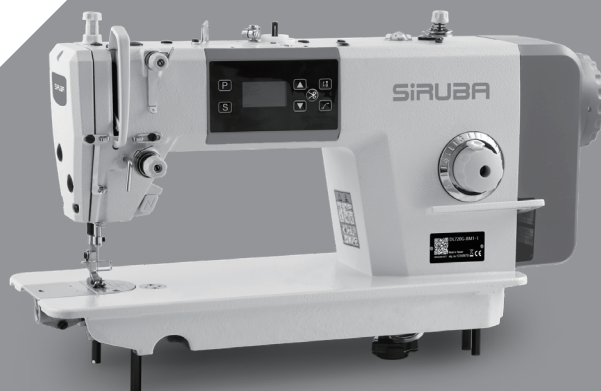


# SIRUBA

電控參數說明書

ELECTRONIC CONTROL PARAMETER MANUAL

DL720G



CE

## **⚠安全指示**

- 1) 在安裝或使用本產品前，使用者必須詳細閱讀本操作手冊。
- 2) 本產品須由受過正確訓練的人員來安裝或操作。安裝作業時必須關閉所有電源，切記不可帶電操作。
- 3) 所有標有⚠符號的指示，必須特別注意並按照說明書上的執行，以免造成不必要的損害。
- 4) 為安全起見，禁止以延長線作電源座供應二項以上的電器產品使用。
- 5) 在連接電源線時，必須確定工作電壓符合本產品標識中規定的額定電壓值。
- 6) 請不要在日光直接照射的場所、室外及室溫 45°C 以上或 0°C 以下的場所操作。
- 7) 請不要在暖氣（電熱器）旁、有露水的場所及在相對濕度 10% 以下或 90% 以上的場所操作。
- 8) 請不要在灰塵多的場所、具有腐蝕性物質的場所及有揮發性氣體的場所操作。
- 9) 請注意所有電源線、信號線、接地線等接線時不要受壓或過度扭曲，以確保使用安全。
- 10) 電源線的接地端須以適當大小的導線和接頭連接到生產工廠的系統地線，此連接必須被永久固定。
- 11) 所有可轉動的部分，必須以所提供的零件加以防範露出。
- 12) 在安裝完成第一次開電後，先關閉切線功能以低速操作縫紉機並檢查轉動方向是否正確、運轉是否穩定。
- 13) 在進行以下操作前，請先關閉所有電源：
  1. 在控制箱與馬達上插拔任何連接插頭時。
  2. 穿針線時。
  3. 翻抬縫紉機機頭時。
  4. 修理或做任何機械上的調整時。
  5. 機器閒置不用時。
- 14) 修理或高層次的保養工作，僅能由受過訓練的機電技師來執行。所有維修用的零件，須由本公司提供認可，方可使用。
- 15) 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裝置而發生誤動作。
- 16) 請不要以不適當物體來敲擊或撞擊本產品及各裝置。

### **保修期限**

本產品保修期限為購買日期起一年內或出廠月份起兩年內。

### **保修內容**

本產品在正常情況使用且無人為操作失誤的前提下，於保修期間無償為客戶維修使能正常操作。

但以下情況於保修期間將收取維修費用：

1. 不當使用包括誤接高壓電源、將產品移做其它用途、自行拆卸、維修、更改、或不依規格範圍使用、進水進油及插入異物於本產品。
2. 火災、地震、閃電、風災、水災、鹽蝕、潮濕、異常電壓及其它天災或不當場所造成的損害。
3. 客戶購買後摔落本產品，或客戶自行運輸（或託付運輸公司）造成的損害。

\* 本產品在生產及測試上皆盡最大努力和嚴格控制使其達到高品質及高穩定的標準，但外部的電磁或靜電干擾或不穩定的供應電源，仍可能對本產品造成影響或損害，因此操作場所的接地系統一定要確實做好，並建議使用者安裝故障安全防護裝置（如漏電保護器）


