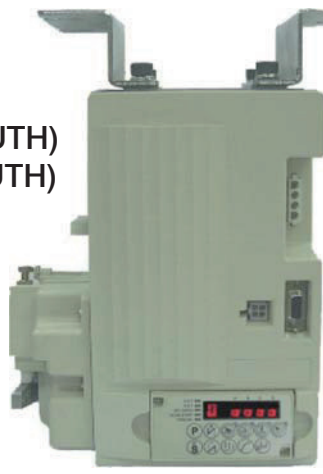


電控參數說明書

ELECTRONIC CONTROL
PARAMETER MANUAL

700KS(UTP/UTQ UTG/UTH)
F007K(UTP/UTQ UTG/UTH)
D007S

SIRUBA ELECTRIC SYSTEM
KAULIN MFG. CO., LTD.



EC Declaration of Conformity

We hereby declare that the following products:
AC servo motor— MD series
are in conformity with the provision of the EC
directives as following:
-EC Low Voltage Directive (2006/95/EC)
-EC Electromagnetic Compatibility Directive
(2004/108/EC)
-EC Machinery Directive (2006/42/EC)
Applied harmonized standards:
EN 60204-31: Electrical equipment of industrial
machines. Particular requirements for sewing
machines, sewing units and sewing system.
EN 292-1: Safety of machines.
EN 292-2: Safety of machines, technical
guidelines and specifications.
EN 61000-6-2: EMS for industrial environment.
EN 61000-6-3: EMI for residential environment.

Declaration of Conformity for
Concentration Limits for Certain
Hazardous Substances

We hereby declare that the following products:
AC servo motor— MD series
are in conformity with the following directives and
requirements:
1. European Union RoHS Directive (2002/95/EC) and
the concentration limits for certain hazardous
substances (2005/618/EC)
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 six hazardous
substances:

Hazardous Substance	Permissible Values
Lead (Pb)	Less than 240 ppm
Mercury (Hg)	Less than 800 ppm
Cadmium (Cd)	Less than 80 ppm
Hexavalent chromium (Cr VI)	Less than 800 ppm
Polybrominated Biphenyl (PBB)	Less than 800 ppm
Polybrominated Diphenyl ether (PBDE)	Less than 800 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.

1. Safety Precaution :

Please read this manual with sewing machine manual thoroughly and pay attention for the following safety precaution.

- Installation and operation must be done by the trained personnel, also turn off the power switch and remove the plug from outlet and wait for 5 minutes before any installation.
- This product is designed for the specific sewing machines and must not be used for other purposes.
- Only use the power voltage as described on the name plate of the MD control box in $\pm 10\%$ ranges.
- ✳️ **Attention : If the control box is AC 220V system, please don't connect to the AC 380V power outlet, otherwise the error will occur and panel LED will blink continually. If that happened, please turn off the power switch immediately and check the power voltage. Continue supply the 380V power over 5 minutes might damage the fuses (F1,F2) of EMI board and burst the electrolytic capacitors (C4,C5) of power board and even might endanger the person safety.**

- In order to prevent abnormal operation, keep the product away from the high frequency machines.
- Don't operate in direct sun light - outdoors area and the room temperature is 45°C above or 5°C under.
- Don't operate near the heater - dew area and the humidity is 30% less or 95% more.
- Don't operate in dusty - evaporate - combustible gas area, and stay away from corrosive material.
- Don't apply heavy objects or excessive force on the power cord, also don't bend or pull the power cord.
- Power cord must keep 3 cm or above distance away from the V-belt and the pulley.
- In order to prevent the static interference and current leakage, all grounding works must be done properly.
- After power on the machine for the first time, use low speed to operate and check the correct rotation direction.
- During machine operation, don't touch any moving parts.
- All moving parts must have protective device to avoid the body contact and objects insertion.
- Maintenance and repair must be done by the properly trained technician, also all the spare parts for repair must be approved or supplied by the manufacturer.
- Don't use any objects or force to hit or ram the product.

Danger and caution signs

- ⚠️ Risks that may cause personal injury or risk to the machine are marked with this symbol in the instruction manual.
- ⚡ This symbol indicates electrical risks and warnings.

Limited Warranty

Warranty period of this product is 1 year from purchasing, or 18 months from our manufacturing date.

