

AC Servo motor

User Manual V1.0

Model: WR50C



1. Notes on safety

Please read carefully User's Guide and the manual of sewing machinery accompanied before use. Installation and operation by trained professionals and correct use are required. Read carefully the following instructions for proper use. EasyDriver servomotor series can only be used for designated sewing machinery, with no exception.

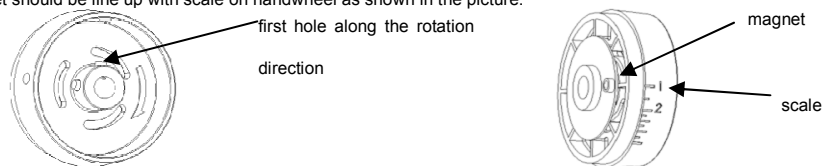
- 1.1 (1) Power Supply: Please follow the 200V—240V indicated on the nameplates of motor and control box.
- (2) Electromagnetic wave interference: Keep away from high frequency electromagnetic wave machines or electric wave emitter so as to avoid interference.
- (3) Humidity and temperature: a. Working environment: 5°C~45°C, room temperature b. Keep away from sun light, indoor use only. c. Keep away from (electric) heating appliances d. Relative humidity: 30%~95%, keep away from dew.
- (4) Air: a. Keep away from dusty or corrosive environment. b. Keep away from volatile substance.
- 1.2 (1) Motor, control box: follow the steps indicated in the manual
- (2) Accessories: power off and unplug power cord before installing any optional accessories.
- (3) Power cord: a. Avoid pressure or over distortion. b. Keep the power cord at least 3 cm away from upper roller c. Make sure that supply voltage is between 200V—240V.
- (4) Earthing: a. Handle earthing (including sewing machine, motor, control box, locator) correctly to avoid interference or creepage. b. The earthing cord of power cord must be connected to user's system earthing cord with proper conducting wire and joint and fixed permanently.
- 1.3 (1) Operate at low speed to check if rotation direction is correct when the sewing machine is powered on for the first time.
- (2) Do not touch the upper roller or needles when the sewing machine is running.
- (3) All movable components must be isolated by protection apparatus provided to avoid unnecessary contact and nothing shall be put inside the machine.
- (4) No operation is allowed in the absence of belt guard and other security apparatus
- 1.4 Turn off power before conducting the following operations:
 - (1) Removing motor or control box, or plugging or unplugging any plugs from the control box.
 - (2) There is hazardous high voltage inside the control box. Do not open the control box until the power has been off for at least 1 Minute.
 - (3) Moving machine head, replacing needles or shuttle or threading.
 - (4) Repairing or any mechanical adjustment.
 - (5) The machine is not running.
- 1.5 (1) Repair and maintenance can only be performed by trained technicians.
- (2) No irrelevant articles should be put near the motor's air vent, the back vent head, in particular, shall be kept free of dust, waste paper, broken fabric, etc to avoid overheating of the motor.
- (3) Do not hammer this machine or motor (motor) spindle.

- 1.6 Used where potential dangers exist. Used where high voltage and electric danger exist.
- 1.7 Free repair service up to 12 months since leaving factory on condition that this machine is operated correctly and no human error occurs to it.

2. Installation and Adjustment

2.1 Handwheel Installation and Adjustment

Fasten the bolt when the first hole along the rotation direction of handwheel coincides with the tangent plane of the spindle. The magnet should be line up with scale on handwheel as shown in the picture.



6. Status of System Error

Error codes	Contents	Checking and treatment	Error codes
E011 E012 E013 E014	electric engine signal error	Motor position sensor signal failure	If electric engine plug is well contacted if electric engine signal detecting device has been broken if sewing machine handwheel correctly installed
E021 E022 E023	Electric engine overload	Motor stall electric engine overload	If electric engine plug is well contacted if machine head or thread-cutting mechanism has been blocked completely if materials are too thick Electrical signal detection signal whether the normal
E101	Hardware drivers fault	Current detection of non-normal Driving through the device	Current detection loop system is working properly Whether the damage to the device driver
E111 E112 E113	Voltage too low	High-voltage reality Brake failure loop Motor testing is wrong	If the voltage on the inlet wire is too high Braking resistance is the normal work Whether the system voltage detection circuit the normal work
E121 E122	Voltage too low	Actual low voltage Voltage detection is wrong	If the voltage on the inlet wire is too low Whether the system voltage detection circuit the normal work
E131	Circuit fault detection circuit	Current detection of non-normal	Current detection loop system is working properly
E141	Failure to read and write data system	Non-normal data systems to read and write	Current detection loop system is working properly Whether the data chip damage
E151 E152	magnet error	Electromagnet return flow Electromagnet non-normal conduction	If machine head magnet suffers short circuit Electromagnet circuit is working properly
E201	Motor current excessive	Current detection of non-normal The normal functioning of non-motor	Current detection loop system is working properly Electrical signal is normal
E211 E212	Abnormal electric engine operation	Abnormal electric engine operation	If electric engine plug is well contacted If electric engine signal is matched
E301	Poor operation box communication	The digital of operation box communication missing	if operation box plug is well contacted if operation box components are damaged
P.oFF	Power-fail	Power-down	Wait for power supply to resume
L.oil	Oiling hint	it has operated for Remind to add oil	long press the chasis panel button P to cancel the oiling hint after add oil

