

# F4 简易节能单抬压脚使用说明书

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“简易节能单直驱使用说明书”产品参考手册，请认真阅读此手册以更好运用本公司产品。

This manual is a reference manual for our newly developed "energy-saving single-lift foot presser direct drive motor and control box" product. Please read this manual carefully in order to make better use of our products.



## 安全说明：General Safety Instructions

**1: 机电电控接通电源时（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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一、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 design 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.

2. 220V、110V 电机性能参数指标:Specifications

220V 电机性能参数指标 220V Specifications

|                   |                |
|-------------------|----------------|
| 电源供电电压 Voltage    | 220V 单相 1phase |
| 频率 Frequency      | 50~60HZ        |
| 电机转速 Speed        | 200-6000RPM    |
| 电机扭矩 Motor torque | ≤2.2NM         |

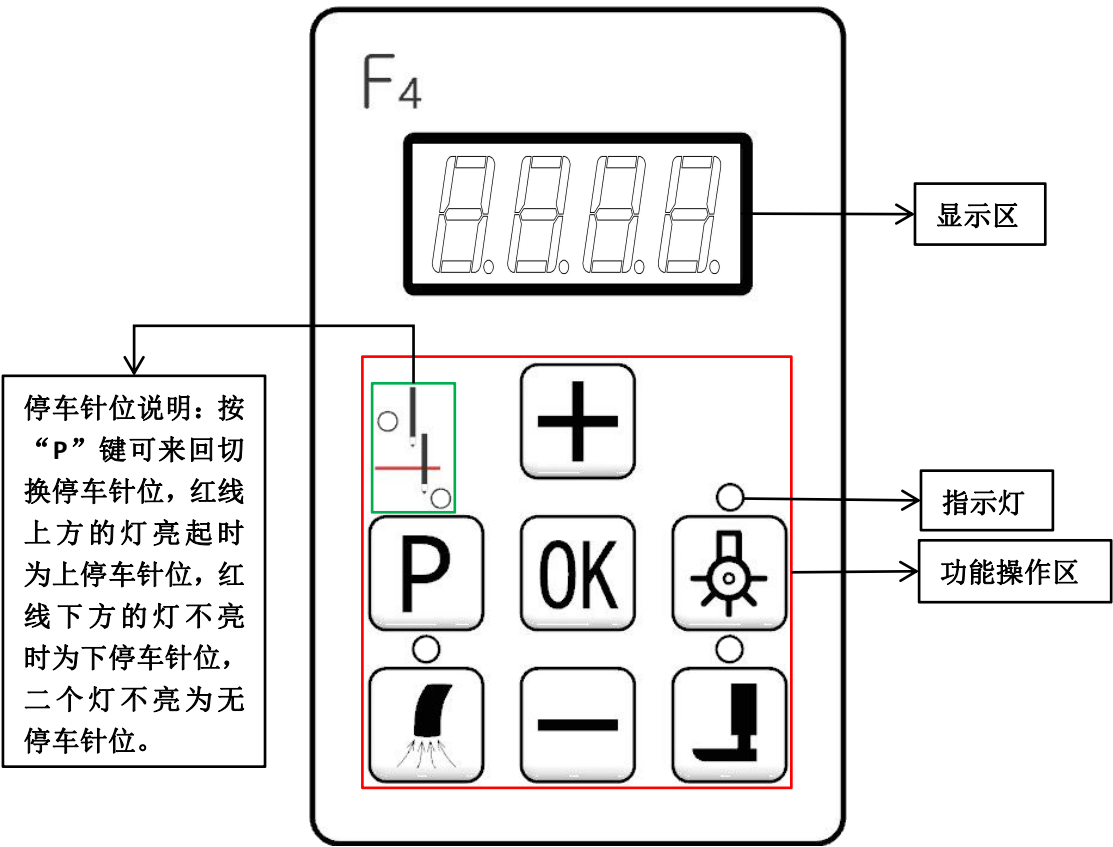
110V 电机性能参数指标 110V Specifications

|                   |                 |
|-------------------|-----------------|
| 电源供电电压 Voltage    | 110V 单相 1 phase |
| 频率 Frequency      | 50~60HZ         |
| 电机转速 Speed        | 200-6000RPM     |
| 电机扭矩 Motor torque | ≤2.2NM          |

