

# SIRUBA

電控參數說明書

ELECTRONIC CONTROL PARAMETER MANUAL

## ■ 600N SIMPLE TYPE



# 包缝使用说明书

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 product. Please read this manual carefully in order to make better use of our products.



## 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 .

郑重声明：

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.

## 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.

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、

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. Foot pedal governor is realized by the pedal speeder.

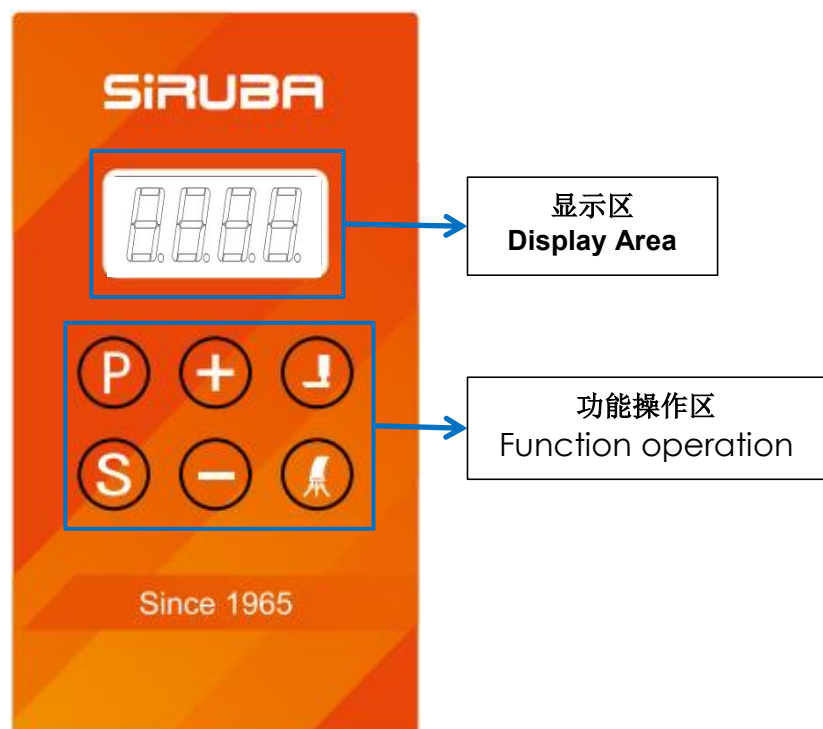
### 2. 220V 电机性能参数指标:Specifications

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             |
| 电机扭矩 Motor torque | $\leq 2.2\text{NM}$ |

## 二、控制面板使用说明: Control panel Instruction

2.1 显示屏介绍: 由两大部分组成 (显示区域、操作界面)



## 2.2 操作界面功能键介绍 operating interface function button introduction:

| 序号<br>No. | 按键图标<br>Parameters of the code  | 功能说明<br>function instruction   |
|-----------|---|--|
| 1         | <br>(菜单/停针位键)<br>(Menu button/stop needle position button) | 1. 按“P”键不放，按“-”键，输入密码（密码 2013），按“S”进入系统参数。<br>1. Press and hold the “P” key press the“-”key to enter the password(password 2013) ,and press the“S”key to enter the system parameters<br>点动“P”键时切换上针位、下停针位<br>Press “P” button,switch the needle upper stop position,the needle down stop position. |
| 2         | <br>(确认/机头灯键)<br>(Confirm button/headlight button)         | <p style="text-align: center;"><b>参数确定</b><br/>Parameter confirm button</p> 按一下“s”键，机头灯功能开启；再按一下机头灯功能关闭。<br>Press“S”button,the headlight function is turn on;press again the headlight function is turn off.   |
| 3         | <br>(数值调整键)<br>(Numerical adjustment button)               | 向上键（修改数据时加）/（转速调整加）<br>Up button (when increasing value)   |
| 4         | <br>(数值调整键)<br>(Numerical adjustment button)             | 向下键（修改数据时减）/（转速调整减）<br>Down button (when decreasing value)   |
| 5         | <br>(停针位调整键)<br>(Stop pin position adjustment button)    | <br>点动<br>键时切换上针位、下停针位和下针 位不回针<br>Press to switch up or down stop pin position.   |
| 6         | <br>(机头灯调整键)<br>(Machine LED button)                     | <br>点动<br>键时进入机头 LED 灯亮度调节（1-3 挡）<br><br>Press<br>button to enter into the adjustment of the LED light (1-5 degree)          |

## 2.2 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：按“P”键不放，按“-”号键进入参数，

此时屏幕会显示 0000，输入密码（密码2013），按“S”键进入参数界面。

第二步：把 P-00 调至 P-02，（P-02）为电机正反转参数（常用参数表上有标明）；

第三步：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）；

第四步：按下“S”键确定参数调整完成。

Example: how can i adjust the clockwise rotation of the motor to counterclockwise rotation:

First:press and hold the"P"key . press the"- "key to enter the parameters,the screen display 0000(password 2013),press"S"to enter.