Note: consult technical support if errors still exist.

7. Parameter list of lockstitch sewing machine

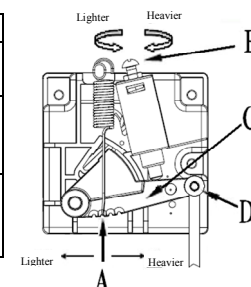
No.	Items	Contents	Settings range	Default
1	highest speed of free-style	set the highest speed for machine head	300~9000(spm)	5000
2	soft start	soft start setting for starting sewing 0: no Soft Start 1~9: needle number of soft start	0/9	0
3	soft start speed	soft start speed for starting sewing	100~3000(spm)	1000
4	highest speed for preset sewing	highest speed for preset sewing	300~9000(spm)	3500
5	sewing mode	sewing mode setting(valid in the absence of operation box of the machine head) 0: free-style sewing 1: preset sewing 2: plain sewing 3: plain sering	0~3	0
6	number of preset sewing sections	setting the number of preset sewing sections and the needle number of each section	1~6(sections)	1
7	needles of the 1st section of		1~99(needles)	15
8	needles of the 2nd section		1~99(needles)	15
9	needles of the 3rd section		1~99(needles)	15
10	needles of the 4th section		1~99(needles)	15
11	needles of the 5th section		1~99(needles)	15
12	needles of the 6th section		1~99(needles)	15

2.2 Adjustment of pedal

The parts of pedal are as shown in the right figure.

- A. Operation spring
- B. Bolt for heeling adjustment
- C. Pedal lever
- D. Ball joint link

No.	Adjustment	Result
1	Adjustment of toeing force Move spring A to the right to increase the toeing force. Move spring A to the left to reduce the toeing force.	
2	Adjustment of heeling force CCW turn the bolt to reduce the heeling force. CW turn the bolt to increase the heeling force.	
3	Adjustment of pedal stroke Secure the ball joint link D to the right hole to increase the pedal stroke. Secure the ball joint link D to the left hole to reduce the pedal stroke.	

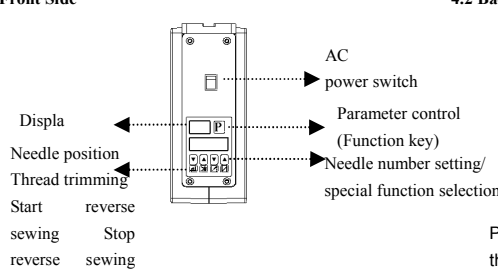


3. Connection & Earthing

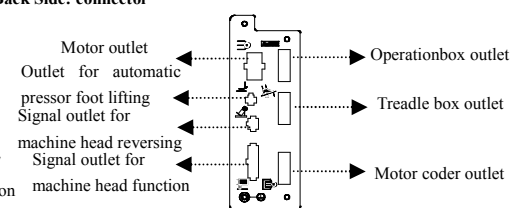
Qualified electric engineering professionals must be invited for system earthing.

4. Names of Chassis Components

4.1 Front Side



4.2 Back Side: connector



Plug wires in accordance with connector requirements; make sure that all plugs, DB in particular, have been fastened correctly.

5. Instructions for the Operation Panel of the Chassis

Layout of the operation box of chassis, 6 digital tubes (abcdef) and 5 keys (12345)

5.1 Setting of Sewing Functions

Press key 1234 and digital tube abcd to set needle position, thread-cutting, starting reinforcing-sewing, ending reinforcing-sewing respectively.

