

## Preface



**CAUTION:**

Please read this manual carefully, also with related manual for the machinery before use the controller. For installing and operating the controller properly and safely, qualified personnel are required.

This product is designed for specified sewing machines and must not be used for other purposes.

If you have any problem or any comment, please feel free to contact us.

## Safety Instruction

- 1) All the instruction marked with sign  must be absolutely observed or executed; otherwise, personal injuries or risk to the machine might occur.
- 2) This product should be installed and operated by persons with appropriate training only.
- 3) Before connecting power supply cords to power sources, it's necessary to make sure that the power voltage is in the range indicated on the product name plate.
- 4) Make sure to move your feet away from the pedals while power on.

- 5)  Turn off the power and remove plug prior to the following operations:
  - Connecting or disconnecting any connectors on the control box;
  - Repairing or doing any mechanical adjustment;
  - Threading needle or raising the machine arm;
  - Machine is out of work.
- 6) Make sure to fasten all the fasteners firmly in the control boxes prior to the operation of the system.
- 7) Allow an interval of at least 30 seconds before repapering the system after power off.
- 8) Repairs and maintenance work may be carried out by special trained electronic technicians.
- 9) All the replacement parts for repairing must be provided or approved by the manufacturer.
- 10) The controller must be firmly connected to a properly grounded outlet.

	<b>CAUTION:</b>	Be sure to connect the controller to a properly grounded outlet. If the grounding connection is not secured, you may run a high risk of receiving a serious electric shock, and the controller may operate abnormally.
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## 1. Product Introduction

### 1.1 Overview

- It is using to TI of the latest new DSP control platform ;
- It is supporting the latest new HMI 50 operation surface ;
- It is the new HMI protocol, with abundant parameter, Extended function ;
- It is supporting hanging belt motor and direct drive motor, using 550W, 700W motor belt wheel replaceable design ;
- 6 external signal input and 8 electromagnet output interface ;
- The HMI parameter free set input and output function ;
- supporting models: kinds of drive way automatic over lock\interlock\

lockstitch; various special sewing equipment, currently has with full function comprehensive feeding machine; be gradually extended.

**New generation control system**

- **Hardware**
  - The adoption of a new generation of high speed DSP ;
  - Innovative design of electromagnet drive circuit design ;
- **Software**
  - Many years of industry experience, rewrite all the code ;
  - New rate control algorithm, response to faster, more stable ;
  - New stitches compensation algorithm ;
  - New electromagnet control algorithm, and output redirection function ;
  - Flexible pedal velocity curve ;
  - Extended function ;

**1.2 Specifications**

Table 1

Item	<b>ASD60-55</b>	<b>ASU60-55</b>	<b>ASU60-70</b>	<b>ASU60-75</b>
Adaptation	Direct-driven	Belt	Belt (heavy-duty)	Belt (heavy-duty)
Motor Type	PMSM	PMSM	PMSM	PMSM
Voltage Range	AC 220±20% V 50/60HZ	AC 220±20% V 50/60HZ	AC 220±20% V 50/60HZ	AC 220±20% V 50/60HZ
Output Power	550W	550W	700W	700W
Max. Speed	5000rpm	5000rpm	3500rpm	3000rpm
Max. Torque	3Nm	3Nm	6Nm	8Nm
Speed Control	★	★	★	★
Weight	5.7Kg	9.5Kg	11Kg	11Kg
Dimension	385x295x210mm	400x335x315mm	400x335x315mm	400x335x315mm

## 2. Installation Instructions

### 2.1 Motor Installation

Step 1: Mount lifting bracket. When motor installed under the machine table, as needed, to drill holes in the following diagrams (see Fig. 2-1 the example for USA base table) for the installation, mount lifting bracket.

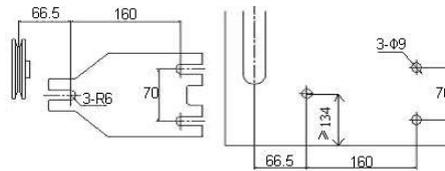


Fig.2-1

Step 2: Install the motor (see Fig.2-2) and then tighten the lifting bracket.

