

SV-81

INSTRUCTION MANUAL

使用說明書

Ver – 02

For safe operation

重要安全事項

1. Prior the use of this product, please read the instruction Manual. Keep this Instruction Manual and the user may read it at anytime when necessary.
使用本產品前請先閱讀本說明書，同時應將此說明書妥善保管以便能隨時查閱。
2. Before turn on the power, be sure to check the power voltage and phase agreeing with the nameplate that indicated in the control box.
電源開啟前請先確認電源的電壓與相數，是否與控制箱銘牌相符。
3. Grounding the machine is always necessary for safe and normal operation.
為了正常安全運轉須安裝地線。
4. Check lubricating oil prior to operation.
操作前請先確認縫紉機潤滑油充足。
5. Check that **pulley ratio** and rotational direction of the motor are correct prior to operation.
A. **Compulsory procedure when installing the motor for the first time.**
操作前請先確認**馬達皮帶輪比**與轉動方向正確。 ★第一次裝機時一定要做的步驟。
6. So as to prevent personal injuries during operation, be careful not to allow your head and hands to come close to the moving parts. Also never try to stop it with external forces.
使用中切勿將頭、手靠近皮帶輪、皮帶、旋梭和天平移動部份；同時也不可以用外力強制停止移動部份。
7. For the following conditions, turn off the power or disconnect the power plug from receptacle.
發生下列情況時應立即關閉電源開關或者拔下電源插頭：
 - 7.1 For threading needle or replacing bobbin.
穿線和更換旋梭時。
 - 7.2 To plug or unplug any connectors from control box.
插拔控制箱上任何連接線與接頭。
 - 7.3 For maintenance and repairing.
保養與修理時。
 - 7.4 When machine is not at use, inspected or adjusted.
翻抬針車頭、取下皮帶時和機器休息不用時。
 - 7.5 When lightning and thunder occurs.
打雷閃電時。
8. Repairing, remodeling and adjusting works must only be done by appropriately trained technicians or specially skilled personnel.
本產品的修理、改造和調整應由受過專門訓練的技術人員來進行。

I. Connector Diagram

接頭定義圖

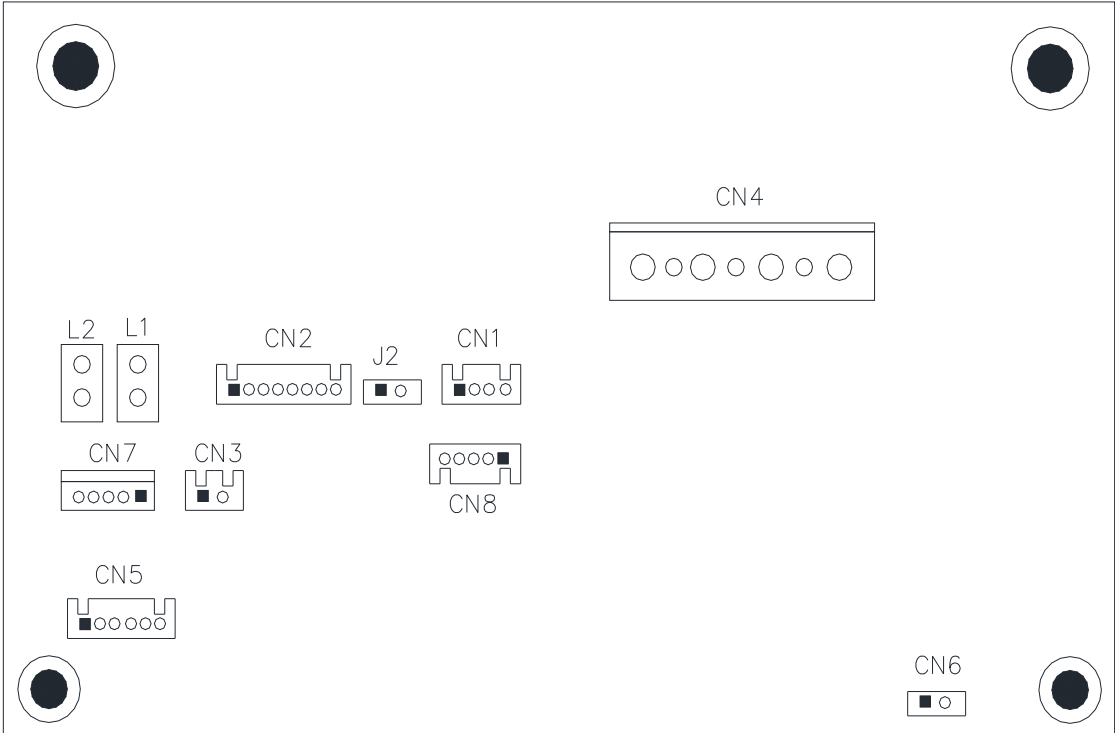
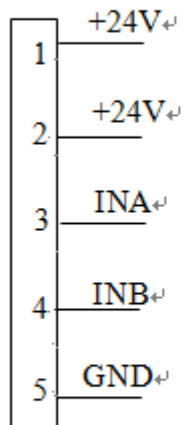