- 1: Needle position a: 0 upper needle position; 1 lower needle position 2: thread-cuttings b: 0 unavailable; 1 available
- 3: Starting reinforcing-sewing c: 0 unavailable; 1 AB double reinforcing-sewing; 2 ABAB quadruple reinforcing-sewing
- 4: Ending reinforcing-sewing d: 0 unavailable; 1 CD double reinforcing-sewing; 2 CDCD quadruple reinforcing-sewing



- The four settings are not necessarily valid for different working mode and sewing mode.
- 1) System runs with operation box of the machine head. Only needle position option is valid, others need to be set through the operation box of the machine head.
- 2) System runs without operation box of the machine head.
- a) the 4 settings for free-style sewing, preset sewing are all valid .b) only thread-cutting setting is valid for continuous reinforcing-sewing. c) none of the 4 settings are all valid for plain sewing.
- 3) Automatic test mode: all 4 settings are valid.

The system will enter automatic test mode if key P and power button are pressed at the same time, and the settings for operation box of the machine head aren't valid, the settings related to automatic test can only be done through the operation box of chassis. Press key P and 4 to switch automatic running.

Display functions of digital tube ef:

- 1) Digital tube e: indicate the status of turn/lift switch No display for invalid turn/lift switch, animated pictures for valid turn/lift switch, which means that machine head has been lifted and system running is forbidden
- 2) Digital tube f: distinguish different sewing modes "E" for plain sewing, "A" for automatic test, no display for other modes

5.2 Setting of Parameters

Under setting mode for sewing functions, i.e. default mode of the operation box of chassis, keep pressing key P to enter setting mode for parameters. Digital tube abcd display parameter values which can be modified by pressing key 34; digital tube ef display parameter numbers which can be modified by pressing key 12, and previous parameters will be saved at the same time. Press key P to exit setting mode for parameters, and the current parameter values will be saved.

Note: the setting mode for parameters can not be entered into when the system is running; exit to enter setting mode for parameters. See the parameter list of lockstitch sewing machine for details.

5.3 System monitoring status

Under the default mode of the HMI of chassis, press key P and key 1 at the same time to enter system monitoring status. Digital tubes abcd display monitoring values; digital tubes ef display monitoring parameter number, press key 12 for modification.

ef	1	2	3	4
abcd	speed	Current	voltage	count
unit	spm	A	V	piece

5.4 Status of System Error

System will stop when an error is detected and error code will be displayed by the operation panel of chassis. Digital tube abcd display error number. See error code list for details.

No.	Items	Contents	Settings range	Default
13	trigger mode of preset sewing	setting of preset sewing trigger 0: trigger function unavailable 1: trigger function available	0/1	0
15	control mode for pressor foot	settings of pressor foot lifting mode	0~5	1
16	treadle command mode after	treadle command mode setting after thread-cutting	0/1	1
20	Power on and positioning	Setting of machine head moving to upper needle	0/1	1
21	signal mode for scissors switch	Setting of signal mode of scissors switch of machine head 0: always open 1: always close	0/1	0
23	piecwork	Piecwork setting 0: unavailable 1: available	0/1	1
24	piecwork display	Piecwork number	0~9999	0
27	low speed	lowest speed of treadle	100~1000(spm)	400
28	adjustment of treadle functions	adjustment of the speed adjustment functions of treadle	10~100	85
30	Thread-cutting delays sewing	Thread-cutting delays sewing	0~200(ms)	0
31	Time of Thread-cutting	time of Thread-cutting	0~1000(ms)	120
32	Thread wiping delays sewing	Thread wiping delays sewing	0~300(ms)	40
33	Thread wiping hold time	Thread wiping hold time	0~1000(ms)	30
34	pressor foot lifting delays	delay with pressor foot lifted	0~1000(ms)	30
35	output time of total pressure of	output time of total pressure of pressor foot lifting	0~800(ms)	250
36	output duty cycle of pressor	output duty cycle of pressor foot lifting	0~100	22
37	hold time of pressor foot lifting	forced shut-down after hold time of pressor foot lifting	1~60(s)	12
38	pressor foot dropping delays	pressor foot lifting delays sewing	0~800(ms)	200
40	lower needle position	Adjustment of lower needle position	120~240	180
49	parameter of special functions	parameter of special functions(valid after holding 2s)	0~15	0

* Marked Items are used for repair and maintenance, modification of factory-set value may do damage to the machine or lead to decline of performance. Professionals must be consulted if modification is necessary. However, set values may be modified anytime for improvement of the functions and performance of sewing machine.

WR50C PACKING LIST v1.0

NO.	Product name	Amount	Product specification	Confirm	Remarks
1	Ball section connecting rod	1			
2	Electric control box	1	WR50C		
4	pedal	1	PL-101		with bracket
7	Screw	3	M5×30		Outside hex flange tapping screws
8	screw	3	M5×23		Outside hex flange tapping screws
9	The instructions	1			
10	certificate	1			
11	cable ties	2	CV-160L		