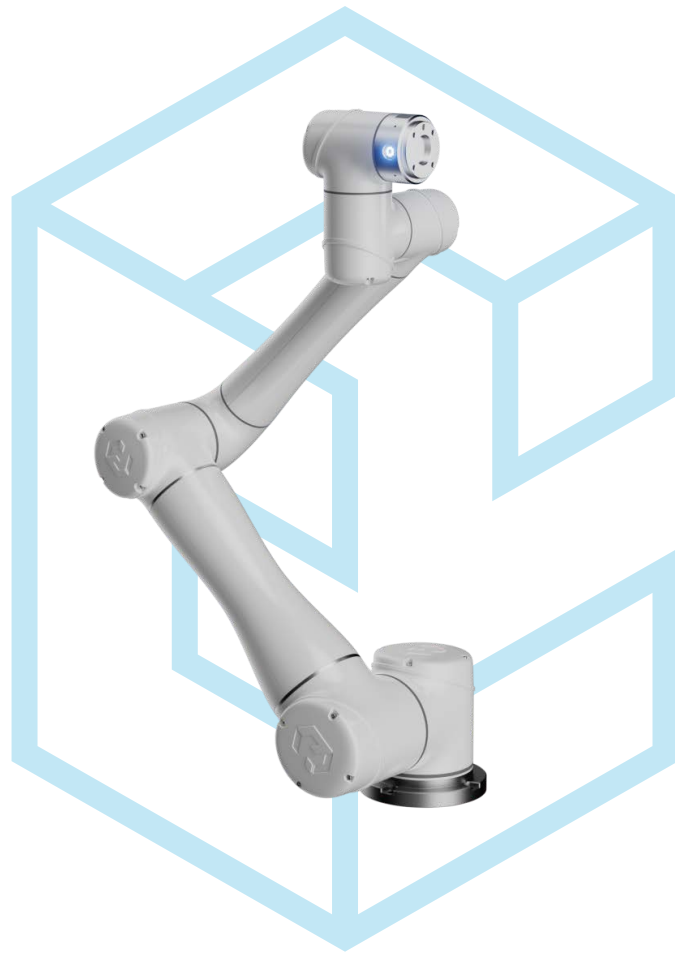


# ELITE ROBOTS **EC** Series Maintenance Manual



## EC66 Service Manual

Suzhou Elite Robot Co., Ltd

2024-01-16

Version: Ver3.15.2



# Contents

<b>1</b>	<b>General Information</b>	<b>1</b>
1.1	Purpose.....	1
1.2	Company Information .....	1
1.3	Disclaimer .....	1
1.4	Warning Symbols.....	3
<b>2</b>	<b>Recommended Inspection Activities</b>	<b>4</b>
2.1	Control Box.....	4
2.1.1	Inspection Plan .....	5
2.1.2	Safety function .....	5
2.1.3	Visual Inspection.....	7
2.1.4	Clean and Replace the Filter .....	7
2.2	Robot Arm .....	8
2.2.1	Inspection Plan .....	9
2.2.2	Functional Inspection .....	9
2.2.3	Visual Inspection.....	10
<b>3</b>	<b>Repair and Replacement of Parts</b>	<b>11</b>
3.1	Others.....	11
3.1.1	Handle Parts that Are Susceptible to Electrostatic Damage .....	11
3.1.2	Recommended Tools .....	11
3.2	Robot Arm Disassembly and Assembly .....	12
3.2.1	Robot Arm Configuration .....	12
3.2.2	Brake Release .....	13
3.2.3	General Guidance to Separate Joint from Counterpart.....	14
3.2.4	Torque Values.....	18
3.2.5	Base Joint-Base Mounting Bracket.....	19

---

3.2.6	Shoulder Joint-Base Joint.....	21
3.2.7	Shoulder Joint-Upper Arm.....	22
3.2.8	Elbow Joint-Upper Arm.....	24
3.2.9	Elbow Counterpart-Elbow Joint.....	26
3.2.10	Wrist 1 Joint-Lower Arm.....	27
3.2.11	Wrist 2 Joint- Wrist 1 Joint.....	29
3.2.12	Wrist 3 Joint-Wrist 2 Joint.....	30
3.2.13	Tool Flange-Wrist 3 Joint.....	31
3.3	Control Box Disassembly and Assembly.....	33
3.3.1	Replace the Core Board.....	33
3.3.2	Replace the PAD IO Board.....	37
3.3.3	Replace the Brake Plate.....	41
<b>4</b>	<b>Alarm Description</b>	<b>46</b>
4.1	Robot Program Alarm.....	46
4.2	Servo Drive Alarm.....	124
<b>5</b>	<b>Spare Parts List</b>	<b>141</b>
<b>6</b>	<b>Robot Packaging</b>	<b>144</b>

# Chapter 1 General Information

## 1.1 Purpose

The main purpose of this manual is to help users perform service-related operations and troubleshooting securely.

Elite robots are designed with high-quality components to ensure a long service life.

But improper use of the robot can cause malfunctions. For example, if the robot is overloaded, does not operate under the load recommended by Elite Robots, falls during repositioning, is damaged by collision or any other improper use, the warranty will be void.

Elite Robotics advises users not to attempt to repair, adjust or otherwise intervene in the robot's mechanical or electrical systems without first consulting with elite certified maintenance engineers. Any unauthorized intervention will void the warranty. Repair-related operations and troubleshooting can only be carried out by qualified personnel.

Before performing repair-related operations, be sure to stop the robot program and disconnect the main power supply for any potentially hazardous tools on the robot or in the work cell.

In the event of a malfunction, Elite Robots recommends ordering new parts from the Elite Robots dealer who purchased the robot.

You can also order parts from your nearest dealer, which can be found on the official website of Elite Robots [www.elibot.cn](http://www.elibot.cn).

## 1.2 Company Information

Suzhou Elite Robot Co., Ltd

Address: 1F, Building 4, No. 259 Changyang Street, Suzhou Industrial Park, Suzhou, Jiangsu, China

Tel: 0512-83951898

## 1.3 Disclaimer

If the defect in the equipment is caused by improper handling or failure to follow the relevant information described in the user manual, the Product Quality Assurance is void.

**Failures caused by the following conditions are not covered by this warranty:**

- Do not meet industry standards or do not install, wire, connect other control equipment as required by the user manual;
- Use beyond the specifications or standards indicated in the user manual;
- Use this product for purposes other than those specified.
- Storage method and working environment are beyond the scope specified in the user manual (such as pollution, salt damage, condensation, etc.);
- Product damage due to improper transportation;
- Damage caused by accidents or collisions;
- Install non-original genuine parts and accessories;
- Damage caused by the modification, commissioning or repair of the original parts by a third party other than Suzhou Elite Robot Co., Ltd. or its designated integrators;
- Natural disasters such as fires, earthquakes, tsunamis, lightning strikes, high winds and floods.

The faults other than the above are not caused by the responsibility of Suzhou Elite Robot Co., Ltd.

**The following conditions are not covered by the warranty:**

- The date of manufacture or the date of commencement of warranty could not be identified;
- Changes to the software or internal data;
- The fault cannot be reproduced or the fault cannot be identified by Suzhou Elite Robot Co., Ltd.;
- Use this product in radioactive equipment, biological testing equipment or Suzhou Elite Robot Co., Ltd. as dangerous uses.

According to the product quality assurance agreement, Suzhou Elite Robot Co., Ltd. only guarantees flaws and defects in products and parts sold to dealers.

Any other warranties or liabilities, express or implied, including but not limited to any implied warranties of merchantability or specific use, Suzhou Elite Robot Co., Ltd. shall not be liable for such

warranties. In addition, Suzhou Elite Robot Co., Ltd. does not assume relevant liability for any form of indirect damage or consequences arising from related products.

## 1.4 Warning Symbols

The safety-related contents of this manual are illustrated with the following warning symbols. The descriptions related to the warning symbols in this manual represent the important contents, please comply with these symbols.

### DANGER



This indicates a hazardous situation which, if not avoided, will result in death or serious injury.

### WARNING



This indicates a hazardous situation which, if not avoided, may result in death or serious injury.

### CAUTION



This indicates a hazardous situation, which, if not avoided, may result in minor or moderate injury.

### WARNING



This indicates a potentially hazardous electrical situation which, if not avoided, could result in injury or serious damage to the equipment.

### WARNING



This safety message identifies potentially hazardous hot surfaces that, if touched, could result in personal injury.

## Chapter 2 Recommended Inspection Activities

### General cleaning

If dust/dirt/oil is observed on the control box or manipulator, it can be wiped clean with a cloth dipped in detergent. Detergent: Water, isopropanol, 10% ethanol or 10% naphtha. In rare cases, small amounts of grease may be seen at the joints. This does not affect the specified function or service life of the joint.

### 2.1 Control Box

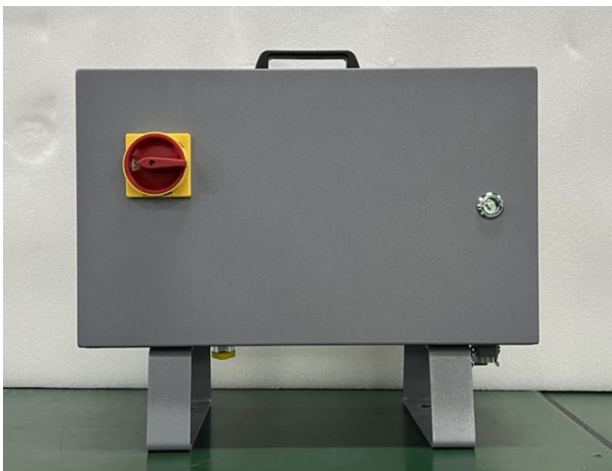


Figure 2-1 : Control box



Figure 2-2 : Emergency stop button

## 2.1.1 Inspection Plan

Below is a checklist of recommendations that the Elite robot recommends performing based on marked time intervals. If the inspection finds that the condition of the relevant part is not qualified, correct it immediately.

**Table 2-1** Control box inspection plan

<b>Please use the following sections as a guide:</b>				
	<b>Way</b>	<b>Every month</b>	<b>Every 6 months</b>	<b>Every year</b>
<b>2.1.2 Safety function</b>				
<b>2.1.3 Visual Inspection</b>				
<b>2.1 Control Box</b>				
Check the emergency stop button on the teach pendant	F	X		
Check the backdrive mode	F	X		
Check the free drive mode	F		X	
Check safety inputs and outputs (if connected)	F	X		
Check the teach pendant cable	V		X	
Check and clean the air filter on the control box	V	X		
Check the terminals in the control box	V		X	
	F	X		
Check the electrical grounding of the control box $<1\Omega$	F			X
Check the master power supply of the control box	F			X

V=Visual inspection      F=Functional inspection

## 2.1.2 Safety function

Highlighting robot safety features, it is recommended to conduct monthly tests to ensure correct functionality.

The following tests must be performed:

**To test the emergency stop button function on the teach pendant:**

1. Press the emergency stop button on the teach pendant;
2. Observe if the robot can immediately stop running and automatically switch off the power supply of the joints;
3. Release the emergency stop button and restart the robot.

**To test the free drive mode:**

1. Depending on the tool specifications, remove the attachment or set the tool center point (TCP)/payload/CoG;
2. Press and hold the black Freedrive button on the back of the teach pendant to set the robot to free drive mode;
3. Move the robot to a position that stretches horizontally to the edge of its workspace;
4. While holding down the free drive button, monitor the robot to maintain its position without support.

**To test the backdrive mode:**

If the robot is close to a collision, the BACKDRIVE function can be used to move the robot to a safe position before initialization;

1. Press ON to enable the power and the status will change to “Standby”;
2. Press and hold "Free Drive"-> the status will change to BACKDRIVE (Reverse Drive);
3. Move the robot by hand like a free drive;
4. In backdrive mode, the brakes are released on a single joint as they move, and the released brakes remain released until the free drive button is released. The robot is a bit "clunky" to move compared to the free-drive mode;
5. Test each joint individually to ensure that the brakes are released as expected.

**Verify security settings:**

Verify that the robot's safety settings comply with the risk assessment for robot installation.

### Test other safety inputs and outputs still working:

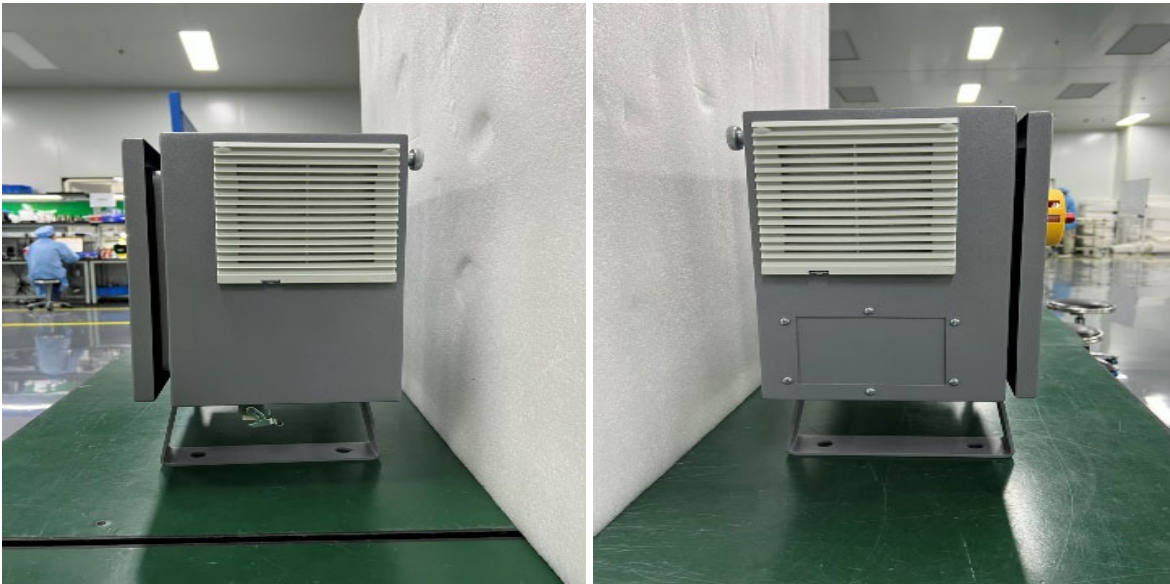
Check which safe inputs and outputs are active and test if they can be triggered.

## 2.1.3 Visual Inspection

1. Check if the control box is disconnected from the power supply;
2. Check if the connectors on the core board are properly inserted and if the wires are intact;
3. Check if all connections on the PAD IO board and the connections between the core board and the PAD IO board are correct;
4. Check if the inside of the control box is full of dirt/dust and, if necessary, please clean it with a vacuum cleaner that prevents electrostatic discharge.

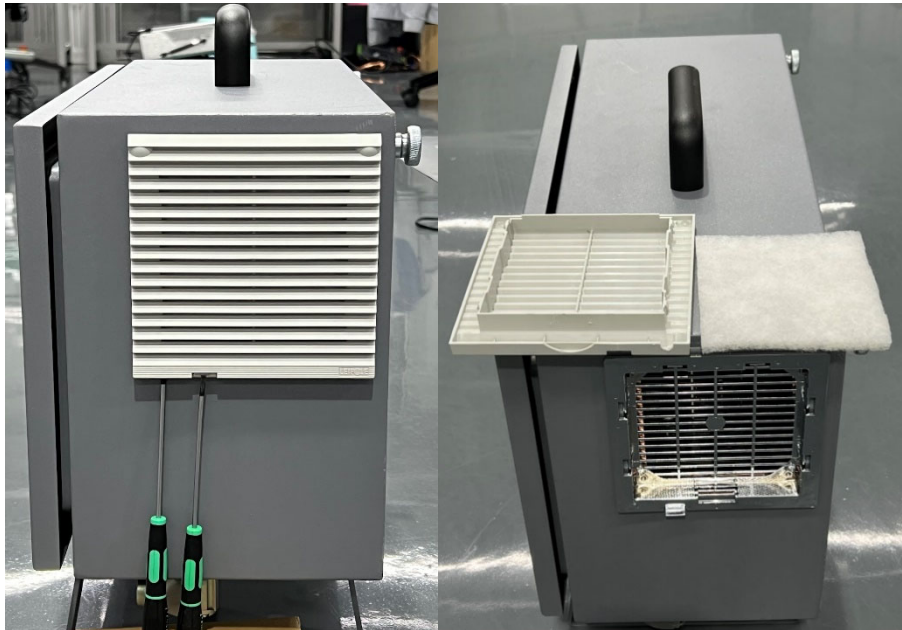
## 2.1.4 Clean and Replace the Filter

1. The control box has two filters, one on each side, as shown in **Figure 2-3**;



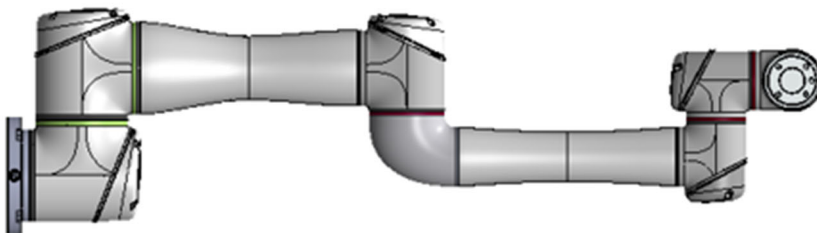
**Figure 2-3** : Control box filter position

2. Remove the filter from the control box and clean it thoroughly with low-pressure air;
3. Replace the filter as needed;
4. Gently remove the outer plastic frame and maintain the filter, as shown in **Figure 2-4**.



**Figure 2-4 :** Control box filter disassembly and assembly

## 2.2 Robot Arm



**Figure 2-5 :** Robot arm

## 2.2.1 Inspection Plan

Below is a checklist of recommendations that the Elite robot recommends performing based on marked time intervals. If the inspection finds that the condition of the relevant part is not qualified, correct it immediately.

**Table 2-2** Robot arm inspection plan

<b>Please use the following sections as a guide:</b>				
	<b>Way</b>	<b>Every month</b>	<b>Every 6 months</b>	<b>Every year</b>
<b>2.2.2 Functional Inspection</b>				
<b>2.2.3 Visual Inspection</b>				
Check white lid*	V		X	
Check the screws on the end caps	F		X	
Check the rubber ring	V		X	
Check the robot cable	V		X	
Check the robot cable connection	V		X	
Check the robot arm mounting bolts*	F	X		
Check the tool mounting bolts*	F	X		
Check the screws/bolts that connect the joints*	F		X	

V=Visual inspection    F= Functional inspection    \*= It must also be checked after a serious collision

## 2.2.2 Functional Inspection

The purpose of the functional test is to ensure that the screws, bolts, tools and robot arms are not loose. Screws/bolts mentioned in the inspection plan should be checked with torque wrenches and the torque should comply with the provisions in 3.2.4 Torque Values.

For robot arm mounting bolts, these specifications can be found in the "Assembly" section of the User Manual.

### 2.2.3 Visual Inspection

1. Move the robot arm to the home position (if possible);
2. Turn off the control box and disconnect its power cord;
3. Check if the cable between the control box and the robot arm is damaged;
4. Inspect the rubber ring for wear and damage;
  - If the rubber ring is worn or damaged, please replace it.
5. Inspect the end caps on all joints for any cracks or damage:
  - If the joint cap is cracked or damaged, please replace it.
6. Check that the screws of the lid are in place and tighten properly:
  - Replace the screws as needed and tighten them appropriately;
  - The correct torque value of the screws on the joint end caps is 0.5 Nm.

**If any damage to the robot is found during the warranty period, please contact the dealer from whom you purchased the robot.**

## Chapter 3 Repair and Replacement of Parts

### 3.1 Others

#### 3.1.1 Handle Parts that Are Susceptible to Electrostatic Damage

To protect parts that are vulnerable to electrostatic damage, follow the instructions below. In addition, there are standard precautions, such as turning off the power before removing the board.

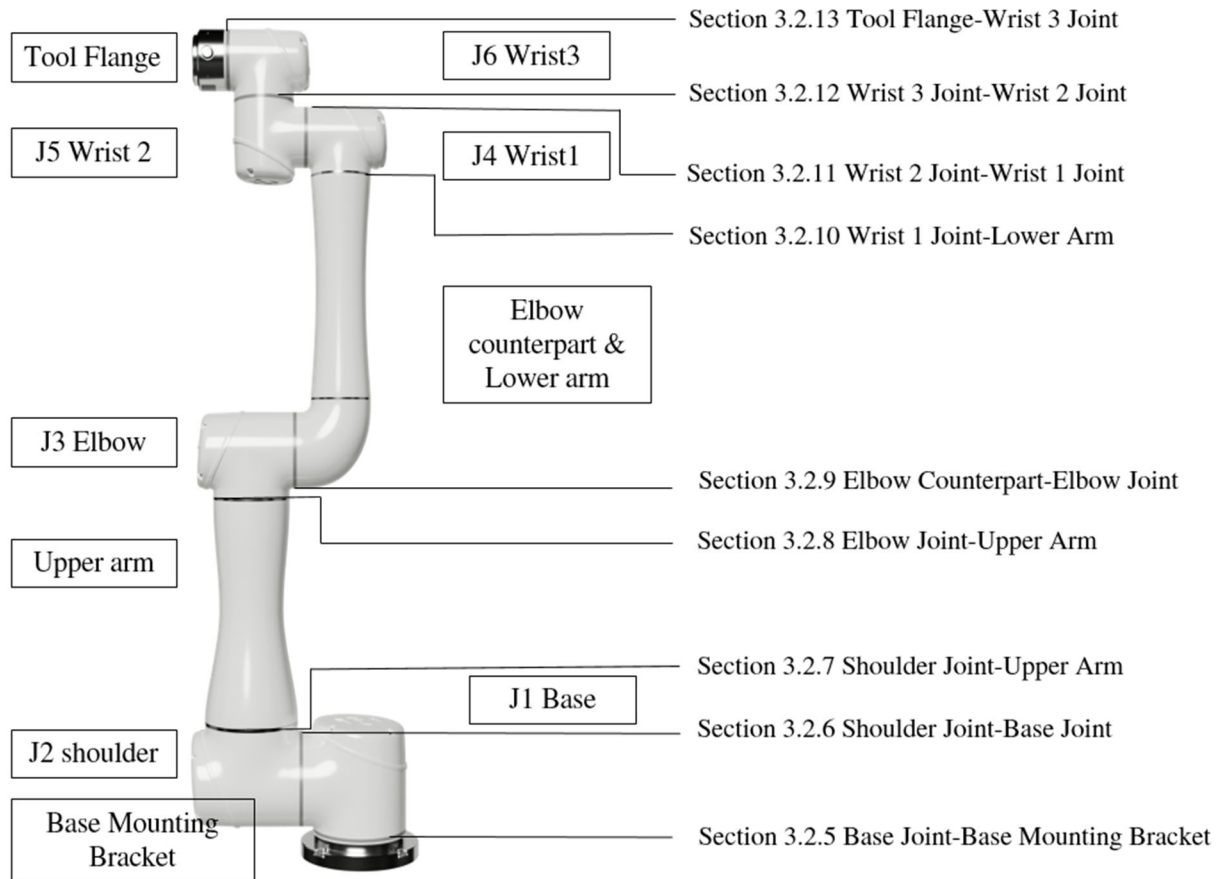
In cold weather and when using heating, be especially careful when using parts that are susceptible to static damage, as low humidity can increase static electricity.