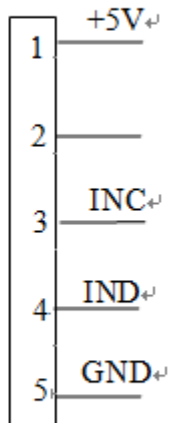
Fig.1(圖一)

Connector 接頭	Connectors' description 接頭說明	Connector 接頭	Connectors' description 接頭說明
CN1	Synchronizer connector 同步器接頭	CN6	+12V Power output connector +12V 電源輸出接頭
CN2	Motor encoder connector 馬達編碼器接頭	CN7	Option IN_C,IN_D connector Option IN_C,IN_D 接頭
CN3	Speed unit connector 速度基座接頭	CN8	Option IN_A,IN_B connector Option IN_A,IN_B 接頭
CN4	Motor power line connector 馬達動力線接頭	L1,L2	AC power input connector 外部電源輸入端子
CN5	Machine functions' connector 車頭功能線圈接頭	J2	Short J2 when using encoder singal Z input as UP singal input 使用馬達 Z 信號當上停點信號 時請短路

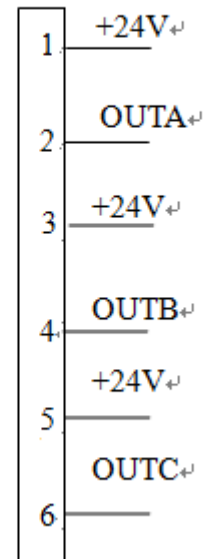
CN8
JST B3B-XH-A 5PIN



CN7
PS24254-5



CN5
JST B3B-XH-A 6PIN



II. Operating way 操作方法

For regular operationsⓈTurning the power switch on without pressing any button)

一般操作Ⓢ不按任何鍵下開機)

