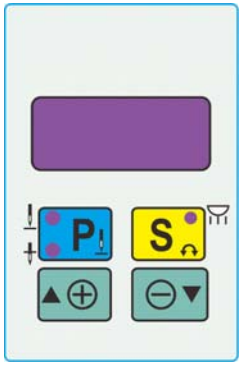
Servo Motor User Manual (v3.7 2019-02)

I. Front Panel



	Name	Description
	Display area	Display parameter and operating mode
P	Parameter	Parameter and needle position function
S	Setup	Parameter and rotation, LED light function
▲⊕	Add	Parameter select or set
⊖▼	Sub	Parameter select or set
	Needle up	Indicate the stop position is up
	Needle down	Indicate the stop position is down
	LED light	Indicate the LED light is open

II. Normal function set

1. Max speed set

The max speed can be adjusted through ▲⊕ and ⊖▼, the step is 100spm.

2. Needle position function set

Press P to turn on or turn off the needle position function. The left dot of the screen is light after the needle position function is enabled. And flip P to change the position of needle, when the position of needle is down position, will be light; when the position of needle is up position, will be light.

3. Rotation function set

The default rotation is anticlockwise, press S until the right dot of the screen is light, and then the rotation will change to clockwise.

4. LED light function set

Flip S to turn on or turn off the LED light, five different bright.

5. Parameter set

Press P and S at the same time to enter the parameter. Chose the parameter NO. by ▲⊕ or ⊖▼, and flip S showing the value, and change the parameter value by ▲⊕ or ⊖▼, at last flip S again to save it.

III. Parameter Table

Index	Range	Default	Description
P-01	100～900	500	Startup and needle stop speed (spm).
P-02	500～5000	3000	Max speed (spm).
P-03	0～1	0	Needle stop position. 0: down; 1: up.
P-04	OFF～ON	OFF	Synchronizer function. OFF: close, ON: open. **Note: Do not open the parameter if not connected to synchronizer.**
P-05	OFF～ON	OFF	Motor reverse rotation. OFF: close, ON: open.
P-06	1～9	6	Acceleration time from 0 to 4500 (spm). Time = 900 / value (ms).
P-07	0～99	98	Lightness of LED light.
P-08	0～5	1	Motor braking intensity. Higher the value greater the intensity. Only effect when P-04 is OFF.
P-09	0～*	*	Up position adjustment. Only effect when P-13 is 3.
P-10	0～*	*	Down position adjustment. Only effect when P-13 is 1 or 2.
P-11	OFF～ON	OFF	Speed-lock function. OFF: close, ON: open.
P-12	10～90	50	Action time (ms) from needle down position to up position when pedal backward. Only effect when P-04 is ON.
P-13	1～3	3	Synchronizer type. 1: internal single signal, 2: external single signal, 3: external double signal.
P-14	--	--	No use.
P-15	0～2	1	Speed display mode. 0: no speed display, 1: display real-time speed, 2: always display max speed.
P-16	OFF～ON	OFF	When value is ON, turn on the power again, after twinkling display of “IN” finished, all parameters will be restored.

P-17	1～9	*	Motor type. 2: belt-drive 8-pole 550W motor 3: belt-drive 82cm diameter 6-pole 500W motor 5: direct-drive 8-pole overlock motor 6: direct-drive 8-pole interlock motor 8: belt-drive 76cm diameter 6-pole 500W motor 9: belt-drive 76cm diameter 6-pole 650W motor
P-18	--	37	Software edition.
P-19	1～99	2	High speed Kp coefficient of PID regulator.
P-20	--	--	No use.
P-21	--	--	No use.
P-22	500～5000	4500	System speed limitation, motor speed never exceeds this parameter (spm).
P-23	1～3	1	Motor strength.
P-24	--	--	No use.
P-25	1～99	10	Low speed Kp coefficient of PID regulator.
P-26	1～9	1	Kp gain ratio of PID regulator.
P-27	1～99	1	Ki coefficient of PID regulator.
P-28	1～9	5	Ki gain ratio of PID regulator.
P-29	--	--	No use.
P-30	100～900	200	Waiting time (ms) for needle position stop.

IV. Error Code Table

Code	Cause	Measurement
ER 1	Over voltage	Check input power voltage.
ER 3	Over current	Check motor connector, or replace control box.
ER 4	Pedal fault	Check pedal connector.
ER 5	Synchronizer fault	Check Synchronizer connector and position signal.
ER 6	Hall fault	Check motor connector, or replace motor.
ER 7	Lock rotor fault	Check motor connector, or machine head.
PD	Pedal warning	Release the pedal to balance position.

V. Check Function

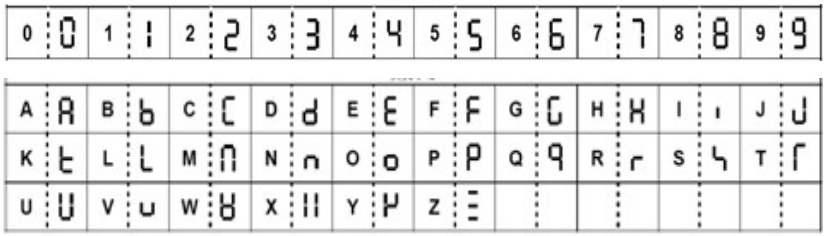
Press S until display “T” during power on, the press P to switch the index.

No.	Item	Method
A	Pedal	Press pedal, from back to front, the left bar will be shown: B, F, S, L, 1~9; the pedal output voltage will be shown on the last three bars.
B	Synchronizer	Turn the hand wheel, “U” will be displayed to show needle up position, “D” will be displayed to show needle down position.
C	Hall	Rotate motor to display hall value, “E” indicate fault state.

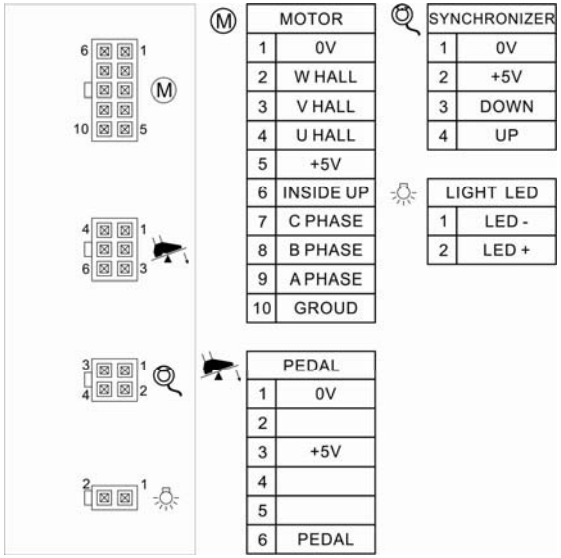
VI. Special Function

- Press ▲⊕ and ⊖▼ together exceed 3 seconds will restore all parameters.
- In check function, press ▲⊕ exceed 1 second, the lasting mode will be active.

VII. Display Characters Table



Arabic

English Alphabet

VIII. Connector Diagram