

VC008N 多針繡縫功能款控制箱說明書

⚠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，必須確定工作電壓低於 AC 250V，且符合本產品標識中規定的額定電壓值。
※注意：電控箱電源規格如為 AC220V 時，請勿插接至 AC380V 的電源插座上，否則將出現異常且電機無法動作。此時請立即關閉電源開關，重新檢查電源。持續供應 380V 超過五分鐘以上，將可能燒損電控箱內器件，而危及人身安全。
- 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

功能	按鍵	車縫動作說明
參數編輯按鍵		進入或退出功能參數的編輯。 若長按，轉換到密碼輸入介面。輸入正確密碼，短按 S 鍵確認，可進入高級參數設定介面。
參數查看保存鍵		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。
加鍵/快速鍵		主介面增大參數/提高運行速度
減鍵/減速鍵		主介面減小參數/降低運行速度
機頭燈亮度鍵		主介面點擊機頭燈亮度設置 參數介面點擊增大千位元的數值
下刀切線鍵		主介面點擊設置使用或取消下刀切線和上刀切線功能。 參數介面點擊減小個位的數值。
上刀切線鍵		主介面按此鍵無功能。 參數介面點擊減小十位元的數值。
慢速啟縫鍵		主介面點擊開啟或關閉慢速啟縫 參數介面點擊增大百位元的數值
停針定位鍵		主介面點擊切換上、下停針位。 參數介面點擊減小千位元的數值。
前吸風鍵		主介面點擊開啟或關閉吸風 參數介面點擊增大個位的數值
自動抬壓腳鍵		主介面點擊設置使用或取消中途停車抬壓腳功能。 參數介面點擊增大十位元的數值。
上掃線鍵		主介面點擊上掃線開啟或關閉 參數介面點擊減小百位元的數值

1.2 協助工具

1.2.1 調試模式

在主介面長按 “” 鍵，切換到調試參數項介面。P92 項電機電角度校正、P72 項上定位快捷調整、P76 下剪線出刀行程調整、P77 抬壓腳行程高度調整。

在主介面長按 “” 鍵切換到調試參數介面。P76 下剪線出刀行程調整、P78 下剪線出刀加速

度調整、P79 下剪線收刀加速度調整、。在主介面長按 “” 鍵切換到調試參數介面。P55 上到切線動作時間。

1.2.2 恢復出廠設置

在主介面同時長按 “” 和 “” ，可恢復出廠設置。

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)	100-4500	3500	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	停針位選擇	up/dn	up	UP：上停針；DN：下停針
P07	慢速起縫速度 (rpm)	200-1500	1000	
P08	慢速起縫針數 (針)	0-99	2	
P10	吹氣功能	0-1	0	
P14	慢速啟動	off/on	off	
P17	計件數功能	0-1	0	0：P41 項切線計數器不自動計數
P21	踏板加速位置	30-1000	500	
P22	踏板回中位置	30-1000	420	
P23	踏板抬壓腳位置	30-1000	280	
P24	踏板切線位置	30-1000	130	
P27-N03	開機語設置	0-3	2	
P27-N04	語音設置	0-10	1	
P27-N05	語音播報選擇	0-3	1	
P27-N06	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-N08	虛實轉速開關	0-1	0	0：關閉 1：開啟