#### 3.1.2 Recommended Tools

Repair Kit - Item No.: NB80000010

## 3.2 Robot Arm Disassembly and Assembly

### 3.2.1 Robot Arm Configuration



**Figure 3-1** : Robot arm configuration

## 3.2.2 Brake Release

If required, you can release the brake without power.

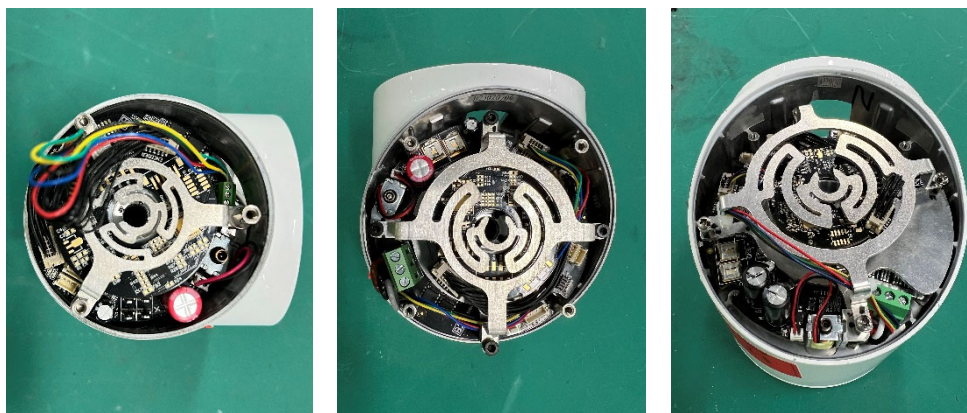
### CAUTION



1. Before releasing the brake, you should not dismount any dangerous parts in case of hazardous situations;
2. Proper mechanical support should be provided when releasing the brake on Base, Shoulder or Elbow joint;
3. Make sure there is no danger to personnel when the brake is released;
4. Please move the joint in its proper range. (Do not exceed 160 degrees to enable the robot finding its original physical position).
5. The manual describes the new cap of the robot. If you still use the old cap with the decorative ring, please contact our after-sale department to get the given maintenance manual.

### Steps

1. Switch off the power supply;
2. Loosen the thread-forming screws of the joint cap with a 2mm hexagon wrench;
3. Remove the joint cap;
4. Push the brake down and then rotate the joint, as shown in **Figure 3-2**;



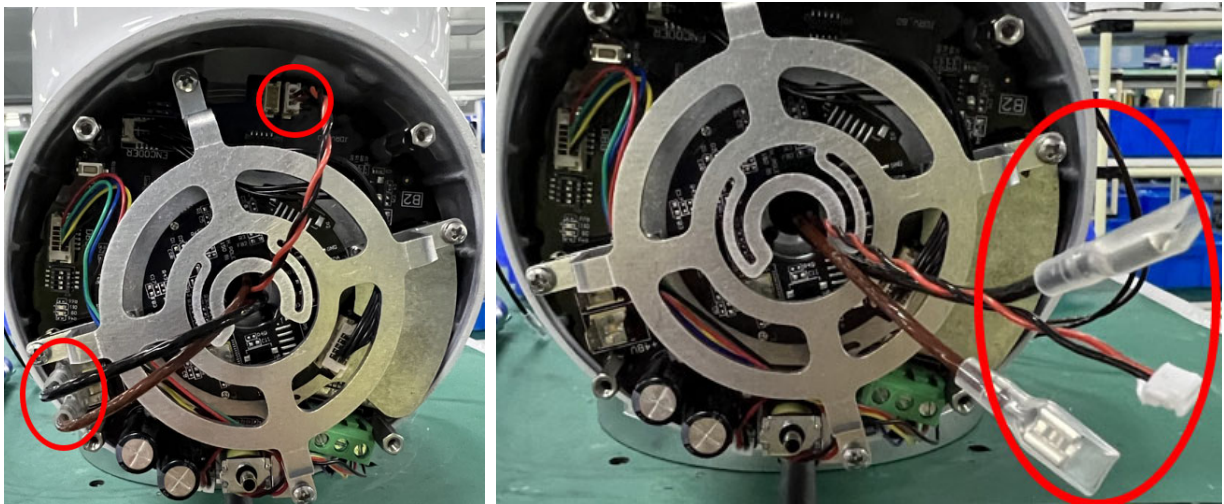
**Figure 3-2** : Pushing the brake down

5. Put the cap onto the joint, fasten screws with 0.5Nm;
6. Switch on the power supply.

### 3.2.3 General Guidance to Separate Joint from Counterpart

#### Disassemble:

1. Before disassembling the robot, please fully understand the manual and prepare necessary tools;
2. Move the robot to a comfortable position for disassembly or dismount the entire manipulator and place it on a solid surface;
3. Switch off the power supply;
4. Loosen the thread-forming screws of the joint cap with a 2mm hexagon wrench;
5. Remove the joint cap;
6. Gently unplug the cable connector. Do not damage the PCB, as shown in **Figure 3-3**;



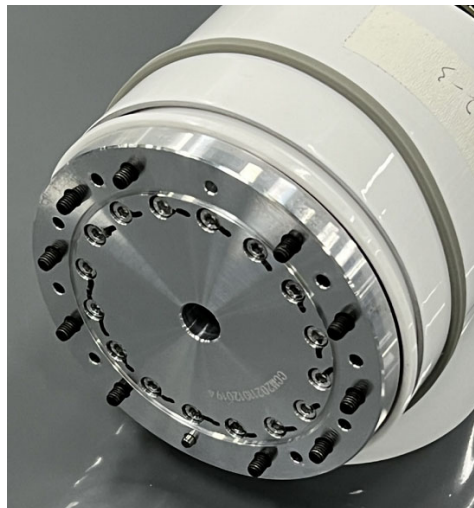
**Figure 3-3** : Unplug the cable connector

7. Disconnect wires;
8. Gently remove the rubber ring by using tweezers or screwdriver and wrap it around the joint housing, as shown in **Figure 3-4**;



**Figure 3-4 :** Remove the rubber ring

- Slide the white transition ring back. 8-14 screws are visible (each joint has different amount of screws) and are symmetrically distributed on each side of the joint. Please loosen the screws with an open-ended spanner and keep repeating the step until the two parts are completely separate (for some screws, you may need to loosen the screws for several times due to the compactness);
- Pull the two parts apart, as shown in **Figure 3-5**.



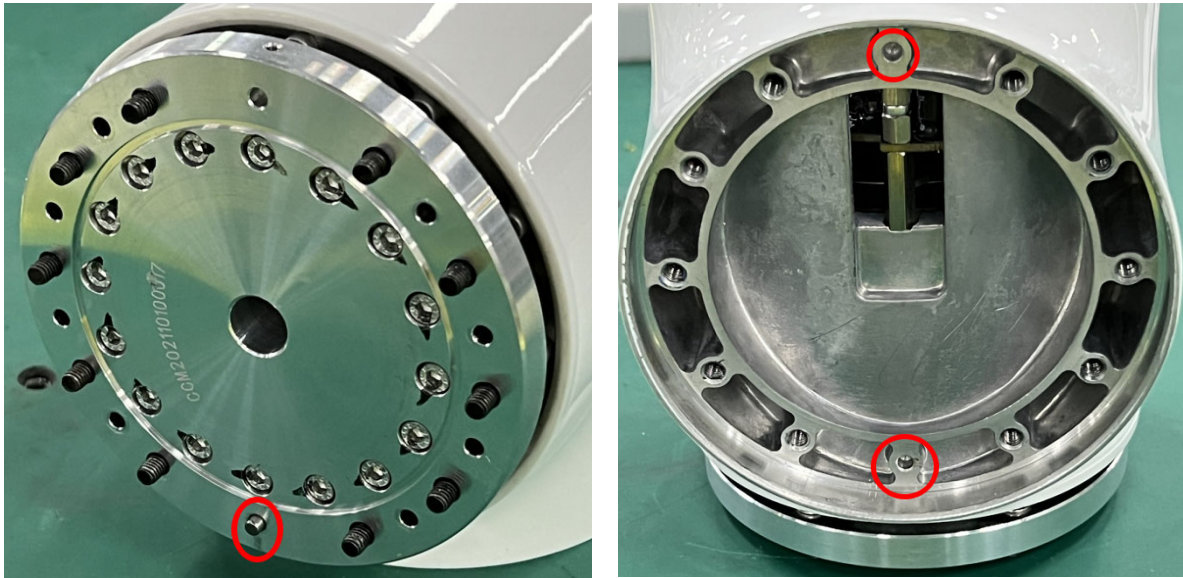
**Figure 3-5 :** Separating the joint

#### **Assemble:**

After replacing the joint, assemble the robot arm as follows.

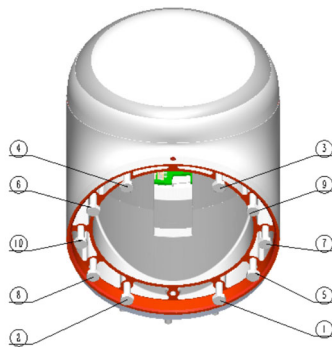
- Align the dowel pin with the pinhole on the joint housing, insert the screws into the joint cap and

gently tighten them in the sequence. Do not screw too tightly, as shown in **Figure 3-6**;



**Figure 3-6** : Inserting the screws

- After inserting all screws, please gently tighten them, until they are almost in the correct position then tighten in cross order (as shown in **Figure 3-7**). Start with the screws next to the alignment pin and tighten with the correct torque. See Section 3.2.4 for the detailed torque;



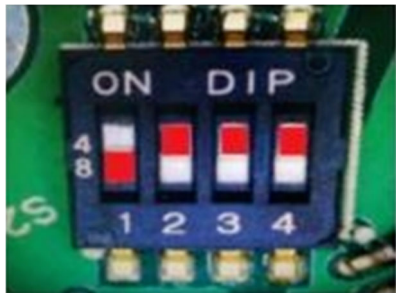
**Figure 3-7** : Tightening the screws in cross order

- Slide the white transition ring into place and gently put the rubber ring back on the top of the transition ring, as shown in **Figure 3-8**;

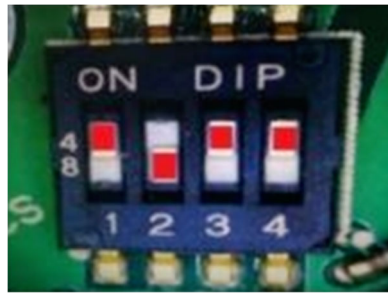


**Figure 3-8 :** Sliding the ring

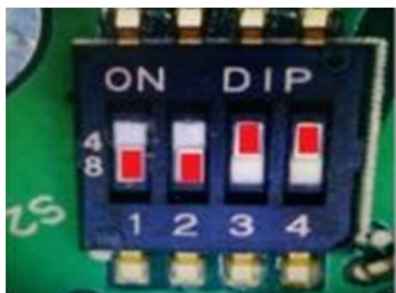
4. Please make sure that all wires in the joint are correctly connected;
5. After installing the joint caps, please make sure that the following switches are in the right place, as shown in the following figures;



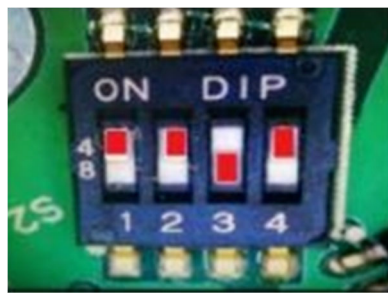
**Figure 3-9 :** Base joint



**Figure 3-10 :** Shoulder joint



**Figure 3-11 :** Elbow joint-Upper arm



**Figure 3-12 :** Wrist 1 joint-Lower arm

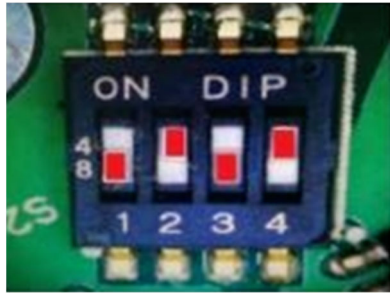


Figure 3-13 : Wrist 2 joint

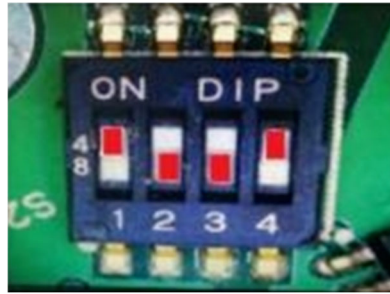


Figure 3-14 : Wrist 3 joint

6. Install the joint cap and tighten with 0.5Nm.

### 3.2.4 Torque Values

EC66 Torque values:

Connection	Torque	Head size
Base mounting bracket-Base	3.8Nm	7mm
J1 Base-J2 Shoulder	3.8Nm	7mm
J2 Shoulder-Upper arm	3.8Nm	3mm hex wrench
Upper arm-J3 Elbow	3.8Nm	7mm
J3 Elbow-Elbow counterpart	3.8Nm	7mm
Elbow counterpart-Lower arm	1.7Nm	2.5mm hex wrench
Lower arm-J4 Wrist 1	1.7Nm	2.5mm hex wrench
J4 Wrist 1-J5 Wrist 2	1.7Nm	5.5mm
J5 Wrist 2-J6 Wrist 3	1.7Nm	5.5mm
J6 Wrist 3-Tool flange	1.7Nm	5.5mm
Joint cap	0.5Nm	Torx T10

**Note:** To ensure the correct alignment torque, please check the torque wrench again before using.

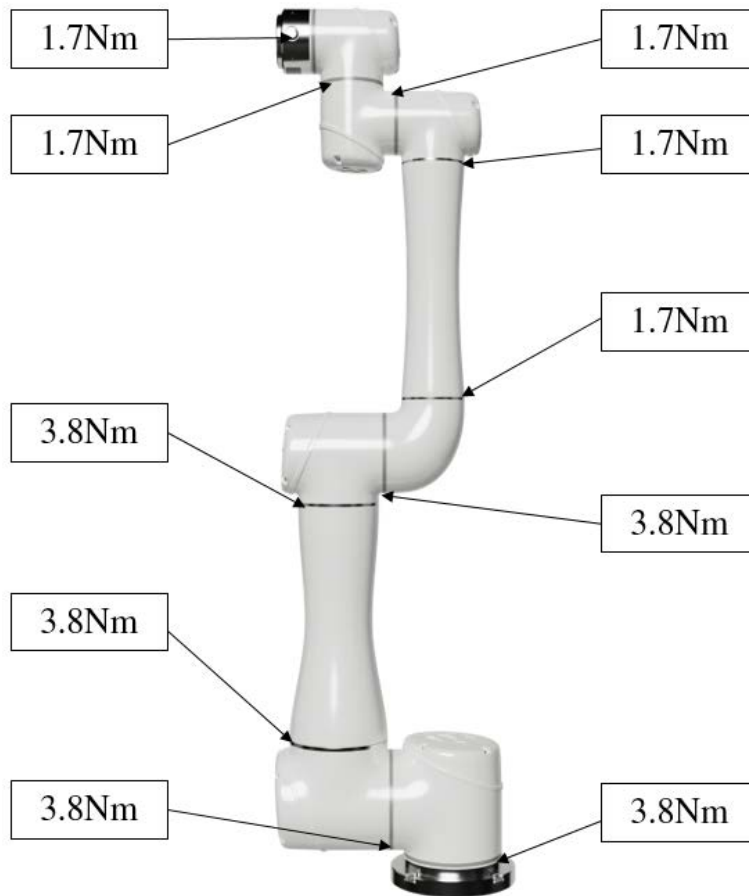


Figure 3-15 : Torque values

### 3.2.5 Base Joint-Base Mounting Bracket

#### Disassemble:

For details and photos, please see Section 3.2.3.

1. Switch off the power supply;
2. After removing the decorative ring on the base joint, please loosen the screws on the cap, remove the cap and disconnect the wires between the base mounting bracket and the base joint;

1 brown wire	48VDC
1 black wire	GND
1 twisted pair	485 communication

3. Gently remove the rubber ring by using tweezers or screwdriver and wrap it around the base joint housing;
4. Slide the white transition ring to bottom along the base joint. 10 screws are visible (5 on each side of joint). Loosen the screws with a 7mm open-ended spanner in the sequence until the joint and the base bracket are completely separate;
5. Pull the base joint away from the base mounting bracket.

**Assemble:**

For details and photos, please see Section 3.2.3.

1. Reconnect wires, as shown in **Figure 3-16**;



**Figure 3-16** : Reconnect wires

2. Pass the cable through the flange shaft hole of the base joint and align the dowel pin of the base joint with the pinhole of the base mounting bracket;
3. After aligning the base joint and the base mounting bracket, please gently insert and tighten the screws. Do not tighten them too tightly;
4. Gently tighten 10 screws and then tighten in cross order with 3.7NM;
5. Slide the white transition ring into place and gently put the rubber ring onto the top of the transition ring;
6. Correctly connect all wires in the base joint;

1 brown wire	48VDC
1 black wire	GND
1 twisted pair	485 communication

7. Install the base joint cap with 0.5Nm;
8. Assembly is complete.

### 3.2.6 Shoulder Joint-Base Joint

#### Disassemble:

For details and photos, please see Section 3.2.3.

1. Switch off the power supply;
2. Disassemble the joint cap;
3. Disconnect wires between the base joint and the shoulder joint;

1 brown wire	48VDC
1 black wire	Grounding
1 twisted pair	485 communication

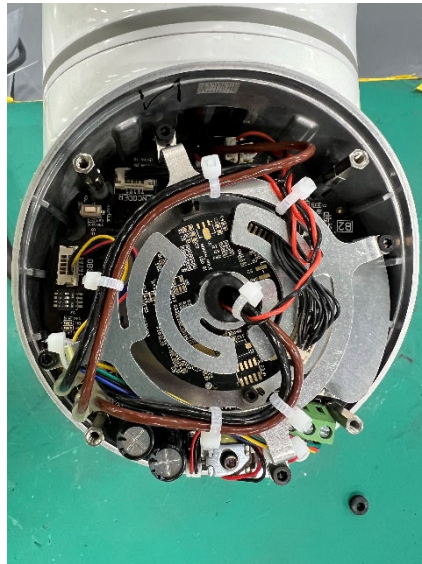
4. Gently remove the rubber ring by using tweezers or screwdriver and wrap it around the joint housing;
5. Slide the white transition ring to the bottom along the shoulder joint. 10 screws are visible (5 on each side of joint). Loosen the screws with an 7mm open-ended spanner in the sequence until the joint and the base bracket are completely separate;
6. Gently pull away the shoulder joint from the base joint.

#### Assemble:

For details and photos, please see Section 3.2.3.

1. Pass the wire connecting the shoulder through the hole on the base joint housing;
2. Align the dowel pin of the flange shaft on the shoulder joint with the pinhole on the base joint, insert the screws and gently tighten them in the sequence. Do not touch the wires;

3. Tighten the screws in the right place and then tighten in cross order with 3.7Nm;
4. Slide the white transition ring into place and gently put the rubber ring onto the top of the transition ring;
5. Reconnect wires, as shown in **Figure 3-17**;



**Figure 3-17** : Reconnecting wires

6. Mount the cap on the base joint, tighten with 0.5Nm.

### 3.2.7 Shoulder Joint-Upper Arm

#### Disassemble:

For details and photos, please see Section 3.2.3.

1. Switch off the power supply;
2. Loosen the thread-forming screws of the joint cap with a 2mm hexagon wrench;
3. Remove the joint cap;
4. Disconnect the wires between the upper arm and the shoulder joint;

1 brown wire	48VDC
1 black wire	Grounding
1 twisted pair	485 communication

- Prise off the arm link housing along the gap with a screwdriver, as shown in **Figure 3-18**;



**Figure 3-18** : Removing the rubber ring

- After removing the housing, 10 M4 socket head screws are visible. Loosen all screws with a 3mm hex key, as shown in **Figure 3-19**;



**Figure 3-19** : Removing the upper arm supporting ring

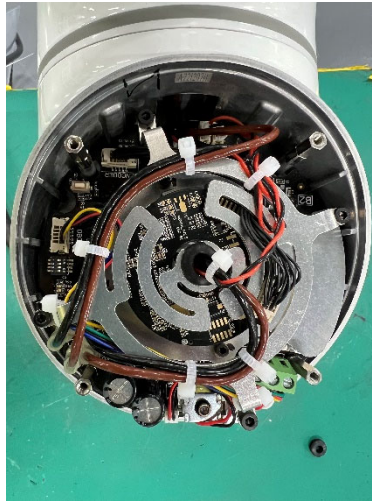
- Remove the upper arm link apart from the shoulder joint.

**Assemble:**

For details and photos, please see Section 3.2.3.

- Pass the wires between the upper arm link and the shoulder joint through the holes on the shoulder joint housing;

2. Insert the upper arm link into the flange shaft mounting surface of the shoulder joint, and align the dowel pin with the pinhole;
3. Tighten all hex screws crosswise. For the torque values, see **Figure 3-15**;
4. Reconnect the wires, as shown in **Figure 3-20**;



**Figure 3-20** : Reconnecting wires

5. Mount the white cap on the shoulder joint, tighten the screws with 0.5Nm;
6. Install the upper arm decorative casing pipe onto the upper arm.

