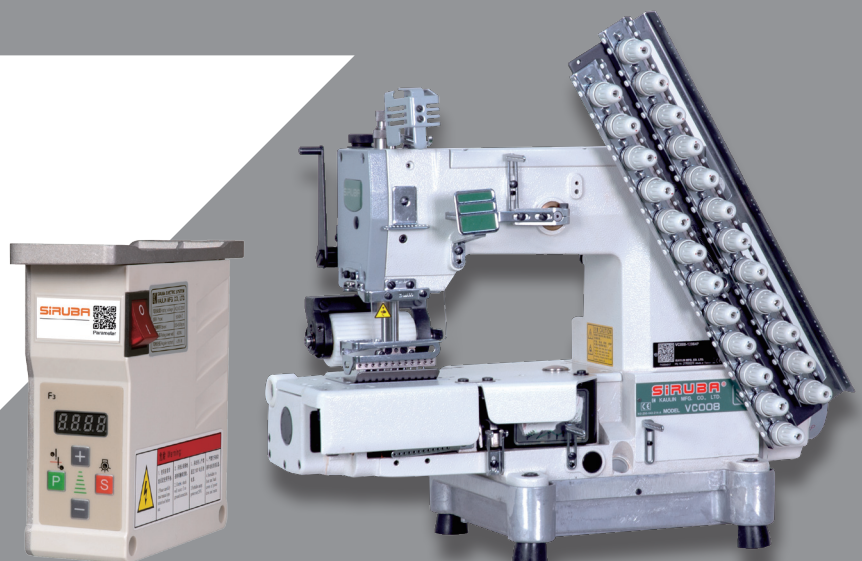


SIRUBA

DVU1-0 電控參數說明書

ELECTRONIC CONTROL PARAMETER MANUAL

VC008 DVU1-0



重要安全聲明

使用前請詳閱本說明書，如果在使用上有任何疑問，歡迎隨時與本公司聯繫。



注意：
此標示符號表示錯誤的機械安裝、操作及保養，恐會導致人員受傷或機器損壞！

安裝及維修作業請由專業人員處理。

1. 電機接通電源時請不要把腳放在腳踏板上
2. 本產品需專業人員安裝，調試
3. 嚴禁在通電時打開控制箱與電機端蓋
4. 必須保證系統接地可靠
5. 以下操作請務必斷電
 - A. 換針、穿線或更換底線時
 - B. 安裝、拆卸或修理時
 - C. 翻抬縫紉機時

作業環境要求：

1. 請不要在過潮濕的環境中作業
2. 用戶供電應保持穩定 AC 210V~240V
3. 用戶使用前必須接地，確保人身安全
4. 不要在過熱地方作業
5. 控制系統與電機不要在強磁高輻射環境中作業，以免干擾而使系統錯誤

務必使用本公司提供或認可的零部件維修。

SAFETY INSTRUCTIONS

Please review the manual carefully before using of the controller. Please feel free to contact with us if you have any question and comment. For controller installment and maintenance,



Caution :

The warning sign indicates that incorrect machine installation, operation and maintenance may cause personnel injury or machine damage!

Please contact with qualified technician for assistance.

1. Do not place your foot onto the pedal when connecting to the power source.
2. Installation and trial-run must be done by skilled person.
3. Open control box or motor cover under electrical power is not permitted.
4. Make sure the earthing system is working well.
5. When doing the following the machine has to be disconnected from the power supply.
 - A. When threading machine, replacing needle, bottom thread.
 - B. When install, dismantle and repair.
 - C. When turn over the sewing machine.

Environmental Requirements:

1. Please do not work at damp place.
2. The voltage requires being stable (AC 210V~240V).
3. Must be adequately grounded for safety
4. Do not work at high temperature
5. Do not run motor and control system near to ferromagnetic or high-radiance area

All the replacement parts for repairing must be provide or approved by supplier.

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產品介紹

本產品由本公司自主研發，產品個性鮮明，真正體現出了機電一體化的概念，更是節能、高效、環保、優美集結於一身。可廣泛適用於多種縫紉設備。

1. 組成部分：

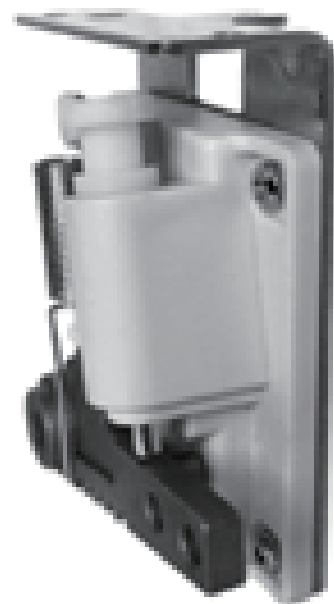
控制器系統由控制器和電機兩部分：

PRODUCT INTRODUCTION

This product by the company independent research and development, distinct personality, truly reflects the concept of mechanical and electrical integration, more energy saving, high efficiency, environmental protection, beautiful assembled in one. It can be widely applied to a variety of sewing equipment.