## 1 按鍵顯示及操作說明

### 1.1 按鍵說明




名稱	按鍵	注明
功能鍵		若點擊，進入或退出使用者參數設定介面。
確認鍵		對所選參數號內容進行查看和保存：選擇好參數號後按此鍵可以進行查看和修改操作，修改參數值後按此鍵則退出並保存參數。
上鍵		若點擊，增加參數值/加速； 若長按，連續增加參數值/連續加速；
下鍵		若點擊，減少參數值/減速； 若長按，連續減少參數值/連續減速；
切線鍵		若點擊，設定使用或取消切線功能 若長按，快捷進入 P41 項計數器參數值介面；
停針位鍵		若點擊，切換縫製後機針的停止位置（上停針位/下停針位）
慢速起縫鍵		若點擊，設定使用或取消慢速起縫功能

### 1.2 協助工具


#### 1.2.1 進入高級參數項介面

長按  時開機，進入高級參數項介面。

#### 1.2.2 恢復出廠設置

長按  和  時開機，進入 P44 項參數項介面，再按  跳轉至主介面時表示完成恢復出廠設置。

#### 1.2.3 整機廠參數值保存功能

在參數值介面，長按  3 秒可保存當前參數為整機出廠預設值，保存成功顯示“SAVE”。

## 2 參數表

參數項	中文說明	範圍	初始值	內容值名稱說明與備註
P01	最高轉速 (rpm)	100-5000	3700	車縫時的最高轉速設定
P02	加速曲線調整 (%)	10-100	80	控速器爬升斜率設定 斜率值愈大，速度愈陡；斜率值愈小，速度愈慢
P03	針停定位選擇	UP/DN	DN	UP：上停針；DN：下停針
P07	慢速起縫速度 (rpm)	200-1500	400	
P08	慢速起縫針數	1-9	2	
P14	慢速起縫功能設定	ON/OFF	OFF	
P15	補針方式	0-4	2	0：半針；1：一針；2：連續補半針；3：連續補一針； 4：連續補針，快速停車

參數項	中文說明	範圍	初始值	內容值名稱說明與備註
P21	踏板加速位置	30-1000	520	
P22	踏板回中位置	30-1000	420	
P24	踏板切線位置	30-1000	130	
P27-N6	自動計件選擇	0-50	1	0：P41 項切線計數器不自動計數 1-50：計數器切線次數
P27-N12	開機顯示計數器介面選擇	0-1	0	0：關閉；1：開啟
P27-N13	切線計數器模式選擇	0-1	0	0：加數縫製計數器；1：減數縫製計數器
P29	切線停車力度	1-45	32	
P38	自動切線功能設定	ON/OFF	ON	
P41	切線計數器顯示	0-9999	0	車縫完成件數顯示；長按減號鍵可計數清零；
P42-N01	電控版本號			
P42-N02	選針盒版本號			
P42-N03	轉速			
P42-N04	腳踏板 AD 值			
P42-N05	機械角度（上定位）			
P42-N06	機械角度（下定位）			
P42-N07	母線電壓 AD 值			
P43	馬達轉動方向設定	CCW/CW	CCW	CW：順時針方向 CCW：逆時針方向
P44	中途停車時剎車力度	1-45	30	
P46	切線後，反轉提針功能選擇	ON/OFF	OFF	
P47	切線後，反轉提針角度的調整	50-200	40	切完線後，由上針位算起，以反向運轉作提針的角度調整。
P48	最低速度（定位速度）（rpm）	100-500	210	最低速度限制調整
P49	切線速度（rpm）	100-500	300	調整切線週期時的電機速度
P54	切線動作時間（ms）	10-990	200	
P56	開電後自動找上定位	0-2	0	0：始終不找上定位；1：始終找上定位；2：若電機已經處於上定位時不再找上定位
P58	上定位調整	0-2399	270	上定位調整，數值減少時會提前停針，數值增加時會延遲停針
P59	下定位調整	0-2399	90	下定位調整，數值減少時會提前停針，數值增加時會延遲停針
P60	測試速度（rpm）	100-4000	3500	設置測試速度
P61	A 項測試	ON/OFF	OFF	持續運行測試模式
P62	B 項測試	ON/OFF	OFF	全功能啟停測試模式
P63	C 項測試	ON/OFF	OFF	無定位、無功能啟停測試模式
P64	測試時測試執行時間	1-250	30	
P65	測試時測試停止時間	1-250	10	
P66	機頭保護開關	0-1	1	0：不檢測 1：檢測零信號