## 3.2.8 Elbow Joint-Upper Arm

### Disassemble:

1. Switch off the power supply;
2. Separate the upper arm and the shoulder joint before taking the elbow joint apart from the upper arm, see Section 3.2.7;
3. After separating the upper arm and the shoulder joint, remove the cap of the elbow joint and then disconnect the wires between the upper arm and the elbow joint;

1 brown wire	48VDC
1 black wire	Grounding
1 twisted pair	485 communication

- Prise off the upper arm decorative casing pipe along the gap with a screwdriver and loosen 10 M4 socket head screws connecting the upper arm link and the elbow joint, as shown in **Figure 3-21**;

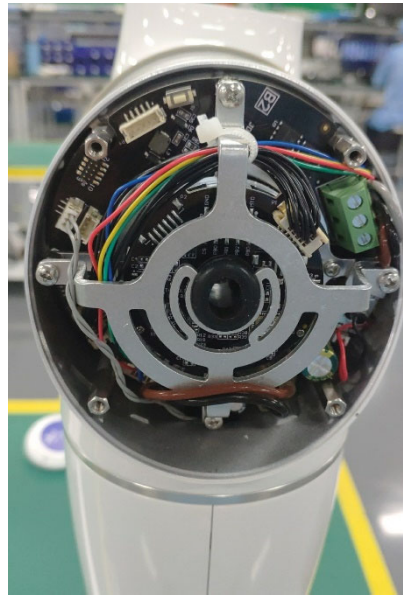


**Figure 3-21** : Unscrew hex screws connecting the elbow joint and the upper arm link

- Separate the elbow joint from the upper arm.

**Assemble:**

- Pass the wire connecting the elbow joint and the shoulder joint through the hole on the elbow joint housing;
- Align the dowel pin on the upper arm link with the pinhole on the elbow joint housing and insert the screws;
- Insert the hex key<sup>3</sup> with long rod into the upper arm link, tighten 10 M4 socket head screws connecting the arm link and the elbow joint, then tighten in cross order with 3.8NM;
- Reconnect the wires between the upper arm and the elbow joint, as shown in **Figure 3-22**;



**Figure 3-22** : Reconnecting wires

5. Mount the cap on the base joint, tighten with 0.5Nm;
6. Assemble the shoulder joint and the upper arm, see Section 3.2.7.

### 3.2.9 Elbow Counterpart-Elbow Joint

#### Disassemble:

For details and photos please see Section 3.2.3.

1. Switch off the power supply;
2. Loosen the thread-forming screws of the joint cap with a 2mm hexagon wrench and then remove the elbow joint cap;
3. Disconnect wires between the elbow joint and the wrist 1 joint;

1 brown wire	48VDC
1 black wire	Grounding
1 twisted pair	485 communication

4. Gently remove the rubber ring by using screwdriver or tweezers and wrap it around the elbow joint;
5. Slide the white transition ring back. 10 screws are visible (5 on each side of joint). Fully loosen the

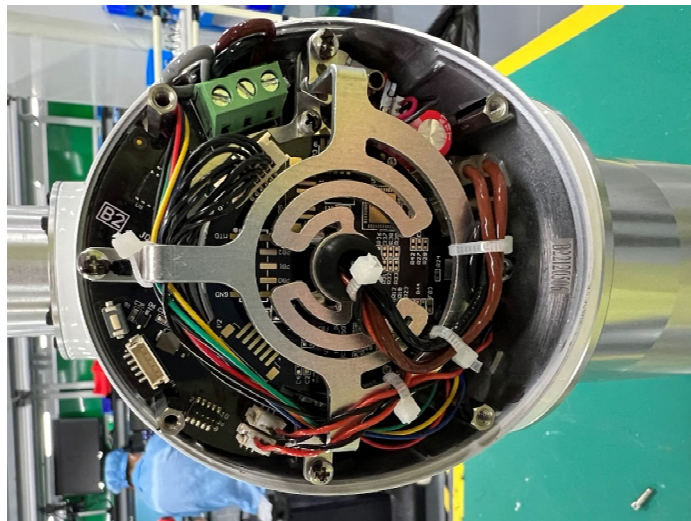
screws with a 7mm open-ended spanner;

6. Pull away the elbow counterpart from the elbow joint and draw the wires connecting wrist 1 joint from the flange shaft hole on the elbow joint.

**Assemble:**

For details and photos please see Section 3.2.3.

1. Pass the cable connecting wrist 1 joint through the flange shaft hole on the elbow joint;
2. Align the dowel pinhole of the elbow counterpart with the dowel pin of the flange shaft on the elbow joint;
3. Gently tighten the connecting screws and then tighten in cross order with 3.8NM;
4. Slide the white transition ring in the right place and gently put the rubber ring back to the slots of the fixed ring and the joint housing;
5. Reconnect the wires of the elbow joint, as shown in **Figure 3-23**;



**Figure 3-23** : Connecting wires of elbow joint and the lower arm

Install the elbow joint cap with 0.5Nm.

## 3.2.10 Wrist 1 Joint-Lower Arm

**Disassemble:**

For details and photos please see Section 3.2.3.

1. Switch off the power supply;
2. Loosen the thread-forming screws of the joint cap with a 2mm hexagon wrench and then remove the wrist joint cap;
3. Disconnect wires between the lower arm and the wrist 1 joint;

1 brown wire	48VDC
1 black wire	Grounding
1 twisted pair	485 communication

4. Remove the decorative casing pipe of the lower arm link and unscrew 8 M3 socket head screws connecting the lower arm link and the wrist 1 joint, separate the lower arm link and the wrist 1 joint, draw the wires connecting wrist 1 joint from the flange shaft hole on the elbow joint, as shown in **Figure 3-24**;



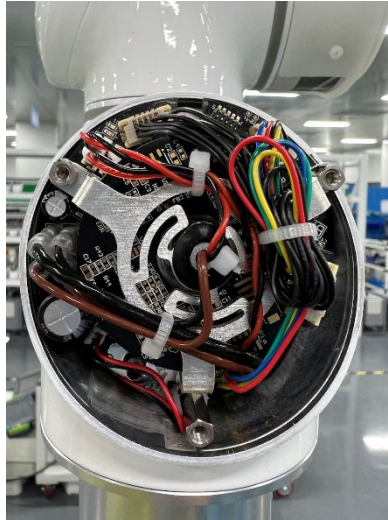
**Figure 3-24** : Drawing wires connecting the wrist 2 joint

#### Assemble:

For details and photos please see Section 3.2.3.

1. Gently insert the lower arm link into the wrist 1 joint with screws, please align the dowel pin with the pinhole and pass the wire through the hole on the wrist 1 joint;
2. Tighten 8 M3 hex screws connecting the wrist 1 and the lower arm link crosswise with a 2.5mm hex wrench and then tighten in cross order with 1.7Nm, install the decorative casing pipe of the lower arm link into the lower arm;

3. Connect wires between the lower arm joint and the wrist 1 joint, as shown in **Figure 3-25**;



**Figure 3-25** : Connecting wires

4. Install the wrist 1 joint cap with 0.5 Nm;

### 3.2.11 Wrist 2 Joint-Wrist 1 Joint

#### Disassemble:

For details and photos please see Section 3.2.3.

1. Switch off the power supply;
2. Remove the wrist 2 joint cap;
3. Disconnect wires between the wrist 1 joint and the wrist 2 joint.

1 brown wire	48VDC
1 black wire	Grounding
1 twisted pair	485 communication

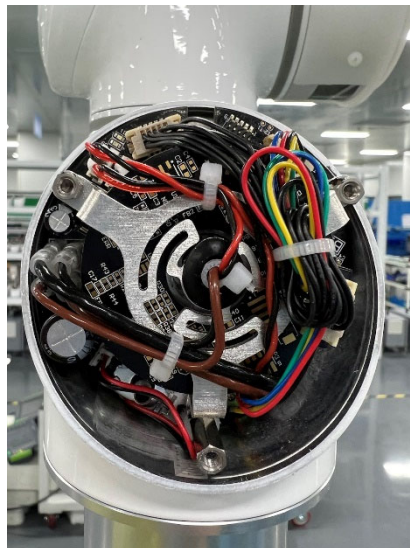
4. Gently remove the gray rubber ring and wrap it around the wrist 1 joint, then slide the white transition ring back to bottom along the wrist 1 joint;
5. 8 external hex screws are visible (4 on each side of joint), loosen the screws with a 5.5mm open-ended spanner until the wrist 1 and the wrist 2 are completely separately;

6. Pull away the wrist 1 joint from wrist 2 joint.

**Assemble:**

For details and photos please see Section 3.2.3.

1. Pass the cable connecting the wrist 1 joint and the wrist 2 joint through the hole on the wrist 2 joint housing;
2. Align the dowel pinhole on the wrist 2 joint housing with the dowel pin of the flange shaft on the wrist 1 joint;
3. Gently tighten the 8 screws and then tighten in cross order with 1.7NM;
4. Slide the white transition ring on the wrist 1 joint to bottom along the wrist 2 joint and then put the grey rubber ring back to the slots of the fixed ring and the joint housing;
5. Connect wires, as shown in **Figure 3-26**;



**Figure 3-26** : Connecting wires

6. Mount the cap onto the wrist 2 joint, fasten screws with 0.5Nm.

## 3.2.12 Wrist 3 Joint-Wrist 2 Joint

**Disassemble & Assemble:**

Procedure for separating the wrist 3 joint from wrist 2 joint is similar to separation of the wrist 2 joint

and the wrist 1 joint, see Section 3.2.11.

### 3.2.13 Tool Flange-Wrist 3 Joint

#### Disassemble:

For details and photos please see Section 3.2.3.

1. Switch off the power supply;
2. Open the cap on the wrist 3 joint, and disconnect the wires between the tool flange and the wrist 3 joint;

1 brown wire	48VDC
1 black wire	Grounding
1 twisted pair	485 communication

3. Gently remove the grey rubber ring by using screwdriver or tweezers, wrap it around the wrist 3 joint, then slide the white transition ring back to bottom along the wrist 3 joint.
4. 8 external hex screws are visible, loosen the screws with a 5.5mm open-ended spanner until the tool flange and the wrist 3 joint are completely separated;
5. Gently pull the tool flange a bit from the wrist 3 joint. Excessive force may damage PCD. Draw the wires connecting the tool flange and the wrist 3 joint from the flange shaft hole on the wrist 3 joint;
6. Pull away the tool flange from wrist 3 joint entirely.

#### Assemble:

For details and photos please see Section 3.2.3.

1. Pass the cable through the flange shaft hole on the wrist 3 joint;
2. Align the dowel pinhole on the tool flange with the dowel pin of the flange shaft on the wrist 3 joint, as shown in **Figure 3-27**;



**Figure 3-27** : Connecting wires between the wrist 3 joint and the tool flange

3. Gently tighten the screws in the sequence and then tighten in cross order with 1.7NM;
4. Slide the white transition ring on the wrist 3 joint to bottom along the tool flange and then put the grey rubber ring back to the slots of the fixed ring and the joint housing;
5. Connect wires of the wrist 3 joint;
6. Mount the cap onto the wrist 3 joint, tighten the screws with 0.5NM.

## 3.3 Control Box Disassembly and Assembly

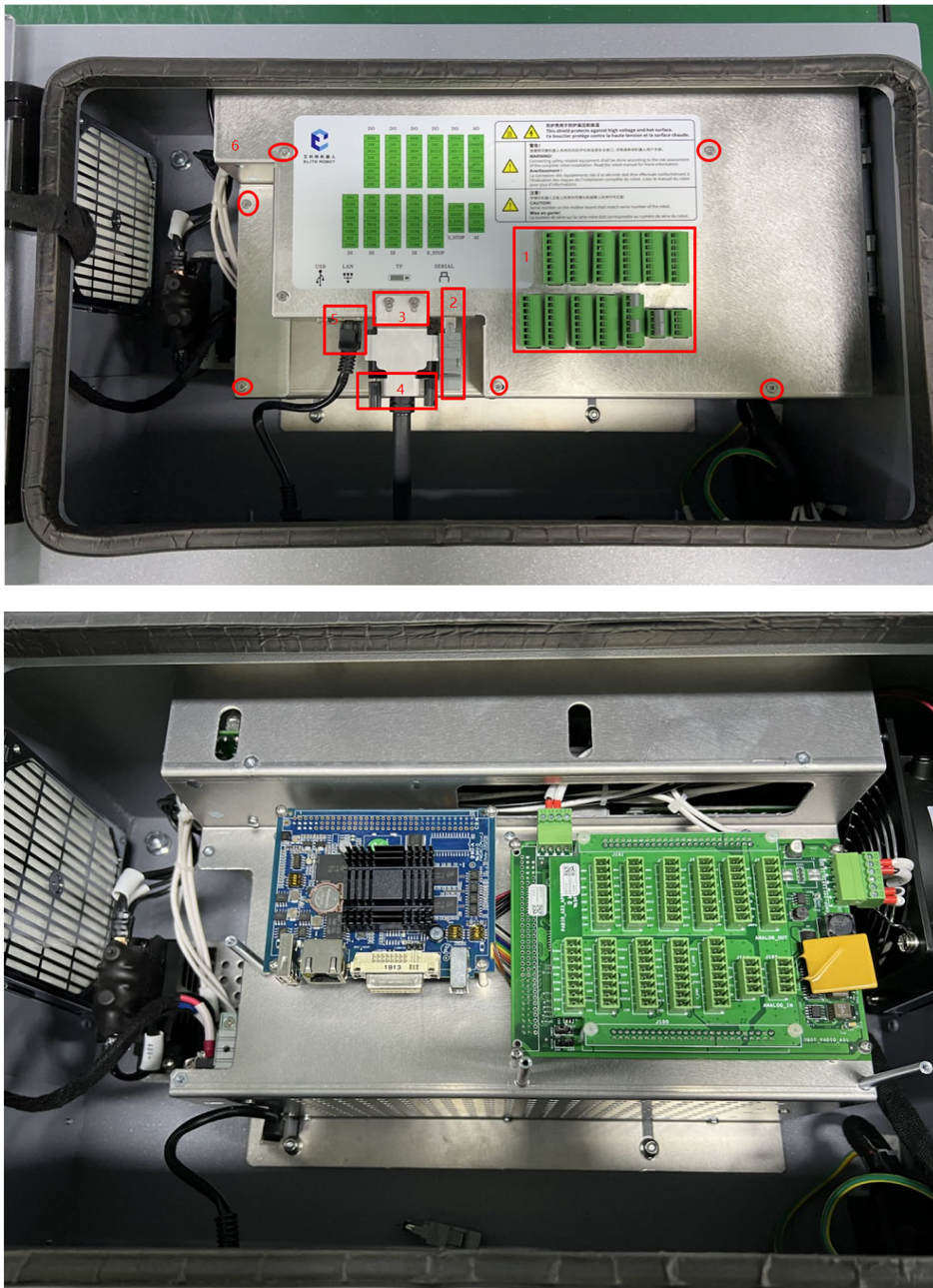
### 3.3.1 Replace the Core Board

#### WARNING



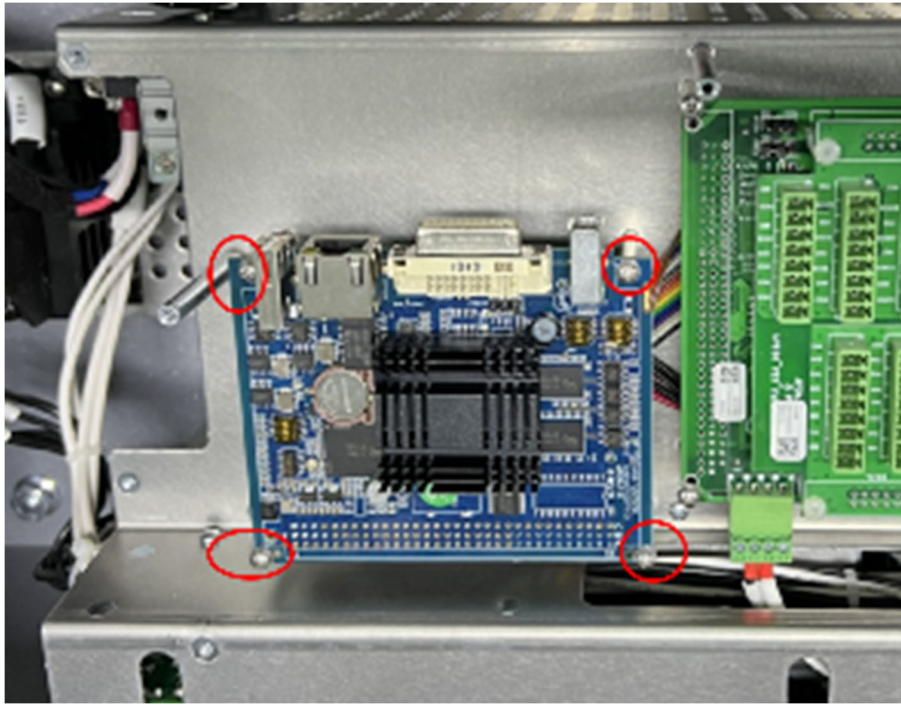
Before replacing any components inside the control box, it is critical that the control box is completely closed.

1. Turn off the control box and disconnect the power supply, open the control box cabinet, lay the control box flat, and remove the parts, as shown in **Figure 3-28**:
  - 1-Remove the IO interface plug on the PAD IO board
  - 2-Remove the 485 communication connector
  - 3-Remove two M3 screws on the fixed metal plate of the teach pendant
  - 4-Unscrew the fastening screws on the DVI plug of the teach pendant
  - 5-Disconnect the network cable
  - 6-Remove 6 screws on the protective metal plate (the screws are marked by red circles) and put aside the protective metal plate



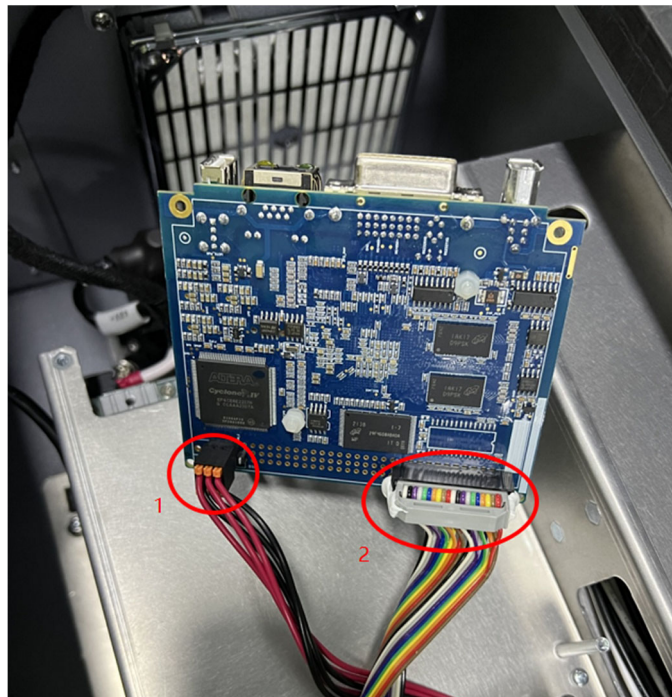
**Figure 3-28 :** Positions of the interface plug, communication connectors, screws and network cable

2. Remove 4 M2.5 screws on the core board, as shown in **Figure 3-29**;



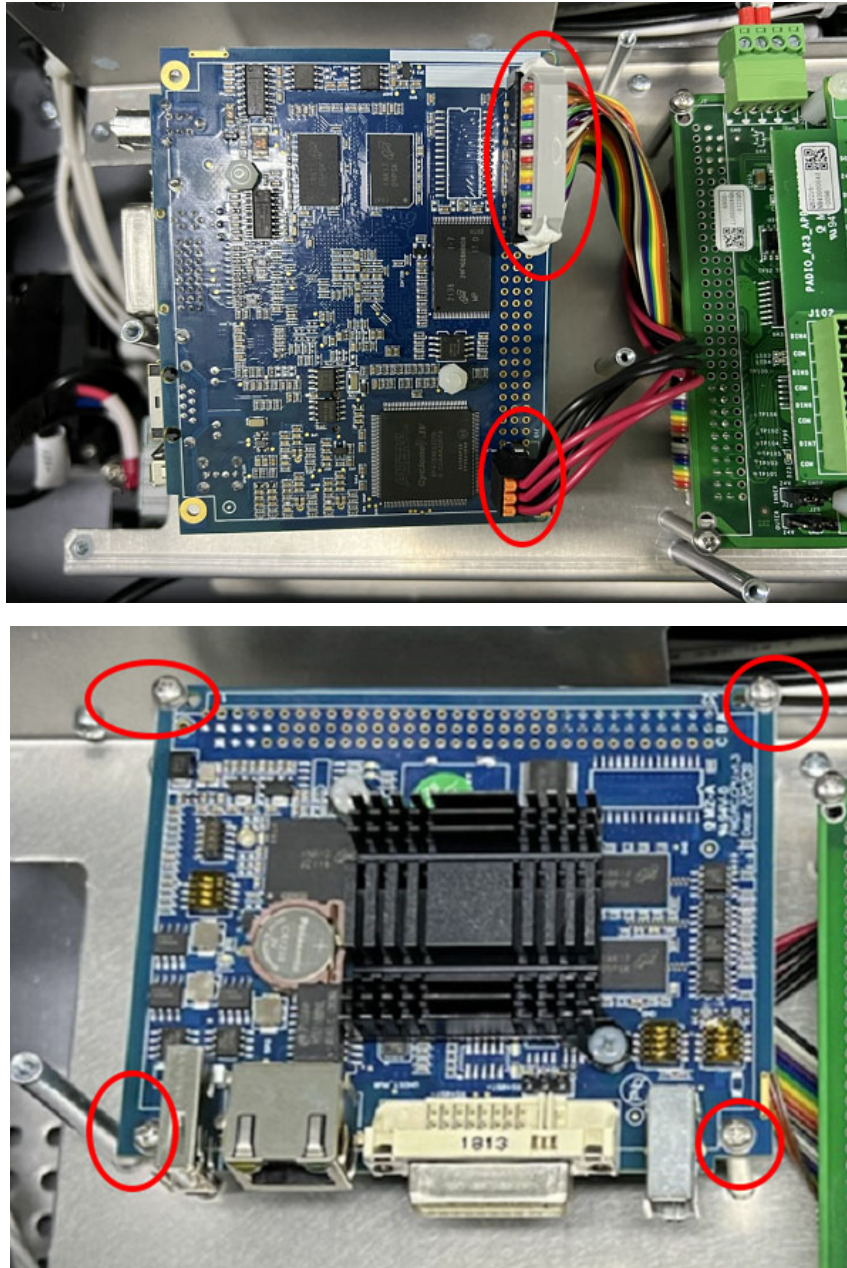
**Figure 3-29** : Remove the hexagon flat head screws