P27-N09	虛實轉速比	10-100	40	
P29	切線停車力度	1-45	20	
P30	自動切刀功能選擇	0-3	0	0：關閉 1：前切刀 2：後切刀 3：前後切刀
P33	切刀動作時間	10-990	158	
P34	切刀回程時間	10-990	30	
P35	切刀下落時間	10-990	15	
P39	中途停車自動抬壓腳設定	dn/up	dn	
P40	切線自動抬壓腳設定	dn/up	dn	
P41	計數器顯示	0	0	
P42-NO1	電控版本號			
P42-NO2	選針盒版本號			
P42-NO3	轉速			
P42-NO4	腳踏板 AD 值			
P42-NO5	機械角度（上定位）			
P42-NO6	機械角度（下定位）			
P42-NO7	母線電壓 AD 值			
P43	馬達轉動方向設定	cw/ccw	cw	CW：順時針方向，反轉； CCW：逆時針方向，正轉；
P44	正常停車力度	1-45	15	
P45	吸風出力的週期信號（%）	1-100	80	
P48	最低速度（定位速度）（rpm）	100-500	500	最低速度限制調整
P50	抬壓腳全額出力的工作時間（ms）	10-990	150	
P51	壓腳出力的週期信號（%）	1-100	80	壓腳動作時，以週期性省電輸出，避免電磁鐵發燙
P52	延遲馬達啟動，保護壓腳下放時間（ms）	10-990	100	踩下時延遲啟動時間，以配合自動抬壓腳放下的確認
P53	抬壓腳功能選擇	0-2	1	0：關閉；1：反踏和半反踏都有抬壓腳；2：半反踏無抬壓腳，反踏有抬壓腳；
P54	下刀切線動作時間（ms）	10-990	55	
P56	開電後自動找上定位	0-2	2	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
P57	抬壓腳保護時間（s）	1-60	10	抬壓腳保持時間後強制關閉
P60	測試速度（r/s）	100-6000	4000	設置測試速度
P61	A 項測試	off/on	off	持續運行測試模式
P62	B 項測試	off/on	off	全功能啟停測試模式
P63	C 項測試	off/on	off	無定位、無功能啟停測試模式

P64	測試 B、C 導通時間	1-250	50	
P65	測試 B、C 停車時間	1-250	50	
P67	下剪刀位置保護開關	0-2	1	0:關閉 1:開啟
P68	最高轉速限制 (rpm)	100-6000	4200	
P69	電機類型選擇	0-50	0	
P70	機型選擇	1-100	80	
P71	壓腳釋放緩衝占空比 (%)	0-50	0	壓腳下放時的力度調整
P72	上定位快捷調整	0		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		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
P74	編碼功能 1	0-FFFF	0	
P75	編碼功能 2	0-FFFF	0	
P86	上下定位距離	0-2399	1200	上下定位距離角度(每 4 個數值為 1 度)
P87	上刀切線回程延遲時間 (ms)	10-990	15	
P89	交流過壓報警 AD 值	500-1023	880	
P92	電機電角度校正		160	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)
P101	擴張功能占空比	1-100	50	擴張功能占空比
P102	擴張功能關閉延時	0-9999	400	
P109	下刀切線回程時間 (ms)	0-60	55	
P113	壓腳全額出力的週期信號 (%)	0-100	0	
P116	壓腳釋放緩衝工作時間 (ms)	0-990	30	
P117	壓腳釋放緩衝延遲時間 (ms)	0-990	20	壓腳釋放緩衝延遲起作用的時間調整
P119	電磁鐵過流保護功能開關	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

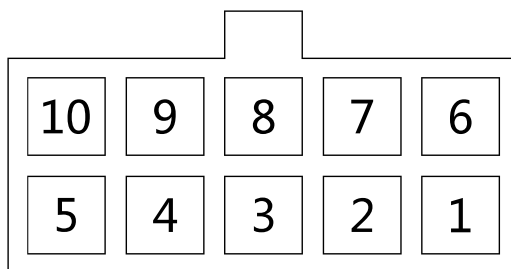
錯誤碼	問題描述	解決措施
E01	電壓高	1、電網電壓是否高於 AC260V。 2、如果是自行發電供電，請降低發電機功率。 3、若仍不能正常工作，請更換控制箱並通知售後服務。