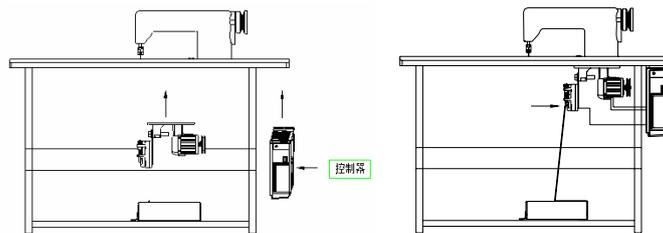


Fig.2-2

### 2.2 Controller Installation

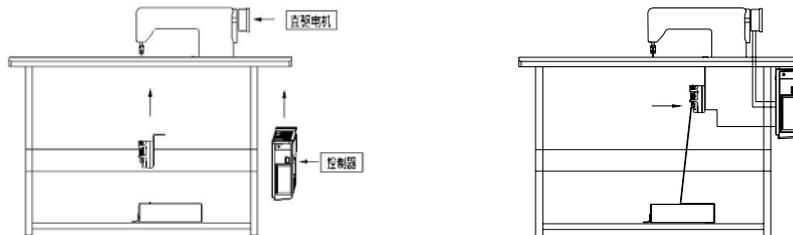


Fig.2-3

### 2.3 Controller shape dimension

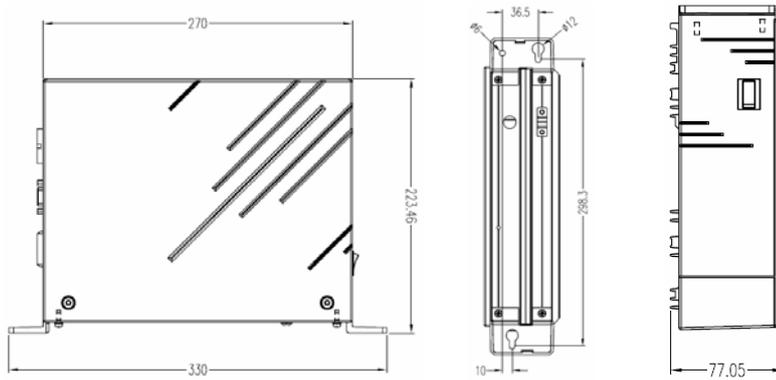


Fig.2-4

### 3. Power Connection and Grounding

Ground wire (Green/yellow) must be grounded. Use the correct connector and extension wire when connecting ground wire to Earth and secure it tightly (see Fig.3-1).

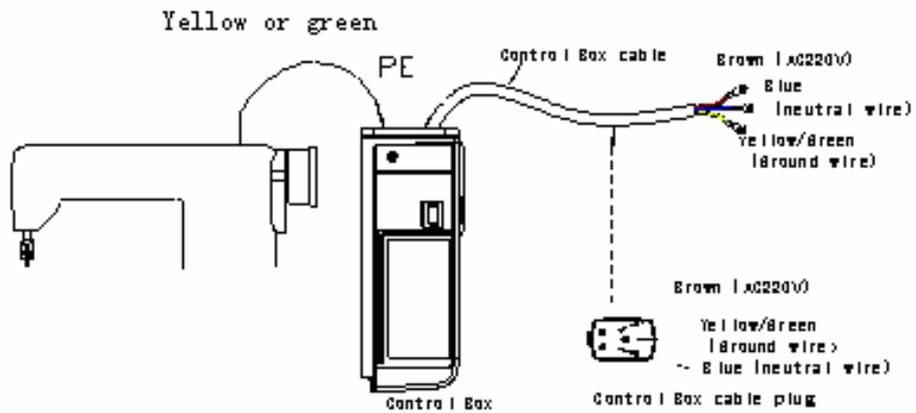


图 3-1

 <b>CAUTION</b>	<b>Ensure all power cord, signal wire and grounding wire not be pressed by other matter or over-twisted ,and not be too close to belt and belt wheel, keep 3cm-distance for safety.</b>
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**A 1Φ/220V power from a 3Φ/380V Power source Connection (See Fig.3-2):**