3. Turn over the core board and remove the two connectors located in the back, as shown in **Figure 3-30**;



**Figure 3-30** : Remove the connectors in the back of the core board

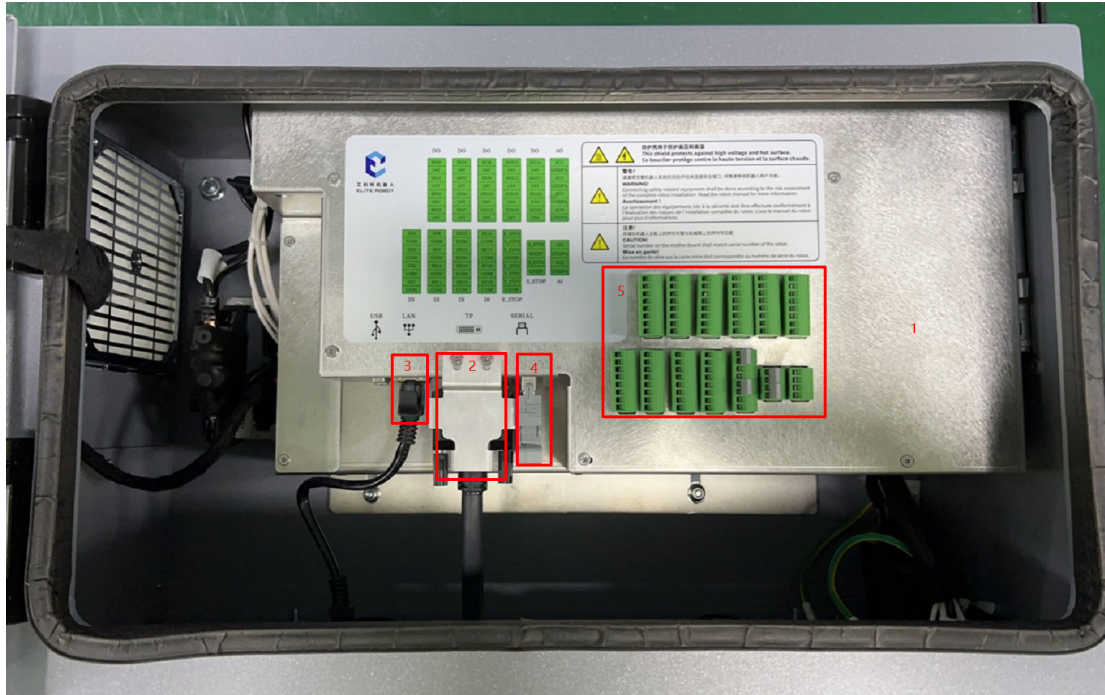
4. Insert the two disconnected connectors in their places on the new core board and mount the core board onto the metal plate, as shown in **Figure 3-31**;



**Figure 3-31** : Reconnect the connectors and reinstall the core board

5. After installing the protective metal plate, tighten 6 M3 screws and reinstall the parts, as shown in **Figure 3-32**:
  - 1-Protective metal plate
  - 2-DVI plug on the teach pendant

- 3-Network cable
- 4-485 connector
- 5-IO plug



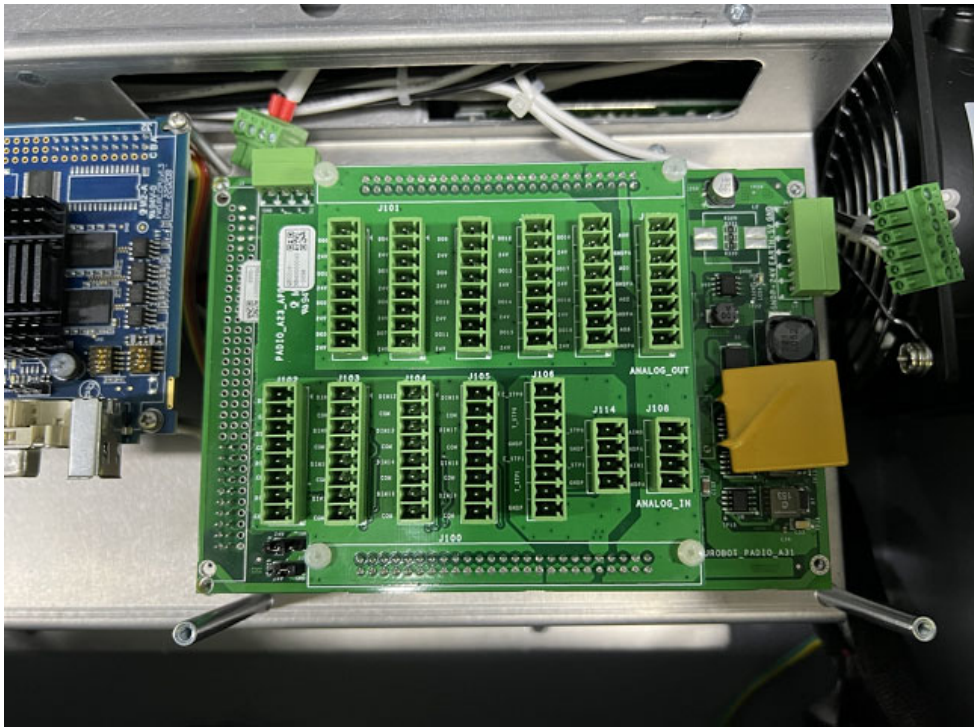
**Figure 3-32 :** Tighten the screws and reinstall the parts

6. Plug in the power cord and switch on the control box. Check if the functions can work properly through the teach pendant.

### 3.3.2 Replace the PAD IO Board

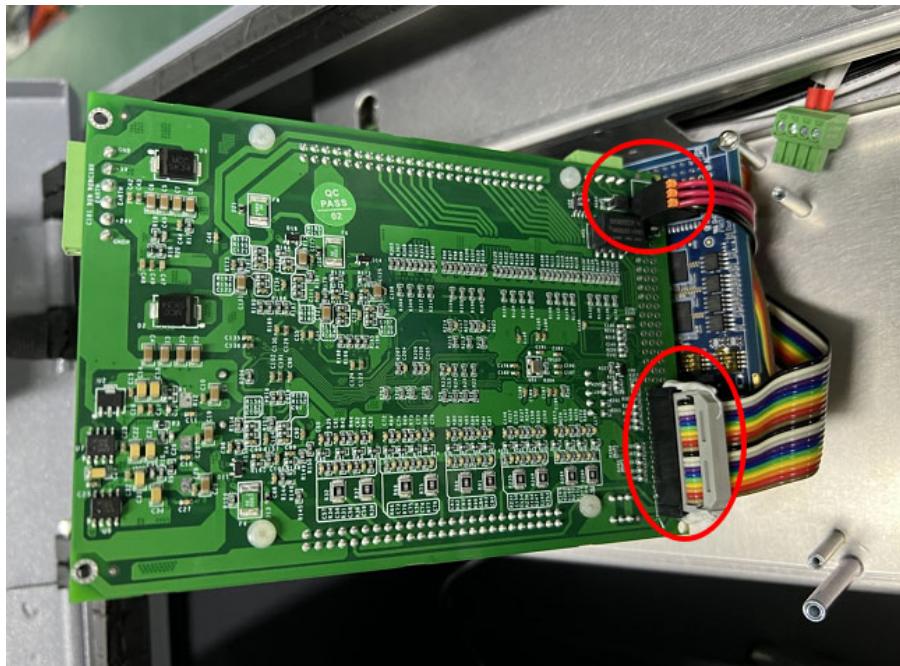
1. Turn off the control box and disconnect the power supply, open the control box cabinet, lay the control box flat, and remove the parts, as shown in **Figure 3-28**:
  - 1-Remove the IO interface plug on the PAD IO board
  - 2-Remove the 485 communication connector
  - 3-Remove two M3 screws on the fixed metal plate of the teach pendant
  - 4-Unscrew the fastening screws on the DVI plug of the teach pendant
  - 5-Disconnect the network cable





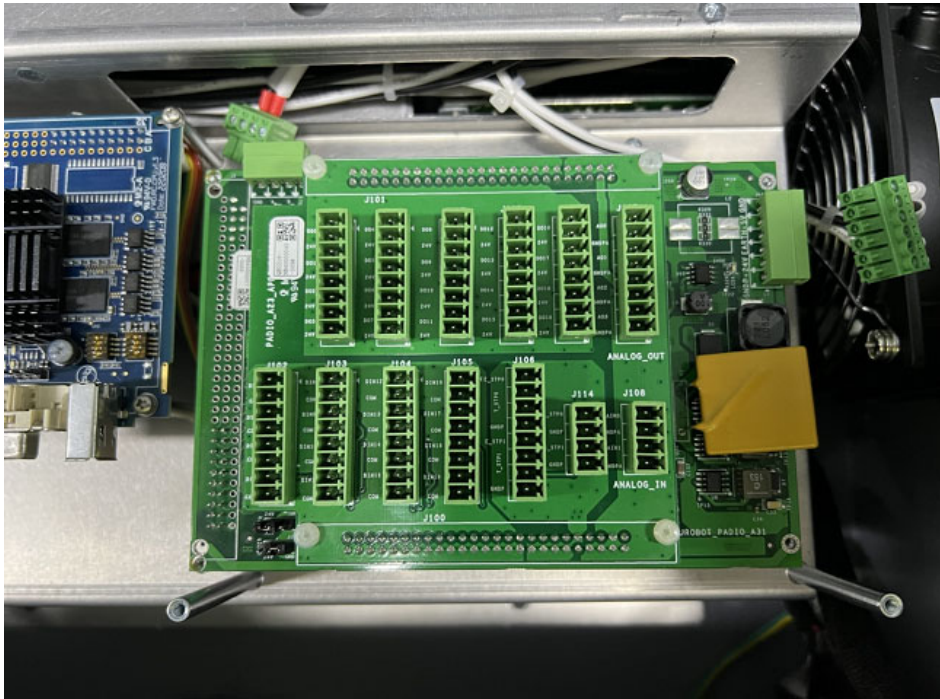
**Figure 3-34 :** After disconnecting 24V&5V connector and 485 communication connector

3. Remove the PAD IO board and disconnect the two connectors located in the back, as shown in **Figure 3-35**;



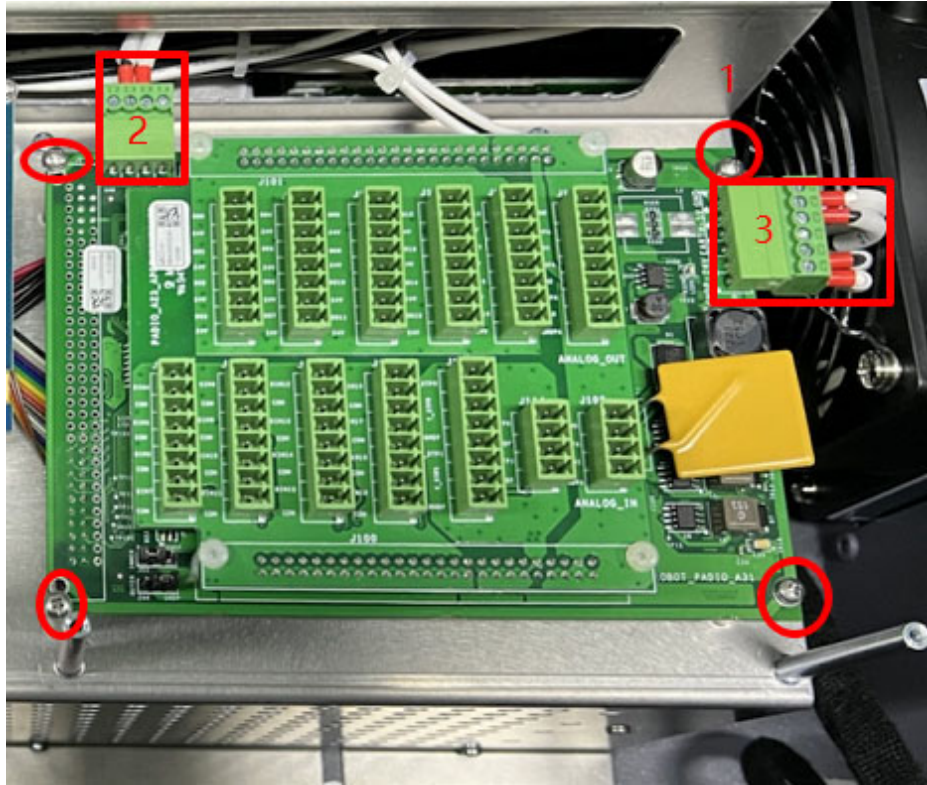
**Figure 3-35 :** Remove PAD IO board and disconnect the connectors in the back

4. Insert the two disconnected connectors in their places on the new core board and mount the PAD IO board onto the metal plate, as shown in **Figure 3-36**;



**Figure 3-36** : Insert the connectors in the back

5. Insert the cross slot head screws, connect the 485 communication connector and the 24V&5V connector in the sequence, as shown in **Figure 3-37**;
  - 1- M2.5 screws\*4
  - 2-485 communication connector
  - 3-24V&5V connector:



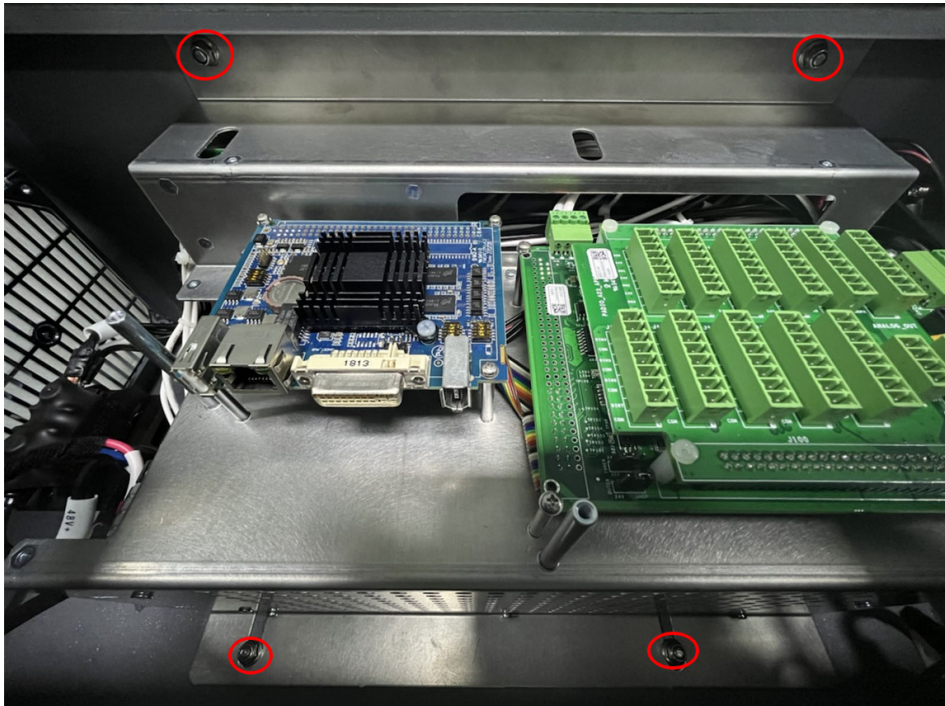
**Figure 3-37 :** Insert the cross slot head screws and connect the connectors

6. After installing the protective metal plate, tighten 6 M3 screws and reinstall the parts, as shown in **Figure 3-32**;
  - 1-Protective metal plate
  - 2-DVI plug on the teach pendant
  - 3-Network cable
  - 4-485 connector
  - 5-IO plug
7. Plug in the power cord and switch on the control box. Check if the functions can work properly through the teach pendant.

### 3.3.3 Replace the Brake Plate

1. Turn off the control box and disconnect the power supply, open the control box cabinet, lay the control box flat, and remove the parts, as shown in **Figure 3-28**:

- 1-Remove the IO interface plug on the PAD IO board
  - 2-Remove the 485 communication connector
  - 3-Remove two M3 screws on the fixed metal plate of the teach pendant
  - 4-Unscrew the fastening screws on the DVI plug of the teach pendant
  - 5-Disconnect the network cable
  - 6-Remove 6 M3 screws on the protective metal plate (the screws are marked by red circles) and put aside the protective metal plate
2. Unscrew 4 M5 hex nylon anti-loosen nuts and remove the installation module, as shown in **Figure 3-38**;



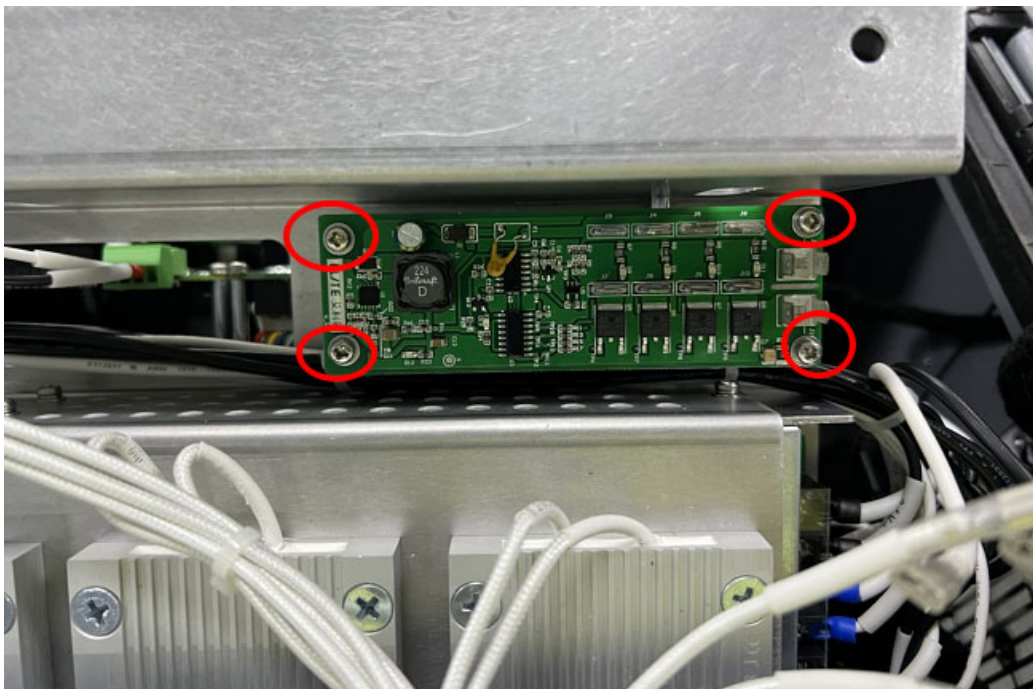
**Figure 3-38** : Remove the installation module

3. Disconnect the wires of the brake plate, as shown in **Figure 3-39**;
- 1-Wires connecting the positive and negative electrode of the brake resistance x4
  - 2-White 48V power supply cord x1 & black GND x1



**Figure 3-39** : Disconnect the wires

4. Remove 4 M3 screws, as shown in **Figure 3-40**;



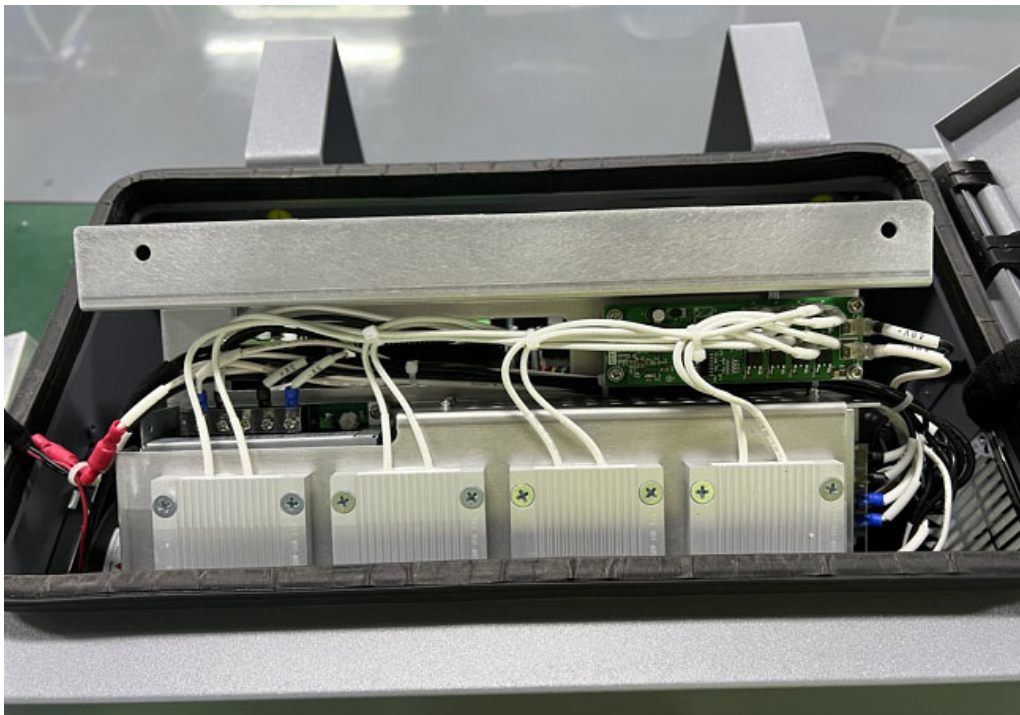
**Figure 3-40** : Remove the cross slot head screws

5. Fix the new brake plate on the metal plate with the screws, connect the brake resistance wire and 48V power supply cord, as shown in **Figure 3-41**;



**Figure 3-41** : Reconnect the cables

- Put the installation module in the box and tighten 4 M5 nylon anti-loosen nuts, as shown in **Figure 3-42**;



**Figure 3-42** : Tighten M5 nylon anti-loosen nuts

7. After installing the protective metal plate, tighten 6 M3 screws and reinstall the parts, as shown in **Figure 3-32**;
  - 1-Protective metal plate
  - 2-DVI plug on the teach pendant
  - 3-Network cable
  - 4-485 connector
  - 5-IO plug
8. Plug in the power cord and switch on the control box. Check if the functions can work properly through the teach pendant.