## 二、控制面板使用说明

### Control panel Instruction

#### 1、主界面介绍：



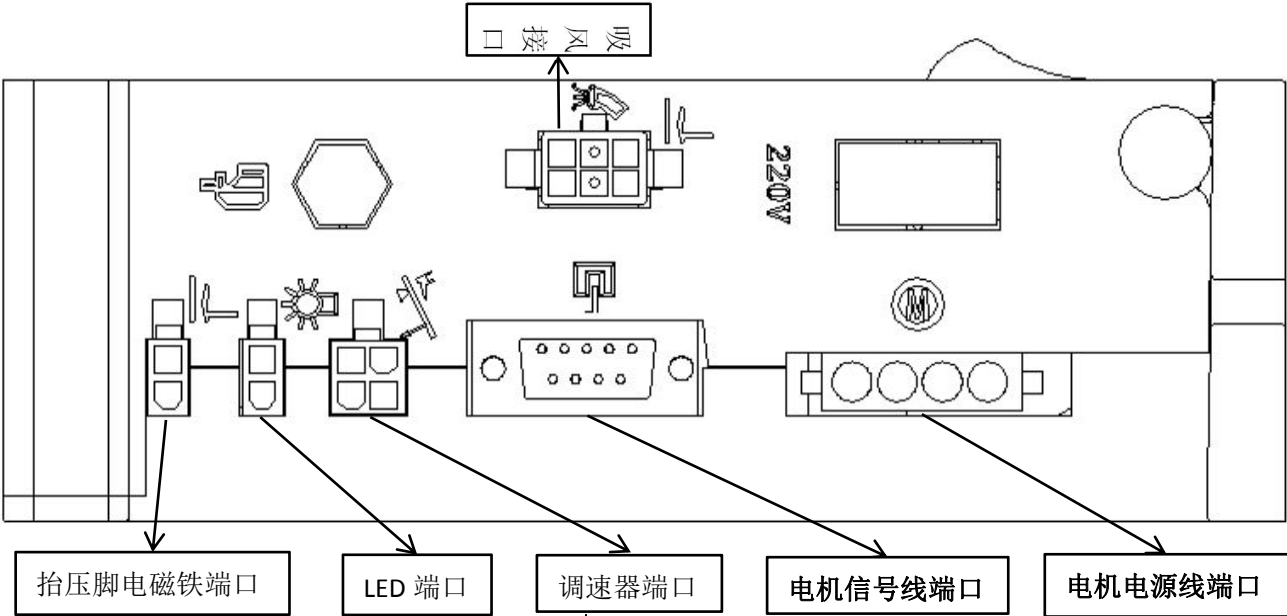
#### 2、功能键介绍：



| 序 号<br>The serial number | 按键图标<br>Parameters of the code            | 功 能 说 明<br>function instruction                                                               |
|--------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------|
| 1                        | <br>(菜单键)<br>(Menu button)                | 参数进入（见进入参数的操作方法）<br>Function Enter button ( below to enter the parameter method of operation) |
| 2                        | <br>(确认键)<br>(Confirm button)             | 参数确定<br>Parameter confirm button                                                              |
| 3                        | <br>(数值调整键)<br>(Numerical adjustment key) | 向上键（修改数据时加）/（转速调整加）<br>Up key (when increasing value)                                         |

|   |                                                                                                                           |                                                                                                                                                                           |
|---|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 | <br>(数值调整键)<br>(Numerical adjustment key) | 向下键 (修改数据时减) / (转速调整减)<br>Up key (when increasing value)                                                                                                                  |
| 5 | <br>(压脚功能键)<br>(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。<br>注: 长按  键, 输入密码进入参数修改选项 |
| 6 | <br>(吸风功能键)<br>(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。<br>注: 长按  键, 输入密码进入参数修改选项       |
| 7 | <br>(机头灯调整键)<br>(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。                                 |