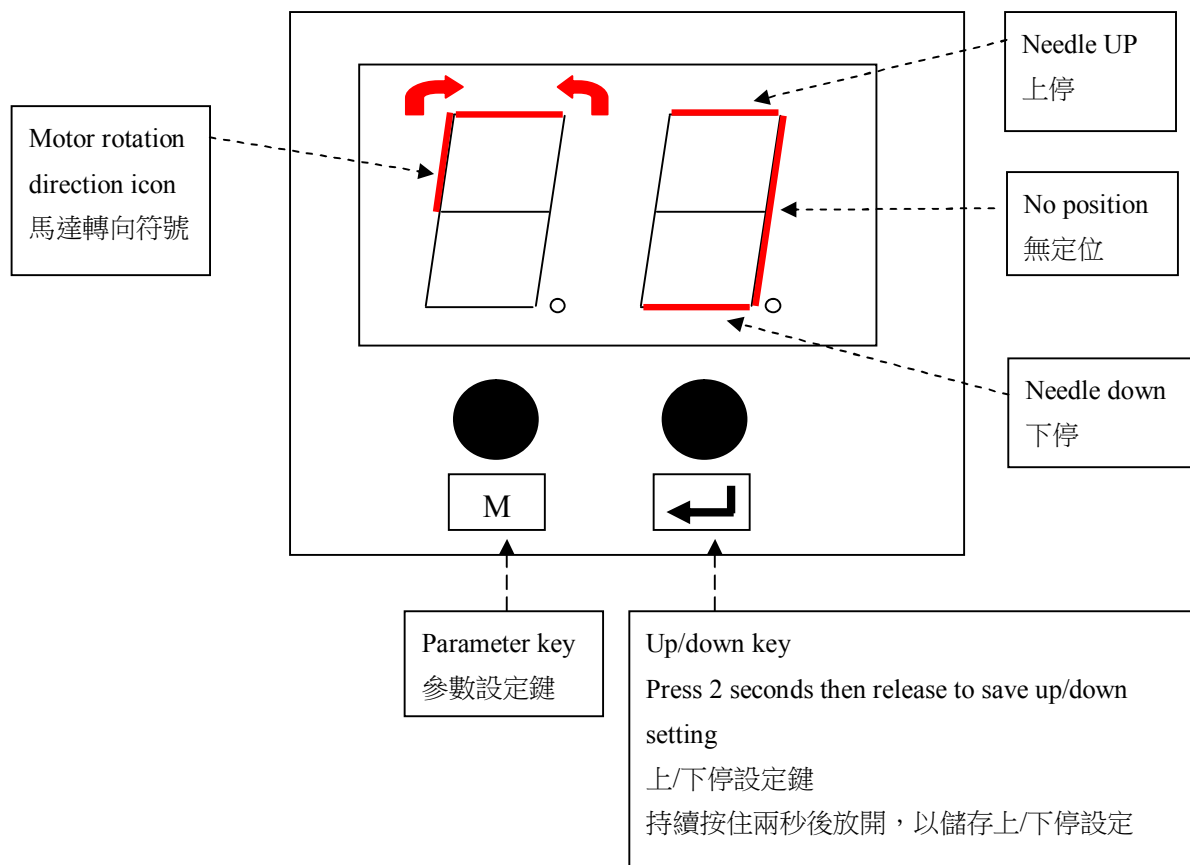
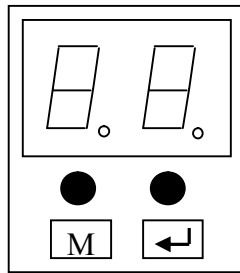


Fig.2 (圖二)

III. Setting way

設定方式



1. ★Motor pulley ratio measurement (Compulsory procedure when installing the motor for the first time to establish optimal motor performance)

★馬達皮帶輪比量測 (第一次安裝馬達時務必做此步驟.以達到馬達最佳效能)

STEPS

1. Press  key and turn ON the POWER simultaneously until the panel display the pulley ratio flickeringly.
Release  key.
2. Press the “pedal” forward. The motor will rotate 7 turns to measure pulley ratio automatically.
3. Press  key to save the pulley ratio.
4. Please restart the machine.

步驟

1. 按住  鍵，同時打開電源直到畫面閃爍顯示之前儲存的皮帶輪比，放開  鍵。
2. 踏板前踩後，馬達將運轉 7 圈後.自動計算皮帶輪比。
3. 按  鍵後，會將此一皮帶輪比儲存。
4. 請重新開機

2. Select the machine type and motor specification

選擇針車頭類型和馬達規格

STEPS

1. Press  and  simultaneously, and turn ON the power until panel display “rS” then release the key.
2. Press  key, thus machine type will be cycled increased.
3. Press  key to save and enter motor specification selection.
4. Press  key, thus motor specification will be cycled increased.
5. Press  key to save.