## Chapter 4 Alarm Description

### 4.1 Robot Program Alarm

Alarm Number	Description	Alarm Number	Description
0-1000-0	Failed to open Modbus library!	0-1000-7	Failed to call the interface for obtaining the permission time!
0-1000-1	Modbus slave startup failed!	0-1000-8	Failed to call the interface for obtaining the permission time!
0-1000-2	The reservation function is not enabled, please enable it first!	0-1000-9	Failed to call the interface for obtaining the permission time!
0-1000-3	The reserved program %s has not been set	0-1000-10	Failed to backup nvram data
0-1000-4	Flange button is disabled!	0-1000-11	Failed to backup nvram data
0-1000-5	The main program has not been set!	0-1000-12	Failed to restore SPI FLASH data!
0-1000-6	Failed to obtain permission time!	0-1000-13	Failed to backup SPI FLASH data!

Alarm Number	Description	Alarm Number	Description
0-1000-14	Failed to backup SPI FLASH data!	0-1000-F	Failed to get serial number
0-1000-15	Failed to load NVRAM backup data	0-1001-11	Unable to open the function update_fc_desired_joint_angles
1-1000-24	It is impossible to start the collision detection in the force control mode.	0-1001-12	Unable to open the function detect_collision_with_ft_sensor
0-1000-A	Failed to call the interface for obtaining the permission time!	0-1020-0	The type setting of the collaborative robot does not match the Robot body!
0-1000-B	Invalid User ID!	0-1020-1	Unknown robot subtype
0-1000-C	System encryption failed!	0-1020-2	Unknown robot subtype
0-1000-D	Invalid license	0-1020-3	Theta out of range[-180,0]
0-1000-E	Invalid license	0-1020-4	Failed to get Lua script configuration data.

Alarm Number	Description	Alarm Number	Description
0-1020-5	Failed to set Lua script configuration document.	0-1020-13	Failed to save the control mode configuration of the terminal indicators.
0-1020-6	Failed to set Lua script configuration.	0-1020-14	Failed to get the control mode of the terminal indicators.
0-1020-7	Unknown robot subtype	0-1020-15	The robot is not powered on.
0-1020-8	Unable to get nodeSN.xml content, unable to identify the matching between robot body and controller.	0-1020-A	Unable to get nodeSN.xml content, unable to identify the matching between robot body and controller.
0-1020-9	Unable to save the matching file of the robot body and the controller	0-1020-B	Incorrectly setting of swing welding type

Alarm Number	Description	Alarm Number	Description
0-1020-C	Failed to detect the welding function. Please open it in the process configuration.	0-1030-7	Shengjin formula related errors 6
0-1030-0	Matrix inversion failed	0-1030-8	Shengjin formula related errors 7
0-1030-1	Shengjin formula related errors	0-1030-9	Error with speed calculation result of 0
0-1030-2	Shengjin formula related errors 0	0-1030-10	Incorrect tool settings
0-1030-3	Shengjin formula related errors 2	0-1030-11	Incorrectly setting tool data.
0-1030-4	Shengjin formula related errors 3	0-1030-12	Current robot type does not support this function!
0-1030-5	Shengjin formula related errors	0-1030-14	Calculation tool failed %s
0-1030-6	Error: Divide by zero	2-1030-15	Tool calibration error: Average error: %s mm, Maximum error: %s mm, Minimum error: %s mm

Alarm Number	Description	Alarm Number	Description
2-1030-16	Dynamic model verification failed, unable to set load parameters!	0-1030-24	Invalid DEC parameter
0-1030-17	Failed to get reservation configuration.	2-1030-25	Robot mode or status error
0-1030-18	Failed to set reservation configuration.	2-1030-26	Track recording has not started
0-1030-19	The reservation program is set incorrectly!	2-1030-27	The number of track recording points exceeds the limit
0-1030-20	Invalid speed parameter	2-1030-28	Track record memory application failed!
0-1030-21	Invalid PL parameter	0-1030-29	Failed to save the drag track record JBI file. Currently it is not in Drag-teach state.
0-1030-22	Invalid CR parameter	0-1030-30	Check data error
0-1030-23	Invalid ACC parameter	0-1030-31	Trial time expired!

Alarm Number	Description	Alarm Number	Description
2-1030-32	The servo is not enabled. Please turn on the servo first.	0-1030-42	Ethercat DC synchronization failed
2-1030-33	The robot is not in PLAY mode.	0-1030-43	%s axis alarm
1-1030-34	Please clear the collision alarm first!	0-1030-44	%s axis unknown alarm!
2-1030-35	Robot is in the safeguard stop	0-1030-45	Emergency stop alarm X0
2-1030-36	Robot is in the safeguard stop	0-1030-46	Emergency stop alarm M0
2-1030-37	The robot is in an external pause state.	0-1030-47	External emergency stop alarm
2-1030-38	Safety door triggered.	0-1030-48	Collision warning
2-1030-39	Pause	0-1030-49	Arc breaking alarm
0-1030-40	EtherCAT servo disconnected	2-1030-50	Clear main program settings
0-1030-41	Ethercat master status error	2-1030-51	main file set up for %s

Alarm Number	Description	Alarm Number	Description
2-1030-52	%s file is not a JBI program and cannot be set as the main program	0-1030-59	%s axis starts to write dynamics information.
0-1030-53	Firmware of %s joint does not match	0-1030-60	Unable to call setFCParas interface
0-1030-54	Axis %s starts to update the firmware!	0-1030-61	Unable to call the fc_force_control interface
0-1030-55	Failed to update firmware for axis %s	0-1030-62	Unable to call zeroFT interface
0-1030-56	Axis %s update firmware completed!	0-1030-63	Unable to call addPayloadCalibrationData interface
0-1030-57	The current servo version does not support the entire package upgrade, please upgrade axis by axis.	0-1030-64	Unable to call addZeroLoadReading interface
0-1030-58	No matching firmware found!	0-1030-65	Unable to open function isInForceControl

Alarm Number	Description	Alarm Number	Description
0-1030-66	Unable to open function ui_zeroload_calibration	0-1030-72	Unable to open function ui_move_to_recorded_point
0-1030-67	Unable to open function ui_payload_calibration_payload	0-1030-73	Unable to open function ui_change_FT_sensor_data_source
0-1030-68	Unable to open function ui_payload_calibration_zeroload	0-1030-74	Failed to set the back-end data source, torque sensor is not enabled.
0-1030-69	Unable to open function load_fc_para_from_shared_mem	0-1030-75	The data source of the torque sensor is set successfully
0-1030-70	Unable to open function ui_record_calibration_point	0-1030-76	Error in obtaining interference area data.
0-1030-71	Unable to open function ui_compute_payload_CoM	0-1030-77	Failed to save interference zone.

Alarm Number	Description	Alarm Number	Description
0-1030-78	Failed to set interference zone.	0-1030-86	Axis %s exceeds the limit at the target position.
0-1030-79	The type of robot does not match the number of axes and can only run in joint coordinates.	0-1030-87	Unable to operate, abnormal manual operation
0-1030-80		%s axis has not been set	0-1030-88
0-1030-81	%s axis is not used, please reconfigure it.	0-1030-89	Unable to operate, abnormal manual operation
0-1030-82	The servo is not enabled. Please turn on the servo first.	1-1030-90	Please clear the collision alarm first!
0-1030-83	Robot is not in teach mode or remote mode!	0-1030-91	Unable to operate, abnormal manual operation
1-1030-84	Please clear the collision alarm first!	0-1030-92	Unable to run the MOVC/MOVEC instruction, please check the teaching waypoint!
0-1030-85	Unable to operate, abnormal manual operation	0-1030-93	Three waypoints coincide!

Alarm Number	Description	Alarm Number	Description
0-1030-94	The %s and %s waypoints coincide, cannot run MOVJ/MOVEC!	0-1030-A	Since the dynamics is disabled, the external force/torque cannot be estimated.
0-1030-95	Unable to operate, abnormal manual operation	0-1030-B	Since the dynamics is disabled, the external force/torque cannot be estimated.
2-1030-96	run_forward command failed to parse circular motion transition point	0-1030-C	Error getting data for tool %s
2-1030-97	run_forward command failed to parse circular motion transition point	0-1030-D	Incorrect tool settings
2-1030-98	run_forward command failed to parse tool coordinate data	0-1030-E	incorrectly setting tool data.
2-1030-99	run_forward command failed to parse user coordinate data	0-1030-F	Error getting data for tool %s

Alarm Number	Description	Alarm Number	Description
2-1030-1A	Exit reservation mode!	0-1030-2C	Failed to open the file.
0-1030-1B	The robot is in suspended state	2-1030-2D	The track record JBI file is saved successfully!
0-1030-1C	Joint soft limit alarm	2-1030-2E	Non motion commands are not executed in single step mode.
0-1030-1D	The servo is not enabled. Please turn on the servo first.	0-1030-2F	The robot has already reached the end of the Program!
0-1030-1E	Invalid motion instruction type	0-1030-3A	Servo is writing parameters, please wait
0-1030-1F	Invalid speed parameter type	2-1030-3B	Clear collision alarm status!
0-1030-2A	Failed to save the track record JBI file, the file name is too long	0-1030-3C	%s axis servo alarm
2-1030-2B	The track record JBI file already exists!	0-1030-3D	%s Stack communication alarm

Alarm Number	Description	Alarm Number	Description
0-1030-3E	Ethercat servo connection failed	0-1030-5B	%s axis starts to write dynamics information.
0-1030-3F	The number of Ethercat servos does not match	0-1030-5C	%s axis write dynamic information completed!
0-1030-4A	Welding machine alarm	0-1030-5D	Unable to open force control library %s
0-1030-4B	The %s axis servo is in bootloader state	0-1030-5E	Unable to call the startForceMode interface!
0-1030-4C	The end IO is in the bootloader state	0-1030-5F	Unable to call the endForceMode interface
0-1030-4D	%s axis alarm	0-1030-6a	Unable to open function write_fc_para_to_shared_mem
0-1030-4E	Emergency stop timeout, protection stop timeout alarm	0-1030-6b	Unable to open function print_fc_para_struct
0-1030-4F	The last shutdown position of joint %s is different from the current position.	0-1030-6c	Unable to open function force_mode_feature_init
0-1030-5A	%s axis write dynamic information completed!	0-1030-6d	Unable to open function write_fc_para_to_xml

Alarm Number	Description	Alarm Number	Description
0-1030-6e	Unable to open function ui_inertia_calibration_zeroload	2-1030-7e	The robot reaches the target pose, but the configuration is inconsistent.
0-1030-6f	Unable to open function ui_inertia_calibration_payload	2-1030-7f	Please enable the six-dimensional mouse function first, and then operate in the sensor coordinate system!
1-1030-7a	The robot is in the force control mode or the sensor-dragging mode. Failed to set the data source of the force control mode.	0-1030-8a	Configuration is inconsistent with expectation
0-1030-7b	Invalid PL or CR transfer in JBI line %s	0-1030-8b	Unable to operate, abnormal manual operation
0-1030-7c	The robot is in suspended state	0-1030-8c	Please clear the collision alarm first!
2-1030-7d	The robot has reached the target point.	0-1030-8d	Axis %s exceeds the soft limit

Alarm Number	Description	Alarm Number	Description
2-1030-8e	Invalid parameter in motion instruction	2-1030-9f	%s is moving by line in base coordinate
0-1030-8f	run_forward command motion target point %s axis over soft limit	2-1030-a0	%s is moving by line in tool coordinate
2-1030-9a	run_forward command failed to parse reference joint data	2-1030-a1	%s is moving by line in user coordinate
2-1030-9b	run_forward command unknown motion type	2-1030-a2	%s is moving by joint in cylindrical coordinate
2-1030-9c	run_forward command failed to parse motion target point	2-1030-a3	move_under_coord command unknown coordinate type
2-1030-9d	run_forward command failed to parse motion target point	2-1030-a4	Axis %s exceeds the soft limit
2-1030-9e	%s is moving by joint in joint coordinate	2s-1030-a5	Axis %s exceeds the soft limit

Alarm Number	Description	Alarm Number	Description
0-1030-a6	The servo is not enabled. Please turn on the servo first.	0-1030-ad	Memory request failed!
0-1030-a7	The robot is not in TEACH mode.	0-1030-ae	JOB file %s format error
0-1030-a8	JOB file %s format error	0-1030-af	JOB file %s format error
0-1030-a9	JOB file %s format error %s	0-1030-b0	The timestamp in the trajectory motion instruction is not incremented
0-1030-aa	Error in interval range of job file %s	0-1030-b1	JOB file %s format error
0-1030-ab	Memory request failed!	0-1030-b2	The number of timestamps in the trajectory motion instruction does not match the number of points
0-1030-ac	Failed to open JOB file %s	2-1030-b3	Successfully uninstalled JOB file %s

Alarm Number	Description	Alarm Number	Description
0-1030-b4	Failed to open JOB file %s	0-1030-bb	Parameter setting failed, parameter range %s-%s
0-1030-b5	The first waypoint is unreachable. Please check the first waypoint of MOVML	0-1030-bc	The current parameter format is different from the last shutdown. Use the backup parameter.
0-1030-b6	IO range is [0-51]	0-1030-bd	No parameter file, import default parameters.
0-1030-b7	Failed to parse the pose in the JOB file	0-1030-be	The robot type is not supported. Please select the robot type correctly!
0-1030-b8	Parameter setting failed, parameter range %s-%s	0-1030-bf	The robot type is not supported. Please select the robot type correctly!
0-1030-b9	Parameter setting failed, parameter range %s-%s	0-1030-c0	Unable to open function velocity jacobian function
0-1030-ba	Parameter setting failed, parameter range %s-%s	0-1030-c1	Unable to open the forward and inverse solution library, please try to restart.

Alarm Number	Description	Alarm Number	Description
0-1030-c2	The robot type is not supported. Please select the robot type correctly!	0-1030-c9	%s axis exceeds the lower limit of soft limit
0-1030-c3	The robot type is not supported. Please select the robot type correctly!	0-1030-ca	Joint %s speed exceeds limit [%s]:%s °/s
0-1030-c4	Unable to open function velocity jacobian function	0-1030-cb	%s axis motor overspeed
0-1030-c5	Unable to open Kinematics to calculate the all inverse solution functions	1-1030-cc	Enter reduction mode
0-1030-c6	Unable to open Kinematics to calculate the all inverse solution functions	0-1030-cd	Enter normal mode
0-1030-c7	Axis %s division ratio is wrong, please reset it.	0-1030-ce	%s variable initialization failed.
0-1030-c8	%s Axis exceeds the upper limit of soft limit	0-1030-cf	%s variable initialization failed.

Alarm Number	Description	Alarm Number	Description
0-1030-d0	P variable file opening failed!	0-1030-d9	Failed to save V variable!
0-1030-d1	P%s data format error!	0-1030-da	V%s variable save failed
0-1030-d2	P variable index out of bounds!	0-1030-db	P variable setting failed, %s axis exceeded the soft limit
0-1030-d3	Open V variable file failed!	0-1030-dd	Axis No. %s: Alarm No. = %s , Time tag = %s
0-1030-d4	V%s data format error	0-1030-de	Failed to obtain user coordinate system data!
0-1030-d5	V variable index out of range!	0-1030-df	Failed to save user coordinate system data!
0-1030-d6	%s variable initialization failed.	0-1030-e0	[%s:%s]Failed to create user coordinate system!
0-1030-d7	Failed to save P variable!	0-1030-e1	Number of waypoints: %s, user coordinate system definition requires 3 waypoints
2-1030-d8	V%s variable save failed	0-1030-e2	Parameter setting failed, parameter range%s-%s

Alarm Number	Description	Alarm Number	Description
0-1030-e4	Inverse kinematic failed	0-1030-ed	Calibration requires 20 waypoints, %s have been taught.
0-1030-e5	Inverse kinematic failed	0-1030-ee	Current robot type does not support this function!
2-1030-e6	Inverse kinematic failed	1-1030-f0	Failed to get the IO configurations
2-1030-e7	Inverse kinematic failed	0-1030-f1	Failed to save the IO configurations.
2-1030-e9	Failed to set the network.	0-1030-f2	Failed to save the IO configurations.
2-1030-ea	The network is set successfully.	1-1030-f3	Current tool is disabled
0-1030-eb	The target pose is singular.	0-1030-29e	[%s:%s]The name length of the lua scripts exceeds the limit.
0-1030-ec	The first waypoint is unreachable. Please check the first waypoint of MOVML	0-1030-29f	[%s:%s]The name of the lua script is wrong.

Alarm Number	Description	Alarm Number	Description
0-1030-2a0	[%s:%s]BACKSTAGERUNLUA unknown parameter %s	0-1031-4	Servo device error!
1-1031-0	Dynamic model verification failed, unable to enable dynamic function	0-1031-5	IO device error!
0-1031-1	At rest, the feedback position of the %s axis is greatly different from the actual position. Please check and restart the encoder.	0-1031-6	Force sensor device error!
1-1031-3	The robot status has been reset	0-1031-7	Joint soft limit alarm

Alarm Number	Description	Alarm Number	Description
0-1031-8	Failed to get the force information through SDK/LUA, transmission of the force data has not yet started	2-1031-13	Trajectory record failed!
0-1031-9	At rest, the feedback position is greatly different from the actual position. Please check and restart the encoder.	2-1031-14	Failed to open the file %s
0-1031-10	The track has been recorded for %s minutes, and up to %s minutes can be recorded.	0-1031-15	Drag enable is not turned on!
0-1031-11	The track record exceeds the maximum time, the exceeding track will no longer be recorded!	1-1031-16	Speed exceeds threshold, failed to start recording
2-1031-12	Trajectory record failed!	1-1031-17	Speed exceeds threshold, failed to end recording

Alarm Number	Description	Alarm Number	Description
0-1031-a	%s axis target position does not match the feedback position	2-1031-f	Memory request failed!
0-1031-b	The robot body does not match the controller!	2-1032-0	It is currently in an abnormal state, and the dynamic model cannot be verified again
2-1031-c	Failed to set servo enable	2-1032-1	It is currently in drag or running state, and the dynamic model cannot be verified again
0-1031-d	The parameters of receiving and sending pulses after one revolution of %s-axis motor are not set	1-1032-2	Axis% s is in shielding state, unable to recheck the dynamic model
0-1031-e	The parameters of receiving and sending pulses after one revolution of %s-axis motor are not set	2-1032-3	The dynamics model is verified successfully

Alarm Number	Description	Alarm Number	Description
2-1032-4	The dynamics model verification failed. Please check if the setup type and payload-parameter settings are correct.	0-1032-11	Failed to open %s
0-1032-5	The robot is not in a normal state and cannot start dragging and teaching.	0-1032-12	Cannot call dynamics_init interface!
0-1032-6	Joint soft limit alarm	0-1032-13	Cannot call dynamics_exit interface!
0-1032-7	Unable to enable drag teaching in PLAY mode!	0-1032-14	Cannot call dynamics_send_position interface!
0-1032-8	Servo off timeout!	0-1032-15	Cannot call dynamics_stop_position interface!
0-1032-9	Please turn off the servo enablement before switching the servo control mode.	0-1032-16	Cannot call dynamics_process_fb_data interface!
2-1032-10	Failed to obtain kinetic parameters!	0-1032-17	Cannot call dynamics_exec_payload_idt_motion interface!

Alarm Number	Description	Alarm Number	Description
0-1032-18	Cannot call dynamics_idt_payload_params interface!	0-1033-0	Axis %s exceeds the limit at the target position.
0-1032-19	Cannot call dynamics_reset_control_mode interface!	0-1033-1	The point positions of MOVC/MOVEC parameters coincide and cannot be run.
0-1032-1a	Cannot call dynamics_set_drag_status interface!	0-1033-2	Inversion failed. The target point is singular or unreachable
0-1032-1b	Unable to call dynamics_check_dyn_model interface!	1-1033-3	The robot status has been reset
0-1032-1c	It is impossible to open the drag function in the force control mode.	0-1100-0	The target pose is singular.