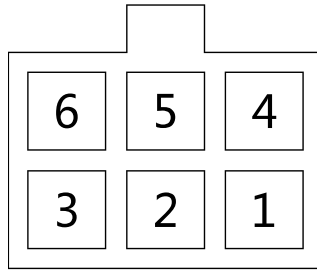
參數項	中文說明	範圍	初始值	內容值名稱說明與備註	
P70	機型選擇	1-45			
P72	上定位快捷調整	0-2399		調整上停針位元，顯示的數值會隨手輪位置變化而變化，按“S”鍵可保存當前位置（數值）為上停針位	
P73	下定位快捷調整	0-2399		調整下停針位元，顯示的數值會隨手輪位置變化而變化，按“S”鍵可保存當前位置（數值）為下停針位	
P80	切線進刀角度	5-359	18	切線進刀角度設置（下定位為 0°計算）	
P82	切線退刀角度	5-359	172	切線退刀角度設置（下定位為 0°計算，需大於 P81 項參數值）	
P83	切線後停車力度	10-100	20		
按 補 針 鍵 開 機	P86	上下定位距離	100-1400	180	上下定位距離角度（每 4 個數值為 1 度）
	P88	中途停車剎車距離	10-100	40	
	P89	交流過壓值設定	500-1023	880	
	P92	電機電角度校正		391	讀取編碼器起始角度，出廠已設置，請勿隨意更改（參數值不可手動更改，隨意更改會導致控制箱、電機出現異常或損壞）
	P110	切線回程時間（ms）	60-990	80	確保切線機構回到原位
P119	電磁鐵過流保護報警選擇	0-1	1	0：不報警，關閉輸出；1：報警，並停機；	

注：參數初始值僅供參考，實際參數值以實物為準。

### 3 錯誤代碼表


錯誤碼	內容	對策
E01	高電壓錯誤	關閉系統電源，檢測供應電源電壓是否正確。（或是否超過使用規定的額定電壓）。
E02	低電壓錯誤	關閉系統電源，檢測供應電源電壓是否正確。（或是否低於使用規定的額定電壓）。
E03	主 CPU 與面板 CPU 通信異常	請切斷電源，確認連接器是否連接在操作面板上，以及電纜情況。
E05	控速器連接不良	請切斷電源，確認連接器是否連接在控速器上，以及電纜情況。
E07	主軸電機旋轉異常	請旋轉滑輪，確認主軸電機是否鎖定。請確認電機的編碼器電纜和電機的電源電纜是否連接了連接器。請確認電源電壓是否正常。以及縫紉速度是否偏高。
E10	電磁鐵過流保護	關閉系統電源，檢查電磁鐵（電磁閥）是否損壞或短路。
E09 E11	定位信號異常	關閉系統電源，檢查電機編碼器介面是否鬆動或脫落，將其恢復正常後重啟系統。
E14	編碼器信號異常	關閉系統電源，檢查電機編碼器介面是否鬆動或脫落，將其恢復正常後重啟系統。
E15	主軸電機過電流錯誤	請切斷電源，然後重新打開電源。
E17	頭部倒下錯誤	請豎起頭部，並重新打開電源。請確認頭部倒下開關是否損壞。
E20	開機主軸電機旋轉異常	請切斷電源，請確認電機的編碼器電纜和電機的電源電纜是否連接了連接器。

#### 4 埠示意圖



1. 補針按鍵：1 (信號) 、4 (DGND)
2. 剪線電磁鐵：2 (DGND) 、5 (+32V)
3. LED 燈：3 (DGND) 、6 (+5V)

