

# SIRUBA

電控說明書

ELECTRONIC CONTROL PARAMETER MANUAL

■ C007KP-CAH





## 溫馨提醒 A WARM REMINDER

請儘快下載 SIRUBA APP，並將您的機器註冊，以便獲得原廠的保固。APP 還提供多項有用的資訊。

please register your Siruba machine online or through Siruba App at once, as to gain the full warranty protection. You may also acquire more useful information through Siruba APP.



## 安全警示 GENERAL SAFETY INSTRUCTION

有關於縫紉機，自動化機構，以及其他輔助設備（以下統稱為機器），在工作中無可避免會接近機器移動區域，也就有伴隨著潛在風險。因此，我們強烈要求操作者，維修技師一定要先仔細閱讀並瞭解本操作手冊的內容。安全指示係包含了某些未載於規格書上的加裝配件。現場管理者有責任要求所有操作者要閱讀並瞭解機器的操作與注意事項。未能確實遵守本手冊所記載的事項，將可能導致機器的損害，或是人員的傷亡。

For the sewing machine, automatic mechanic system, and auxiliary devices (hereinafter referred as “machine”), it is inevitable to conduct work near moving parts of the machine. This means that there is always a potential risk from the moving parts. Operators actually operating the machine and service technicians performing maintenance and repair are strongly advised to read and understand fully the following instructions in advance. The safety instructions include items which are not listed in the specifications of your product. It is the manager/supervisor’s responsibility to have their fellow workers fully understand before operation. Fail to follow the instructions may cause damage to properties, severe injury or even death.

### 警告標示說明

Explanation of warning indications and labels.

	<p>高壓電危險 在機器關機後十分鐘內，勿開啟電控箱。</p> <p>HIGH VOLTAGE DANGER Do not open the power cabinet within 10 minutes after the power off.</p>		<p>零部件移動區 勿接近，以避免人員受傷。</p> <p>Machine moving area! Stay away and keep clear to avoid injury.</p>
	<p>零部件高速移動區 勿接近，以避免人員受傷。</p> <p>High speed moving area! Stay away and keep clear to avoid injury.</p>		

標告標示說明 WARNING LABELS	標告標示說明 WARNING LABELS
<p>機器零部件移動區，勿接近，以避免人員損傷。 A risk of cut and injury from moving parts. Stay away and keep clear.</p>	<p>請注意，在操作過程中握住縫紉機會傷到您的手。 Be aware that holding the sewing machine during operation can hurt your hands.</p>
<p>有電，危險。 A risk of electric shock. Stay away and keep clear.</p>	<p>小心被機械捲件受傷！ There is a risk of entanglement in the belt resulting in injury.</p>
<p>高溫度區！危險，勿靠近。 A risk of burn from the high temperature area. Stay away and keep clear.</p>	<p>如果觸摸按鈕托架，可能會造成人身傷害。 There is a risk of injury if you touch the button carrier.</p>
<p>強光！勿直視，以避免眼睛受傷。 Avoid direct eye contact with the laser beam or other light source.</p>	<p>一般安全標示 GENERAL SAFETY INDICATIONS</p> <p>機器運行方向 The correct direction is indicated.</p>
<p>小心頭部撞擊！ A risk of injury to head from upper contact. Apply proper protection (helmet) and keep clear.</p>	<p>電氣接地位置標示 Grounding connection as indicated.</p>

## 安全須知

### 危險

意外事件將會導致人員受傷甚至死亡，也會造成財產的損害。  
當有必要進行電控系統的檢修時，務必要關閉電源，並等候至少 5 分鐘以上才能打開電控箱／操作箱，以避免電擊。

### 注意

#### 1. 基本預防

- (1) 在操作前務必先閱讀操作手冊與其他機器電件的說明書，請妥善保存操作手冊與說明書以便隨時查閱。
- (2) 這些注意措施包含了機器上加裝，但未列在規格書上的項目。
- (3) 務必要戴護目鏡與手套，以避免破損零件所帶來的傷害。
- (4) 有裝戴心臟調節器的人員，請先詢問醫護人員有關注意事項。

#### 2. 安全裝置與警告標示

- (1) 操作前要檢查，並確認所有的安全設施有妥善安裝且運作正常。
- (2) 若安全設施因維修需要移動，在機器重新啟動操作前，請確認安全設施有重新安裝回原位，並且運作正常。
- (3) 機器上的安全警告標示要保持完整與可辨視。如果有污損或遺失，請儘以更新。
- (4) 未能確實遵守安全規範，將會導致人員受傷，甚至影響生命安全。

#### 3. 應用與修改

- (1) 嚴格禁止機器使用在非原始設計用途。也禁止以任何不是操作手冊上記載的方式來操作機器。
- (2) 嚴格禁止修改機器。任何未經原廠許可的變動將不在保固範圍內。
- (3) 機台一經修改變動，本公司將不擔負財務損失，人員傷亡的責任。

#### 4. 教育與訓練

- (1) 工廠主管人員有義務提供機台使用人（操作者／維修者）相關的教育訓練。良好的教育訓練不僅可以避免造成人員傷害，也可以避免財產的損失。
- (2) 操作人員操作機器之前，都必需接受過良好的訓練。
- (3) 機器的維修保養必須由合格的技師執行。

#### 5. 必須關閉電源的情況：

如何關閉電源：按壓下緊急停止開關（如果機器有配置的話），關閉電源，拔除電源線。

- (1) 當機器出現異常時，按下緊急停止開關（如果有配置），關閉電源。
- (2) 為了避免機器突然啟動造成意外，在操作機器前，要先確定機器電源關閉，再行開啟電源。
- (3) 當檢查或清潔機器時，關閉電源，並確定機器已完全停止運作。
- (4) 當維修機器時（如更換或調整零件），要關閉電源，並確定機器已完全停止運作。

#### 6. 拔除電源線時，務必要抓住電源插頭，而非抓住電源線，以避免斷裂，電擊，甚至火災。

#### 7. 當機器停止運作，且無人看管時，要關閉電源。

#### 8. 萬一停電或電力供應出現不穩，關閉電源，以避免意外發生。

## SAFETY PRECAUTIONS

### Danger

An accident means "to cause personal injury or death, or damage to property."

When it is necessary to perform service on electrical parts, be sure to turn the power off and wait for 5 minutes or more before opening the power cabinet/box in order to avoid electrical shock.

### Caution

#### 1. Basic precaution

- (1) Read the manual and other papers supplied with accessories of the machine before operation. Keep the manual and papers at hand for quick reference.
- (2) The content of this section includes items which are not listed in the specification of your product.
- (3) Always wear safety goggles and gloves to avoid accident caused by parts breakage.
- (4) For those who use a heart pacemaker, please consult the medical specialist first.

#### 2. Safety devices and warning labels

- (1) Check to ensure all safety devices are correctly installed in place and properly before operation.
- (2) If any of the safety devices is removed for service cause, please be sure to replace it back to position and verify that it works normally before resuming operation.
- (3) Always keep the warning labels adhered on the machine clearly visible. If any of the labels missing or contaminated, replace with a new one at soon.
- (4) Fail to obey instructions above may cause severe injury or death to the operators.

#### 3. Application and modification

- (1) It is prohibited to use the machine for any application other than its original intention, or in any manner other than that prescribed in the instruction manual.
- (2) Never modify or alter the machine. Any unauthorized change of the specification will not be covered by the warranty.
- (3) Our company assumes no responsibility/liability to damages, injuries, or death resulting from the machine which has been modified or altered.

#### 4. Education and training

- (1) The plant managers/supervisors are obliged to provide education and training to operators and service technicians. A good education/training plan not only avoids personal injury but also prevent damage to the property.
- (2) Only a well-trained operator is allowed to operate the machine.
- (3) Only a certified technician is allowed to perform service to the machine.

#### 5. Situations that you must turn off the power

Turning off the power: press EMG Stop (if there is one), switch off the power, and remove the power plug from the outlet.

- (1) When there is a failure or abnormality, press EMG Stop (if there is one), switch off the power.
- (2) To prevent accident resulting from abrupt start of the machine, before operating the machine, always turn off the power and switch on again.
- (3) When cleaning or inspecting the machine, make sure the machine stops completely after turning off the power.
- (4) When performing service (i.e. changing or adjusting any component), make sure the power is off and the machine stops completely.

#### 6. Remove the power plug by holding the plug section instead of the cord to avoid electrical shock, leakage, or fire accident.