Alarm Number	Description	Alarm Number	Description
0-1100-48	It is impossible to open the drag function: the force sensor data appears abnormal.	0-1100-3f	Failed to initialize the force control module.
0-1100-49	The axes cannot be freely dragged: the joint is singular or overspeed.	2-1300-1	Device file %s is occupied.
0-1100-50	The force sensor is disconnected.	0-1800-a	Servo alarm: %s, Joint %s hardware is over-current, the joint is stuck or the instantaneous load is too large
0-1100-4d	It is impossible to stop calibrating the sensor when the robot is moving.	0-1800-14	Servo alarm: %s, Joint %s current zero offset is abnormal, please restart or contact after-sales service

Alarm Number	Description	Alarm Number	Description
0-1800-15	Servo alarm: %s,The software of joint %s is over-current, the joint is stuck or the load is too large	0-1800-1e	Servo alarm: %s,The actual deviation of joint %s from the target position is too large, the load is too large, or the joint is stuck
0-1800-16	Servo alarm: %s,Joint %s is over-current during startup. Please check whether the joint is stuck or the brake fails	0-1800-1f	Servo alarm: %s, The deviation between the actual position of joint %s and the target position is too large. Please check whether the joint is stuck or the brake is faulty
0-1800-17	Servo alarm: %s,Joint %s current impact, instantaneous high current detected	0-1800-20	Servo alarm: %s,Joint %s special emergency stop alarm triggered

Alarm Number	Description	Alarm Number	Description
0-1800-28	Servo alarm: %s,Joint %s emergency stop alarm	0-1800-32	Servo alarm: %s,The communication of joint %s is abnormal and the bus verification fails. Please check the robot and connecting line or check the interference source
0-1800-29	Servo alarm: %s,Joint is writing parameters	0-1800-33	Servo alarm: %s,The communication of joint %s is abnormal and the bus is not synchronized. Please check the robot and connecting line or check the interference source
0-1800-2b	Servo alarm: %s, Joint is restarting	0-1800-34	Servo alarm: %s,The communication of joint %s is abnormal and the master station data is not received. Please check the robot and connecting line or check the interference source

Alarm Number	Description	Alarm Number	Description
0-1800-36	Servo alarm: %s,The communication of joint %s is abnormal and the communication frame is incomplete. Please check the robot and connecting line or check the interference source	0-1800-3e	Servo alarm: %s,Joint %s joint and motor encoder are not calibrated, joint encoder data is abnormal, not calibrated
0-1800-3c	Servo alarm: %s,Joint %s Joint encoder data of is abnormal. Please try restarting or contact after-sales service	0-1800-3f	Servo alarm: %s,Joint %s The data deviation between joint and motor encoder is too large, encoder failure
0-1800-3d	Servo alarm: %s,Joint %s The data difference between joint and motor encoder is too large. Please try restarting or contact after-sales service	0-1800-46	Servo alarm: %s,Joint %s motor encoder calibration failed, no index signal detected

Alarm Number	Description	Alarm Number	Description
0-1800-47	Servo alarm: %s,Joint %s No motor encoder index signal detected, motor encoder contaminated	0-1800-4a	Servo alarm: %s,Joint %s joint and motor encoder are not calibrated, motor encoder data is abnormal, not calibrated
0-1800-48	Servo alarm: %s,Joint %s Abnormal motor encoder data, phase to phase verification failed, motor encoder polluted	0-1800-4b	Servo alarm: %s,The electrical angle deviation of joint %s is too large, the verification of motor encoder data and calibration data fails, and the motor encoder is polluted
0-1800-49	Servo alarm: %s,Joint %s The electrical angle deviation is too large, the motor encoder data and calibration data verification failed, and the motor encoder polluted	0-1800-4c	Servo alarm: %s,The electrical angle deviation of joint %s is too large, the verification of motor encoder data and hall data fails, and the motor encoder is polluted

Alarm Number	Description	Alarm Number	Description
0-1800-4e	Servo alarm: %s,The electrical angle of joint %s is abnormal, the encoder data is out of range, and the motor encoder is polluted	0-1800-51	Servo alarm: %s,During calibration, the hall sensor accuracy of joint %s is poor. Please try restarting or contact after-sales service
0-1800-4f	Servo alarm: %s,The electrical angle of joint %s is abnormal, the encoder data is out of range, and the motor encoder is polluted	0-1800-52	Servo alarm: %s,Hall sensor of joint %s is abnormal. Please try restarting or contact after-sales service
0-1800-50	Servo alarm: %s,Hall sensor of joint %s is abnormal. Please try restarting or contact after-sales service	0-1800-5a	Servo alarm: %s, The holding brake of joint %s is abnormal and the forward rotation of motor fails. Please check whether the joint is stuck

Alarm Number	Description	Alarm Number	Description
0-1800-5b	Servo alarm: %s,The holding brake of joint %s is abnormal, and the forward and reverse rotation of motor fails. Please check whether the joint is stuck	0-1800-64	Servo alarm: %s,Joint %s is overloaded, acceleration or load is too large
0-1800-5c	Servo alarm: %s,The holding brake of joint %s is abnormal, and the motor reversal fails. Please check whether the joint is stuck	0-1800-6e	Servo alarm: %s,Joint %s exceeds the maximum motor speed
0-1800-5e	Servo alarm: %s,The braking distance of joint %s exceeds limit. Brake fault or overload.	0-1800-78	Servo alarm: %s,Joint %s bus voltage is overvoltage, please check whether the brake plate is connected or working normally

Alarm Number	Description	Alarm Number	Description
0-1800-79	Servo alarm: %s,Joint %s bus is under voltage, please check the bus voltage or the state of each joint	0-1900-28	Failed to get the tracking data, the current tracking type does not exist.
0-1800-82	Servo alarm: %s,The joint %s is overheated. Please check the ambient temperature or joint heat dissipation	0-1900-29	Failed to get the tracking data, the current tracking type does not exist.
0-1800-c8	Servo alarm: %s,Abnormal multi circle data in joint %s flash	0-1900-2a	Failed to get the tracking data, the current tracking type does not exist.
0-1800-c9	Servo alarm: %s,Joint %s is not ready, initialization is not complete	0-1900-2b	Failed to get the tracking data, the acceleration time is too short.

Alarm Number	Description	Alarm Number	Description
0-1900-2c	Failed to read from the encoder, the last time:%s, this time:%s.	0-2001-6	Illegal variable value
0-2001-1	[%s:%s]Index of variables or parameters %s are out of range.	0-2001-7	Indexes of variables or parameters are out of range.
0-2001-2	[%s:%s]Index of variables or parameters %s are out of range.	0-2001-8	Indexes of variables or parameters are out of range.
0-2001-3	[%s:%s]Index of variables or parameters %s are out of range.	0-2001-9	[%s:%s]Parameters of a waypoint variable type are not accepted.
0-2001-4	[%s:%s]Index of variables or parameters %s are out of range.	0-2001-10	[%s:%s]Unsupported IO type %s
0-2001-5	[%s:%s]Index of variables or parameters %s are out of range.	0-2001-11	[%s:%s]IO decoding error!

Alarm Number	Description	Alarm Number	Description
0-2001-12	[%s:%s]Index of variables or parameters %s are out of range.	0-2001-18	[%s:%s]AXISDISABLE Command format error %s
0-2001-13	[%s:%s]Error type	0-2001-19	[%s:%s]AXISDISABLE command contain redundant parameters %s
0-2001-14	[%s:%s]DIN/MIN instruction decoding error	0-2001-20	[%s:%s]Incorrect MCWAIT instruction collision sensitivity parameter!
0-2001-15	[%s:%s]DIN/MIN instruction parameter [%s] is incorrect!	0-2001-21	[%s:%s]TIMER instruction decoding error
0-2001-16	[%s:%s]Incorrect DOUT/MOUT instruction parameters	0-2001-22	[%s:%s]Unknown condition %s
0-2001-17	[%s:%s]DOUT/MOUT %s decoding error	0-2001-23	[%s:%s]Repeat condition, forget   or &

Alarm Number	Description	Alarm Number	Description
0-2001-24	[%s:%s]PULSE instruction decoding error	0-2001-33	[%s:%s]AIN decoding error parameter %s
0-2001-25	[%s:%s]PULSE %s instruction decoding error	0-2001-34	[%s:%s]ELSEIF instruction decoding error!
0-2001-26	[%s:%s]AOUT instruction decoding error	0-2001-35	[%s:%s]ELSEIF instruction decoding error!
0-2001-27	[%s:%s]AOUT decoding error parameter %s	0-2001-36	[%s:%s]ELSE instruction decoding error!
0-2001-28	[%s:%s]AOUT instruction decoding error	0-2001-37	[%s:%s]ELSE instruction decoding error!
0-2001-29	[%s:%s]AOUT %s instruction decoding error	0-2001-38	[%s:%s]ENDIF instruction decoding error!
0-2001-30	[%s:%s]AIN decoding error	0-2001-39	[%s:%s]ENDIF instruction decoding error!
0-2001-31	[%s:%s]AIN decoding error	0-2001-40	[%s:%s]ENDWHILE instruction decoding error!
0-2001-32	[%s:%s]AIN decoding error parameter %s	0-2001-41	[%s:%s]ENDWHILE instruction decoding error!

Alarm Number	Description	Alarm Number	Description
0-2001-42	[%s:%s]CONTINUE instruction decoding error!	0-2001-48	[%s:%s]LABEL must start with *
0-2001-43	[%s:%s]BREAK instruction decoding error!	0-2001-49	[%s:%s]Empty LABEL
0-2001-44	[%s:%s]%s is empty label	0-2001-50	[%s:%s]The %s Label has been defined in the %s line of the %s file.
0-2001-45	[%s:%s]%s label memory out of bounds	0-2001-51	[%s:%s]TIMER instruction must set the T parameter
0-2001-46	[%s:%s]Execution file %s memory overflow	0-2001-52	[%s:%s]TIMER instruction decoding error
0-2001-47	[%s:%s]Unknown format %s, the correct format is %s	0-2001-53	[%s:%s]Incorrect SAVEVARP Instruction parameter %s

Alarm Number	Description	Alarm Number	Description
0-2001-54	[%s:%s] %s [%s] instruction decoding error	0-2001-61	[%s:%s] %s [%s] instruction decoding error
0-2001-55	[%s:%s]NOP [%s] instruction decoding error	0-2001-62	[%s:%s]Unsupported parameters type
0-2001-56	[%s:%s]CLEAR instruction decoding error	0-2001-63	[%s:%s]Invalid variable, %s
0-2001-57	[%s:%s]CLEAR length parameter must be a constant or ALL!	0-2001-64	[%s:%s] %s tool number must be set
0-2001-58	[%s:%s]CLEAR instruction parameter type is incorrect!	0-2001-65	[%s:%s] %s user number must be set
0-2001-59	[%s:%s]CLEAR [%s] instruction decoding error	0-2001-66	[%s:%s] %s parsing unknown error %s
0-2001-60	[%s:%s]data2 [%s] decoding error	0-2001-67	[%s:%s]Instruction of getting the linear interpolation pose, parsing the output parameters failed

Alarm Number	Description	Alarm Number	Description
0-2001-68	[%s:%s]Instruction of getting the linear interpolation pose, parsing the proportional parameters failed	0-2001-72	[%s:%s]Instruction of getting the linear interpolation pose, parse unknown parameters
0-2001-69	[%s:%s]Instruction of getting the linear interpolation pose, the proportional parameters are too long	0-2001-73	[%s:%s]SETTOOLFRAME instruction must set the tool number
0-2001-70	[%s:%s] Instruction of getting the linear interpolation pose, parsing the data 1 failed	0-2001-74	[%s:%s]Incorrect SETTOOLFRAME instruction parameter %s
0-2001-71	[%s:%s]Instruction of getting the linear interpolation pose, parsing the data 2 failed	0-2001-75	[%s:%s]SETTOOLFRAME instruction unknown error, %s

Alarm Number	Description	Alarm Number	Description
0-2001-76	[%s:%s]data1 [%s] decoding error	0-2001-83	[%s:%s]ConstP parameter range must be -360 to 360
0-2001-77	[%s:%s]data2 [%s] decoding error	0-2001-84	[%s:%s]SETJOINT parsing ConstP error
0-2001-78	[%s:%s]Unsupported parameters type	0-2001-85	[%s:%s]Incorrect SETV instruction parameter %s
0-2001-79	[%s:%s]%s [%s] instruction decoding error	0-2001-86	[%s:%s]SETPOSE parsing ConstV error
0-2001-80	[%s:%s]SETZEROPOS instruction decode AXIS error	0-2001-87	[%s:%s]Constv Rx, Ry, RZ parameters are out of range
0-2001-81	[%s:%s]Decoding error, unable to recognize SETP variable %s	0-2001-88	[%s:%s]SETPOSE parsing ConstV error
0-2001-82	[%s:%s]SETJOINT parsing ConstP error	0-2001-89	[%s:%s]%s AC parameter decoding error.

Alarm Number	Description	Alarm Number	Description
0-2001-90	[%s:%s] %s AV parameter decoding error.	0-2001-97	[%s:%s] PALLET instruction decoding error.
0-2001-91	[%s:%s] %s [%s] instruction decoding error	0-2001-98	[%s:%s] Palletizing instruction parameter [%s] is incorrect!
0-2001-92	[%s:%s] %s AC parameter decoding error.	0-2001-99	[%s:%s] Fish scale welding parameter decoding error %s
0-2001-93	[%s:%s] %s AV parameter decoding error.	0-2001-100	[%s:%s] Fish scale welding parameter is out of range %s
0-2001-94	[%s:%s] The %s dist parameter is incorrect!	0-2001-101	[%s:%s] Fish scale welding parameter is out of range %s
0-2001-95	[%s:%s] %s [%s] instruction decoding error	0-2001-102	[%s:%s] Fish scale welding failed to identify parameter [%s]
0-2001-96	[%s:%s] Palletizing command is not enabled	0-2001-103	[%s:%s] %s WEV parameter decoding error

Alarm Number	Description	Alarm Number	Description
0-2001-104	[%s:%s]Weaving instruction parameter [%s] is incorrect!	0-2001-111	[%s:%s]Unknown coordinate system error
0-2001-105	[%s:%s]%s Serial number should be in the range of [0-9]	0-2001-112	[%s:%s]Coordinate system parameter error!
0-2001-106	[%s:%s]%s value is ON or OFF	0-2001-113	[%s:%s]MFRAME parsing error
0-2001-107	[%s:%s]HSEN Instruction Parameter T Decoding Error	0-2001-114	[%s:%s]MFRAME parameter is incorrect!
0-2001-108	[%s:%s]SFTON decoding error	0-2001-115	[%s:%s]MFRAME parameter %s is incorrect!
0-2001-109	[%s:%s]CCOOD instruction decoding error	0-2001-116	[%s:%s]MOV/MOVE parameter PL repeated
0-2001-110	[%s:%s]Coordinate system parameter error!	0-2001-117	[%s:%s]PL error in MOV/MOVE instruction decoding

Alarm Number	Description	Alarm Number	Description
0-2001-118	[%s:%s]PL level can only be an integer from 0 to 7	0-2001-124	[%s:%s]MOV/MOVE command failed to parse the actual acceleration A variable
0-2001-119	[%s:%s]MOV/MOVE parameter CR repeated	0-2001-125	[%s:%s]MOV/MOVE parameter ACC repeated
0-2001-120	[%s:%s]MOV/MOVE instruction decoding CR error	0-2001-126	[%s:%s]ACC error in MOV/MOVE instruction parameters
0-2001-121	[%s:%s]MOV/MOVE parameter CR data is too long	0-2001-127	[%s:%s]MOV/MOVE parameter DEC repeated
0-2001-122	[%s:%s]MOV/MOVE parameter CR out of range	0-2001-128	[%s:%s]MOV/MOVE command failed to parse the actual deceleration D variable
0-2001-123	[%s:%s]MOV/MOVE parameter ACC repeated	0-2001-129	[%s:%s]MOV/MOVE parameter DEC repeated

Alarm Number	Description	Alarm Number	Description
0-2001-130	[%s:%s]DEC error in MOV/MOVE instruction parameters	0-2001-135	[%s:%s]UNTIL error in MOV/MOVE instruction decoding
0-2001-131	[%s:%s]COOP error in MOV/MOVE instruction parameters	0-2001-136	[%s:%s]MOV/MOVE parameter REF repeated
0-2001-132	[%s:%s]In MOV/MOVE instruction, T parameter must be set for TIMER	0-2001-137	[%s:%s]MOV/MOVE parameter REF error
0-2001-133	[%s:%s]Movement instruction judges the output parameters through the condition judgement statements, parsing failed	0-2001-138	[%s:%s]MOV/MOVE instruction reference joint %s axis exceeds soft limit
0-2001-134	[%s:%s]Movement instruction judges the output parameters through the condition judgement statements, parsing failed	0-2001-139	[%s:%s]MOV/MOVE parameter REF error

Alarm Number	Description	Alarm Number	Description
0-2001-140	[%s:%s]MOV/MOVE parameter REF error	0-2001-146	[%s:%s]MOV/MOVEC parameter P/V error
0-2001-141	[%s:%s]MOV/MOVE parameter position repeated	0-2001-147	[%s:%s]MOV/MOVEC command parses more than 2 waypoints
0-2001-142	[%s:%s]MOV/MOVE parameter ConstP error	0-2001-148	[%s:%s]MOV/MOVE parameter ConstP error
0-2001-143	[%s:%s]ConstP parameter range must be -360 to 360	0-2001-149	[%s:%s]MOV/MOVE parameter position repeated
0-2001-144	[%s:%s]ConstP joint %s exceeds soft limit	0-2001-150	[%s:%s]MOV/MOVE parameter CONSTV error
0-2001-145	[%s:%s]MOV/MOVEC command parses more than 2 waypoints	0-2001-151	[%s:%s]Constv Rx, Ry, RZ parameters are out of range

Alarm Number	Description	Alarm Number	Description
0-2001-152	[%s:%s]Constv pose data is all zero	0-2001-158	[%s:%s]Fixed tool coordinate system parsing failed
0-2001-153	[%s:%s]MOV/MOVEC command parses more than 2 waypoints	0-2001-159	[%s:%s]Workpiece coordinate system parsing failed
0-2001-154	[%s:%s]MOVC/MOVEC parameter P/V error	0-2001-160	[%s:%s]Pose data in the workpiece coordinate system is out of range
0-2001-155	[%s:%s]MOV/MOVEC command parses more than 2 waypoints	0-2001-161	[%s:%s]Workpiece coordinate system parsing failed
0-2001-156	[%s:%s]MOV/MOVE parameter CONSTV error	0-2001-162	[%s:%s]Workpiece coordinate system parsing failed
0-2001-157	[%s:%s]MOV/MOVE parameter flange repeated	0-2001-163	[%s:%s]MOV/MOVE parameter position repeated

Alarm Number	Description	Alarm Number	Description
0-2001-164	[%s:%s]MOVC/MOVEC parameter P/V error	0-2001-174	[%s:%s]Lua process has not been opened.
0-2001-165	[%s:%s]Movement instruction, errors of the waypoint occur when parsing the variables	0-2001-175	[%s:%s]The STOPLUA instruction must set the INDEX additional item
0-2001-166	[%s:%s]Unknown [%s] parameter error in MOV/MOVE instruction	0-2001-176	[%s:%s]Error in STOPLUA instruction parsing INDEX additional items
0-2001-171	[%s:%s]Lua process has not been opened.	0-2001-177	[%s:%s]Lua process has not been opened.
0-2001-172	[%s:%s]The STARTLUA instruction must set the INDEX additional item	0-2001-178	[%s:%s]The RESTARTLUA instruction must set the INDEX additional item
0-2001-173	[%s:%s]STARTLUA instruction parsing INDEX additional item error	0-2001-179	[%s:%s]RESTARTLUA instruction parsing INDEX additional item error

Alarm Number	Description	Alarm Number	Description
0-2001-180	[%s:%s]Lua process has not been opened.	0-2001-186	[%s:%s]Incorrect SETPAYLOAD instruction M parameter
0-2001-181	[%s:%s]GETLUASTATE instruction parsing B additional item error	0-2001-187	[%s:%s]SETPAYLOAD instruction must set parameter X
0-2001-182	[%s:%s]The GETLUASTATE instruction must set the INDEX additional item	0-2001-188	[%s:%s]Incorrect SETPAYLOAD instruction X parameter
0-2001-183	[%s:%s]GETLUASTATE instruction parsing INDEX additional item error	0-2001-189	[%s:%s]SETPAYLOAD instruction must set parameter Y
0-2001-184	[%s:%s]The SETPAYLOAD instruction must set the tool number parameter!	0-2001-190	[%s:%s]Incorrect SETPAYLOAD instruction Y parameter
0-2001-185	[%s:%s]The SETPAYLOAD instruction must set the Payload parameter	0-2001-191	[%s:%s]SETPAYLOAD instruction must set parameter Z

Alarm Number	Description	Alarm Number	Description
0-2001-192	[%s:%s]Incorrect SETPAYLOAD instruction Z parameter	0-2001-198	[%s:%s]The SETUSERFRAME instruction must set the parameter num!
0-2001-193	[%s:%s]Invalid JOB, %s	0-2001-199	[%s:%s]Invalid SETUSERFRAME instruction parameter %s
0-2001-194	[%s:%s]Invalid variable, %s	0-2001-200	[%s:%s]SETUSERFRAME instruction unknown error, %s
0-2001-195	[%s:%s]Invalid parameter %s in GETUSERFRAME instruction	0-2001-201	[%s:%s]Invalid parameter %s in GETTOOLFRAME instruction
0-2001-196	[%s:%s]The GETUSERFRAME instruction must set the parameter num	0-2001-202	[%s:%s]The GETTOOLFRAME instruction must set the parameter num
0-2001-197	[%s:%s]Invalid parameter %s in GETUSERFRAME instruction	0-2001-203	[%s:%s]Invalid parameter %s in GETTOOLFRAME instruction

Alarm Number	Description	Alarm Number	Description
0-2001-204	[%s:%s]GETTCPFORCE parameter %s error	0-2001-210	[%s:%s]GETTCPFORCE unknown parameter
0-2001-205	[%s:%s]GETTCPFORCE parameter ConstV error	0-2001-211	[%s:%s]Invalid SPEED instruction parameter %s
0-2001-206	[%s:%s]Constv Rx, Ry, RZ parameters are out of range	0-2001-212	[%s:%s]Invalid SPEED instruction parameter %s
0-2001-207	[%s:%s]GETTCPFORCE parameter ConstV error	0-2001-213	[%s:%s]MOV/MOVE parameter V repeated
0-2001-208	[%s:%s]GETTCPFORCE must set the TOOL number	0-2001-214	[%s:%s]Parameter V is incorrect in MOV/MOVE instruction
0-2001-209	[%s:%s]GETTCPFORCE must set the user coordinate number	0-2001-215	[%s:%s]MOV/MOVE parameter V repeated

Alarm Number	Description	Alarm Number	Description
0-2001-216	[%s:%s]Parameter VJ is incorrect in MOV/MOVE instruction	0-2001-222	[%s:%s]MOV/MOVE parameter V repeated
0-2001-217	[%s:%s]MOV/MOVE is missing the required position parameters	0-2001-223	[%s:%s]Parameter V is incorrect in MOV/MOVE instruction
0-2001-218	[%s:%s]MOV/MOVE parameter V missed	0-2001-224	[%s:%s]MOV/MOVE parameter Tool repeated
0-2001-219	[%s:%s]MOV/MOVE parameter V repeated	0-2001-225	[%s:%s]MOV/MOVE instruction must set the tool number
0-2001-220	[%s:%s]MOV/MOVE parameter V repeated	0-2001-226	[%s:%s]MOV/MOVE instruction must set the user coordinate number
0-2001-221	[%s:%s]MOV/MOVE parameter V repeated	0-2001-227	[%s:%s]MOV/MOVE is missing the required position parameters