1.Component:

The servomotor is composed of control system and motor:

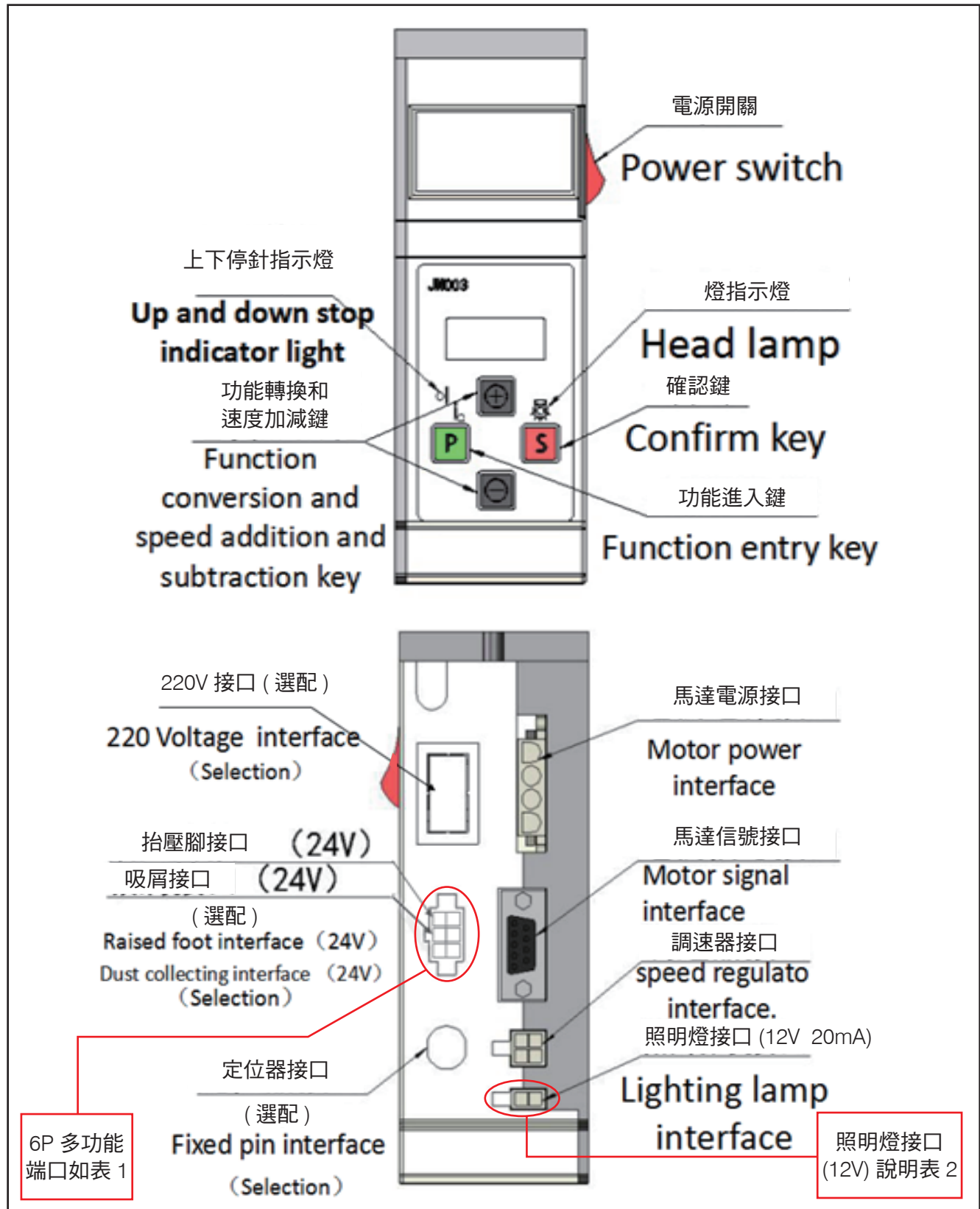


A. 控制器：控制箱和速控器。

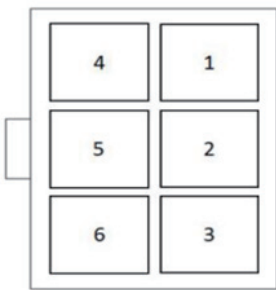
A. Control system includes control box and speed controller.