#### 7. Turn off the power whenever the machine is left unattended between works.

#### 8. In case of a power failure or black out, turn off the power to avoid damage or accident.

## 在不同階段的注意事項

## PRECAUTIONS TO BE TAKEN IN VARIOUS OPERATION STAGES

### 1. 運輸

- (1) 當搬運或移動機器時，請考量機器重量，選擇安全合適的方式。請參考機器規格。
- (2) 採取足夠的安全防護，以避免機台在搬運或移動中掉落。
- (3) 為避免意外，運送時不要重覆使用包裝材料。

### 2. 拆箱

- (1) 在拆箱前，檢查機器是否平穩放置，並採用適當的工具維持拆箱過程的穩定。
- (2) 進行拆箱時，遵循外箱上的指示，小心外箱上的釘子或碎片。

### 3. 安裝：

#### 3A. 桌板與腳架

- (1) 採用原廠的桌板以確保機器得到足夠的保護與支撐。如果在安裝或維修時，需要暫時將機器置放於物件上，請確定該物件有足夠的支撐力。
- (2) 如果桌板有裝置滾輪，滾輪需要有煞車鎖定機構，而且在操作與維修時，煞車機構必需鎖定。

#### 3B. 電線與管路

- (1) 電線與管路的材質必需符合規範與需求。
- (2) 電線與管路不能夠有折彎或壓迫。移動的零配件上，電線與管路需有至少 30mm 以上的預留量。
- (3) 接線時不能有跳火。
- (4) 所有接頭都必需確實固定。當拆除時，務必要抓住接頭本體。

#### 3C. 接地

- (1) 接地是必需的。且需由合格的技師來施工。
- (2) 在操作前需確認接地有確實。

#### 3D. 馬達

- (1) 馬達的選用，必需符合規範與需求。
- (2) 如果馬達為皮帶傳動，務必要安裝保護措施以避免捲入危險。

### 4. 在開始操作前

- (1) 在開啟電源前，確認所有接頭，電線，管路都完好無損，確實連結。
- (2) 檢查皮帶輪的轉向與標示為同一方向。
- (3) 確認腳架滾輪都已鎖定。
- (4) 保持作業範圍淨空。

### 5. 在操作中

### 1. Transportation

- (1) When lift or move the machine, please take the machine weight into consideration and apply a safe manner. Refer to the specification for the information you need for transportation.
- (2) Apply sufficient safety measures when lifting or moving the machine to avoid falling or dropping.
- (3) To avoid unexpected accident, do not reuse the packing material for transportation.

### 2. Unpacking

- (1) Before proceeding to unpacking, check the balance of the machine and apply necessary tools to hold the proper position.
- (2) When unpacking, follow the instruction printed on the cartoon. Be careful of the nails and chips when unpacking from a wooden rack.

### 3. Installation:

#### 3A. Table and Stand

- (1) Only adopt a qualified genuine table and stand to assure the holding support. In case you need to leave the machine on a surface temporarily for service, make sure the surface is strong enough to hold the weight.
- (2) If casters are applied to the table stand, adopt casters with a locking mechanism only and lock them well to secure the machine during the operation and service.

#### 3B. Cable and Wire

- (1) The cables and wires must comply with the specification and requirement.
- (2) The cables and wires shall be free from bending or extra force. Reserve a free space of at least 30mm between cables/wires and the moving parts.
- (3) Do not apply starburst connection when wiring.
- (4) All connectors must be fixed securely. And always hold the connector body when removing it.

#### 3C. Grounding

- (1) Grounding is necessary and must be done by a certified technician. (2) Check and ensure the grounding is secured before operation.

#### 3D. Motor

- (1) The motor must comply with the specification and requirement.
- (2) If there is a belt in the motor transmission, adopt or apply a proper protector to avoid entangling.

### 4. Before Operation

- (1) Before turning on the power, make sure all the connectors, cables, and wires are free from damage, dropout, or looseness.
- (2) Check and make sure the pulley rotation follows the same direction as labels.
- (3) Make sure all the stand casters are locked or fixed in position.
- (4) Keep the working area clean from obstacles.

### 5. During Operation

- (1) Always keep your fingers, hair, or clothing away from the moving components and moving area. Do not place your personal belongings on the machine.

- (1) 注意手，頭髮，衣服不在機件移動範圍。不要將個人物品置放於機器上。
- (2) 機器會高速運作。保持雙手遠離移動機件範圍。機器完全停止前不要靠近。
- (3) 在移動物件或重新設定機器時，注意不要被機器或零件撞擊。
- (4) 避免突然起動造成意外，在檢查或維修馬達或皮帶時，務必關閉電源並確認機器完全停止。
- (5) 機器停止時，伺服馬達是無聲的。注意要關閉電源以免突然起動。
- (6) 永遠保持電控箱的風扇與氣道淨空。

## 6. 潤滑

- (1) 請依照說明書指示，選用合格的油脂來潤滑機件。
- (2) 如果油品接觸到眼睛或身體，立即以清水沖洗。如有不適，立即尋求醫護人員協助。
- (3) 如果油品不慎進入身體，立即尋求最近的醫療協助。

## 7. 維修保養

- (1) 只有合格的技師或工程師能夠進行維修服務，包含機器調整與修理。只採用原廠的零件進行更換。如果採用非原廠零件，或是因不當維修／調整所造成的傷害，本公司將不負任何責任。
- (2) 只有合格的技師或認證的工程師才能對電控系統進行維修或保養。
- (3) 當對氣動原件（如氣缸）進行維修保養時，務必先拔除風源，並將氣體完全洩除，以避免突然啟動。
- (4) 在調整或更換部件後，檢查所有螺絲是否鎖固。
- (5) 定期清潔是必需的。在清潔前務必先關閉電源，並確認機台完全停止。
- (6) 如果運作異常或不良，立即停止操作並關閉電源。聯絡授權經銷商或我們公司以尋求技術協助。
- (7) 當保險絲故障，立即關閉電源，找出故障原因並予以排除後，更換同規格的新的保險絲。
- (8) 定期檢查與清潔風道，電線與管路。

## 8. 工作環境

- (1) 機器必需不用電磁波干擾。
- (2) 電源供應必需良好且穩定。電壓波動不得超過 10%。
- (3) 隨時檢查空壓的壓力與品質。如果氣源不穩定，請安裝合適器材以改善。
- (4) 機器操作環境，室溫 5° C ~ 35° C，相對濕度 35%~85%。
- (5) 為了保護電子元件與安全起見，當有劇烈氣溫變化而導致凝水時，立即關閉並拔除電源，並靜候至完全乾燥為止。
- (6) 為了安全起見，當有打電或閃電時，請停止操作，關閉並拔除電源。
- (7) 勿在機器週遭使用電視或收音機，以避免干擾。
- (8) 依當地法令規範，在操作中採取必要的防護。
- (9) 關於包裝材料，潤滑油品，以及機器（含零配件）的丟棄，請依各地政府法規的規範執行。

- (2) The machine is designed to run at high speed. Always keep your hands away from the moving area. Do not resume the work cycle until the machine stops completely.
- (3) Be careful not to be caught by the machine or components when removing or resetting the machine.
- (4) To avoid accident caused by abrupt start, when performing service on the motor or belt, make sure the power is off and the machine stops completely.
- (5) A servo motor is silent as the machine stops. Be sure to turn off the power to avoid an abrupt start. (6) Always keep the fan and airway of the power cabinet clean from any obstacle.

## 6. Lubrication

- (1) Apply only qualified oil and grease onto the parts as instructed in the manual.
- (2) If the lubricant contacts your eye or body, wash it off immediately. Consult a medical care if necessary.
- (3) If the lubricant goes into your body accidentally, go to the nearby medical care immediately.

## 7. Service

- (1) Only a certified engineer/technician is allowed to perform service to the machine, including adjusting and repairing. Use only genuine parts for replacement. Our company assumes no responsibility/liability for any accident caused by improper repair or adjustment, or the use of any parts other than genuine one.
- (2) Only a certified technician or authorized engineer is allowed to repair or maintenance the electric system.
- (3) When performing service to air-driven parts, like an air cylinder, first disconnect the air supply and expel the air completely to avoid abrupt start.
- (4) Check all screws and nut are fixed well after adjusting and replacement.
- (5) A periodical cleaning is necessary. Make sure the power is off and the machine stops completely before cleaning.
- (6) If the machine functions poorly or abnormally, stop the operation and turn off the power. Contact the authorized dealers or us to request for a technical service support.
- (7) When there is a fuse failure, turn off the power, find out the cause of the failure and apply solution to it, then replace with a new one with the same spec.
- (8) Periodically check and clean the fan airway and the cable/wiring.

## 8. Working Environment

- (1) The machine should be free from the affection of electro-magnetic wave.
- (2) The power supply should be in good and reliable condition, the fluctuation of rated voltage should be less than 10%.
- (3) Always check the air pressure and quality. Some extra device might be needed if the supply is not reliable.
- (4) The machine is designed to be used with ambient temperature 5° C ~ 35° C, relative humidity 35%~85%.
- (5) To protect the electronic components and for safety cause, when there is a frost resulting from a dramatic temperature rise, disconnect the power and wait until it dry completely.
- (6) For safety cause, when there is a thundering or lightning, stop the operation and disconnect the power supply.
- (7) Do not use TV or radio nearby the machine as to avoid interference.
- (8) Apply necessary protection during operation. Follow applicable regulations set by local administration.
- (9) For disposal of packages, lubricant, and product, please follow the applicable regulations set by local administration.