Warranty Detail

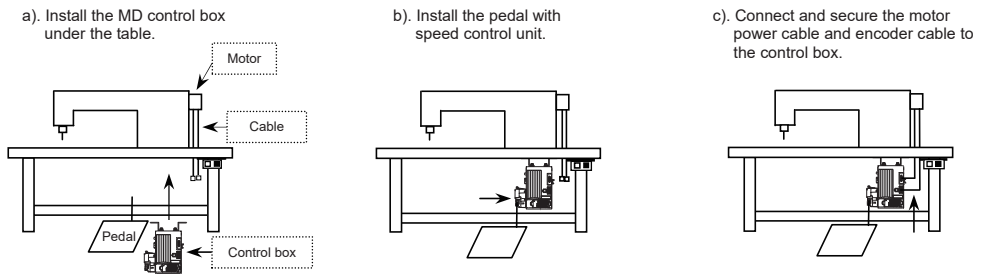
Any trouble found within warranty period under normal use condition in conformance with this manual, it will be repaired free of charge. Repair will be chargeable in the following cases even if within warranty period:
1. Inappropriate use include: wrong connecting high voltage, wrong application, disassemble, repair, modification by incompetent personnel, or operate the product without the precaution, or operate the products out of its specification range. Insert odd 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 purchase, or damage in transportation by customer himself. (or by customer's shipping agency)
Note : We put our best effort and mind in testing and manufacturing for assuring the quality and reliable of this product. But it is possible this product can still 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 be well-connected to this product and it's also recommended to install a failsafe device. (such as residual current breaker).

2. Installation :

MD installation



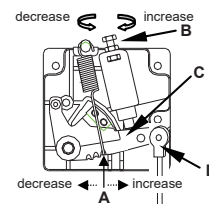
Caution :
For person safety, turn off the power switch and remove the power plug from outlet before any adjustment.



Speed control unit adjustment

Components of speed control unit : see figure

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



Term of adjustment	Adjustment result
1 Toeing forward Force adjustment	Spring A move to right = force increased Spring A move to left = force decreased
2 Heeling backward force adjustment	Bolt B turn = force decreased Bolt B turn = force increased
3 Pedal stroke adjustment	Rod D secure at right = stroke is longer Rod D secure at left = stroke is shorter

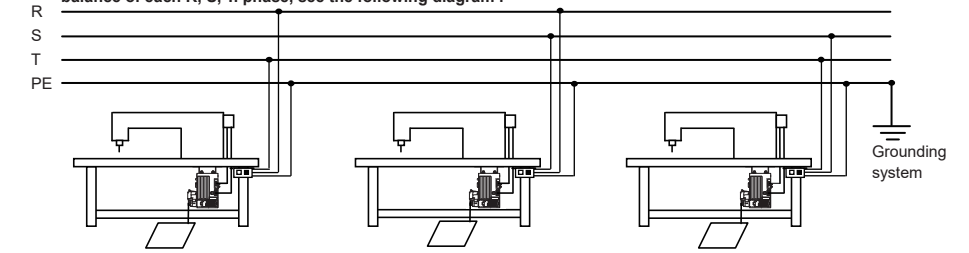
3. Wiring and Grounding :



Caution :
Green / Yellow wire is for grounding, and all grounding works must be done properly.

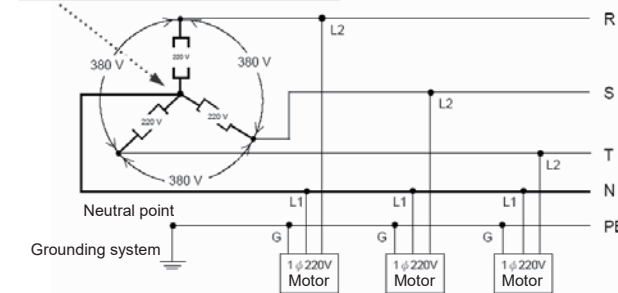


When multiple 1Φ / 220 V motors are connected to a 3 Φ / 220 V power source, take caution for the load balance of each R, S, T, phase, see the following diagram :



