



COOL100 Series

Home Lift Control Panel

User Manual



V1.1 2021.04

FORWARD

Thank you for purchasing COOL100 Series Home Lift Control Panel manufactured by Shenzhen Hpmont Technology Co., Ltd.

This user manual describes how to use COOL100 and their installation wiring, parameter setting, troubleshooting and daily maintenance etc.

Before using the product, please read through this user manual carefully. In addition, please do not use this product until you have fully understood safety precautions.

Note:

- Preserve this manual for future use.
- If you need the user manual due to damage, loss or other reasons, please contact the regional distributor of our company or directly contact our company technical service center.
- If you still have some problems during use, please contact our company technical service center.
- Due to product upgrade or specification change, and for the purpose of improving convenience and accuracy of this manual, this manual's contents may be modified.
- Email address: **marketing@hpmont.com**

Version and Revision Records

Time: 2021/04

Version: V1.1

Revised Chapter	Revised Contents
	• V1.1 version released.

COOL100 Technical Features

The COOL100 home lift control panel is independently designed by Hpmont, newly developed and modularized, and is an intelligent control system integrating automation control technology, power electronic technology, traction machine drive technology, and network communication technology, which can meet the application of homelift system demand.

Ultra-thin

The thinnest and lightest home lift control panel with only 56mm thickness, which is very convenient to transport and install. It is a general and revolutionary control panel developed for the home lift market.

All in One

Integrated control panel with built-in ARD and separable inspection box.

Flexible Installation

The control panel can be installed on the elevator frame, greatly saving installation space. The thickness of the control panel is equivalent to the thickness of the frame crosspiece.

Free to Enjoy IoT

With built-in WiFi module and "SPACE BOX" APP on mobile phone, you can check elevator status anytime and anywhere, call the elevator, and receive SMS reminder when elevator report error, and even control the elevator by voice.

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Chapter 1 Safety Information and Precautions

1.1 Safety Definition

 Danger	Danger: A Danger contains information which is critical for avoiding safety hazard.
 Warning	Warning: A Warning contains information which is essential for avoiding a risk of damage to products or other equipments.
 Note	Note: A Note contains information which helps to ensure correct operation of the product.

1

1.2 About Motor and Load

Thermal Protection of Motor

When choose the adaptive motor, COOL100 can effectively implement thermal protection of motor. Otherwise it must adjust the motor protection parameters or other protection measures to ensure that the motor is at a safe and reliable running.

Lubrication of Mechanical Devices

At long time low-speed running, provide periodical lubrication maintenance for the mechanical devices such as gear box and geared motor etc. to make sure the drive results meet the site need.

Start and Stop COOL100

It is recommended to use control terminals to control the start and stop of the control panel. It is strictly forbidden to use contactors and other switching devices on the input side of the control panel to directly perform frequent start and stop operations, otherwise it will cause equipment damage.

Check the Insulation of the Motor

For the first time using the motor or after long time storage, it needs checking the insulation of the motor. Worse insulation can cause damage to COOL100.

Note:

Use a 500V Mega-Ohm-Meter to test and the insulation resistance must be higher than 5M ohm.

Requirement for Leakage Current Protector RCD

Since the device generates high leakage current which goes through the protective grounding conductor, please install B type leakage current protector RCD on one side of the power supply. For the selection of RCD, users need to consider the possible problems of ground leakage current in both transient status and steady status at start and during running. It is recommended to choose either special RCD that can suppress the higher harmonics, or general RCD that has more aftercurrent.

Warning for Ground Mass Leakage Current

The device generates mass leakage current, so users need to confirm the reliable grounding before connect to the power supply. The grounding should comply with the local relative IEC standard.

1.3 About Safety

No Capacitor or Varistor on the Output Side

Since COOL100 output is PWM wave, it is strictly forbidden to connect capacitor for improving the power factor or varistor for lightning protection to the output terminals so as to avoid COOL100 fault trip or component damage.

Contactors and Circuit Breakers Connected to the Output of COOL100

If circuit breaker or contactor needs to be connected between COOL100 and the motor, be sure to operate these circuit breakers or contactor when COOL100 has no output, so as to avoid any damage to COOL100.

Running Voltage

COOL100 is prohibited to be used beyond the specified range of running voltage. If needed, please use the suitable voltage regulation device to change the voltage.

Capacitor Energy Storage

When the AC power supply is cut off, capacitor of COOL100 sustains deadly power for a while. So to disassemble COOL100 that is powered, please cut off the AC power supply for more than 10 minutes, confirm the internal charge indicator is off and the voltage between (+) and (-) of the main circuit terminals is below 36V.

Generally, the internal circuit enables the capacitor to discharge. However, the discharging may fail in some exceptions. In these cases, users need to consult Hpmont or our regional distributor.

Change Three Phase Input to Single Phase Input

For three phase input control panel, users should not change it to be single phase input.

To use single phase power supply, disable the input phase loss protection function. And the bus voltage and current ripple will increase, which not only influences the life of electrolytic capacitor but also deteriorates the performance of the control panel.

In that case, the control panel must be derating and should be 60% within rated value of control panel.

Lightning Surge Protection

COOL100 internal design has lightning surge over-current protection circuit, and has certain self-protection capacity against the lightning.

Altitude and Derating

In area where altitude exceeds 1000 meters, COOL100 should be derating since the heatsink efficiency will be reduced because of the tenuous air.

The rated value of output current derates by 1% for each 100m increase of the altitude. I.e. for the altitude of 4000m, derated rate is 30% for rated current of COOL100.