3、端口说明:



| 序号 | 端口     | 注明       | 序号 | 端口  | 注明    |
|----|--------|----------|----|-----|-------|
| 1  | 调速器    | 1 3      | 2  | LED | 1 2   |
|    |        | 地 OUT 输入 |    |     | 5V 负  |
|    |        | 2 4      | 4  | 吸风  | 1 4   |
|    |        | 地 正      |    |     | 无 无   |
| 3  | 抬压脚电磁铁 | 1 3      |    |     | 2 5   |
|    |        | 24V 负    |    |     | 24V 负 |
|    |        |          |    |     | 3 6   |
|    |        |          |    |     | 无 无   |

4.进入参数的操作方法

例：怎样把电机的顺时针转调到逆时针转：

第一步：打开电源；

第二步：先按“P”键不放，同时按“+”号键，此时画面会显示 P-00。

第三步：按“+”号键，把 P-00 调至 P-02，（P-02）就是电机正反转参数（常用参数表上有标明）；

第四步：按下“P”键画面会显示“1”；

第五步：按下“-”号键把“1”调到“0”（“1”为顺时针转，“0”为逆时针转，常用参数表上有标明）；

第六步：按下“S”键确定参数调整完成。

4.To enter the parameter method of operation:

Example: How to change the motor from clockwise to counterclockwise:

Step one: Open the power;

Step two: Press the "P" key, no leave, and press "+" key, the screen will display the P-00;

Step third: Press "+" key, change the P-00 to P-02, (P-02) is a motor clockwise or counterclockwise parameters (common parameter list has record);

Step four: Now press "P" key (enter into parameters) screen will display "1" ;

Step fifth: Press "-" key,change "1" to "0";("1" for clockwise, "0" for the counter clockwise rotation, commonly used in the parameter table is indicated);

Step six: Press the "S" key to determine the parameters, save and exit the parameter.

5.恢复出厂设置

恢复出厂设置方法：先按“P”键不放，同时按“+”号键，此时画面会显示 P-00，再长按“S”键约 3 秒即可。

5.Restore factory settings

Restore factory settings: Press the "P" key, no leave, and press the "+" key, the screen will display the P-00, then press "S" key 3 seconds.

三、电机常用参数设置: Commonly used parameter setting

| 序号<br>The serial number | 参数编号<br>Parameters of the code | 参数名称<br>The parameter name    | 参数范围     Adjusting range         |                                | 出厂设置<br>The factory Settings | 备注<br>Other |
|-------------------------|--------------------------------|-------------------------------|----------------------------------|--------------------------------|------------------------------|-------------|
| 1                       | P-01                           | 最大速<br>Maximum peed lock      | 200-6500RPM                      |                                | 4500 转                       |             |
| 2                       | P-02                           | 电机方向<br>Direction of rotation | 0 是逆针转<br>0 is counter clockwise | 1 是顺针转<br>1 is clockwis e turn | 1                            |             |