Second:adjust P-00 to P-02 , (P-02 ) represents the forward and reverse rotation parameters of the motor ( the common parameters are marked on the table ) ;

Third: adjust" 1"to"0" (" 1"is turn clockwise, "0"is turn counterclockwise, (the common parameters are marked on the table) ;

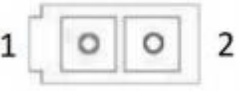
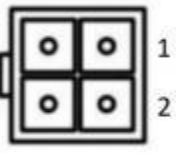

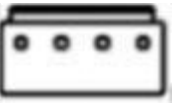
Forth: press"S"key to confirm that the parameter adjustment is completed.

## 2.3 恢复出厂设置:Restore factory setting

恢复出厂设置方法：按“P”键不放，按“+”号键进入用户参数，此时画面会显示 P-00，长按下“S”键 2-3S, 自动退出界面。

Method for restoring factory setting: press and hold the"P"key,press the"+ "key to enter the user parameters,then the screen will displayP-00, press and hold the"S"key2-3S,automatic exit interface.

## 2.4、端口说明:port explanation

| 序号 | 端口名称                              | 端口图片  | 端口定义         |     |                      |                      |                      |                              |       |                             |                             |  |
|----|-----------------------------------|---|--------------|-----|----------------------|----------------------|----------------------|------------------------------|-------|-----------------------------|-----------------------------|--|
| 1  | LED 端口<br>LED port                |  | 1            |     |                      |                      |                      | 2                            |       |                             |                             |  |
|    |                                   |   | LED+         |     |                      |                      |                      | LED-                         |       |                             |                             |  |
| 2  | 调速器端口<br>Governor port            |  | 1            |     | 2                    |                      | 3                    |                              | 4     |                             |                             |  |
|    |                                   |   | 信号<br>signal |     | GND                  |                      | GND                  |                              | +5V   |                             |                             |  |
| 3  | 电机信号线端口<br>Motor signal line port |  | 1            | 2   | 3                    | 4                    | 5                    | 6                            | 7     | 8                           | 9                           |  |
|    |                                   |   | +5V          | GND | 霍尔<br>A<br>HALL<br>A | 霍尔<br>B<br>HALL<br>B | 霍尔<br>C<br>HALL<br>C | 停针<br>Sto<br>p<br>needl<br>e | /     | 光栅<br>A<br>Gratin<br>g<br>A | 光栅<br>B<br>Gratin<br>g<br>B |  |
| 4  | 电机相位线端口<br>Motor phase line port  |  | 1            |     | 2                    |                      | 3                    |                              | 4     |                             |                             |  |
|    |                                   |   | U            |     | V                    |                      | W                    |                              | EARTH |                             |                             |  |

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

| 参数编号<br>No. | 参数名称<br>The parameter name        | 参数范围<br>Adjusting range | 出厂设置<br>The factory Settings | 备注<br>Other |
|-------------|-----------------------------------|-------------------------|------------------------------|-------------|
| P-00        | 恢复出厂设置<br>Restore factory setting |                         |                              |             |
| P-01        | 最大速度锁定<br>Maximum speed           | 200-6500 RPM            | 5500 转                       |             |