系統介面連接和操作面板示意圖如下：

Introduce for control panel:



6P 多功能埠：表 1



| 序號 Serial No | 編號 Number | 功能 Number | 備註 remarks |
|-----------------|--------------|--------------------------------------|-----------------------------------------------------|
| 1 | 1 4 | 抬壓腳介面 foot presser lifter port | 1 為正；4 為負 1 is positive pole, 4 is negative pole |
| 2 | 2 5 | 吸屑介面 waste suction port | 2 為正；5 為負 2 is positive pole, 5 is negative pole |
| 3 | 3 6 | 無 none | 無 none |

照明燈介面說明：表 2



| 序號 Serial No | 編號 Number | 功能 Number | 備註 remarks |
|-----------------|--------------|-------------------------------------|-----------------------------------------------------|
| 1 | 1 2 | 照明燈介面 Lighting lamp interface | 1 為正；2 為負 1 is negative pole, 2 is positive pole |

本控制系統體現出了超前的設計理念，系統操作簡單易上手，整個控制系統性能優越。具有起步快，停車快、准等優點。而且電路模組保護功能完善：有欠壓、過流、等一系列保護功能。速控器可實現無級調速。

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. speedcontroller is realized by the pedal speeder.

※ 抬壓腳介面（24V）和吸屑介面（24V）埠只能使用 24V 電子閥（最大輸出電流 200mA；如超出可能導致使用故障，嚴重導致控制器損毀。）

※ presser foot lifter(24V) and waste suction port (24V), the port can only use 24V valve (the biggest output current is 200mA; if over this, will occur error, even let the control box broken)

220V 性能參數指標：

220V Specifications:

| | |
|-------------------|----------------|
| 電源供電電壓 Voltage | 220V 單相 1phase |
| 頻率 Frequency | 50~60HZ |
| 電機轉速 Speed | 200-4000RPM |
| 電機扭矩 Motor torque | ≤ 3.5NM |
| 電機功率 | 600W |

110V 性能參數指標：

110V Specifications:

| | |
|-------------------|-----------------|
| 電源供電電壓 Voltage | 110V 單相 1 phase |
| 頻率 Frequency | 50~60HZ |
| 電機轉速 Speed | 200-4000RPM |
| 電機扭矩 Motor torque | ≤ 3.5NM |
| 電機功率 | 600W |

B. 電機：

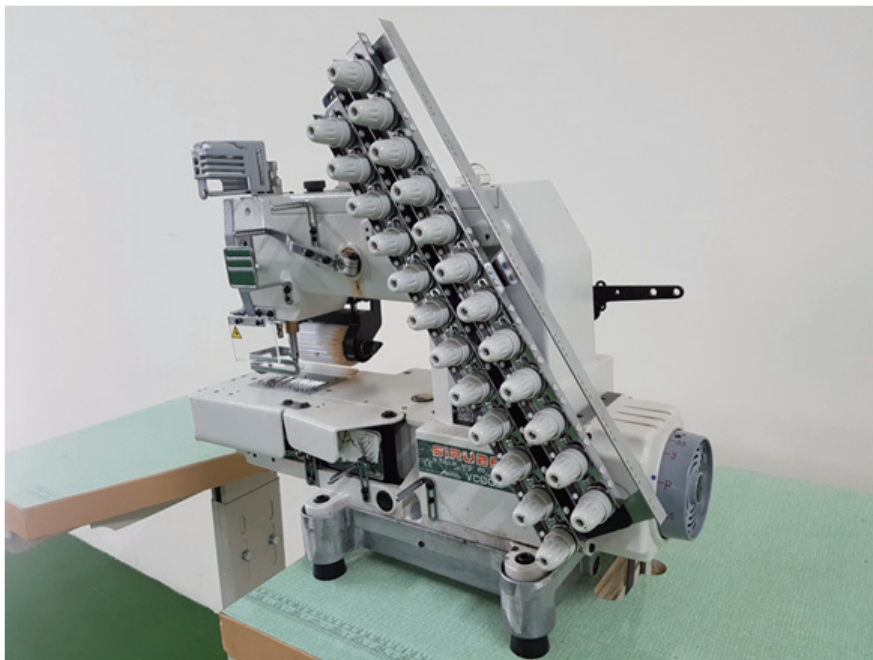
電機轉子屬於稀土永磁材料，具備功率大，節能環保等各大優點。電機內設有霍爾感測器，使電機具有準確的上下定位，使電機體積更小更美觀。

B.Motor:

Rotor is made of rare earth permanent magnet, guarantee high power and environmental. Exactly needle UP/DOWN position due to its built-in Hall type sensor and compact design.

C. 部分產品組裝效果圖：

C.Partial demonstration:

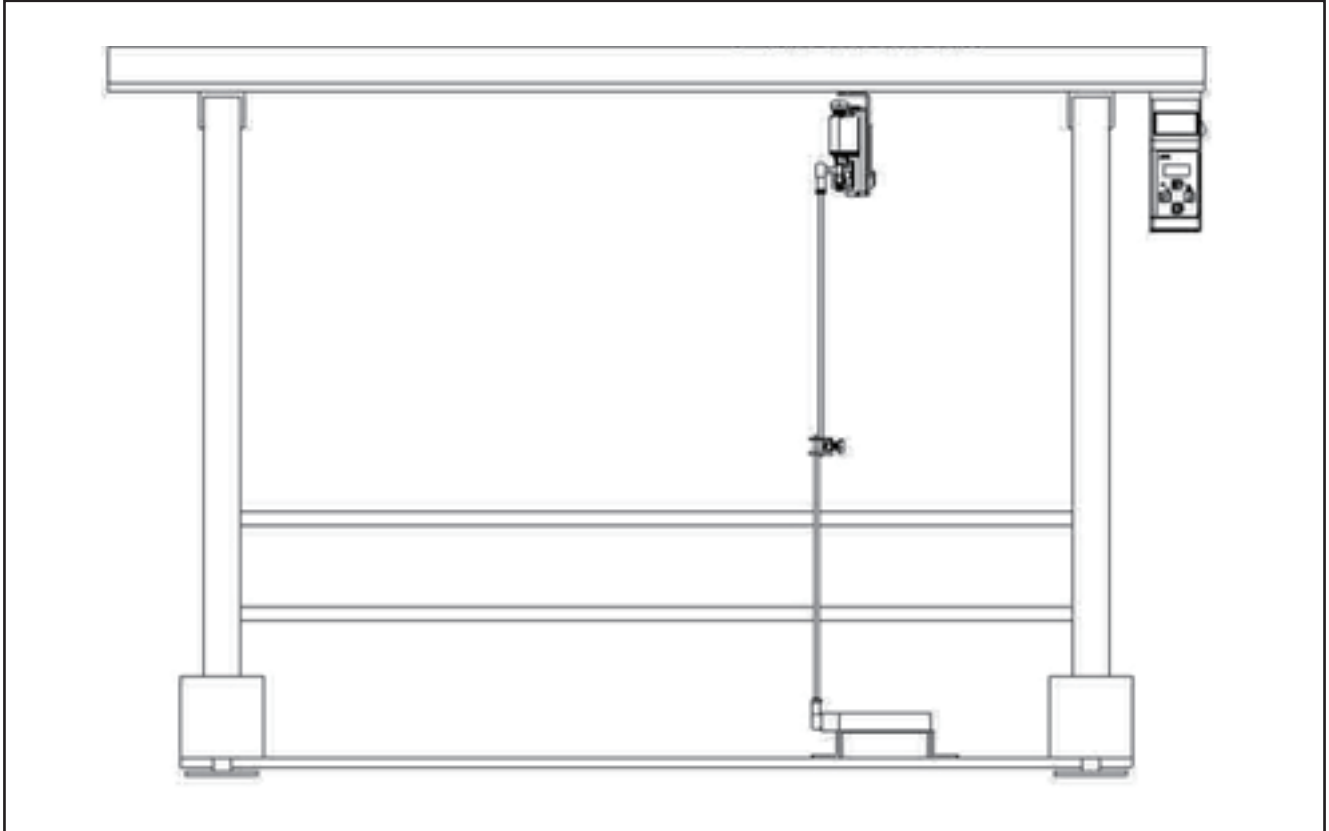


安裝調試：直驅式電機安裝方法

INSTALLATION AND TRIAL-RUN (DIRECT DRIVE TYPE)

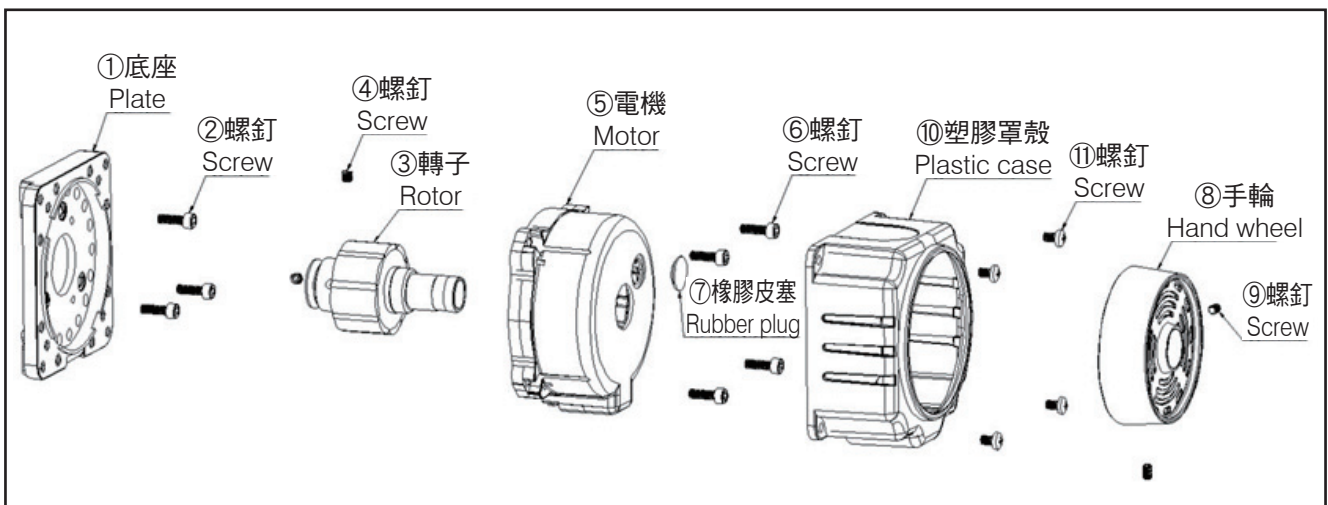
1. 控制箱速控器安裝如下圖
將控制箱和速控器用螺釘依次安裝在縫紉機台板上。

1. Install control box and speedcontroller as below figure
Using screws, mount the Control Box and speedcontroller onto sewing table properly.