E02	電壓低	<ol style="list-style-type: none"> 1、是否插入低電壓。 2、恢復出廠設置。 3、若仍不能正常工作，請更換控制箱並通知售後服務。
E03	主 CPU 與面板 CPU 通信異常	<ol style="list-style-type: none"> 1、關閉系統電源，檢測顯示幕的連線是否鬆動或脫落，將其恢復正常後重啟系統。 2、關閉系統電源，拆下電控箱只插電源線通電，是否報警 E05，如還是報警 E03，更換控制箱並通知售後服務。
E05	控速器信號異常	<ol style="list-style-type: none"> 1、檢查控速器接頭是否鬆動或脫落，將其恢復正常後重啟系統。 2、若仍不能正常工作，請更換控制箱或控速器並通知售後服務。
E07	主軸電機堵轉	<ol style="list-style-type: none"> 1、關閉電源，檢查手輪是否可以順暢轉動（手轉手輪），如果無法轉動請排查機械。 2、關閉電源，檢查電機電源介面是否鬆動，插好後重啟。 3、檢查上停針位是否正確，如果不正確請調整上定位位置。 4、若仍不能正常工作，請更換控制箱或主軸電機並通知售後服務。
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	主軸電機編碼器定位信號異常	<ol style="list-style-type: none"> 1、關閉系統電源，檢查主軸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。 2、檢查電機零點校正設置是否正確；重新設置電機零點校正，編碼器碼盤是否有油，如果有請清理乾淨。 3、若仍不能正常工作，請更換控制箱或主軸電機並通知售後服務。
E14	主軸電機編碼器信號異常	<ol style="list-style-type: none"> 1、關閉系統電源，檢查主軸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。 2、檢查光柵安裝是否正確（光柵螺絲有沒有固緊，光柵是不是在編碼器頭居中位置）。 3、檢查光柵碼盤是不是有油，如果有，請清理乾淨，復原後重啟系統。 4、若仍不能正常工作，請更換控制箱或主軸電機並通知售後服務。
E15	主軸電機驅動過流	<ol style="list-style-type: none"> 1、請檢查電機電源線有沒有接觸不良。 2、請檢查電機電源線有沒有被壓破。 3、請更換控制箱或主軸電機並通知售後服務。
E16	切線開關沒到正確位置	關閉系統電源，檢查切線機構是否回到正確位置。
E20	主軸電機啟動失敗	<ol style="list-style-type: none"> 1、關閉系統電源，檢查主軸電機電源線介面、編碼器介面是否鬆動或脫落，將其恢復正常後重啟系統。 2、檢查電機零點校正設置是否正確；重新設置電機零點校正。 3、若仍不能正常工作，請更換控制箱或主軸電機並通知售後服務。

4.埠示意圖

4.1 功能埠說明

10P 功能埠示意圖



1：下刀切線：1：(V+)、6：(下刀切線信號)

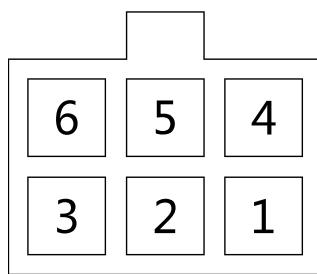
2：吹針預留：2：(32V)、7：(吹針信號預留)

3：預留：3：(V+)、8：(預留輸出)

4：吸風：4：(V+)、9：(吸風信號)

5：抬壓腳：5 (V+)、10：(抬壓腳信號)

6P 功能埠示意圖

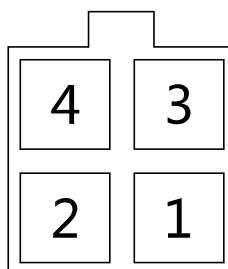


1：膝靠：1 (膝靠信號)、4 (DGND)

2：預留：2 (S5V)、5 (S5V)

3：安全開關/有源：3 (安全開關信號)、6 (DGND)

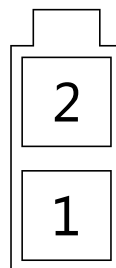
4P 控速器埠示意圖



1：控速器：1：(空)、2：(踏板信號)

3：(+5V)、4：(GND)


2P 衣車燈埠示意圖



1：LED 衣車燈 1：(GND)； 2：(+5V)

VC008N Multi-needle Stretching Function Control Box

Safety instructions

- 1) Before installing or using this product, users must carefully read this manual.
- 2) This product must be installed or operated by properly trained personnel. All power sources must be turned off during installation. Never operate under power.
- 3) All symbols marked  with warning signs must be carefully observed and followed as specified in the instruction manual to avoid unnecessary damage.
- 4) For safety reasons, it is prohibited to use extension cords as power sockets for more than two electrical devices.
- 5) When connecting the power cord, ensure the operating voltage is below AC 250V and matches the rated voltage specified in the product labeling.