有毒物質限量指令自我宣告書：

本公司所生產之伺服馬達產品系列如下所列：

AC 伺服馬達 --- ST-600W 系列

AC Servo Motor --- DCSM0360E-E Series

ST-600W Series Device---C007KP/CAH

皆符合以下指令及要求：

1. 歐盟 RoHS 指令 (2011/65/EU) 及有毒物質的限量要求 ((EU)2015/863)
2. 中華人民共和國電子行業標準：電子信息產品中有毒有害物質的限量要求 (SJ/T 11363-2006)

本公司產品本身 (馬達, 控制箱) 或其包裝材料及附件 (紙箱, 螺絲配件包, 說明書, 貼紙, 標籤, 印刷品 ... 等等) 或其元件與原材料供應商皆依照歐盟 RoHS 指令及中華人民共和國電子行業標準的限量規定而符合以下所列之十種有毒物質的限量要求：

有毒物質	限量要求
鉛 (Pb)	低於 1000 ppm
汞 (Hg)	低於 1000 ppm
鎘 (Cd)	低於 100 ppm
六價鉻 (Cr VI)	低於 1000 ppm
多溴聯苯 (PBB)	低於 1000 ppm
多溴二苯醚 (PBDE)	低於 1000 ppm
鄰苯二甲酸二酯 (DEHP)	低於 1000 ppm
鄰苯二甲酸丁酯苯甲酯 (BBP)	低於 1000 ppm
鄰苯二甲酸二丁酯 (DBP)	低於 1000 ppm
鄰苯二甲酸二異丁酯 (DIBP)	低於 1000 ppm

\* 基板的無鉛製程：總鉛含有濃度基準量 800 ppm 以下。

\* 包裝材料：Pb+Hg+Cd+Cr VI 含有濃度基準總共合計 80 ppm 以下。

Declaration of Conformity for Concentration Limits for Certain Hazardous Substances:

We declare herewith that the following AC servo motor series products list below :

AC servo motor—ST-600W series

AC Servo Motor --- DCSM0360E-E Series

ST-600W Series Device---C007KP/CAH

Are complies with the following directives and requirements:

1. European Union RoHS Directive (2011/65/EU) and the concentration limits for certain hazardous substances ((EU)2015/863).
2. People's Republic of China Electronic Business Standard : Requirements for concentration limits for certain hazardous substances in electronic information products (SJ/T 11363-2006).

Our product itself (motor, control box) or its packing materials and accessories (box, screws package, user manual, sticker, label, print...etc.) or the suppliers of parts and raw materials are all in conformity with the provision of the European Union RoHS Directive and People's Republic of China Electronic Business Standard to conform the following concentration limits for the ten hazardous substances :

Hazardous Substance	Permissible Values
Lead (Pb)	Less than 1000 ppm
Mercury (Hg)	Less than 1000 ppm
Cadmium (Cd)	Less than 100 ppm
Hexavalent chromium (Cr VI)	Less than 1000 ppm
Polybrominated Biphenyl (PBB)	Less than 1000 ppm
Polybrominated Diphenyl ether (PBDE)	Less than 1000 ppm
Di(2-ethylhexyl)phthalate (DEHP)	Less than 1000 ppm
Butyl Benzyl Phthalate (BBP)	Less than 1000 ppm
Dibutyl phthalate (DBP)	Less than 1000 ppm
Diisobutyl phthalate (DIBP)	Less than 1000 ppm

\* The concentration of lead in the lead-free process for PCB shall be less than 800 ppm.

\* For packing materials shipped with our products or parts, the hazardous substances shall be 80 ppm or less in sum of Pb+Hg+Cd+Cr VI.

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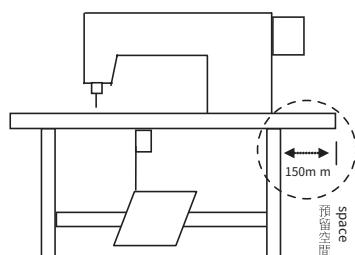


## 安裝與調整

## INSTALLATION AND ADJUSTMENT

控制箱的安裝：

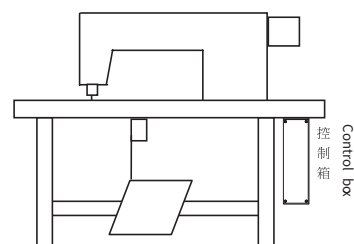
a). 車板右側面須預留 150 mm  
以上空間  
Leave 150mm space at right.



b). 將控制箱鎖裝於車板下方  
Mounting under the working table.  
尺寸圖 Measurement

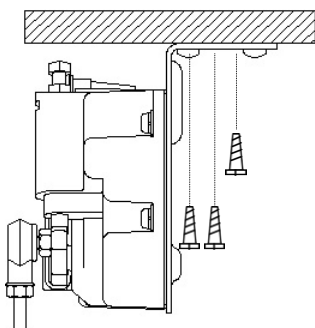


c). 安裝後示意圖  
Installation layout

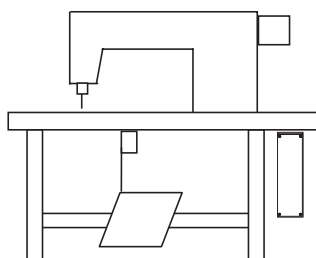


控速器的安裝：

a. 將控速器連座鎖於車板下方  
Secure the unit under the table



b. 安裝後示意圖  
Installation layout



## 控速器的調整

控速器各部位名稱：  
如圖示

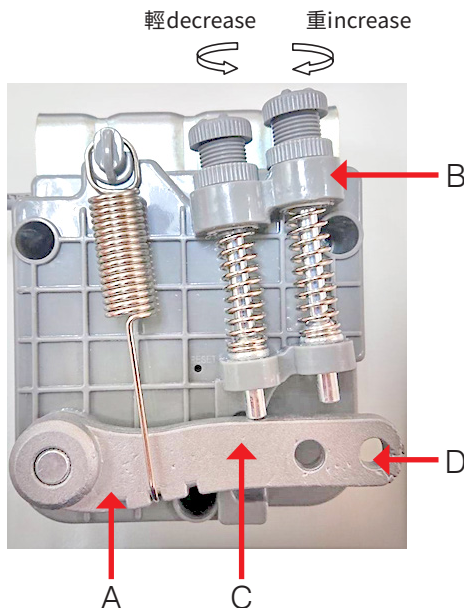
- A：前踏力量彈簧。
- B：後踏力量的調整螺栓。
- C：踏板旋臂。
- D：腳踏板吊桿。

Adjust the speed control unit

Components of speed control

Unit : see figure

- A: Spring for toeing forward force adjustment
- B: Bolt for heeling backward force adjustment
- C: Pedal arm
- D: Pitman rod for pedal



	調整需求 Term of adjustment	調整結果 Adjustment result
1	踏板前踏力量的調整 Toeing forward force adjustment	當彈簧 A 愈向右側勾時，表示力量愈重。 Spring A move to right = force increased. 當彈簧 A 愈向左側勾時，表示力量愈輕。 Spring A move to left = force decreased.
2	踏板後踏力量的調整 Heeling backward force adjustment	當螺栓 B 愈向上 ↶ 時，則後踏力量愈輕。 Bolt B turn ↶ = force decreased. 當螺栓 B 愈向下 ↷ 時，則後踏力量愈重。 Bolt B turn ↷ = force increased.
3	踏板行程長短的調整 Treadle stroke adjustment	當吊桿 D 向右側孔鎖裝時，表示行程較長。 Rod D secure at right = stroke is longer. 當吊桿 D 向左側孔鎖裝時，表示行程較短。 Rod D secure at left = stroke is shorter.

## 接線與接地

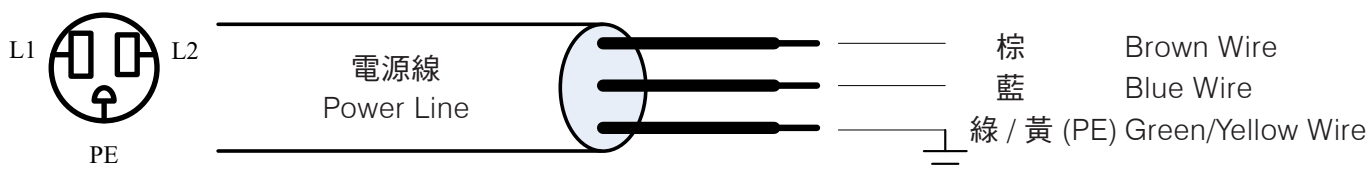
## POWER CONNECTION AND GROUNDING

### 1. 單相與三相電源線的接法

綠 / 黃色電線為接地線，一定要做好系統的接地工程，請洽合格的電氣工程人員予以施工。

### 1. Single phase connection:

Green / yellow wire is the ground wire



1. 當三相 220V 的伺服馬達機型，如要接於單相 200 ~ 240 V 的電壓使用時，只要接棕色線和藍色線即可，但黑色線請用絕緣膠帶確實包好，以免產生漏電現象。

2. 綠 / 黃色電線為接地線，一定要做好系統的接地工程。



1. When the three-phase 220V servo motor model is to be connected to the single-phase 200 ~ 240V voltage, only the brown wire and the blue wire can be connected, but the black wire should be wrapped with insulating tape to avoid accidents, leakage phenomenon.