2. 直驅電機安裝示意圖：

2. Schematic diagram of the installation of direct drive motor

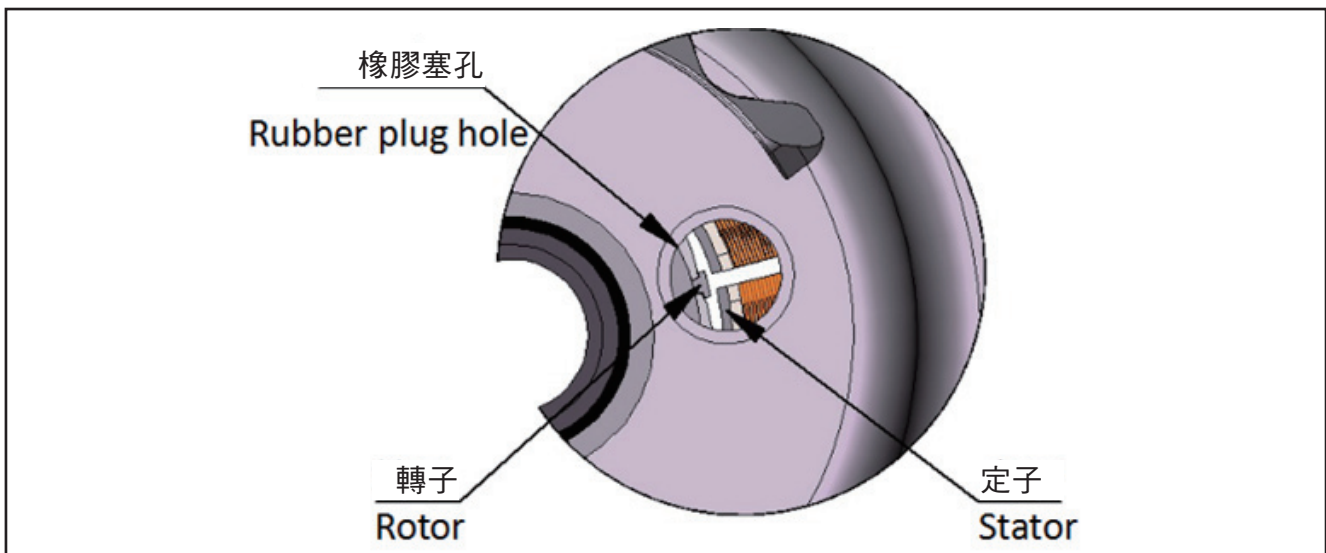


直驅電機安裝共 6 步驟：

- (1) 裝底板：
 - a) 拆掉縫紉機上的手輪、皮帶、皮帶罩。
 - b) 如安裝圖所示將圖①底板用圖②螺釘鎖在對應的縫紉機孔位上。
- (2) 裝轉子：
 - a) 如安裝圖所示將圖③墊片放置縫紉機軸上，將圖⑤轉子裝入縫紉機軸上，用⑥的螺釘鎖緊，裝入圖④同步帶
- (3) 裝電機：
 - a) 如安裝圖所示將圖⑦電機裝入並用圖⑧螺釘鎖緊固定在圖①底板上（注：電機裝入轉子要注意磁鐵吸力，小心夾到手。）
- (4) 檢查轉子和定子是否裝好
 - a) 拿出圖⑨橡膠孔塞。
 - b) 目測轉子平面與定子平面是否相平，兩面相平度不得超過 1.5mm（看剖視圖 A), 如果超過 1.5mm 的話，要拆掉電機和轉子用圖墊片來調整。

Motor installation of a total of 6 steps:

- (1) Install Plate:
 - a) Remove the hand wheel, belt cover and wind blade on the sewing machine.
 - b) According to the above install picture, use the screw (picture ②) installing the plate (picture ①) into the sewing machine head.
- (2) Install rotor:
 - a) According to the above install picture, put the washer (picture ③) into the sewing machine axis, then put the rotor (picture ⑤) to the sewing machine axis, use the screw (picture ⑥) to fix it, then install the synchronizing wheel cover (picture ④).
- (3) Install Motor:
 - a) According to the above install picture, use the screw (picture ⑧) to fix the motor (picture ⑦) in to the plate (picture ①). (attention: please take care the magnetism to hurt the hand when put the motor to the rotor.)
- (4) Check the rotor and the stator is installed or not
 - a) Taking out figure ⑨ rubber hole stopper.
 - b) Check the plane of the rotor and the stator is flat or not, two surface roughness shall not exceed 1.5mm (See section view A), if more than 1.5mm, to remove the motor and the rotor with figure gasket to adjust.