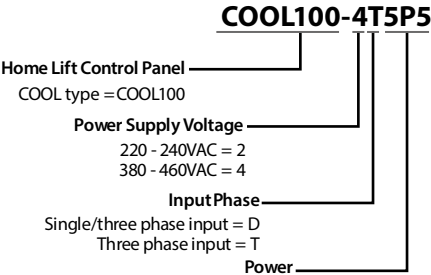
Chapter 2 Product Information

2.1 Hardware Configuration

Product		Model	Application	Number	Position	Remark
1	Main control board	MTCC-MCB-D	Main control board	Each elevator configures one	Control panel	Must be equipped
2	Drive board	TCC23P7M1, TCC23P7MQ, TCC43P7M1, TCC45P5M1	Drive board	Each elevator configures one	Control panel	Must be equipped Select according to the power of the traction machine
3	Keypad	MT70-LCD-D MT70-LCD-C	For elevator debugging		Connect to the RJ45 terminal of MCB/CTB/ HCB	Optional
4	ARD board	MTCC-ARD-C (three phase 380V) MTCC-ARD-C1 (single/three phase 220V)	Emergency auto-rescue board	Each elevator configures one	Control panel	Must be equipped Select according to the control panel input power
5	System power board	TCC45P5A4	System power supply	Each elevator configures one	Control panel	Must be equipped
6	Brake power board	TCC45P5A2 (110VDC) TCC45P5A4 (24VDC)	Brake power supply	Each elevator configures one	Control panel	Optional Select according to the brake coil
7	Control panel connection board	MTCC-KCB-D	External interface of control panel	Each elevator configures one	Control panel	Must be equipped
8	Seperable inspection box	MTCC-INS-B	Function operation box on control panel	Each elevator configures one	Control panel	Must be equipped
9	Car top board	MTCC-CTB-C1	Car top board	Each elevator configures one	Car top inspection box	Must be equipped
10	Car top connection board	MTCC-KCB-R5	Car top connection board, used for car top signal transfer	Each elevator configures one	Car top inspection box	Must be equipped

Product		Model	Application	Number	Position	Remark
11	Car top intercom connect on board	MTCC-KCB-R6	Used for signal transfer of three-party intercom system	Each elevator configures one	Car top	Must be equipped
12	Car call board	MT70-HCB-H/ HCB-I, MT70-HCB-U1/ HCB-U3A,	Car call and display	Each elevator configures one	COP	Must be equipped
13	Hall call board	MT70-HCB-T1/ HCB-T1A, MT70-HCB-T5A/ HCB-T5B	Hall call and display	Each floor configures one	LOP	Must be equipped
14	Door controller	MONT20	Control elevator door open and close	Each door motor configures one	Car top	Optional
15	Encoder card	MT700-PG1-ABZ	For Asyn. motor	Each elevator configures one	MCB	Must be equipped
		MT700-PG2-SINCOS MT700-PG3-UVW MT700-PG4-SC	For Syn. motor			
16	IoT module	MT70-CIC-B (2G) MT70-CIC-E (WiFi)	For elevator status monitoring and error reminder		Control panel	Optional

2.2 Model



2.3 Nameplate

COOL100

Product model

Product type

Project order

Input power

Output power

Software version

Optional function

Bar code

hpmont

PRODUCT: Elevator Control Panel

MODEL: COOL100-4T5P5

ITEM NO: HP20181208001

INPUT: 3PH 280-460V 15A 50/60Hz

OUTPUT: 8.5KVA 0-460V 13A 0-100Hz

VERSION: 92.03 1.06

OPTIONS:

BRAKE COIL	GOV COIL	ENCODER	COLOUR	WIFI	FILTER	INSTALL BRACKET
110VDC	220VAC	SINCOS	YELLOW	√	/	√

CE

House icon, crossed-out trash can icon

Optional functions.

BRAKE VOLTAGE	GOV VOLTAGE	ENCODER	COLOR	OPTIONAL WIFI MODULE	OPTIONAL FILTER	OPTIONAL INSTALL BRACKET
110VDC 24VDC	24VDC 220VAC	ABZ SINCOS UVW SC	YELLOW GREEN RED GOLDEN BLUE PINK /: DEFAULT	√: YES /: NO	√: YES /: NO	√: YES /: NO

MT70-CIC-E

MAC code of WiFi module MT70-CIC-E is located on the right side of the COOL100 nameplate.

Other ways to obtain MAC code:

- The label of the WiFi module, see section 5.2.1.
- Scan the QR code as the right picture shown.



2.4 Rated Value

Model	Motor (kW)	Rated Capacity (kVA)	Rated Input Current (A)	Rated Output Current (A)
Single/three phase power supply: 200 - 240V, 50/60Hz				
COOL100-2D2P2	0.75 - 2.2	3.8	24.1/12	10.3
COOL100-2D3P7	0.75 - 3.7	5.9	40/19	17
(1): Value before / is for single phase model, value after / is for three phase model				
Three phase power supply: 380 - 460V, 50/60Hz				
COOL100-4T3P7	0.75 - 3.7	5.9	11.9	9
COOL100-4T5P5	0.75 - 5.5	8.5	15	13