2. Green / Yellow wire must do the grounding.

### 2. 當電源系統配置為三相四線式 380V 時，欲使用單相 220V 供應本控制器的接線放式

### 2. Connecting Single Phase / 220V Power from a 3 Phases / 380V Power Source

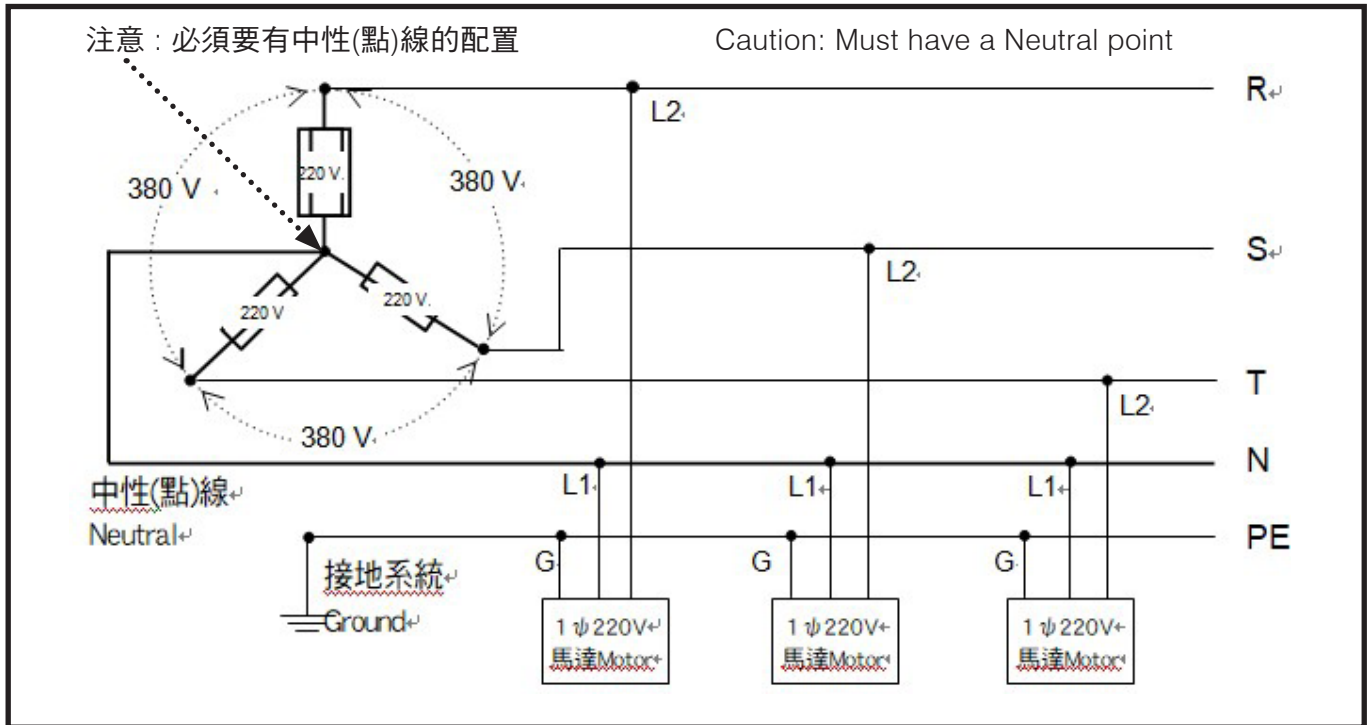


注意：  
如果此配置系統沒有【中性（點）線】時，則單相 220V 的伺服馬達不適合在此場所使用，請向原供應商改訂購本廠牌之三相 380V 的伺服馬達機型。



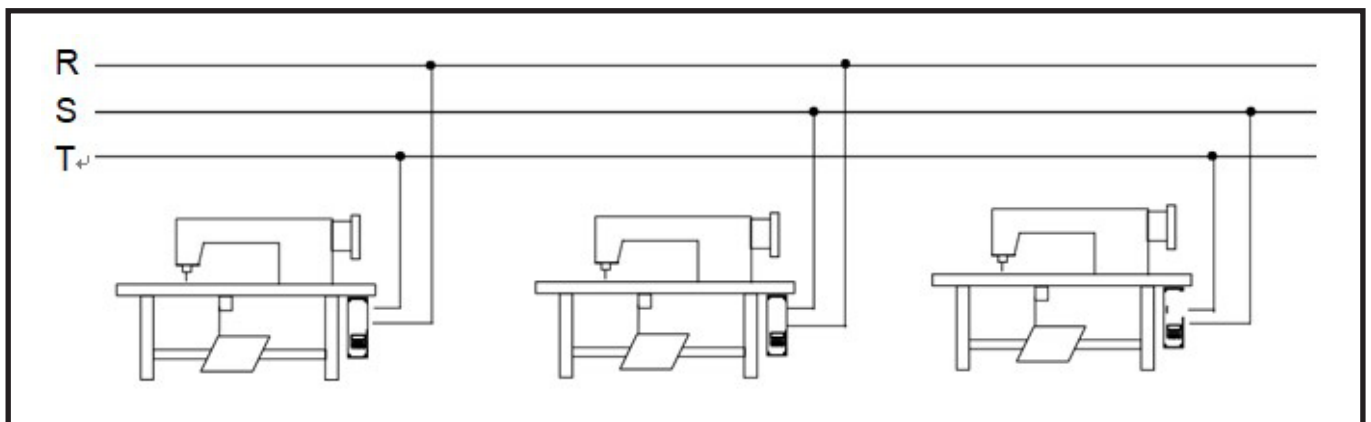
#### Caution :

If the power source does not have the neutral point, then this 1  $\Phi$  / 220 V servo motor is not suitable for this connection. Please ask supplier to offer our 3  $\Phi$  / 380 V servo motor.



3. 當單相 220V 伺服電機欲使用在三相 220V 的電壓時，須注意配置使用上的平衡。  
連接相當多數量縫紉機配置使用時，需考慮三相中 R、S、T 各相的平衡，如下圖示：

- 3.The load balance when use a 1  $\Phi$  / 220 V motor used on a 3  $\Phi$  / 220 V power source.  
See the following figure for the load balance.



在打開控制箱蓋之前，請先將電源關閉約 5 分鐘後，再執行如下插接動作。



內部高壓電危險



Caution:  
Turn off the power wait for 5 min. before open the cover, then make the change.



High Voltage inside

## 控制箱各部位的名稱

## NAMES OF VARIOUS PARTS OF THE CONTROL BOX

控制箱正面

Front side

- 顯示器螢幕  
Display screen
- 取消半後踏功能選擇鍵  
取消切線功能選擇鍵  
取消掃線功能選擇鍵  
起始定針縫功能選擇鍵  
Cancel half-pedal function selection key  
Cancel tangent function selection key  
Cancel scan function selection key  
Start/Stop lockstitch function selection key

