Monarch
by INOVANCE

FORWARD, ALWAYS PROGRESSING

NICE3000^{new} Series
Integrated Elevator Controller
Troubleshooting Guide

Industrial Automation | Intelligent Elevator | New Energy Vehicle | Industrial Robot | Rail Transit

Data code 19011979 B00

Preface

Introduction

The controller is a world-leading intelligent control system that integrates computer, automatic control, network communication, and motor vector drive technologies. Monarch is a proprietary elevator product brand of Inovance.

This guide covers maintenance, part replacement , troubleshooting and so on. Read this guide carefully before using the product, and keep it properly for future maintenance reference.

It has the following major features:

Advanced Technology

- Distance-based direct travel ride, curves generated automatically
- Group control of up to 8 elevators based on the fuzzy control theory
- Multi-CPU redundancy control and integration of advanced CANbus, Modbus, and IoT communication technologies
- Built-in real-time clock, which provides time-based services for intelligent management
- Flexible emergency rescue schemes
- Automatic identification of short floor
- UCMP and braking force detection

Ease of Use

- Compact structure for small machine room or machine-room-less design
- Easy functional parameter setting for convenient commissioning
- Keypad equipped for easy inspection, maintenance and commissioning
- Load cell auto-tuning with any weight
- Multiple commissioning tools, including PC host computer software, operating panel, and Monarch app
- Automatic balance coefficient detection and slip amount test

Greater Safety and Reliability

- Multiple safety protections in line with the GB/T7588.1/2-2020 standard
- Fault-tolerant design
- Fault troubleshooting to minimize accidents (including elevator bottom-clashing or top-hitting) to ensure safe running
- Advanced drive system, high adaptability to varied environmental conditions and great resistance to power grid fluctuation, dust, heat and thunder impacts
- Dual-chip control of running and brake functions

Riding Comfort

- No-load-cell technology or special load cell compensation device for startup compensation
- High-performance vector control for excellent motor performance and riding comfort

Cost-efficiency

- High integration into the compact structure for reduced peripheral wiring, great cost-efficiency and reliability
- Use of CANbus and Modbus communication for fewer traveling cables
- Flexible modular optional parts
- Parallel connection easily implemented using two wires (no need for extra group control board)

More Information

Document name	Data code	Description
NICE3000^{new} Integrated Elevator Controller System Design and Selection Guide	19011660	It covers the system components, technical specifications, dimensions, options selection, common EMC problems handling and certifications and standards.
NICE3000^{new} Integrated Elevator Controller Installation and Commissioning Guide	19011978	It covers the installation (pre-installation preparation and mechanical and electrical installation) and system commissioning (tools and fault handling).
NICE3000^{new} Integrated Elevator Controller Function Guide	19011634	It covers the functional parameters, including parameter list, parameter description, application, typical functions and schemes.
NICE3000^{new} Integrated Elevator Controller Troubleshooting Guide	19011979	It covers maintenance, part replacement , troubleshooting and so on.

Revision History

Date	Version	Change description
June 2022	B00	• Upgrade the product to meet new national standard. • Upgrade the front and back covers.
October 2021	A00	First issue

Acquisition

This guide is not in the scope of delivery. If necessary, you can download the PDF file in the following way:

Visit *www.inovance.com*, click Download under Support and enter a keyword to search.

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Safety Instructions

Safety Disclaimer

- Before installing, using, and maintaining this equipment, read the safety information and precautions thoroughly, and comply with them during operations, and comply with them during operations. To ensure the safety of humans and equipment, follow the signs on the equipment and all the safety instructions in this user guide. Failure to comply may result in severe personal injuries or even death or equipment damage.
- "CAUTION", "WARNING", and "DANGER" items in the user guide do not indicate all safety precautions that need to be followed; instead, they just supplement the safety precautions.
- Use this equipment according to the designated environment requirements. Damage caused by improper usage is not covered by warranty.
- Inovance shall take no responsibility for any personal injuries or property damage caused by improper usage.

Safety Levels and Definitions

DANGER	Indicates that failure to comply with the notice will result in severe personal injuries or even death.
WARNING	Indicates that failure to comply with the notice may result in death or severe personal injuries.
CAUTION	Indicates that failure to comply with the notice may result in minor or moderate personal injuries or equipment damage.

Safety Instructions

- Product illustrations in the user guide are sometimes shown without covers or protective guards. Remember to install the covers or protective guards as specified first, and then perform operations in accordance with the user guide.
- Product illustrations in this guide are for reference only. Actual products may vary.

Unpacking
WARNING • Do not install the equipment if you find damage, rust, or indications of use on the equipment or accessories. • Do not install the equipment if you find water seepage, component missing or damage upon unpacking. • Do not install the equipment if you find the packing list does not conform to the equipment you received.

- Check whether the packing is intact and whether there is any sign of damage, water seepage, dampness, and deformation.
- Unpack the package by following the unpacking sequence. Do not strike the package violently.
- Check whether there is any sign of damage or rust on the surfaces of the equipment and accessories.
- Check whether the package contents are consistent with the packing list.

Storage and Transportation

- Allow only qualified professional personnel to carry large-scale or heavy products by using professional loading and unloading device. Failure to comply will result in injuries or product damage.
- Before you vertically lift the product, confirm that structural components of the product such as the front cover and terminal block have been firmly fixed with screws. Failure to comply will result in component drop-off, causing personnel injuries or product damage.
- Never stand or stay below the product when it is lifted by hoisting device.
- When you hoist the product with a steel rope, hoist it at even speed stably to protect the product against vibration or impact. Do not turn the product or hoist the product for a long period. Failure to comply may result in personal injuries or damage to the device.

- Handle the equipment with care during transportation and mind your steps to prevent personal injuries or equipment damage.
- When carrying the equipment with bare hands, hold the equipment casing firmly with care to prevent parts from falling. Failure to comply may result in personal injuries.
- Store and transport this product in strict accordance with the storage and transportation requirements. Failure to comply may result in damage to the product.
- Do not store or transport the equipment in environments exposed to water splash, rain, direct sunlight, strong electric field, strong magnetic field, and strong vibration.
- Avoid storing this product for more than three months. Long-term storage requires stricter protection and necessary inspections.
- Pack the equipment strictly before transportation. Use a sealed box for long-distance transportation.
- Never transport the equipment with other equipment or materials that may harm or have negative impacts on this equipment.

Installation

- Installation must be carried out by the specialists who have received the necessary electrical training and understood enough electrical knowledge.

- Thoroughly read the safety instructions and user guide before installation.
- Do not install this equipment in places with strong electric or magnetic fields.
- Before installation, ensure that the installation position has sufficient mechanical strength to support the weight of the device. Failure to comply will result in a mechanical danger.
- To avoid electric shock, do not wear loose clothes or accessories.
- When this equipment is installed in a cabinet or final equipment, use a cooling device (such as a fan or air conditioner) to cool the environment down to the required temperature. Failure to comply may result in equipment over-temperature or a fire.
- Do not retrofit this equipment.
- Do not fiddle with the bolts used to fix equipment components or the bolts marked in red.
- When this product is installed in a cabinet or terminal device, protection measures such as a fireproof enclosure, an electrical enclosure, or a mechanical enclosure must be provided. The IP rating must meet IEC standards and local laws and regulations.
- Before installing devices with strong electromagnetic interference, such as a transformer, install a shielding device for the equipment to prevent malfunction.
- Install the equipment onto flame retardant materials, such as metal. Keep the equipment away from combustible objects. Failure to comply will result in a fire.

- During installation, use a piece of cloth or paper to cover the top of the product to prevent metal chippings, oil, and water from entering into the product when drilling holes. Failure to comply will cause product malfunctions. After installation, remove the cloth or paper for effective ventilation and cooling.
- If the device running at a constant speed begins to run at variable speeds, resonance may occur. In this case, install the vibration-proof rubber under the motor frame or use the vibration suppression function to reduce resonance.

Wiring

- Equipment installation, wiring, maintenance, inspection, or parts replacement must be performed by only professionals.
- Before wiring, cut off all the power supplies of the equipment. Wait as specified on the product warning sign before further operations because residual voltage exists after power-off. Measure the DC voltage of the main circuit and make sure that it is below the safety voltage. Failure to comply will result in an electric shock.
- Never perform wiring, remove the product cover, or contact the PCB at power-on. Failure to comply will result in an electric shock.
- Check that the equipment is grounded properly. Failure to comply will result in an electric shock.

- Do not connect the input power supply to the output end of the equipment. Failure to comply can result in equipment damage or even a fire.
- When connecting a drive to the motor, make sure the phase sequence of the drive and motor are consistent to prevent motor reverse rotation.
- Cables used for wiring must meet cross sectional area and shielding requirements. The shield of the cable must be reliably grounded at one end.
- Fasten the terminal screws with the tightening torque specified in the manual. Insufficient or excessive tightening torque may result in overheat and damage of connecting parts, causing fires.
- Ensure that all cables are connected correctly. Cable sheath is not damaged, and no screw or washer is left inside the equipment. Otherwise, electric shock or equipment damage may occur.

- During wiring, follow the proper electrostatic discharge (ESD) procedure and wear an antistatic wrist strap. Failure to comply can result in damage to the equipment or internal circuits.
- In wiring the control circuit, use shielded twisted pair cable and connect the shield to the PE terminal. Otherwise, the equipment may not function properly.

Power-on

- Before power-on, check that the equipment is installed properly, the wiring is secure and the motor can be restarted.
- Before power-on, check that the power supply meets equipment requirements to prevent equipment damage or even a fire.
- After power-on, do not open the cabinet door or protective cover of the equipment. Do not touch any wiring terminals, or remove any part of the equipment at power-on. Failure to comply will result in an electric shock.

- Perform a trial run after wiring and parameter setting to ensure that the equipment operates safely. Failure to comply may result in personal injuries or equipment damage.
- Before power-on, ensure that the nominal voltage of the equipment is consistent with the power supply voltage. Improper power supply voltage will cause a fire.
- Before power-on, check that no one is near the equipment, motor, or other mechanical parts. Failure to comply may result in personal injuries or even death.

Operation

- Only qualified professionals are allowed to run the equipment. Failure to comply can result in injury or death.
- Do not touch any wiring terminals or remove any part of the equipment during operation. Failure to comply will result in an electric shock.

- Do not touch the equipment enclosure, fan, or resistor to sense the temperature. Failure to comply may result in burns.
- Prevent metal or other objects from falling into the device during operation. Failure to comply may result in a fire or product damage.

Maintenance

- Equipment installation, wiring, maintenance, inspection, or parts replacement must be performed by only professionals.
- Do not perform maintenance on the equipment with power ON. Failure to comply can result in the risk of electric shock.
- Before maintenance, cut off all power supplies of the device and wait for a period specified on the warning label of the device.
- When a PM motor rotates, its terminals will produce induced voltage even if the motor is powered off. Failure to comply will result in an electric shock.

- Perform routine and periodic inspection and maintenance on the equipment according to maintenance requirements and keep a maintenance record.

Repair

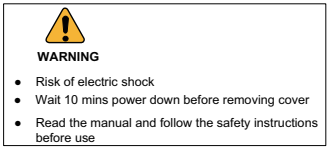
- Equipment installation, wiring, maintenance, inspection, or parts replacement must be performed by only professionals.
- Do not repair the equipment after power-on. Failure to comply can result in the risk of electric shock.
- Before device inspection and repair, cut off all power supplies of the device and wait for a period specified on the warning label of the device.

- Require for repair services according to the product warranty agreement.
- When the fuse is blown or the circuit breaker or earth leakage circuit breaker (ELCB) trips, wait as specified on the product warning sign before power-on or further operations. Failure to comply may result in personal injuries, equipment damage or even death.
- When the equipment is faulty or damaged, require professionals to perform troubleshooting and repair by following repair instructions and keep a repair record.
- Replace quick-wear parts of the equipment according to the replacement instructions.
- Do not operate damaged device. Failure to comply may result in personnel injuries or death or greater damage to the device.
- After replacing the equipment, perform wiring inspection and parameter settings again.

Disposal
WARNING • Dispose of retired equipment in accordance with local regulations and standards. Failure to comply may result in property damage, personal injuries, or even death. • Recycle retired equipment by observing industry waste disposal standards to avoid environmental pollution.

Safety Signs

For safe equipment operation and maintenance, comply with safety signs on the equipment, and do not damage or remove the safety labels. The following table describes the safety signs.

Safety Sign	Description
	• Read the user guide before installation and operation. Failure to comply will result in an electric shock. • Do not remove the cover at power-on or within 10 minutes after power-off. • Before maintenance, inspection, and wiring, cut off input and output power, and wait at least 10 minutes until the power indicator is off.

1 Routine Inspection Items

The influence of the ambient temperature, humidity, dust and vibration will cause the aging of the components inside the controller, which may cause potential faults or reduce the service life of the controller. Therefore, it is necessary to carry out daily and regular maintenance for the controller. Cycles and intervals of regular checks shall also be shortened especially in environments or situations where temperature is high, cabinet is lifted or lowered frequently, AC powers and load fluctuation exist, huge shake or impact occurs, or dust or metal powder or corrosives such as hydrochloric acid exist.

Check the following items every day to avoid deterioration in performance or product failure. Copy this checklist and sign after each inspection.

Item	Inspection	Solution	Inspected
Motor	Ensure that no abnormal sound or vibration exists.	• Ensure normal mechanical connection. • Ensure no motor phase loss. • Ensure that motor screws are tightened.	
Cooling fan	Ensure that the cooling fans of the controller and the motor work normally.	• Ensure normal cooling fan of the controller. • Ensure normal cooling fan of the motor. • Ensure unobstructed air filter. • Ensure that the ambient temperature is within the allowable range.	
Installation environment	Ensure normal power cabinet and cable trays.	• Ensure that the controller cable insulation is intact. • Ensure that the mounting bracket stands firm. • Ensure that the copper busbar and terminals are tightened and not corroded.	
Load	Ensure that the controller current does not exceed the controller rating and motor rating.	• Ensure correctly set motor parameters. • Ensure no motor overload. • Ensure no excessive mechanical vibration (typically below 0.6 g).	
Input voltage	Ensure normal power voltage between the main circuit and control circuit.	• Ensure that the input voltage is within the allowable range. • Ensure that there is no starting of heavy load.	

2 Regular Inspection Items

Perform periodic inspection in places where daily inspection is difficult. Always keep the controller clean. Clear away the dust especially metal powder on the surface of the controller, to prevent the dust from entering the controller. Clear the oil dirt from the cooling fan of the controller.

- To prevent electric shock, never perform inspection at power-on.
- Before inspection, cut off all power supplies and wait for at least 10 minutes before further operations to avoid danger caused by the residual voltage in the capacitor of the controller.

2.1 Periodic Inspection Checklist

Item	Inspection	Notes	Inspected
Whole unit	Ensure that there are no wastes, dirt, or dust on the surface.	• Confirm that the controller is powered off. • Use a vacuum cleaner (rather than directly touch components) to suck up wastes and dust. • Wipe the surface dirt difficult to clean with alcohol and wait until the surface becomes dry.	
Cables	• Ensure that no power cables or connections discolor. • Ensure that the insulation layer does not age or crack.	• Replace the cracked cable. • Replace the damaged terminals.	
Peripheral devices such as electromagnetic contactor	• Ensure that the contactor can be fully closed and has no abnormal sound when it operates. • Ensure that no short circuit, water stain, expansion or cracking occurs on any peripheral device.	• Replace the abnormal components.	

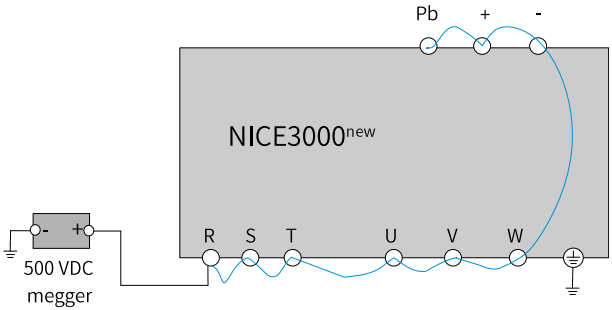
Item	Inspection	Notes	Inspected
Air vent	• Ensure that the air filter and heatsink are not clogged. • Ensure that the fan is not damaged.	• Clean the air filter. • Replace the fan.	
Control circuit	• Ensure that no control components are in poor contact. • Ensure that the terminal screws are tightened. • Ensure that the insulation of control cables is in good condition.	• Remove foreign objects on the surface of control cables and terminals. • Replace the damaged or corroded control cables.	

2.2 Main Circuit Insulation Test

Note

The high voltage (> 500 V) test need not be performed again because it has been completed before delivery.

- Before the test, remove the VDR screws and disconnect the VDR.
- Before measuring the insulation resistance with megger (500 VDC megger recommended), disconnect the main circuit cables from the controller. Do not use the insulation resistance meter to test the insulation of the control circuit. See the following figure.



- The measured insulation resistance must be greater than 5 MΩ.

2.3 Controller Drive Module

The NICE3000^{new} controller consists of an MCB and a drive unit, as shown in the following figure.

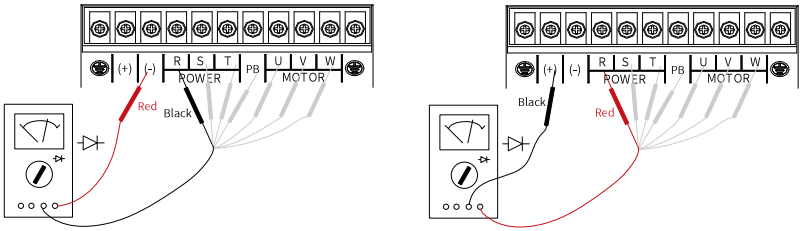
Figure 2-1 NICE3000^{new} controller

If overcurrent faults (E02, E03 and E04) occur, check whether the drive board is damaged with the following methods.

Methods:

- Check whether the lower bridge is conductive.
  Use the digital multimeter to test diodes. Have the red lead on the negative (–) side of the bus, and the black lead on R, S, T, U, V, W and PB.

  The drive board is normal for the same or similar R, S and T readings and the same or similar U, V and W readings (between 0.4 and 0.6). If it shows infinite values or short circuit, the drive board is damaged.



- Check whether the upper bridge is conductive.
  Use the digital multimeter to test diodes. Have the black lead on the positive (+) side of the bus, and the red lead on R, S, T, U, V, W and PB.

The drive board is normal for the same or similar R, S and T readings and the same or similar U, V and W readings (between 0.4 and 0.6). If it shows infinite values or short circuit, the drive board is damaged.

3 Part Replacement

3.1 Cooling Fan

Inspection Standard

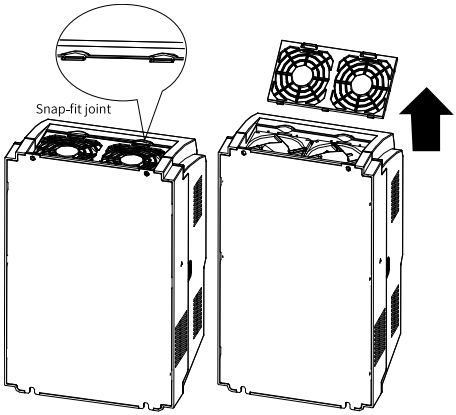
Ensure that there is no crack on the blade and no abnormal vibration noise upon startup. Also, ensure that the fan blades run properly.

Replacement Steps

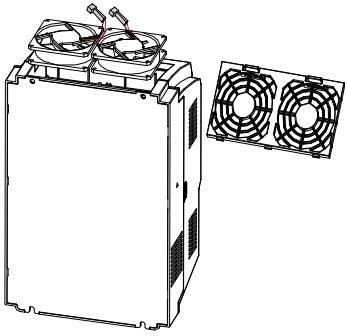
Keep the airflow direction upward after the replacement.

- Models of 37 kW and below: plastic structure
  Fan Removal

1. Press the snap-fit joint on the fan cover to remove the cover.



2. Pull the fan upwards and disconnect the power plug.



Fan Installation

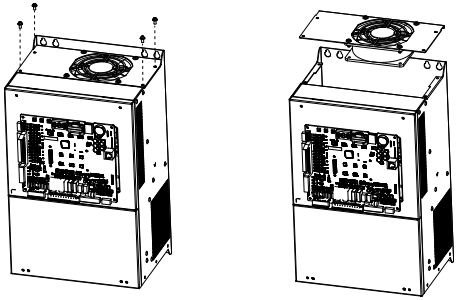
Reinstall the fan in reverse order:

1. Connect the fan power cable to the socket.

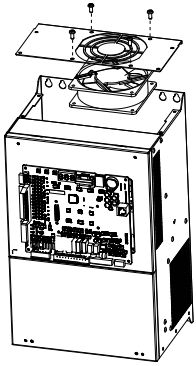
2. Put the fan into the controller and ensure mounting hole alignment. Pay attention to the direction arrow on the fan, and lay the fan in the specified direction to ensure upward air flow direction.
3. Engage the two fixing snap-fit joints on the fan cover with the grooves on the edge of the unit to secure the fan cover. Keep the airflow direction upward after the replacement.

- Models of 37 kW and below: sheet metal structure
  Fan Removal

1. Undo the fixing screws on the fan mounting plate, lift the fan assembly, and disconnect the power plug.



2. Remove the screws on the unit mounting plate with a screwdriver and the fan is removed.



Fan Installation

Reinstall the fan in reverse order:

1. Fix the fan on the fan mounting plate, and install the fan in a way that makes easy plugging of the fan power cable.
2. Keep the airflow direction upward after the replacement.

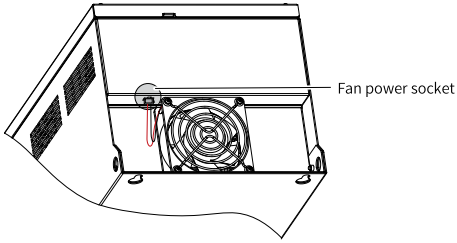
- Models of 45 kW and above

Note

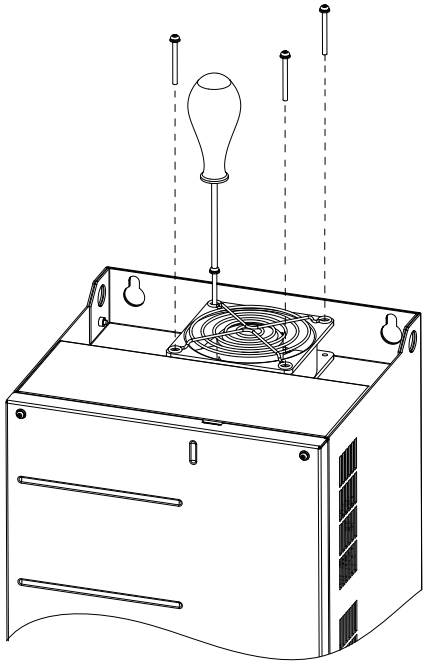
The number and location of cooling fans vary with product models, but the fans are removed and installed in the same way.

Fan Removal

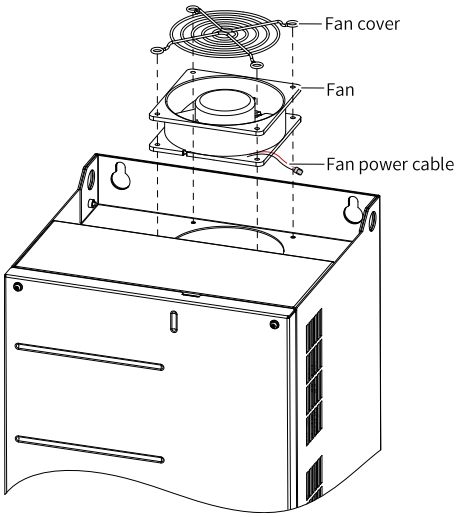
1. Disconnect the fan power plug (top view).



2. Remove the four fixing screws on the fan cover with a screwdriver.



3. Remove the fan cover and fan.



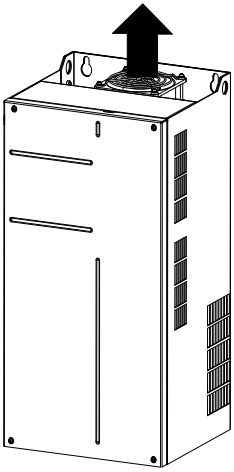
Fan Installation

1. Reinstall the fan in reverse order. Ensure the correct direction of the fan.

2. Align the mounting holes on the fan with the mounting positions inside the controller.

3. Keep the airflow direction upward after the replacement.

Notes: Keep the airflow direction upward



3.2 Electrolytic Capacitor for Filtering

Possible Cause

Input power supply in poor quality, high ambient temperature, frequent load fluctuations and electrolytic aging.

Judging Criteria

Check whether there is liquid leakage and whether the safety valve has projected. Measure the static capacitance and the insulation resistance.

Replacement

If electrolytic capacitor replacement is required, contact Inovance.

4 Part1 Questions

Chapters 4 and 5 mainly introduce the common questions and troubleshooting of common faults to facilitate commissioning and fault handling.

4.1 Synchronous Motor Angle-free Auto-tuning

Requirements

- The field power supply and wiring are normal, and the safety circuit and door lock circuit are connected.
- Meet inspection running conditions (The slow-down and limit switch signals are inactive).
- Encoder installation is completed.
- Level 3 faults or above are not reported (except faults E51 and E52). Fault E35 is resettable.
- The guide rail installation is completed for normal running.

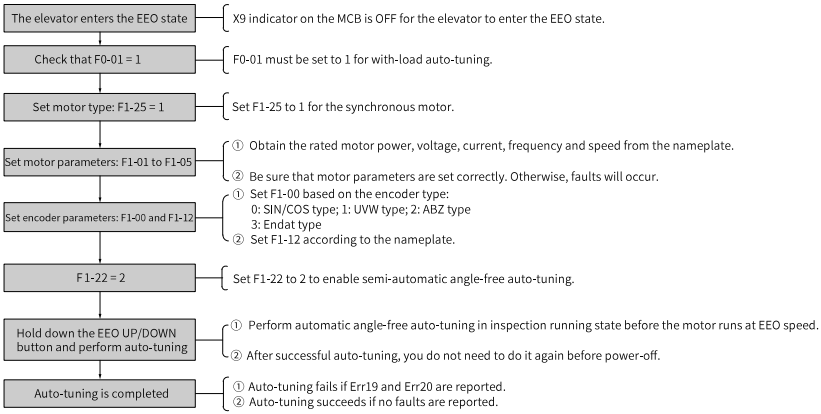
Parameter Setting

Parameter	Name	Description
F1-25	Motor type	1: Synchronous motor
F1-00	Encoder type	0: Sin/Cos encoder 1: UVW encoder 2: ABZ encoder 3: Endat encoder-ECN413/1313
F1-12	Encoder PPR	Refer to encoder nameplate
F1-01 to F1-05	Rated motor power/ voltage/current/ frequency/speed	These parameters are model dependent, and you need to manually input them according to the nameplate.
F0-01	Command source selection	1: Distance control
F1-22	Auto-tuning function selection	F1-22 = 2: Semi-automatic angle-free auto-tuning Perform auto-tuning at first-time running after power-off and power-on again, only in the inspection or EEO state. F1-22 = 6: Automatic angle-free auto-tuning Perform auto-tuning at first-time running after power-off and power-on again (without differentiating elevator states).

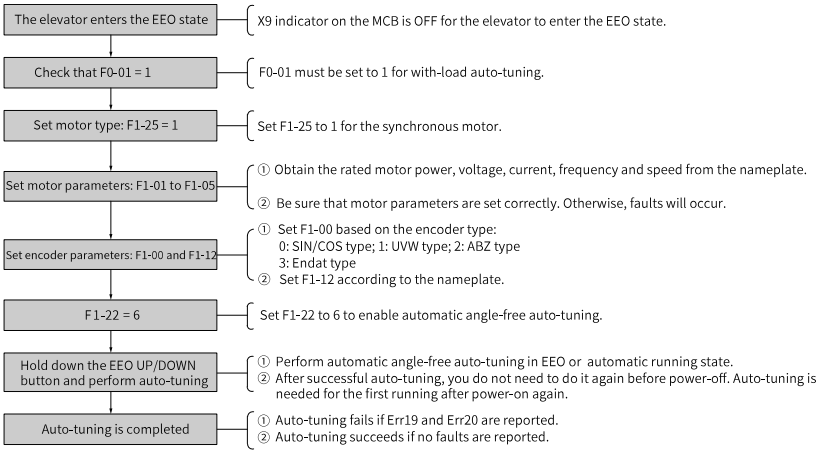
Operation Flowchart

Angle-free auto-tuning: When the wiring and parameters are correctly set on site, enable F1-22 (angle-free auto-tuning). Magnetic pole positions are detected for the first-time running of the elevator. There is no need for commissioning personnel to confirm angle on site.

