

Industrial Sewing Machine Digital AC Servo System


AFL User Manual

Safety instructions

1. The user should carefully read this operation manual before installing and using this product.

2. This product should be installed or operated by personnel receiving proper training.

3. All power supply should be turned off when installation is implemented and do not operate with electricity.

4. Implement according to the instruction book for all instructions marked with  to avoid unnecessary damage.

5. Before connecting the power line, the voltage should be determined to be less than AC250V and conform to the rated voltage value stipulated by this operation.

6. When firstly switch on this machine after installation, firstly cut off tangent function, operate the sewing machine by lightly pedaling and in low speed, and check whether the rotation direction is correct and rotation is steady or not.

7. Please turn off system power supply before implementing the following operations:

- ◆ Insert or extract any attachment plug on the controller.
- ◆ Lift up the hand piece of the sewing machine.
- ◆ The machine sits idle.
- ◆ Thread a needle.
- ◆ Repair the machine or make any adjustment of this machine.

8. Repair or maintenance of high level should be implemented only by trained mechanical and electrical technicians.

9. All elements for repair could not be used until being provided or approved by our company.

10. Please stay away from high frequency electromagnetic wave and radio transmitter etc. when using this product to avoid generated electromagnetic wave disturbing the servo driver and causing malfunction.

11. Requirements of production application environmental temperature and humidity:

- ◆ Do not operate it in the room temperature of over 45℃ or less than 5℃.
- ◆ Do not operate it beside the heating installation (electric heater).
- ◆ Do not operate it in the place of direct sunlight or outside.

Warranty period

The warranty period of this product is one year starting from the date of purchase or two years from the month when the product left the factory.

Warranty content

During warranty period, given the product is in normal condition and no operation with human error, we provide repairing service for customers with no charge until the product operates normally.

But for the following conditions, repairing fees will be charged during warranty period:

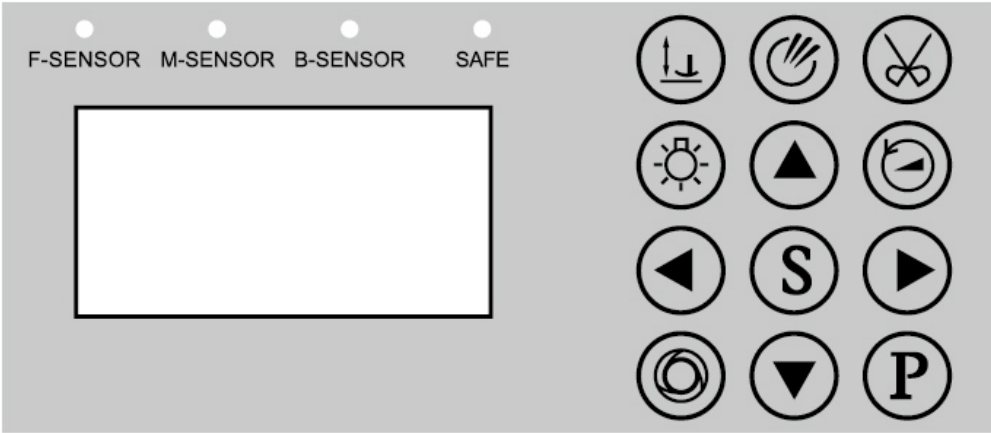
1. Improper use including connecting with high voltage power supply in mistake, using this product for other purpose, disassembling by users themselves, maintaining, changing, or not using according to specifications, invaded by water or oil or other materials.

2. Damages caused by natural disasters or improper environment such as fire, earthquake, lightning, hurricane, flood, salt corrosion, damp, abnormal voltage and others.

3. Customers make this product fall after purchasing, or damages caused by transportation by customers themselves (or by the transportation company entrusted).

• This product has been under maximum effort and strictly control in both production and testing in order to meet the standard of high quality and high stability, but external electromagnetics or electrostatic interference or unstable voltage supply may still affect or damage this product. Therefore the grounding system of the operation site must be well set, and users are advised to install fail-safe device (like leakage protection device).







第1页

DISPLAY AND OPERATION INTERFACE		
		
NO.	ICON	DESCRIPTION
1		user parameter setting key
2		left shift key
3		speed setting key
4		upper shift key
5		confirm key
6		shift down key
7		right shift key
8		presser foot to open the key
9		mode conversion key



第2页

10		trimming mode adjustment key
11		trimming suction mode adjustment key
12		LED brightness adjustment key
13		F-SENSOR
14		M-SENEOR
15		B-SENSOR
16		SAFE (Note:security indicator, the machine can't run)



USER PARAMETER MODIFICATION

After the user press the P key()for 2 seconds, it will enter into user parameter modification mode: To press the left shift key()and right shift key()to select the parameters, to press the upper shift key ()and shift down key ()to change the value, then press the confirm key()to confirm the modification.