6. Please restart the machine.

步驟

1. 同時按住  和  鍵，同時打開電源,直到畫面出現”rS”才將按鍵放開。
2. 按  鍵則針車模式循環遞增。
3. 選擇要設定的針車模式後，按下  鍵進行儲存後則進入馬達規格選擇。
4. 按  鍵則馬達規格循環遞增。
5. 選擇要設定的馬達規格後，按下  鍵進行儲存
6. 請重新開機

Machine Type	針車型式
LS Lock Stitch	平車
OL Overlock.	拷克車
PB Postbed	羅拉車
TN Twin Needle	雙針車
CS ChainStitch	三本車

Motor Type	馬達型式
U4 SM80-4550 motor	SM80-4550 馬達
U6 SM80-6535 motor	SM80-6535 馬達
d2 SM6-5535 motor	SM6-5535 馬達
d3 SM6-5550 motor	SM6-5550 馬達
d8 SM7-3570 motor	SM7-3570 馬達
dA SM7-6560 motor	SM7-6560 馬達

3. Parameter setting(There are two ways can enter parameter setting.)

參數設定方式(有兩種方式可以進入參數設定)

- 3-1. Press  key and turn on the power until the panel display “PA”. Release  key, the panel display parameters number. (or)
- 3-2. In normal mode then press  key until the panel display “PA”. Release  key, the panel display parameters number.
- 3-1. 按住  鍵，同時打開電源，直到面板顯示 PA，放開  鍵後面板會顯示參數號碼。(或)
- 3-2. 在正常操作模式，按住  鍵，直到面板顯示 PA，放開  鍵後面板會顯示參數號碼。

4. Parameter Setting Key Description

參數按鍵定義

	
1. Press one time to increase Number. 2. Hold Press to decrease number	1. Press one time to enter Parameter or parameter value. 2. Press 2 Seconds to Save Parameter value
1. 按下一次後號碼循環遞增。 2. 長按後號碼循環遞減。	1. 按一次進入參數或參數值 2. 長按兩秒後將儲存參數資料。

5. Parameter List

參數一覽表

No 項目	Item 內容	Range 範圍	Unit 單位	Lock -stitch 平車	Over -lock 拷克車	Postbed 羅拉車	Twin needle 雙針車	Chain -stitch 三本車
P.0	Sewing machine maximum speed 針車最高速度	2 ~ 80	*100 spm	40	60	20	25	40
P.1	Sewing machine positioning speed 針車定位速度	5 ~ 25	*10 spm	20	20	20	20	20
P.2	Motor's pulley dimension 馬達皮帶輪	50 ~ 100 (note1)	*1 mm	75	85	65	65	75
P.3	Machine's pulley dimension 針車皮帶輪	50 ~ 120 (note1)	*1 mm	75	55	65	80	65
P.4	Pulley ratio setting mode 皮帶輪比的設定	ON: Refer motor pulley ratio measurement 參考馬達皮帶比量測的值 OF: Refer P.2 and P.3 參考 P.2 和 P.3 的設定	--	ON	ON	ON	ON	ON
P.5	Virtual needle down positioning function 虛擬下停功能	ON: With the function 有此功能 OFF: No such function. 無功能	--	OF	OF	OF	OF	OF
P.6	The angles between virtual needle down positioning point and needle up signal 虛擬下停點,由上停信號開始點起算	70 ~ 250 (note1)	*1°	180	180	180	180	180
P.7	Soft start stitches 慢速啟動針數	0 ~ 19	*1 stitch	0	0	0	0	0
P.8	Soft start speed 慢速啟動速度	25 ~ 200 (note1)	*10 spm	40	40	25	40	40
P.9	No synchronizer operation mode 沒有同步器操作模式	OFF: ineffective 無功能 ON: effective 有此功能(不會顯示 E1)	--	OF	OF	OF	OF	OF
F.0	Motor rotating direction 馬達轉向	C: Clockwise 順時針 CC: Counter-Clockwise 逆時針	--	CC	C	CC	CC	C