- Semi-automatic angle-free auto-tuning



- Automatic angle-free auto-tuning



4.2 Hall Call Address and Display Setting

Question:

How to set hall call address?

The hall call address and the leveling plate are one-to-one relationship. It means that the hall call address is numbered according to the leveling plate numbered from bottom to top on the same floor. However, if a leveling plate is installed on the non-service floor, a hall call address must be reserved in advance.

How to set 3-digit floor number display, for example, display 17A when the car is on the 18th floor (the 18th leveling plate)?

Method 1: Set FE-18 to 4210 (42 displays 17 and 10 displays A).

Method 2: Set through the most significant bit and lowest bit combinations.

1. Set FE-18 to 0710 (to display 7) for the lowest 2 bits and set FE-52 to 1801 for the most significant bit (to display most significant bit 1 for HCB address 18).
2. Enable 3-digit floor number display: Set F8-14 bit0 to 1 and baud rate to 38400.
3. Power cycle the system.

Parameter Description

Param. No.	Param. Name	Setting Range		Default	Unit	Property
F8-14	Hall call communication setting	Set bit0 to 1 to enable 3-digit floor number display		/	/	/
FE-01	Floor 1 display	00: Display "0" 01: Display "1" 02: Display "2" 03: Display "3" 04: Display "4" 05: Display "5" 06: Display "6" 07: Display "7" 08: Display "8" 09: Display "9" 10: Display "A" 11: Display "B" 12: Display "G" 13: Display "H" 14: Display "L" 15: Display "M" 16: Display "P" 17: Display "R" 18: Display "-" 19: No display 20: Display "12" 21: Display "13"	22: Display "23" 23: Display "C" 24: Display "D" 25: Display "E" 26: Display "F" 27: Display "I" 28: Display "J" 29: Display "K" 30: Display "N" 31: Display "O" 32: Display "Q" 33: Display "S" 34: Display "T" 35: Display "U" 36: Display "V" 37: Display "W" 38: Display "X" 39: Display "Y" 40: Display "Z" 41: Display "15" 42: Display "17" 43: Display "19"	1901	/	☆
FE-02	Floor 2 display			1902	/	☆
FE-03	Floor 3 display			1903	/	☆
FE-04	Floor 4 display			1904	/	☆
FE-05	Floor 5 display			1905	/	☆
FE-06	Floor 6 display			1906	/	☆
FE-07	Floor 7 display			1907	/	☆
FE-08	Floor 8 display			1908	/	☆
FE-09	Floor 9 display			1909	/	☆
FE-10	Floor 10 display			100	/	☆
Floor 11 to floor 30 display				. . .		
FE-31	Floor 31 display			301	/	☆
FE-35	Floor 32 display			302	/	☆
FE-36	Floor 33 display			303	/	☆
FE-37	Floor 34 display			304	/	☆
FE-38	Floor 35 display			305	/	☆
FE-39	Floor 36 display			306	/	☆
FE-40	Floor 37 display			307	/	☆
FE-41	Floor 38 display			308	/	☆
FE-42	Floor 39 display			309	/	☆
FE-43	Floor 40 display			400	/	☆

Param. No.	Param. Name	Setting Range	Default	Unit	Property
FE-52	Most significant bit selection 1	0 to 4099	0	/	☆
FE-53	Most significant bit selection 2		/	/	☆
FE-54	Most significant bit selection 3		/	/	☆
FE-55	Most significant bit selection 4		/	/	☆
FE-56	Most significant bit selection 5		/	/	☆

4.3 Service Floor Setting

Questions

- How to set an elevator with 7 doors and 8 floors (1 to 8, but not land on floor 3)?
  Set F6-05 through the equation (F6-05 = 65535 – 2^2 = 65531).
- How to set an elevator with 4 doors and 3 floors (1 to 3, through-type door on floor 1 and door 1 open on floors 2 and 3)?
  Set FB-02 and FB-04 through the equations (FB-02 = 65535, FB-04 = 2^0 = 1).

Parameter setting

Parameter	Name	Description
F6-05	Service floor 1	0 to 65535 (floors 1 to 16)
F6-06	Service floor 2	0 to 65535 (floors 17 to 32)
F6-35	Service floor 3	0 to 65535 (floors 33 to 40)
FB-02	Service floor 1 of door operator 1	0 to 65535 (floors 1 to 16)
FB-03	Service floor 2 of door operator 1	0 to 65535 (floors 17 to 32)
FB-18	Service floor 3 of door operator 1	0 to 65535 (floors 33 to 40)
FB-04	Service floor 1 of door operator 2	0 to 65535 (floors 1 to 16)
FB-05	Service floor 2 of door operator 2	0 to 65535 (floors 17 to 32)
FB-19	Service floor 3 of door operator 2	0 to 65535 (floors 33 to 40)

The parameter calculation above is based on decimal number and binary number conversion.

Method to convert binary to decimal number:

- Take F6-05 as an example. F6-05 = 65535 = 2^0+ 2^1 +..... + 2^{15}= 1 +2 +4 +8 +..... +32768, where N in 2^N corresponds to the Nth + 1 leveling plate from bottom to top. If F6-05 = 3 = 2^0 + 2^1, it indicates the first and second leveling plate for elevator running from bottom to top.
- F6-20 (time-based floor service), F5-25 (CTB input type), and F6-40 (program function selection) bits are calculated in the same method as above.
- The service floor can be set easily through the Monarch app. On the app, toggle the non-service floor directly to OFF.

4.4 Elevator Lock and Timed Lock Setting

Question:

1. How to connect the elevator lock signal?
   - Connect the elevator lock signal with the hall call board (R1/U1 series: JP1; D630/R600 series: ST).
   - Connect the elevator lock signal with the MCB, and set the parameter to 28 (NO) and 60 (NC).
     For example, connect to the MCB input terminal X22, set F5-22 to 28 (for NO switch) and set F5-22 to 60 (for NC switch).
2. How to set the elevator lock time from 23:00 to 6:00 in an office building?
   - Enable the timed elevator lock function and set F6-40 bit5 to 1. Set F6-38 to 23: 00 (start) and F6-39 to 6: 00 (end).
   - Set elevator lock floor in F6-04.
   - The time of the control system should be set according to the local time, set the actual date and time in F9-03 to F9-07.

Parameter Description

Parameter	Name	Description	Unit
Group F5	Definition	28/60: Elevator lock signal NO/NC	/
F6-40	Program function selection	Timed elevator lock enabled by setting bit5 to 1	/
F6-38	Elevator lock start time	00.00 to 23.59	HH.MM
F6-39	Elevator lock end time	00.00 to 23.59	HH.MM
F6-04	Elevator lock floor	F6-01 to F6-00	/
F9-03	Year	2000 to 2100	YYYY
F9-04	Month	01 to 12	MM
F9-05	Day	1 to 31	DD

Note

For NICE3000^{new} controller, you can set F6-04 to any floor as the elevator lock floor. That is, F6-04 may not be strictly consistent with the HCB address.

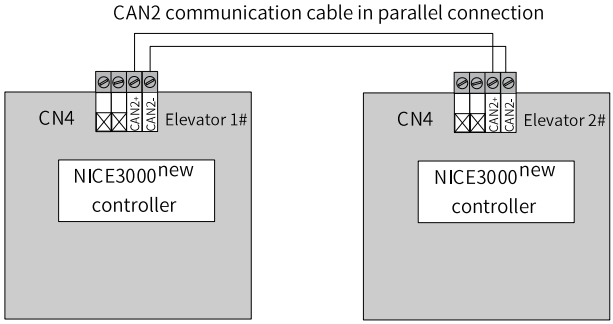
4.5 Two NICE3000^{new} Controllers in Parallel Control

Parameter Setting

Parameter	Name	Description
F6-07	Number of controllers in parallel control	2 for the two elevators
F6-08	Elevator No.	1 for the master elevator and 2 for the slave elevator
F6-09	Program selection	Parallel/group control through CAN2 by setting bit3 to 1

- Skip the CTB setting if CAN2 is used for parallel control.
- Leveling plates must be installed for both elevators on the same floor. Even if one of the elevators does not stop (by setting F6-05), the leveling plate must be installed on this floor too.
- The HCB address is the same as the leveling plate No. on the same floor.
- The top floor (F6-00) and bottom floor (F6-01) take the lowest floor as the reference.

Wiring Method



Note

When the MCB of NICE3000^{new} is used with NICE3000 drive board, CAN2 port is invalid and the parallel connection can only be made through serial communication (the same way as the parallel connection of two NICE3000 controllers).

4.6 NICE3000 and NICE3000^{new} Parallel Connection

Parameter Setting

Parameter	Name	Description
F5-30	Y5 terminal definition	14 for the two elevators
F6-07	Number of elevators in group control	2 for the two elevators
F6-08	Elevator No.	1 for the master elevator and 2 for the slave elevator
F6-09	Program function selection	bit3 = 1 bit4 = 1 (Set for NICE3000^{new} only)

- CTB setting: For J2 jumper on the CTB, short J2 OFF on the master elevator CTB and short J2 ON on the slave elevator CTB. For SW DIP switch on the CTB, set the first bit of SW1 on the master elevator CTB to OFF and the first bit of SW1 on the slave elevator CTB to ON.
- Leveling plates must be installed for both elevators on the same floor. Even if one of the elevators does not stop (by setting F6-05), the leveling plate must be installed on this floor too.
- The HCB address is the same as the leveling plate No. on the same floor.
- The top floor (F6-00) and bottom floor (F6-01) take the lowest floor as the reference.

Wiring Method

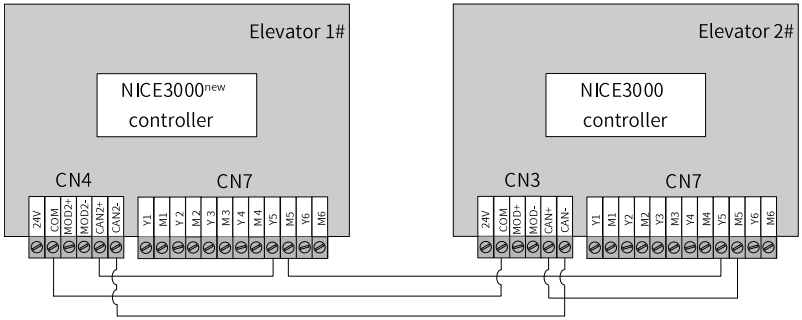


Figure 4-1 NICE3000 and NICE3000^{new} parallel connection on the MCB

Example:

Two NICE3000^{new} controllers are in parallel connection. The elevator 1 is for floors B1 to 4 and lands on floors B1, 1, 2, and 3. The elevator 2 is for floors 1 to 4 and lands on floors 1, 3, and 4.

Corresponding parameter settings are as follows.

		Elevator 1		Elevator 2	
Number of elevators in group control (F6-07)		2		2	
Elevator No. (F6-08)		1		2	
User floor	Physical floor	HCB address	HCB display	HCB address	HCB display
B1	1	1	FE-01 = 1101	Not applicable	/
1	2	2	FE-02 = 1901	2	FE-02 = 1901
2	3	3	FE-03 = 1902	Non-stop floor, no hall call, but leveling plate required	FE-03 = 1902
3	4	4	FE-04 = 1903	4	FE-04 = 1903
4	5	Non-stop floor, no hall call	–	5	FE-05 = 1904
Bottom floor of the elevator (F6-01)		1		2	
Top floor of the elevator (F6-00)		4		5	
Service floors (F6-05)		65535		65531 (not stop at physical floors 1 and 2)	

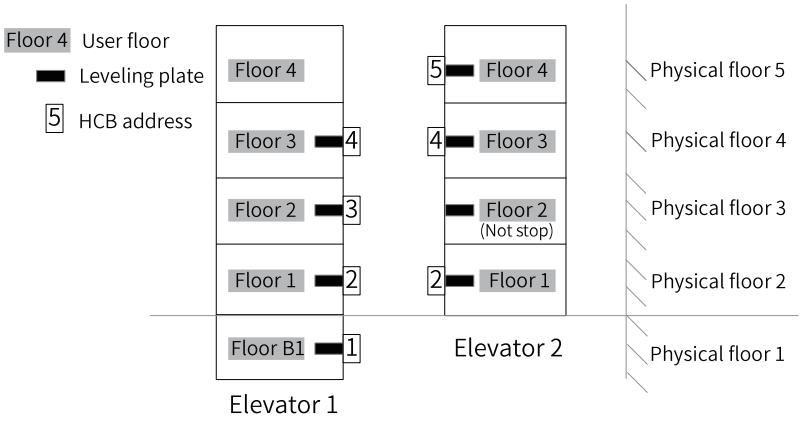


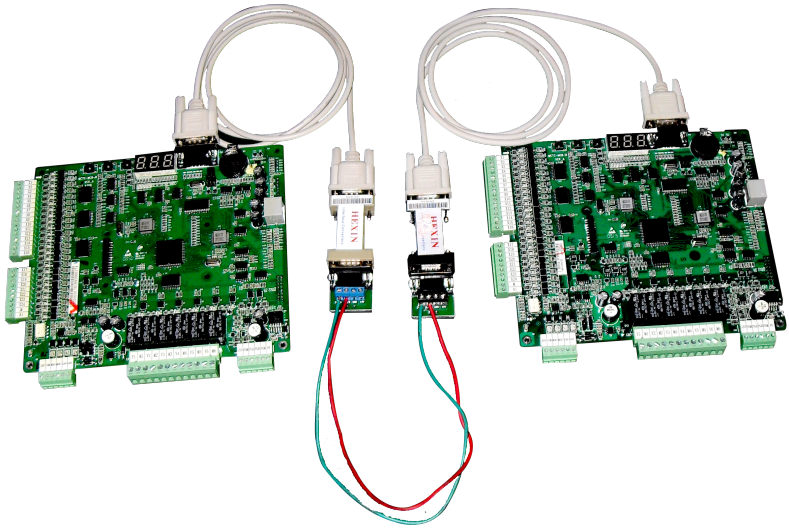
Figure 4-2 Floor layout of two elevators in parallel connection

Parallel Connection Through RS485 Communication Protocol

This scheme is for two NICE3000 controllers (model NICE-L-A or NICE-L-B), and it uses RS485 communication protocol through the MCB monitoring port.

In this process, two additional converter interfaces are needed for RS232 communication conversion to RS485 (UOTEK mini RS232 to RS485 converter model: UT-2201).

For actual use, connect the converter with CN2 of the MCB and then connect the two signals (T/R+, T/R-) at the RS485 end of the converter. Set F6-09 to 4 (bit2 = 1).



The following parameters need to be set.

Parameter	Indication	Setting range	Setting in parallel connection
F6-07	Number of elevators in group control	1 to 8	2
F6-08	Elevator No.	1 to 2	Master elevator: 1 Slave elevator: 2
F6-09	Port selection for parallel connection	1 to 4	4 (bit2 = 1)

Product: RS232 to RS485 converter

Model: UT-2201

You can choose DB9 extension cable for easy installation.

4.7 Fire Linkage

Question 1

How to set the elevator fire fighting linkage system?

Method 1: Connect the fire emergency signal with the standby input terminal on the MCB and set the corresponding parameters to 11 and 43 for fire emergency signal NO/NC setting. Connect the feedback signal with the output terminal on the MCB and set the Y terminal to 4 for fire emergency floor arrival signal feedback.

Method 2: Connect the fire emergency signal with the display board JP1 or JP2 pins 2 and 3 or XF terminal. Connect the feedback signal with the output terminal on the MCB and set the terminal to 4 for fire emergency floor arrival signal feedback.

Parameter Description

	Parameter	Name	Description
NICE3000	F6-03	Fire emergency floor	F6-01 to F6-00
NICE3000^{new}	F6-03	Fire emergency floor	F6-01 to F6-00
	F6-44	Fire emergency function selection	bit3: Arrival gong output in the inspection or fire emergency state bit4: Multiple car calls registered in the fire emergency state bit5: Retentive at power failure in the fire emergency state bit6: Door close by holding down the door close button bit7: Reserved bit8: Door close at car call registration bit9: Display floor number upon hall call in the fire emergency state bit10: JP22 used for forced running input in the firefighter state bit11: Exiting the firefighter state upon arrival at fire emergency floor bit12: Not clearing car calls at reverse door open in the firefighter state bit14: Door open by holding down the door open button bit15: Automatic door open at fire emergency floor
	FD-07	HCB: JP1 input	2/34: Fire emergency signal NO/NC
	FD-08	HCB: JP2 input	

Note

For NICE3000^{new} controller, you can set F6-03 the fire emergency floor in consistence with the HCB address (fire emergency signal).

Question 2

How to set the elevator firefighter signal?

Method 1: Connect the firefighter signal with the standby input terminal on the MCB and set the corresponding parameters to 23 and 55 for firefighter signal NO/NC setting.

Method 2: Connect the firefighter signal with JP24 pins 2 and 3 of the car call board MCTC-CCB.

Parameter Description

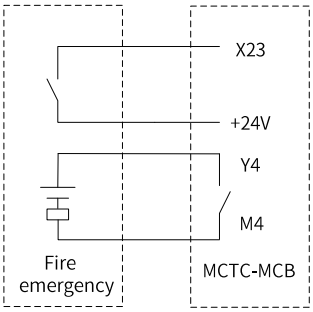
Parameter	Name	Description
Group F5	Input terminal definition	23/55 (Firefighter signal NO/NC)

Question 3

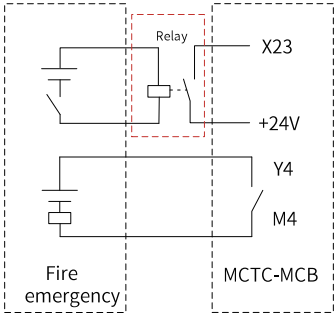
How to set the fire fighting linkage system?

Connect the fire emergency signal with the standby input terminal on the MCB and set the corresponding parameters to 11 and 43 for fire emergency signal NO/NC setting. Connect the feedback signal with the output terminal on the MCB and set the terminal to 4 for fire emergency floor arrival signal feedback.

The fire emergency settings involve active (24 V power supply) signal and passive (digital) signal. Add fire relays for the active signal to protect the input terminals from being burned. The following figures show connection details.



Passive (digital) signal wiring



Active signal wiring

Parameter Description

Parameter	Name	Description
Group F5	Input terminal definition	11/43 (Fire emergency signal NO/NC)
Group F5	Output terminal definition	4 (Fire emergency floor arrival signal feedback)

4.8 How to Distinguish NICE3000 from NICE3000^{new}

Item	NICE3000	NICE3000^{new}
Controller model	NICE-L-A supports asynchronous motor NICE-L-B supports synchronous motor	NICE-L-C integrates synchronous and asynchronous motor
MCB model	MCTC-MCB-B	MCTC- MCB-C integrates synchronous and asynchronous motor
I/O port	24 input ports and 6 output ports	24 input ports, 6 output ports, and 4 high-voltage input ports
CANbus channel	1	2: CAN and CAN2 (for parallel connection)
Encoder interface	Yes and the asynchronous motor requires no PG card	No and the asynchronous motor requires MCTC-PG-A2 card
USB port	No	Yes: Commissioning using the mobile phone
MODbus channel	1: Hall call communication	2: Hall call communication and IoT

Note

- The three high-voltage input terminals of NICE 3000^{new} are connected with safety circuit and door lock circuit, and the power supply is 110 VAC.
- An extra set of CANbus channels of NICE3000^{new} over NICE3000 is for parallel/group control.
- For NICE3000 series, MCTC-MCB-B1 is used for synchronous motors and MCTC-MCB-B2 is for asynchronous motors.

4.9 MCB Replacement

Perform commissioning after a new MCB is used.

1. Set parameters in groups F0 and F1 according to the motor nameplate.
2. Set the input and output parameters (group F5) according to the electrical schematic diagram.
3. Perform motor auto-tuning, shaft auto-tuning, and commissioning on other functions again.

Question:

Question 1: How to replace the MCB without motor auto-tuning again?

1. Manually input parameters in groups F0, F1, and F5 of the original MCB.

2. Change F1-06 and F1-08 and set F0-01 to 0 (operating panel control).
3. Power off and on and restore F0-01 to 1 (distance control).

Question 2: What are the things that need your attention in replacing NICE3000 MCB with NICE3000^{new} MCB?

1. Wiring: Do not connect the pin5 of NICE3000^{new} MCB.
2. Parameter: Set the motor type of F1-25 (1 for synchronous motor and 0 for asynchronous motor).
3. For use with asynchronous motor, it requires PG card of MCTC-PG-A2.
4. Use NICE3000 mode for parallel connection if CAN2 terminal can not be used.

Question 3: How to handle the following problems in replacing NICE3000 MCB with NICE3000^{new} MCB (use with asynchronous motor)?

1. Interchange the AB phase for severe jitter or fault E38.
2. Interchange any two phases of UVW for fault E10 or E16.

Question 4: How to handle faults E51, E52 and E57 (communication with CTB, HCB and drive board) after replacing the MCB?

1. Check for correct wiring of the CTB, HCB and drive board.
2. They may be caused by communication protocol incompatibility. Contact the elevator manufacturer for part replacement.

5 Part2 Common Faults: Symptom

5.1 No Display at Power-on

Symptom

After the user powers on the system, the LED segment displays show nothing.

Fault Handling

Symptom	Possible cause	Handling	Solution	Notes
No display at power-on	The controller out of power	Measure whether the input voltage is normal.	Check the circuit and input power supply.	①
		Check whether the inlet contactor closes.	Ensure energized safety circuit, normal transformer power supply, and closed inlet contactor.	/
	MCB power supply abnormal	Use a multimeter to measure pin 4 and pin 5 of J4.	Replace or repair controller drive board.	②

Note

See contents below for details about ①②.

Detailed Handling

① Input voltage

Take the input three-phase 380 V as an example.

1. Remove the lower access cover of the controller and expose main circuit terminals.
2. Use a multimeter to measure the main circuit voltage of the three-phase input (RST) power source.

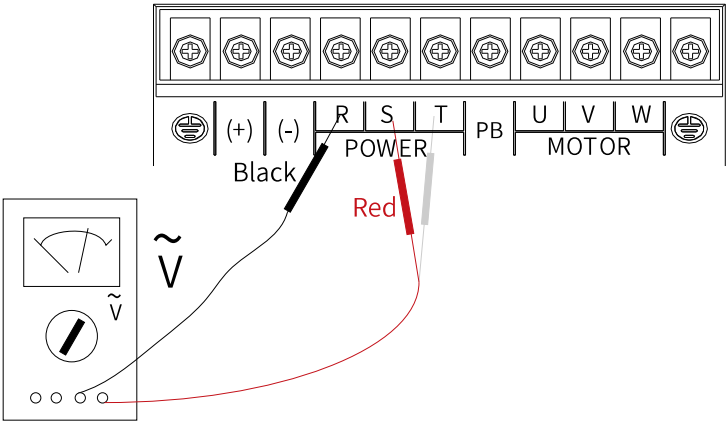


Figure 5-1 Measuring the three-phase input voltage

Check whether the measured input voltage is 220 V if the nominal input voltage is 220 V.

② 5 VDC measurement

1. Unplug the J4 terminal block on the MCB back, and ensure that the other end is well connected with the drive board J3;
2. Use a multimeter to measure the voltage between pin 4 and pin 5 of J4. Replace or repair controller drive board if the value is below 4.8 V.

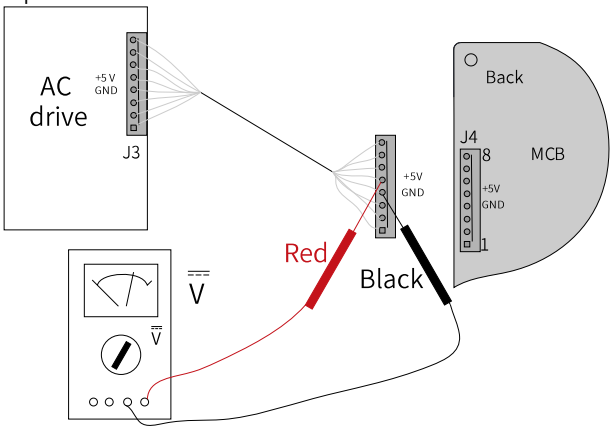


Figure 5-2 Measuring the MCB power supply voltage

5.2 Abnormal Display at Power-on

Symptom

After the user powers on the system, the LED segment displays "888" or is garbled.

Fault Handling

Symptom	Possible cause	Handling	Solution	Notes
Abnormal display at power-on	Jumper	Check the J9 and J10 positions.	Short the J9 pin 2 and pin 3. You do not need to short J10 pins.	①
	Hardware	Check whether the MCB is damaged.	Replace the MCB.	/

Note

See contents below for details about ①.

Detailed Handling

① Jumper position

1. Ensure that J10 pins are not shorted.
2. Short the J9 pin 2 and pin 3.

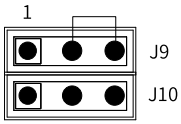


Figure 5-3 Shorting connection

5.3 Elevator Not Running in Inspection State

Symptom

Press the inspection up/down switch buttons and the elevator does not run.

Fault Handling

Symptom	Possible cause	Handling	Solution	Notes
Elevator not running in inspection state	Door lock circuit disconnected	Check whether the door lock circuit is conductive.	Wire correctly according to the schematic diagram.	①
	Parameter setting error	Check whether it is the distance control mode.	Set F0-01 to 1.	/
		Check whether the door lock feedback parameter setting is correct.	• If the car door lock and landing door lock are detected at high voltage, set F5-38 to 5, F5-39 to 5 and F5-05 to 0. • For low-voltage detection, set F5-38 to 0, F5-39 to 0 and F5-05 to 5.	/
	Inspection state invalid	Check FA-12. If the parameter begins with 00, it indicates inspection state. If not, it is not in inspection state.	Get the disconnect switch in inspection state.	②
	Inspection up and down signal invalid	Check whether inspection up and down signals are valid by observing F5-34 LED segments.	Replace inspection up and down switch buttons.	③
	Door not closed in inspection state	Check whether the light curtain is active.	Negate the value of F5-25 bit0 (light curtain 1) or replace the light curtain.	④
		Check whether the door operator control system wiring is correct.	Check the door operator control system wiring according to the electrical schematic diagram.	/
	Limit switch	Check whether the limit switch is functioning normally.	Replace the limit switch.	/
	Y (Output relay) operating voltage abnormal	Measure whether the 24 VDC input of MCB CN3 terminal is normal.	Replace the 24 VDC power supply box.	⑤

Note

See contents below for details about ①②③④⑤.

Detailed Handling

① Door lock circuit

1. Cut off the power supply to ensure that the tested circuit is not energized.
2. Set the digital multimeter to ohm level and measure whether the car door lock and landing door lock circuits are conductive. If the measured value is infinite, it means the line is not conductive. Connect as per the following figure.

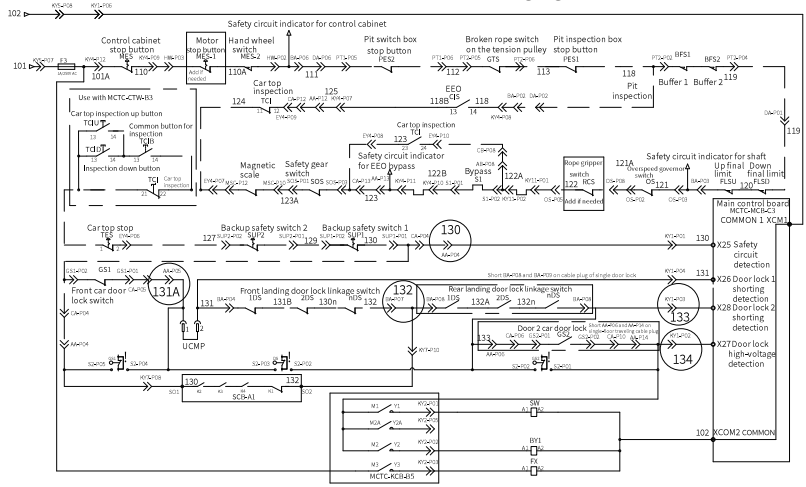


Figure 5-4 Door lock circuit and detection

② Inspection state

1. LED segments are numbered 5, 4, 3, 2 and 1 in turn from left to right. Monitor whether the No.5 and 4 segments of FA-12 are 00. If not, the inspection state is invalid.
2. Ensure that the inspection position on the disconnect switch is labeled correctly. Then get the disconnect switch in inspection state.

