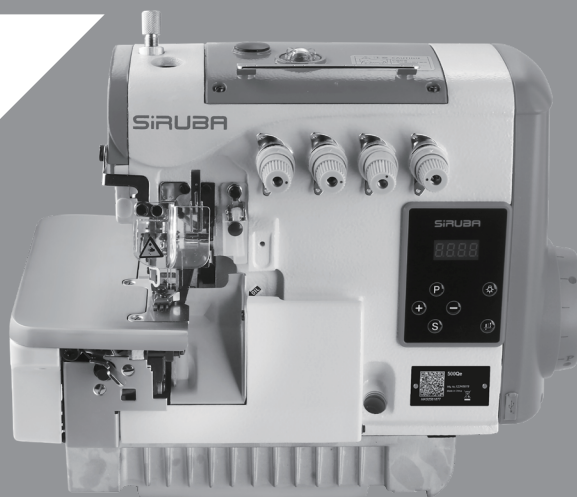


SIRUBA

電控參數說明書

ELECTRONIC CONTROL PARAMETER MANUAL

■ 500Qe



使用說明書

歡迎使用本公司產品，制衣行的正確投資選擇！

Welcome to use the our products, it is the right investment choices in garment industry!

本說明書為本公司新研發的“簡易節能單直驅使用說明書”產品參考手冊，請認真閱讀此手冊以更好運用本公司產品。

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.



安全說明：General Safety Instructions

1：電機電控接通電源時（開機狀態）請不要把腳放在腳踏板上

Do not put your feet on the pedals when the control box and motor is switched on (boot status)

2：本產品請專業人士安裝調試

Let professionals to install and debug this product

3：嚴禁在通電時打開控制箱與電機端蓋

Do not open the control box and the motor cover when energized

4：換針，穿線或更換底線時請關閉電源

Please turn off the power when changing the needle, threading or replacing the bottom line

5：安裝，拆卸維修時請拔掉電源插頭

During installation and removal service, please turn off the power and pull the plug

6：翻抬縫紉機時請關閉電源

Please turn off the power when turn lift sewing machine

7：使用本產品請遠離高頻電磁波和電波發射器等，以免所產生的電磁波干擾伺服驅動器而發生錯誤動作。

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 .

鄭重申明：

Solemnly Declare:

1：不遵守安全使用說明操作規章，發生意外後果自負。

Do not comply with the manual book operating regulations and the safety requirements, all accidental occurrence should be taken by yourself.

2：未經本公司授權，請勿擅自改動產品，由此而引起的後果本公司不負任何責任。

Without our authorization, please do not alter our products, our company is not liable for any consequences arising therefrom.

目錄

Content

- 一、產品介紹
Product instructions
- 二、控制台使用說明
Control panel Instruction
- 三、電機常用參數設置
Commonly used parameter setting
- 四、一般故障處理
Common faults and treatment
- 五、作業環境要求
Environmental Requirements
- 六、保修服務
Warranty service

一、產品介紹:Product Instruction

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設備。

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.組成部分:Construction

控制系統由控制器和電機兩部分:

The servomotor is composed of control system and motor.

A. 控制器:控制箱和腳踏調速器。

A. Control system includes control box and pedal speeder.

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、過壓、掉電等一系列保護功能。踏調速器可實現無級調速。

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. Speed stepless is realized by the pedal speeder.

2. 220V 電機性能參數指標:Specifications

220V 電機性能參數指標 220V Specifications

電源供電電壓 Voltage	220V 單相 1phase
頻率 Frequency	50~60HZ
電機轉速 Speed	200-6500RPM
電機扭矩 Motor torque	≤2.2NM