|      |   |   |       |  |
|------|---|---|-------|--|
|      | lock  |   |       |  |
| P-02 | 电机旋转方向<br>The rotation direction of the motor                   | 0-1/2-3   | 1     | 0 是逆时针, 1 是顺时针; 设定 P13 号参数为 1 时, 当前参数范围为 2-3; 2 是逆时针, 3 是顺时针.<br>0 is counter clockwise,1 is clock wise turn;when setting parameter p13 to 1,the current parameter range is 2-3; 2 is counter clock wise,3 is clock wise turn. |
| P-03 | 下停针角度<br>The needle Angle                                       | 6-18 度  | 12 度  | 相对上停针点的角度<br>The angle relative to the point where the needle stops  |
| P-04 | 起缝速度<br>Start sewing speed                                      | 200-800 转   | 250 转 | 电机最低转速<br>Minimum rotational speed of the motor  |
| P-05 | 加速快慢<br>Acceleration fast or slow                               | 500-4000  | 3000  | 数值越大加速越快, 越小加速越慢<br>the number is more bigger the acceleration is more faster, the number is more smaller the acceleration is more slower,   |
| P-06 | 定针缝<br>Set the seam   | 0-999 针   | 0     | 开启定针缝显示 n-1 至 n-999<br>Open the fixed needle seam display n-1 to n-999   |
| P-07 | 停车速度<br>machine stop speed                                      | 800-2000  | 1100  | 停车程序切入速度<br>The entry speed of the parking program   |
| P-08 | 禁止上停针<br>forbid needle upper stop                               | 0-1   | 0     | 当设定为下停针时启用该位, 则关闭上停针功能, 设为上停针该位不起作用。<br>It is enabled when set to the lower stop needle,turn off the upper stop needle function,if it is set to the upper stop needle,it will not work.  |
| P-09 | 复位出厂密码参数<br>reset factory code parameter                        | 0-1   | 0     | 设为 1 时才能打开 P-17 号参数<br>the P17 parameter can open when number set "1"  |
| P-10 | 自动间隙运行(跑合)<br>Automatic clearance run(run)                      | 把 0 把改成 1<br>再按 S 键<br>Then press the S key change to 1 | 0     | 关掉电源停止跑合<br>Turn off the electricity stopped running   |
| P-13 | 老式平缝款电机支持<br>Support for the old-fashioned flat seam type motor | 0-1   | 0     |  |
| P-14 | 最大电流限制<br>Maximum current limiting                              | 50-450  | 270   | 内部电流值<br>Internal current value  |
| P-15 | 是否检测上针位<br>Whether to detect the up needle position             | 0:不检测<br>1:检测针位<br>1:detecting needle<br>0: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<br>Set "1", if there is no upper needle stop sensor will alarm ER01; set "0" no alarm  |

|      |   |                                     |       |   |
|------|---|-------------------------------------|-------|---|
| P-16 | 设定最大速度<br>Set the maximum speed             | 200-6500                            | 3900  | 用户在主界面通过+、-键调整<br>User can make adjustments with +、- click on the main interface  |
| P-17 | 复位出厂密码<br>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<br>when open the parameter "P09", then it can occur<br>"P17",set "3", then long press "OK" button to recover the factory code          |
| P-18 | 出厂密码<br>factory code                        | 0000-9999                           | 2013  |   |
| P-19 | 软起动针数<br>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)<br>0 stitch is close this function, 1-15stitches is open the soft start , and set the stitches.<br>(upper needle position is effective ) |
| P-20 | 软起动速度<br>soft start speed                   | 200-3500                            | 800   |   |
| P-21 | 吸气功能<br>suction function                    | 0:关闭<br>1:开启<br>0: close<br>1:start | 1     | 电机运转时开启/关闭吸气功能<br>motor running open/close suction function   |
| P-22 | 吸气开启针数<br>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 )  |
| P-23 | 吸气关闭针数<br>suction close stitches            | 0-200                               | 0     |   |
| 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<br>this parameter do not use now  |
| P-25 | 吸气全功率时间<br>suction full power time          | 35-1000ms                           | 120ms |   |
| P-26 | 吸气全功率时功率<br>the power of suction full power | 5-100%                              | 100%  |   |
| P-27 | 吸气维持功率<br>suction maintain power            | 1-100%                              | 80%   |   |
| P-28 | 吸气释放时间<br>suction release time              | 0-500ms                             | 20ms  |   |
| P-29 | 吸气保护时间<br>suction protection time           | 1-120s                              | 30s   | 吸气单次动作最长时间<br>the longest time of suction single action   |

|      |  |                                  |                                      |  |
|------|--|----------------------------------|--------------------------------------|--|
| P-30 | 压脚触发模式<br>foot presser trigger mode                            | 0:关闭 1:开启<br>0: close<br>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. |
| P-31 | 后抬脚启动时间<br>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  |
| P-32 | 抬压脚动作维持时间<br>foot presser lifter action maintain time          | 50-2000ms                        | 160ms                                | 此参数暂时不用<br>this parameter do not use now   |
| P-33 | 抬压脚全力功率时间<br>foot presser lifter full power time               | 35-1000ms                        | 160ms                                |  |
| P-34 | 抬压脚全功率时功率<br>the power when the foot presser lifter full power | 5-100%                           | 100%                                 |  |
| P-35 | 抬压脚维持功率<br>foot presser lifter maintain power                  | 1-100%                           | 20%                                  |  |
| P-36 | 抬压脚释放时间<br>foot presser lifter release time                    | 0-500ms                          | 30ms                                 | 压脚释放时间<br>the foot presser lifter release time   |
| P-37 | 抬压脚保护时间<br>foot presser lifter protection time                 | 1-120s                           | 10s                                  | 压脚单次抬起最大维持时间<br>the biggest maintain time of the foot presser lifter single time   |
| P-38 | 显示速度<br>display time   | 200-6500RPM                      |                                      | 显示当前电机实际速度<br>display the current motor real speed   |
| P-39 | 显示速控器电压<br>display the volt of speed controller                | /                                | 中点电压<br>195<br>Neutral point<br>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  |
| P-40 | 显示直流母线电压<br>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）<br>when the volt is higher than 395V will alarm,(DC buses volt/1.414 = AC buses volt )   |