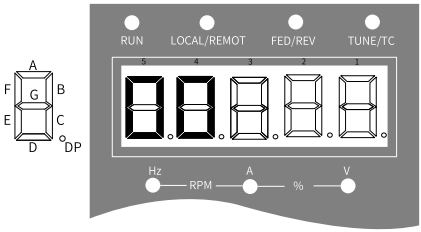
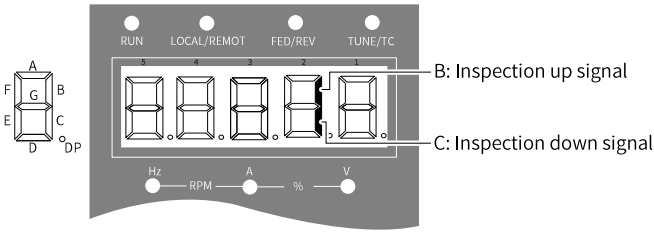


Figure 5-5 Inspection state invalid display

③ Inspection up and down signals

1. Press the inspection up and down switch buttons. If the up and down signal indicators on MCB are off, it indicates invalid inspection up and down signals.
2. Monitor whether the No.2 B and C segments of F5-34 are flashing. If not, it indicates invalid inspection up and down signals and switch button replacement is needed.

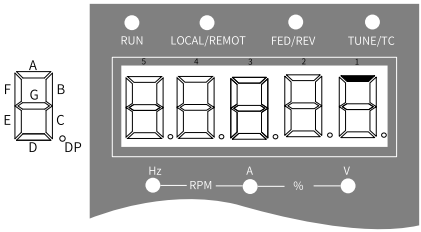


④ Light curtain signal

1. Parameter setting for light curtain being not blocked:
   If X1/X2 is on, it means that the light curtain signal is an NC input, and bit0/bit1 of F5-25 is set to 0

   If X1/X2 is off, it means that the light curtain signal is an NO input, and bit0/bit1 of F5-25 is set to 1.

2. Parameter F5-35: LED segments are numbered 5, 4, 3, 2 and 1 in turn from left to right. Monitor whether the No.1 A segment of F5-35 is on.
3. If the CTB X1/X2 input has an on and off change, and the F5-35 segments remain unchanged before and after the light curtain is blocked, it indicates that the CTB is faulty. If both the CTB and F5-35 remain unchanged, it indicates that the light curtain is faulty.



⑤ 24 VDC input of MCB CN3 terminal

Use a multimeter to measure the voltage level of 24V-COM at MCB CN3 terminal. If the measured value is lower than 24 V (–15%), it indicates that the input 24 VDC voltage is abnormal. Replace the 24 VDC power supply box.

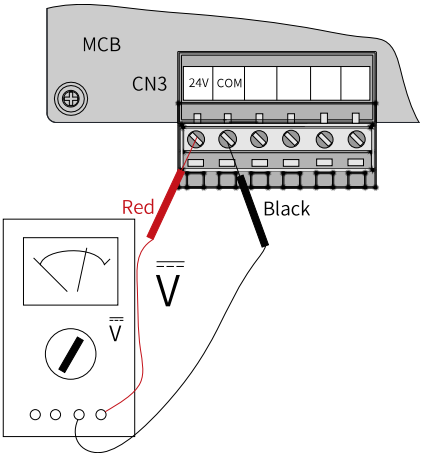


Figure 5-6 Measuring the MCB input voltage

5.4 Inspection Running Reversed

Symptom

Press the inspection up button, but the elevator goes down (The elevator runs opposite to what the inspection command indicates).

Fault Handling

Symptom	Possible cause	Handling	Solution	Notes
Inspection running reversed	The inspection circuit is faulty	Check the inspection circuit	Wire correctly according to the schematic diagram	①
	Parameter setting error	Check whether the inspection up and down input signals match the parameter settings in group F5	Inspection signal NC: F5-09 = 40 Inspection up NO: F5-10 = 9 Inspection down NO: F5-11 = 10	/
	Right for machine room inspection button direction and opposite for the car top inspection button direction	Up and down buttons are labeled wrongly	Ensure correct labeling of the buttons	/
	Running direction reversed	Ensure that causes above are eliminated	Reverse F2-10 values (0 and 1) to change the elevator running direction	/

Note

See contents below for details about ①.

Detailed Handling

① Checking the inspection circuit

1. Ensure that the X9 indicator on the MCB is off (Set F5-09 to 40 for inspection NC).
2. Press the up button and observe whether the inspection up signal indicator X10 on the MCB is on. If not, it shows that the inspection up circuit is abnormal. Perform correct wiring according to the following figure.
3. Press the down button and observe whether the inspection down signal indicator X11 on the MCB is on. If not, it shows that the inspection down circuit is abnormal. Perform correct wiring according to the following figure.

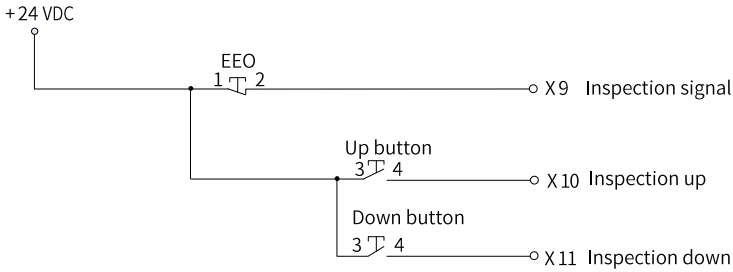


Figure 5-7 Inspection circuit diagram

5.5 Tripping During Operation

Symptom

Once the elevator starts running, the user's residual current device trips.

Fault Handling

Symptom	Possible cause	Handling	Solution	Notes
Tripping during operation	Model selection	Check whether the residual current value displayed on the user's residual current device nameplate is too small.	A device of above 200 mA is recommended.	/
	Application	Check whether one residual current device is used by multiple electrical equipment.	Advise the user to have a separate residual current device circuit for the elevator.	/
	Excessive leakage current of the integrated controller	Use a multimeter to detect the current value between the PE terminal of the controller and PE line of the power supply system for leakage current. See figure 1.	Install an EMC filter at the input side of the integrated controller.	/
			Wind the R, S and T lines with a magnetic ring.	①
			Wind the U, V and W lines with a magnetic ring.	/
			Use power lines with lower distributed capacitance or shorten the motor lines.	/
			Use the isolation transformer to power the integrated controller.	/
	Others	Check whether the wiring of the machine room on site meets the requirements.	Avoid parallel cabling to prevent interference.	/

Note

See contents below for details about ①.

Detailed Handling

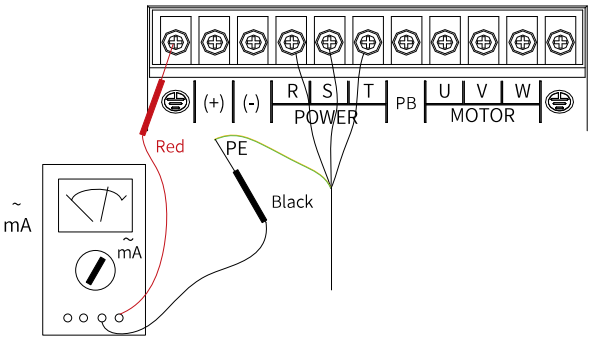


Figure 5-8 Leakage current detection

Use a multimeter to detect the current value between the PE terminal of the controller and PE line of the power supply system.

① Use of the magnetic ring

- See the following figure for the use of magnetic rings for power input cables and motor power cables.

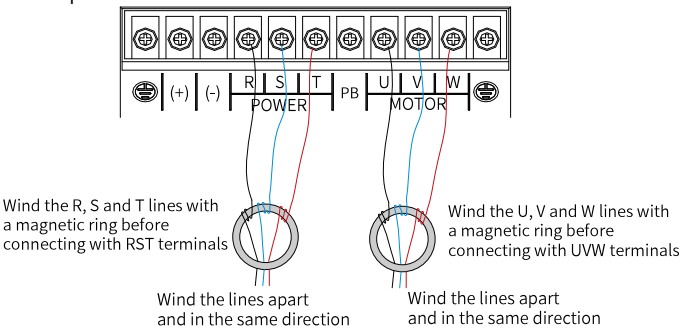


Figure 5-9 Use of magnetic rings for power input cables and motor power cables (three turns at least)

Use of the magnetic ring for power input cables first is recommended. Never wind the PE line with the magnetic ring.

- Magnetic rings of different specifications can be selected.

Figure 5-10 Three specifications of magnetic ring

Recommended magnetic rings:

Manufacturer model	Code	Dimensions (Outer diameter x Inner diameter x Thickness) (mm)
DY644020H	11013031	64 x 40 x 20
DY805020H	11013032	80 x 50 x 20
DY1207030H	11013033	120 x 70 x 30

5.6 No Automatic Elevator Running

Symptom

The elevator does not run automatically to respond to the registered hall calls.

Fault Handling

Symptom	Possible cause	Handling	Solution	Notes
No automatic elevator running	Door problems: • Door not closed • Door close limit not reached • Door lock circuit disconnected	Check whether the light curtain is active (F5-35).	Check the light curtain circuit and replace the light curtain if necessary.	①
		Check whether the overload signal is active (F5-35).	Check the load weighing device and replace the device if necessary.	
		Check whether the door close limit signal acts.	Check the door close limit signal circuit of the door operator. Change or adjust the relevant parameters.	
		Check whether the buttons are stuck.	Ensure that buttons for door open, car call, and hall call work well.	
		Check whether the door lock circuit is disconnected or loosely connected.	Ensure that it is in good condition.	
	Wrong elevator states	FA-12 monitors elevator states.	Ensure that the elevator in the normal state.	②
		Normal state		
		Attendant state		
		Fire emergency state		
		Elevator lock state		
		Direct travel ride with full-load		
	Full-load, direct travel ride, independent running signal action	Door opens and closes normally on the current floor. The elevator responds to car calls and does not respond automatically to hall calls for other floors.	Cancel the independent running, direct travel ride, and full-load signals through the operating panel.	/
	System fault state	Check whether the MCB reports fault that disrupts normal operation.	Handle the fault.	/

Note

See contents below for details about ①②.

Detailed Handling

① F5-35 state monitoring

See *" Appendix 1: Status Monitoring Parameters" on page 126* for more information.

② FA-12 state monitoring

See *" Appendix 1: Status Monitoring Parameters" on page 126* for more information.

5.7 No Door Open

Symptom

Before the elevator starts running, the door operator does not open the door with no fault or E53 reported.

Note

The door open limit signal is abnormal and the elevator lands on the wrong floor (Passengers in the landing zone on the right floor assume that the door does not open).

Fault Handling

Symptom	Possible cause	Handling	Solution	Notes
No door open	Door operator controller not executing door open	Short the input side door open command and common wire of door operator controller to confirm whether door operator executes door open.	Replace the door operator controller, perform commissioning and conduct tests.	①
	Wrong door operator controller and CTB wiring	Short car top board BM and B1 and check whether the door opens.	Wire correctly.	②
	No door open command output from the integrated controller	Check whether F7-05 is set to 1.	Set F7-05 to 0.	/
	No door open command output from CTB with E53 reported	When the MCB outputs door open command, use a multimeter to measure BM and B1 conductivity to confirm whether the relay is damaged.	Repair or replace the CTB.	③
	Elevator in firefighter operation state	Press the door open button. If the door opens and closes upon release automatically, it indicates firefighter operation state.	Turn the firefighter's key switch to disable the firefighter operation state on the operation box. Set F6-44 bit14 to 0 (NICE3000^{new}).	/
	Foreign objects blocking door sill Door machinery blocking	After cutting off power supply, open the door manually and check whether mechanical blocking exits.	Clean up the foreign objects in the door sill. Adjust the mechanical construction.	/
	Door open limit signal abnormal	Check whether the door open/ close limit signal is consistent with the actual door state through monitoring F5-35.	Set the F5-25 NO/NC feature according to field wiring or drawings.	/
	Wrong floor display	Check the consistency between the car position and floor display.	See *"5.15 Wrong Floor Display" on page 73* for more details.	/

Note

See contents below for details about ①②③.

Detailed Handling

① Door operator controller door open command execution

Short the input side door open command and common wire of door operator controller to confirm whether door operator executes door open. If not, replace or debug the door operator controller.

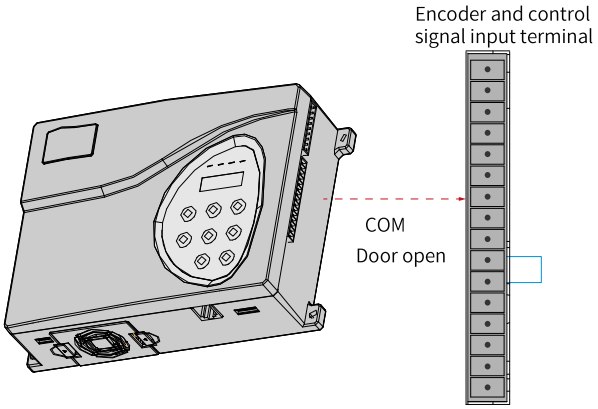
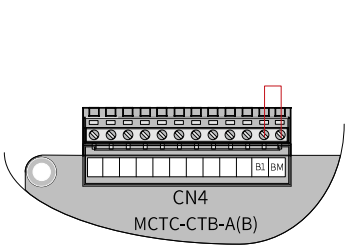


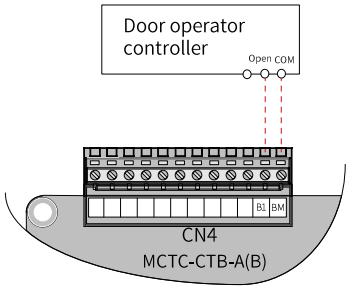
Figure 5-11 Door operator controller door open execution detection (Take NICE9000 door operator as an example)

② Door operator controller and CTB wiring

Short the BM-B1 terminal of the CTB CN4, and observe whether the door opens. If not, wire correctly.



Wrong door operator controller and CTB wiring



Correct wiring

③ Door open relay

1. Ensure that the MCB outputs door open command:
2. Set the multimeter to ohm level and measure whether the BM-B1 terminal of the CTB CN4 is conductive. If the measured value is infinite, it means the line is not conductive and the door open relay is damaged.

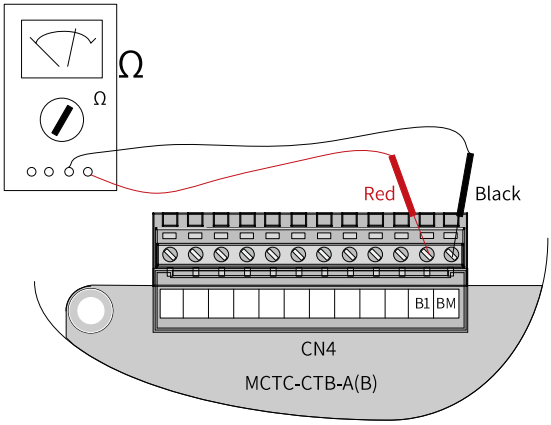


Figure 5-12 Door open relay detection

5.8 No Door Close

Symptom

Before the elevator starts running, the door operator does not close the door and no fault is reported.

Fault Handling

Symptom	Possible cause	Handling	Solution	Notes
No door close	Door operator controller not executing door close	Short the input side door close command and common wire of door operator controller to confirm whether door operator executes door close.	Replace the door operator controller, perform commissioning and conduct tests.	①
	Wrong door operator controller and CTB wiring	Short CTB BM-B2 and confirm whether door operator executes door close.	Wire correctly.	②
	No door close command output from the integrated controller	• Check whether the light curtain signal is active or operates. • Monitor the light curtain through F5-35.	Negate the value of F5-25 bit 0 (light curtain 1).	③
	• Overload signal malfunction • Buzzer sound	Monitor whether the overload signal of F5-35 is valid by LCD operator. If it is valid, check whether the load cell works normally.	• Check overload wiring. • Replace the load cell.	/
	No door close command output from CTB	When the MCB outputs door close command, use a multimeter to measure BM and B2 conductivity, and confirm whether the relay is damaged.	Replace the CTB.	④
	The elevator in the attendant state	Press the door close button. If the door closes and opens automatically after releasing it, it indicates valid attendant state.	Disable the attendant state on the operation box.	/
	• Button blocking • Foreign objects blocking door sill • Door machinery blocking	• Remove the door open button, hall call button and car call button to confirm whether the door can close. • After cutting off power supply, close the door manually and check whether mechanical blocking exits.	• Replace door open button. • Clean up the foreign objects in the door sill. • Adjust the mechanical construction.	/

Note

See contents below for details about ①②③④.

Detailed Handling

① Door operator controller door close execution

Short the input side door close command and common wire of door operator controller to confirm whether door operator executes door close. If not, replace the door operator controller.

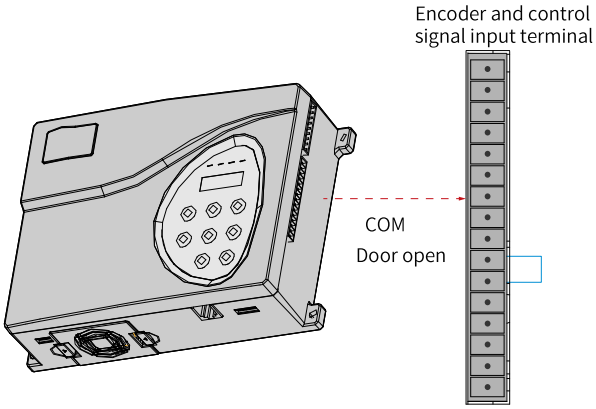
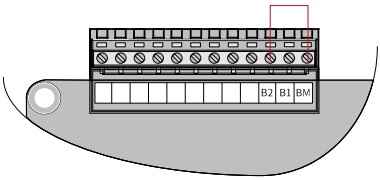


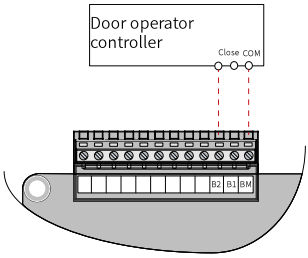
Figure 5-13 Door operator controller door close execution detection (Take NICE900 door operator as an example)

② Door operator controller and CTB wiring

Short the BM-B2 terminal of the CTB CN4, and observe whether the door closes. If not, wire correctly.



Door operator controller and CTB wiring detection

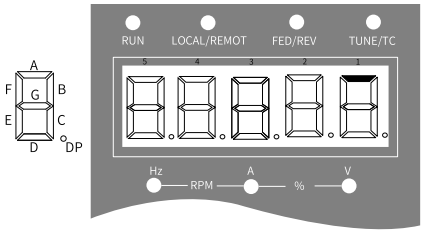


Correct wiring

③ Light curtain signal

1. Parameter setting for light curtain being not blocked:
   - If X1/X2 is on, it means that the light curtain signal is an NC input, and bit0/bit1 of F5-25 is set to 0.
   - If X1/X2 is off, it means that the light curtain signal is an NO input, and bit0/bit1 of F5-25 is set to 1.
2. Parameter F5-35: LED segments are numbered 5, 4, 3, 2 and 1 in turn from left to right. Monitor whether the No.1 A segment of F5-35 is on.

3. If the CTB X1/X2 input has an on and off change, and the F5-35 segments remain unchanged before and after the light curtain is blocked, it indicates that the CTB is faulty. If both the CTB and F5-35 remain unchanged, it indicates that the light curtain is faulty.



④ Door close relay

1. Ensure that the MCB outputs door close command.
2. Set the multimeter to ohm level and measure whether the BM-B2 terminal of the CTB CN4 is conductive. If the measured value is infinite, it means the line is not conductive and the door close relay is damaged.

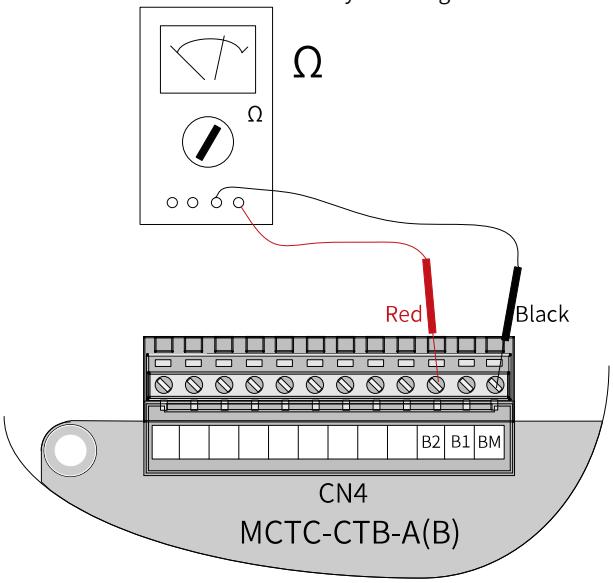


Figure 5-14 Door close relay detection

5.9 Repeated Door Open/Close

Symptom

After successful call registration, the elevator opens and closes the door repeatedly in the door zone and fails to operate normally.

Fault Handling

Symptom	Possible cause		Handling	Solution	Notes
Repeated door open/ close	Door re-open during door close	Malfunctioned light curtain	Check whether the light curtain signal is active or operates. Monitor F5-35 for the light curtain signal state during door close. Check whether the light curtain has dust buildup.	Ensure that the light curtain is installed correctly and clean it if necessary.	①
		Door machinery blocking	After cutting off power supply, close the door manually and check whether mechanical blocking exits.	Adjust the mechanical construction.	/
		Incorrect door operator parameter setting	Parameters for judging the door close hindrance are set incorrectly. Find details about the setting from the door operator manufacturer.	The output torque of the door operator controller is smaller than the torque for the door close hindered.	/
	Door open the minute it closes	Disconnected door lock circuit contact	Check whether the door lock feedback indicators (X5, X26, X27) are flashing.	Replace the door lock circuit contact.	②
	Door open 2s to 3s after it closes	Door lock circuit disconnected	Check whether the door lock circuit is conductive.	Replace the door lock circuit contact.	③

Note

See contents below for details about ①②③.

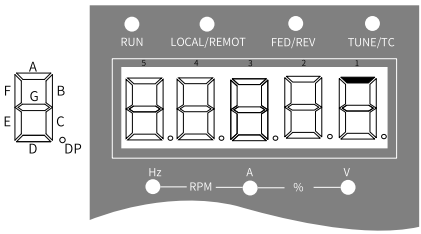
Detailed Handling

① Light curtain signal

1. Parameter setting for light curtain being not blocked:
   If X1/X2 is on, it means that the light curtain signal is an NC input, and bit0/bit1 of F5-25 is set to 0

   If X1/X2 is off, it means that the light curtain signal is an NO input, and bit0/bit1 of F5-25 is set to 1.

2. Parameter F5-35: LED segments are numbered 5, 4, 3, 2 and 1 in turn from left to right. Monitor whether the No.1 A segment of F5-35 is on.
3. If the CTB X1/X2 input has an on and off change, and the F5-35 segments remain unchanged before and after the light curtain is blocked, it indicates that the CTB is faulty. If both the CTB and F5-35 remain unchanged, it indicates that the light curtain is faulty.



② Door lock circuit contact

Check whether the door lock feedback indicators (X5, X26, X27) on the MCB are flashing. If flashing occurs, it means that the door lock contacts are disconnected. Check all door lock contacts and replace if necessary.

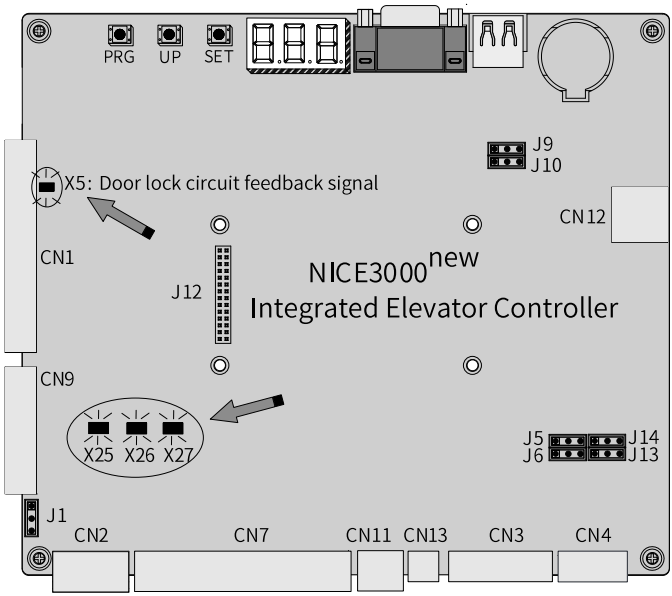


Figure 5-15 Door lock feedback indicators flashing

③ Door lock circuit

1. Cut off the power supply to ensure that the tested circuit is not energized.
2. Set the digital multimeter to ohm level and measure whether the car door lock and landing door lock circuits are conductive. If the measured value is infinite, it means the line is not conductive. Connect as per the following figure.

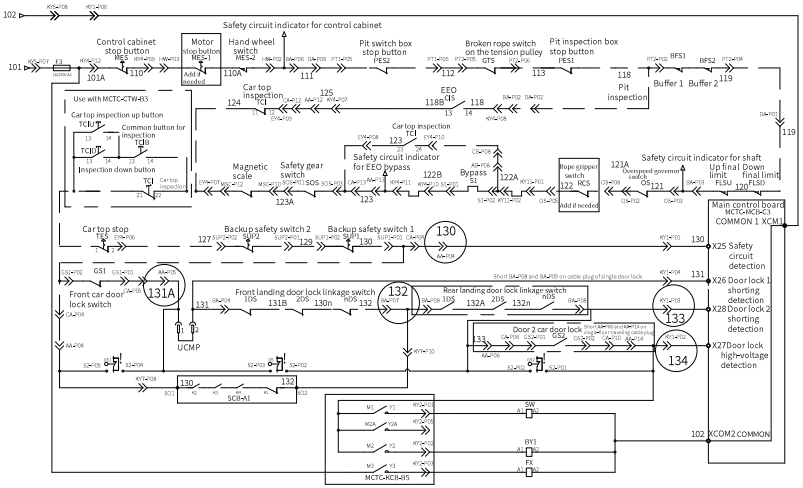


Figure 5-16 Door lock circuit and detection

5.10 Car Startup Rollback

Symptom

When the elevator starts, the car rolls back and causes unpleasant riding comfort.

Fault Handling

Symptom	Possible cause		Handling	Solution	Notes
Car startup rollback	Parameter setting	Pre-torque disabled	Check whether pre-torque parameters are set correctly.	Set parameters correctly.	①
		Running with brake not totally released	Observe whether the elevator starts with brake not totally released.	Adjust the brake clearance.	②
		Continuous tracking	Observe the startup performance.	Enhance PI control at a low speed.	③
	Guide shoes too tight		Rock the car and feel the gap between the guide shoe and the guide rail.	• Adjust the gap. • Lubricate the guide rail if needed.	/
	Excessive static friction		/	**F3-00**,**F3-01**	④

Note

See contents below for details about ①②③.

Detailed Handling

① Pre-torque parameters setting

Response time of brake release is different and can be affected by the ambient temperature. The higher the temperature, the slower the brake release response. Try to increase F3-19 to see if riding discomfort is caused by delayed release of brakes.

Table 5–1 Pre-torque parameters setting

Param. No.	Param. Name	Setting Range	Default	Description
F8-01	Pre-torque selection	0: Pre-torque disabled 1: Load cell pre-torque compensation 2: Automatic pre-torque compensation 3: Load cell pre-torque compensation and automatic pre-torque compensation both enabled	0	Select pre-torque compensation function as needed. Function
F3-19	Holding time of zero-speed torque current upon brake release	0.000s to 2.000s	0.600s	• Time needed for brake release • F3-19 specifies the time the system maintains the zero-speed torque current output to prevent rollback.
F2-11	Position lock current coefficient	0.20% to 50.0%	15.0%	Position lock adjustment parameters (F8-01 = 2)
F2-12	Position lock speed loop Kp	0.00 to 2.00	0.50	
F2-13	Position lock speed loop Ti	0.00 to 2.00	0.60	

Note

For startup rollback of small-power villa elevators, reduce F2-11, F2-12 and F2-13 to the range of 0.1 to 0.2.

② Brake clearance

1. Confirm that the brake power supply and circuit are error-free to ensure normal brake release.
2. Check for proper brake clearance so that no rubbing occurs.
3. Check whether the brake shoes are synchronized in movement. If not, adjust for synchronization.
4. Check whether F1-13 is too small. If the fault is reported without receiving pulse change within F1-13, increase F1-13 to a proper level (2.1s is recommended).

③ PI parameters setting

Param. No.	Param. Name	Setting Range	Default	Description
F2-00	Speed loop proportional gain 1	0 to 100	40	• F2-00 and F2-01 are PI regulation parameters when the running frequency is smaller than the value of F2-02. F2-03 and F2-04 are PI regulation parameters when the running frequency is larger than the value of F2-05. • If the running frequency is between switchover frequency 1 and 2, the PI regulation parameters are the weighted average of F2-00, F2-01, F2-03 and F2-04.
F2-01	Speed loop integral time 1	0.01s to 10.00s	0.60s	
F2-02	Switchover frequency 1	0.00 to F2-05	2.00 Hz	
F2-03	Speed loop proportional gain 2	0 to 100	35	
F2-04	Speed loop integral time 2	0.01s to 10.00s	0.80s	
F2-05	Switchover frequency 2	F2-02 to F0-06	5.00 Hz	

Notes on parameter setting:

1. You can adjust the dynamic response characteristics of the speed loop in vector control by setting the proportional gain and integral time of the speed regulator.
2. To achieve a faster system response, increase the proportional gain or reduce the integral time.
3. Be aware that a too large proportional gain or too small integral time may lead to system oscillation.