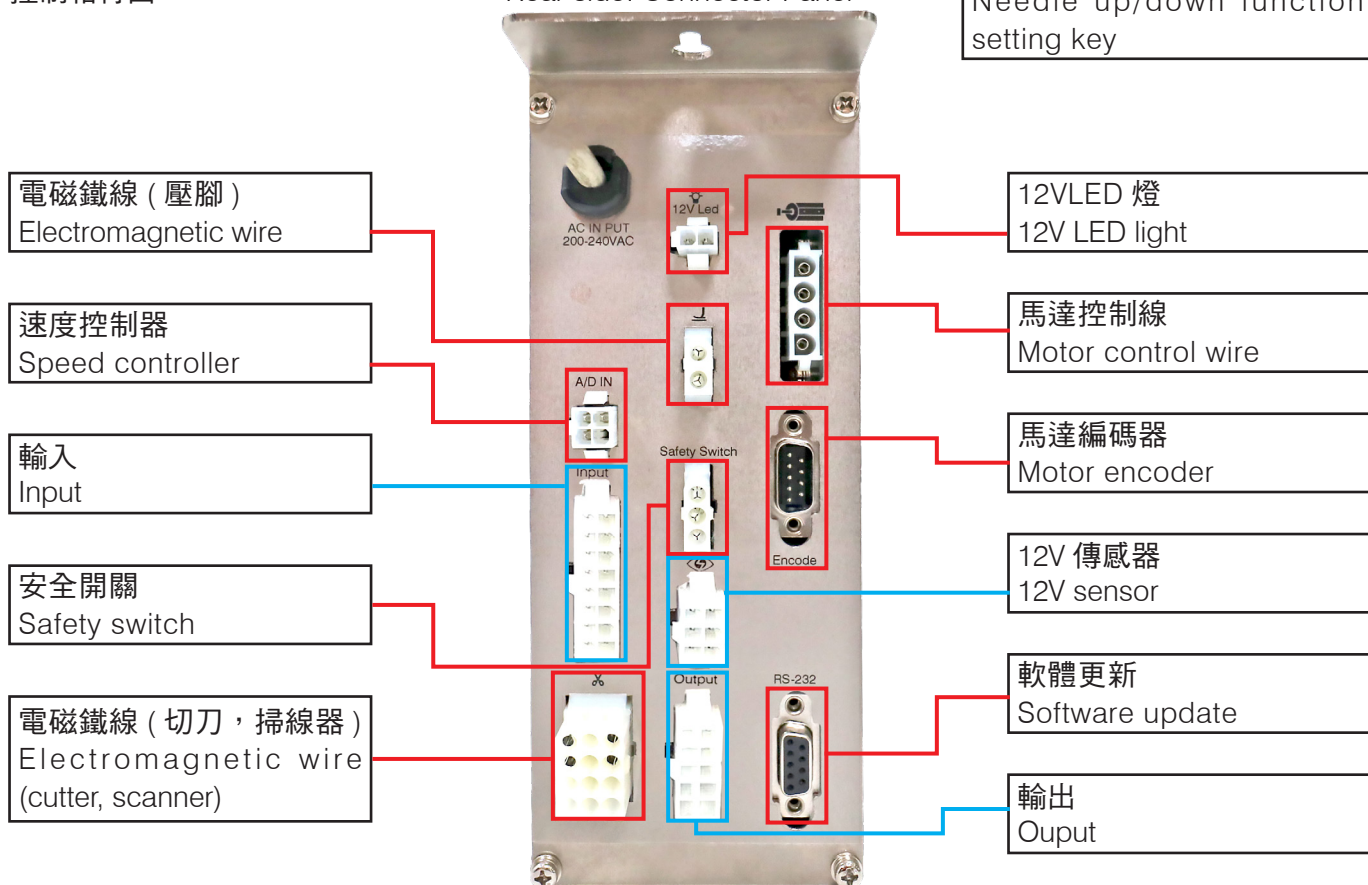


- 參數呼叫功能鍵  
參數儲存功能鍵  
參數增減功能鍵  
參數移動功能鍵  
Parameter call function key  
Parameter save function key  
Parameter increase/decrease function key  
Parameter move function key

- 中立時自動抬押腳  
切線後自動抬押腳  
慢速起縫設定鍵  
針停上 / 下功能設定鍵  
Automatically lift the presser foot when the machine is in neutral  
Automatically lift the presser foot after tangent sewing  
Slow start sewing setting key  
Needle up/down function setting key

控制箱背面

Rear side: Connector Panel




## LCM 畫面的顯示模式

## DISPLAY MODE OF LCM SCREEN

1. 在【一般模式】畫面區，面板按鍵的功能與定義

1. Functions and definitions of panel buttons in the [Normal Mode] screen area.

按住 3 秒可進入參數模式  
Press and hold for 3 seconds to enter parameter mode



此模式下無作用  
No function in this mode

八個功能快捷鍵  
Eight function shortcut keys

2. 如何進入【參數模式】畫面區的操作步驟

2. Operation steps to enter the [Parameter Mode] screen area

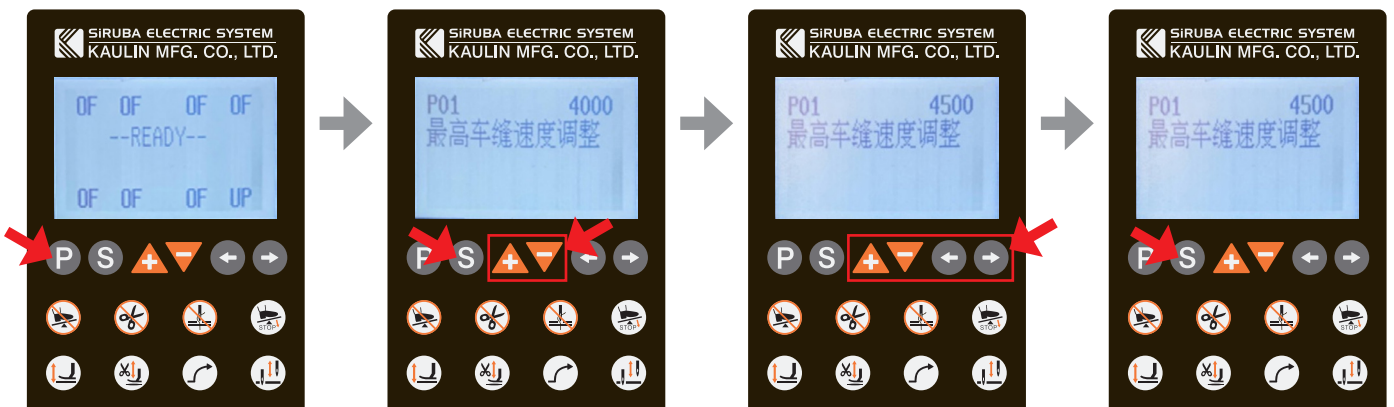
1. 在一般模式時按住 P 三秒後，即可進入參數模式。  
1. Press and hold the P button for three seconds in the Normal Mode to enter the Parameter Mode.

➔

2. 以 +, - 進行參數項目移動。  
3. 到達目標參數，按 S 進入參數內容區。  
2. Use + and - to move between parameter items.  
3. When you reach the target parameter, press S to enter the parameter content area.

➔

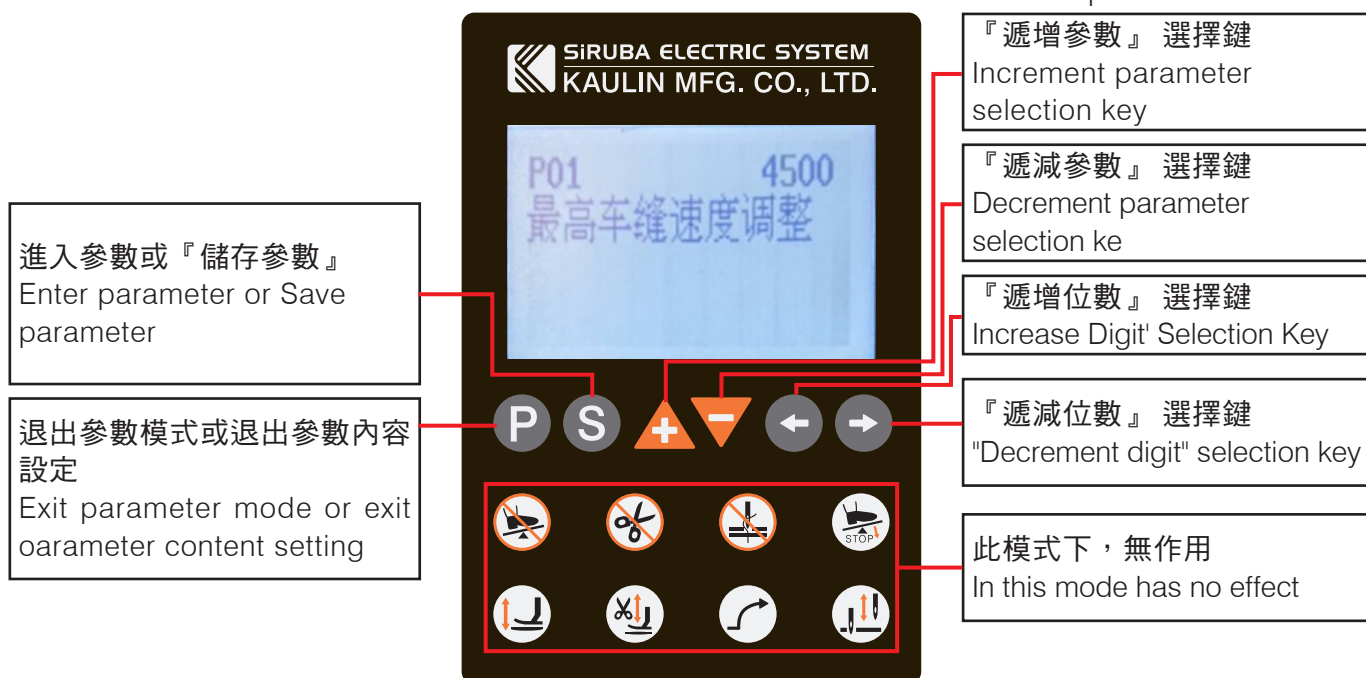
4. 使用 +, -, ←, → 等按鍵調正內容區之數值。  
5. 數值調整完成，按一下 S 鍵儲存參數數值。  
4. Use +, -, ←, → and other keys to adjust the value in the content area.  
5. After the value adjustment is completed, press the S key to save the parameter value.





3. 在【參數模式】畫面區時，面板按鍵的功能與定義：(如下範例圖示)

3. In the "Parameter Mode" screen area, the functions and definitions of the panel buttons are as shown in the example below.