|      |                                      |                               |   |   |
|------|--------------------------------------|-------------------------------|---|---|
| P-41 | 过压保护开关<br>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. |
| P-42 | 掉电检测<br>Power failure selection      | 0-3                           | 3 | 1: 开机检查调速器是否复位 2: 掉电检测使能 3: 都使能<br>1:enable to detect the restore of the pedal 2:enable to detect the power down 3:both enable  |
| P-45 | 机型选择<br>Model selection              |                               |   | 01: 厚料模式 02: 薄料模式<br>01:thick material mode 02:thin material mode   |
| P-46 | 原点选择<br>Origin selection             |                               |   | 0: 内置停针器 1: 外置停针器<br>0:built-in needle stop 1:external needle stop  |
| P-47 | 预留<br>Reserved                       |                               |   |   |
| P-48 | 预留<br>Reserved                       |                               |   |   |
| P-49 | 上停角度<br>The upper stop angle         |                               |   |   |

#### 四、一般故障处理: Common faults and treatments

| 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  |
|-------------------|--|--|
| Er01:             | 未找到上停针信号<br>No find the upper needle stop signal | 1. 停针霍尔信号传输线路故障 2. 停针磁钢未安装 3. 停针磁钢离霍尔太远<br>1.the transmission line of the stop-pin hall signal is faulty<br>2.the stop-needle magnetic steel is not installed<br>3.the stop-needle magnet is too far from the hall |
| 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 2. 调速器线断了<br>1.Speed control device plug is not insert. 2.Speed controller wire is broken  |
| Er03:             | 电机霍尔或相位线错误<br>Motor Hall or phase error          | 1. 电机没有安装好. 2. 九针插头接触不良. 3. 换向霍尔损坏. 4. 转子磁钢损坏.<br>1.The motor doesn't install good 2.Nine hole plug contact undesirable<br>3.the commutation hall is damaged 4.the rotor magnets are damaged                       |
| Er04:             | 堵转保护<br>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<br>1.The motor overload<br>2.The motor and the controller connected four hole line contact is not good   |
| Er05:             | 硬件过流保护<br>Hardware over-current Protection       | 1. 电机过载 2. 信号线接触不好或断了<br>1.The motor overload 2.Signal wire not good or broken   |
| 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   |
| ER-15             | 编码器故障<br>the motor board error                   |  |

|       |  |   |
|-------|--|---|
| ER-16 | 过压故障<br>Over load error                    | 电机驱动电源电压过高，220V 电源电压超过限定值（AC310V），或负载惯性过大导致再生电压超过限定值(DC440V),或电压检测回路故障。<br>注：(110V控制系统电源电压超过限定值（AC155V），或负载惯性过大导致再生电压超过限定值(DC220V)。<br>1. The motor drive power supply voltage is too high, the 220V power supply voltage exceeds the limit value(AC310V), or the load inertia is too large to the regenerative voltage exceeds the limit value(DC440V), or the voltage detection circuit fails.<br>Note:(110V control system power supply voltage exceeds limit value(AC155V), or load inertia is too large to regeneration voltage exceeds limit value(DC220V). |
| ER-17 | A 相电流检测故障<br>A current checking error      |   |
| ER-18 | B 相电流检测故障<br>B current checking error      |   |
| ER-19 | AB 相电流检测故障<br>A & B current checking error |   |
| ER-20 | 欠压故障<br>Less volt error                    | 1. 电机驱动电源电压过低，220V 电源电压低于限定值（AC91V），或电机驱动电源电压低于限定值（DC130V），或电压检测回路故障。<br>注：(110V 电源电压低于限定值（AC45.5V），或电机驱动电源电压低于限定值（DC65 V）)<br>1. The motor drive power supply voltage is too low, the 220V power supply voltage is lower than the limit value(AC91V), or the motor drive power supply voltage is lower than the limit value(DC130V), or the voltage detection circuit fails.<br>Note:(110 V power supply voltage is below the limit(AC45.5 V), or motor drive power supply voltage is below the limit(DC 65V))   |
| ER-22 | 调速器未复位<br>Speed Controller Not Reset       | 1.检查是否开启踩住调速器<br>2.检查调速器数值是否正常<br>1.Check if the governor is turned on and depressed.<br>2.Check if the speed controller value is normal.   |

## 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



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