Recommended adjustment methods:

1. If the default setting cannot meet the requirements, do some fine-tuning.
2. Decrease the proportional gain to make sure that the system does not oscillate; Reduce the integral time to make sure that the system has a quick response while maintaining a small overshoot.

3. If both switchover frequency 1 and switchover frequency 2 are 0, only F2-03 and F2-04 are valid.

④ Excessive friction

Param. No.	Param. Name	Setting Range	Default	Description
F3-00	Startup speed	0.000 m/s to 0.050 m/s	0	/
F3-01	Startup holding time	0.000s to 0.500s	0	

1. By setting the startup speed, the system can expect to be more static friction resistant, but a too high value will cause the car to lurch at elevator startup.
2. The parameters may reduce the terrace feeling at startup due to static friction between the guide rail and the guide shoes.

5.11 Car Stop Rollback

Symptom

Passengers experience unexpected jerks and rollback when the elevator stops.

Fault Handling

Symptom	Possible cause	Handling	Solution	Notes
Car stop rollback	Door lock disconnected upon elevator stop	Check the clearance between the door vane and door roller	Ensure that door rollers are right in the middle of the door vane structure	/
	Fault state	View the fault record and handle it according to the fault code	Choose the proper solution based on the fault code	/
	Failed or delayed elevator stop tracking	Observe tracking performance	Increase PI value	①
	Slow brake close	Adjust the braking force	Adjust the braking force and ensure that the brake closes smoothly without any obstructions	/
		Cancel follow current delay	Ensure that the brake power supply is immediately disconnected upon brake close	/
		Observe whether rollback occurs during elevator stop	Increase F8-11 (Holding time of zero-speed torque current upon brake close)	②

Note

See contents below for details about ①②.

Detailed Handling

① Setting PI parameters

See *"5.10 Car Startup Rollback" on page 59* ③ PI.

② Increasing holding time of zero-speed torque current upon brake close

Due to the brake coil heat, the brake does not completely close even after the main contactor is disconnected, resulting in jerky stop. In this case, increase the holding time of zero-speed torque current upon brake close.

Param. No.	Param. Name	Setting Range	Default	Description
F8-11	Holding time of zero-speed torque current upon brake close	0.200s to 1.500s	0.200	Recommended value: 0.600

5.12 Elevator Running Jerks

Symptom

The running elevator suffers jerks or buzzing sounds.

Fault Handling

Symptom	Possible cause	Handling	Solution	Notes
Elevator running jerks	Pre-torque parameter set incorrectly	Judge through F3-19 whether jerks are caused at startup or the beginning section of S curve.	Adjust F2-11, F2-12 and F2-13. Enable F1-23 position lock optimization.	①
	Excessive mechanical friction		• Adjust the gap between guide shoe and guide rail. • F3-00 and F3-01 constant acceleration helps reduce startup friction.	
	Rotating mechanical parts	Check whether the jerks happen regularly and whether it is the weak PI value tracking response that leads to this phenomenon. Conduct a PMT vibration analysis.	Adjust or replace bearings.	②
	Jerks during acceleration/ deceleration		Increase F2-00 to suppress low-frequency jitter.	
	Jerks during high-speed operation		Enable high-frequency jitter suppression through F1-23 bit11.	
	Guide rail installation	Elevator runs to a fixed position and jerks happen.	Polish the guide rail joint.	/

Note

See contents below for details about ①②.

Note

The riding comfort is closely related to the machinery. If there is jitter in operation, check first for right mechanical installation and then electrical installation.

Detailed Handling

Judge whether jerks are caused by pre-torque or at the beginning section of S curve.

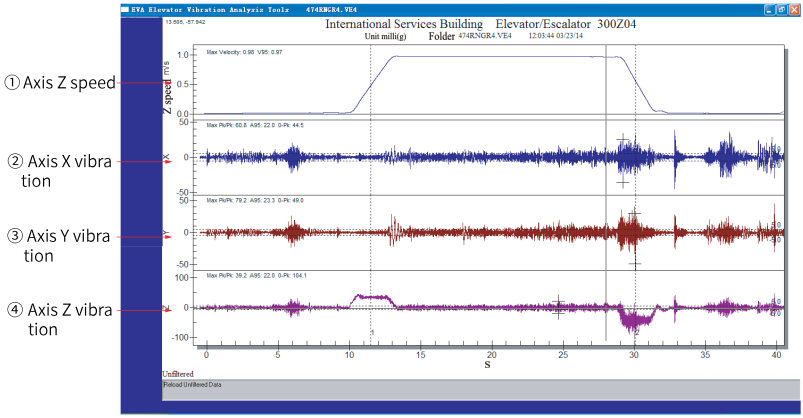
Set F3-19 to the maximum, and then run the elevator to record the time when the jerks occur:

A: If the jerks occur at no-load-cell startup, the elevator will first hold at zero speed for several seconds as specified by F3-19, and then start running.

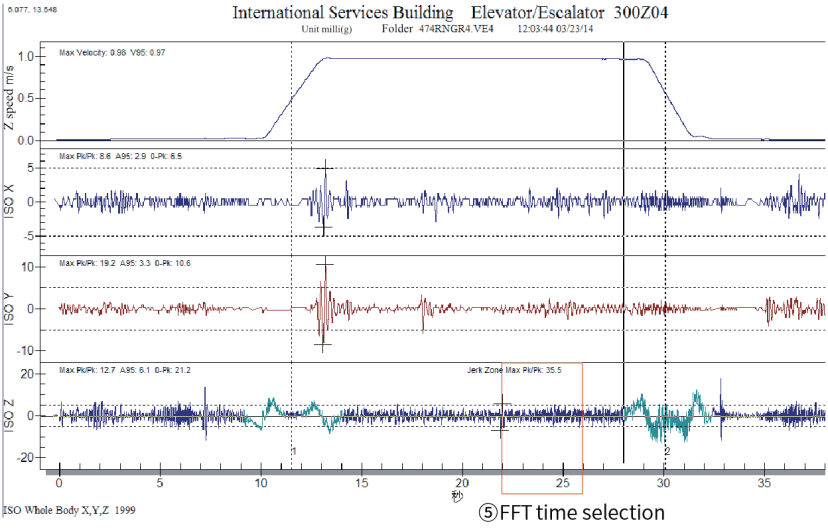
B: If the jerks occur at the beginning section of S curve, the elevator will wait in the static state for several seconds as specified by F3-19 after the brake opens.

② PMT vibration analysis

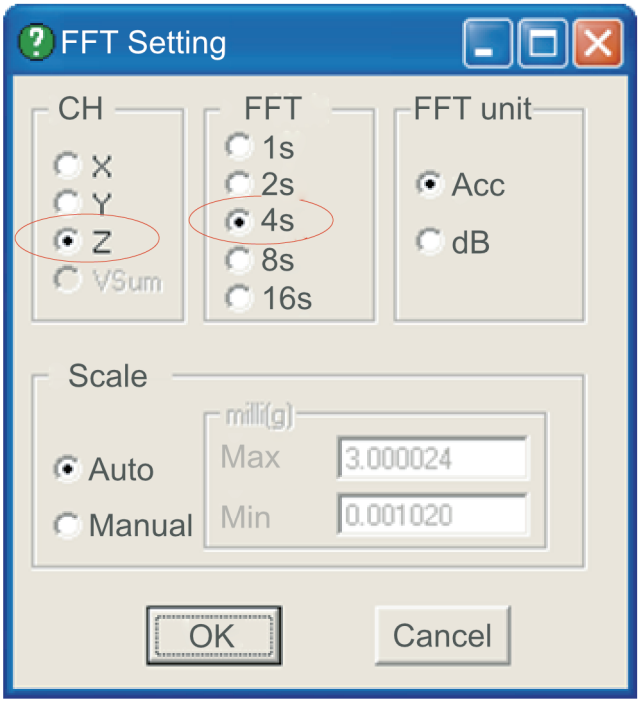
1. Open the PMT file with the general format of XXXX.VE3 and XXXX.VE4. As shown in the following figure, there are vibration curves showing running speed①, X②, Y③ and Z④ axes. The X and Y axes indicate the front-back and left-right vibration levels of the car. If the amplitude is large, it is the guide rail installation and joint that cause jerks. Z axis indicates the vibration of the car in the up-down direction, which is reflected in the riding comfort.



2. Select the "ISO" option, as shown in the following figure. Generally, the vibration amplitude of Z axis is within ±5, and basically good riding comfort can be ensured.

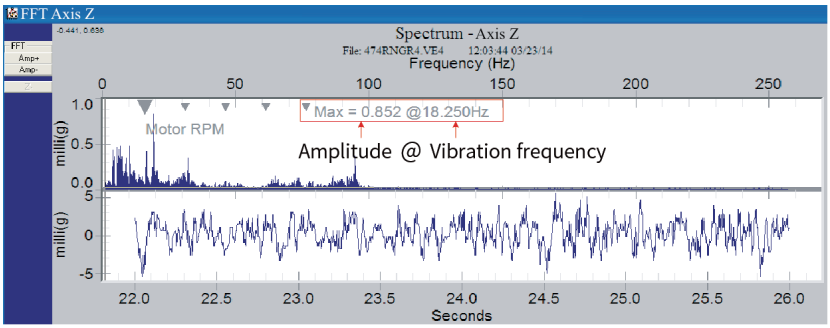


3. For further analysis, Fourier analysis can be carried out through the "FFT" option, as shown in the above figure, and the time period can be selected as required⑤. With FFT settings, select "Z Channel" and "FFT Length", as shown in the following figure.



FFT setting

4. From the FFT analysis in the following figure, the amplitude and vibration frequency can be obtained. The amplitude is 0.852 (a value smaller than 5 meeting the national standard) and the vibration frequency is 18.250 Hz.



FFT curve

5. Based on the PMT analysis results and professional judgment, the main vibration frequencies and possible vibration sources can be identified.

5.13 Terrace Feeling

Symptom

As the elevator runs to the top or bottom terminal floor and causes the slow-down switches to act, it experiences abrupt speed change in creeping to the door zone.

Fault Handling

Symptom	Possible cause	Handling	Solution	Notes
Terrace feeling for terminal floor parking	Slow-down signal malfunction	Check the slow-down switch.	Replace the switch.	/
		Check whether the slow-down signal has loose connection.	Tighten the wiring terminal.	/
	Slow-down distance	Measure the distance.	Ensure that the distance matches the speed.	①
		The slow-down distance is above half of the floor height.	Make the distance below half of the floor height.	/

Note

See contents below for details about ①.

Detailed Handling

① Slow-down distance calculation

The slow-down distance L indicates the distance from the slow-down switch to the leveling plate at the terminal floor. The calculating formula is:

$$L > \frac{V^2}{2 \times F3\text{-}08}$$

L: Slow-down distance; V: Rated elevator speed (F0-04); F3-08: Special deceleration rate

The default value of F3-08 is 0.9 m/s^2. The following table lists the slow-down distances corresponding to different rated elevator speeds.

Table 5–2 Recommended slow-down distances

Rated elevator speed (m/s)	0.25	0.4	0.5	0.63	0.75	1	1.5	1.6	1.75	2	2.5	3	3.5	4
Slow-down 1 distance (m)	0.4	0.4	0.4	0.4	0.4	0.7	1.5	1.7	2.0	2.0	2.0	2.0	2.0	2.0
Slow-down 2 distance (m)	/	/	/	/	/	/	/	/	/	2.5	4.0	4.0	4.0	4.0
Slow-down 3 distance (m)	/	/	/	/	/	/	/	/	/	/	/	6	8	11

Notes:

- V ⩽ 1 m/s: Compared with the values recommended in this table, the actual installation distances of slow-down switches are allowed to have an error of ±0.1 m.
- 1 m/s ⩽ V ⩽ 2 m/s: Compared with the values recommended in this table, the actual installation distances of slow-down switches are allowed to have an error of ±0.2 m.
- 2 m/s ⩽ V ⩽ 4 m/s: Compared with the values recommended in this table, the actual installation distances of slow-down switches are allowed to have an error of ±0.3 m.
- A lower acceleration/deceleration rate or higher special deceleration rate does not affect safety performance. However, a lower special deceleration rate may cause safety hazards. If a rate change is required, calculate the slow-down distance again according to the preceding formula.

5.14 Leveling Failure

Symptom

An elevator is considered misleveled if the elevator car sill is not level with the landing sill.

Fault Handling

<table>
<tr><th>Symptom</th><th colspan="2">Possible cause</th><th>Handling</th><th>Solution</th><th>Notes</th></tr>
<tr><td rowspan="10">Leveling failure</td><td rowspan="4">Parameter setting</td><td>All floors over-leveling</td><td rowspan="10">The elevator runs automatically floor by floor. Measure and record the height difference between the elevator car sill and the landing sill. If the leveling plate is adjusted, perform shaft auto-tuning again.</td><td>Decrease F4-00 for over-leveling.</td><td rowspan="2">①</td></tr>
<tr><td>All floors under-leveling</td><td>Increase F4-00 for under-leveling.</td></tr>
<tr><td>Certain floors over-leveling</td><td>Decrease FR-XX for over-leveling.</td><td rowspan="2">②</td></tr>
<tr><td>Certain floors under-leveling</td><td>Increase FR-XX for under-leveling.</td></tr>
<tr><td rowspan="6">Leveling plate installation</td><td>Too high for all floors up/ down running</td><td rowspan="2">Adjust the leveling switch position.</td><td>/</td></tr>
<tr><td>Too low for all floors up/ down running</td><td>/</td></tr>
<tr><td>Too high for certain floors up/down running</td><td rowspan="2">Perform shaft auto-tuning again for adjusting leveling plate position.</td><td>/</td></tr>
<tr><td>Too low for certain floors up/down running</td><td>/</td></tr>
</table>

Symptom	Possible cause		Handling	Solution	Notes
Leveling failure	Fault occur rence	Re-leveling failure occurs after the fault is reset.	View fault records FC-60 and FC-61.	Handle the fault.	/
	Switch over from the inspection state to the normal state	Re-leveling failure	Observe the height difference between the elevator car sill and the landing sill during operation.	Increase FD-05.	/
	Occasional leveling failure	Verify whether the steel rope slips.		Confirm the balance coefficient and increase the steel rope tension and angle of contact.	③
		PI tracking		Increase F2-00 and decrease F2-01 properly for leveling inconsistency under light load and heavy load.	/
	Load change	Steel rope tensioning change		Re-leveling function is recommended (MCTC-SCB).	/

Detailed Handling

① Leveling adjustment through F4-00

Param. No.	Param. Name	Setting Range	Default	Unit
F4-00	Leveling adjustment	0 to 60	30	mm

1. For under-leveling (as shown in *"Figure 5–17 " on page 72*), add H (H = (a + b)/2) to F4-00.
2. For over-leveling (as shown in *"Figure 5–18 " on page 72*), subtract H (H = (a + b)/2) from F4-00.

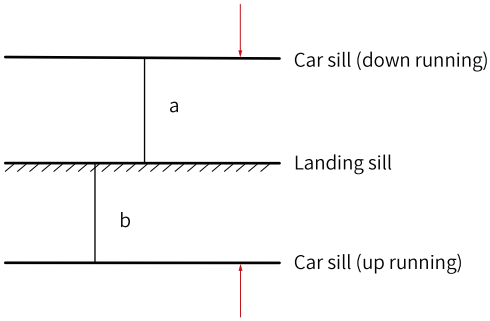


Figure 5-17 Under-leveling

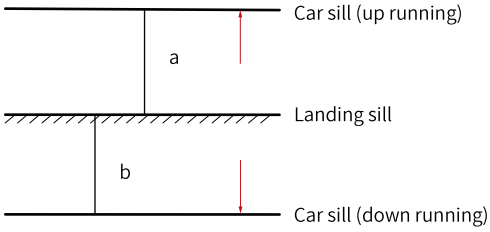
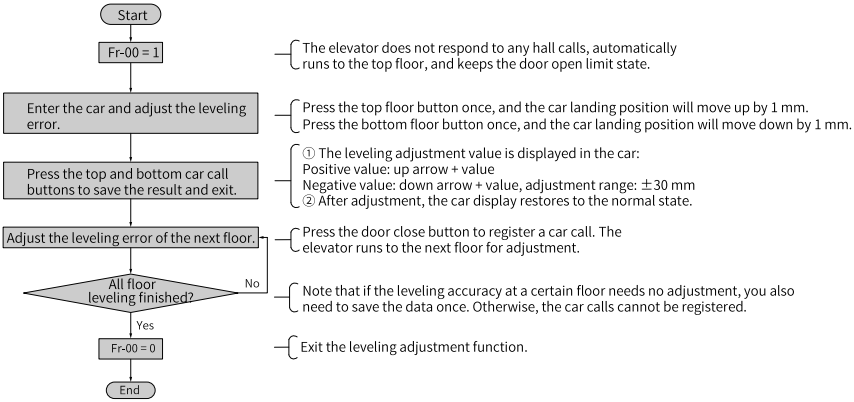


Figure 5-18 Over-leveling

② Fine-tuning through parameters in group FR

For leveling failure on certain floors, you can either adjust leveling plate or distance (as shown in the figure above) through the following parameters.

Param. No.	Param. Name	Setting Range	Default	Unit
Fr-00	Leveling adjustment mode	0 to 1	0	/
Fr-01	Leveling adjustment record 1	00000 to 60060	30030	mm
Fr-02	Leveling adjustment record 2		30030	mm
. . .	. . .		. . .	. . .
Fr-20	Leveling adjustment record 20		30030	mm



Note

- During shaft auto-tuning, set F1-11 to 3 or F-7 to 1 to retain all parameters for leveling adjustment. Set F1-11 to 4 or F-7 to 2 to clear these parameters.
- When using the re-leveling function, the leveling adjustment function will be automatically shielded.

③ The steel rope slip

See *"5.15 Wrong Floor Display" on page 73* ①.

5.15 Wrong Floor Display

Symptom

The floor display of the elevator in operation is inconsistent with the actual floor.

Fault Handling

Symptom	Possible cause	Handling	Solution	Notes
Wrong floor display in running state	Group FE parameters set incorrectly	Check group FE parameters	Change group FE parameters as needed.	/
	Steel rope slip	Verify whether the steel rope slips.	Confirm the balance coefficient and increase the steel rope tension and angle of contact.	①
	Signal malfunction	Check whether the slow-down switch and limit switch are damaged and cause the position switch to malfunction	Replace the slow-down switch and limit switch and ensure correct wiring.	/
		Check whether the leveling switch is damaged and causes the leveling switch to malfunction	Replace the leveling switch and ensure correct wiring.	
	Communication interference	Check the circuit routing.	Rework the wiring.	②
	Hall call addresses of the same floor inconsistent in parallel connection	Check whether the hall call addresses of the same floor are consistent	Change the hall call address to ensue consistency.	/

Note

See contents below for details about ①②.

Detailed Handling

① The steel rope slip

1. When the elevator is at the leveling position on a certain floor, mark it where the rope and traction sheave meet with A on the rope and A' on the sheave. Then run the elevator to other floors before returning to this very floor to observe the marks.
2. Compare the distance change and ensure that it is within the normal range of below 10 cm. If not, it indicates steel rope slip. Confirm that the balance coefficient

is within the range of 0.4 to 0.5 first before increasing both the steel rope tension and the angle of contact. Clear the stain on the rope, if any, with kerosene.

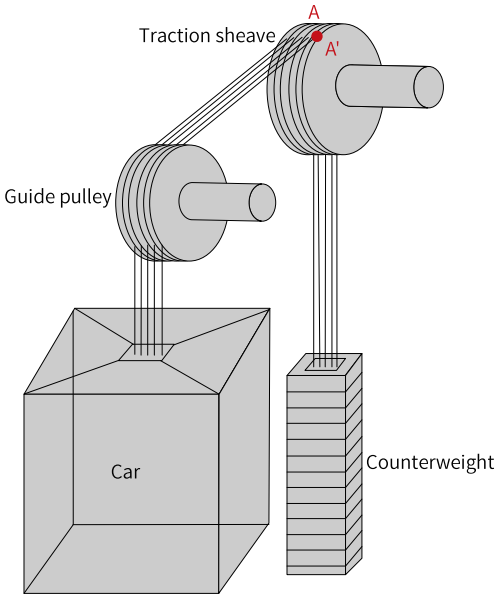
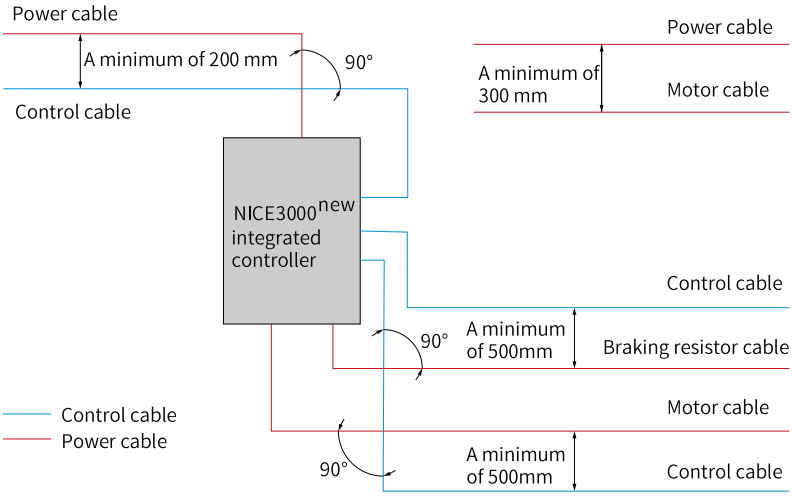


Figure 5-19 Steel rope marking

② Cabling requirements

1. The motor cables must be far away from other cables. Recommended distance is greater than 0.5 m. Motor cables for several controllers can be laid in parallel.
2. To avoid electromagnetic interference caused by rapid change of the output voltage of the controller, the motor cables and other cables must not be laid side by side for a long distance. It is recommended that the motor cables, power input cables and control cables be laid in different ducts. The cable duct must be in good connection and well grounded.
3. If the control cable must run across the power cable, make sure they are arranged at an angle of close to 90 °. Other cables must not run across the drive.
4. The power input and output cables of the controller and weak-current signal cables (such as control wires) should be laid vertically (if possible) rather than horizontally.
5. The cable duct must be in good connection and well grounded. Aluminum duct can be used to improve equipotentiality.
6. The filter and controller must be connected with the system as specified. Apply coatings properly and ensure good conductivity.
7. The motor must be connected with the system parts as specified. Apply coatings properly and ensure good conductivity.


Power cable
A minimum of 200 mm
90°
Control cable
NICE3000new integrated controller
Power cable
A minimum of 300 mm
Motor cable
Control cable
90°
A minimum of 500mm
Braking resistor cable
Motor cable
Control cable
Power cable
90°
A minimum of 500mm
Control cable

6 Part2 Common Faults: Fault Report

6.1 Output Overcurrent E02, E03 and E04

Fault Report

The MCB reports faults E02, 03 and 04 for drive overcurrent and failure to run.

Fault Handling

Fault code	Possible cause		Solution	Notes
E02 E03 E04	Circuit	Check power cable terminals for tight connection.	Tighten the possible loose terminals.	/
		Check whether the power cable is short-circuited using a multimeter.	Replace the power cable.	①
		Check whether the power cable from the controller to motor is broken.	Replace the power cable.	/
		Check the controller drive module.	See *"2.3 Controller Drive Module" on page 15* for more details.	/
	Motor auto-tuning	If the MCB has been replaced on site, confirm whether the FF-01 (controller model) is set correctly.	Set FF-01 correctly.	②
		Motor auto-tuning jitter due to mismatch between the controller UVW phase sequence output and motor	Interchange any two phases.	/
E02 E03 E04	Encoder signal interference	Check whether the connection is loose.	Fasten the encoder connection.	/
		Check the encoder snap-fit joint.	• If the joint is not in place, fasten it. • If the joint is in perfect place, remove it.	/
		Check the encoder grounding interference.	Ensure that the encoder route is separated from the power line. If separated by metal hoses, they must be grounded. Add magnetic rings at the input and output sides of the integrated controller for better interference-resistant performance. See *"5.5 Tripping During Operation" on page 44*①	/
	Shorting PMSM stator function	The auxiliary contact of the RUN contactor can be used for shorting motor stator function. Remove the function to observe whether the fault reoccurs.	If door lock fault E42 occurs, it shows that overcurrent is caused by door lock disconnection. An independent shorting motor stator contactor or MG-BF series contactor is recommended.	/
		In the case of an independent shorting motor stator contactor, check that F5-28 (Y3 output) is set to 12.	/	/

Fault code	Possible cause		Solution	Notes
E02 E03 E04	Output abnormal	Connect the motor to the U, V, W terminals of the controller, and observe whether the fault is reported.	• If the fault is not reported, it indicates the RUN contactor is faulty and replacement is needed. • If the fault is reported, use a megger to measure whether there is short circuit inside the motor. Make replacement if possible.	③
		• Check that the MCB relay controlling the brake has output. • Check whether the brake contactor functions properly. • Check whether the brake power supply has 110 VDC output to the brake contactor. • If yes but the brake is not opened, contact the manufacturer.	• MCB relay is damaged and replace the MCB. • Replace the faulty brake contactor. • Brake power supply does not output 110 VDC and replace the power supply if possible. • If the brake is not opened at 110 VDC, contact the manufacturer.	/
		Check whether the braking circuit connection and braking resistor is of the right model.	Confirm the connection and replace the resistor if possible.	/

Subcode	Possible causes	Solution
1	The main circuit output is grounded or short-circuited or the motor insulation performance degrades.	• Check whether the motor and grounding cables are connected correctly. • Check whether the shorting motor stator contactor causes a short circuit at the controller output side. • Check whether motor cables have a damaged jacket.
	Motor auto-tuning is not performed or motor parameter setting errors occur.	Set motor parameters according to the motor nameplate and perform motor auto-tuning again.
	The encoder signal is incorrect.	• Check whether encoder pulses per revolution (PPR) is set correctly. • Check whether the encoder signal is interfered with, whether the encoder cable runs through the duct independently or is too long, and whether the shield is grounded at one end. • Check whether the encoder is installed reliably, whether it is connected to the motor shaft securely, and whether the encoder is stable during high-speed running. • Check whether the encoder is connected correctly and securely. For the asynchronous motor, perform SVC and compare the current in FVC mode to judge whether the encoder works properly.
	The phase sequence of the motor is incorrect.	Interchange the motor UVW phase sequence or manually set FF-10 to adjust the sequence.
	The acceleration time is too short.	Reduce the acceleration rate.
	The braking resistor is short-circuited.	Check whether the braking resistor and braking unit are connected correctly. Make sure that there is no short circuit.
	Power hardware fault	In V/f control mode without releasing the brake, it indicates hardware fault with overcurrent reported at power-on.
2	Same as subcode 1	Same as subcode 1
11		
12		
15	Overcurrent occurs in the detection of inter-phase short circuit.	Check whether there is three-phase short circuit.

Note

See contents below for details about ①②③.

Detailed Handling

① Check whether the power cable connection is short-circuited or loose

To check for short circuit, disconnect the power cable from the controller and motor and measure the resistance between PE and each of the U, V, W phases with a multimeter. If the measured value is not infinite, it indicates a short circuit.

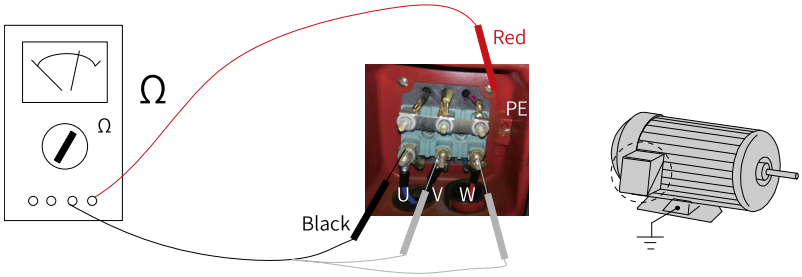
② Check whether the controller model is set correctly

The correlation between the NICE3000^{new} controller model and FF-01 is shown in the following table.