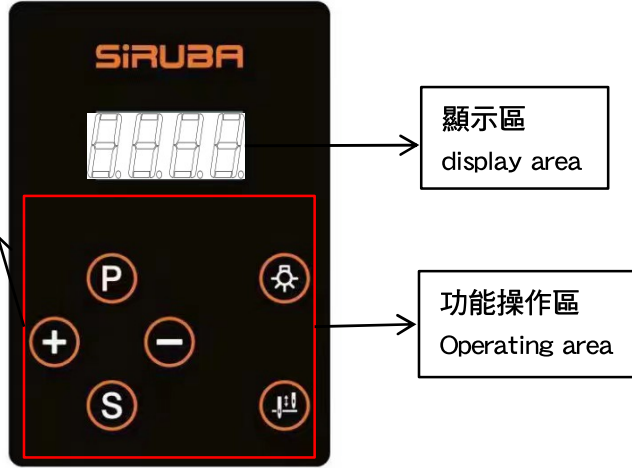
二、控制台使用說明：Control panel Instruction

1.1、顯示幕介紹：由兩大部分組成（顯示區域、操作介面）。






Display introduce: consist of two aspects(display area、operating interface)








停車針位說明：按“P”鍵可來回切換停車針位元，顯示UP為上停針、DP為下停針、on為無停針。

This key has two uses: The first use is to direct press"P"key to switch up or down needle position, if up pinhole lamp lights means up needle position, if down pinhole lamp lights means down needle position, if two lamps off means no needle position.



2.2、操作介面功能鍵介紹：operating interface function button introduction

序號 The serial number	按鍵圖示 Parameters of the code	功能說明 function instruction
1	 (菜單/停車針位元鍵) (Menu button)	參數進入（見進入參數的操作方法） Function Enter button (below to enter the parameter method of operation)
		按一下  鍵，顯示區顯示“UP”，停車針位為上停針；再按一下顯示幕面板上LED燈不亮時，機頭燈功能關閉。
2	 (確認/機頭燈鍵) (Confirm button)	參數確定 Parameter confirm button
		按一下  鍵，顯示區顯示“on”，機頭燈功能開啟；再按一下顯示區顯示“OFF”，機頭燈功能關閉。
3	 (數值調整鍵) (Numerical adjustment key)	向上鍵（修改資料時加）/（轉速調整加） Up key (when increasing value)

4	 (數值調整鍵) (Numerical adjustment key)	向下鍵 (修改資料時減) / (轉速調整減) Up key (when increasing value)
5	 (壓腳功能鍵) (Presser foot switch)	按一下  鍵，顯示區顯示 “on”，壓腳功能開啟；再按一下顯示區顯示 “OFF”，壓腳功能關閉。 注：長按  鍵，輸入密碼進入參數修改選項
6	 (吸風功能鍵) (Trimmer switch)	按一下  鍵，顯示區顯示 “on”，吸風功能開啟；再按一下顯示區顯示 “OFF”，吸風功能關閉。 注：長按  鍵，輸入密碼進入參數修改選項

2.3 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。

2.3.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.

2.4、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。

2.4.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、電機常用參數設置: Commonly used parameter setting

參數編號	參數名稱	參數範圍	Adjusting range	出廠設置	備註
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Parameters of the code	The parameter name			The factory Settings	Other
P-01	最大速 Maximum speed lock	200-6500RPM		6000 轉	
P-02	電機方向 Direction of rotation	0 是逆針轉 0 is counter clockwise	1 是順針轉 "1" is clockwise turn	1	
P-03	下停角 The needle Angle	6-18 度		12 度	
P-04	起縫速度 Start sewing speed	200-800 轉		250 轉	
P-05	加速快慢 speed add	500-4000		3000	數值越大加速越快，越小加速越慢 the number is more bigger the speed add is more faster, the number is more smaller the speed add is more slower,
P-06	定針縫 Set the seam	0-999 針		0	
P-07	停車速度 machine stop speed	800-2000		1100	
P-08	禁止上停針 forbid needle upper stop	0-1		0	
P-09	重定出廠密碼參數 reset factory code parameter	0-1		0	設為 1 時才能打開 P-17 號參數 the P17 parameter can open when number set "1"
P-10	自動間隙運行(跑合) Automatic clearance run(run)	把 0 把改成 1 再按 S 鍵 Then press the S key change to 1		0	關掉電源停止跑合 Turn off the electricity stopped running
P-11	抬壓腳起動時間 Presser foot ascend starting time	0-2000ms		0	
P-12	抬壓腳保護時間 Ascension presser foot protection time	1-120s		4s	
P-13	/	0-1		0	/
P-14	最大電流限制 Maximum current limiting	50-1000		270	
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 no upper needle stop