※Warning: If the control box is designed for AC220V, do not connect it to an AC380V outlet, as this may cause malfunctions and motor failure. Immediately turn off the power and recheck the supply. Prolonged exposure to 380V for over five minutes could damage internal components, posing a risk to personal safety.

- 6) Do not operate in direct sunlight, outdoors, or in environments with room temperatures above 45°C or below 0°C.
- 7) Do not operate near heating devices (electric heaters), in areas with condensation, or in environments with relative humidity below 10% or above 90%.
- 8) Do not operate in dusty environments, areas with corrosive substances, or locations containing volatile gases.
- 9) Ensure all power cords, signal cables, and grounding wires are properly connected without pressure or excessive twisting to guarantee safe operation.
- 10) The grounding terminal of the power cord must be connected to the system ground wire of the production facility using a properly sized conductor and connector, and this connection must be permanently secured.
- 11) All rotating components must be secured with provided parts to prevent exposure.
- 12) After completing the initial power-up, first disable the tangent function to operate the sewing machine at low speed, then verify the rotation direction and ensure stable operation.
- 13) Before performing the following operations, please turn off all power sources:
 1. When plugging or unplugging any connectors between the control box and the motor.
 2. When threading the needle.
 3. When lifting the sewing machine head.
 4. When repairing or making any mechanical adjustments.
 5. When the machine is idle.
- 14) Repairs or advanced maintenance tasks should only be performed by trained electromechanical technicians.

All maintenance parts must be approved by our company before use.

- 15) Keep this product away from high-frequency electromagnetic waves and radio wave emitters to prevent electromagnetic interference from servo drive devices, which may cause malfunctions.
- 16) Do not strike or impact this product or any of its components with inappropriate objects.

term of service

This product is covered by a warranty of one year from the purchase date or two years from the month of manufacture.

Warranty content

Under normal usage conditions and without human error, this product will be repaired free of charge during the warranty period to restore normal operation.




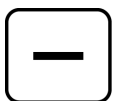




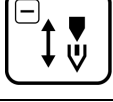

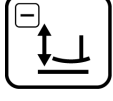
However, repair costs will be charged during the warranty period for the following situations:


1. Improper use includes incorrect connection to high-voltage power supply, repurposing the product, unauthorized disassembly, repair, modification, or operation outside the specified parameters, as well as water/oil ingress or insertion of foreign objects into the product.
2. Damage caused by fire, earthquake, lightning, wind disaster, flood, salt erosion, humidity, abnormal voltage, or other natural disasters, or improper placement.
3. Damages caused by the customer dropping the product after purchase, or by self-transportation (or entrusting a transportation company).

* This product is manufactured and tested with maximum effort and strict control to ensure high quality and stability. However, external electromagnetic or static interference, or unstable power supply may still affect or damage the product. Therefore, the grounding system in the operating area must be properly implemented, and users are advised to install fault safety protection devices (e.g., residual current devices).

1. Key display and operation instructions


1.1 Key Instructions

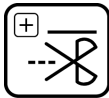
function	key	Description of seam movement
Parameter Edit Key		Enter or exit the function parameter editing. Long press to switch to the password input screen. Enter the correct password, then press the S key to confirm and access the advanced parameter settings screen.
Parameter save key		View and save the selected parameter: Press this key after selecting the parameter to view and modify it. Press this key again after modifying the parameter value to exit and save it.
Key/accelerator key		Main interface enlargement parameters/Improving operation speed
Shift/Slow Down Key		Reduce parameters on the main interface or lower the operating speed
headlight brightness key		Set the headlight brightness on the main interface Click to increase the value by thousands in the parameter interface
Cutting Line Key		Click Settings on the main interface to enable or disable the lower and upper knife cutting functions. Click the parameter interface to reduce the value of the unit digit.
Cutting Line Key		Pressing this key on the main interface does not work. Click the parameter interface to reduce the value by ten.
slow opening key		Click the main interface to enable or disable slow seam opening Click the parameter interface to increase the value by a hundred
Stop needle positioning key		Click the main interface to switch between upper and lower needle positions. Click the parameter interface to reduce the value by thousands.
pre-suction key		Click the main interface to turn the suction on or off Click to increase the digit value in the parameter interface
Auto Press Foot Key		Click the settings on the main interface to enable or disable the mid-stop lifting function. Click the parameter interface to increase the value by ten.