Voltage class	Controller model	FF-01 Value	Voltage class	Controller model	FF-01 Value
380 V	NICE-L-A/B/C-4002	10	220 V	NICE-L-C-2002	0
	NICE-L-C-4003	11		NICE-L-C-2003	1
	NICE-L-C-4005	12		220-NICE-L-C-4005	1
	NICE-L-C-4007	13		220-NICE-L-C-4007	2
	NICE-L-C-4011	14		220-NICE-L-C-4011	3
	NICE-L-C-4015	15		220-NICE-L-C-4015	4
	NICE-L-C-4018F	16		220-NICE-L-C-4018F	5
	NICE-L-C-4022F	17		220-NICE-L-C-4022F	6
	NICE-L-C-4030F	18		220-NICE-L-C-4030F	7
	NICE-L-C-4037F	19		220-NICE-L-C-4037F	8

③ Check whether motor U, V, W terminals are short-circuited to PE

Measure the resistance between PE and each of the U, V, W phases with a multimeter. If any measured value is not at the megohm level, it indicates a short circuit.



6.2 Bus Overvoltage E05, E06 and E07

Fault Report

The MCB reports faults E05, E06 and E07 with drive overvoltage and failure to run.

Fault Handling

Fault code	Possible cause		Solution	Notes
E05 E06 E07	Subcode 1	Bus voltage is too high.	• The correction coefficient of FF-08 bus voltage is too large. • The bus voltage hardware mismatches with software, especially for the 380 V and 220 V. • Check the input power supply. • During power generation, the braking resistance is too large. • Deceleration time is too short.	/
	The input voltage is too high.	Measure whether the input voltage is normal.	Replace or adjust the power supply.	①
		Monitor bus voltage (FA-16).	Replace the controller.	②
	Braking resistor mismatch	The braking regenerative energy is too large to be fully absorbed by the built-in resistor.	Confirm the power supply specifications and check whether a built-in braking resistor is used in the controller. If an external braking resistor is used, select a proper model.	/
		External braking resistor resistance too high	Measure the braking resistance between the main circuit terminals PB and (+). Compare it with the recommended value to choose the proper resistor.	/
		The braking resistor failed (disconnected)	Measure whether the braking resistance between the main circuit terminals PB and (+) is infinite. Replace the braking resistor if needed.	/
	Others	Excessive acceleration and deceleration	Smooth the running curve by setting parameters.	③
		System overshoot	Set group F2 PI parameters.	④
		Overload resulting in excessive regenerative energy	Confirm whether overload occurs. Use a braking resistor of higher power.	/

Note

See contents below for details about ①②③④.

Detailed Handling

① Input voltage

Take the input three-phase 380 V as an example.

1) Remove the lower access cover of the controller and expose main circuit terminals;

2) Use a multimeter to measure the main circuit voltage of the three-phase input (RST) power source.

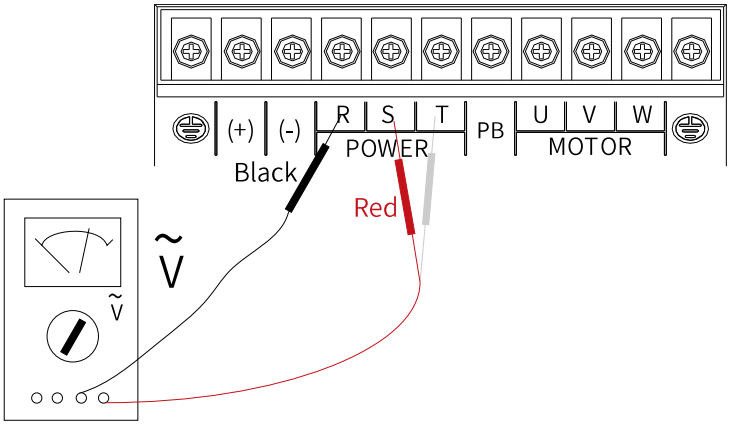


Figure 6-1 Measuring the three-phase input voltage

Check whether the measured input voltage is 220 V if the nominal input voltage is 220 V.

Table 6–1 Power supply specifications

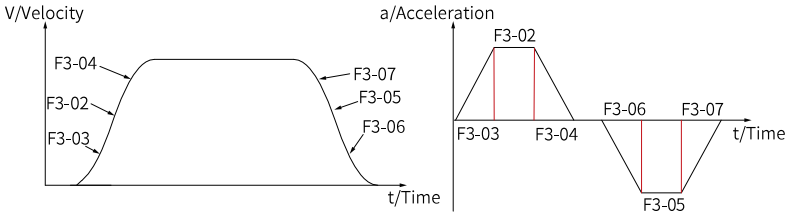
Voltage class	Effective input voltage	Tolerance range	Allowable RMS value
220 V	220 V to 240 V	-7% to +7%	204.6 V to 256.8 V
380 V	380 V to 440 V	-7% to +7%	353.4 V to 470.8 V

② Bus voltage

Bus voltage is monitored by FA-16. For input voltage of 380 V, FA-16 is generally between 540 and 560 V. If it is obviously higher than the general range and the input voltage falls into the tolerance range, the controller needs to be replaced.

- If the bus voltage of the controller exceeds 800 V and 400 V for input voltage of 380 V and 220V respectively, bus overvoltage occurs and faults E05/06/07 are reported.
- If the 220 V controller is connected to the 380 V power supply, it will cause the controller to be damaged. Never make such mistakes.

③ Parameter setting and running curve adjustment



F3-02, F3-03, and F3-04 are used to set the running curve during acceleration of the elevator.

- F3-02 is the acceleration of the elevator speed curve (constant acceleration).
- F3-03 is the time for the acceleration to increase from 0 to the value set in F3-02 in the speed curve (increasing acceleration). The larger the value is, the smoother the speed curve is.
- F3-04 is the time for the acceleration rate to decrease from the value set in F3-02 to 0 in the speed curve (increasing deceleration). The larger the value is, the smoother the speed curve is.

F3-05, F3-06, and F3-07 are used to set the running curve during deceleration of the elevator.

- F3-05 is the deceleration of the elevator speed curve (constant deceleration).
- F3-06 is the time for the acceleration to increase from 0 to the value set in F3-05 in the speed curve (decreasing acceleration). The larger the value is, the smoother the speed curve is.
- F3-07 is the time for the acceleration to decrease from the value set in F3-05 to 0 in the speed curve (decreasing deceleration). The larger the value is, the smoother the speed curve is.

④ Group F2 PI parameters

See *"5.10 Car Startup Rollback" on page 59* ③.

6.3 Input Undervoltage E09

Fault Report

The MCB reports fault E09 with elevator undervoltage and failure to run normally. During emergency running, check whether the emergency input signal is active and you can run the elevator at low speed.

Fault Handling

Fault code	Possible cause		Solution	Notes
E09	Power supply	Too low controller input voltage	Use a multimeter to measure RST input voltage. If it is lower than 250 V, change or adjust the power supply.	/
		Unstable power supply	Monitor the controller input voltage. If the power supply of the main circuit drives more devices than it could be, it may overstretch the power capacity and cause voltage drop. Replace or adjust the power supply.	/
		Input power supply phase loss	Check whether the main circuit wiring is correct. If phase loss occurs, change the cable and ensure correct main circuit power connection.	/
	Emergency running	Check whether the emergency input signal at power failure is active.	Check the emergency running line and set emergency switchover of input terminals in group F5.	/
		Check for sufficient emergency power capacity and total energy.	Perform trial run after charging the emergency battery.	/
	Subcode 1	FF-08 set too small	Change FF-08 bus voltage correction coefficient to 100.0%.	/
		An instantaneous input power failure	Check the input power line.	/
		Too low input voltage	Check the power supply system.	/
		AC drive power mismatch with the motor	Replace with an AC drive of higher power.	/
		The drive control board malfunctions.	Replace the drive hardware.	/

6.4 AC Drive Overload E10

Fault Report

MCB shows E10 fault for prolonged AC drive overload (150% rated current for 60s).
You can monitor output current through FA-18.

Fault Handling

Fault code	Possible cause		Solution	Notes
E10	Parameter setting error	E10 is reported during commissioning at inspection speed.	Check parameters F1-04, F1-05, and F1-12. Speed = (Rated frequency × 60)/ Number of pole pairs	/
	Controller and synchronous motor phase sequence mismatch	For the unit installation with the elevator, the system reports E10 in inspection running after wiring. The system reports E10 during motor auto-tuning.	Perform motor auto-tuning after interchanging motor phase sequence.	/
	Synchronous motor auto-tuning failed	The controller output current is very large during no-load inspection or operation at normal speed.	Perform motor auto-tuning again.	/
		The controller output current is then obviously reduced after motor auto-tuning is performed again.		/
	Damaged asynchronous motor encoder or MCB encoder interface	No fault is reported for inspection running in SVC mode and E10 is reported for inspection running in FVC mode.	See encoder nameplate to set PPR. Replace the encoder or MCB.	/
	Slip test influence	Parameter setting error	Set F3-24 to 1 to enable the slip test. Increase F2-08 for torque boost. If necessary, check the elevator traction system for right angle of contact or friction force.	/
	Too heavy load	E10 is reported during acceleration.	Reduce the load.	/
	Balance coefficient error	When the car load is reduced, the output current of the controller will decrease.	Check the balance coefficient. The recommended range is 0.4 to 0.5.	/
	Mechanical blocking	When the elevator is running, the output current of the controller is greater than the rated current of the motor.	• Check for centered safety gear wedge block, released brake, proper gap, and appropriate running resistance. • Check whether the brake coil voltage conforms to the specification. • Check for no mechanical blocking.	

Fault code	Possible cause		Solution	Notes
E10	Subcode 1	The mechanical resistance is too large.	• Check whether the brake is released and whether the brake power supply is normal. • Check whether the guide shoes are too tight.	Overload curve: Take 180% of rated AC drive current as the upper overload limit to calculate the time of overload capacity. If it is not 180%, adjust the overload time proportionally.
		The balance coefficient is improper.	Check the balance coefficient.	
		The encoder feedback signal is abnormal.	• Check whether the feedback signal and parameter setting (F1-00 and F1-12) are correct. • For synchronous motors, check whether the starting angle of the encoder is correct.	
		Motor auto-tuning is not performed properly.	Check whether the motor parameters are correct, and perform motor auto-tuning again. If this fault is reported during the slip experiment, perform the slip experiment by enabling the slip function set in F3-24.	
		The phase sequence of the motor is incorrect.	Interchange UVW phase sequence.	
		The AC drive model is of too low power class.	If the current has exceeded the rated current of the AC drive during stable-speed running of the elevator with an empty car, replace with an AC drive of higher power.	

6.5 Current Control Fault E16

Fault Report

The MCB shows E16 for current control fault.

Note

The fault is non-resettable.

Fault Handling

Fault code	Possible cause		Solution	Notes
E16	Subcode 1	The excitation current control is abnormal.	• Motor parameters are set incorrectly. • Output phase loss occurs. • The RUN contactor is not closed. • The brake circuit is abnormal. • The input voltage is low.	/
	Subcode 1 Subcode 2	Output phase loss occurs.	Check for normal motor and controller UVW connection.	/
		The RUN contactor close does not function well, resulting in insufficient motor current.	Check whether the door lock safety circuit has intermittent disconnection. Check whether the voltage of the RUN contactor coil is normal. Check whether the RUN contactor close is blocked. Take corrective measures when the voltage is below 10% of the rated coil voltage.	/
		When it reports E16 in the drive state during high-speed operation, the input voltage is low.	If the input voltage measured during operation is low, the possible reasons are as follows: • Ask the power supplier to adjust the voltage. • Replace the power cable if necessary.	①
		PG card damaged or encoder damaged	Check whether the encoder signal is normal and replace the PG card or encoder if necessary.	②
		Motor design failure	Reduce elevator running speed F0-03.	/
	Subcode 2	Torque current control fault	• Motor parameters are set incorrectly. • Output phase loss occurs. • The RUN contactor is not closed. • The brake circuit is abnormal. • The input voltage is low.	/
	Subcode 3	The torque reaches the upper limit and the speed is very low.		/
		Motor auto-tuning not performed	Perform motor auto-tuning again.	/
		Too heavy load	Check the balance coefficient. Check for no brake rubbing.	/
		At low temperature, it reports E16 for asynchronous motor start-up due to excessive resistance caused by lubricant viscosity increase.	Perform asynchronous motor auto-tuning again. Increase F2-08 (torque upper limit), F3-18, and F3-19.	/

Note

See contents below for details about ①②.

Detailed Handling

① Power supply voltage detection:

See *"6.2 Bus Overvoltage E05, E06 and E07" on page 81* ①.

② Abnormal encoder signal:

See *"6.6 Motor Auto-tuning Fault E19 " on page 90* ①.

6.6 Motor Auto-tuning Fault E19

Fault Report

The MCB shows fault E19 for unfinished or unsuccessful motor auto-tuning.

Fault Handling

Fault code	Possible cause		Solution	Notes
E19	Subcode 1	/	• The RUN contactor is not closed. • Output phase loss • The target current obtained through auto-tuning needs to be adjusted. You can reduce the rated motor current to a proper value.	/
	Subcode 5	The output circuit is open during magnetic pole position auto-tuning.	Check whether open circuit occurs in the UVW output.	/
		The motor power is way below that of the AC drive.	Replace with an AC drive of lower power.	/
	Subcode 6	See subcode 5.	See subcode 5.	/
	Subcode 8	Motor type F1-25 mismatches with encoder type F1-00.	• Check the motor type setting. • Check the encoder type setting.	/
	Subcode 9	The encoder CD signal is unstable.	• Check the motor rotation direction. • Eliminate encoder interference.	/
	Subcode 10	Parameter setting error	The encoder phase sequence is set incorrectly.	/
	Subcode 11	/	/	/
	Subcode 12	F1-22 bit0 or bit1 is enabled, and the encoder zero position angle is not obtained during inspection operation.	Perform angle-free auto-tuning and ensure that the motor makes three rotations before power-off and power-on again.	Ensure that the angle auto-tuning in the inspection mode is completed after the motor makes three rotations. If power failure occurs before auto-tuning is completed, the system reports the fault when switching to inspection speed mode after power-on.
	Subcode 13	Synchronous motor rotor magnetic pole position auto-tuning failure	Check whether the group F1 parameters are set correctly.	/
	Subcode 14	Incorrectly set encoder type	In static auto-tuning, F1-00 needs to be set to 0 or 3.	/

Fault code	Possible cause		Solution	Notes
E19	Subcode 15	Encoder CD signal error	Check that the encoder is of sin/cos type, and that F1-00 settings are correct.	/
	Subcode 19		Replace the encoder.	/
	Output phase loss and motor excitation failure	Subcodes 1, 5, and 6	Check for tight controller connection with the motor.	/
	Incorrectly set encoder type	Subcode 8 for synchronous motor static auto-tuning (F1-11 = 5)	Set F1-00 according to the actual encoder type.	/
	Wiring method setting non 0	Subcode 10 for synchronous motor static auto-tuning	Ensure that the encoder circuit conforms to the specification, and then set F1-08 to 0.	/
	Angle-free auto-tuning failed	E19 with subcode 11 is reported and the fault can be reset.	Perform the auto-tuning again.	/
	Abnormal encoder signal	Measure encoder signal line with multimeter.	Replace the encoder, PG card or the connection line between them.	①
	Motor auto-tuning timeout	E19 for asynchronous motor with-load auto-tuning (F1-11 = 1)	Set F1-23 to 64 and restore F1-23 to the initial value after auto-tuning again.	/

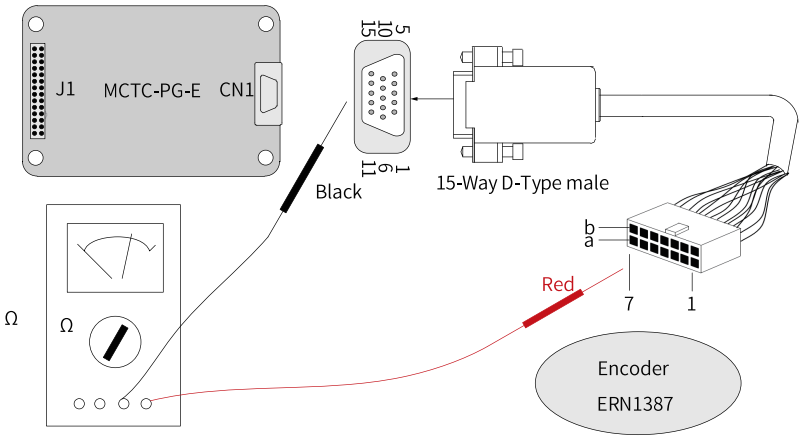
Note

See contents below for details about ①.

Detailed Handling

① Abnormal encoder signal

After unplugging the encoder cable, use the multimeter to check for disconnected or abnormal encoder and PG card connection.



6.7 Speed Feedback Incorrect E20

Fault Report

The MCB reports E20 fault with abnormal encoder signal or speed feedback.

Fault Handling

Fault code	Possible cause		Solution	Notes
E20	Subcode 1: Encoder signals abnormal and no encoder AB signals detected at no-load auto-tuning during one 360 degree revolution of the encoder shaft	If E20 is reported at power-on, it indicates encoder signal cable disconnected. If E20 is reported during auto-tuning or running, it indicates abnormal encoder signal. Use a multimeter to measure the encoder signal cable. As the traction sheave rotates, F4-03 remains unchanged.	• Check the encoder, PG card or the connection between them. Make replacement as needed. • The motor may not rotate in auto-tuning. • The brake is not released or the current is low. • AB phase interference exists. • AB phases are not connected correctly.	/
	Subcode 3: • The motor phase sequence likely to be wrong • Encoder AB phase sequence incorrect	• Adjust the output phase sequence of the controller for auto-tuning. • If the brake is not released, check the brake circuit. And the loose brake connection also results in excessive current during phase sequence change. • • Motor parameter F1-05 is set incorrectly. • Encoder hardware fault.	• Adjust the output phase sequence of the controller for auto-tuning. • The motor may not rotate in auto-tuning. The brake is not released or the current is low. • Loose brake connection results in excessive current during phase sequence change. • Motor parameter F1-05 is set incorrectly. • Encoder hardware fault. • AB phase interference exists. • Set encoder PPR correctly. • Modify FF-10.	/

Fault code	Possible cause		Solution	Notes
E20	Subcode 9: Motor runaway protection	Speed loop or current loop parameters (including position lock parameters) are out of range, making motor startup hard to control. Encoder interference, especially in case of fault reported occasionally. Encoder phase sequence and output phase sequence are reversed. Motor parameters or encoder PPR are wrong. Output phase loss (Loose safety or door lock circuit connection leads to occasional contactor closing failures). Mechanical blocking leads to large deviation of starting torque. For non-mechanical factors, perform auto-tuning again and observe the value of F2-06/07 gained. Change F2-11/12/13 based on F2-06/07 (For low-power motors, F2-11 equals to F2-06 divided by 10).	• Adjust the group F2 speed loop parameters to a normal range. • Change the output UVW sequence and perform auto-tuning again. • Check the motor parameters. • Check the safety or door lock circuit connection. • Eliminate possible mechanical blocking factors. • Check whether the no-load-cell startup parameter is abnormal.Change F2-11/12/13 based on F2-06/07 (For low-power motors, F2-11 equals to F2-06 divided by 10). • Check for correct phase sequence and speed measurement parameter settings. • Set encoder PPR correctly. • Check for correct rated motor speed setting. • Eliminate encoder interference. • Check for correct brake release.	/
	Subcode 12: The brake not released at startup	• The output torque reaches the upper limit but the motor does not rotate. • Check for stable brake voltage, normal brake clearance, and correct brake control circuit connection.	• Make sure that the brake voltage is normal, the brake clearance proper, and the connection of the brake control circuit correct. • Check whether the brake is fully released. • Obtain the magnetic pole angle through auto-tuning and check consistency. • Check the encoder wiring.	/
E20	Subcode 13: The brake not released during running	• Check for stable brake voltage, normal brake clearance, and correct brake control circuit connection. • AB signal disconnection during running.	• Make sure that the brake voltage is normal, the brake clearance proper, and the connection of the brake control circuit correct. • Check whether the brake acts unexpectedly. • Check whether the encoder feedback signal is updated.	/

Other E20 faults that may not be common:

- Encoder wiring disconnection:
  If E20 is reported at power-on (subcodes 5 and 7), check for correct encoder cable connection (including cable connection from motor to controller) and for correct PG card installation (including the encoder wiring between the MCB and the drive board).
- The encoder signal abnormal:
  - Fault reported during motor auto-tuning:
    Subcode 1: The encoder AB signals lost during running

    Subcode 3: AB signals reversed during motor auto-tuning

    Subcode 4: Z signal not detected during motor auto-tuning

    Subcode 55: CD signals error or Z signal serious interference during motor auto-tuning
  - Fault reported during running:
    Subcodes 10 and 11: Sin-Cos encoder AB or CD signals serious interference

    Subcode 13: AB signals lost during running

    Subcode 14: Signal Z is lost during running

    Subcode 19: AB analog signals disconnected during low-speed running

    Subcode 9: Overspeed or excessive speed deviation

    Check for correct and tight encoder connection and reliable grounding.

6.8 Leveling Signal Abnormal E22

Fault Report

The MCB shows fault E22 for abnormal leveling signal or excessive slip amount of steel rope and traction sheave during operation.

Fault Handling

Fault code	Possible cause		Solution	Notes
E22	Subcode 101	Leveling signal stuck	• Check whether the leveling and door zone switches work properly. • Check the installation verticality and depth of leveling plates. • Check the leveling signal input terminals on the MCB.	/
	Subcode 102	Loss of leveling signals		/
	Subcode 103	The leveling position pulse deviation is too large in the automatic running state	Check whether the steel rope slips.	/
		For the steel rope slip, the system often reports the fault during elevator full-load up and no-load down operation.	Check the slip and ensure proper balance coefficient. Increase the steel rope friction force and angle of contact.	①
	Subcode 104	Reserved	Contact the agent or manufacturer.	/
	Subcode 105	Leveling signal not detected in communication mode	Check the connection of the leveling switch and CTB.	/

Note

See contents below for details about ①.

Detailed Handling

① The steel rope slip verification

1. When the elevator is at the leveling position on a certain floor, mark it where the rope and traction sheave meet with A on the rope and A' on the sheave. Then run the elevator to other floors before returning to this very floor to observe the marks.

Note

To ensure better result, perform multiple tests and observe the marks by running the elevator to different floors before returning to the very floor.

2. Compare the distance change and ensure that it is within the normal range of below 10 cm. If not, it indicates steel rope slip. Confirm that the balance coefficient is within the range of 0.4 to 0.5 first before increasing both the steel rope tension and the angle of contact. Clear the stain on the rope, if any, with kerosene.

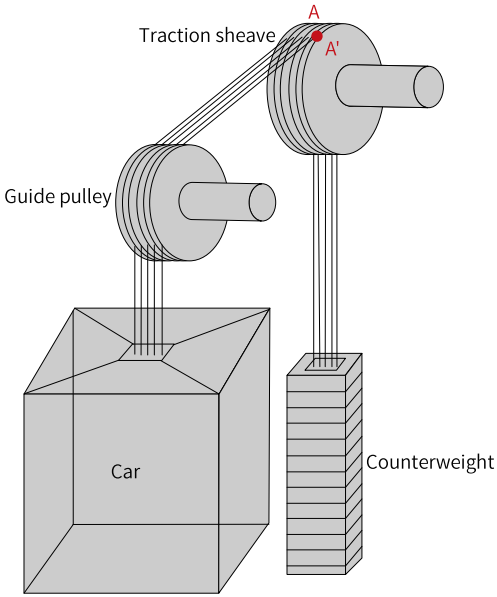


Figure 6-2 Steel rope slip verification

Enable the **slip test function** through the integrated controller**.**

Use the keypad to set F-8 (Test function) to 10 to enable the steel rope slip experiment. The HCB displays "⊙".

1. The elevator automatically moves to the bottom floor and starts the slip experiment.
2. The elevator automatically moves to the top floor and then returns to the bottom floor.
3. The keypad automatically displays the amount of slip "⌐XXX" or "¬XXX" (unit: cm) for 10s and displays "E88" on completion of the experiment. You can press the PRG key on the keypad to exit the experiment.

If the slip amount exceeds 10 cm, the elevator may have leveling deviation or fault occurrence during operation.

Note

- During the slip amount test, car calls and hall calls are not registered.
- If the elevator is not in normal running state, the system will exit the test.

6.9 Elevator Position Abnormal E30

Fault Report

The MCB shows fault E30 with abnormal elevator position.

Fault Handling

Fault code	Possible cause		Solution	Notes
E30	Subcode 101	Up leveling signal has no change within a certain period of running	• Check whether the leveling signal cables are connected reliably, touch the ground, or are shorted with other signal cables. • Check whether the floor-to-floor height is too large or the re-leveling speed (F3-21) is too low, causing overlong re-leveling time.	/
	Subcode 102	Down leveling signal has no change within a certain period of running		/
	Subcode 103	Door zone signal has no change within a certain period of running	• Check whether the door zone signal cables are connected reliably, touch the ground, or are shorted with other signal cables. • Check whether the floor-to-floor height is too large or the re-leveling speed (F3-21) is too low, causing overlong re-leveling time.	/

6.10 Elevator Speed Abnormal E33

Fault Report

The MCB displays E33, indicating abnormal elevator speed.

Fault Handling

Fault code	Possible cause		Solution	Notes
E33	Subcode 101: The detected speed during normal speed running exceeds the limit.	Inappropriate setting of PI value leads to oscillation. Model parameters are mismatched.	Adjust both the proportion and integer of the PI value. Confirm that FF-01 matches the model. Confirm that the encoder PPR F1-12 is set correctly.	①
	Subcode 102: The speed exceeds the limit during inspection or shaft auto-tuning.	Check whether the inspection circuit is loosely connected. Reduce the inspection speed if it is set too high.	Ensure that the inspection circuit is well connected and that the switch functions normally.	/
	Subcode 103: The speed exceeds the limit in shorting stator braking mode.	Check whether the shorting motor stator contactor is wired correctly.	Check whether the shorting motor stator contactor is wired correctly.	/
	Subcodes 104: The speed exceeds the limit during emergency running.	The emergency evacuation speed exceeds the rated elevator speed by 50%. Check whether the speed is set correctly.	• Reduce the speed set in F8-09. • Check whether the emergency power capacity meets the requirements. • Check whether the emergency running speed is set properly.	/
	Subcode 105: • The emergency evacuation lasts over 50s. • The emergency running speed exceeds the limit.	The emergency evacuation speed is too low, or the floor-to-floor height is large.	• Increase the evacuation speed, or add leveling plates. • Check whether the emergency power capacity meets the requirements. • Check whether the emergency running speed is set properly.	①
	Subcode 106: The MCB speed measuring deviation is too large.	Check whether SPI communication between the MCB and the drive board is in good condition.	• Check the wiring of the rotary encoder. • Check for quality SPI communication between the MCB and the drive board.	/

Note

See contents below for details about ①.

Detailed Handling

① PI adjustment in group F2

See *"5.10 Car Startup Rollback" on page 59* ③.

6.11 Shaft Auto-tuning Data Abnormal E35

Fault Report

The MCB reports E35 fault. It indicates that the shaft auto-tuning is not performed, is not ready to be performed or has failed.

Fault Handling

Fault code	Possible cause		Solution	Notes
E35	Subcode 101: The elevator is not at the bottom floor for auto-tuning.	The elevator is not at the bottom floor or the down slow-down switch 1 is inactive upon shaft auto-tuning.	Ensure that the down slow-down switch 1 and down limit switch are active and that the current floor is the bottom one.	/
	Subcode 102: Inspection switch is disconnected during auto-tuning.	Check the inspection or EEO wiring.	Ensure that the inspection or EEO wiring is correct.	/
	Subcode 103: Shaft auto-tuning is not performed through power-on judgment.	The fault will be prompted for no shaft auto-tuning data on MCB. It is quite natural to have this fault before commissioning at normal speed.	Perform shaft auto-tuning again.	/
	Subcode 104	In distance control mode, it is judged at running startup that shaft auto-tuning is not performed.	Perform shaft auto-tuning again.	/
	Subcode 105	The elevator running direction and the pulse change direction are inconsistent.	Check whether the elevator running direction is consistent with the pulse change in F4-03. That is, F4-03 increases when the elevator runs up and decreases when the elevator runs down.	
	Subcode 106: The leveling plate length sensed by the up leveling signal is abnormal.	Check group F5: 01/33: Up leveling signal NO/NC 02/34: Down leveling signal NO/NC 03/35: Door zone signal NO/NC F6-00 and F6-01: Top and bottom floor setting Check leveling plate length.	• Set F6-00 and F6-01 based on the number of leveling plates. • After all, you can try to set F6-52 bit13 to 1. • Check whether the leveling switch NO/NC is set correctly. • If the leveling switch signal flashes, check whether the leveling plates are installed properly and whether there is high-voltage interference.	①
	Subcode 107: The leveling plate length sensed by the down leveling signal is abnormal.			
	Subcode 109: Leveling plate is too long.	Check group F5: 01/33: Up leveling signal NO/NC 02/34: Down leveling signal NO/NC 03/35: Door zone signal NO/NC F6-00 and F6-01: Top and bottom floor setting Check leveling plate length.		