 <b>CAUTION</b>	<b>If the system have no Neutral point, then this servo motor is not suitable for this connection.</b>
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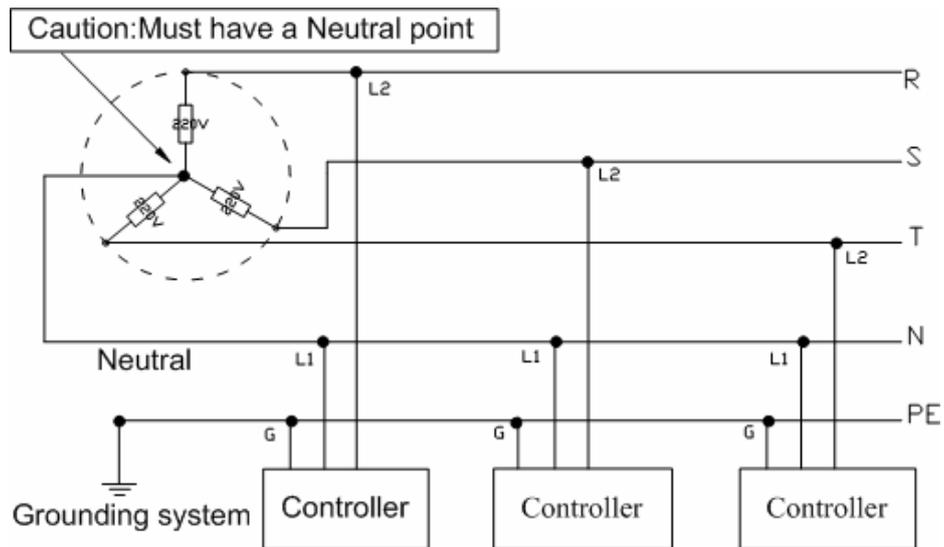


图 3-2

#### 4. Recovery processing and maintenance

故障代码	代码含义	解决措施
01	hardware overflow	Turn off the system power, restart after 30 seconds, if the

02	software overflow	controller still does not work, please replace it and inform the manufacturer.
03	system under-voltage	Disconnect the controller power and check if the input voltage is too low (lower than 176V). If yes, please restart the controller when the normal voltage is resumed. If the controller still does not work when the voltage is at normal level, please replace the controller and inform the manufacturer.
04	over-voltage when the machine is off	Disconnect the controller power and check if the input voltage is too high (higher than 264V). If yes, please restart the controller when the normal voltage is resumed. If the controller still does not work when the voltage is at normal level, please replace the controller and inform the manufacturer.
05	over-voltage in operation	
06	solenoid circuit failure	Turn off the system power, check if the solenoid is connected correctly and if it is loose or damaged. If yes, replace it in time. Restart the system upon making sure everything is in good order. If it still does not work, seek technical support.
07	electrical current checking circuit failure	Turn off the system power, restart after 30 seconds to see if it works well. If not, try several more times. If such failure happens frequently, seek technical support.
08	locked motor roller	Disconnect the controller power, check if the motor input plug is off, loose or damaged, or if there is something twined on the machine head. After checking and correction, if the system still does not work, please replace the controller and inform the manufacturer.
09	brake circuit failure	Turn off the system power, check if the white brake resistance plug on the power board is loose or dropped off, fasten it and restart the system. If it still does not work, please replace the controller and inform the manufacturer.
10	HMI communication failure	Check if the connecting line between control panel and controller is off, loose or broken, restore it and restart the system. If it still does not work, please replace the controller and inform the manufacturer.
11	machine head needle positioning failure	Check if the connection line between machine head synchronizer and controller is loose or not, restore it and restart the system. If it still does not work, please replace the controller and inform the manufacturer.
12	motor original angle checking failure	Please try 2 to 3 more times after power down, if it still does not work, please replace the controller and inform the manufacturer.
13	Motor HALL failure	Turn off the system power, check if the motor sensor plug is loose or dropped off, restore it and restart the system. If it still does not work, please replace the controller and inform the manufacturer.
14	DSP Read/Write EEPROM failure	Try another time after power down, if it still does not work, please replace the controller and inform the manufacturer.

15	Motor over-speed protection	Turn off the system power, turn on again in 30 seconds to see if it works. If not, try several more times, if such failure happens frequently, please change the controller and inform the manufacturer.
16	Motor reversion	Turn off the system power, restart the system after 30 seconds, if it still does not work, please replace the controller and inform the manufacturer.
17	HMI50 Read/Write EEPROM failure	Turn off the system power, restart the system after 30 seconds, if it still does not work, please replace the controller and inform the manufacturer.
18	Motor overload	Turn off the system power, restart the system after 30 seconds, if it still does not work, please replace the controller and inform the manufacturer.
19	Lack of oil alarm	Add oil to the needle rod, and set the P22 parameter at 4000, resume the working time after the last oil adding; or you can press button P to close the alarm and continue to use.

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