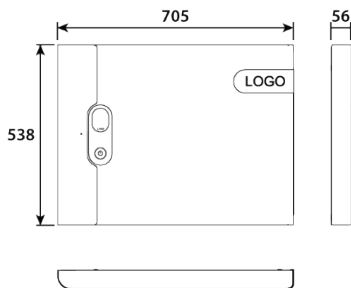
2.5 Technical Data

Electrical	
Input voltage	Single/three phase: 200 - 240V Three phase: 380 - 460V Fluctuation within $\pm 10\%$, imbalance rate $< 3\%$
Input frequency	50/60Hz $\pm 5\%$
Output voltage	0V - input voltage
Output frequency	0.00 - 100.00Hz
Performance	
Max. current	150% rated output current for 2 minutes 180% rated output current for 5 seconds
Control mode	Closed-loop vector control (VC)
Run command	Keypad setting, terminals distance control
Speed control accuracy	$\pm 0.05\%$
Speed control range	1:1000
Torque control response	$< 50\text{ms}$
Start torque	200% rated torque/0Hz
Carrier frequency	1 - 16k, can be adjusted automatically according to the load characteristic
Characteristic	
Max. floor	8 floors
Max. run speed	1.5m/s
Group control number	Up to 2
Communication mode	CAN, Modbus
Basic Protection	
Parameter upload and download function	Can achieve parameter upload or download
Motor auto-tuning	Static auto-tuning free off load
Distance control	Distance control with direct stop
Start weighing compensation	Support many weighing compensations
Acc. and Dec. curve	Can set Acc. and Dec. curve parameter, and auto select optimal speed in accordance with floor distance
Shaft self-learning	Using 32-bit data can record the shaft position accurately
Re-leveling	Support OD re-leveling and advanced open door
Real-time clock	Based on accurate real-time clock, it can accomplish time-sharing service, fault time record etc.
Fault protection	Provide up to 80 kinds of protection such as short circuit protection, I/O lack phase protection, over-current protection, elevator over-speed, excessive speed deviation, door motor fault, encoder disconnection, and encoder reverse etc. Handle various elevator faults in different levels
State display	Can easily monitor a variety of I/O signals of MCB and CTB board via keypad

Input and Output	
Digital input	20 digital input terminals, specifications are 24V/5mA
Communication terminal	Car top board (CTB) communication, hall call board (HCB) communication, parallel group control communication
Programmable relay output	3 relay output terminal, output 24VDC/1A
Encoder interface	The optional encoder card can be adapted to different types of encoder
Operation and Monitoring	
Separable inspection box	Check function parameter, status parameter, fault code, elevator call, shaft self-learning, inspection running electric brake release, soft start, etc.
IoT	Set and upload/download parameter, check fault, elevator call, curve monitoring and other operations
Mobile phone	Debugging via mobile phone
Environment	
Running temperature	-10 - +40°C, Max. 50°C, air temperature change less than 0.5°C/min 40 - 50°C need to use derating: Output current derates by 2% every time it exceeds 1°C
Battery storage temperature	-20 - +50°C
Application area	Indoor, no direct sunlight. No dust, corrosive gas, flammable gas, oil mist, water vapor, dripping water or salt etc.
Altitude	Less than 1000 meters, otherwise should be derating use
Humidity	Less than 95%RH, non-condensing
Oscillation	3.5m/s ² at 2 - 9Hz, 10m/s ² at 9 - 100Hz (IEC60721-3-3)
Protection class	IP10
Pollution level	Level 2 (dry, non conducting dust pollution)
Optional Accessories	
System components	Car top inspection box [COOL100-CTB-B] Car command board [MT70-CCB-A] Display board [MT70-HCB-*] Connection cable between car command and car top 0.5/3/6m [MT70-CCL-0.5M/3M/6M] Bluetooth module, IoT module, separable inspection box
Encoder card	ABZ incremental encoder card [MT700-PG1-ABZ] SINCOS encoder card [MT700-PG2-SINCOS] UVW encoder card [MT700-PG3-UVW] Series communication encoder card with FD output [MT700-PG4-SC]
About keypad	LCD keypad [MT70-LCD-D] Intelligent keypad [MT70-LCD-C] 1m/2m/3m/6m extension cable to keypad [HD-CAB-1M/2M/3M/6M]

2.6 Dimensions

Product Size

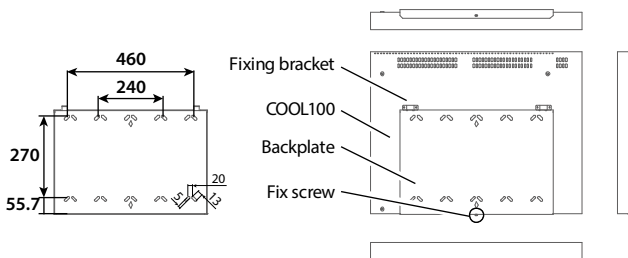


2

Backplate Installation

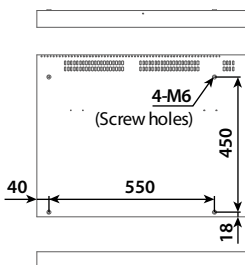
Fix the backplate to the wall and install two metal fixing brackets on the backplate of the COOL100 control panel.

Hang the COOL100 control panel on the fixed backplate, and then tighten the bottom fixing screws.



Fixing Screw Installation

Use M6 screws and nuts to directly install the COOL100 control panel to the shaft frame, the installation size is shown as below.



Chapter 3 Installation

3.1 Precautions



Danger

- Do not install if COOL100 is incomplete or impaired.
- During transportation, please use appropriate tools according to the weight of COOL100 to avoid being injured by sharp corners or COOL100 sideways and falling.
- Make sure that COOL100 is installed above the flame retardant objects like metal, and far from explosive and flammable things.
- The COOL100 can only be operated after 10 minutes of reliable power off.



Warning

- Do not let wires, screws or residues fall into COOL100 when installing.