Fault code	Possible cause		Solution	Notes
E35	Subcodes 108 and 110: No leveling signal is received within 45s during auto-tuning.	No leveling signal is received beyond the FA-38 +10s range.	• Ensure that the leveling switch parameters are set correctly. • 1 leveling switch is set for door zone. • 2 leveling switches are set for up and down leveling signal. • Check whether the auto-tuning speed F3-26 is set too low. • Check whether the leveling switches are connected correctly. • Check whether the floor-to-floor height is too large, causing running timeout. You can increase the auto-tuning speed so that auto-tuning of the longest floor can be completed within 45 seconds, and then perform shaft auto-tuning again.	/
	Subcodes 111 and 115	The floor height saved or obtained from auto-tuning is smaller than 50 cm.	• Enable the super-short floor function if the floor height is less than 50 cm. • With no such floor height, check the installation of the leveling plate or the leveling switch on this floor.	/
	Subcode 112: The floor where auto-tuning is finished is not the top floor.	F6-00 (Top floor of the elevator) is incorrectly set, or the leveling plate is missing.	• Check whether F6–00 is set correctly. • Check whether the leveling plate is not installed in place. Monitor whether 1 is added to the current floor of F4-01 when the elevator travels between floors during auto-tuning.	/
	Subcodes 113 and 114	In distance control mode, it is judged at running startup that shaft auto-tuning is not performed.	Perform shaft auto-tuning again.	/
	Subcode 116: The up and down leveling signals are connected inversely.	Incorrect NO/NC settings of up and down leveling signals connected to the CTB in communication mode	• Check whether the leveling switch malfunctions. • Check whether the up and down leveling switches are connected correctly. • Check whether the distance between the up and down leveling switches is proper. • Check leveling switch NO/NC settings in F5-25 bit9 and bit10 in communication mode.	/

Fault code	Possible cause		Solution	Notes
E35	Subcode 117	The leveling plate pulse length sensed by the leveling signal is abnormally greater than 65535.	• Check whether the leveling switch NO/NC is set correctly in F5-25. • If the leveling switch signal flashes, check whether the leveling plates are installed properly and whether there is high-voltage interference.	/
	Subcode 118	Up leveling and re-leveling connected inversely in communication mode.	• Check whether the up leveling and up re-leveling are connected correctly. • Check for proper distance for the up leveling and up re-leveling. • Check leveling switch NO/NC settings in F5-25 bit9 and bit10 in communication mode.	/
	Subcode 119	Down leveling and re-leveling connected inversely in communication mode	• Check whether the down leveling and down re-leveling are connected correctly. • Check for proper distance for the down leveling and down re-leveling. • Check leveling switch NO/NC settings in F5-25 bit10 in communication mode.	/
	Subcode 120	The leveling plate length difference of over 5 cm is sensed by up and down leveling signals during auto-tuning.	Check whether the leveling switch is installed vertically and whether it is parallel with the leveling plate.	/

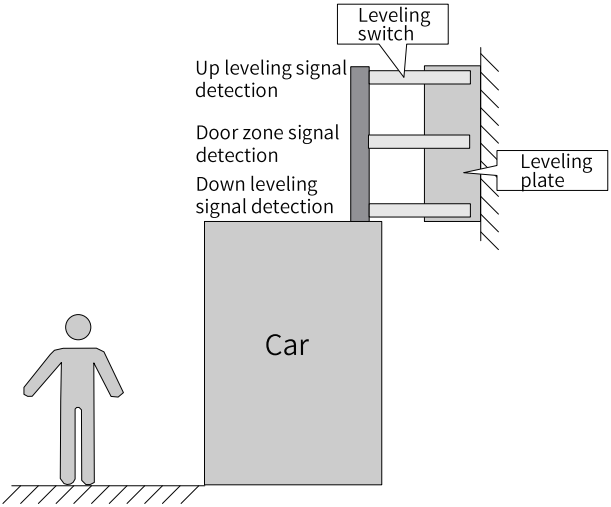
Note

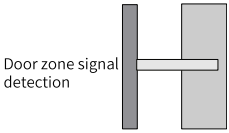
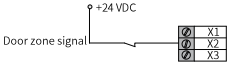
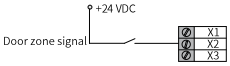
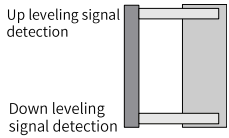
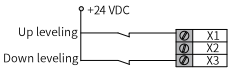
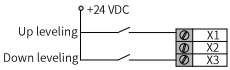
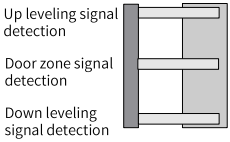
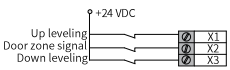
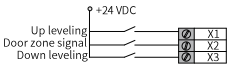
See contents below for details about ①.

Detailed Handling

① Leveling switch parameter settings

Leveling signal devices, including the leveling switches and leveling plates, are connected to the input terminals of the controller. They enable the car to land on each floor accurately. The leveling plates are installed on the guide rails, with one leveling plate on each floor. Make sure that the length and verticality of all the leveling plates are the same. The number of leveling plates is dictated by the number of floors [(F6-00)-(F6-01)+1].



Number of leveling switches	Installation method	Connecting to controller input terminals	Parameter setting
1			F5-01 = 0 F5-02 = 35 (NC) F5-03 = 0
			F5-01 = 0 F5-02 = 03 (NO) F5-03 = 0
2			F5-01 = 33 (NC) F5-02 = 0 F5-03 = 34 (NC)
			F5-01 = 01 (NO) F5-02 = 0 F5-03 = 02 (NO)
3			F5-01 = 33 (NC) F5-02 = 35 (NC) F5-03 = 34 (NC)
			F5-01 = 01 (NO) F5-02 = 03 (NO) F5-03 = 02 (NO)

6.12 RUN Contactor Feedback Abnormal E36

Fault Report

The MCB shows fault E36 with abnormal RUN contactor feedback.

Fault Handling

Fault code	Possible cause		Solution	Notes
E36	Subcode 101: The RUN contactor has no output, but the contactor feedback is active.	Parameter setting error or wrong feedback wiring. The feedback of the RUN contactor is active but the contactor has no output.	• Set parameter NO/NC based on field conditions: 06/38: RUN contactor feedback signal NO/NC • Check whether the feedback contact of the RUN contactor acts properly. • Check whether the NO/NC settings of the feedback contact are correct.	①
	Subcode 102: The output of the RUN contactor is active but the contactor has no feedback.	Parameter setting error or wrong feedback wiring. Poor connection of door lock contacts	• Set parameter NO/NC based on field conditions. Check whether the door vane rubs against the door roller during operation as this may lead to the disconnection of the door lock circuit. • Check whether the feedback contact of the RUN contactor acts properly. • Check whether the NO/NC settings of the feedback contact are correct.	/
	Subcode 103: The current of the asynchronous motor from the acceleration segment to the constant speed segment is too small (≤ 0.1 A).	Disconnected circuit. Wrong no-load current.	• Check whether the RUN contactor closes normally. • Check whether the output (UVW) cables of the controller are connected normally. • Check whether the control circuit of the RUN contactor coil is normal. • Check for correct no-load current of FA-18 (generally 30% to 50% of the rated motor current)	/
	Subcode 104: When a feedback contact of the RUN contactor is enabled for multiple functions, their states are inconsistent.	Parameter setting error or wrong feedback wiring.	• Set parameter NO/NC based on field conditions: 06/38: RUN contactor feedback signal NO/NC • Check whether the feedback contact of the RUN contactor acts properly. • Check whether the NO/NC settings of the feedback contact are correct.	/
	Subcode 105: The RUN contactor feedback is active before re-leveling is started.	Parameter setting error or wrong feedback wiring.	• Set parameter NO/NC based on field conditions: 06/38: RUN contactor feedback signal NO/NC • Check whether the feedback contact of the RUN contactor acts properly. • Check whether the NO/NC settings of the feedback contact are correct.	/

Note

See contents below for details about ①.

Detailed Handling

The RUN contactor parameters in group F5 are set incorrectly. Set the signal feature 06 (NO) and 38 (NC) as needed.

6.13 Brake Contactor Feedback Abnormal E37

Fault Report

The MCB shows fault E37 with abnormal brake contactor feedback or brake travel switch feedback.

Fault Handling

Fault code	Possible cause		Solution	Notes
E37	Parameter setting error	Check group F5 parameters setting.	Set parameter NO/NC based on field conditions: 07/39: Brake feedback NO/NC 26/58: Brake travel switch 1 NO/NC 78/110: Brake travel switch 2 NO/NC	①
	Circuit	Check the brake feedback wiring according to the schematic diagram.	Ensure the correct wiring of the brake feedback circuit.	/
	Brake not released	Check the brake power supply and circuit.	Ensure normal brake power supply. Ensure normal circuit for brake release.	/
	Brake micro switch	Observe whether the micro switch acts for brake release.	Adjust the position of the micro switch.	/

Subcode details:

Sub code	Possible causes
101	The brake contactor output is inconsistent with the feedback
102	When a feedback contact of the brake contactor is enabled for multiple functions, their states are inconsistent

Sub code	Possible causes
103	The brake contactor output is inconsistent with the brake travel switch 1 feedback
104	When a feedback contact of the brake travel switch 1 is enabled for multiple functions, their states are inconsistent
105	The brake contactor feedback active before the brake contactor releases
106	The brake contactor output is inconsistent with the brake travel switch 2 feedback
107	When a feedback contact of the brake travel switch 2 is enabled for multiple functions, their states are inconsistent
108	The brake contactor output inconsistent with the feedback of the brake travel switch 1 on the I/O expansion board
109	The brake contactor output inconsistent with the feedback of the brake travel switch 2 on the I/O expansion board
300	When the feedback contact of the main brake contactor is enabled for multiple functions, their states are inconsistent
301	The output of main brake contactor inconsistent with the feedback
310	When the feedback contact of the auxiliary brake contactor 1 is enabled for multiple functions, their states are inconsistent
311	The output of auxiliary brake contactor 1 inconsistent with the feedback
320	When the feedback contact of the auxiliary brake contactor 2 is enabled for multiple functions, their states are inconsistent
321	The output of auxiliary brake contactor 2 is inconsistent with the feedback
330	When the feedback contact of the brake travel switch 1 is enabled for multiple functions, their states are inconsistent
331	The output of the auxiliary brake contactor 1 inconsistent with the travel switch 1 feedback
340	When the feedback contact of the brake travel switch 2 is enabled for multiple functions, their states are inconsistent
341	The output of the auxiliary brake contactor 2 inconsistent with the travel switch 2 feedback
351	The output of the auxiliary brake contactor 1 inconsistent with the extended travel switch 1 feedback
361	The output of the auxiliary brake contactor 2 inconsistent with the extended travel switch 2 feedback
402	The output of auxiliary brake contactors 1 and 2 abnormal
403	Contactor output inconsistent with the feedback in single braking arm force detection
404	Braking force insufficient and rollback speed at stop over 0.050 m/s

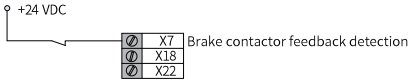
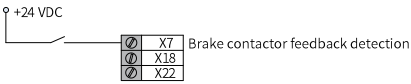
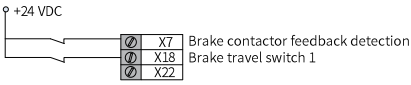
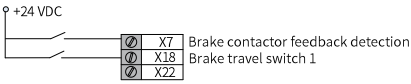
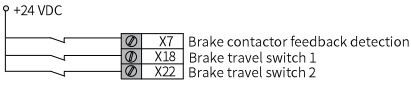
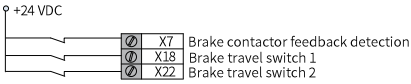
Note

See contents below for details about ①.

Detailed Handling

① Brake parameter setting

The national standard states that braking circuit test requires feedback from at least two circuit channels. So the brake feedback parameters can be set repeatedly (not applicable to other parameters). If the X input terminals of group F5 are for brake test function, the test treats the terminals on the same priority level and reports E37 if any circuit channel feedback is abnormal.

Brake feedback test	Connecting to controller input terminals	Parameter setting
1 circuit channel of brake contactor auxiliary contact test		F5-07 = 39 (NC) F5-18 = 0 F5-22 = 0
		F5-07 = 7 (NO) F5-18 = 0 F5-22 = 0
1 circuit channel of brake contactor auxiliary contact test 1 circuit channel of brake travel switch test		F5-07 = 39 (NC) F5-18 = 58 (NC) F5-22 = 0
		F5-07 = 7 (NO) F5-18 = 26 (NO) F5-22 = 0
1 circuit channel of brake contactor auxiliary contact test 2 circuit channels of brake travel switch test		F5-07 = 39 (NC) F5-18 = 58 (NC) F5-22 = 110 (NC)
		F5-07 = 7 (NO) F5-18 = 26 (NO) F5-22 = 78 (NO)

6.14 Rotary Encoder Feedback Signal Abnormal E38

Fault Report

The MCB reports fault E38 for no encoder pulse change or reverse pulse direction.

Fault Handling

Fault code	Possible cause		Solution	Notes
E38	Subcode 101	No change in the pulses in F4-03 beyond the time set in F1-13	• Check whether the rotary encoder wiring is correct (Perform manual rotation to check F4-03 change). • Check whether the brake works properly.	/
	Subcode 102	F4-03 increase in motor running down	• Check whether the elevator has rollback at startup and whether the parameters and wiring of the rotary encoder are correct. • Check whether the system grounding and signal grounding are reliable. • Check whether the UVW phase sequence of the motor is correct.	/
	Subcode 103	F4-03 decrease in motor running up		/
	Subcode 104	SVC used in distance control mode.	Set F0-00 (Control mode) to 1 (FVC) in the distance control mode.	/
	Damaged or disconnected encoder	Release the brake manually and perform manual rotation to check F4-03 change.	Replace the encoder and cable.	①
	Brake clearance	• Check the brake release and clearance. • The brake is not fully released within the time set in F1-13.	To adjust the brake clearance, see *"5.10 Car Startup Rollback" on page 59*. F1-13 = 2.1	/

Fault code	Possible cause		Solution	Notes
E38	Pulse direction and running direction reversed	Run at inspection speed and monitor F4-03 change (increase for up running and decrease for down running).	Set through F2-10.	/
	Asynchronous motor output circuit abnormal	• Check whether the RUN contactor closes. • Check for tightened wiring terminals.	Check the circuit on the output side.	/
	Limit switch abnormal	Subcode 105: During up running, the down limit switch operates when the down slow-down switch 1 becomes active.	• Check whether the elevator rolls back at startup on the terminal floor. • Check whether the leveling switch waggles around. • Check whether the wiring of the down limit switch is normal.	/
		Subcode 106: During down running, the up limit switch operates when the up down-slow switch 1 becomes active.	• Check whether the elevator rolls back at startup on the terminal floor. • Check whether the leveling switch waggles around. • Check whether the wiring of the up limit switch is normal.	/

Note

See contents below for details about ①.

Detailed Handling

① Damaged or disconnected encoder

1. Disconnect the power, remove the encoder wire, and check for tight pin connection at both ends. If there is any disconnection, replace the encoder wire.
2. Check the multimeter setting. Measure with the multimeter to check for any terminal or circuit disconnection. Replace the encoder wire if necessary.
3. Connect the encoder and PG card well.
4. Power up the system and remove the power supply of the brake.

5. Manually release the brake, perform manual rotation or run in shorting stator braking mode (shorting motor stator contactor active).
6. Check F4-03 change. If there is no pulse change, replace the encoder.

6.15 Shorting Door Lock Circuit Relay Feedback Fault E47

Fault Report

The MCB shows fault E47 with abnormal shorting door lock circuit relay feedback and output and abnormal interaction with the SCB in communication mode.

Fault Handling

Fault code	Possible cause		Solution	Notes
E47	Inconsistent shorting door lock circuit relay feedback and output	1. Parameter setting error in group F5 2. Shorting door lock circuit relay fault	1. Check the shorting door lock circuit relay and wiring. 2. 22/54: Shorting door lock circuit relay feedback NO/NC	/
	Shorting door lock circuit relay feedback over 2s for the SCB in communication mode			/
	SCB wiring disconnected	1. Check the balance coefficient. 2. Check the car load.	1. Reset the balance coefficient. 2. Reduce the car load.	/
	Inconsistent system and SCB manufacturer No.	Inconsistent manufacturer No.	Check the manufacturer No.	/
	SCB authentication failed	SCB not authenticated	Use the authentic SCB from the original manufacturer.	/
	SCB fault	SCB fault	Check whether the SCB is damaged.	/
	Subcode 101	The shorting door lock circuit relay output for 2s, but the relay feedback is inactive or the door lock feedback disconnected	1. Check the signal feature (NO/NC) of the feedback contact of the shorting door lock circuit relay. 2. Check whether the shorting door lock circuit relay acts properly.	/
E47	Subcode 102	The shorting door lock circuit relay no output, but the relay feedback is active for 2s		/
	Subcode 106	The shorting door lock circuit relay feedback active before re-leveling		/
	Subcode 103	The shorting door lock circuit relay output over 15s during re-leveling or advance door opening	1. Check whether the leveling and re-leveling signals are normal. 2. Check whether the set re-leveling speed is too low.	/
	Subcode 201	SCB wiring disconnected in communication protocol mode	1. Check the CAN communication connection of the SCB. 2. Check the 24 V power supply of the MCB and SCB.	/

Fault code	Possible cause		Solution	Notes
E47	Subcode 202	Mismatch of the MCB with SCB	Contact the agent or manufacturer.	/
	Subcode 203	SCB relay output inconsistent with the feedback in communication mode	1. Check the match of the SCB model with the door type (SCB-D4 for through-type door). 2. Check whether the relay on the SCB board acts normally.	/
	Subcode 209	System and SCB encryption authentication failed	1. Check whether it is the authentic SCB from the original manufacturer. 2. Contact the manufacturer.	/
	Subcode 210	SCB board self-authentication failed	1. Check whether the SCB board has encrypted chips. 2. Perform programming again at the factory.	/

Fault code	Possible cause		Solution	Notes
E47	Subcode 300	SCB board fault (3xx)	301: SCB software fault 302: SCB identification fault 303: Up door zone signal abnormal 304: Down door zone signal abnormal 305: Safety relay KM1 abnormal 306: Safety relay KM2 abnormal 307: Safety relay KM4 abnormal 308: Safety relay KM5 abnormal 309: Safety relay KM6 abnormal	/

6.16 Consecutive Loss of Leveling Signal E50

Fault Report

The MCB shows fault E50 with door zone and leveling switch signals lost or stuck for three consecutive times.

Fault Handling

Fault code	Possible cause		Solution	Notes
E50	Door zone and leveling switch fault	• Improper position of switches • Switch fault	Check whether the switches are working normally.	/
	Improper position of leveling plates	Check the balance coefficient.	Reset the balance coefficient.	/
	Leveling and door zone signals wiring incorrectly	Abnormal connection of the input signal terminals	Check the wiring.	/
	Steel rope slip	• Pulley badly tensioned • Improper configuration of car weight and counterweight	• Check the pulley. • Adjust the counterweight.	/
	Subcode 101	Leveling signal stuck detected for three consecutive times	• Check whether the leveling switches and door zone switches work properly. • Check the installation verticality and depth of leveling plates. • Check the leveling signal input terminals on the MCB. • Check whether the steel ropes slip.	/
	Subcode 102	Leveling signal loss detected for three consecutive times		/

6.17 Door Lock Fault E53

Fault Report

The MCB shows E53 for door lock fault.

Fault Handling

Fault code	Possible cause		Solution	Notes
Err53	101	The door lock feedback remains active 3s after door open output, with shorting door lock circuit disabled	• Check whether the door lock circuit is shorted. • Check whether the door lock feedback is correct.	/
	102	Inconsistent states of the door lock feedback contacts for multiple functions, or inconsistent feedback of door lock 1 and door lock 2	• Check whether the door opens smoothly without any lock hook obstruction. • Check whether the door open start speed is too slow. • Check whether the door lock circuit is shorted.	/
	105	The door lock 1 shorting signal remains active 3s after door open output, with shorting door lock circuit enabled		/
	106	The door lock 2 shorting signal remains active 3s after door open output, with shorting door lock circuit enabled		/
	104	The high-voltage and low-voltage door lock signals inconsistent	Check whether the higher-voltage and low-voltage door lock signals are inconsistent. If the time of inconsistency is above 1.5s, a fault is reported.	/
	107	The door lock shorting signal selected, but the feedback signal is continuously disconnected	Check whether the door lock shorting feedback signal cable is not connected or is disconnected.	/
	201	AB/BC shorting, indicating that the front car door or landing door is shorted	• Check the shorting of the front car door or landing door lock. • Check whether the relay on the SCB board engages or opens normally.	/
	202	BE shorting, indicating that 131 and 134 are shorted	• Check the shorting of the front landing door lock and lock end. • Check whether the relay on the SCB board engages or opens normally.	/
	203	AD shorting, indicating that 130 and 133 are shorted	• Check the shorting of the front car door lock and rear landing door lock end. • Check whether the relay on the SCB board engages or opens normally.	/
	204	DE shorting, indicating that 133 and 134 are shorted	• Check the shorting of rear landing door lock end. • Check whether the relay on the SCB board engages or opens normally.	/

Fault code	Possible cause		Solution	Notes
Err53	205	BC shorting, indicating that 131 and 132 are shorted	• Check the shorting of the front car door lock. • Check whether the relay on the SCB board engages or opens normally.	/
	206	CD/DE shorting, indicating that the rear landing door or rear car door is shorted	• Check the shorting of the rear landing door or rear car door lock. • Check whether the relay on the SCB board engages or opens normally.	/
	207	CE/AE shorting, indicating that 132 and 134 or 130 and 134 are shorted	• Check the shorting of the front car door and lock end. • Check the shorting of the rear car door and lock end. • Check whether the relay on the SCB board engages or opens normally.	/
	208	BD shorting, indicating that 132 and 133 are shorted	• Check the shorting of the front landing door and rear car door. • Check whether the relay on the SCB board engages or opens normally.	/
	209	KM3 relay on the SCB board stuck	Check whether the relay K3 on the SCB board engages or opens normally.	/
	210	AC/AE shorting, indicating that 130 and 132 or 130 and 134 are shorted	• Check the shorting of the front car door and lock end. • Check the shorting of the front car door and rear landing door. • Check whether the relay on the SCB board engages or opens normally.	/
	211	AE shorting, indicating that 130 and 134 are shorted	• Check the shorting of the front car door and lock end. • Check whether the relay on the SCB board engages or opens normally.	/
	212	KM3 relay on the SCB board stuck	Check whether the relay K3 on the SCB board engages or opens normally.	/

6.18 Overcurrent at Inspection Startup E54

Fault Report

The MCB shows fault E54 when the starting current exceeds 110% of rated current due to excessive deviation between the car and counterweight or too large friction force.

Fault Handling

Fault code	Possible cause		Solution	Notes
E54	Too large friction force	• Check the brake release. • Check for unblocked safety gear. • Check whether the guide shoes are too tight.	• Ensure that the brake is fully released. • Ensure that the safety gear is not blocked. • Ensure that the guide shoes have proper gaps.	①
	Too heavy load	• Check the balance coefficient. • Check the car load.	• Reset the balance coefficient. • Reduce the car load.	/
	Subcode 102	The current at inspection startup exceeds 120% of rated current	• Do not have unbalanced load or reduce the load during installation in inspection mode. • Check whether the motor parameters obtained through auto-tuning are correct and perform auto-tuning again if possible. • Check whether the mechanical resistance is too large. • Set the bit1 of FC-00 to ON to disable the startup overcurrent detection.	/

Note

See contents below for details about ①.

Detailed Handling

① With normal brake release, unblocked safety gear, and proper guide shoe gap, you still see E54 in resetting the safety gear during inspection up after the safety gear linkage test. If this happens, disable the startup overcurrent detection and set bit1 of FC-00 to 1 and restore the parameter to its original value after the safety gear is reset successfully.

6.19 Stop at Another Floor E55

Fault Report

E55 fault displayed on the MCB: In automatic running, the door open limit is not received after FB-06 output, and the next floor is automatically registered for the door open limit signal.

Fault Handling

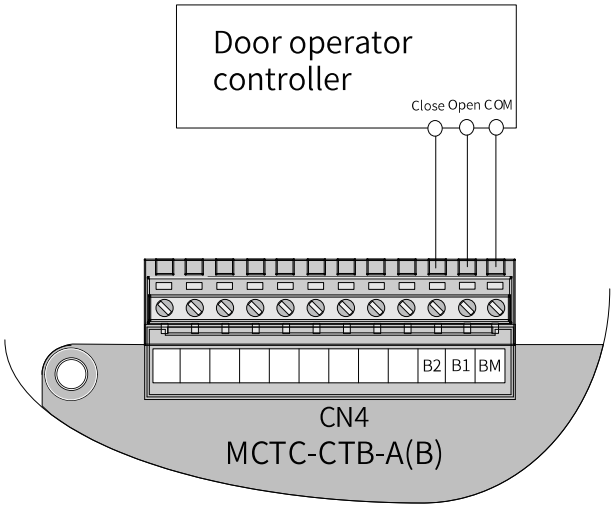
Fault code	Possible cause		Solution	Notes
E55	Wiring error	Short CTB B1-BM and B2-BM to check for normal door open and close.	Wire correctly.	①
	Parameter setting	Check whether the door open/close limit signal is consistent with the actual door state through monitoring F5-35.	Set the F5-25 NO/NC feature according to field wiring or drawings. See *" Appendix 2: Fault Subcodes" on page 131*for more details on monitoring F5-35.	/
	Door open limit not reached	Check whether the door operator executes door open/close normally. Check for mechanical blocking.	Ensure normal door operator action.	/
	Subcode 101	During the automatic running of the elevator, the door open limit is not received within the time threshold in FB-06.	• Check the door open limit signal of the current floor. • Check whether the CAN communication is abnormal during door open.	/

Note

See contents below for details about ①.

Detailed Handling

① Check for connect door operator and CTB wiring



6.20 Door Open/Close Signal Fault E56

Fault Report

The MCB shows fault E56 with open and close signals active for over 500 ms, open and close limit signals simultaneously active for over 500 ms, and the close limit signal active for 4s after the door opens for 3s.

Fault Handling

Fault code	Possible cause		Solution	Notes
E56	Parameter setting error in group F5	Check group F parameters.	Check the NO/NC parameter setting of F5-25.	/
	Door open/close signal incorrect	Check the door open/close signal cable.	Check the door open/close signal input cable.	/
	Door close limit signal incorrect	Check the door open/close signal cable.	Check the door open/close signal input cable.	/

Sub code	Possible cause	Solution
101	The door open limit signal active during running	• Check the signal feature (NO/NC) of the door open/close signal set in F5-25. • Check the connection of the door open/close signal.
102	The door close limit signal inactive during running	
103	The door open limit signal and door close limit signal active simultaneously	
104	The door close limit signal is continuously connected 2s after door open. This fault subcode is detected after the door lock bypass is set.	• Adjust the speed if the door opens slowly. • Check whether the door close limit signal is always active.

6.21 Shaft Position Switches Abnormal E58

Fault Report

MCB shows fault E58 for the up and down slow-down switches and limit switches being active at the same time.

Fault Handling

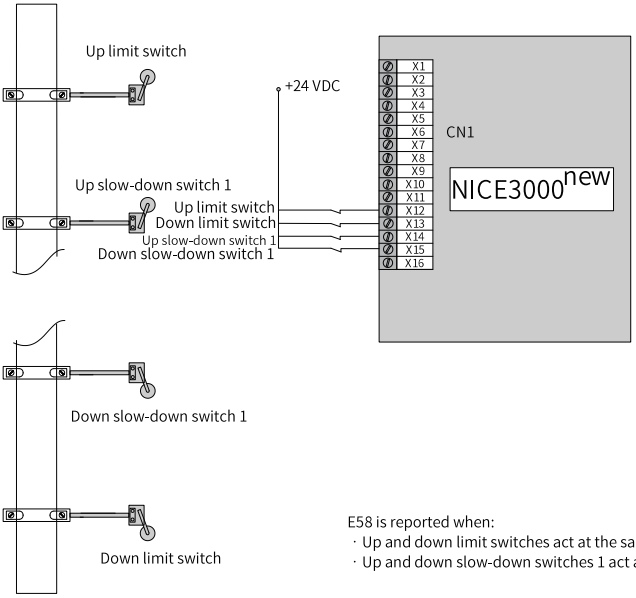
Fault code	Possible cause		Solution	Notes
E58	Wiring error	Check the circuit.	Check for normal circuit connection.	①
	Parameter setting	Check input terminal definition in group F5.	Check that parameters are correctly set.	/
	Shaft travel switch or position switch error	Check whether the position switches can operate and be reset.	Replace them if they cannot be reset.	/
	Subcode 101	Up and down slow-down switches 1 active simultaneously	• Check the 24 V power supply. • Check whether the signal feature (NO/NC) of the slow-down switches is consistent with the MCB parameters. • Check whether the slow-down switches malfunction.	/
	Subcode 102	The feedback of both up and down limit switches active	• Check whether the signal feature (NO/NC) of the limit switches is consistent with the MCB parameters. • Check whether the limit switches malfunction.	/

Note

See contents below for details about ①.