F.1	Motor static brake function 馬達靜止煞車功能	0: No such function 無功能 1 ~ 20: The bigger value means the more powerful braking force. 有此功能，設定值越大煞車力量越大	--	0	0	0	0	0
F.2	Current limit curve when acc 加速限流曲線	1~8	--	Note2	Note2	Note2	Note2	Note2
F.3	Current limit curve when dec 減速限流曲線	1~8	--	6	6	6	6	6
F.4	Accelerating slope 加速曲線	1 ~ 8 The bigger value means slowly accelerating. 數值越大加速越慢	--	4	4	4	4	4
F.5	Decelerating speed slope choice 減速曲線選擇	1 ~ 8 The bigger value means the longer time of decelerating. 設定值越大,減速時間越長	--	3	3	3	3	3
F.6	Motor's speed control force when rotating 馬達轉速控制力	1 ~ 6 The bigger value means the bigger speed control error. 數值越大速度控制誤差越大	--	3	3	3	3	3
F.7	Motor's braking force when positioning 馬達定位時煞車力	1 ~ 7 The bigger value means the smaller positioning force. 數值越大定位時煞車力越小	--	2	2	2	2	2
F.8	Integral control function 積分控制功能	1~4	--	Note2	Note2	Note2	Note2	Note2
F.9	Differential control function 微分控制功能	1~2	--	Note2	Note2	Note2	Note2	Note2

L.0	The function selection for Option IN_A Option IN_A 功能選擇	0 : OFF, no such function 無功能	--	0	0	0	0	0
L.1	The function selection for Option IN_B Option IN_B 功能選擇	1 : CUTTER_IN, Manual cutter input, 手動斬刀開關輸入						
L.2	The function selection for Option IN_C Option IN_C 功能選擇	2 : SW2_IN, Switch 2 input SW2 開關輸入						
L.3	The function selection for Option IN_D Option IN_D 功能選擇	3 : ED1_IN, Material edge sensor1 input 布端檢出器 1 輸入						
		4 : ED2_IN, material edge sensor2 input 使用布端檢出器 2 作為 吸線頭動作結束標準						
		5 : TRIM_IN, Trimmer input of Standing Operation Pedal for needle up control 立式踏板切線訊號輸入 作為提針訊號用						
		6 : FL_IN, Foot lifter input of Standing Operation Pedal 立式踏板抬壓腳訊號輸 入						
		7 : Safety switch input 安全開關輸入						
		8 : Half stitch inching 半針補針						
		9 : One stitch inching 一針補針						
		10.Knee switch input 膝動開關輸入						

L.4	The function selection for Option OUT_A Option OUT_A 功能選擇	0 : OFF, no such function 無功能	--	0	0	0	0	0
L.5	The function selection for Option OUT_B Option OUT_B 功能選擇	1 : CUTTER_OUT, CUTTER Output can work with material edge sensor. Depend on the setting of parameter C.7,C.9,J.0,J.1						
L.6	The function selection for Option OUT_C Option OUT_C 功能選擇	斬刀動作輸出,可搭配 電眼，動作根據參數 C.7,C.9,J.0,J.1 2 : SW2_OUT, Output turns on when SW2_IN is on SW2_IN 開關關閉 時動作 3 : TS_OUT, Thread suction output. Can work with edge sensor and CUTTER_IN. Depend on the setting of parameter L.7~C.1,C.8 吸線頭動作根據參數 L.7~C.1,C.8 設定動作 4 : FL_OUT, Foot lifter output Depend on the setting of parameter J.6 抬壓腳輸出 根據參數 J.6 設定動作 5 : SD_OUT, Suction device output. Depend on the setting of Parameter C.2~C.6 吸布屑動作根據參數 C.2~C.6 設定動作 6 : Knee switch output 膝動開關輸出						
L.7	The TS_OUT acts stitches' number after material edge sensor NO.1 on 吸線頭_前吸風針數 布端檢出器 1 開始動作 TS_OUT 動作針數	0 ~ 250 250 : infinite before ED1/ED2 turns OFF 在布端檢出器 1/2 結 束前一直輸出	*1 stitch	0	0	0	0	0