|    |      |                                                        |                                                         |       |                                                                                                                                                                                                 |
|----|------|--------------------------------------------------------|---------------------------------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3  | P-03 | 下停角<br>The needle Angle                                | 6-18 度                                                  | 12 度  |                                                                                                                                                                                                 |
| 4  | P-04 | 起缝速度<br>Start sewing speed                             | 200-800 转                                               | 250 转 |                                                                                                                                                                                                 |
| 6  | P-06 | 定针缝<br>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)<br>Automatic clearance<br>run(run)          | 把 0 把改成 1 再按 S 键<br>Then press the S key<br>change to 1 | 0     | 关掉电源停止跑合<br>Turn off the<br>electricity stopped<br>running                                                                                                                                      |
| 11 | P-11 | 抬压脚起动时间<br>Presser foot ascend<br>starting time        | 0-2000ms                                                | 0     |                                                                                                                                                                                                 |
| 12 | P-12 | 抬压脚保护时间<br>Ascension presser foot<br>protection time   | 1-120s                                                  | 4s    |                                                                                                                                                                                                 |
| 13 | P-14 | 最大电流限制<br>Maximum current<br>limiting                  | 50-1000                                                 | 280   |                                                                                                                                                                                                 |
|    |      |                                                        |                                                         |       |                                                                                                                                                                                                 |
| 15 | P-15 | 是否检测上针位<br>Whether to detect the<br>up needle position | 1:检测针位, 0:不检测<br>1:detecting needle<br>0:no detection   | 1     | 设为 1 时,如果无上定位<br>传感器则报警 ER01, 设<br>为 0 时则不报警 Set<br>“1”, if there is no<br>upper needle stop<br>sensor will alarm<br>ER01; set “0” no<br>alarm                                                  |
| 16 | P-17 | 复位出厂密码 factory<br>reset code                           | 1-3                                                     | 1     | P-09 参数开启后才能出<br>现 P-17 参数、设为 3 长<br>按 OK 键恢复出厂密码<br>when open the<br>parameter “P09”,<br>then it can occur<br>“P17”, set “3”,<br>then long press “OK”<br>button to recover the<br>factory code |
| 17 | P-18 | 出厂密码<br>factory code                                   | 0000-9999                                               | 2013  |                                                                                                                                                                                                 |
| 18 | P-19 | 软起动针数<br>soft start stitches                           | 0-15                                                    | 0     | 0 针关闭该功能, 1-15<br>针时启用软启动, 并设定<br>针数 (上停针时有效)<br>0 stitch is close this<br>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<br>soft start speed                | 200-3500                      | 800   |                                                                                                                                                                                                                                                         |
| 20 | P-21 | 吸气功能<br>suction function                 | 0:关闭 1:开启<br>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)<br>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<br>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<br>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<br>0: close 1:start | 0     | 1. 设为 0 时, 后踏速控制器压脚不抬。设为 1 时后踏速控制器压脚抬起,<br>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<br>1, set "0", back step the pedal, the foot presser is not up, set "1", back step the pedal, the foot presser is up.<br>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<br>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<br>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 195<br>Neutral point volt | 显示当前速控器电压 0—1024, 相当于 0-5V<br>Display 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<br>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<br>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. |
|--|--|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

四、一般故障处理：Common faults and treatments

| 序号<br>The serial number | 错误码<br>Error code | 错误内容<br>Error content                       | 错误问题的多种可能<br>Several possible error problem                                                                                                                                               |
|-------------------------|-------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                       | Er01:             | 找不到停车位<br>No stop signai                    | 1. 定位器信号插头未插好<br>2. 定位器感应位置靠近一点与磁铜(1mm-15mm)距离<br>1. locator signal plugs not inserted<br>2. the locator induction position close to the point keep 1mm-1.5mm distance and magnetic steel |
| 2                       | Er02:             | 开机没有检测到调速器<br>Not find the speed controller | 1. 调速器插头没有插<br>2. 调速器线断了<br>1.Speed control device plug is not insert.<br>2.Speed controller wire is broken                                                                               |
| 3                       | Er03:             | 电机霍儿或相位线错误<br>Motor Hall or phase error     | 1. 九针插头接触不良:<br>2. 电机没有安装好:<br>3. 霍儿坏: 1.The motor doesnt install good<br>2.Nine hole plug contact undesirable<br>3.Hall bad                                                              |
| 4                       | Er04:             | 堵转保护<br>Lacked-rotor protection             | 1. 电机过载<br>2. 电机与电控根连接的四心线接触不好<br>1.The motor overload<br>2.The motor and the controller connected four hole line contact is not good                                                     |
| 5                       | Er05:             | 硬件过流保护<br>Hardware over-current Protection  | 1. 电机过载<br>2. 信号线接触不好或断了<br>1.The motor overload<br>2.Signal wire not good or broken                                                                                                      |
| 6                       | Er07:             | 串口通信时错误<br>Serial per communication         | 显示屏至主板信号线不良或主板坏<br>Display to the system board signal bad or bad                                                                                                                          |

## 五、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

## 六、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予保修服务。

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.

更多详情 • 扫一扫二维码关注