4. 如何進入『參數內容區』進行調整設定：  
Step 1：先確定欲調整使用的參數代碼。  
(請參閱參數表或常用參數內容表)  
Step 2：找出欲調整的參數代碼。(請參閱【參數模式】畫面操作)  
Step 3：在進行所需參數內容值的調整。  
(請參照如下調整方式，以參數 P01 為範例)

4. How to enter the "Parameter Content Area" to adjust settings:  
Step 1: Determine the parameter code to be adjusted (refer to the parameter table or common parameter content table)  
Step 2: Find the parameter code to be adjusted (refer to the "Parameter Mode" screen operation).  
Step 3: Adjust the required parameter content value (refer to the adjustment method below, using parameter P01 as an example)

A. 將內容值或數值，調整至比原先數值【高】時的調整方式：  
例如：將數值從『4000』調整至『4500』  
(1.、2.、3. 步驟可以參考 (2). 進入參數模式)

A. To adjust the content value or number to be higher than the original value:  
For example, adjust the value from "4000" to "4500" (steps 1, 2, and 3 can refer to step 2, entering parameter mode).



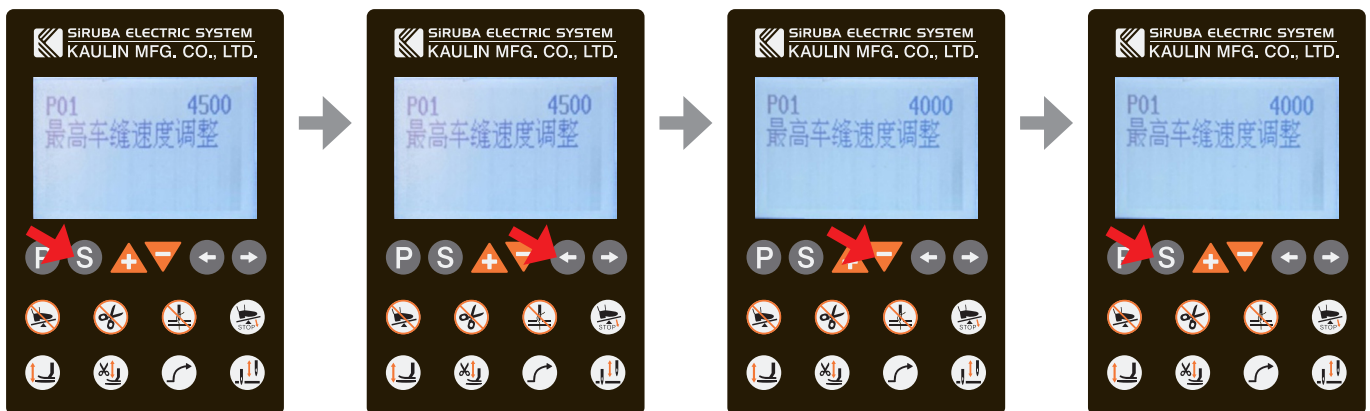
B. 將內容值或數值，調整至比原先數值【低】  
時的調整方式：  
例如將數值『4500』調整至『4000』（1.、2.、  
3. 步驟可以參考 (2). 進入參數模式）

B. To adjust the content value or number to be  
lower than the original value:  
For example, adjust the value from "4500" to  
"4000" (steps 1, 2, and 3 can refer to step 2,  
entering parameter mode)

4. 按 ← 鍵移動至第三 位數  
4. Press the ← key to move  
to the third digit

5. 按 - 鍵將數值遞減至 0  
5. Press the - key to  
decrease the value to 0

6. 按 S 鍵儲存參數  
6. Press the S key to save  
the parameter



5. 如何調整【定吋縫針數設定】畫面區的操作步驟：  
進入參數模式可以參照『(2). 如何進入【參數模式】』，移動至參數項目 P39

5. How to adjust the operation steps in the "Stitch Length and Needle Count Setting" screen area:

Entering the parameter mode can refer to "(2) How to Enter the Parameter Mode", and move to parameter item P39

1. 在參數項目 P39，按 S 鍵進入定吋縫段數選擇。
2. 使用 + 或 - 鍵進行段數切換。
1. Press the S key on parameter item P39 to enter the stitch length section selection.
2. Use the + or - key to switch between sections

3. 到欲調整段數時，按 → 鍵進入參數內容調整。
4. 使用 +, -, ←, → 等按鍵調正內容區之數值。
3. When you reach the section to be adjusted, press the → key to enter the parameter content adjustment
4. Use the +, -, ←, →, and other keys to adjust the value of the content area

5. 內容調整完後，按 S 鍵儲存。
6. 到段數選擇時，按 P 鍵退出設定。
5. After the content adjustment is completed, press the S key to save
6. When you reach the section selection, press the P key to exit the setting.



## 6. 如何調整【IOT 功能】的操作步驟：

## 6.How to adjust the operation steps in the "IOT function" screen area:

1. 主畫面，長按 S 鍵 2 秒，進入擴充參數選單。
1. On the main screen, press and hold the S button for 2 seconds to enter the extended parameter menu.

2. 擴充參數選單第 1 項為：IOT 功能。
3. 左方 IOT 閃爍時按 S 鍵，開始設定。
2. The first item of the extended parameter menu is: IOT function.
3. When IOT on the left is flashing, press the S key to start setting.

4. 右方選項文字閃爍時，按 + / -，可調整 ON/OFF，開啟或關閉 IOT 功能。
5. 按 S 儲存設定。
4. When the option text on the right is flashing, press +/- to adjust ON/OFF and turn on or off the IOT function.
5. Press the S key to save the parameter value.



## 7. 如何調整【半自動下擺操作模式】的操作步驟：

## 7. How to adjust the operation steps of "Semi-auto Bottom Hemming operation mode" :

1. 主畫面，長按 S 鍵 2 秒，進入擴充參數選單。
2. 擴充參數選單，按 +，選擇擴充參數 2。
1. On the main screen, press and hold the S button for 2 seconds to enter the extended parameter menu.
2. In the extended parameter menu, press + to select extended parameter 2.

3. 擴充參數選單第 2 項為：CAH01 半自動下擺模式。
4. 左方 CAH01 閃爍時按 S 鍵，開始設定。
3. The second item in the extended parameter menu is: CAH01 semi-automatic hem mode.
4. When CAH01 on the left is flashing, press the S key to start setting.

5. 右方選項文字閃爍時，按 + / -，可調整 (A 自動 /M 手動 / 關閉)，調整操作模式。
6. 按 S 儲存設定。
5. When the option text on the right is flashing, press +/- to adjust ([A]auto/[M] manual/off) and adjust the operation mode.
6. Press the S key to save the parameter value.



## 操作模式說明

## OPERATING MODE EXPLANATION

三種操作模式說明，分別為 A (自動)，M(手動)，OFF(關閉功能)。

A：自動模式，用於自動折邊的下擺車縫。

1. 分布板初始狀態為打開，分布板與壓腳聯動。
2. 壓腳抬起，分布板關閉。
3. 壓腳放下，分布板不動作。
4. 重覆抬、放壓腳，分布板不動作。
5. 縫紉中傳感器檢測到縫合接口，分布板自動打開。
6. 縫紉結束後，剪線(全後踩)，工作週期結束。

M：半自動模式，用於手動折邊的下擺車縫

1. 分布板初始狀態為打開，分布板與壓腳聯動。
2. 壓腳抬起，分布板打開。
3. 壓腳放下，分布板關閉。
4. 縫紉中傳感器檢測到縫合接口，分布板自動打開。
5. 縫紉結束後，剪線(全後踩)，工作週期結束。

OFF：關閉功能，用於手動折邊，膝控控制分布板的下擺車縫

1. 分布板初始狀態為打開，起始車縫前放置面料時，分布板動作由膝控控制。
2. 縫中傳感器檢測到縫合接口，分布板自動打開。
3. 縫紉結束後，剪線(全後踩)，工作週期結束。

There are three operating modes: A (Automatic), M (Manual), and OFF (Function Off).

A: Automatic mode, used for automatically folding the hem during the lower seam sewing.

1. The distribution plate starts in an open state, linked with the presser foot.
2. When the presser foot is lifted, the distribution plate closes.
3. When the presser foot is lowered, the distribution plate remains stationary.
4. Repeatedly lifting and lowering the presser foot does not move the distribution plate.
5. During sewing, the sensor detects the seam interface, and the distribution plate automatically opens.
6. After sewing is complete, the thread is cut (fully after stepping), and the work cycle ends.

M: Semi-automatic mode, used for manually folding the hem during the lower seam sewing.

1. The distribution plate starts in an open state, linked with the presser foot.
2. When the presser foot is lifted, the distribution plate opens.
3. When the presser foot is lowered, the distribution plate closes.
4. During sewing, the sensor detects the seam interface, and the distribution plate automatically opens.
5. After sewing is complete, the thread is cut (fully after stepping), and the work cycle ends.

OFF: Function Off, used for manually folding the hem, with knee control managing the distribution plate during the lower seam sewing.

1. The distribution plate starts in an open state. The movement of the distribution plate is controlled by the knee control when the fabric is placed before starting the sewing.
2. During sewing, the sensor detects the seam interface, and the distribution plate automatically opens.
3. After sewing is complete, the thread is cut (fully after stepping), and the work cycle ends.