c) 調整好後裝回橡膠孔塞。(注：電機兩平面裝的越平越好，如果兩平面超過 1.5mm 的情況下，電機會比正常安裝的發熱量大和力矩減小現象。)

(5) 裝手輪和外殼：

- a) 用手轉動轉子，使機針停在最天秤高位，縫紉機手輪如圖 B
- b) 如安裝圖所示將圖⑧手輪裝入並用圖⑨螺釘鎖緊，(注：停車針位和手輪與電機間隙如圖 A、B、C)
- c) 將如安裝圖所示將圖⑩塑膠外殼裝入並用圖 的螺釘鎖緊

c) Adjusted to fit back rubber hole stopper. (Notes: The distance between two flat as small as possible, if more than 1.5mm, motor will be calorific value more and torque decreases.)

(5) Install Hand wheel and the cover:

- a) Use hand to turn the rotor, let the needle stop in the scales highest position
- b) According to the above install picture to install the Hand wheel (picture ⑧), use the screw (picture ⑨) to fix. (Attention: the needle stop position and the clearance of Hand wheel and the motor is as following picture A、B、C)
- c) According to the above install picture, install the cover (picture ⑩), and use the picture screw to fix.



圖 A (Pic.A)



圖 B (Pic.B)



圖 C (Pic.C)

(6) 檢查：手轉動手輪無卡擦現象，縫紉機也無加重。

(6) Check: Hand wheel hand wheel without card wiping phenomenon, Sewing machine weight does not increase.

控制台使用說明

INSTALLATION FOR CONTROL PANEL

1. 各按鍵的用途：

(1) “P” 鍵的用途：

第一：“P” 鍵為上、下停針鍵，按下“P” 鍵，上燈孔亮，為上停針；下燈孔亮，為下停針；兩個燈孔都不亮，為自由停針；

第二：功能進入鍵（見進入參數的操作方法）

(2) “S” 鍵的用途：

第一：“S” 鍵為燈開關鍵，按下“S” 鍵，當“S” 鍵上的小燈亮為打開燈，滅為關掉燈。

第二：功能參數（確認）鍵（見進入參數的操作方法）

(3) “+” “-” 鍵的用途：

此兩個鍵用於轉速調整和參數調整。

2. 進入參數的操作方法

例：怎樣把電機的順時針轉調到逆時針轉：

第一步：打開電源；

第二步：先按“P” 鍵不放，同時按“+” 號鍵，此時畫面會顯示 P-00。

第三步：按“+” 號鍵，把 P-00 調至 P-02，（P-02）就是電機正反轉參數（常用參數表上有標明）；

第四步：按下“P” 鍵畫面會顯示“1”；

第五步：按下“-” 號鍵把“1” 調到“0”（“1” 為順時針轉，“0” 為逆時針轉，常用參數表上有標明）；

第六步：按下“S” 鍵確定參數調整完成。

1. Each key purpose:

(1) Function of “P” key:

First: “P” key for upper and lower stop needle position. Press “P”, if up pinhole lamp lights means it's up stop needle, if down pinhole lamp lights means that it is down stop needle, if two lamps off means needle position is freedom.

Second: Function Enter button (below to enter the parameter method of operation)

(2) Function of “S” key:

First: “S” button for off or on the head lamp. Press “S” key the lamp lights, if don't do it is turn off.

Second: Function Enter button (below to enter the parameter method of operation)

(3) Function of “+” 、“-” key

These two keys are used to adjust speed and parameter modulation.

2. 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.

3. 恢復出廠設置

恢復出廠設置方法：先按“P”鍵不放，同時按“+”號鍵，此時畫面會顯示 P-00，再長按“S”鍵約 3 秒即可。

3. 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.

4. 電機常用參數設置

4. Commonly used parameter setting

| 參數編號 Parameters No. | 功能名稱 Function Name | 調整範圍 Adjusting Range | | 出廠值 Default settings | 備註 Remark |
|---------------------------|------------------------------------------------------------|--------------------------------------------------------------|------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| P-01 | 最大速度鎖定 Maximum Speed lock | 200-4000RPM | | 3500 RPM | |
| P-02 | 電機方向 Direction of rotation | 0: 逆時針 0: Counter- clockwise | 1: 順時針 1: Clockwise | 1 | 老款平縫電機調到 2 或 3 Lockstitch Machine changed to 2 or 3 |
| P-03 | 下停角度 The needle angle | 6-18° | | 12° | |
| P-04 | 起縫速度 Start sewing speed | 200-800 RPM | | 250 RPM | |
| P-05 | 加速快慢 Speed up And slow | 2000-4000 RPM | | 35000 RPM | |
| P-06 | 定針縫 Set the seam | 0-999 Stitch | | 0 | |
| P-10 | 自動間隙運行（跑合） Automatic Clearance run (run) | 把 0 改成 1 再按 S 鍵 Press the S key when change 0 to 1 | | 0 | |
| P-11 | 抬壓腳起動時間 Presser foot Lifter starting time | 0-2000ms | | | |
| P-12 | 抬壓腳保護時間 Presser foot Lifter protection time | 1-120s | | | |
| P-13 | 老款平車電機選擇 Application to Lockstitch sewing Machine | 1 是老款平縫機電機 1 for Lockstitch sewing machine | | 0 | 0 是普通機 0 is ordinary sewing machine |
| P-14 | 最大電流限制 Maximum current limiting | 50-1000 | | 360 | 內部電流值 the inside current number |
| P-15 | 是否檢測上針位 Whether to detect the up needle position | 1: 檢測針位，0: 不 檢測 1: detecting needle 0: no detection | | 1 | 設為 1 時，如果無上定位感 測器則報警 ER01，設為 0 時 則不報警 Set “1”，if there is noupper needle stop sensor will alarm ER01; set “0” no alarm |
| P-18 | 出廠密碼 factory code | 0000-9999 | | 2013 | |

