RPM | 4500转 |  |
| 2 | P-02 | 电机方向 Direction of rotation | 0是逆针转0iscounter clockwise | 1是顺针转“1”is clockwise turn | 1 |  |
| 3 | P-03 | 下停角The needle Angle | 6-18度 | 12度 |  |
| 4 | P-04 | 起缝速度Start sewing speed | 200-800转 | 250转 |  |
| 6 | P-06 | 定针缝 Set the seam | 0-999针 | 0 |  |
| 7 | P-07 | 空 |  |  |  |
| 8 | P-08 | 空 |  |  |  |
| 9 | P-09 | 空 |  |  |  |
| 10 | P-10 | 自动间隙运行(跑合）Automatic clearance run(run) | 把0把改成1再按S键Then press the S key change to l | 0 | 关掉电源停止跑合Turn off the electricity stopped running |
| 11 | P-11 | 抬压脚起动时间Presser foot ascend starting time | 0-2000ms | 0 |  |
| 12 | P-12 | 抬压脚保护时间Ascension presser foot protection time | 1-120s | 4s |  |
| 13 | P-14 | 最大电流限制Maximum current limiting | 50-1000 | 280 |  |
|  |  |  |  |  |  |
| 15 | P-15 | 是否检测上针位Whether to detect the up needle position | 1:检测针位，0:不检测1:detecting needle0:no detection | 1 | 设为1时，如果无上定位传感器则报警ER01，设为0时则不报警Set “1”, if there is no upper needle stop sensor will alarm ER01; set “0” no alarm  |
| 16 | P-17 | 复位出厂密码 factory reset code | 1-3 | 1 | P-09参数开启后才能出现P-17参数、设为3长按OK键恢复出厂密码when open the parameter “P09”, then it can occur “P17”,set “3”， then long press “OK” button to recover the factory code  |
| 17 | P-18 | 出厂密码 factory code  | 0000-9999 | 2013 |  |
| 18 | P-19 | 软起动针数 soft start stitches | 0-15 | 0 | 0针关闭该功能，1-15针时启用软启动，并设定针数 (上停针时有效) 0 stitch is close this function, 1-15stitches is open the soft start , and set the stitches(upper needle position is effective ) |
| 19 | P-20 | 软起动速度 soft start speed | 200-3500 | 800 |  |
| 20 | P-21 | 吸气功能 suction function | 0:关闭 1:开启0: close 1:start | 1 | 电机运转时开启/关闭吸气功能 motor running open/close suction function |
| 21 | P-22 | 吸气开启针数 suction start stitches | 1-200 | 30 | 吸气打开针数 (P23针数打开时有效）suction open stitches(P23 stitches open have effective ) |
| 22 | P-23 | 吸气关闭针数 suction close stitches | 0-200 | 0 |  |
| 23 | P-24 | 吸气动作维持时间suction action maintain time  | 50-2000ms | 120ms | 此参数暂时不用 this parameter do not use now  |
| 24 | P-25 | 吸气全功率时间suction full power time | 35-1000ms | 120ms |  |
| 25 | P-26 | 吸气全功率时功率the power of suction full power  | 5-100% | 100% |  |
| 26 | P-27 | 吸气维持功率suction maintain power | 1-100% | 80% |  |
| 27 | P-28 | 吸气释放时间 suction release time  | 0-500ms | 20ms |  |
| 28 | P-29 | 吸气保护时间 suction protection time  | 1-120s | 30s | 吸气单次动作最长时间the longest time of suction single action  |
| 29 | P-30 | 压脚触发模式 foot presser trigger mode | 0:关闭 1:开启0: close 1:start | 0 | 1.设为0时，后踏速控器压脚不抬。设为1时后踏速控器压脚抬起，2.维持抬起，直到前踏或保护时间到才会释放压脚，并且每次电机停止时自动抬压脚1, set “0”, back step the pedal,the foot presser is not up, set “1”, back step the pedal, the foot presser is up.2, the foot presser is maintain up, until front step the pedal or the protection time is finish then release, and motor stop, the foot presser is up automatic.  |
| 30 | P-31 | 后抬脚启动时间 back foot presser lifter start time  | 0-2000ms | 0 | 后踏延迟启动压脚的时间the time of back step delay start foot presser |
| 31 | P-32 | 抬压脚动作维持时间 foot presser lifter action maintain time  | 50-1000ms | 160ms | 此参数暂时不用 this parameter do not use now  |
| 32 | P-33 | 抬压脚全力功率时间 foot presser lifter full power time  | 35-1000ms | 160ms |  |
| 33 | P-34 | 抬压脚全力功率时功率the power when the foot presser lifter full power | 5-100% | 100% |  |
| 34 | P-35 | 抬压脚维持功率 foot presser lifter maintain power | 1-500% | 80% |  |
| 35 | P-36 | 抬压脚释放时间foot presser lifter release time  | 0-120ms | 30ms | 压脚释放时间 the foot presser lifter release time  |
| 36 | P-37 | 抬压脚保护时间 foot presser lifter protection time  | 1-100s | 10s | 压脚单次抬起最大维持时间 the biggest maintain time of the foot presser lifter single time  |
| 37 | P-38 | 显示速度 display time  | 200-6500RPM |  | 显示当前电机实际速度display the current motor real speed |
| 38 | P-39 | 显示速控器电压 display the volt of speed controller | 14-1010 | 中点电压195Neutral point volt | 显示当前速控器电压0—1024，相当于0-5VDisplay the current speed controller volt 0-1024, it is equal 0-5V |
| 39 | P-40 | 显示直流母线电压display DC buses voltage  | 60-500V | 310v | 当电压高于395会报警，(直流母线电压/1.414=交流母线电压)when the volt is higher than 395V will alarm,(DC buses volt/1.414 = AC buses volt )  |
| 40 | P-41 | 过压保护开关overload protection switch | 0:关闭 1:开启0: close 1:start | 1 | 设为0关闭过压报警，设为1打开报警，当直流母线电压超过395V时，报警Er16，电机自动停止运行，报警后当电压低于385v电机可再次运行set “0” is close the overload alarm, set “1” is open the alarm, when DC buses voltage is over 395 V , will display Er16, the motor will stop automatic, when volt is lower 385V, the motor can run. |

