

# AC Servo motor

## UserManualV2.0

Model: WR50S&WR50T



### 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.

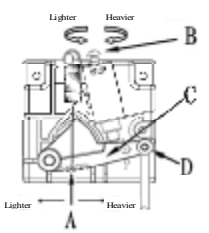
- 1.1 (1) Power Supply: Please follow the 200V—240V indicated on the nameplates of motor and control box.
  - (2) Electromagnetic wave interference: Keep away from high frequency electromagnetic wave machines or electric wave emitter so as to avoid interference.
  - (3) Humidity and temperature: a. Working 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 of 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. 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.<br>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.<br>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. |

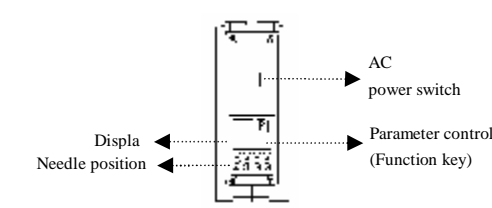


### 3. Connection & Earthing

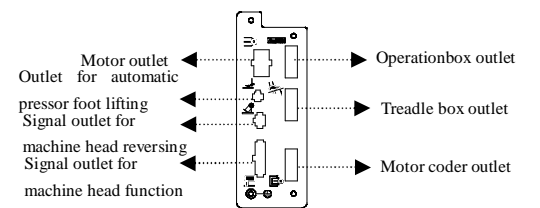
Qualified electric engineering professionals must be invited for system earthing.

### 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

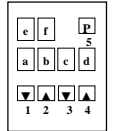
Layout of the operation box of chassis, 6 digital tubes (abcdef) and 5 keys (12345)

#### 5.1 Setting of Sewing Functions

Chassis operation panel of the default setting pattern, through the button 1 and digital tube a can set a needle a: 0 on a needle; Under a needle 1

About digital tube e display function:

Show the state of safety switch security switch failed don't show, safety switch that effective animation



#### 6. Operation box of instructions



#### 6.1 Description of Function of the Keys

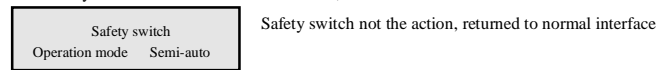
- : Sensor dust removal (reserved); : Adjustment of photoelectricity strength and sensitivity; : Front cutting/Back cutting;
- : Front air suction/Back air suction; : AUTO/SEMI-AUTO/MANUAL;
- : Mode (reserved); : Parameter setting; : Needle bar light indicator; : Parameter modulation and the "OK" button.

#### 6.2 指示灯说明:

AUTO: Automatic pre-running mode (for manufacturer) F-CHK: Front sensor receiving indicator SAFE: Safety switch indicator  
RUN: Motor running indicator B-CHK: Back sensor receiving indicator MODE: Mode running indicator (reserved)

#### 6.3 Notices:

- a. After connecting the power the six LED lights will be on, and then the self check will be performed. After the self check the machine enters the standby mode.
- b. Only when the whole sewing process is completed and the button is pressed can the user enter the operator parameter setting interface: buttons are for the modification of parameter sequence number, and buttons are for the modification of parameter value. Shortcut keys can be used for common parameters to enter the setting of corresponding parameters. Under this status, the user cannot use the pedal to run the machine, please press the OK button to return the standby interface.
- c. On the standby interface, the user can press the button to display the software version of the operation box, press the button to display the software version of the drive, and the OK button to return the default interface. The default interface will also display if no action is taken within 2 seconds.
- d. The buttons on the control panel are blocked when a sewing process is uncompleted.
- e. If the safety switch is turned on and is effective, the safe indicator will be on and the LC screen displays the following information:



### 7. Description of Parameters

#### 7.1 General parameters

| Serial No. | Functional Parameter                       | Default      | Range                             | Description   |
|------------|--|--------------|-----------------------------------|---|
| 1          | Operation modes                            | 0            | 0-2                               | 0: Semi-auto 1: Auto 2: Manual  |
| 2          | Length of front cutting                    | 46           | 0-50                              | 0: Invalid front cutting  |
| 3          | Length of back cutting                     | 12           | 0-100                             | 0: Invalid back cutting   |
| 4          | Front air suction                          | 1            | 0-1                               | 0: No front air suction 1: Front air suction  |
| 5          | Duration of back air suction               | 0.5 second   | 0-5s                              | 0: without back air suction   |
| 6          | Long air suction                           | 0            | 0, 100, 150, 200, 250, 1 ( valid) | 0: invalid long air suction 100-250: intervening air suction Valid: valid all the time                                      |
| 7          | Strength of front photoelectricity         | 70           | 0-100                             |   |
| 8          | Location of front Luminous intensity       | Actual value | Actual range                      | Read-only parameter   |
| 9          | Sensitivity of front photoelectricity      | 20           | 0-100                             |   |
| 10         | Sensitivity of back photoelectricity       | 70           | 0-100                             |   |
| 11         | Location of back Luminous intensity        | Actual value | Actual range                      | Read-only parameter   |
| 12         | Sensitivity of back photoelectricity       | 20           | 0-100                             |   |
| 13         | Presser bar lifter                         | 3            | 0-3                               | 0: no presser bar lifter<br>1: front presser bar lifter<br>2: back presser bar lifter<br>3: front & back presser bar lifter |
| 15         | Brightness of needle bar light             | 3            | 0-5                               | 0: dark 5: quite bright   |
| 16         | Brightness of back light                   | 3            | 0-5                               | 0: dark 5: quite bright   |
| 17         | Power indicator light of the operation box | 0            | 0-1                               | 0: on 1: off  |
| 19         | The seam/termination of the speed          | 3500rpm      | 300-4500                          |   |
| *20        | Sewing speed                               | 5000rpm      | 300-P50                           |   |
| 21         | Recover parameter of leaving factory       | 0            | 0-2                               | 0: Do not recover<br>1: Recover general parameters<br>2: Recover all parameters   |

#### 7.2 Description of Advanced Parameters

On the parameter interface, a long press over three second will turn on the setting interface of advanced parameters: Please enter the password: 0000

Then the user can change the setting value via the buttons and reset the password via the buttons. Enter the password (4 characters) and press the OK button. If the password is right, then P50 Maximum sewing speed 5000rpm will display; if the password is wrong, then the user will be brought back to the password entering interface. The default password is 2010. Press the button P to exit the password

interface and return the normal interface.

Password resetting mode: After entering the setting interface of advanced parameters, a long press of the button P will turn on the password resetting mode. The new password shall be entered twice to be effective.

#### 7.3 Advanced Parameters

| Serial No. | Functional Parameter                       | Default | Range       | Description   |
|------------|--|---------|-------------|---|
| *50        | MAX Maximum sewing speed                   | 5000rpm | 300-7000rpm | *The value of the parameter relates to the setting of the model (P55 parameter)<br>When P55=0, the default range is 300-7000<br>When P55=1, the default range is 300-8000 |
| 51         | Needle mark                                | 3       | 1.0-4.0     |   |
| 52         | Needles between the front and back sensor  | 35      | 1-50        |   |
| 53         | Duration of the cutting line               | 100ms   | 10-1000ms   |   |
| 54         | Duration of the lifting of the presser bar | 500ms   | 100-2000ms  |   |
| 55         | Model setting                              | 0       | 0-1         | 0: 700 Serial head 1: 900 Serial head   |
| 59         | Manual switch during operation             | 0       | 0-1         | 0: Invalid during operation<br>1: Valid during operation<br>The function is only valid in manual mode (P1=2)  |
| 60         | Safety Switch                              | 1       | 0-1         | 0: Off 1: On  |
| 61         | Language (Chinese/English)                 | 0       | 0-1         | 0: Chinese 1: English   |

### 8 Status of System Error

| Error codes                  | Contents                              | Checking and treatment  | Error codes  |
|------------------------------|---------------------------------------|---|--|
| E011<br>E012<br>E013<br>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<br>E023                 | Electric engine overload              | Motor stall electric engine overload                                | If electric engine plug is well contacted 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<br>E112<br>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<br>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   |
| 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<br>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  |
| E401                         | Operation box store data errors       | Operation box store data errors                                     | Check the operation box memory chip for damage   |

### WR50S/WR50T ACCESSORY

| NO. | Product name                | Amount | Product specification | Confirm | Remarks                                 |
|-----|-----------------------------|--------|-----------------------|---------|---|
| 1   | Ball section connecting rod | 1      |                       |         |   |
| 2   | Electric control box        | 1      | WR50S/WR50T           |         |   |
| 3   | Operating box               | 1      | EP-012                |         |   |
| 4   | pedal                       | 1      | PL-101                |         | with bracket                            |
| 5   | Screw                       | 3      | M4×8                  |         | The supplied pan-head three combination |
| 6   | Screw                       | 3      | M5×30                 |         | Outside hex flange tapping screws       |
| 7   | Screw                       | 3      | M5×23                 |         | Outside hex flange tapping screws       |
| 8   | The instructions            | 1      |                       |         |   |
| 9   | certificate                 | 1      |                       |         |   |
| 10  | cable ties                  | 2      | CV-160L               |         |   |