| | | | | |
|------|---------------------------------------------|---------------------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P-19 | 軟起動針數 soft start stitches | 0-15 | 0 | 0 針關閉該功能，1-15 針時啟用軟啟動，並設定針數（上停針時有效） 0 stitch is close this function, 1-15stitches is open the soft start , and set the stitches(upper needle position is effective) |
| P-20 | 軟起動速度 soft start speed | 200-3500 | 800 | |
| P-21 | 吸氣功能 suction function | 0: 關閉 1: 開啟 close 1:start | 1 | 電機運轉時開啟 / 關閉吸氣功能 motor running open/close suction function |
| P-22 | 吸氣開啟針數 suction start stitches | 1-200 | 30 | 吸氣打開針數（P23 針數打開時有效） suction open stitches(P23 stitches open have effective) |
| P-23 | 吸氣間隔針數 suction close stitches | 0-200 | 0 | 0 為長吸大於 0 為間隔針數 0 is long waste suction and over 0 is interval stitiches. |
| P-24 | 吸氣動作維持時間 suction action maintain time | 50-2000ms | 120ms | 此參數暫時不用 this parameter do not use now |
| P-25 | 吸氣全功率時間 suction full power time | 35-1000ms | 120ms | |
| P-26 | 吸氣全功率時功率 the power of suction full power | 5-100% | 80% | |
| P-27 | 吸氣維持功率 suction maintain power | 1-100% | 70% | |
| P-28 | 吸氣釋放時間 suction release time | 0-500ms | 20ms | |
| P-29 | 吸氣保護時間 suction protection time | 1-120s | 30s | 吸氣單次動作最長時間 the longest time of suction single action |
| P-30 | 壓腳觸發模式 foot presser trigger mode | 0: 關閉 1: 開啟 0: close 1:start | 0 | 1 為觸發模式：後踏抬壓腳中立不會自動放壓腳 0 為跟隨模式：後踏抬壓腳、中立或前踏放壓腳 1 is trigger mode: back step the pedal the foot presser lifting, middle step the pedal the foot presser can not lift 0 is the following mode: back step the foot presser lifting, middle step or front step release the foot presser |

| | | | | |
|------|-----------------------------------------------------------------|---------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P-31 | 後抬腳啟動時間 back foot presser lifter start time | 0-2000ms | 0 | 後踏延遲啟動壓腳的時間 the time of back step delay start foot presser |
| P-32 | 抬壓腳動作維持時間 foot presser lifter action maintain time | 50-1000ms | 160ms | 此參數暫時不用 this parameter do not use now |
| P-33 | 抬壓腳全力功率時間 foot presser lifter full power time | 35-1000ms | 160ms | |
| P-34 | 抬壓腳全力功率時功率 the power when the foot presser lifter full power | 5-100% | 100% | |
| P-35 | 抬壓腳維持功率 foot presser lifter maintain power | 1-500% | 20% | |
| P-36 | 抬壓腳釋放時間 foot presser lifter release time | 0-120ms | 30ms | 壓腳釋放時間 the foot presser lifter release time |
| P-37 | 抬壓腳保護時間 foot presser lifter protection time | 1-100s | 10s | 壓腳單次抬起最大維持時間 the biggest maintain time of the foot presser lifter single time |
| P-38 | 顯示速度 display time | 200-4000RPM | | 顯示當前電機實際速度 display the current motor real speed |
| P-39 | 顯示速控器電壓 display the volt of speed controller | 14-1010 | 中點電壓 195 Neutral point volt | 顯示當前速控器電壓 0—1024，相當於 0-5V Display the current speed controller volt 0-1024, it is equal 0-5V |
| P-40 | 顯示直流母線電壓 display DC buses voltage | 60-500V | 320v | 當電壓高於 395 會報警，(直流母線電壓 /1.414= 交流母線電壓) when the volt is higher than 395V will alarm,(DC buses volt/1.414 = AC buses volt) |
| P-41 | 過壓保護開關 overload protection switch | 0: 關閉 1: 開啟 0: close 1:start | 1 | 設為 0 關閉過壓報警，設為 1 打開報警，當直流母線電壓超過 395V 時，報警 Er16，電機自動停止運行，報警後當電壓低於 385v 電機可再次運行 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. |