3

3.2 Installation Site Requirement

Ensure the Installation Site Meets the Following Requirements:

- Do not install at direct sunlight, moisture, water droplet location;
- Do not install at flammable, explosive, corrosive gas and liquid location;
- Do not install at oily dust, fiber and metal powder location;
- Be vertical installed on fire-retardant material with a strong support;
- Make sure adequate cooling space for COOL100 so as to keep ambient temperature between $-10 - +40^{\circ}\text{C}$;
- Install at where the vibration is 3.5m/s^2 in 2 - 9Hz, 10m/s^2 in 9 - 100Hz (IEC60721-3-3);
- Install at where the humidity is less than 95%RH and non-condensing location;
- Protection class is IP10 and pollution level is 2 (dry, non-conducting dust pollution).

Note:

1. It needs derating use if running temperature exceeds 40°C . The derating value of the output current of COOL100 shall be 2% for each degree centigrade. Max. allowed temperature is 50°C .
2. Keep ambient temperature between $-10 - +40^{\circ}\text{C}$. It can improve the running performance if install at location with good ventilation or cooling devices.
3. Battery storage temperature $-20 - +50^{\circ}\text{C}$.

3.3 Peripheral Accessories Selection

3.3.1 Wiring Specifications of Input and Output

The AC supply to COOL100 must be installed with suitable protection against overload and short-circuits, i.e. MCCB (molded case circuit breaker) or equivalent device.

The recommended specification of MCCB, contactor & cables are shown as Table 3-1.

The size of ground cable should accord with the requirement in 4.3.5.4 of IEC61800-5-1.

Table 3-1 Input and output wiring specification

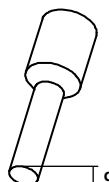
Model	MCCB (A)	Supply Cable (mm ²)	Motor Cable (mm ²)	Ground Cable (mm ²)
Single/three phase: 200 - 240V, 50/60Hz				
COOL100-2D2P2	32/25 ⁽¹⁾	6/2.5 ⁽¹⁾	2.5	6/2.5 ⁽¹⁾
COOL100-2D3P7	63/40 ⁽¹⁾	10/4 ⁽¹⁾	4	10/4 ⁽¹⁾
(1): Value before / is for single phase model, value after / is for three phase model.				
Three phase: 380 - 460V, 50/60Hz				
COOL100-4T3P7	25	2.5	1.5	2.5
COOL100-4T5P5	32	4	2.5	4

3.3.2 Power Terminal Lug

The power terminals are pin-type, and the specification is shown in Table 3-2.

Table 3-2 Selection of power terminal lug

Allowed Wire Gauge	14 - 10AWG
Tightening Torque (N·M)	0.5 - 0.6
Max. Outer Diameter d (mm)	3.5



3.4 Shaft Switch Installation

The calculation formula of the installation distance S between the forced Dec. switch and the leveling position of the terminal station:

$$S > \frac{V^2}{2 \times F03.12}$$

Rated Speed (m/s)	0.25	0.4	0.5	0.75	1	1.5
1 st Forced Dec. Distance (m)	0.4	0.4	0.4	0.4	0.7	1.4

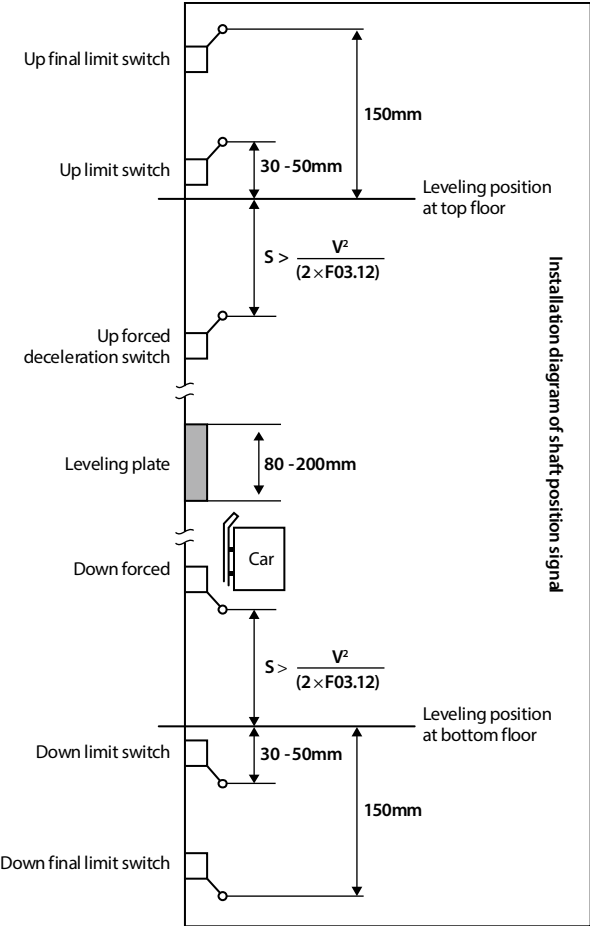


Figure 3-1 Installation diagram of shaft position signals

Chapter 4 Control System Introduction

4.1 Precautions



Danger

- Only qualified electrical engineer can perform wiring job.
- To facilitate the input side over-current protection and outage maintenance, connect COOL100 with power supply via the MCCB or fuse.
- COOL100 must be reliably powered off for 10 minutes before wiring or disassembling the internal components of COOL100.
- Make sure whether the action is reliable or effective after external power emergency stop terminal is connected.
- There is more than 3mA leakage current in COOL100 grounding, depending on the running conditions. To ensure safety, COOL100 and the motor must connect to two separate and independent grounding wires, so as to ground reliably. It must use Type B mode when utilize ground leakage protection devices (ELCB/RCD).
- Do not touch the wire terminals of COOL100 when it is live. The power terminals are neither allowed connecting to the enclosure nor short-circuiting.