Alarm Number	Description	Alarm Number	Description
0-2001-228	[%s:%s]MOV/MOVE parameter V missed	0-2001-234	[%s:%s]%s DRAGV parameter is incorrect!
0-2001-229	[%s:%s]The fixed tool cannot be the center of the flange plate.	0-2001-235	[%s:%s]MOV/MOVE parameter CR out of range
0-2001-230	[%s:%s]MOVC/MOVEC waypoints less than two	0-2001-236	[%s:%s]%s decoding error
0-2001-231	[%s:%s]MOV/MOVEC command parses more than 2 waypoints	0-2001-237	[%s:%s]Parameter AV is incorrect in MOV/MOVE instruction
0-2001-232	[%s:%s]The JOB parameter file %s in the command MOVEFILE does not exist, or error exists!	0-2001-238	[%s:%s]Parameter V is incorrect in MOV/MOVE instruction
0-2001-233	[%s:%s]%s VJ parameter is incorrect!	0-2001-239	[%s:%s]Parameter V is incorrect in MOV/MOVE instruction

Alarm Number	Description	Alarm Number	Description
0-2001-240	[%s:%s]Parameter V is incorrect in MOV/MOVE instruction	0-2001-246	[%s:%s]1st parameter is incorrect in DIST instruction
0-2001-241	[%s:%s]Parameter TF is incorrect in TOOL instruction	0-2001-247	[%s:%s]2nd parameter is incorrect in DIST instruction
0-2001-242	[%s:%s]Unknown parameters in TOOL instruction	0-2001-248	[%s:%s]3rd parameter is incorrect in DIST instruction
0-2001-243	[%s:%s]Incorrect TF parameter in SETTOOLNUMBER instruction.	0-2001-249	[%s:%s]Parameter [%s] has grammatical error in DIST instruction
0-2001-244	[%s:%s]Unsupported parameters type	0-2001-250	[%s:%s]Incorrect TTINIT instruction parameter %s
0-2001-245	[%s:%s]SETTOOLNUMBER %s instruction decoding error.	0-2001-251	[%s:%s]Incorrect TTINIT instruction parameter %s

Alarm Number	Description	Alarm Number	Description
0-2001-252	[%s:%s]Incorrect TTINIT instruction parameter %s	0-2001-258	[%s:%s]Invalid subscript parameter of ADDPAYLOAD instruction
0-2001-253	[%s:%s]Incorrect TTINIT instruction parameter %s	0-2001-259	[%s:%s]Unknown parameter error %s of ADDPAYLOAD instruction
0-2001-254	[%s:%s]Incorrect TTINIT instruction parameter %s	0-2001-260	[%s:%s]Failed to start the force control mode, the data source of the force control is unknown
0-2001-256	[%s:%s]Invalid subscript parameter of ADDZEROLOAD instruction	0-2001-261	[%s:%s]Failed to start the force control mode, the back-end mode cannot be selected when the torque sensor is not switched on.
0-2001-257	[%s:%s]Unknown parameter error %s of ADDZEROLOAD instruction	0-2001-262	[%s:%s]Unable to parse the set force control mode parameters

Alarm Number	Description	Alarm Number	Description
0-2001-263	[%s:%s]Set invalid first parameter for force control command	0-2001-268	[%s:%s]Set force control mode parameters-control mode parameter-invalid
0-2001-264	[%s:%s]Set force control mode parameters-force and torque parameters-invalid	0-2001-269	[%s:%s]No Label %s@%s found!
0-2001-265	[%s:%s]Set force control mode parameters-force control switch parameter-invalid	0-2001-270	Loading file :%s repeatedly.
0-2001-266	[%s:%s]Set force control mode parameters-force control coordinate frame parameter-invalid	0-2001-271	CALL has too many subroutine calls %s
0-2001-267	[%s:%s]Set force control mode parameters-max. speed limit parameter-invalid	0-2001-272	Open file failed %s %s %s

Alarm Number	Description	Alarm Number	Description
0-2001-273	Too many MOV/MOVE instructions (number:%s),insufficient memory!	0-2001-279	WHILE or IF instruction is used incorrectly
0-2001-274	Incorrect file format,2 or more NOP exists	0-2001-280	WHILE or IF instruction is used incorrectly
0-2001-275	Incorrect file format. It contains 2 END.	0-2001-281	[%s:%s]Subscripts index type of the IO variable are illegal
0-2001-276	Unknown instruction, filename %s: %s line	0-2001-282	[%s:%s]Failed to clear all sensor values to zeros, wrong data source
0-2001-277	Incorrect file format, NOP should be on the first line, END on the last line.	0-2001-283	[%s:%s] The parameter V in the MOVEJ instruction is duplicated
1-2001-278	Failed to load file %s	0-2001-284	[%s:%s] The parameter VJ in the MOVEJ instruction is wrong

Alarm Number	Description	Alarm Number	Description
0-2001-285	[%s:%s] The parameter V in the MOVEJ instruction is missing	0-2001-289	[%s:%s] The parameter V in the MOVE instruction is missing
0-2001-286	[%s:%s] The parameter V in the MOVE instruction is wrong	1-2001-290	[%s:%s] In the MOV/MOVE instruction, the parameter FIXTOOL coexists with the parameter WOBJ.
0-2001-287	[%s:%s] The parameter tool in the MOVE instruction is duplicated	0-2001-291	[%s:%s] The parameter TRIGGER in the MOV/MOVE instruction is duplicated or it coexists with the parameter UNTIL.
0-2001-288	[%s:%s] Please set the tool number first before executing the MOVE instruction	0-2001-292	[%s:%s] The conditions of the parameter TRIGGER in the MOV/MOVE instruction is wrong.

Alarm Number	Description	Alarm Number	Description
0-2001-293	[%s:%s] The parameter TRIGGER %s in the MOV/MOVE instruction is wrong.	0-2001-297	[%s:%s] The parameter UNTIL in the MOV/MOVE instruction is duplicated or it coexists with the parameter TRIGGER.
0-2001-294	[%s:%s] The parameter TRIGGER %s in the MOV/MOVE instruction is too long.	0-2001-298	[%s:%s]TRIGGER parameter% s cannot be negative in MOV/MOVE instruction
0-2001-295	[%s:%s] The IO value of the parameter TRIGGER in the MOV/MOVE instruction is set incorrectly.	0-2001-299	[%s:%s]TRIGGER parameter does not support IO type %s in MOV/MOVE instruction
0-2001-296	[%s:%s] The IO type of the parameter TRIGGER in the MOV/MOVE instruction is set incorrectly.	0-2001-29a	[%s:%s]TRIGGER parameter failed to parse IO variables %s

Alarm Number	Description	Alarm Number	Description
0-2001-29b	TRIGGER parameter IO index is out of range in MOV/MOVE instruction	0-2001-2a0	[%s:%s] GETTCPFORCEBYSENSOR instruction parameter %s is incorrect
0-2001-29c	TRIGGER parameter IO index is out of range in MOV/MOVE instruction	0-2001-2a1	[%s:%s]GETTCPFORCEBYSENSOR unknown parameter %s
0-2001-29d	[%s:%s]SETUSERNUMBER instruction parameter TF is incorrect	0-2001-2a3	The tracking configuration data is illegal. A reconfiguration is needed.
0-2001-29e	[%s:%s]Unsupported parameters type	0-2001-2a8	The robot is in the force control mode or the sensor-dragging mode. Failed to set the data source of the force control mode.
0-2001-29f	[%s:%s]SETUSERNUMBER %s parameter analysis is incorrect	0-2001-2a9	The robot is in the force control mode or the sensor-dragging mode. Failed to set the data source of the force control mode.

Alarm Number	Description	Alarm Number	Description
0-2001-2aa	[%s:%s]SETPOSE Invalid parameter %s	0-2002-3	[%s:%s]Unknown coordinate %s
0-2001-2ab	[%s:%s]USERTO_CART decoding error	0-2002-4	[%s:%s]P variable index out of bounds
0-2001-2ac	[%s:%s]USERTO_CART decoding error	0-2002-5	[%s:%s]P variable index out of bounds
0-2001-2ad	[%s:%s]USERTO_CART decoding error	0-2002-6	[%s:%s]%s axis soft limit alarm
0-2001-2ae	[%s:%s]USERTO_CART Invalid parameter %s	0-2002-7	[%s:%s]Unknown coordinate %s
0-2001-2af	[%s:%s]CARTTOUSER decoding error	0-2002-8	[%s:%s]Point singularity
0-2001-2b1	[%s:%s]CARTTOUSER decoding error	0-2002-9	[%s:%s]%s axis soft limit alarm
0-2001-2b2	[%s:%s]CARTTOUSER decoding error	0-2002-10	[%s:%s]P variable index out of bounds
0-2001-2b4	The point positions of MOV command are lost	0-2002-11	[%s:%s]%s axis soft limit alarm
0-2001-2b5	The point positions of MOV command are lost	0-2002-12	[%s:%s]P variable index out of bounds
0-2002-1	[%s:%s]Missing macro definition,%s	0-2002-13	[%s:%s]Failed to get the end external force
0-2002-2	[%s:%s]Missing macro definition,%s	0-2002-14	[%s:%s]Variable value to be set is out of range

Alarm Number	Description	Alarm Number	Description
0-2002-15	[%s:%s]Variable value to be set is out of range	0-2002-25	[%s:%s]V variable is not opened
0-2002-16	[%s:%s]Variable value to be set is out of range	0-2002-26	[%s:%s]Failed to set data
0-2002-17	[%s:%s]Variable value to be set is out of range	0-2002-27	[%s:%s]V variable is not opened
0-2002-18	[%s:%s]P variable is not opened.	0-2002-28	[%s:%s]Failed to obtain data
0-2002-19	[%s:%s]Failed to obtain data	0-2002-29	[%s:%s]V variable is not opened
0-2002-20	[%s:%s]P variable is not opened.	0-2002-30	[%s:%s]Failed to set data
0-2002-21	[%s:%s]V variable is not opened	0-2002-31	[%s:%s]Failed to obtain data
0-2002-22	[%s:%s]Failed to set data	0-2002-32	[%s:%s]Failed to set data
0-2002-23	[%s:%s]V variable is not opened	0-2002-33	[%s:%s]The parameter %s exceeds the maximum value %s
0-2002-24	[%s:%s]Failed to obtain data	0-2002-34	[%s:%s]End force or joint torque index out of range

Alarm Number	Description	Alarm Number	Description
0-2002-35	[%s:%s]Parameter out of range!	0-2002-41	[%s:%d] %s
0-2002-36	[%s:%s]Only external axis can be prohibited, robot axis cannot be prohibited	0-2002-42	[%s:%s]AOUT instruction parameter out of range
0-2002-37	[%s:%s]The delay value of the TIMER instruction cannot be less than 0 seconds.	0-2002-43	[%s:%s]AOUT instruction parameter out of range
0-2002-38	[%s:%s]The delay value of the TIMER instruction cannot be less than 0 seconds.	0-2002-44	[%s:%s]The delay value of the TIMER instruction cannot be less than 0 seconds.
0-2002-39	[%s:%s]CALL instruction is nested more than 10 layers and cannot be executed.	0-2002-45	[%s:%s]Choose fish scale spot welding time T or walk S1
0-2002-40	[%s:%s]The call of CALL cannot be found in the RET instruction	0-2002-47	[%s:%s]The address of variable in the CLEAR instruction parameter is incorrect

Alarm Number	Description	Alarm Number	Description
0-2002-48	[%s:%s]Tool index [%s] is out of range	0-2002-54	[%s:%s]Tool index [%s] is out of range
0-2002-49	[%s:%s]Tool %s has not been set	0-2002-55	Location data is illegal
0-2002-50	[%s:%s]User coordinate system index [%s] is out of range!	2-2002-56	The current point coincides with the target point
0-2002-51	[%s:%s]User coordinate system %s has not been set	2-2002-57	[%s:%s]In single step mode, the motion command PL or Cr parameter is ignored, PL = 0 or Cr = 0
0-2002-52	Divide by zero error in DIV instruction	0-2002-59	The tool index is invalid
0-2002-53	Divide by zero error in MOD instruction	0-2002-60	Invalid user coordinate system

Alarm Number	Description	Alarm Number	Description
2-2002-62	[%s:%s]In single step mode, the motion command PL or Cr parameter is ignored, PL = 0 or Cr = 0	0-2002-69	[%s:%s]Waiting for the gripper feedback signal timeout!
0-2002-64	[%s:%s]Arc failure, error code %s	0-2002-70	[%s:%s]Unknown coordinate %s
0-2002-65	[%s:%s]Palletizing command is not enabled	0-2002-71	[%s:%s]Incorrect load parameter range!
0-2002-66	[%s:%s]Incorrect palletizing parameters	0-2002-72	[%s:%s]STARTLUA instruction INDEX additional item range error
0-2002-67	[%s:%s]Weaving process number has not been set	0-2002-73	[%s:%s]STARTLUA instruction execution error
0-2002-68	[%s:%s]Weaving process number must be [0-7]	0-2002-74	[%s:%s]STOPLUA instruction INDEX additional item range error

Alarm Number	Description	Alarm Number	Description
0-2002-75	[%s:%s]STOPLUA instruction execution error	0-2002-81	[%s:%s]User coordinate system index [%s] is out of range
0-2002-76	[%s:%s]RESTARTLUA instruction INDEX additional item range error	0-2002-82	[%s:%s]User coordinate system %s has not been set
0-2002-77	[%s:%s]RESTARTLUA instruction execution error	0-2002-83	[%s:%s]Tool index [%s] is out of range
0-2002-78	[%s:%s]GETLUASTATE instruction INDEX additional item range error	0-2002-84	[%s:%s]User coordinate system index [%s] is out of range
0-2002-79	[%s:%s]Tool index [%s] is out of range	0-2002-85	[%s:%s]Get the linear interpolation pose, the proportional parameters to be set are out of range
0-2002-80	[%s:%s]Tool %s has not been set	0-2002-86	[%s:%s]Failed to create user coordinate system!

Alarm Number	Description	Alarm Number	Description
0-2002-87	[%s:%s]Unable to run the MOVC/MOVEC instruction, please check the teaching waypoint!	0-2002-93	[%s:%s]The arc instruction FPT can only be set to the third point
0-2002-88	[%s:%s]Three waypoints coincide!	2-2002-94	[%s:%s]In single step mode, the motion command PL or Cr parameter is ignored, PL = 0 or Cr = 0
0-2002-89	[%s:%s]The %s and %s waypoints coincide, cannot run MOVC/MOVEC!	0-2002-96	Swing welding function is not enabled
0-2002-90	[%s:%s]In single step mode, the motion command PL or Cr parameter is ignored, PL = 0 or Cr = 0	0-2002-97	[%s:%s]No matching MOVFW found
0-2002-92	[%s:%s]There are less than three road points in MOVC/MOVEC!	0-2002-98	[%s:%s]No matching MOVFW found

Alarm Number	Description	Alarm Number	Description
0-2002-99	[%s:%s]No matching MOVFW found	0-2002-105	[%s:%s]Force control %s parameter %s is not an integer
0-2002-100	[%s:%s]No matching MOVFW found	0-2002-106	[%s:%s]Failed to start the force control mode, no force control end command
0-2002-101	[%s:%s]Cannot run MOVFW	0-2002-107	[%s:%s]Force control mode parameter setting is out of range.
0-2002-102	[%s:%s]Two points coincide, unable to spot welding	0-2002-108	[%s:%s]Force control coordinate system parameters x, y, z parameters are out of range
0-2002-103	[%s:%s]Incorrect TTINIT instruction parameter range %s	0-2002-109	[%s:%s]Force control coordinate system parameters rx, ry, rz parameters are out of range
2-2002-104	[%s:%s]TTTARGETJOINT failed, the queue is full!	0-2002-110	[%s:%s]The force control mask parameter is out of range

Alarm Number	Description	Alarm Number	Description
0-2002-111	[%s:%s]The force control target parameter is out of range	0-2002-116	[%s:%s]MOV instruction inverse kinematic failed
0-2002-112	[%s:%s]The force control torque parameter is out of range	0-2002-117	[%s:%s]TTTARGETJOINT instruction inverse kinematic failed
0-2002-113	[%s:%s]The force control linear speed is out of range	0-2002-118	[%s:%s]POSETOJOINT instruction inverse kinematic failed
0-2002-114	[%s:%s]The force control angular speed is out of range	0-2002-119	[%s:%s] Failed to clear the data of the force sensor. The sensor is not in force control mode
0-2002-115	[%s:%s]MOVE instruction inverse kinematic failed	0-2002-120	[%s:%s]In single step mode, the motion command PL or Cr parameter is ignored, PL = 0 or Cr = 0

Alarm Number	Description	Alarm Number	Description
0-2002-121	The tool index is invalid	0-2002-126	[%s:%s] Failed to get the sensor data
0-2002-122	[%s:%s] The MOVJ instruction does not allow that the IO is triggered by the distance condition.	0-2002-127	Failed to save the BID variable, the interval for saving the variable must be longer than 200ms.
0-2002-123	[%s:%s] The MOVEJ instruction does not allow that the IO is triggered by the distance condition.	0-2002-128	The tracking configuration data is illegal. A reconfiguration is needed.
0-2002-124	[%s:%s]User coordinate system index [%s] is out of range	0-2002-130	The digital output [%s,%s] is occupied by the configuration. Be careful to use it.
0-2002-125	[%s:%s] The force sensor is disconnected	0-2002-131	[%s:%s]%s script does not exist

Alarm Number	Description	Alarm Number	Description
0-2002-132	Run max. 8 lua scripts at once	0-4000-3	The tool index is invalid
0-2002-133	[%s:%s]Failed to run the scripts when executing the BACKSTAGERUNLUA command	0-4000-4	Tool number %s is not set, please set first!
0-4000-0	Point singularity	0-4000-5	During the zero calibration of 20 points, the dynamic memory request failed
0-4000-1	Invalid user coordinate system	0-4000-6	During the zero calibration of 20 points, waypoints coincidence error, point %s and point %s coincide
0-4000-2	User coordinate system %s is not set!	0-4000-7	During the zero calibration of 20 points,calculation error, the point is unreasonable

Alarm Number	Description	Alarm Number	Description
0-4000-8	The calculation result exceeds 5mm, it is recommended not to use this data.	2-6000-3	Lua script error: %s: %s
0-4000-9	%s mm	2-6000-4	Script %s parameter %s error
0-4000-a	The points are coincident	2-6000-5	Lua script parameter range: 0~%s
0-4000-b	Matrix inversion failed	2-6000-6	Lua script parameter range is from %s to %s
0-4000-c	The points are coincident	2-6000-7	Lua script parameters range from %s to %s or from %s to %s
0-4000-d	Matrix inversion failed	2-6000-8	Script %s, parameter %s, range from %s to %s
2-6000-0	General messages	2-6000-9	Script %s, parameter %s, range from %s to %s
2-6000-1	Lua script load completed!	2-6000-10	Instruction of getting the linear interpolation pose, parsing data failed
2-6000-2	Lua script error: %s: %s	2-6000-11	Failed for the script to call the function

Alarm Number	Description	Alarm Number	Description
2-6000-12	Lua script parameters do not match	0-7000-4	Fail to open the JOB file.
2-6000-13	Lua scripts print: %s	0-7000-5	Fail to open the JOB file.
2-6000-14	No Lua script file is loaded	0-7000-6	Fail to open the JOB file.
2-6000-15	Lua script file %s does not exist	0-7000-7	MOVEML trajectory planning calculation failed
0-7000-0	Memory request failed!	0-7000-8	Memory request failed!
0-7000-1	Incorrectly calculating node vector	0-7000-9	Memory request failed!
0-7000-2	Incorrectly calculating node vector	0-7000-10	Incorrect user coordinate system index
0-7000-3	Memory request failed!	0-7000-11	The robotic arm is in a singular zone or unreachable zone

Alarm Number	Description	Alarm Number	Description
0-7000-12	The type of robot does not match the number of axes and can only run in joint coordinates.	0-7000-23	The target pose is singular
0-7000-13	The type of robot does not match the number of axes and can only run in joint coordinates.	0-7000-24	The target pose is singular
0-7000-14	Unrecognized curve	0-7000-26	The target pose is singular
0-7000-15	The robotic arm is in a singular zone or unreachable zone	0-7000-27	The target pose is singular
0-7000-21	The target pose is singular	0-7000-a	Memory request failed!
0-7000-22	The target pose is singular	0-7000-b	The pseudo inverse solution of singular value decomposition failed during encoder calibration. Please change the position and try again

Alarm Number	Description	Alarm Number	Description
0-7000-c	Encoder calibration failed, please try again or manually move each axis to complete calibration	0-9000-5	The layer number is entered incorrectly!
0-7000-d	%s axis exceeds the lower limit of soft limit	0-9000-6	The layer layout mode is entered incorrectly!
0-7000-f	%s Axis exceeds the upper limit of soft limit	0-9000-7	The layer height mode is entered incorrectly!
0-9000-0	Point singularity	0-9000-8	Process %s layout %s layout mode error!
0-9000-1	Point singularity	0-9000-9	Process %s layout %s Status are invalid!
0-9000-2	The palletizing process number is entered incorrectly.	0-9000-10	Process %s reference point does not exist!
0-9000-3	The user coordinate number is entered incorrectly!	0-9000-11	Process %s transition point does not exist!
0-9000-4	The layout number is entered incorrectly!	0-9000-12	File %s already exists.

Alarm Number	Description	Alarm Number	Description
0-9000-13	Failed to open %s	0-9000-20	Leaving point number is entered incorrectly!
0-9000-14	Failed to create file %s	0-9000-21	The palletizing process number is entered incorrectly!
2-9000-15	File %s is successfully created.	0-9000-22	The user coordinate number is entered incorrectly!
0-9000-16	Palletizing parameter input error.	0-9000-23	The layout number is entered incorrectly!
0-9000-17	The layout mode is entered incorrectly!	0-9000-24	The layer number is entered incorrectly!
0-9000-18	The palletizing point number is entered incorrectly!	0-9000-25	The layer layout mode is entered incorrectly!
0-9000-19	The preparation point number is entered incorrectly.	0-9000-26	The layer height mode is entered incorrectly!