## 常用參數內容表

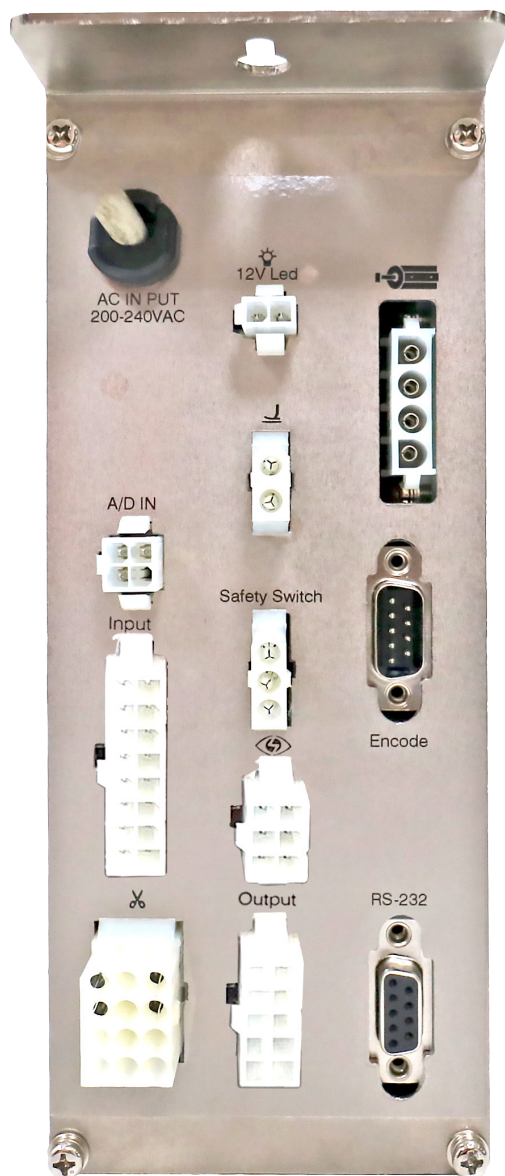
## COMMON PARAMETER CONTENTS TABLE

參數編號 Parameter No.	參數定義 Parameter Definition	調整範圍 Adjustment Range
長按 P Long press P		
P01	最高車縫速度 Maximum sewing speed	200~4500
P02	慢速起縫模式 Slow start sewing mode	T/A
P07	慢速起縫速度 Slow start sewing speed	200~2000
P08	慢速起縫針數 Slow start sewing stitch count	1~99
P09	定吋縫速度 Fixed stitch speed	200~4500
P10	定吋縫自動執行終止車縫 Fixed stitch automatic execution termination sewing	OFF/ON
P37	定吋縫模式 Fixed stitch mode	M/A
P38	定吋縫功能 Fixed stitch function	OFF/ON
P39	定吋縫針數設定 Fixed stitch needle count setting	0~250
P40	掃線 ( 上切刀 ) 功能 Thread trimming (upper cutter) function	OFF/ON
P41	切刀功能 Cutting function	OFF/ON
P42	計算模式選擇 Calculation mode selection	NOP/UTS
P43	設定計數 Set count	1~9999
P44	目前計數 Current count	僅顯示數值 Display value only
P45	當前車縫速度 Current sewing speed	僅顯示數值 Display value only



## 外部連接器連接說明

## OUTSIDE CONNECTOR DIAGRAM



### 電磁鐵線 (切刀, 掃線器)

Solenoid wire (cutter, wire wiper)

1	Y2	棕 Brown
2	-	-
3	30V/24V	綠 Green
4	Y3	黃 Yellow
5	-	-
6	30V/24V	橙 Orange
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-

### 馬達電源線 Motor Power Connector

1	U	紅 Red
2	V	白 White
3	W	黑 Black
4	PE	黃 / 綠 Yellow/Green

### 馬達編碼器訊號線

Motor Encoder Connector /D-SUB9 公座

1	A+	綠 Green
2	B+	白 White
3	Z+	黃 Yellow
4	+5V	紅 Red
5	GND	黑 Black
6	V+	棕 Brown
7	U+	灰 Gray
8	W+	橙 Orange
9	-	-

### 控速器 (A/D IN) Speed Controller

1	GND	黑 Black
2	-	-
3	AD IN	白 White
4	5V	紅 Red

### RS-232(SW update) / D-SUB9 母座

1	-
2	RX
3	TX
4	BOOT0
5	GND
6	-
7	-
8	-
9	5V

### 安全開關 連接器 Safety Switch

1	5V	紅 Red
2	INL	棕 Brown
2	GND	黑 Black

### 壓腳 連接器 Presser foot Switch

1	30V/24V	紅 Red
2	Y1	黑 Black

### 12V LED 連接器 12V LED Switch

1	12V	紅 Red
2	GND	黑 Black

12V 傳感器 12V sensor		
1	12V-1	紅 Red
2	INB-2	棕 Brown
3	GND-3	黑 Black
4	GND-4	黑 Black
5	IN2-5	棕 Brown
6	12V-6	紅 Red

輸入 Input		
1	INA-1	紅 Red
2	INF-2	紅 Red
3	IND-3	紅 Red
4	INC-4	紅 Red
5	IN1-5	紅 Red
6	ING-6	紅 Red
7	INF-7	紅 Red
8	INH-8	紅 Red
9	GND-9	黑 Black
10	GND-10	黑 Black
11	GND-11	黑 Black
12	GND-12	黑 Black
13	GND-13	黑 Black
14	GND-14	黑 Black
15	GND-15	黑 Black
16	GND-16	黑 Black

輸出 Output		
1	24V-1	紅 Red
2	24V-2	紅 Red
3	24V-3	紅 Red
4	24V-4	紅 Red
5	5V-5	紅 Red
6	OUT4-6	黑 Black
7	OUT5-7	黑 Black
8	OUT6-8	黑 Black
9	OUT7-9	黑 Black
10	OUT8-10	黑 Black

## 錯誤代碼與簡易排除

## ERROR CODES AND SIMPLE TROUBLESHOOTING

### 錯誤代碼

### Error Codes

錯誤代碼 Error Codes	錯誤說明	Error Description
Er 00	速度控制器錯誤	Speed controller error
Er 01	過電流保護	Overcurrent protection
Er 04	過電壓保護	Overvoltage protection
Er 05	低電壓保護	Undervoltage protection
Er 07	堵轉檢知遮斷	Motor lock detection trip
Er 11	內部通訊異常	Internal communication abnormality
Er 20	馬達驅動晶體溫度過高	Motor drive transistor temperature too high
Er 21	馬達編碼板異常	Motor encoder abnormality
Er 27	開機上 / 下停針位偏移	Needle offset when Start up / Down
STOP	安全開關檢知遮斷	Safety switch detected interruption

### 簡易排除

### Simple Troubleshooting

錯誤代碼 Error Codes	排除說明 Troubleshooting Steps
Er00 & Er01	<ol style="list-style-type: none"> <li>1. 先關閉電源</li> <li>2. 檢查控速器線路是否鬆脫、鬆動、損壞</li> <li>3. 排除後重新送電，若仍無法正常運作，請更換控速器並通知廠商</li> </ol> <ol style="list-style-type: none"> <li>1. Turn off the power</li> <li>2. Check if the speed controller circuit is loose, damaged or disconnected</li> <li>3. After troubleshooting, restore the power supply. If it still doesn't work, replace the speed controller and notify the manufacturer</li> </ol>
Er04	<ol style="list-style-type: none"> <li>1. 先關閉電源</li> <li>2. 確認使用電源的電壓是否正確</li> <li>3. 如電壓過高，請待電壓回復正常後重新送電，如無，則一分鐘後送電</li> <li>4. 若仍顯示錯誤，請更換控制箱並通知廠商</li> </ol> <ol style="list-style-type: none"> <li>1. Turn off the power</li> <li>2. Confirm if the voltage of the power source used is correct</li> <li>3. If the voltage is too high, wait for the voltage to return to normal and then restore the power. If not, wait for one minute before restoring the power</li> <li>4. If the error still shows, replace the control box and notify the manufacturer</li> </ol>
Er05	<ol style="list-style-type: none"> <li>1. 先關閉電源</li> <li>2. 確認使用電源的電壓是否正確</li> <li>3. 如電壓過低，請待電壓回復正常後重新送電，如無則一分鐘後送電</li> <li>4. 若仍顯示錯誤，請更換控制箱並通知廠商</li> </ol> <ol style="list-style-type: none"> <li>1. Turn off the power.</li> <li>2. Confirm if the voltage of the power source used is correct</li> <li>3. If the voltage is too low, wait for the voltage to return to normal and then restore the power. If not, wait for one minute before restoring the power</li> <li>4. If the error still shows, replace the control box and notify the manufacturer</li> </ol>