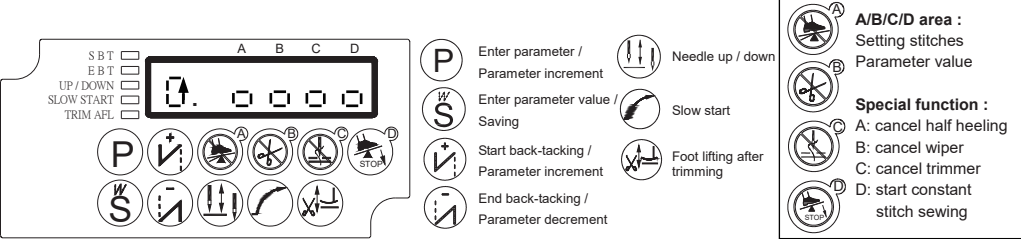
How to connect a 1Φ / 220 V power from a 3 Φ / 380 V power source

Attention : Must have a neutral point layout



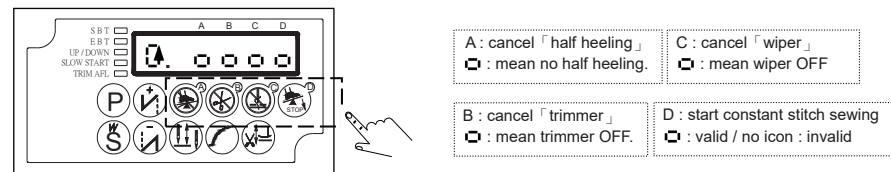
Caution : If the power source does not have the neutral point, then this 1Φ / 220 V servo motor is not suitable for this connection. Please ask supplier to offer our 3Φ / 380 V servo motor.

4. Panel Key Functions :



Panel key special functions

Under normal mode, use key to activate the special functions of A · B · C · D area. Icon represent the function state.



5. Parameter Adjustment :

How to enter parameter value area to adjust the value :

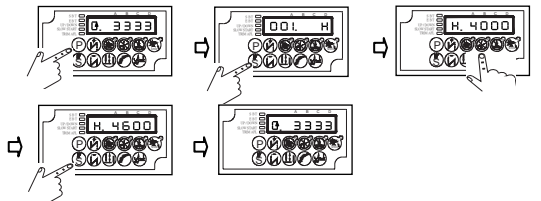
Step 1 : Enter any parameter mode show at right side, then use or key to find the parameter NO. which need to be adjusted.

Step 2 : After find the parameter NO., press the **S** key to enter the parameter value area, then use key to adjust the value.

Note : After the value adjusted, press the **S** key to save the setting, or else the setting will be lost after power OFF.

How to enter parameter mode :

Parameter mode	Operation	First display	Range for parameter
Level 1 Mode A	On normal mode, press and hold P key for 2 sec.	001. H	Parameter from # 001 ~ 046
Level 2 Mode B	Hold P key and power ON at same time.	047.ARC	Parameter from # 001 ~ 122



6. Error Code List :

Error code	Cause of the problem	Condition and solution
ER0.1	1. Power module detected error. 2. Abnormal over current occurred.	Motor and machine will be shutting down. Please check the power module. Please check the power board over current protection circuit.
ER0.4	1. When power on, higher power voltage has been detected. 2. Connect to a wrong AC power source. 3. Aluminum casing resistor for the brake circuit is defective or power board F1 fuse burst.	Motor and machine will be shutting down. Please check the AC power source. ✳️ If control box is AC 220V system, don't use the AC 380V power voltage, otherwise the panel LED will blink continually after 2 second of power ON. If continue supply the 380V power, the electrolytic capacitors (C4,C5) of power board will burst open over a period of time and cause the fuses (F1,F2) of EMI board open circuit. Please check the power board. Please check the aluminum casing resistor and power board F1 fuse.
ER0.7	1. Bad connection to the motor connector. 2. Synchronizer (sensor) signal error. 3. Machine locked or object stuck in the motor pulley. 4. Sewing material is too thick.	Motor and machine will be shutting down. Please check the motor or motor connectors' connection. Please check the synchronizer (sensor) and its signal. Please check machine head to see if any objects stuck in the motor pulley, or machine does not rotate smoothly.
ER0.16	1. Safety switch is defected or bad connection. 2. Parameter [075. SFM] setting not match the machine head model.	Motor stopped. Please check the safety switch. Please check parameter [075. SFM] setting, make sure it match machine head safety switch.