Warning

- Do not do pressure test on COOL100.
- For COOL100 with more than 6 month's storage, please use regulator to power it slowly.
- Make sure the terminals are fixed tightly.
- Do not connect the input supply cable to the output terminals U/V/W of COOL100.
- Do not connect the phase-shifting capacitors to the output circuit.
- The DC bus terminals of COOL100 must not be short-circuited.

Ground Connection

The grounding terminals PE must be connected to ground properly for the control panel has leakage current to the ground. The grounding point should be as close to the control panel as possible, and the grounding area should be as large as possible to make sure that the grounding resistance should be less than 10Ω .

Do not share the grounding wire with other devices (A). COOL100 can share grounding pole with other devices (C). It achieves the best effect if COOL100 and other devices use dedicated grounding poles (B), as shown in Figure 4-1.

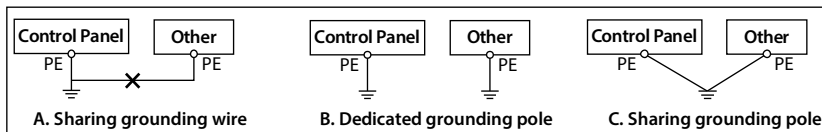


Figure 4-1 Grounding method

When using more than one control panel, be careful not to loop the ground wire as shown in Figure 4-2.

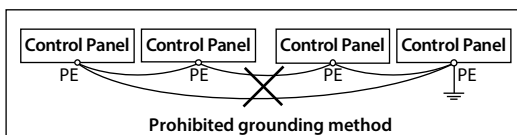


Figure 4-2 Prohibited grounding method

4.2 System Description

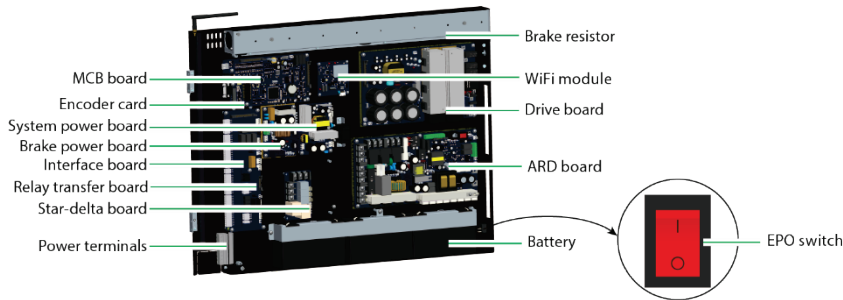


Figure 4-3 COOL100 description
Table 4-1 Components description

Name	Model	Function
MCB board	MTCC-MCB-D	Control panel control core
Drive board	TCC45P5M1	Control panel control core
Encoder card	MT700-PG1-ABZ MT700-PG2-SINCOS MT700-PG3-UVW MT700-PG4-SC	Used to feedback the speed of the motor and the position of the car
Power board	TCC45P5A4 (system power supply) TCC45P5A2 (brake power supply)	Provide brake power supply, safety circuit power supply, system 24V power supply 24VDC/150W system power board 110VDC/300W brake power board
Connection board	MTCC-KCB-D	External connection interface
Relay transfer board	MTCC-RYB-A	Separable inspection box control signal transfer
Braking resistor	1200W/100Ω	Consume excess energy produced during the braking process
WiFi module	MT70-CIC-E	Monitor elevator status and auto dial
ARD board	MTCC-ARD-C	Emergency auto rescue after power fault
Battery	6V/12AH * 3	Emergency power supply
Star-delta board	MTCC-FXB-B	Syn. motor star-delta

Note:

Make sure that the EPO switch is on before powering on the control panel.

4.2.1 Control Panel Interface

The interface definition is shown in Table 4-4 and Table 4-2, the X terminal in the signal () in the table indicates the connected internal signal.

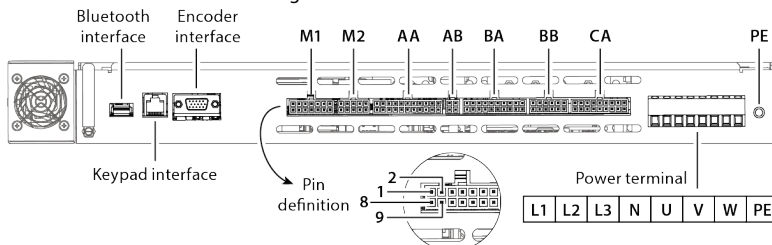


Figure 4-4 COOL100 control panel interface

Table 4-2 COOL100 control panel interface description

AA: Traveling Cable		
Pin	Signal	Definition
1/12	PE	Grounding
2/13	/	Reserved
3/14	CAN-/+	CAN communication
4/15	302/301	24V power supply -/+
5	LV2 (X3)	Down leveling signal
16	LV1 (X1)	Up leveling signal
6	305	Inspection signal
17	LV0 (X2)	Door zone signal
7/18	110/107	Car top safety switch
8	118 (X19)	Car door lock
19	JT (X18)	
9/20	304/303	Door R-CAM power -/+
10/21	/	Reserved
11/22	202/201	Door motor power supply

AB: Travelling Cable		
Pin	Signal	Definition
1/3	SP2/SP1	Microphone -/+
2/4	SPK2/SPK1	Speaker -/+