Er07	1. 先關閉電源 2. 檢查馬達動力線插頭配線是否有接觸不良 3. 是否有異物纏繞機頭，其他機械結構干涉異常，或紡織物是否過厚 4. 排除後重新送電，若仍無法正常運轉，請通知廠商 1. Turn off the power 2. Check if the motor power line plug wiring is loose 3. Check if there are foreign objects entangled with the head, other mechanical structures interfere with abnormality, or if the textile is too thick 4. After troubleshooting, restore the power supply. If it still doesn't work, notify the manufacturer
E11	1. 先關閉電源，2分鐘後重新送電 2. 若無法正常運轉，請通知廠商 1. Turn off the power, wait for 2 minutes and then restore the power 2. If it still doesn't work, notify the manufacturer
Er20	1. 先關閉電源，10分鐘後重新送電 2. 若控制箱仍顯示錯誤，請通知廠商 1. Turn off the power first, then resend power after 10 minutes. 2. If the control box still displays an error, please contact the manufacturer
Er21	1. 先關閉電源 2. 檢查馬達編碼器的線是否接觸不良或故障 3. 排除後重新送電，若仍無法正常運轉，請通知廠商 1. Turn off the power first 2. Check if the motor encoder's wire is loose or faulty 3. After troubleshooting, turn on the power. If the machine still cannot operate normally, please contact the manufacturer
Er27	1. 開機上 / 下停針位偏移，轉動手輪至上停針位再重新開機。 1. Needle offset when Start up / Down. Turn the handwheel to the upper needle stop position and restart the machine.
STOP	一般模式顯示 Normal mode display 1. 先關閉電源，檢查剪刀是否有卡住， 2. 檢查縫紉機安全開關是否故障 3. 排除後重新送電，若無法運轉，請通知廠商 1. Turn off the power first, check if the scissors are stuck 2. Check if the sewing machine safety switch is faulty 3. After troubleshooting, turn on the power. If the machine still cannot operate, please contact the manufacturer.

## 報廢流程

## DEMOLITION PROCEDURE

- 當機器需要被淘汰與報廢時，有一些基本規則必須採納、遵守以保護環境及公眾健康。
  - 所有的機器零組件必須依照下列分類來區分開：
    - (1) 所有護套、可伸縮軟管及塑膠或非金屬零件。
    - (2) 電器零件：開關、照明器具等。
    - (3) 絕緣材料：石棉、彈性／可伸縮橡膠片。
    - (4) 金屬：含鐵金屬、銅、青銅與黃銅、其他各種金屬。
  - 以此方法，所有材質可以正確的淘汰，回收再利用或鎔解為可再使用或再處理而不至於危害環境。
- When the machine needs to be eliminated and demolished, certain basic rules must be observed to protect the environment and public health.
  - All machine componenets must be divided according to categories as the followings:
    - (1) All sheathes, flexible hosing and plastic or non-metal components.
    - (2) Electricity components: switches, or lighting components.
    - (3) Insulation materials: rock wool, and flexible rubber strips.
    - (4) Metals: ferrous metals, copper, bronze and brass, various.
  - In this way, all materials can be eliminated correctly, recycled, or melted down for reuse or disposed of so that they do not harm the environment.



SIRUBA PARTS LIST	Series	Parts Group	Subclass / Remark	Page
	C007KP	CAH-K	-	2/3
				Date
				2023/9/5

GSL04-GS-BHS-T

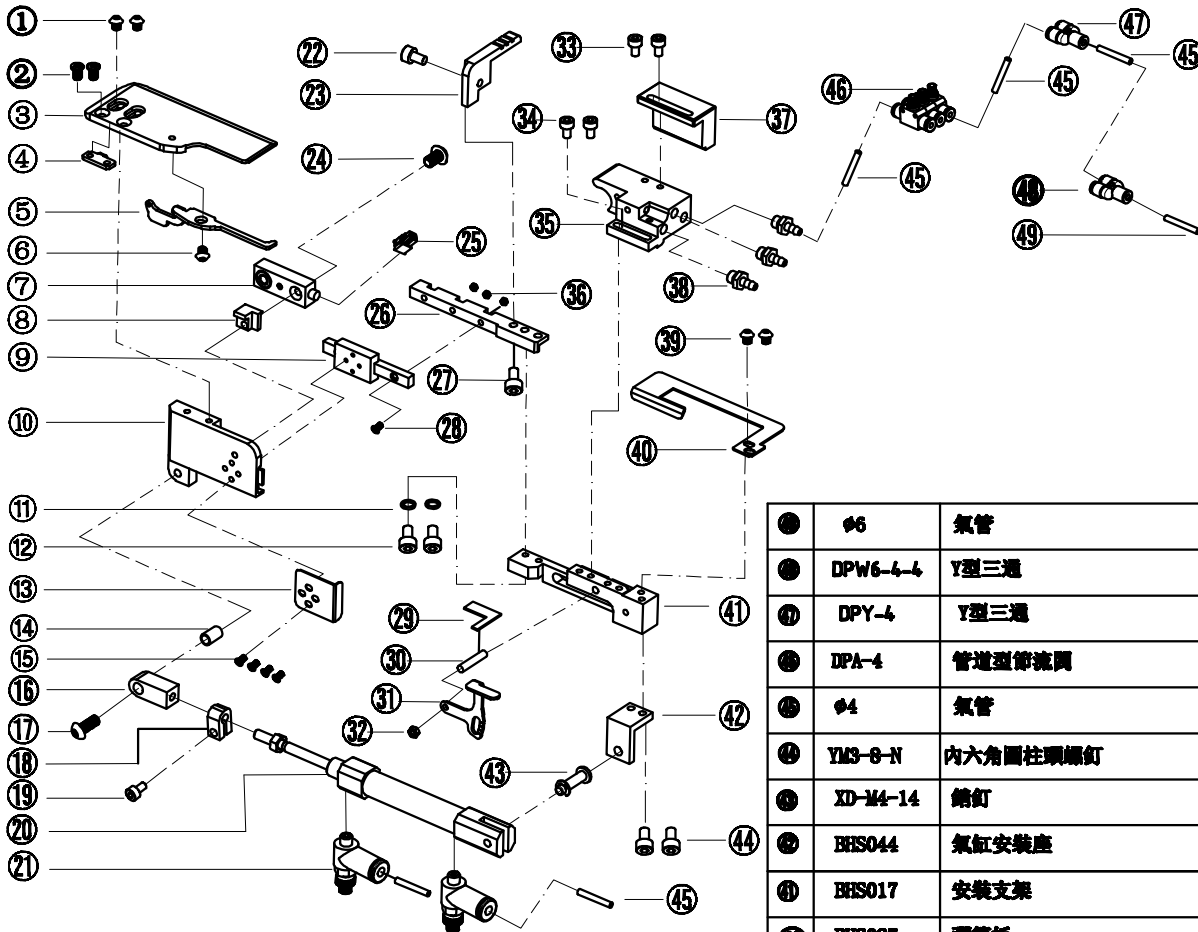
A

B

C

D

E



●	φ6	氣管	1
●	DPW6-4-4	Y型三通	1
●	DPY-4	Y型三通	1
●	DPA-4	管道型節流閥	3
●	φ4	氣管	9
●	YM3-8-N	內六角圓柱頭螺釘	2
●	XD-M4-14	銷釘	1
●	BHS044	氣缸安裝座	1
●	BHS017	安裝支架	1
●	BHS027	彈簧板	1

●	BHS029	電線壓板	1	●	BHS016	左支架	1	●	PM3-3-N	內六角平頭螺釘	2
●	YM3-8-N	內六角圓柱頭螺釘	2	●	4P	白色端頭插頭	1	●	SPC-M5-4	實堵接頭	3
●	TD3	彈墊	2	●	PM3-16-N	內六角平頭螺釘	1	●	BHS024	右擋塊	1
●	BHS019	滑塊連接板	1	●	BHS039	左擋邊	1	●	M2	六角螺母	3
●	MGN5H-1-45L	直線導軌	1	●	YM3-10-N	內六角圓柱頭螺釘	1	●	BHS026	吹氣擋塊	1
●	BHS022	感應器固定件	1	●	DPA-4	L型節流閥	2	●	YM3-10-N	內六角圓柱頭螺釘	2
●	E2S-H4N1	接近傳感器	1	●	CDJ2D10-25	氣缸	1	●	YM3-8-N	內六角圓柱頭螺釘	2
●	PM3-3-N	內六角平頭螺釘	1	●	YM3-8-N	內六角圓柱頭螺釘	1	●	M3	六角螺母	1
●	BHS025	觸發桿	1	●	BHS021	氣缸限位塊	1	●	BHS032	限位片	1
●	BHS030	拉簧調節板	1	●	PM4-12-N	內六角平頭螺釘	1	●	BHS030	轉動軸	1
●	BHS018	分布板	1	●	BHS020	氣缸接頭	1	●	BHS028	撥片	1
●	CM3-8-N	沈頭內六角螺釘	2	●	CM2-6-S	十字沈頭螺釘	4	●	CM2-10-S	十字沈頭螺釘	3
●	PM3-3-N	內六角平頭螺釘	2	●	BHS031	管套	1	●	YM3-6-N	內六角圓柱頭螺釘	1

序號	編號	名稱	數量	序號	編號	名稱	數量	序號	編號	名稱	數量
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1

2

3

4

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KAULIN MFG. CO., LTD.

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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.  
DCS301ADE-E.OCT.2023