7. General Parameter List :

Parameter NO.	Function Name	Range	Description
Speed related parameter			
[001. H]	Maximum sewing speed	50~9999 spm	Maximum sewing speed setting.
[004. N]	Start back-tacking speed	50~8000 spm	Start back-tacking speed adjustments
[005. V]	End back-tacking speed	50~8000 spm	End back-tacking speed adjustments
[006. B]	Bar-Tacking Speed	50~8000 spm	Bar-tacking speed adjustments
[007. S]	Slow start speed	50~2000 spm	Slow start speed adjustments
[009. A]	Automatic constant-stitch sewing speed	50~8000 spm	Automatic constant-stitch sewing speed adjustments
[122. HL]	Upper limit of maximum speed	50~9999 spm	The limit of the maximum sewing speed. (If 122. HL =3000, but 001. H = 4000, then 001. H =3000)
Back tacking related parameter			
[014.SBT]	Start back-tacking function selection	ON / OFF	Start back-tacking turn ON or OFF
[015.SBA]	Setting stitches A of Start back-tacking	0~15 stitches	Start back-tacking stitches for A section
[016.SBB]	Setting stitches B of Start back-tacking	0~15 stitches	Start back-tacking stitches for B section
[017.SBN]	Setting turns of Start Back-tacking	0~4 turns	Start back-tacking turns
[021.EBT]	End back-tacking selection	ON / OFF	End back-tacking turn ON or OFF
[022.EBC]	Setting stitches C of End back-tacking	0~15 stitches	End back-tacking stitches for C section
[023.EBD]	Setting stitches D of End back-tacking	0~15 stitches	End back-tacking stitches for D section
[024.EBN]	Setting turns of End back-tacking	0~4 turns	End back-tacking turns
Bar-tacking related parameter			
[010.ACD]	Automatic sewing End back-tacking	ON / OFF	Automatic end back tacking after constant stitches
[032.BAR]	Bar-tacking selection	ON / OFF	Bar-tacking turn ON or OFF
[033.BRC]	Setting stitches of Bar-tacking	0~99 stitches	Bar-tacking stitches
[034.BRN]	Setting turns of Bar-tacking	0~15 turns	Bar-tacking turns
[038. PM]	Constant-stitch sewing selection	ON / OFF	Constant-stitch sewing turn ON or OFF
[039. PS]	Setting stitches for section of Constant-stitch sewing	0~250 stitches	Stitches for each section of constant-stitch sewing (P1~PD sections, total13 sections)
Wiper & Trimmer related parameter			
[040.WON]	Wiper function selection	ON / OFF	Wiper turn ON or OFF
[041. TM]	Trimmer function selection	ON / OFF	Trimmer turn ON or OFF
[075.SFM]	Safety switch	NO / NC	Safety switch (chain stitch, direct drive lock-stitch machine)
[078.TRM]	Trimming mode	LK/RK/KA/KB/KC	Trimming sequence (lock-stitch, chain stitch machine)
[082. T1]	Delayed timing prior to trimmer engaged	0~990 ms	Delay time (chain stitch machine)
[083. T2]	Trimming time	0~990 ms	Motion time (chain stitch machine)
[092. W1]	Delayed timing prior to wiper engaged	0~980 ms	Delay timing (for lock-stitch, chain stitch machine)
[093. W2]	Setting timing of wiping	0~9990 ms	Motion time (for lock-stitch, chain stitch machine)
[116.DRU]	Motor reverse angle	1~360 °	Reverse angle from down to up (chain stitch machine)
Presser foot related parameter			
[028.AFM]	Foot lifting mode	0 / 1 / 2 / 3	0= Depends on the pedal / 1= At motor stop 2= After trimming / 3= After trimming & at motor stop
[063.FTP]	Type selection for foot lifting solenoid	M / A	M=Magnetic type / A=Air type
[064. FO]	Full-On time for foot lifting solenoid	0~990 ms	Solenoid pulling torque adjustment
[065. FC]	Duty cycle time for foot lifting solenoid	10~90 %	Solenoid switching power adjustment.
[066. FD]	Running-Delay time setting	0~990 ms	Delay time for presser foot
[070.HHC]	Cancel foot lifting at half-heeling pedal	ON / OFF	No foot lifting at half-heeling when turn ON

8. 7 Segment LED Characters Compare Chart :

Arabic Numerals									
0	1	2	3	4	5	6	7	8	9
English Alphabet									
A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z				