BA: Shaft Cable		
Pin	Signal	Definition
1/11/12	PE	Grounding
2/13	/	Reserved
3/14	MOD-/+	LOP communication
4/15	302/301	24V power supply -/+
5	CLL (X9)	Manual door arrival signal
16	301	Door closing arrival common
6	COM2	Shaft light COM
17	ECM	Shaft light
7	USS (X7)	Up forced Dec. signal
8	301	Forced Dec., limit common
9/19	103/104	Up final limit switch
18	LSU (X5)	Up final limit signal
10	MB (X20)	Hall door lock
20	118	

BB: Shaft Cable		
Pin	Signal	Definition
1/7	PE	Grounding
2/8	/	Reserved
3	DSS (X8)	Down forced Dec. signal
9	301	Forced Dec., limit common
4	LSD (X6)	Down final limit signal
5	107	Pit emergency stop switch
10/11	104/105	Down final limit switch
6/12	106/105	Buffer switch

CA: Seperable Inspection Box Cable		
Pin	Signal	Definition
1/10	D1_2/1	Spare
2/11	ST2/ST1	Soft start switch
3	JX (X4)	Inspection switch
12	305	
4	FW	Governor reset switch
13	GPW	Governor reset power supply
5	ECM	Shaft light switch
14	LPW	Shaft light power supply
6	101	Inspection box emergency stop
15	SA (X12)	EPB button
7/16	S2/S1	EPB start switch
8/17	MOD-/+	Hall call communication
9/18	302/301	24V power supply -/+

M1: Motor Cable		
Pin	Signal	Definition
1/2/10	/	Reserved
3/11	CAN2+/-	CAN2 communication
4/5	KBK2/1	Brake feedback switch
12	301	Brake feedback COM
6/13	COM1/FW	Governor reset coil
7/14	103/101	Governor switch
8/9	BK-/+	Brake coil power supply

M2: Spare Cable		
Pin	Signal	Definition
1/6	CM6/Y6	Spare Y6 relay output
2/7	CM5/Y5	Spare Y5 relay output
3/8	CM4/Y4	Spare Y4 relay output
4	301	Spare DO COM
5	X14	Spare MCB X14 input
9	X15	Spare MCB X15 input
10	X13	Spare MCB X13 input

Note:

- X15 is used internally by default. For external use, you need to short-circuit pins 2/3 of J1 of the MTCC-KCB-D connection board
- Y6 is used internally by default. For external use, you need to short-circuit the 2/3 pins of J38/J39 of the MTCC-KCB-D connection board

Other Interface	
Interface	Description
Bluetooth module interface	External bluetooth module
Keypad interface	External keypad
Encoder interface	External encoder

Power Terminals	
Terminals	Description
L1, L2, L3, N	Three phase AC power input
U, V, W	Three phase output, connect to motor
PE	Grounding



Danger

- The bare portions of the power cables must be bound with insulation tapes.
- The control circuit and power circuit are basically insulated. Do not touch COOL100 after it is powered.



Warning

- Ensure that AC supply voltage is the same as rated input voltage of COOL100.
- If the control circuit is connected to the external devices with live touchable port, it should increase an additional isolating barrier to ensure that classification of external devices not be changed.
- If connect the communication terminal of the control circuit to the PC, choose RS485/232 isolating converter which meets the safety requirement.