L.8	The TS_OUT acts stitches' number after material edge sensor NO.1 (or NO.2) off 吸線頭_後吸風針數 布端檢出器 1(或 2)結束動作 TS_OUT 動作針數	0 ~ 249	*1 stitch	0	0	0	0	0
L.9	TS_OUT ENERGY SAVING ENABLE 吸線頭_間隔吸風模式 TS_OUT 節能模式	0: no such function 前吸後吸無間隔吸風 1: TS_OUT acts depend on the setting of Parameter C.0~C.1 with material edge sensor 有間隔吸風_電眼控制 根據參數 C.0~C.1 設定動作 2: TS_OUT acts depend on the setting of Parameter C.0~C.1 when motor rotates 間隔吸風_馬達控制 根據參數 C.0~C.1 設定動作 3: TS_OUT acts when motor runs 長吸風_馬達控制	--	0	0	0	0	0
C.0	Stitches number of TS_OUT ON when energy saving 吸線頭_吸風針數	0~99	*1 stitch	0	0	0	0	0
C.1	Stitches number of TS_OUT OFF WHEN ENERGY SAVING 吸線頭_間隔吸風針數	0~99	*10 stitch	0	0	0	0	0
C.2	The SD_OUT acts stitches' number after material edge sensor NO.1 on 吸布屑_前吸風針數 布端檢出器 1 開始動作 SD_OUT 動作針數	0 ~ 250 250 : infinite before ED1/ED2 turns OFF 在布端檢出器 1/2 結束前一直輸出	*1 stitch	0	0	0	0	0
C.3	The SD_OUT acts stitches' number after material edge sensor NO.1 (or NO.2) off 吸布屑_後吸風針數 布端檢出器 1(或 2)結束動作 SD_OUT 動作針數	0 ~ 249	*1 stitch	0	0	0	0	0

C.4	SD_OUT ENERGY SAVING ENABLE 吸布屑_間隔吸風模式 SD_OUT 節能模式	0: no such function 前吸後吸無間隔吸風 1: SD_OUT acts depend on the setting of Parameter C.5~C.6 with material edge sensor 有間隔吸風_電眼控制 根據參數 C.5~C.6 設定 動作 2:SD_OUT acts depend on the setting of Parameter C.5~C.6 when motor rotates 間隔吸風_馬達控制 根據參數 C.5~C.6 設定 動作 3: SD_OUT acts when motor rotates 長吸風_馬達控制	--	0	0	0	0	0
C.5	Stitches number of SD_OUT ON when energy saving 吸布屑吸風針數	0~99	*1 stitch	0	0	0	0	0
C.6	Stitches number of SD_OUT OFF when energy saving 吸布屑間隔吸風針數	0~99	*10 stitch	0	0	0	0	0
C.7	CUTTER_OUT delays time after CUTTER_IN is on CUTTER_IN 按鍵按下後， 延遲斬刀動作時間	0~250	*10 ms	0	0	0	0	0
C.8	TS_OUT acts time after CUTTER_IN is on CUTTER_IN 按鍵按下後 (吸線頭)吸風時間	0~250	*10 ms	0	0	0	0	0
C.9	The CUTTER_OUT delays stitches after material edge sensor is on 前斬刀 CUTTER_OUT 延 遲針數	0~99	*1 stitch	0	0	0	0	0
J.0	The CUTTER_OUT delays stitches after material edge sensor is off 後斬刀 CUTTER_OUT 延 遲針數	0~99	*1 stitch	0	0	0	0	0