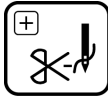
function	key	Description of seam movement
Up sweep key		Click the scan line on the main interface to turn it on or off Click the parameter interface to reduce the value by the hundred place

1.2 Auxiliary Functions

1.2.1 Debugging Mode

Long-press the "" key  on the main interface to access the debug parameter settings. Options include: P92 motor angle correction, P72 quick adjustment for upper positioning, P76 travel adjustment for upper cutting line, and P77 travel height adjustment for lifting pressure foot.

Long-press the "" key  on the main interface to access the debugging parameters interface. Adjust

the cutting stroke for P76 lower shear line, the cutting acceleration  for P78 lower shear line, and the retraction acceleration for P79 lower shear line. Long-press the "" key on the main interface to access the debugging parameters interface. Set the cutting action time for P55 upper shear line.

1.2.2 Restore factory settings

Long press "" and "" on  the home  screen to restore factory settings.

2. Parameter Table

Parameter	Chinese description	scope	initial value	Content value name description and notes
P01	Maximum RPM	100-4500	3500	Setting of the maximum speed of sewing machine
P02	Acceleration curve adjustment (%)	10-100	80	climb rate setting of speed controller The steeper the slope, the faster the speed; the gentler the slope, the slower the speed.
P03	Stop needle position selection	up/dn	up	UP: Upper stop of injection; DN: Lower stop of injection
P07	Slow stitch speed (rpm)	200-1500	1000	
P08	Slow stitch count (stitches)	0-99	2	
P10	Blow function	0-1	0	

P14	slow start	off/on	off	
P17	Piecework feature	0-1	0	0: The tangent counter in item P41 does not count automatically
P21	pedal acceleration position	30-1000	500	
P22	Pedal return position	30-1000	420	
P23	pedal lift and pressure foot position	30-1000	280	
P24	Pedal tangent position	30-1000	130	
P27-N03	Startup settings	0-3	2	
P27-N04	Voice Settings	0-10	1	
P27-N05	Voice playback selection	0-3	1	
P27-N06	Auto Select by Piece	0-50	1	0: The tangent counter in item P41 does not count automatically 1-50: Count the number of tangents
P27-N08	virtual and actual speed switch	0-1	0	0: Off 1: On
P27-N09	virtual to actual speed ratio	10-100	40	
P29	tangent parking force	1-45	20	
P30	Auto-Cut Function Selection	0-3	0	0: Close 1: Front cutter 2: Rear cutter 3: Front and rear cutters
P33	knife action time	10-990	158	
P34	retrocut time	10-990	30	
P35	knife drop time	10-990	15	
P39	automatic lifting of footrest during stop	dn/up	dn	
P40	Automatic lifting of the pressure foot on the tangent	dn/up	dn	
P41	counter indicate	0	0	
P42-NO1	Electronic control version number			
P42-NO2	Select the cartridge version number			
P42-NO3	speed			
P42-NO4	Pedal AD value			
P42-NO5	Mechanical angle (upper positioning)			
P42-NO6	Mechanical angle (lower positioning)			
P42-NO7	bus voltage AD value			