Detailed Handling

① Wiring of limit switches and slow-down switches



E58 is reported when:
· Up and down limit switches act at the same time (subcode 102).
· Up and down slow-down switches 1 act at the same time (subcode 101).

6.22 UCMP Test Abnormal E65

Fault Report

The MCB shows fault E65 when the car runs and stops out of the door zone in shorting door lock circuit state.

Fault Handling

Fault code	Possible cause		Solution	Notes
E65	This fault reported when the car moves unexpectedly	The brake is not fully closed.	• Check whether the brake is fully closed and ensure that the car does not move unexpectedly. • Check the gap between the door vane and door roller and ensure no contact between them during operation.	/

6.23 Braking Force Abnormal E66

Fault Report

MCB shows fault E66 when the braking force is detected to be below 1 during the braking force test.

Fault Handling

Fault code	Possible cause		Solution	Notes
E66	Braking force insufficient	Brake pads are worn.	Check the brake clearance, and then perform torque test again.	/

Sub code	Possible causes
101	The braking force detected to be insufficient
110	The right brake arm force insufficient in braking force test
111	The left brake arm force insufficient in braking force test

Torque test steps are as follows:

1. The system is in inspection state and the inspection switch is active.
2. The elevator stops in the door zone with the door lock closed.
3. Set F-8 to 8 using the keypad and the MCB shows E88.
4. The system outputs torque according to the setting of braking force.

If the test result is unacceptable, the system reports E66 and the elevator stops running.

Set balance coefficient properly and perform torque auto-tuning.

Conditions: The system is in the normal or parking mode and there is no fault above level 3.

Parameter settings: Set F-8 to 11 using the keypad or F3-24 to 6 using the operator. Ensure that the rated load (F0-05) is set correctly.

Running: Hall calls are not registered. The elevator executes all car calls and judges whether the door close limit is reached. After the door lock is applied and remains active for 3s, the elevator enters the test mode and the HCB displays "RI".

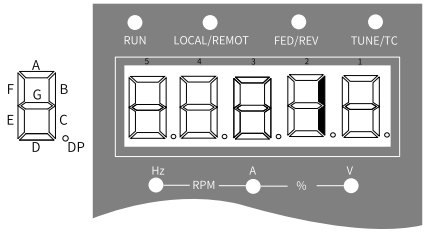
Result display: F7-13 (Balance coefficient) and F7-14 (Recommended torque) are saved and the keypad displays "Pxx.xx Txxx" in scrolling mode for 8s. T is followed by the recommended torque value.

7 Appendix 1: Status Monitoring Parameters

F5-34 and F5-35 Monitoring

F5-34 monitors the I/O terminals on the MCB. F5-35 monitors the I/O terminals on the CTB, CCB and HCB.

The LED segments are numbered 5, 4, 3, 2 and 1 from left to right. A segment lights up to indicate that the signal is valid. The correlation of signals and each segment is shown in the following table.



F5-34			F5-35		
No.	Segment	Indication	No.	Segment	Indication
1	A	–	1	A	Light curtain 1
	B	Up leveling signal		B	Light curtain 2
	C	Down leveling signal		C	Door open limit 1
	D	Door zone signal		D	Door open limit 2
	E	Safety circuit feedback 1		E	Door close limit 1
	F	Door lock circuit feedback 1		F	Door close limit 2
	G	RUN contactor output feedback		G	Full-load signal
	DP	Brake output feedback 1		DP	Overload signal
2	A	Inspection signal	2	A	Door open button
	B	Inspection up signal		B	Door close button
	C	Inspection down signal		C	Door open delay button
	D	Fire emergency signal		D	Direct travel ride signal
	E	Up limit signal		E	Attendant signal
	F	Down limit signal		F	Direction change signal
	G	Overload signal		G	Independent running signal
	DP	Full-load signal		DP	Firefighter operation signal

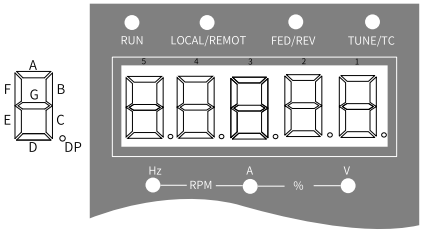
F5-34			F5-35		
No.	Segment	Indication	No.	Segment	Indication
3	A	Up slow-down 1 signal	3	A	Door open output 1
	B	Down slow-down 1 signal		B	Door close output 1
	C	Up slow-down 2 signal		C	Door lock signal
	D	Down slow-down 2 signal		D	Door open output 2
	E	Up slow-down 3 signal		E	Door close output 2
	F	Down slow-down 3 signal		F	Door lock signal
	G	Shorting door lock circuit relay output feedback		G	Up arrival gong
	DP	Firefighter operation signal		DP	Down arrival gong
4	A	Door operator 1 light curtain	4	A	Door open button display
	B	Door operator 2 light curtain		B	Door close button display
	C	Brake output feedback 2		C	Door open delay button display
	D	UPS input		D	Non-door zone stop output
	E	Elevator lock input		E	Reserved
	F	Safety circuit feedback 2		F	Buzzer output
	G	Synchronous motor self-locking feedback		G	Reserved
	DP	Door lock circuit feedback 2		DP	Energy-saving sign

F5-34			F5-35		
No.	Segment	Indication	No.	Segment	Indication
5	A	Reserved	5	A	System light curtain state 1
	B	RUN contactor output		B	System light curtain state 2
	C	Brake contactor output		C	Hall call elevator lock input
	D	Shorting door lock circuit relay output		D	Hall call fire emergency input
	E	Fire emergency floor arrival signal		E	Full-load signal
	F	/		F	Overload signal
	DP	/		DP	/

FA-12 Monitoring

FA-12 displays the current status of the elevator.

The LED segments are numbered 5, 4, 3, 2 and 1 from left to right. No. 5 and 4 combined display elevator status. No. 2 and 3 display none. No.1 displays door 1 status. The correlation of status and each segment is shown in the following table.



5		4		3	2	1	
Elevator State				No Display	No Display	Door 1 State	
00	Inspection state	08	Elevator lock	/	/	0	Waiting state
01	Shaft auto-tuning	09	Idle elevator parking			1	Door open state
02	Micro-leveling	10	Low-speed re-leveling			2	Door open limit
03	Returning to fire emergency floor	11	Emergency evacuation operation			3	Door close state
04	Firefighter operation	12	Motor auto-tuning			4	Door close limit
05	Fault state	13	Keypad control			/	/
06	Attendant operation	14	Main floor verification			/	/
07	Automatic	15	VIP state			/	/

8 Appendix 2: Fault Subcodes

Group E0 parameters are for fault records viewing and each fault has a subcode. For example, E0-00 shows the latest fault with E0-01 being subcode.

Param. No.	Param. Name	Setting Range	Default	Unit	Operation
Group E0 to E9: Fault Record Parameters					
E0-00	Latest fault	0 to 9999	0	/	●
E0-01	Latest fault subcode	0 to 65535	0	/	●
E0-02	Latest fault month and day	0 to 1231	0	MM.DD	●
E0-03	Latest fault hour and minute	0 to 23.59	0	HH.MM	●
E0-04	Logic information upon latest fault	0 to 65535	0	/	●
E0-05	Curve information upon latest fault	0 to 65535	0	/	●
E0-06	Speed reference upon latest fault	0.000 to 4.000	0	m/s	●
E0-07	Feedback speed upon latest fault	0.000 to 4.000	0	m/s	●
E0-08	Bus voltage upon latest fault	0 to 999.9	0	V	●
E0-09	Current position upon latest fault	0.0 to 300.0	0	m	●
E0-10	Output current upon latest fault	0.0 to 999.9	0	A	●
E0-11	Output frequency upon latest fault	0.00 to 99.99	0	Hz	●
E0-12	Torque current upon latest fault	0.0 to 999.9	0	A	●
E0-13	Output voltage upon latest fault	0 to 999.9	0	V	●
E0-14	Output torque upon latest fault	0 to 200.0	0	%	●
E0-15	Output power upon latest fault	0.00 to 99.99	0	kW	●
E0-16	Communication interference upon latest fault See FA-24 description.	0 to 65535	0	/	●
E0-17	Encoder interference upon latest fault	0 to 65535	0	/	●

Param. No.	Param. Name	Setting Range	Default	Unit	Operation
Group E0 to E9: Fault Record Parameters					
E0-18	Input state 1 upon latest fault See FA-26 description.	0 to 65535	0	/	●
E0-19	Input state 2 upon latest fault See FA-27 description.	0 to 65535	0	/	●
E0-20	Input state 3 upon latest fault See FA-28 description.	0 to 65535	0	/	●
E0-21	Input state 4 upon latest fault See FA-29 description.	0 to 65535	0	/	●
E0-22	Input state 5 upon latest fault See FA-30 description.	0 to 65535	0	/	●
E0-23	Output state 1 upon latest fault See FA-31 description.	0 to 65535	0	/	●
E0-24	Output state 2 upon latest fault See FA-32 description.	0 to 65535	0	/	●
E0-25	Car input state upon latest fault See FA-33 description.	0 to 65535	0	/	●
E0-26	Car output state upon latest fault See FA-34 description.	0 to 65535	0	/	
E0-27	Hall call state upon latest fault See FA-35 description.	0 to 65535	0	/	
E0-28	System state 1 upon latest fault See FA-36 description.	0 to 65535	0	/	
E0-29	System state 2 upon latest fault See FA-37 description.	0 to 65535	0	/	