### Safety Instruction

1. Users are required to read the operation manual completely and carefully before installation or operation.
2. This product must be installed or operated by properly trained personnel. All power must be turned off during installation, and remember not to operate with power.
3. All the instruction marked with sign  must be observed or executed; otherwise, bodily injuries might occur.
4. For perfect operation and safety, it is prohibited that using extension cable with multi-outlet for power connection.
5. When connecting power supply cords to power sources, it is necessary to make sure that the power voltage matches the rated voltage  $\pm 20\%$  indicated on the motor's name plate.
6. Don't operate in direct sun light, outdoors area and where the room temperature is over  $45^{\circ}\text{C}$  or below  $5^{\circ}\text{C}$ .
7. Please avoid operating near the heater at dew area or at the humidity below 30% or above 95%.
8. Don't operate in area with heavy dust, corrosive substance or volatile gas.
9. Avoid power cord being applied by heavy objects or excessive force, or over bend.
10. The earth wire of power cord must be connected to the system ground of the production plant by proper size of conductions and terminals. This connection should be fixed permanently.
11. All the moving portions must be prevented to be exposed by the parts provided.
12. Turing on the machine in the first time, operate the sewing machine at low speed and check the correct rotation direction.
13. Turn off the power before the following operation:
  - a) Connecting or disconnecting any connectors on the control box or motor.
  - b) Threading needle.
  - c) Raising the machine head.
  - d) Repairing or doing any mechanical adjustment.
  - e) Machines idling.
14. Repairs and high level maintenance work should only be carried out by electronic technicians with appropriate training.
15. All the spare parts for repair must be provided or approved by the manufacturer.
16. Don't use any objects or force to hit or ram the product.

#### Guarantee Time

Warranty period of this product is 1 year dated from purchasing, or within 2 years from ex-factory date.

#### Warranty Detail:

Any trouble found within warranty period under normal operation, it will be repaired free of charge. However, maintenance cost will be charged in the following cases even if within warranty period:






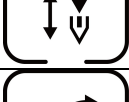
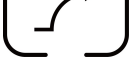
1. Inappropriate use, including: wrong connecting high voltage, wrong application, disassemble, repair, modification by incompetent personnel, or operation without the precaution, or operation out of its specification range, or inserting other objects or liquids into the product.
2. Damage by fire, Earth quake, lightning, wind, flood, salt corrosive, moisture, abnormal power voltage and any other damage cause by the natural disaster or by the inappropriate environments.
3. Dropping after purchasing or damage in transportation by customer himself or by customer's shipping agency

Note: We make our best effort to test and manufacture the product for assuring the quality.

However, it is possible that this product can be damaged due to external magnetic interference and electronic static or noise or unstable power source more than expected; therefore the grounding system of operate area must guarantee the good earth and it's also recommended to install a failsafe device. (Such as residual current breaker)


# 1 Button Displays and Operating Instructions

## 1.1 Key Description




Name	key	Indicate
Function Parameter Edit		If click, enter or exit the user parameter setting interface.
Setting Parameter Check and Save		For the content of the selected parameters check and save: after select parameter press this key to check and modify operation, after modified parameter value press this key to exit and save the parameter.
Up Key		If click, increase the parameter / increase speed. If long-press, continuously increase the parameter / continuously increase speed.
Down Key		If click, decrease the parameter / decrease speed. If long-press, continuously decrease the parameter / continuously decrease speed.
Trimming Setting		If click, set used or cancelled trimming function. If long-press, Quickly enter the P41 item counter parameter value interface.
Needle Stop Position Selection		If click, the needle stop position after shift the sewing mode ( Up position / Down position)
Slow Launch Setting		If click, set used or cancelled slow Launch Setting function.

## 1.2 Auxiliary Function

### 1.2.1 Enter the Advanced Parameter Item Interface

Press and hold  to boot up, and enter the advanced parameter item interface.

### 1.2.2 Reset the System

Press and hold  and  to boot up, enter the P44 parameter interface, and then press  to jump to the main interface, indicating that the factory settings are restored.