				sensor will alarm ER01; set "0" no alarm
P-16	介面出廠速度鎖定	200-6500	6500	
P-17	重定出廠密碼 factory reset code	1-3	1	P-09 參數開啟後才能出現 P-17 參數、設為 3 長按 OK 鍵恢復出廠密碼 when open the parameter "P09", then it can occur "P17", set "3", then long press "OK" button to recover the factory code
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 0: 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	吸氣關閉針數 suction close stitches	0-200	0	
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%	100%	
P-27	吸氣維持功率 suction maintain power	1-100%	80%	
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	0:關閉 1:開啟	0	1.設為 0 時，後踏速控器壓

	foot presser trigger mode	0: close 1:start		腳不抬。設為 1 時後踏速控器壓腳抬起， 2.維持抬起，直到前踏或保護時間到才會釋放壓腳，並且每次電機停止時自動抬壓腳 1, set “0” , back step the pedal,the foot presser is not up, set “1” , back step the pedal, the foot presser is up. 2, the foot presser is maintain up, until front step the pedal or the protection time is finish then release, and motor stop, the foot presser is up automatic.
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	200-6500RPM		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	310v	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.

四、一般故障處理:Common faults and treatments

序號 The serial number	錯誤碼 Error code	錯誤內容 Error content	錯誤問題的多種可能 Several possible error problem
1	Er01:	找不到停車位 No stop signai	1.定位器信號插頭未插好 2.定位器感應位置靠近一點與磁銅(1mm-15mm)距離 1. locator signal plugs not inserted 2.the locator induction position close to the point keep 1mm-1.5mm distance and magnetic steel
2	Er02:	開機沒有檢到調速器 Not find the speed controller	1.調速器插頭沒有插 2.調速器線斷了 1.Speed control device plug is not insert. 2.Speed controller wire is broken
3	Er03:	電機霍兒或相位線錯誤 Motor Hall or phase error	1. 九針插頭接觸不良： 2. 電機沒有安裝好： 3.霍兒壞：1.The motor doesnt install good 2.Nine hole plug contact undesirable 3.Hall bad
4	Er04:	堵轉保護 Lacked-rotor protection	1.電機超載 2.電機與電控根連接的四心線接觸不好 1.The motor overload 2.The motor and the controller connected four hole line contact is not good
5	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 1.The motor overload 2.Signal wire not good or broken

6	Er07:	串口通信時錯誤 Serial per communication	顯示幕至主機板信號線不良或主機板壞 Display to the system board signal bad or bad
7	ER-15	編碼器故障 the motor board error	
8	ER-16	過壓 Over load	<p>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。</p> <p>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.</p> <p>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>
9	ER-17	A 相電流檢測故障 A current checking error	
10	ER-18	B 相電流檢測故障 B current checking error	
11	ER-19	AB 相電流檢測故障 A&B current checking error	
12	ER-20	欠壓故障 Less volt error	<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。</p> <p>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.</p> <p>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>

五、作業環境要求：Environmental Requirements

1.請不要在過潮濕環境中作作業

Please do not work at damp place

2.220V 電控：【220V 接入供電時電壓穩定在（AC200V~260V/單相）之間】

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

110V 電控：【110V 接入供電時電壓穩定在（AC100V~130V/單相）之間】

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

3.用戶使用前必須接地,確保人身安全

Must be adequately grounded for safety

4.不要在過熱地方作業

Do not work at high temperature

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

Do not run motor and control system near to ferromagnetic or high-radiance area

六、保修服務:warranty Service

1.本產品自購買起免費保修 1 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。

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.在保修期內,以下情況出現損壞本公司不給於保修服務。

During the guarantee period, our free service does not cover below:

(1).未經本公司同意自行拆卸,修理,改裝造成的故障或損壞。

Dismantle the motor unit without permission, and cause damage.

3.但凡出現無法解決的問題可以聯繫本公司。

please contact us whenever have problem.



高林股份有限公司
KAULIN MFG. CO., LTD.

由於對產品的改良及更新，本產品使用說明書中與零件圖之產品及外觀的修改恕不事先通知！
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.
HBL-20W02.MAR.2023