故障排除

ERROR CODE & TROUBLE SHOOTING

| 錯誤碼 Error code | 錯誤內容 Error content | 錯誤問題的多種可能 Several possible error problem |
|-------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Er01 | 找不到停針位 Can't find the needle position | 1. 手輪靠的不夠近間隙在 2.5mm 內 2. 九針插頭接觸不良 3. 電機霍爾壞，要更換電機 4. 手輪上的磁鐵掉落 1. The hand wheel is not close, clearance within 2.5 mm 2. Nine plug contact undesirable 3. Motor holzer bad, to replace the motor 4. The hand wheel magnet in the loss |
| Er02 | 開機沒有檢測到調速器 Not detected boot speed regulator | 1. 調速器插頭沒有插 2. 調速器線斷了或接觸不良 1. Speed control device without plug 2. Speed wire is broken or contact undesirable |
| Er03 | 電機霍爾或相位線錯誤 Motor holzer or phase error | 1. 九針插頭接觸不良 2. 電機沒有安裝好，參照圖 A 3. 霍爾壞 1. Nine hole plug contact undesirable 2. The motor doesn't pack good 3. Holzer is bad |
| Er04 | 堵轉保護 Locked-rotor protection | 1. 電機超載 2. 電機與電控相連接的四心線接觸不好 3. 電機斷線或壞了 1. The motor overload 2. The motor and the controller connected four hole line contact is not good 3. Motor is bad |
| Er05 | 硬體過流保護 Hardware over-current protection | 1. 電機超載 2. 信號線接觸不好或斷了 3. 主機板壞了 1. The motor overload 2. Line contact is bad or broken 3. Main board is bad |
| Er07 | 串口通信逾時錯誤 Serial port communication timeout error | 顯示幕至主機板信號線不良或主機板壞 Display to the system board signal is bad or board is bad |

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| Er16 | 過壓保護 Overload protection | <p>1. 電機驅動電源電壓過高，220V 電源電壓超過限定值（AC310V），或負載慣性過大導至再生電壓超過限定值（DC440V），或電壓檢測回路故障。 注：（110V 控制系統電源電壓超過限定值（AC155V），或負載慣性過大導至再生電壓超過限定值（DC220V）。</p> <p>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. Note:(110V control system power supply voltage exceeds limit value(AC155V), or load inertia is too large to regeneration voltage exceeds limit value(DC220V).</p> |
| Er20 | 欠壓保護 Deficiency protection | <p>1. 電機驅動電源電壓過低，220V 電源電壓低於限定值（AC91V），或電機驅動電源電壓低於限定值（DC130V），或電壓檢測回路故障。 注：（110V 電源電壓低於限定值（AC45.5V），或電機驅動電源電壓低於限定值（DC65V））</p> <p>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. 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))</p> |
| Er22 | 調速器未復位 speed controller is not reset | <p>開機檢測到調速器輸出電壓高於啟動電壓 調速器故障或調速器未重定</p> <p>1. The boot detected that the speed controller output voltage is higher than the boot voltage 2,Fault of speed controller or non-reset of speed controller</p> |

作業環境要求

1. 請不要在過潮濕環境中作作業
2. 用戶供電應保持穩定 210V-240V (注：110V 用戶供電應保持穩定 90V-130V)
3. 用戶使用前必須接地，確保人身安全
4. 不要在過熱地方作業
5. 控制系統與電機不要在強磁高輻射環境中作業，以免干擾而使系統錯誤

ENVIRONMENTAL REQUIREMENTS

1. Please do not work at damp place
2. The voltage requires being stable (210v-240v) (Note: The power supply for 110V users should remain stable at 90V-130V)
3. Must be adequately grounded for safety
4. Do not work at high temperature
5. Do not run motor and control system near to ferromagnetic or high-radiance area

保修服務

1. 本產品自購買起免費保修 2 年，終身維護。保修期內除人為損壞以外出現任何品質問題可免費維修
2. 在保修期內，以下情況出現損壞本公司不給於保修服務：
 - A. 未經本公司同意自行拆卸、修理、改裝造成的故障或損壞。
3. 但凡出現無法解決的問題可以聯繫本公司。

WARRANTY SERVICE

1. Since from the purchase of this product, the free 2-year warranty, lifetime maintenance. During the warranty period, any quality problems the product will be free repaired, except artificial damage.
2. In the warranty period, the following circumstances appear to damage the company does not give the warranty service.
 - A. Dismantle the motor unit without permission and cause damage.
3. Whenever find the problem can not be solved, you can contact with our company.



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The specification and/or appearances of the equipment described in this instruction book & parts list are subject to change because of modification which will without previous notice.
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