### 1.2.3 Factory Parameter Value Saving Function

In the parameter value interface, press and hold  for 3 seconds to save the current parameter as the factory default value, and the successful display shows "SAVE".

## 2 User Parameter

No.	Items	Range	Default	Description
P01	Maximum sewing speed (rpm)	100-5000	3700	Maximum speed of machine sewing
P02	Set accelerated curve (%)	10-100	80	Set the acceleration slope The greater the slope value, the steeper the speed; the smaller the slope value, the slower the speed
P03	Needle UP/ DOWN	UP/DN	DN	UP: Needle stops at up position DN: Needle stops at down position
P07	Soft start speed (rpm)	200-1500	400	
P08	Stitch numbers for soft start	1-9	2	
P14	Slow start function selection	ON/OFF	OFF	



No.	Items	Range	Default	Description
P15	Mending stitch mode	0-4	2	0: half stitch 1: one stitch 2: continuous half stitch 3: continuous one stitch 4: Back-tacking when machine stop or pause
P21	The position of the pedal for accelerating	30-1000	520	
P22	The position of the pedal for the stop	30-1000	420	
P24	The position of the pedal for thread trimming	30-1000	130	
P27-N6	Auto count selection	0-50	1	0: P41 item trimming counter not count automatically. 1-50: Counter trimming times
P27-N12	Boot display counter interface selection	0-1	0	0: OFF 1: ON
P27-N13	Thread trimming counter mode selection	0-1	0	0: Additive sewing counter 1: Subtractive sewing counter
P29	The strength of thread trimming stop	1-45	32	
P38	Automatic thread trimming function selection	ON/OFF	ON	
P41	Counter display	0-9999	0	Display the quantity of finished sewing piece. Long-press “-” key to clear the count
P42-N01	The control system version number			
P42-N02	The panel version number			
P42-N03	Speed			
P42-N04	The pedal AD			
P42-N05	The mechanical angle(up position)			
P42-N06	The mechanical angle(down position)			
P42-N07	Busbar voltage AD			
P43	Direction of motor rotation	CCW/CW	CCW	CW: Clockwise CCW: Counterclockwise
P44	Brake strength during stopover	1-45	30	
P46	Motor stop with a reverse angle after trimming function	ON/OFF	OFF	
P47	Adjust the reverse angle when motor stop after trimming	50-200	40	After thread trimming, start from the upper needle position and adjust the angle of the needle lift in reverse operation.
P48	The minimum speed (positioning speed) (rpm)	100-500	210	Adjust the minimum speed
P49	Thread trimming speed (rpm)	100-500	300	Adjust the motor speed during the thread trimming cycle
P54	Thread trimming action time (ms)	10-990	200	
P56	Power on and positioning	0-2	0	0: Always not to find the up needle position 1: Always to find the up needle position 2: If the motor is not into the up needle position, it will find the

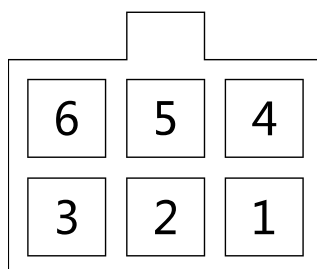
No.	Items	Range	Default	Description
				up needle position
P58	Up needle position adjustment	0-2399	270	Up position adjustment, the needle will advance stop when the value decreased, the needle will delay stop when the value increased.
P59	Down needle position adjustment	0-2399	90	Down position adjustment, the needle will advance stop when the value decreased, the needle will delay stop when the value increased.
P60	Testing speed (rpm )	100-3700	3500	Setting testing speed.
P61	Testing A	ON/OFF	OFF	Continuous running testing.
P62	Testing B	ON/OFF	OFF	Start and stop testing with all functions.
P63	Testing C	ON/OFF	OFF	Start and stop testing without all function.
P64	Test run time	1-250	30	
P65	Test stop time	1-250	10	
P66	Machine protection switch selection	0-1	1	0: Disable 1: Testing zero signal
P70	Type	1-45		
P72	Up needle position adjustment	0-2399		Adjust up needle position, the displayed value will change with the position of the handwheel, press "S" key to save the current position (value) as up needle position.
P73	Down needle position adjustment	0-2399		Adjust down needle position, the displayed value will change with the position of the handwheel, press "S" key to save the current position (value) as down needle position.
P80	Trimming engage angle	5-359	18	
P82	Trimming retract angle	5-359	172	
P83	Stopping strength after trimming	10-100	20	
P 8 6 . P 8 8 . P 9 2 . P 1 1 0 . P 1 1 9 Press the stitch compensation button to start the machine				
P86	Up and down needle position distance	100-1400	180	Up and down positioning distance angle (1 degree for every 4 values)
P88	Stopover distance	10-100	40	
P89	AC overvoltage setting	500-1023	880	
P92	Correct the electrical angle of motor		391	Reading the initial Angle of encoder, the factory default was set, please do not change the values (parameter value cannot be changed manually, random change it will result the control box and motor abnormal or damaged).
P110	Trimming back time (ms)	60-990	80	Make sure the thread trimming device returns to its original position
P119	Solenoid overcurrent protection alarm selection	0-1	1	0: no alarm, turn off the output 1: alarm, and stop