9 Appendix 3: Fault Table

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err02/Err03/ Err04	Output overcurrent	1	The main circuit output is grounded or short-circuited or the motor insulation performance degrades.	• Check whether the motor and grounding cables are connected correctly. • Check whether the shorting motor stator contactor causes a short circuit at the controller output side. • Check whether motor cables have a damaged jacket.	5A	/
			Motor auto-tuning is not performed or motor parameter setting errors occur.	Set motor parameters according to the motor nameplate and perform motor auto-tuning again.	5A	/
			The encoder signal is incorrect.	• Check whether encoder pulses per revolution (PPR) is set correctly. • Check whether the encoder signal is interfered with, whether the encoder cable runs through the duct independently or is too long, and whether the shield is grounded at one end. • Check whether the encoder is installed reliably, whether it is connected to the motor shaft securely, and whether the encoder is stable during high-speed running. • Check whether the encoder is connected correctly and securely. For the asynchronous motor, perform SVC and compare the current in FVC mode to judge whether the encoder works properly.	5A	/
			The phase sequence of the motor is incorrect.	Interchange the motor UVW phase sequence or manually set FF-10 to adjust the sequence.	5A	/
			The acceleration time is too short.	Reduce the acceleration rate.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err02/Err03/ Err04	Output overcurrent	1	The braking resistor is short-circuited.	Check whether the braking resistor and braking unit are connected correctly. Make sure that there is no short circuit.	5A	/
			Power hardware fault	In V/f control mode without releasing the brake, it indicates hardware fault with overcurrent reported at power-on.	5A	/
		2	Same as subcode 1	Same as subcode 1	5A	/
		11			5A	/
		12			5A	/
		15	Overcurrent occurs in the detection of inter-phase short circuit.	Check whether there is three-phase short circuit.	5A	/
Err05/Err06/ Err07	Bus overvoltage	1	Bus voltage is too high.	• During power generation, the braking resistance is too large. • During power generation, the bus voltage hardware mismatches with software, especially for the 380 V and 220 V. • Check the input power supply. • Deceleration time is too short.	5A	/
Err09	Input undervoltage	1	An instantaneous input power failure occurs.	Check the input power line.	5A	/
			The input voltage is too low.	Check the power supply system.	5A	/
			AC drive power mismatches with the motor.	Replace with an AC drive of higher power.	5A	/
		1	The drive control board malfunctions.	Replace the drive hardware.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err10	AC drive overload	1	The mechanical resistance is too large.	• Check whether the brake is released and whether the brake power supply is normal. • Check whether the guide shoes are too tight.	5A	Overload curve: Take 180% of rated AC drive current as the upper overload limit to calculate the time of overload capacity. If it is not 180%, adjust the overload time proportionally.
			The balance coefficient is improper.	Check the balance coefficient.	5A	
			The encoder feedback signal is abnormal.	• Check whether the feedback signal and parameter setting (F1-00 and F1-12) are correct. • For synchronous motors, check whether the starting angle of the encoder is correct.	5A	
Err10	AC drive overload	1	Motor auto-tuning is not performed properly.	Check whether the motor parameters are correct, and perform motor auto-tuning again. If this fault is reported during the slip experiment, perform the slip experiment by enabling the slip function set in F3-24.	5A	Overload curve: Take 180% of rated AC drive current as the upper overload limit to calculate the time of overload capacity. If it is not 180%, adjust the overload time proportionally.
			The phase sequence of the motor is incorrect.	Interchange UVW phase sequence.	5A	
			The AC drive model is of too low power class.	If the current has exceeded the rated current of the AC drive during stable-speed running of the elevator with an empty car, replace with an AC drive of higher power.	5A	
Err11	Motor overload	1	/	See Err10-001.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err12	Input phase loss	1	• The R, S and T power input is unbalanced or the input phase loss occurs. • Some of the input terminals are loosely connected.	• The R, S and T power lines have phase loss. • There is severe three-phase unbalance. • Set FJ-40 bit1 to 1 to increase the judgment threshold.	5A	/
Err13	Output phase loss	2	The output wiring of the main circuit is loose.	Check whether motor cables are connected securely.	5A	/
		Maximum three-phase output current	The motor is damaged.	Check whether the motor is internally abnormal.	5A	/
Err14	Module overtemperature	Carrier frequency	The temperature curve FF-02 is set incorrectly.	• The temperature curve FF-02 is set incorrectly. • Fan fault	5A	/
			The air filter is blocked	Clean the air filter. Check whether the installation clearances of the controller satisfy the requirements.	5A	/
			The ambient temperature is too high.	Lower the ambient temperature.	5A	/
			The MCB is incompatible with the drive board.	Replace a compatible MCB or drive board.	5A	/
			The AC drive model is of too low power class.	Replace with an AC drive of higher power.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err15	Braking unit fault	1	The braking resistor is short-circuited.	Check whether the braking resistor and braking unit are connected correctly. Make sure that there is no short circuit.	5A	/
		2	The braking transistor has short circuit.	• The input power supply is of poor quality. • The braking transistor has short circuit. • The voltage ripple sampled is large.	5A	Detect the bus voltage fluctuation at stop to see whether the braking transistor is faulty.
Err16	Current control fault	1	The excitation current control is abnormal.	• Motor parameters are set incorrectly. • Output phase loss occurs. • The RUN contactor is not closed. • The brake circuit is abnormal. • The input voltage is low.	5A	/
		2	Torque current control fault		5A	/
		3	The torque reaches the upper limit and the speed is very low.		5A	/
Err17	Encoder interference during motor auto-tuning	2	/	• Eliminate encoder interference. • Check the CD signal zero drift correction.	5A	/
		3	/	• Eliminate encoder interference. • Check the encoder wiring connection.	5A	/
Err18	Current detection fault	0	Hardware fault or interference exists.	Replace the drive hardware.	5A	/
		3	The drive board is damage.	Replace the drive board.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err19	Motor auto-tuning fault	1	/	• The RUN contactor is not closed. • Output phase loss occurs. • The target current obtained through auto-tuning needs to be reduced.	5A	/
		5	The output circuit is open during magnetic pole position auto-tuning.	Check whether open circuit occurs in the UVW output.	5A	/
			The motor power is way below that of the AC drive.	Replace with an AC drive of lower power.	5A	/
		6	See subcode 5.	See subcode 5.	5A	/
Err19	Motor auto-tuning fault	8	Motor type F1-25 mismatches with encoder type F1-00.	• Check the motor type setting. • Check the encoder type setting.	5A	/
		9	The encoder CD signal is unstable.	• Check the motor rotation direction. • Eliminate encoder interference.	5A	/
		10	Parameter setting error	The encoder phase sequence is set incorrectly.	5A	/
		11	/	/	5A	/
		12	F1-22 bit0 and bit1 are enabled, and the encoder zero position angle is not obtained during inspection operation.	Perform angle-free auto-tuning and ensure that the motor makes three rotations before power-off and power-on again.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err19	Motor auto-tuning fault	13	Synchronous motor rotor magnetic pole position auto-tuning failure	Check whether the group F1 parameters are set correctly.	5A	/
		14	Incorrectly set encoder type	In static auto-tuning, F1-00 needs to be set to 0 or 3.	5A	/
		15	Encoder CD signal error	Check that the encoder is of sin/cos type, and that F1-00 settings are correct.	5A	/
		19		Replace the encoder.	5A	/
Err20	Speed feedback incorrect	1	No pulse change in no-load auto-tuning	• The motor may not rotate in auto-tuning. • The brake is not released or the current is low. • AB phase interference exists. • AB phases are not connected correctly.	5A	/
		3	Encoder AB phase sequence incorrect	• The phase sequence is reversed. • The motor may not rotate in auto-tuning. The brake is not released or the current is low. • AB phase interference exists. • Set encoder PPR correctly. • Modify FF-10.	5A	/
		4	Z signal loss during auto-tuning	• Z phase signal is not connected. • Eliminate encoder interference. • The encoder is not connected. • The motor may not rotate.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err20	Speed feedback incorrect	5	Disconnection of CD signals in stop state	• Check that the encoder is of sin/cos type that supports CD signals. • Check for correct CD signal wiring. • For the 1313 series encoder with CD signals from PG card simulation, check for correct signals. • The magnetic ring encoder has no CD signals available and F0-00 needs to be set to 5.	5A	/
		7	UVW encoder wiring disconnection	• Check the encoder type setting. • Check the PG card. • Check the wiring.	5A	/
Err20	Speed feedback incorrect	9	Runaway protection	• Parameters F2-11, F2-12 and F2-13 are not correct. Generally, F2-11 is F2-06 divided by 10. • Power cable phase sequence is incorrect. • Set encoder PPR correctly. • Check for correct rated motor speed setting. • Eliminate encoder interference. • Check whether the door lock is disconnected during running. • Check for correct brake release.	5A	/
Err20	Speed feedback incorrect	10	The output torque reaches the upper limit but the motor does not rotate	• The upper torque limit is set too low. • The load is too heavy. • Check whether the brake is fully released. • Check the AC drive selection. • The bus voltage is low or motor back EMF high.	5A	/
		11	Reserved	• Check the PG card, system and motor grounding. • For the 1313 series encoder, check for correct CD signals from simulation. • Replace the PG card and test.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err20	Speed feedback incorrect	12	The output torque reaches the upper limit but the motor does not rotate	• Check whether the brake is fully released. • Obtain the magnetic pole angle through auto-tuning and check consistency. • Check the encoder wiring.	5A	/
		13	AB signal disconnection during running	• Check whether the brake acts unexpectedly. • Check whether the encoder feedback signal is updated.	5A	/
		14	Z signal loss during running	• Check the encoder grounding interference. • For the 1313 series encoder, confirm whether the Z signal exists.	5A	/
		19	Encoder AB signal disconnection during running	Check the encoder wiring.	5A	/
Err20	Speed feedback incorrect	20	/	• Check whether encoder feedback pulses are updated. • Check whether the motor rotates.	5A	/
		21	/	• Check the CD wiring. • Set encoder PPR correctly. • For the 1313 series encoder, check for correct CD signals from simulation.	5A	/
		55	/	• Serious Z phase interference exists. • For the 1313 series encoder, check the relationship between CD and Z signals.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err21	Parameter setting error	2	The set maximum frequency smaller than the rated motor frequency	Set F0-06 (Maximum frequency) to a value greater than the rated motor frequency.	5A	/
			Parameter setting error	Check whether F0-06 exceeds F1-04.	5A	/
		3	Incorrectly set encoder type	The sin/cos encoder, absolute encoder, or ABZ encoder is incorrectly set as the UVW encoder. Check whether the encoder type set in F1-00 is the same as the actual encoder.	5A	/
		4			5A	/
		5	Maintenance fault	Contact the elevator manufacturer.	5A	/
Err21	Parameter setting error		/	/	5A	/
		6	Maintenance fault	Contact the elevator manufacturer.	5A	/
			MCB elevator lock terminal active		5A	/
		7	Model setting error	• Set FF-07 correctly. • Set FJ-39 bit12 to 1 for enabling model expansion function.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err21	Parameter setting error	8	Model setting error	• Set FF-07 correctly. • Set FJ-39 bit12 to 1 for enabling model expansion function.	5A	/
		101	Main parameter block data storage error	Contact the elevator manufacturer.	5A	/
		102	Parameter block 1 data storage error			/
		103	Parameter block 2 data storage error			/
		104	Parameter block 3 data storage error			/
		105	Parameter block 4 data storage error			/
		106	Braking force detection parameter setting error	Enable the braking force detection parameter under the new GB standard.		/
		110	No slow-down function set for top floor auto-tuning	Set the slow-down function according to the signal input.	5A	/
		201	Independent braking control parameter setting error	Check the feedback and output setting of the brake contactor for consistency.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err22	The leveling signal abnormal	101	Leveling signal stuck	• Check whether the leveling and door zone switches work properly. • Check the installation verticality and depth of leveling plates. • Check the leveling signal input terminals on the MCB.	1A	/
		102	Loss of leveling signals		1A	/
		103	The leveling position pulse deviation is too large in the automatic running state	Check whether the steel rope slips.	1A	/
		104	Reserved	Contact the agent or manufacturer.	1A	/
		105	Leveling signal not detected in communication mode	Check the connection of the leveling switch and CTB.	1A	/
Err23	Short circuit fault	1	• UVW output short circuit to ground • AC drive output short circuit to ground	• Check whether short circuit to ground exists in the UVW output. • Check whether the AC drive output is grounded.	5A	/
		2			5A	/
		3			5A	/
		4		• Check whether short circuit to ground exists in the UVW output. • Check whether short circuit to ground exists in the three-phase output of the AC drive, or whether the three phases have the same output.	5A	/
		5	UVW output short circuit to ground	Check whether short circuit to ground exists in the UVW output.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err23	Short circuit fault (Non-resettable)	6	• UVW output short circuit to ground • Hardware overcurrent in shorting motor stator contactor	Check whether short circuit to ground exists in the UVW output.	5A	/
		7	TZ2 overcurrent in shorting motor stator contactor		5A	/
Err24	RTC clock fault	101	The RTC signal of the control board is abnormal.	Replace the MCB.	3B	/
Err25	Data storage abnormal	101	The data storage in the MCB is abnormal.	Contact the agent or manufacturer.	4A	/
		102			4A	/
		103			4A	/
Err26	Earthquake signal	101	The earthquake signal is active for 2 seconds	• Check whether the NC/NO feature of the earthquake signal is consistent with the MCB parameter setting. • Restore the earthquake detection device to the inactive state.	3B	/
Err28	Maintenance fault	101	Reserved	Contact the agent or manufacturer.	5A	/
		102			5A	/
Err29	Shorting motor stator contactor feedback abnormal	101	MCB shorting motor stator contactor feedback abnormal	• Check whether the feature (NO/NC) of the shorting motor stator contactor feedback input signal is set correctly. • Check whether the shorting motor stator contactor and corresponding feedback contacts act properly. • Check the coil circuit power supply of the shorting motor stator contactor.	5A	/
		102	The shorting motor stator contactor feedback on the I/O expansion board abnormal		5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err30	Elevator position abnormal	101	Up leveling signal has no change within a certain period of running	• Check whether the leveling signal cables are connected reliably, touch the ground, or are shorted with other signal cables. • Check whether the floor-to-floor height is too large or the re-leveling speed (F3-21) is too low, causing overlong re-leveling time.	4A	/
		102	Down leveling signal has no change within a certain period of running		4A	/
		103	Door zone signal has no change within a certain period of running	• Check whether the door zone signal cables are connected reliably, touch the ground, or are shorted with other signal cables. • Check whether the floor-to-floor height is too large or the re-leveling speed (F3-21) is too low, causing overlong re-leveling time.	4A	/
Err33	Elevator speed abnormal	101	The speed exceeds the limit during normal-speed running	• Check whether the parameter setting and wiring of the rotary encoder are correct. • Check whether motor parameters are set properly according to the nameplate. Perform motor auto-tuning again.	5A	/
		102	The speed exceeds the limit during inspection or shaft auto-tuning	• Check the inspection switch contacts and wiring to ensure that no malfunction occurs. • Reduce the inspection speed or perform motor auto-tuning again.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err33	Elevator speed abnormal	103	The speed exceeds the limit in shorting stator braking mode (for PMSM)	• Check whether the shorting motor stator function is enabled. • Check whether the UVW phase sequence of the motor is correct.	5A	/
		104	Emergency running overspeed	• Check whether the emergency power capacity meets the requirements. • Check whether the emergency running speed is set properly.	5A	/
		105			5A	/
		106	The MCB speed measuring deviation is too large	• Check the wiring of the rotary encoder. • Check for quality SPI communication between the MCB and the drive board.	5A	/
Err34	Logic fault	101	MCB redundancy check is abnormal	Contact the agent or manufacturer.	5A	/
		102			5A	/
		103			5A	/
		104			5A	/
		105			5A	/
		106			5A	/
		107			5A	/
		108			5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err35	Shaft auto-tuning data abnormal	101	The elevator is not at the bottom floor or the down slow-down switch 1 is inactive upon shaft auto-tuning	Check whether the down slow-down switch 1 is activated and whether F4-01 (Current floor) is set to the bottom floor number.	4C	/
		102	Inspection switch disconnected during shaft auto-tuning	Check whether the elevator is in the inspection or the EEO state.	4C	/
		103	It is judged upon power-on that shaft auto-tuning is not performed	Perform shaft auto-tuning again.	4C	/
		104	In distance control mode, it is judged at running startup that shaft auto-tuning is not performed		4C	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err35	Shaft auto-tuning data abnormal	105	The elevator running direction and the pulse change direction are inconsistent	Check whether the elevator running direction is consistent with the pulse change in F4-03. That is, F4-03 increases when the elevator runs up and decreases when the elevator runs down.	4C	/
		106	The leveling plate length sensed by the up leveling signal is abnormal	• Check whether the leveling switch NO/NC is set correctly. • If the leveling switch signal flashes, check whether the leveling plates are installed properly and whether there is high-voltage interference.	4C	/
		107	The leveling plate length sensed by the down leveling signal is abnormal		4C	/
		108	No change in leveling signal after 45s of auto-tuning	• Check whether the leveling switches are connected correctly. • Check whether the floor-to-floor height is too large, causing running timeout. You can increase the auto-tuning speed so that auto-tuning of the longest floor can be completed within 45 seconds, and then perform shaft auto-tuning again.	4C	/
		109	Leveling switch signal interval abnormal	• Check whether the leveling switch NO/NC is set correctly. • If the leveling switch signal flashes, check whether the leveling plates are installed properly and whether there is high-voltage interference.	4C	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err35	Shaft auto-tuning data abnormal	110	No change in leveling signal after 45s of auto-tuning	• Check whether the leveling switches are connected correctly. • Check whether the floor-to-floor height is too large, causing running timeout. You can increase the auto-tuning speed so that auto-tuning of the longest floor can be completed within 45 seconds, and then perform shaft auto-tuning again.	4C	/
		111	The stored floor height is smaller than 50 cm	Enable the super-short floor function if the floor height is less than 50 cm. If the floor height is normal, check the installation of the leveling plate for this floor and check the switch and its wiring.	4C	/
		112	The floor when auto-tuning is completed is not the top floor	F6-00 (Top floor of the elevator) is incorrectly set, or the leveling plate is missing.	4C	/
		113	In distance control mode, it is judged at running startup that shaft auto-tuning is not performed	Perform shaft auto-tuning again.	4C	/
		114			4C	/
		115	The stored floor height is smaller than 50 cm	Enable the super-short floor function if the floor height is less than 50 cm. If the floor height is normal, check the installation of the leveling plate for this floor and check the switch and its wiring.	4C	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err35	Shaft auto-tuning data abnormal	116	Up and down leveling signals connected inversely	• Check whether the up and down leveling switches are connected correctly. • Check whether the distance between the up and down leveling switches is proper. • Check leveling switch NO/NC settings in F5-25 bit9 and bit10 in communication mode.	4C	/
		117	The leveling plate pulse length sensed by the leveling signal is abnormally greater than 65535.	• Check whether the leveling switch NO/NC is set correctly in F5-25. • If the leveling switch signal flashes, check whether the leveling plates are installed properly and whether there is high-voltage interference.	4C	/
		118	Up leveling and re-leveling connected inversely in communication mode	• Check whether the up leveling and up re-leveling are connected correctly. • Check for proper distance for the up leveling and up re-leveling. • Check leveling switch NO/NC settings in F5-25 bit9 and bit10 in communication mode.	4C	/
		119	Down leveling and re-leveling connected inversely in communication mode	• Check whether the down leveling and down re-leveling are connected correctly. • Check for proper distance for the down leveling and down re-leveling. • Check leveling switch NO/NC settings in F5-25 bi10 in communication mode.	4C	/
		120	The leveling plate length difference of over 5 cm sensed by up and down leveling signals during auto-tuning	Check whether the leveling switch is installed vertically and whether it is parallel with the leveling plate.	4C	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err36	RUN contactor feedback abnormal	101	The feedback of the RUN contactor is active but the contactor has no output	• Check whether the feedback contact of the RUN contactor acts properly. • Check whether the NO/NC settings of the feedback contact are correct.	5A	/
		102	The feedback of the RUN contactor is inactive but the contactor has output		5A	/
		103	Too small current of the asynchro nous motor from the acceleration segment to the constant speed segment (≤ 0.1 A)	• Check whether the output (UVW) cables of the controller are connected normally. • Check whether the control circuit of the RUN contactor coil is normal. • Check for correct no-load current of FA-18 (generally 30% to 50% of the rated motor current).	5A	/
		104	When a feedback contact of the RUN contactor is enabled for multiple functions, their states are inconsistent	• Check whether the feedback contact of the RUN contactor acts properly. • Check whether the NO/NC settings of the feedback contact are correct.	5A	/
Err36	RUN contactor feedback abnormal	105	The RUN contactor feedback is active before re-leveling is started	• Check whether the feedback contact of the RUN contactor acts properly. • Check whether the NO/NC settings of the feedback contact are correct.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err37	Brake contactor feedback abnormal	101	The brake contactor output is inconsistent with the feedback	• Check whether the brake contactor functions properly. • Check whether the signal feature (NO/NC) of feedback contacts on the brake contactor is set correctly. • Check the brake contactor feedback circuit.	5A	/
		102	When a feedback contact of the brake contactor is enabled for multiple functions, their states are inconsistent	• Check whether the signal feature (NO/NC) of the feedback contact of the brake contactor is set correctly. • Check whether the states of multiple output feedback contacts are consistent.	5A	/
		103	The brake contactor output is inconsistent with the brake travel switch 1 feedback	• Check whether the signal feature (NO/NC) of the brake travel switch 1 feedback contact is set correctly. • Check the brake travel switch 1 feedback circuit.	5A	/
		104	When a feedback contact of the brake travel switch 1 is enabled for multiple functions, their states are inconsistent	• Check whether the signal feature (NO/NC) of brake travel switch 1 feedback contacts are set correctly. • Check whether the states of multiple output feedback contacts are consistent.	5A	/
		105	The brake contactor feedback active before the brake contactor releases	Check whether the feedback contact of the brake contactor malfunctions.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err37	Brake contactor feedback abnormal	106	The brake contactor output is inconsistent with the brake travel switch 2 feedback	• Check whether the signal feature (NO/NC) of the brake travel switch 2 feedback contact is set correctly. • Check the brake travel switch 2 feedback circuit.	5A	/
		107	When a feedback contact of the brake travel switch 2 is enabled for multiple functions, their states are inconsistent	• Check whether the signal feature (NO/NC) of brake travel switch 2 feedback contacts are set correctly. • Check whether the states of multiple output feedback contacts are consistent.	5A	/
		108	The brake contactor output inconsistent with the feedback of the brake travel switch 1 on the I/O expansion board	• Check whether the signal feature (NO/NC) of the brake travel switch 1 feedback contact on the I/O expansion board is set correctly. • Check the brake travel switch 1 feedback circuit.	5A	/
		109	The brake contactor output inconsistent with the feedback of the brake travel switch 2 on the I/O expansion board	• Check whether the signal feature (NO/NC) of the brake travel switch 2 feedback contact on the I/O expansion board is set correctly. • Check the brake travel switch 2 feedback circuit.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err37	Brake contactor feedback abnormal	300	When the feedback contact of the main brake contactor is enabled for multiple functions, their states are inconsistent	• Check whether the signal feature (NO/NC) of the feedback contact of the brake contactor is set correctly. • Check whether the states of multiple output feedback contacts are consistent.	5A	/
		301	The output of main brake contactor inconsistent with the feedback	• Check whether the main brake contactor functions properly. • Check whether the signal feature (NO/NC) of feedback contacts of the main brake contactor is set correctly. • Check the main brake contactor feedback circuit.	5A	/
		310	When the feedback contact of the auxiliary brake contactor 1 is enabled for multiple functions, their states are inconsistent	• Check whether the signal feature (NO/NC) of the feedback contact of the auxiliary brake contactor 1 is set correctly. • Check whether the states of multiple output feedback contacts are consistent.	5A	/
		311	The output of auxiliary brake contactor 1 inconsistent with the feedback	• Check whether the auxiliary brake contactor 1 functions properly. • Check whether the signal feature (NO/NC) of the feedback contact of the auxiliary brake contactor 1 is set correctly. • Check the auxiliary brake contactor 1 feedback circuit.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err37	Brake contactor feedback abnormal	320	When the feedback contact of the auxiliary brake contactor 2 is enabled for multiple functions, their states are inconsistent	• Check whether the signal feature (NO/NC) of the feedback contact of the auxiliary brake contactor 2 is set correctly. • Check whether the states of multiple output feedback contacts are consistent.	5A	/
		321	The output of auxiliary brake contactor 2 inconsistent with the feedback	• Check whether the auxiliary brake contactor 2 functions properly. • Check whether the signal feature (NO/NC) of the feedback contact of the auxiliary brake contactor 2 is set correctly. • Check the auxiliary brake contactor 2 feedback circuit.	5A	/
		330	When the feedback contact of the brake travel switch 1 is enabled for multiple functions, their states are inconsistent	• Check whether the signal feature (NO/NC) of the feedback contact of the brake travel switch 1 is set correctly. • Check whether the states of multiple output feedback contacts are consistent.	5A	/
		331	The output of the auxiliary brake contactor 1 inconsistent with the travel switch 1 feedback	• Check whether the auxiliary brake contactor 1 functions properly. • Check whether the signal feature (NO/NC) of the feedback contact of the brake travel switch 1 is set correctly. • Check the brake travel switch 1 feedback circuit.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err37	Brake contactor feedback abnormal	340	When the feedback contact of the brake travel switch 2 is enabled for multiple functions, their states are inconsistent	• Check whether the signal feature (NO/NC) of the feedback contact of the brake travel switch 2 is set correctly. • Check whether the states of multiple output feedback contacts are consistent.	5A	/
		341	The output of the auxiliary brake contactor 2 inconsistent with the travel switch 2 feedback	• Check whether the auxiliary brake contactor 2 functions properly. • Check whether the signal feature (NO/NC) of the feedback contact of the brake travel switch 2 is set correctly. • Check the brake travel switch 2 feedback circuit.	5A	/
		351	The output of the auxiliary brake contactor 1 inconsistent with the extended travel switch 1 feedback	• Check whether the auxiliary brake contactor 1 functions properly. • Check whether the signal feature (NO/NC) of the feedback contact of the brake travel switch 1 is set correctly. • Check the brake travel switch 1 feedback circuit.	5A	/
		361	The output of the auxiliary brake contactor 2 inconsistent with the extended travel switch 2 feedback	• Check whether the auxiliary brake contactor 2 functions properly. • Check whether the signal feature (NO/NC) of the feedback contact of the brake travel switch 2 is set correctly. • Check the brake travel switch 2 feedback circuit.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err37	Brake contactor feedback abnormal	402	The output of auxiliary brake contactors 1 and 2 abnormal	• Check whether the auxiliary brake contactors function properly. • Check the wiring of the auxiliary brake contactors and the consistency between the output and feedback.	5A	/
		403	Contactor output inconsistent with the feedback in single braking arm force detection	• Check whether the auxiliary brake contactor functions properly. • Check the auxiliary brake contactor feedback circuit. • Check whether the output wiring of the brake power supply board in communication mode is correct.	5A	/
		404	Braking force insufficient and rollback speed at stop over 0.050 m/s	• Check the braking force. • Check the shorting motor stator contactor.		/
Err38	Rotary encoder feedback signal abnormal	101	No change in the pulses in F4-03 beyond the time set in F1-13	• Check whether the rotary encoder wiring is correct (Perform manual rotation to check F4-03 change). • Check whether the brake works properly.	5A	/
		102	F4-03 increase in motor running down	• Check whether the parameter setting and wiring of the rotary encoder are correct. • Check whether the system grounding and signal grounding are reliable. • Check whether the UVW phase sequence of the motor is correct.	5A	/
		103	F4-03 decrease in motor running up		5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err38	Rotary encoder feedback signal abnormal	104	SVC used in distance control mode.	Set F0-00 (Control mode) to 1 (FVC) in the distance control mode.	5A	/
		105	During up running, the down slow-down switch 1 becomes active and the down limit switch operates	• Check whether the elevator rolls back at startup on the terminal floor. • Check whether the wiring of the down limit switch is normal.	5A	/
		106	During down running, the up slow-down switch 1 becomes active and the up limit switch operates	• Check whether the elevator rolls back at startup on the terminal floor. • Check whether the wiring of the up limit switch is normal.	5A	/
Err39	Motor overtemperature	101	Motor overheat input signal active for over 2s	• Check whether the signal feature (NO/NC) of motor parameters are set correctly. • Check whether the relay socket for thermal protection is normal. • Check whether the motor is used normally and whether it is damaged. • Improve the cooling conditions of the motor.	3A	/
		102	Door operator overheat input signal active for over 2s		3A	/
		103	Door operator 2 overheat input signal active for over 2s		3A	/
Err40	Pulse-by-pulse current limit fault	1	/	/	5A	/
	Reserved	101	Reserved	Contact the agent or manufacturer.	4B	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err41	Safety circuit disconnected	101	The safety circuit signal disconnected	• Check the safety circuit switches and their states. • Check the safety circuit power supply. • Check whether the safety circuit contactor operates properly. • Check the signal feature (NO/NC) of the feedback contact of the safety circuit.	5A	/
Err42	Door lock disconnected during running	101	The door lock feedback inactive during the elevator running process	• Check whether the landing door lock and car door lock are connected correctly. • Check whether the door lock contactor operates properly. • Check whether the signal feature (NO/NC) of the feedback contact of the door lock contactor is set correctly. • Check the external power supply.	5A	/
		102			5A	/
		103	The door lock feedback inactive during the elevator running process	• Check whether the landing door lock and car door lock are connected correctly. • Check whether the door lock contactor operates properly. • Check whether the signal feature (NO/NC) of the feedback contact of the door lock contactor is set correctly. • Check the external power supply. • Check the lock circuit connection.	5A	/
		104	The door lock feedback inactive during the elevator running process	• Check whether the landing door lock and car door lock are connected correctly. • Check whether the door lock contactor operates properly. • Check whether the signal feature (NO/NC) of the feedback contact of the door lock contactor is set correctly. • Check the external power supply.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err43	Up limit signal abnormal	101	The up limit signal acts when the elevator moves up	• Check the signal feature (NO/NC) of the up limit switch. • Check whether the up limit switch is in good contact. • Check whether the up limit switch is installed in a position lower than normal, which causes this switch to operate even when the elevator arrives at the top terminal floor normally.	4A	/
		102	In the inspection state, the up button and up limit switch are active at the same time	• Release the up button and it can no longer continue to run up • Check the signal feature (NO/NC) of the up limit switch. • Check whether the up limit switch is in good contact.	4A	/
Err44	Down limit signal abnormal	101	The down limit signal acts when the elevator moves down	• Check the signal feature (NO/NC) of the down limit switch. • Check whether the down limit switch is in good contact. • Check whether the down limit switch is installed in a position higher than normal, which causes this switch to operate even when the elevator arrives at the terminal floor normally.	4A	/
		102	In the inspection state, the down button and down limit switch are active at the same time	• Release the down button and it can no longer continue to run down • Check the signal feature (NO/NC) of the down limit switch. • Check whether the down limit switch is in good contact.	4A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err45	Slow-down switch abnormal	101	The down slow-down distance insufficient during shaft auto-tuning	• Check the down slow-down switch connection. • Check the signal feature (NO/NC) of the down slow-down switch. • Ensure that the down slow-down switch distance satisfies the slowdown requirement at the elevator speed.	4B	/
		102	The up slow-down distance insufficient during shaft auto-tuning	• Check the up slow-down switch connection. • Check the signal feature (NO/NC) of the up slow-down switch. • Ensure that the up slow-down switch distance satisfies the slowdown requirement at the elevator speed.	4B	/
Err45	Slow-down switch abnormal	103	The slow-down switch stuck or position abnormal during normal running	• Check the up and down slow-down switch connection. • Check the signal feature (NO/NC) of the up and down slow-down switches. • Ensure that the slow-down switch distance satisfies the slowdown requirement at the elevator speed.	4B	/
		106	The up and down slow-down switches 2 abnormal during shaft auto-tuning	• Check whether the up and down slow-down switches 2 are connected inversely. • Check the signal feature (NO/NC) of the up and down slow-down switches 2.	4B	/
		107	The up and down slow-down switches 3 abnormal during shaft auto-tuning	• Check whether the up and down slow-down switches 3 are connected inversely. • Check the signal feature (NO/NC) of the up and down slow-down switches 3.	4B	/
		108	The up slow-down switch 1 position not obtained upon shaft auto-tuning completion	Check whether the up slow-down switch 1 is installed in the right position.	4B	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err45	Slow-down switch abnormal	201	Up slow-down signal abnormal in elevator down running	• Check the parameter setting of the up slow-down signal. • Check whether the elevator rolls back at startup on the terminal floor. Increase the speed loop parameter properly.	4B	/
		202	Down slow-down signal abnormal in elevator up running		4B	/
		203	Up slow-down signal abnormal at elevator stop	• Check whether the current car position is correct. • Check the signal feature (NO/NC) of the slow-down signal. • Check the circuit of the up slow-down input signal.	4B	/
		204	Down slow-down signal abnormal at elevator stop		4B	/
Err46	Re-leveling abnormal	101	The leveling signal inactive during re-leveling	Check whether the leveling signal is normal.	2B	/
		102	The elevator speed over 0.1 m/s during re-leveling	Check whether the rotary encoder is used correctly.	2B	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err47	Shorting door lock circuit relay feedback fault	101	The shorting door lock circuit relay output for 2s, but the relay feedback is inactive or the door lock feedback disconnected	• Check the signal feature (NO/NC) of the feedback contact of the shorting door lock circuit relay. • Check whether the shorting door lock circuit relay acts properly.	2B	/
		102	The shorting door lock circuit relay no output, but the relay feedback is active for 2s		2B	/
		106	The shorting door lock circuit relay feedback active before re-leveling		2B	/
		103	The shorting door lock circuit relay output over 15s during re-leveling or advance door opening	• Check whether the leveling and re-leveling signals are normal. • Check whether the set re-leveling speed is too low.	2B	/
		201	SCB wiring disconnected in communication mode	• Check the CAN communication connection of the SCB. • Check the 24 V power supply of the MCB and SCB.	2B	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err47	Shorting door lock circuit relay feedback fault	202	Mismatch of the MCB with SCB	Contact the agent or manufacturer.	2B	/
		203	SCB relay output inconsistent with the feedback in communication mode	• Check the match of the SCB model with the door type (SCB-D4 for through-type door). • Check whether the relay on the SCB board acts normally.		/
		209	System and SCB encryption authentication failed	• Check whether the SCB is authentic. • Contact the manufacturer.		/
		210	SCB board self-authentication failed	• Check whether the SCB board has encrypted chips. • Perform programming again at the factory.		/
		300	SCB board fault (3xx)	301: SCB software fault 302: SCB identification fault 303: Up re-leveling signal abnormal 304: Down re-leveling signal abnormal 305: Safety relay KM1 abnormal 306: Safety relay KM2 abnormal 307: Safety relay KM4 abnormal 308: Safety relay KM5 abnormal 309: Safety relay KM6 abnormal		/
Err48	Door open fault	101	The consecutive times that the door does not open to the limit beyond the value set in FB-09	• Check whether the door operator system works properly. • Check whether the CTB output is normal. • Check whether the door open limit signal is correct.	5A	/
Err49	Door close fault	101	The consecutive times that the door does not close to the limit beyond the value set in FB-09	• Check whether the door operator system works properly. • Check whether the CTB output is normal. • Check whether the door close limit signal and door lock signal are normal.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err50	Consecutive loss of leveling signal	101	Leveling signal stuck detected for three consecutive times	• Check whether the leveling switches and door zone switches work properly. • Check the installation verticality and depth of leveling plates. • Check the leveling signal input terminals on the MCB. • Check whether the steel ropes slip.	3B	/
		102	Leveling signal loss detected for three consecutive times		3B	/
Err51	CAN communication fault	101	CAN communication of MCB and CTB disconnected	• Check the communication cable connection. • Check the 24 V power supply of CTB. • Check the 24 V power supply of the controller. • Check whether there is high-voltage interference. • Check whether the MCB and CTB are of factory settings and have consistent protocols.	1A	/
		102	CTB and MCB manufacturer No. inconsistency	• Check for consistency. • Replace with boards of consistent No. and power on again.		/
		103	MCB and car display board manufacturer No. inconsistency	• Check for consistency. • Replace with boards of consistent No. and power on again.		/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err52	HCB communication abnormal	101	Correct data not received in communication with the HCB for certain time	• Check the communication cable connection. • Check the 24 V power supply of the controller. • Check whether the HCB addresses are repeated. • Check whether there is high-voltage interference. • Check whether the MCB and CTB are of factory settings and have consistent protocols.	1A	/
		201	Front door HCB and MCB manufacturer No. inconsistency	Make changes to ensure consistency (201 is the first front door HCB).		/
		301	Rear door HCB and MCB manufacturer No. inconsistency	Make changes to ensure consistency (301 is the first rear door HCB).		/
Err53	Door lock fault	101	The door lock feedback remains active 3s after door open output, with shorting door lock circuit disabled	• Check whether the door lock circuit is shorted. • Check whether the door lock feedback is correct.	5A	/
		102	Inconsistent states of the door lock feedback contacts for multiple functions, or inconsistent feedback of door lock 1 and door lock 2	• Check whether the door opens smoothly without any lock hook obstruction. • Check whether the door open start speed is too slow. • Check whether the door lock circuit is shorted.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err53	Door lock fault	105	The door lock 1 shorting signal remains active 3s after door open output, with shorting door lock circuit enabled	• Check whether the door opens smoothly without any lock hook obstruction. • Check whether the door open start speed is too slow. • Check whether the door lock circuit is shorted.	5A	/
		106	The door lock 2 shorting signal remains active 3s after door open output, with shorting door lock circuit enabled		5A	/
		104	The high-voltage and low-voltage door lock signals inconsistent	Check whether the higher-voltage and low-voltage door lock signals are inconsistent. If the time of inconsistency is above 1.5s, a fault is reported.	5A	/
		107	The door lock shorting signal selected, but the feedback signal is continuously disconnected	Check whether the door lock shorting feedback signal cable is not connected or is disconnected.	5A	/
		201	AB/BC shorting, indicating that the front car door or landing door is shorted	• Check the shorting of the front car door or landing door lock. • Check whether the relay on the SCB board engages or opens normally.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err53	Door lock fault	202	BE shorting, indicating that 131 and 134 are shorted	• Check the shorting of the front landing door lock and lock end. • Check whether the relay on the SCB board engages or opens normally.	5A	/
		203	AD shorting, indicating that 130 and 133 are shorted	• Check the shorting of the front car door lock and rear landing door lock end. • Check whether the relay on the SCB board engages or opens normally.	5A	/
		204	DE shorting, indicating that 133 and 134 are shorted	• Check the shorting of rear landing door lock end. • Check whether the relay on the SCB board engages or opens normally.	5A	/
		205	BC shorting, indicating that 131 and 132 are shorted	• Check the shorting of the front car door lock. • Check whether the relay on the SCB board engages or opens normally.	5A	/
		206	CD/DE shorting, indicating that the rear landing door or rear car door is shorted	• Check the shorting of the rear landing door or rear car door lock. • Check whether the relay on the SCB board engages or opens normally.	5A	/
		207	CE/AE shorting, indicating that 132 and 134 or 130 and 134 are shorted	• Check the shorting of the front car door and lock end. • Check the shorting of the rear car door and lock end. • Check whether the relay on the SCB board engages or opens normally.	5A	/
		208	BD shorting, indicating that 132 and 133 are shorted	• Check the shorting of the front landing door and rear car door. • Check whether the relay on the SCB board engages or opens normally.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err53	Door lock fault	209	KM3 relay on the SCB board stuck	Check whether the relay K3 on the SCB board engages or opens normally.	5A	/
		210	AC/AE shorting, indicating that 130 and 132 or 130 and 134 are shorted	• Check the shorting of the front car door and lock end. • Check the shorting of the front car door and rear landing door. • Check whether the relay on the SCB board engages or opens normally.	5A	/
		211	AE shorting, indicating that 130 and 134 are shorted	• Check the shorting of the front car door and lock end. • Check whether the relay on the SCB board engages or opens normally.	5A	/
		212	KM3 relay on the SCB board stuck	Check whether the relay K3 on the SCB board engages or opens normally.	5A	/
Err54	Overcurrent at inspection startup	102	The current at inspection startup exceeds 120% of rated current	• Do not have unbalanced load or reduce the load during installation in inspection mode. • Check whether the motor parameters obtained through auto-tuning are correct and perform auto-tuning again if possible. • Check whether the mechanical resistance is too large. • Set the bit1 of FC-00 to ON to disable the startup overcurrent detection.	5A	/
Err55	Stop at another landing floor	101	During the automatic running of the elevator, the door open limit is not received within the time threshold in FB-06	• Check the door open limit signal of the current floor. • Check whether the CAN communication is abnormal during door open.	1A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err56	Door open/ close limit signal fault	101	The door open limit signal active during running	• Check the signal feature (NO/ NC) of the door open/close signal set in F5-25. • Check the connection of the door open/close signal.	5A	/
		102	The door close limit signal inactive during running		5A	/
		103	The door open limit signal and door close limit signal active simultaneously		5A	/
		104	The door close limit signal is continuously connected 2s after door open. This fault subcode is detected after the door lock bypass is set.	Check whether the door close limit signal is always active.	5A	/
Err57	SPI communication fault	101	The communication abnormal between the control board and the DSP board	Check for correct and firm wiring between the control board and the drive board.	5A	/
		102			5A	/
		103	The MCB mismatch with the drive board	Contact the agent or manufacturer.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err57	SPI communication fault	104	Encoder not receiving pulses per revolution	• Check whether the encoder in communication mode functions. • Check the encoder wiring. • Check the grounding of the whole system.		/
Err58	Shaft position switches abnormal	101	Up and down slow-down switches 1 active simultaneously	• Check whether the signal feature (NO/NC) of the slow-down switches is consistent with the MCB parameters. • Check whether the slow-down switches malfunction.	4B	/
		102	The feedback of both up and down limit switches active	• Check whether the signal feature (NO/NC) of the limit switches is consistent with the MCB parameters. • Check whether the limit switches malfunction.	4B	/
Err61	Brake power supply fault in communication mode	101	Brake power supply and MCB communication error	Check whether the brake power supply board and MCB have correct CAN communication.		/
		102	MCB and brake power supply board manufacturer No. inconsistent	• Check for consistency. • Replace with boards of consistent No. or contact the manufacturer.	3A	/
		110	Brake power supply board BUCK1 output inconsistent with the feedback in communication mode	• Check whether the BUCK circuit functions well. • Contact the manufacturer.	3A	/
		111	Brake power supply board BUCK2 output inconsistent with the feedback in communication mode		3A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err61	Brake power supply fault in communication mode	201	Brake power supply and encrypted MCB manufacturer No. inconsistent in communication mode	• Check for consistency. • Replace with boards of consistent No. or contact the manufacturer.	3A	/
		202	System and brake power supply in communication mode encryption authentication failed	• Check whether the brake power supply board is a fake copycat product. • Contact the manufacturer.	3A	/
		203	Brake power supply board in communication mode self-authentication failed	• Check whether the hardware is encrypted. • Contact the manufacturer.	3A	/
Err61	Brake power supply fault in communication mode	301	Brake power supply fault (3xx)	301: BUCK1 output overcurrent 302: BUCK2 output overcurrent 303: Bus overvoltage 304: Bus undervoltage 305: BUCK1 output overvoltage 306: BUCK2 output overvoltage 307: BUCK1 output overload 308: BUCK2 output overload 309: Too large difference between the two-channel output current 310: Overtemperature 311: BUCK1 too large output voltage deviation 312: BUCK2 too large output voltage deviation 313: Overtemperature early warning 314: Bus undervoltage early warning 317: 24V overvoltage 319: 24V short circuit	3A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err62	Analog disconnection	101	Analog load cell disconnected	• Check whether F5-36 is set correctly. • Check whether the analog input cable of the CTB or MCB is connected correctly and remains connected. • Adjust the load cell switch function.	3B	/
Err64	External fault	101	The external fault signal remaining active for 2s	• Check the signal feature (NO/NC) setting of the external fault terminal. • Check the input signal state of the external fault terminal.	5A	/
Err65	UCMP test abnormal	101	This fault reported when the car moves unexpectedly	• Check whether the brake is fully closed and ensure that the car does not move unexpectedly. • Check the gap between the door vane and door roller and ensure no contact between them during operation.	5A	/
Err66	Braking force abnormal	101	The braking force detected to be insufficient	Check the braking force.	5A	/
		110	The right brake arm force insufficient in braking force test		5A	/
		111	The left brake arm force insufficient in braking force test		5A	/
Err69	ARD Fault	101	MCB and ARD (in communication mode) manufacturer No. inconsistent	Check for consistency.	5A	/
Err79	Encryption fault	1	The drive board incompatible with MCB	Replace with a new encrypted drive board and MCB.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err79	Permission authentication failure	1	Drive board authentication with MCB failed	• Check whether the hardware is encrypted. • Check whether the drive board and MCB software is encrypted. • Check whether the drive board and MCB have keys processed through programming.		/
		2	Drive board self-authentication failed	Hardware does not match the programmed software. The encrypted hardware goes with the encrypted software.		/
		3	Drive board authentication 2 with MCB failed	• Check whether the hardware is encrypted. • Check whether the drive board and MCB software is encrypted. • Check whether the drive board and MCB have keys processed through programming.		/
		101	MCB self-authentication failed	• Check whether the product is encrypted. • Contact the manufacturer.	5A	/
		102	MCB authentication with drive board failed	• Check whether the hardware is encrypted. • Check whether the drive board and MCB software is encrypted. • Contact the manufacturer.	5A	/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err79	Permission authentication failure	105	MCB self-authentication 2 failed	• Check whether the product is encrypted. • Contact the manufacturer.	5A	/
		106	MCB self-authentication 3 failed		5A	/
		107	MCB self-authentication 4 failed		5A	/
Err94		103	The control system and CTB authentication failed	Contact the agent or manufacturer.	1A	/
		104	The control system and car display board authentication failed		1A	/
		107	CTB authentication failed		1A	/
		201	MCB and front door HCB authentication failed (201 is the first front door HCB)	• Check whether the front door HCB is encrypted. • Check whether the front door HCB has a key processed correctly through programming. • Check whether the HCB address of the front door is set correctly.		/

Fault code	Fault name	Fault subcode	Possible cause	Solution	Fault level	Notes
Err94	Permission authentication failure	301	MCB and rear door HCB authentication failed (301 is the first rear door HCB)	• Check whether the rear door HCB is encrypted. • Check whether the rear door HCB has a key processed correctly through programming. • Check whether the HCB address of the rear door is set correctly.	/	/
		401	MCB and CCB authentication failed (410 is the first front door COB, 412 the first front door CCB, 420 the first rear door COB and 422 the first rear door CCB)	• Check whether the CCB is encrypted. • Check whether the CCB has a key processed correctly through programming. • Check whether the CCB address is set correctly.	/	/

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