1. **一般故障处理: Common faults and treatments**

|  |  |  |  |
| --- | --- | --- | --- |
| 序号The serial number | 错误码Error code | 错误内容Error content | 错误问题的多种可能Several possible error problem |
| 1 | Er0l: | 找不到停车位No stop signai | 1.定位器信号插头未插好2.定位器感应位置靠近一点与磁铜(1mm-15mm)距离1. locator signal plugs not inserted2.the locator induction position close tothe point keep lmm-1.5mm distanceand magnetic steel |
| 2 | Er02: | 开机没有检到调速器Not find the speed controller | 1.调速器插头没有插2.调速器线断了1.Speed control device plug is not insert.2.Speed controller wire is broken |
| 3 | Er03: | 电机霍儿或相位线错误Motor Hall or phase error | 1.九针插头接触不良：Nine hole plug contact undesirable2.电机没有安装好：The motor doesnt install good3.霍儿坏：Hall bad |
| 4 | Er04: | 堵转保护Lacked-rotor protection | 1.电机过载2.电机与电控根连接的四心线接触不好1.The motor overload2.The motor and the controller connected four hole line contact is not good |
| 5 | Er05: | 硬件过流保护Hardware over-current Protection | 1.电机过载2.信号线接触不好或断了1.The motor overload2.Signal wire not good or broken |
| 6 | Er07: | 串口通信时错误Serial per communication | 显示屏至主板信号线不良或主板坏Display to the system board signal bad or bad |

**六、作业环境要求：Environmental Requirements**
1.请不要在过潮湿环境中作作业
Please do not work at damp place
2.220V电控：【220V接入供电时电压稳定在（AC200V～260V/单相）之间】

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

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

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

3.用户使用前必须接地,确保人身安全
Must be adequately grounded for safety
4.不要在过热地方作业
Do not work at high temperature
5.控制系统与电机不要在强磁高辐射环境中作业,以免干扰而使系统错误
Do not run motor and control system near to ferromagnetic or high-radiance area

**七、保修服务:warranty Service**1.本产品自购买起免费保修1年,终身维护。保修期内除人为损坏以外出现任何质量问题可免费维修。
Our products come with year of quality guarantee,from the ship day.Within guarantee period, service is free of charge, unless man-made damage or misuse
2.在保修期内,以下情况出现损坏本公司不给于保修服务。
During the guarantee period, our free service does not cover below:
(1).未经本公司同意自行拆卸,修理,改装造成的故障或损坏。
Dismantle the motor unit without permission, and cause damage.
3.但凡出现无法解决的问题可以联系本公司。
please contact us whenever have problem.