Note: the initial value of parameters is for reference only, and the actual value of parameters is subject to the real object.

### 3 Error Code List

Error Code	Problem	Measure
E01	Over-voltage	Turn off the system power and check whether the power supply voltage is correct. (Or whether it exceeds the specified rated voltage).
E02	Low-voltage	Turn off the system power and check whether the power supply voltage is correct. (Or whether it is lower than the specified rated voltage).
E03	Abnormal communication between the main CPU and the driver CPU	Turn off the power and check whether the connector is connected to the operation panel and the cable condition.
E05	Speed control unit connection is abnormal	Please turn off the power and check whether the connector is connected to the speed controller and the cable condition.
E07	Main shaft motor rotating abnormally	Please rotate handwheel to check if the spindle motor is locked. Check if the encoder cable of the motor and the power cable of the motor are connected to the connector. Check if the power supply voltage is normal and whether the sewing speed is too high.
E10	Solenoid over-current protection	Turn off the system power supply, please check the solenoid (solenoid valve) connector or solenoid (solenoid valve) is broken or not.
E09 E11	Positioning signal error	Turn off the machine, please check if the encoder in bad connection or is too loose. To get it right and turn on. If there are still errors, please replace the control box and call for customer service.
E14	Encoder signal error.	Turn off the system power supply, please check motor encoder connector if loose or fall off, renew to normal then restart system.
E15	Main shaft motor overcurrent error	Turn off the power, and then turn it on again.
E17	Head fall error	Please raise machine head and turn on the power again. Check if the head down switch is damaged.
E20	Main shaft motor rotating abnormally at startup	Turn off the power and check whether the encoder cable of the motor and the power cable of the motor are connected to the connector.

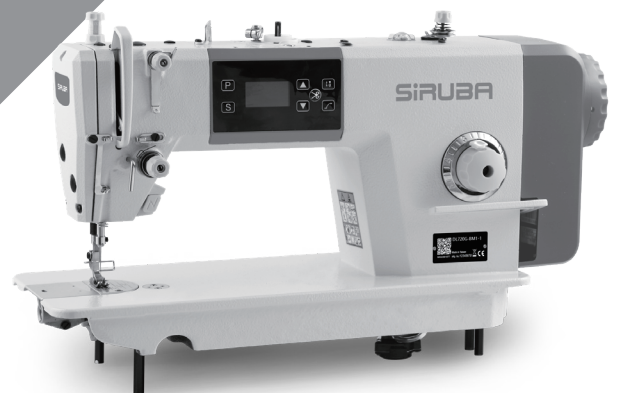
### 4 Port Diagram



1 Mending stitch key: 1 (signal), 4 (DGND)

2. Thread trimming electromagnet: 2 (DGND), 5 (+32V)

3. LED Light: 3 (DGND), 6 (+5V)



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GML-13T02.JUN.2023