MODE CONVERSION SETTINGS

After the user press the mode conversion key () , it will enter into full automatic/semi-automatic/ full manual conversion mode. To press the key again and again, three modes will be in a continuous loop: full automatic, semi-automatic and full manual conversion. After setting, press the confirm key () to save the modification.

THREAD TRIMMING SUCTION MODE MODIFICATION



When the user press the thread trimming suction mode key () , he can modify the trimming suction mode. To press the key again and again, four modes will be in a continuous loop: front suction, rear suction, front and rear suction and OFF. After setting, press the confirm key () to save the modification.

TRIMMING MODE SETTING



When the user press the trimming mode key () , he can modify the trimming mode. To press the key again and again, four modes will be in a continuous loop: first trimming, later trimming, first and later trimming and OFF. After setting, press the confirm key () to save the modification.


第3页


ROTATE SPEED SETTING

Press the speed setting key () , he can modify the rotate speed mode. Press upper shift key once, the speed will increase 50rpm.Press shift down key once, the speed will decrease 50rpm. After setting, press the confirm key () to save the modification.




LIGHT EYES QUICK ADJUSTMENT METHOD

1. Press and hold up()and down ()keys and remove the cloth.

2. Press the key()to confirm.

3. On the cloth cover, at the same time covering three light eyes, and key() confirmation, setup completed.

TECHNICIAN PARAMETER SETTING

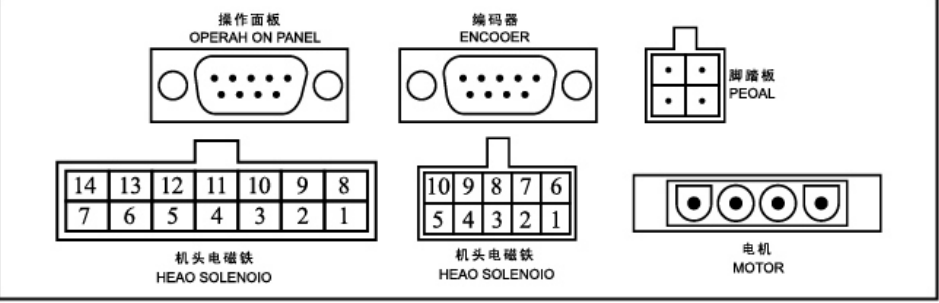
When the user press the P key () and turn on the power at the same time, the display will show P32. To press the left shift key () and right shift key () to select the parameters, to press the upper shift key () and shift down key () to change the value, then press the confirm key () to confirm the modification.

RESET TO FACTORY DEFAULTS

When the user press the down shift key() and right shift key () at the same time. Press the confirm key () to exit, the system will be reset to factory defaults.

PORT ILLUSTRATION

Outlet Diagram



Ten needle head electromagnet function port specification table

1, 6	thread trimming	2, 7	presser foot lifter
3, 8	Suction	4, 9	

Fourteen needle head electromagnet function port specification table

1, 8	thread trimming	2, 9	Suction
7, 14	presser foot lifter		

Note: In the first light eye (receiver 1)to set the number of needles must be done before the second light eye (receiver 2)trigger,so that the normal operation of the machine,otherwise it will automatically shut down.

PARAMETER TABLE

No.	function parameters	range	default	description
user parameter				press the P key for 2 seconds to enter
1	max rotate speed	100-7000		

第4页

2	the needle stop position choice		needle position down	up position/needle position down
3	start sewing speed	100-7000		
4	start up mode(full-automatic)	0-1	automatic	0: auto-control 1: foot control
5	the operation mode	0-2	semi-automatic	0: semi-automatic 1: full-automatic 2: full manual mode
6	retain			
7	auto trimming	0-3	first and later trimming	0: off 1: first trimming 2: later trimming 3: first and later trimming
8	auto suction	0-3	front suction	0: off 1: front suction 2: rear suction 3: front and rear suction
9	auto presser foot lifting	0-3	First lifting	0: off 1: first lifting 2: later lifting 3: first and later lifting
10	stop lifting and pressing foot(full manual mode)	0-1	off	0: off 1: on
11	lift the presser foot after trimming	0-1	off	0: off 1: on
12	lifting the presser foot when half heal back the treadle(full manual mode)	0-1	off	0: off 1: on
13	manual control suction	0-1	on	0: off 1: on
14	the sewing machine head lamp brightness	0-8	4	numerical increase brightness increase
15	semi automatic free seam	0-1	off	0: off 1: on
16	semi-automatic constant speed before trimming	0-1	off	0: off 1: on(shear line in accordance with the sewing speed)
17	semi-automatic constant speed after trimming	0-1	off	0: off 1: on (In front of the shear velocity in 26 after trimming speed shal prevail)
18	software version			
19	panel screen brightness	0-8	4	numerical increase brightness increase
20	panel software version			
21	semi automatic front presser foot	0-1	off	0: off 1: on
22	front shear line	0-99	4	When adjusting this value to change before the thum