4.2.2 Elevator Control System Wiring

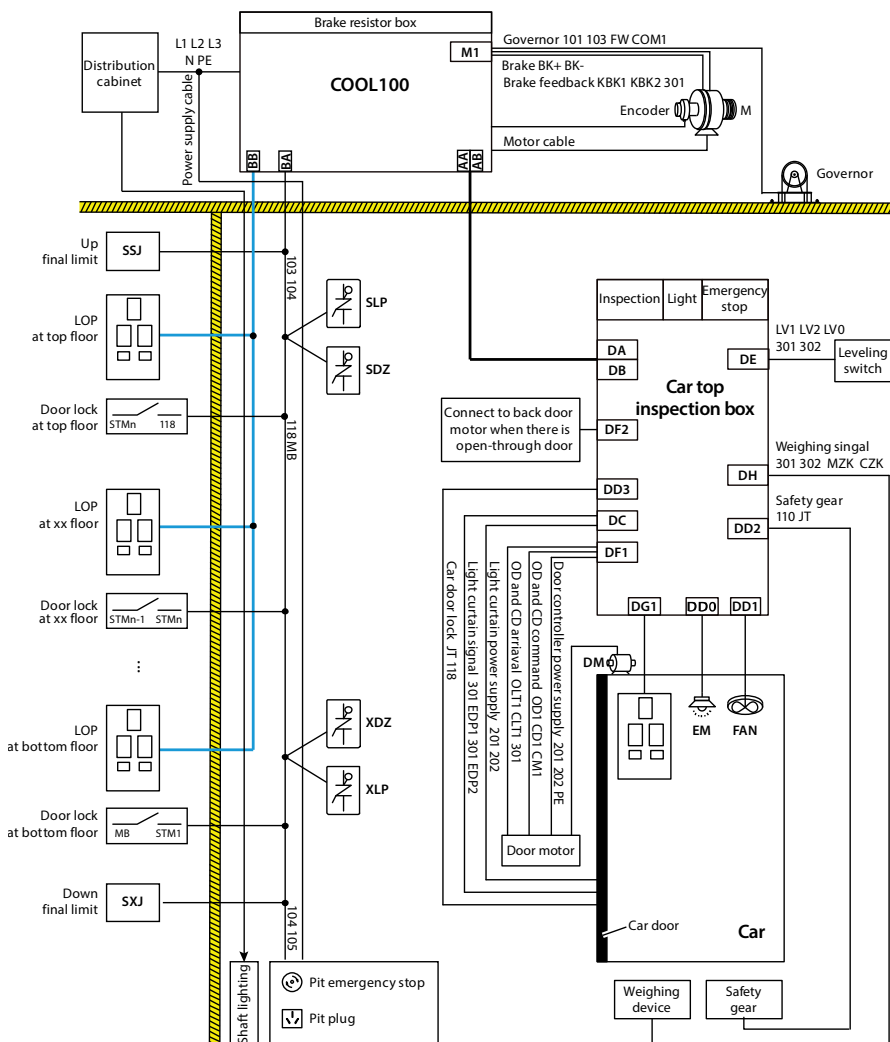


Figure 4-5 General drawing of elevator control system

4.2.3 Main Circuit Wiring

Take MT700-PG1-ABZ as an example. For the detailed wiring of the encoder card, see section 4.3, page 23.

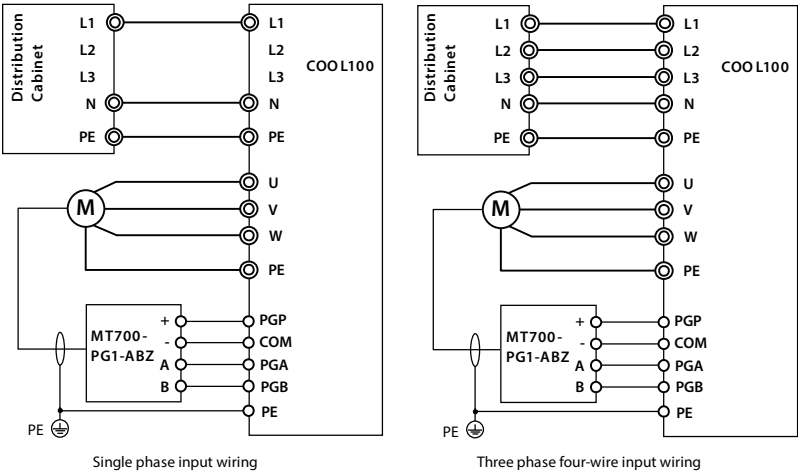


Figure 4-6 Main circuit

4.2.4 Safety Circuit Wiring

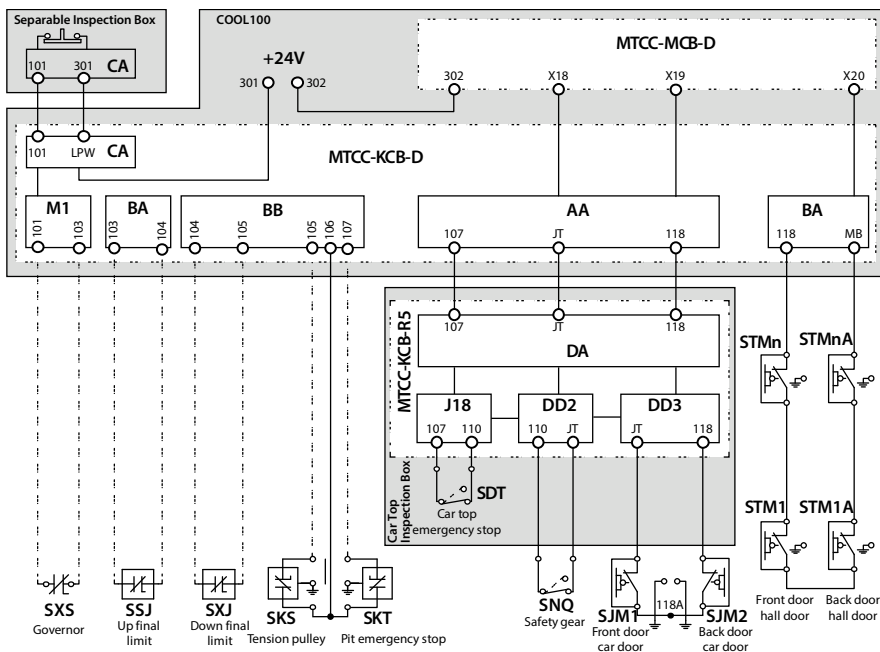


Figure 4-7 Safety circuit

4.2.5 Inspection Circuit Wiring

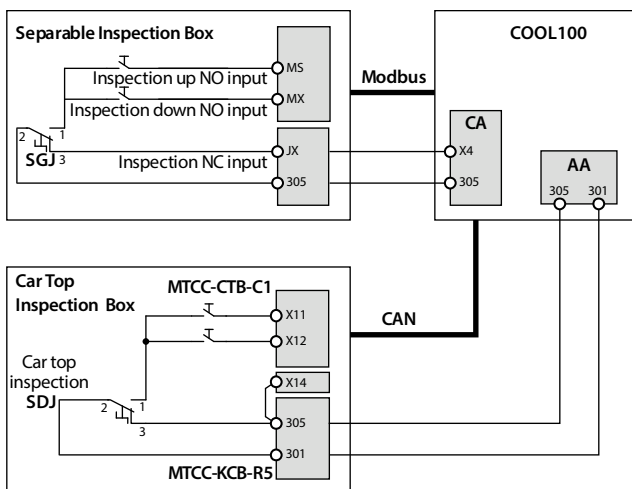


Figure 4-8 Inspection circuit

4.3 Encoder Card

4.3.1 Encoder Card Selection

COOL100 provide 4 kinds of encoder cards (optional), model and function are shown in Table 4-3.