J.1	The CUTTER_OUT acts time 斬刀動作時間	0~250	*10 ms	0	0	0	0	0
J.2	Auto needle up positioning when POWER ON 開機自動上停	OFF: no such function 無功能 ON: with the function 有此功能	--	ON	ON	ON	ON	ON
J.3	Safety switch type 安全開關形式	N.O. 常開 N.C 常閉	--	N.O.	N.O.	N.O.	N.O.	N.O.
J.4	Motor remains stopped until material edge sensor input ED1 is ON 布料進入後針車才能開始車縫	0: no such function 無此功能 1: with the function, and Motor stops after material edge sensor is off. Depend on the setting of Parameter J.5 & A.2 有此功能感應布離開後，根據參數 J.5 設定針數及 A.2 停止馬達 2: With the function. and Motor stops controlled by pedal 有此功能。 踏板控制馬達停針 3.no such function, but Motor stops after material edge sensor is off. Depend on the setting of Parameter J.5 & A.2 無此功能，但感應布離開後，根據參數 J.5 設定針數及 A.2 停止馬達	--	0	0	0	0	0
J.5	The stitches's number before motor stops when material edge sensor is off 布離開後幾針馬達停止	0~99	*1 stitch	0	0	0	0	0

J.6	Foot lifter control mode 壓腳控制	0: Pedal controls foot lifter 踏板控制壓腳 1: Pedal + material edge sensor control foot lifter 踏板+電眼 ED1 控制 2: Auto footlifting after motor stops 馬達停針自動抬壓腳	--	0	0	0	0	0
J.7	Resonance speed 共振轉速	0~78	*100 spm	0	0	0	0	0
J.8	Resonance speed range 共振轉速範圍	0~100	*10 spm	0	0	0	0	0
J.9	ONS stop timer 定位時間	0~50	*100 ms	13	13	13	13	13
A.0	Heavy loading 重載	OFF: light loading 輕載 ON: heavy loading 重載	--	OFF	OFF	OFF	OFF	OFF
A.1	Medium speed 中速	2~80	*100 spm	60	60	60	60	60
A.2	Check pedal position when motor stops controlled by edge sensor? 電眼控制自動停針模式時確認踏板狀態?	0: Yes, motor stops when pedal is release. 腳踏板放開馬達停止 1: No, motor stops only depends on the parameter setting J.5, without check the position of pedal. 腳踏板放開馬達繼續運轉直到達到設定針數後停止	--	0	0	0	0	0
A.3	Auto cutter function 自動斬刀功能?	0: Without this function 無自動斬刀 (手動斬刀) 1: With this function 手動/自動斬刀	--	0	0	0	0	0
A.4	Cancel the needle up function when pedal is heeled. 取消後踩上停功能	0: With the needle up function when pedal is heeled 有踏板後踩提針功能 1: Cancel the needle up function when pedal is heeled. And just the foot lifting function is effective 取消踏板後踩提針功能只做舉壓腳動作	--	0	0	0	0	0