第5页

	compensation time			of the shear line length
23	retain			
24	interval suction air (Dedicated servo)	0-1	off	0: off 1: on
25	retain			
26	before back trimming speed	0-5000	4500	
27	light eyes delay	0-250	0	
28	voice switch	0-1	1	0: off 1: on
29	interval air suction suction needles	0-99	10	
30	interval air suction run needles	0-99	3	
31	Language selection	0-1	0	0:Chinese 1:English
technician parameter				press P key and power on to enter
32	in front of the sensor to receive strength	0-255	160	
33	the strength of the middle sensor to receive	0-255	160	
34	behind the strength of the sensor receives	0-255	160	
35	front sensor emission intensity	0-50	35	
36	the strength of the middle sensor launch	0-50	35	
37	rear sensor emission intensity	0-50	35	
38	The response time of first sensor	50-990	50	
39	between the front and middle sensor pin number	1-600	100	
40	between the middle and later sensor pin number	1-600	100	
41	there is no shear line stop pin number		10	
42	retain			
43	the stitches number before the first suction open	1-50	3	
44	inhale before running time	0-5000	30	
45	after inhaling open pin number	0-5000	80	
46	breath after running	100-5000	200	

第6页

	time			
47	trimming time	10-990	40	
48	the delayed stitches number of first trimming	0-200		
49	the delayed stitches number of later trimming	0-50		
50	before the presser foot running time	100-2000	100	
51	after the presser foot running time	100-2000	120	
52	after the presser foot delay time	0-2000	50	
53	full-on time setting for presser foot	10-990	150	
54	duty cycle time setting for presser foot	10-90	30	
55	the time for the presser foot laying down	10-990	10	
56	Presser foot protection time	1-30	5	
57	presser foot protection switch			adjustable sensitivity/void
58	table protection switch			
59	retain			
60	Forced to shear line switch manually	0-1	0	
61	boot automatically find the needle position	0-1	on	0: off 1: on
62	The needle position above	0-359	1	
63	The needle position below	0-359	9	
64	test speed	100-7000	3000	
65	test working time	1-250	3	
66	test stop time	1-250	1	
67	automatic testing	0-1	0	0: off 1: on
68	retain			
69	retain			
70	pedal slope (on)	0-100	20	

第7页

71	pedal slope (below)	0-100	20	
72	the minimum time step light after	0-200	50	
73	pedal maximum voltage value		270	
74	pedal middle voltage value		185	
75	pedal gently backward step voltage value		110	
76	pedal after heavy step voltage value		80	
77	data error	on, off	on	
78	Electromagnet error	on, off	on	
79	protection switch recovery time	100-9000	1000	
80	retain			
81	password pane		0	

Fault phenomenon and processing countermeasures

Serial number	Fault phenomenon	Processing method and steps
1	Report “08” error	1. Do the motor coding disc connector and motor power connection become flexible? Motor plug is inserted opposite? If in bad contact, please adjust it. 2. The electric cabinet is broken, please change it. 3. Motor grating on the impurities or loose. 4. The bad motor encoder.
2	Report “0A” error	1. Rotate the machine head to check whether the motor hand wheel gets stuck or not. If yes, firstly rule out mechanical failure of the machine head .2.If the rotation is easy, please check whether the motor coding disc connector and motor power connection become flexible. Metal pin plug fall off? Please correct. 3. If in normal condition, please change the electric cabinet.
3	Report “09” error	1. Motor encoder plug fall off, pin is inserted bending.2. The motor encoder or signal line is bad.3.The electric cabinet is broken.
4	Report “11” error	1. Shut down the system power supply, check the motor encoder and magnetic sensor location spacing is appropriate, the polarity is correct. 2. Motor encoder or signal line is bad. 3. The electric cabinet is broken.
5	Report “14” error	1. Magnet circuit protected, electromagnet cables damaged or electromagnet is broken. Please change it. 2. The electric cabinet is broken.
6	Report “99” error	1. Pedal sensor didn’ t answer or the wrong type.
7	Report “0C” error	1. Low voltage are not up to speed or the set value is too high.

第8页

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