Alarm Number	Description	Alarm Number	Description
0-9000-27	The palletizing process number is entered incorrectly!	0-9000-33	Layout %s has been used.
2-9000-28	Note the entered layout value and set the maximum layout to %s	0-9000-34	The layout type is entered incorrectly!
0-9000-29	The palletizing process number is entered incorrectly.	0-9000-35	The number of pallets is entered incorrectly!
0-9000-30	The layer height is entered incorrectly.	0-9000-36	The palletizing point number is entered incorrectly!
0-9000-31	Transition point height exceeds limit!	0-9000-37	The parameter input of the palletizing point is incorrect!
0-9000-32	The layer layout mode is entered incorrectly!	0-9000-38	The preparation point number is entered incorrectly.

Alarm Number	Description	Alarm Number	Description
0-9000-39	The parameter of the preparation point is entered incorrectly!	0-9000-45	The palletizing point parameter is invalid, please set the parameter first!
0-9000-40	Leaving point number is entered incorrectly!	0-9000-46	Wrong number of columns. The column value should be greater than 1.
0-9000-41	The leave point parameter is entered incorrectly!	0-9000-47	The palletizing point parameter is invalid, please set the parameter first!
0-9000-42	The parameter input of the palletizing point is incorrect!	0-9000-48	Wrong number of rows. The row value should be greater than 1.
0-9000-43	The parameter of the preparation point is entered incorrectly!	0-9000-49	The number of rows, columns or pallets is entered incorrectly
0-9000-44	The leave point parameter is entered incorrectly!	0-9000-50	Failed to check the validity of palletizing process parameters!

Alarm Number	Description	Alarm Number	Description
0-9000-51	Palletizing parameter input error.	0-1-1	Product dimension error: range is %d-%d
0-9000-52	The palletizing process number is entered incorrectly!	0-1-2	Height of approaching waypoint is less than height of product
0-9000-53	Palletizing process parameters are invalid!	0-1-3	Height of leaving waypoint is less than height of product
0-9000-54	The current pallet number exceeds the limit!	0-1-5	Soft limit is illegal, out of range
0-D000-0	Matrix inversion failed	0-2-1	Open file failed: %s
0-D000-1	Matrix inversion failed	0-2-2	Incorrect file format: %s
0-D000-2	The target pose is singular	0-2-3	Incorrect file type: %s
0-D000-3	The target pose is singular	0-2-4	Palletizing file doesn't contain stack info field: %s
0-D000-4	The target pose is singular	0-2-6	Writing file failed: %s

Alarm Number	Description	Alarm Number	Description
0-2-9	Open file failed	0-2-A	Error occurs when writing file, %s
0-2-12	USB monitoring service creation failed: %s	0-2-D	Can't connect to mcserver.
0-2-13	USB monitoring service binding failed, %s	0-2-E	Open mcserver log file failed: %s

## 4.2 Servo drive alarm

Alarm Number	Description	Possible Reasons	Suggested Solutions
		The load and acceleration parameters are incorrectly set	Check whether the load and acceleration parameters are set correctly
10	Joint %s hardware is over-current, the joint is stuck or the instantaneous load is too large	The load is too large and exceeds the load characteristic curve	Check whether the load is too large and exceeds the load characteristic curve of the user manual
		Mechanical stuck phenomenon caused by impact, joint brake not opened, etc.	Clear the alarm, power off and restart, check whether each joint can operate normally
		Joint driver hardware damage	If the alarm continues to appear, please contact the official after-sales department
20	Joint %s current zero offset is abnormal, please restart or contact after-sales service	The zero drift detected by the joint driver is too large	Clear the alarm, power off and restart, check whether the alarm appears again, if it persists and cannot be eliminated, please contact the official after-sales department

Alarm Number	Description	Possible Reasons	Suggested Solutions
		The load and acceleration parameters are incorrectly set	Check whether the load and acceleration parameters are set correctly
21	The software of joint %s is over-current, the joint is stuck or the load is too large	The load is too large, exceeding the load characteristic curve	Check whether the load is too large and exceeds the user manual load characteristic curve
		Mechanical stuck phenomenon caused by impact, joint brake not opened, etc.	Clear the alarm, power off and restart, check whether each joint can operate normally
		Joint driver hardware damage	If this alarm continues to appear, please contact the official after-sales department

Alarm Number	Description	Possible Reasons	Suggested Solutions
22	Joint %s is over-current during startup. Please check whether the joint is stuck or the brake fails	Servo brake is not opened	Clear the alarm, restart after power off, use the reverse drive function, push the robot to a lower gravity position to open the brake, and then use the normal brake opening function; If this alarm phenomenon persists, please contact the official after-sales department
		The load and acceleration parameters are incorrectly set	Check whether the load and acceleration parameters are set correctly
23	Joint %s current impact, instantaneous high current detected	The load is too large and exceeds the load characteristic curve	Check whether the load is too large and exceeds the load characteristic curve of the user manual
		The mechanical jam phenomenon caused by the impact, the joint brake is not opened, etc.	Clear the alarm, break Power cycle, check each joint for normal operation

Alarm Number	Description	Possible Reasons	Suggested Solutions
23	Joint %s current impact, instantaneous high current detected	The hardware of the joint driver is damaged	If this alarm phenomenon persists, please contact the official after-sales department
		The load and acceleration parameters are incorrectly set	Check whether the load and acceleration parameters are set correctly
30	The actual deviation of joint %s from the target position is too large, the load is too large, or the joint is stuck	The load is too large and exceeds the load characteristic curve	Check whether the load is too large and exceeds the load characteristic curve of the user manual
		Mechanical stuck phenomenon caused by impact, joint brake not opened, etc.	Clear the alarm, power off and restart, check whether each joint can operate normally
		The hardware of the joint driver is damaged	If this alarm phenomenon persists, please contact the official after-sales department

Alarm Number	Description	Possible Reasons	Suggested Solutions
31	The deviation between the actual position of joint %s and the target position is too large. Please check whether the joint is stuck or the brake is faulty	The servo brake is not opened	Clear the alarm, power off and restart, use the reverse drive function, push the robot to a lower gravity position to open the brake, and then use the normal Open the brake function; if the alarm phenomenon persists, please contact the official after-sales department
32	Joint %s special emergency stop alarm triggered	The driver (non-standard hardware version) receives the emergency stop input signal (special IO) from the driver board	Check the hardware emergency stop signal of the joint
40	Joint %s emergency stop alarm	The emergency stop button of the teach pendant is photographed	Check whether the emergency stop button of the teach pendant is photographed. If the emergency stop button is photographed, turn the emergency stop button to perform reset and synchronization operations.

Alarm Number	Description	Possible Reasons	Suggested Solutions
40	Joint %s emergency stop alarm	External interference causes emergency stop false alarm (the burned FPGA version is wrong)	If the alarm cannot be eliminated continuously, please contact the official after-sales department.
41	Joint is being written in parameters	Error is caused by carrying out “restore default parameters” or “permanently save parameters”	If it is confirmed that the driver is being restored or a flash is being written, please ignore the error.
41	Joint %s is writing parameters	Flash is abnormal	If this alarm phenomenon persists, please contact the official after-sales department
43	Joint %s is restarting	The driver is going to the process of “firmware upgrading”	If it is confirmed that the firmware is upgrading, please ignore the error. After the upgrading is finished, please remove the error. If the error persists, please contact the official after-sales department

Alarm Number	Description	Possible Reasons	Suggested Solutions
50	The communication of joint %s is abnormal and the bus verification fails. Please check the robot and connecting line or check the interference source	Communication verification failed	Clear the alarm, power off and restart, check whether the alarm appears again, if it persists and cannot be eliminated, please contact the official after-sales department; or check whether it is in a strong electromagnetic environment
51	The communication of joint %s is abnormal and the bus is not synchronized. Please check the robot and connecting line or check the interference source	The communication is synchronizing or the synchronization fails	Click the 'reset' button to clear the alarm; or the alarm persists and cannot be eliminated, please contact the official after-sales department
52	The communication of joint %s is abnormal and the master station data is not received. Please check the robot and connecting line or check the interference source	Frame from master station is not received	Usually occurs after the controller and servo software are upgraded, the alarm will be eliminated after power off and restart, if it cannot be eliminated, please contact the official after-sales department

Alarm Number	Description	Possible Reasons	Suggested Solutions
54	The communication of joint %s is abnormal and the communication frame is incomplete. Please check the robot and connecting line or check the interference source	The master frame is received, not executed	Usually occurs after the controller and servo software are upgraded, the alarm will be eliminated after power off and restart, if it cannot be eliminated, please contact the official after-sales department
60	Joint %s Joint encoder data of is abnormal. Please try restarting or contact after-sales service	The joint encoder cable is connected incorrectly, the cable is loose, and the cable is disturbed, which causes the joint encoder value to be incorrect or the joint encoder related hardware is interfered, resulting in incorrect joint encoder value	Clear the alarm, power off and restart, check whether the alarm appears again, If it persists and cannot be eliminated, please contact the official after-sales department

Alarm Number	Description	Possible Reasons	Suggested Solutions
61	Joint %s The data difference between joint and motor encoder is too large. Please try restarting or contact after-sales service	The joint encoder cable is connected incorrectly, the cable is loose, and the cable is interfered, causing the joint encoder value to be incorrect or the joint encoder related hardware is interfered, resulting in an incorrect joint encoder value correct	Clear the alarm, power off and restart, check whether the alarm appears again, If it persists and cannot be eliminated, please contact the official after-sales department
62	Joint %s joint and motor encoder are not calibrated, joint encoder data is abnormal, not calibrated	The encoder is not calibrated	
63	Joint %s The data deviation between joint and motor encoder is too large, encoder failure	The joint encoder is damaged	

Alarm Number	Description	Possible Reasons	Suggested Solutions
70	Joint %s motor encoder data lost	The A and B pulse of the motor encoder may be contaminated  Motor encoder index pulse may be contaminated	Clear the alarm, power off and restart, check whether the alarm appears again, If it persists and cannot be eliminated, please contact the official after-sales department
71	Joint %s No motor encoder index signal detected, motor encoder contaminated	Motor encoder pulse may be contaminated	
72	Joint %s Abnormal motor encoder data, phase to phase verification failed, motor encoder polluted	Motor encoder pulse may be polluted	
73	Joint %s The electrical angle deviation is too large, the motor encoder data and calibration data verification failed, and the motor encoder polluted	The motor encoder pulse may be polluted	

Alarm Number	Description	Possible Reasons	Suggested Solutions
74	Joint's joint and motor encoder are not calibrated, motor encoder data is abnormal, not calibrated	The motor encoder is not calibrated or the calibration fails	
75	The electrical angle deviation of joint's is too large, the verification of motor encoder data and calibration data fails, and the motor encoder is polluted	The motor encoder pulse may be polluted	Clear the alarm, power off and restart, check whether the alarm appears again, If it persists and cannot be eliminated, please contact the official after-sales department
76	The electrical angle deviation of joint's is too large, the verification of motor encoder data and hall data fails, and the motor encoder is polluted	The motor encoder pulse may be polluted	
78	The electrical angle of joint's is abnormal, the encoder data is out of range, and the motor encoder is polluted	The motor encoder pulse may be polluted	

Alarm Number	Description	Possible Reasons	Suggested Solutions
79	The electrical angle of joint% <i>s</i> is abnormal, the encoder data is out of range, and the motor encoder is polluted	The motor encoder pulse may be polluted	
80	Hall sensor of joint% <i>s</i> is abnormal. Please try restarting or contact after-sales service	Hall sensor wiring error, looseness, cable damage, etc. cause inaccurate return value of hall sensor or related hardware damage of hall sensor, resulting in inaccurate return value of hall sensor	Clear the alarm, power off and restart, check whether the alarm appears again, If it persists and cannot be eliminated, please contact the official after-sales department
81	During calibration, the hall sensor accuracy of joint % <i>s</i> is poor. Please try restarting or contact after-sales service	Hall sensor is not calibrated or calibrated abnormally	

Alarm Number	Description	Possible Reasons	Suggested Solutions
82	Hall sensor of joint% <i>s</i> is abnormal. Please try restarting or contact after-sales service	hall sensor is loose	Clear the alarm, power off and restart, check whether the alarm appears again, If it persists and cannot be eliminated, please contact the official after-sales department
		hall sensor is calibrated abnormally	
90	The holding brake of joint% <i>s</i> is abnormal and the forward rotation of motor fails. Please check whether the joint is stuck	The brake is abnormal	
91	The holding brake of joint% <i>s</i> is abnormal, and the forward and reverse rotation of motor fails. Please check whether the joint is stuck	Abnormal when opening the brake	

Alarm Number	Description	Possible Reasons	Suggested Solutions
92	The holding brake of joint% <i>s</i> is abnormal, and the motor reversal fails. Please check whether the joint is stuck	Abnormality when opening the brake	Clear the alarm, power off and restart, check whether the alarm appears again, If it persists and cannot be eliminated, please contact the official after-sales department
94	The holding brake of joint% <i>s</i> is abnormal, the holding brake distance is too large, the holding brake fails or the load is too heavy	The sliding distance is too large after closing the brake	
		The load and acceleration parameters are incorrectly set	Check whether the load and acceleration parameters are set correctly
100	Joint% <i>s</i> is overloaded, acceleration or load is too large	The load is too large and exceeds the load characteristic curve	Check whether the load is too large and exceeds the load characteristic curve of the user manual
		Mechanical stuck phenomenon due to impact, joint brake not opened, etc.	Clear the alarm, power off and restart, check whether each joint is functioning properly

Alarm Number	Description	Possible Reasons	Suggested Solutions
100	Joint% <i>s</i> is overloaded, acceleration or load is too large	Joint driver hardware damage	If this alarm phenomenon persists, please contact the official after-sales department
101	Joint% <i>s</i> collides	There is a mechanical collision	Clear the mechanical collision and continue to test, check if the acceleration of the trajectory is reasonable, if it persists after clearing the mechanical collision, please contact the official after-sales department
110	Joint% <i>s</i> exceeds the maximum motor speed	The use speed exceeds the maximum allowable value	Set the controller speed parameters correctly, and try again after power off and restart.
120	Joint% <i>s</i> bus voltage is overvoltage, please check whether the brake plate is connected or working normally	The brake plate of the control box may be abnormal	Clear the alarm, power off and restart, check whether the alarm appears again, if it persists and cannot be eliminated, please contact the official after-sales department

Alarm Number	Description	Possible Reasons	Suggested Solutions
121	Joint's bus is under voltage, please check the bus voltage or the state of each joint	The power of the control box is not enough due to hardware damage	Clear the alarm, power off and restart, check whether the alarm appears again, if it persists and cannot be eliminated, please contact the official after-sales department
130	The joint's is overheated. Please check the ambient temperature or joint heat dissipation	<p>The load used is too large, exceeding the load characteristic curve</p> <p>The working environment temperature used is too high</p>	<p>Check the size of the end load, and configure the load correctly according to the model</p> <p>Check the working environment temperature and use the robot according to the requirements specified in the user manual; Questions, please contact the official after-sales department</p>

Alarm Number	Description	Possible Reasons	Suggested Solutions
200	Abnormal multi circle data in joint%sflash	The driver saves the relevant information about the joint	If it is confirmed that the calibration or writing parameters is in progress, please ignore the error. After the actions are complete for a few seconds, please remove the error. If the error persists, please contact the official after-sales department
201	Joint%s is not ready, initialization is not complete	The drive has not been initialized	Usually appears after the power is turned on, which is a normal alarm content; or click the 'reset' button to clear the alarm.
202	Servo alarm: %s,unable to read the multi-circle data of joint %s that stored	The internal memory chip cannot work properly	The memory system is damaged. Please contact the after-sale department to disable the function
203	Servo alarm: %s,checksum error of the multi-circle data of joint %s that stored	The internal memory chip cannot work properly	Try to power off and on the controller, if it permits, please contact the after-sale department to disable the function



## Chapter 5 Spare Parts List

**Table 5-1** Robot arm

Serial Number	Part Number	Product Name	Product Specifications	Remark
1	NB20100197	EC63-14-6 Joint		
2	NB20100198	EC63-14-4/5 Joint		
3	NB20100206	EC66-20-3 Joint		
4	NB20100207	EC66-25-2 Joint		
5	NB20100208	EC66-25-1 Joint		
6	NB20100209	EC66 Base Assembly-Spare Part		
7	NB20100203	EC-14 Flange Assembly-Spare Part		
8	NB20100211	EC66 Lower Arm Link Assembly-Spare Part		
9	NB20100212	EC66 Upper Arm Link Assembly-Spare Part		
10	NB20100112	EC-14 Electromagnet Assembly		
11	NB20100116	EC-20 Electromagnet Assembly		
12	NB20100120	EC-25 Electromagnet Assembly		
13	NB20100111	EC-14 Magnetic Encoder Assembly		
14	NB20100115	EC-20 Magnetic Encoder Assembly		
15	NB20100119	EC-25 Magnetic Encoder Assembly		
16	NB50000120	ERJ-14 Joint Cover(Sprayed)		
17	NB50000122	ERJ-20 Joint Cover(Sprayed)		
18	NB50000123	ERJ-25 Joint Cover(Sprayed)		
19	NA60300046	EC66 Decorative Casing Pipe of the Small Arm		
20	NA60300045	EC66 Decorative Casing Pipe of the Big Arm		
21	NA60300040	Small-sized Rubber Ring		
22	NA60300039	Medium-sized Rubber Ring		
23	NA60300038	Big-sized Rubber Ring		
24	NA60300051	Rubber Plug		
25	NB20000002	EC66 Robot Cable		

**Table 5-2** Control box

Serial Number	Part Number	Product Name	Product Specifications	Remark
1	NB10000047	ERB2E1K6 Control Box		
2	NB10000050	ERB2E1K0M Control Box		
3	NB30000005	ERP300 Teach Pendant		
4	NB40000040	PADIO Expansion Board		
5	NB40200002	PAD IO Components (B2 Control Cabinet)		
6	NB40000002	Brake Plate		
7	NB40200001	Core Plate Components (B2 Control Cabinet)		
8	NA20100017	DCDC 24V Power Supply		
9	NA20100018	DCDC 5V Power Supply		
10	NB10000007	220V AC Power Cord		
11	NB10000010	Fan Assembly		
12	NA20100014	Fan Filter		
13	NB10000008	Network Cable		
14	NB10000009	Brake Resistance Components		
15	NB10000013	Control Cabinet Connecting Socket		
16	NB10000037	Control Cabinet Wire Bundle		
17	NB70100001	ERB2E1K6 Wire Bundle		
18	NB70100003	ERB2E1K0M Wire Bundle		
19	NA41000021	Battery		
20	NA20100015	DCDC 48V Power Supply		
21	NA20600040	Limit Switch		

**Table 5-3** Tool

Serial Number	Part Number	Product Name	Product Specifications	Remark
1	NB80000010	Repair Tool Kit	set	
2	NA50100238	Antistatic Gloves 9"	SF0002	
3	NE00000009	Diagonal Pliers/Electronic Cutters 5"	70632	
4	NA50200045	Phillips Screwdriver	2.5*75(SD-081-P5)	
5	NE00000043	Phillips Screwdriver	3.0*100(SD-081-P6)	
6	NA50200124	Open End Wrench	5.5-7 3mm thick	
7	NA50200123	Open End Wrench	8-10 3mm thick	
8	NE00000063	Allen Key	80110CH 5#	
9	NE00000064	Allen Key	80112CH 6#	
10	NE00000044	Hexagon Screw Socket	19400-M5	

## Chapter 6 Robot Packaging


Packaging the robots and the controller for shipment.

---

Notices	<ul style="list-style-type: none"><li>• Please remove any external tools and external electrical connections before shipping;</li><li>• If a third-party product cannot be safely uninstalled, or if they are prohibited from performing the required post-repair testing, Elite Robots may refuse to ship it;</li><li>• Elite Robots does not assume any responsibility for the return of third-party goods;</li><li>• Make sure to pack the robot, controller, and teach pendant responsibly;</li><li>• The product of Elite Robots will always be shipped back with original Elite Robots package.</li></ul>
---------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

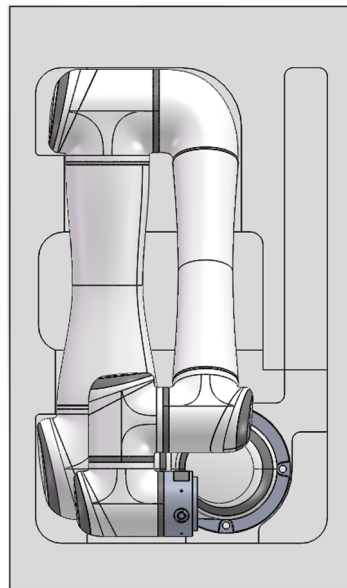
---

Users can pack the robot as follows:

- Find the packing program on the startup interface of the teach pendant (program name: EC\_66\_packing\_angle);
- Turn the key to the Play mode and select “Circle” in the left menu;
- Click the servo-enabled key (  ) on the right side of the teach pendant and the “open” button at the bottom, the program will automatically run and keep running until the it ends;
- Shut down, disconnect the main power supply and disconnect the robot arm from the control box;
- Unscrew the 4 screws;
- Put the unscrewed screws, the robot arm and the control box into the specified box and make sure the robot arm is in the correct position in the middle of the box.

Note:

- If the robot cannot run or the power supply is not available, the brakes for each joint can be manually released individually and the robot can be packaged accordingly. For the release of the brake, see Section 3.2.2 Brake Release.



**Figure 6-1** : Robot packaging diagram





# ALWAYS EASIER THAN BEFORE

## - Contact Us

Sales & Service: [contact@elibot.com](mailto:contact@elibot.com)  
Technical Support: [service@elibot.com](mailto:service@elibot.com)

## - Shanghai

Building 18, Lane 36,  
Xuelin Road, Shanghai

## - Suzhou

1F, Building 4,  
No 259 Changyang Street, Suzhou  
+86-400-189-9358  
+86-0512-83951898

## - Beijing

Room 1102, Building 6, No. 2,  
Ronghua South Road, Beijing

## - Shenzhen

Room 202, Building 1A,  
Hangkong Road, Shenzhen



WeChat  
Official Account