A.5	Reversed revolution angles after pedal is heeled. 後踩反轉角度	0~250°	*1°	0	0	0	0	0
A.6	Edge sensor1 type 電眼 1 動作形式	LA:Low active(Dark On) 低電壓致動 HA:High active(Light On) 高電壓致動	--	HA	HA	HA	HA	HA
A.7	Edge sensor2 type 電眼 2 動作形式	LA:Low active(Dark On) 低電壓致動 HA:High active(Light On) 高電壓致動	--	HA	HA	HA	HA	HA
A.8	TS_OUT delays stitches' number after material edge sensor on (before L.7) 前吸風延遲針數	0~99	*1 stitch	0	0	0	0	0
A.9	TS_OUT delays stitches' number after material edge sensor off (before L.8) 後吸風延遲針數	0~99	*1 stitch	0	0	0	0	0
Y.0	Edge sensor off debounce time 電眼結束防彈跳圈數	0~99	*1 stitch	3	3	3	3	3
Y.1	Cancel error saving function 取消記憶錯誤碼	0:NO 1:YES	--	1	1	1	1	1
Y2	Parameter lock function 參數鎖定	UL:Parameter is unlocked 參數不鎖定 LK: Parameter is locked 參數鎖定	--	UL	UL	UL	UL	UL
Y3	Password 1 參數鎖定密碼 1	0~99	--	0	0	0	0	0
Y4	Password 2 參數鎖定密碼 2	0~99	--	0	0	0	0	0
Y5	Stitches' number machine runs when push the cut switch. 按下斬刀按鍵後針車轉動 圈數	0~9	*1 stitch	5	5	5	5	5
H.0	Software version 軟體版本	xx	--	1	1	1	1	1

H.1	Historical Error Code 歷史錯誤碼	1.x 2.x 3.x 4.x 5.x 6.x	--	0	0	0	0	0
H.2	Backup the settings 備份設定值	N: Without this function 無此功能 Sv: Save as backup settings 儲存為備份設定值 rC: Recall backup settings 回復為備份設定值	--	n	n	n	n	n

Note1. 1digital display is hundreds, 2digital display are tens and units respectively

1 位數的顯示為百位數，2 位數的顯示分別為十位數及個位數)

Note2. This value depends on motor specification. 根據馬達規格會有不同的值

IV. Error message indicator

錯誤訊息顯示

Error Code	Problem of Error	Check Items
E.1 or E.A	Synchronizer failure	-Synchronizer connector is loosen or line is broken.
E.2	Motor is not rotating	-Machine head is locked. -Motor is locked. -Motor power line or encoder line. is broken, or connector is loosen.
E.4	Safety switch failure	-Failure in safety switch connection -Safety switch failure -Setting error for parameter J.3
E.5	Speed unit output failure	-Speed unit connector is loosen -Speed unit is broken -Connecting rod installation is incorrect
E.6	CPU error	-Noise interference (Ex. High frequency machine, welding machine)
E.7	Material edge sensor function is failed.	-Parameter J.4 setting error -Material edge sensor not properly adjusted -Connector for material edge sensor is loosen - Material not properly settled through machine
E.8	Setting speed over the motor maximum speed.	-Parameter P.0 setting value is too large -Motor pulley diameter is too small -Motor pulley ratio setting error
E.9	Power transistor module is failed.	-Power module overheated -Short circuit or low voltage -Current is too high.
E.0 or E.C	Braking timing error	-Increase value of parameter J.9

錯誤代碼	錯誤內容	確認項目
E.1 或 E.A	同步器信號異常	同步器接頭鬆脫,斷線; 皮帶沒有傳動針車頭.
E.2	馬達不動	針車頭鎖死 馬達鎖死 馬達接頭鬆脫(動力線與編碼器線)
E.4	安全開關異常	安全開關接點異常 參數 J.3 設定錯誤
E.5	速度基座輸出異常	速度基座接頭鬆脫 連接桿安裝不適當 速度基座故障
E.6	當機	雜訊源干擾.(高週波 ,電焊機) EEPROM 故障
E.7	布端檢出功能異常	參數 J.4 設定錯誤 布端檢出器調整不良 布端檢出器連接線鬆脫,斷線 待車物料擺放位置不適當
E.8	最高轉速設定 超過馬達的最快速度	參數 P.0 設定值太大 馬達皮帶輪尺寸太小 馬達皮帶輪比設定錯誤
E.9	功率晶體模組故障	功率晶體模組過熱 短路低電壓 電流太大 馬達線圈阻抗太小
E.0 或 E.C	煞車時間異常	增加參數設定中 J.9 的值