P43	motor rotation direction setting	cw/ccw	cw	CW: Turn clockwise; CCW: Counter-clockwise direction, forward rotation;
P44	normal parking force	1-45	15	
P45	Periodic signal of suction power (%)	1-100	80	
P48	Minimum speed (positioning speed) (rpm)	100-500	500	Minimum speed limit adjustment
P50	Full-load working time (ms) for the press foot	10-990	150	
P51	Periodic output signal of the foot press (%).	1-100	80	During the foot press operation, periodic power-saving output is employed to prevent the electromagnet from overheating.
P52	Delay motor startup, protection pressure release time (ms)	10-990	100	Delay the activation time upon pressing to confirm the automatic lifting and lowering of the pressure foot
P53	Pressure Foot Function Selection	0-2	1	0: Closed; 1: Both reverse and half reverse steps involve lifting the foot; 2: Half reverse steps do not involve lifting the foot, while reverse steps do.
P54	Time of the cutting action (ms)	10-990	55	
P56	Auto locate after power on	0-2	2	0: Never reach the upper position; 1: Always reach the upper position; 2: Do not reach the upper position if the motor is already at it
P57	Pressure foot protection time (s)	1-60	10	Forcefully close after maintaining the foot pressure for the specified duration
P60	Test speed (r/s)	100-6000	4000	Set test speed
P61	Test A	off/on	off	Continuous operation test mode
P62	Test B	off/on	off	Full-function start-stop test mode
P63	Test C	off/on	off	No positioning, no function start-stop test mode
P64	Test the conduction time of B and C	1-250	50	
P65	Test B, C parking time	1-250	50	
P67	lower shear position protection switch	0-2	1	0: Off 1: On
P68	Maximum RPM limit	100-6000	4200	
P69	Motor type selection	0-50	0	
P70	Select a model	1-100	80	
P71	Foot release buffer duty cycle (%)	0-50	0	Adjust the pressure when pressing down

P72	Quick adjustment of top positioning	0		Adjust the upper stop position. The displayed value changes with the handwheel position. Press 'S' to save the current position (value) as the upper stop position.
P73	Quick adjustment for bottom positioning	0		Adjust the stop position, and the displayed value will change as the hand moves. Press 'S' to save the current position (value) as the stop position.
P74	Coding Function 1	0-FFFF	0	
P75	Coding Function 2	0-FFFF	0	
P86	up-down positioning distance	0-2399	1200	Vertical alignment distance angle (1 degree per 4 values)
P87	Return delay time of the cutting edge (ms)	10-990	15	
P89	AC overvoltage alarm AD value	500-1023	880	
P92	electrostatic angle correction		160	The encoder's starting angle is factory-set and cannot be changed manually. Unauthorized modifications may cause control box or motor malfunctions.
P101	expansion function duty cycle	1-100	50	expansion function duty cycle
P102	delayed closure of dilatation function	0-9999	400	
P109	Time to cut the tangent line (ms)	0-60	55	
P113	Full-load cycle signal of the foot press (%).	0-100	0	
P116	Press foot release buffer duration (ms)	0-990	30	
P117	Press foot release buffer delay (ms)	0-990	20	Adjust the delay time for the foot release buffer to activate
P119	overcurrent protection function switch of electromagnet	0-1	1	0: Do not alarm and turn off the output; 1: Alarm and stop the machine;

Note: The default values are for reference only. Actual values are subject to the physical product.

3 Error Code Table

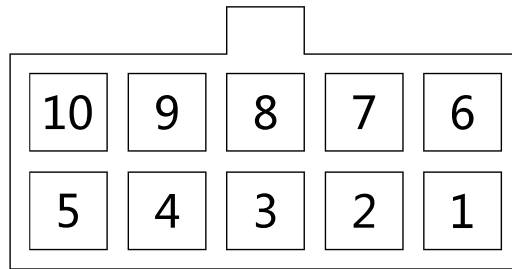
Error code	problem description	countermeasure
E01	High voltage	<ol style="list-style-type: none"> 1. Is the grid voltage higher than AC260V? 2. If you're generating and using your own electricity, reduce the generator's power output. 3. If the system still fails to operate normally, replace the control box and contact customer service.
E02	Low voltage	<ol style="list-style-type: none"> 1. Whether low voltage is inserted. 2. Restore factory settings. 3. If the system still fails to operate normally, replace the control box and contact customer service.

E03	Communication error between the main CPU and the panel CPU	<ol style="list-style-type: none"> 1. Power off the system, check if the display cable is loose or disconnected, and restart the system after restoring it to normal. 2. Power off the system, remove the control box, and plug in the power cord to test for alarm E05. If alarm E03 persists, replace the control box and contact after-sales service.
E05	Abnormal controller signal	<ol style="list-style-type: none"> 1. Check if the speed controller connector is loose or detached, reset it to normal, then restart the system. 2. If the system still fails to operate normally, replace the control box or speed controller and contact after-sales service.
E07	main spindle motor stall	<ol style="list-style-type: none"> 1. Turn off the power and check if the handwheel rotates smoothly (by manually turning the handwheel). If rotation is not possible, inspect the mechanical components. 2. Turn off the power, check if the motor's power connector is loose, and restart after reinserting it. 3. Check whether the upper needle positioning is correct. If incorrect, adjust the upper positioning. 4. If the system still fails to operate normally, replace the control box or spindle motor and contact after-sales service.
E10	overcurrent protection of electromagnet	Shut down the system power and check the solenoid (electromagnetic valve) for damage or short circuit.
E09 E11	Abnormal positioning signal from spindle motor encoder	<ol style="list-style-type: none"> 1. Power off the system, check if the spindle motor encoder interface is loose or detached, restore it to normal, then restart the system. 2. Check if the motor zero calibration settings are correct; reset the motor zero calibration, and inspect the encoder disk for oil. If present, clean it thoroughly. 3. If the system still fails to operate normally, replace the control box or spindle motor and contact after-sales service.
E14	The spindle motor encoder signal is abnormal	<ol style="list-style-type: none"> 1. Power off the system, check if the spindle motor encoder interface is loose or detached, restore it to normal, then restart the system. 2. Verify the grating installation: Ensure all screws are tightened and the grating is centered on the encoder head. 3. Check if the optical code disk is oiled. If so, clean it thoroughly, restore it, and restart the system. 4. If the system still fails to operate normally, replace the control box or spindle motor and contact after-sales service.
E15	overcurrent in spindle motor drive	<ol style="list-style-type: none"> 1. Check if the motor's power cord has any poor contact. 2. Check if the motor's power cord is damaged by compression. 3. Replace the control box or spindle motor and contact after-sales service.
E16	The tangent switch is not in the correct position	Turn off the system power and check if the linear motion mechanism has returned to the correct position.
E20	The spindle motor failed to start	<ol style="list-style-type: none"> 1. Power off the system, check if the spindle motor power cable and encoder interface are loose or disconnected, and restart the system after restoring them to normal. 2. Check if the motor zero calibration settings are correct, and reset them accordingly. 3. If the system still fails to operate normally, replace the control box or spindle motor and contact after-sales service.

4. Port diagram

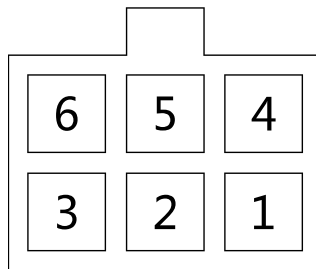
4.1 Description of Functional Ports

10P Function Port Diagram



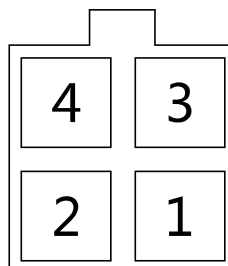
- 1: Lower knife cut line: 1: (V+), 6: (Lower knife cut line signal)
- 2: Blowing needle reservation: 2: (32V), 7: (blowing needle signal reservation)
- 3: Reserved: 3: (V+), 8: (Reserved Output)
- 4: Vacuum: 4: (V+), 9: (Vacuum signal)
- 5: Lift and press the foot: 5 (V+), 10: (Lift and press the foot signal)

6P Function Port Diagram



- 1: Knee support: 1 (knee support signal), 4 (DGND)
- 2: Reserved: 2 (S5V), 5 (S5V)
- 3: Safety switch/active: 3 (safety switch signal), 6 (DGND)

Schematic diagram of 4P speed controller port



- 1: Speed controller: 1: (idle), 2: (pedal signal)
- 3: (+5V) 、 4: (GND)

Schematic diagram of 2P car lamp port



- 1: LED clothing car light 1: (GND); 2: (+5V)