Table 4-3 Encoder card

Encoder Card	Function
MT700-PG1-ABZ	- Support differential, OC and push-pull signal input - Apply to Asyn. motor close-loop vector control (VC)
MT700-PG2-SINCOS	- Support SINCOS signal input - Apply to Syn. motor close-loop vector control (VC)
MT700-PG3-UVW	- Support 5V-line drive ABZ and UVW signal input - Apply to Syn. motor close-loop vector control (VC)
MT700-PG4-SC	- Support serial communication encoder 1313 - Apply for Syn. motor closed-loop vector control (VC)

Wiring Requirement of Encoder Card:

1.	The cables of the encoder card must be routed separately from the power cables, and it is strictly forbidden to route them in parallel at close distances.
2.	Please use a shielded cable for the wiring of the encoder card, and connect the shielding layer to the PE terminal on the side close to the control panel (to avoid interference, only one end can be grounded).
3.	The wiring of the encoder card must be through a separate tube, and the metal tube shell must be reliably grounded.

4

4.3.2 MT700-PG1-ABZ

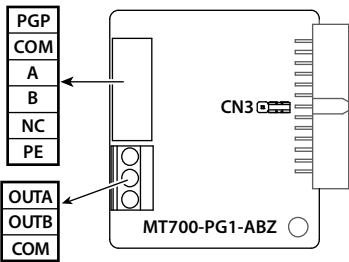


Figure 4-9 MT700-PG1-ABZ

Terminals Description

Table 4-4 Terminals description

Terminal	Description	Terminal	Description
PGP	+12V power supply output	NC	Unused
COM	Power ground, isolated from GND	PE	Connection ground
A	A signal of encoder	OUTA	A signal output of encoder
B	B signal of encoder	OUTB	B signal output of encoder

Jumper Description

Table 4-5 Jumper description

Jumper	Description
CN3 13	Power supply 5V/12V selection: When 1, 2pin is shorted, the power supply is +5V; When 2, 3pin is shorted, the power supply is +12V (default setting).

Encoder Connection

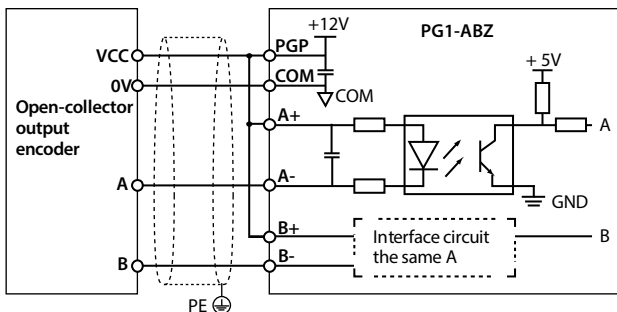


Figure 4-10 Connection of open collector output encoder

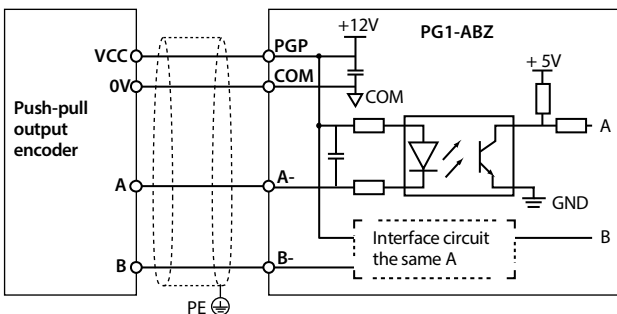


Figure 4-11 Connection of push-pull output encoder

4.3.3 MT700-PG2-SINCOS

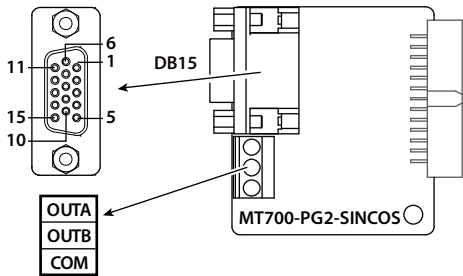


Figure 4-12 MT700-PG2-SINCOS

Terminals Description

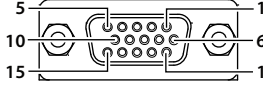
Table 4-6 DB15 and FD terminal description

Terminal		Description	Terminal		Description
1/8	B-/B+	Differential signal B-/B+	9	PGVCC	+5V power supply
3/4	R+/R-	Differential signal R+/R-	2/14/15		Invalid
5/6	A+/A-	Differential signal A+/A-			
7	PGGND	Power supply ground	OUTA		A signal output of encoder
10/11	C+/C-	Differential signal C+/C-	OUTB		B signal output of encoder
12/13	D+/D-	Differential signal D+/D-	COM		Power ground, isolated from GND

Encoder Connection

Recommend HEIDENHAIN ERN1387 encoder for use. 1387 double-socket and DB15 terminal are shown in Table 4-7.

Table 4-7 1387 double-socket and DB15 terminal relation

1387 Double-socket							DB15 Terminal															
<table><tr><td>1b</td><td>2b</td><td>3b</td><td>4b</td><td>5b</td><td>6b</td><td>7b</td></tr><tr><td>1a</td><td>2a</td><td>3a</td><td>4a</td><td>5a</td><td>6a</td><td>7a</td></tr></table>							1b	2b	3b	4b	5b	6b	7b	1a	2a	3a	4a	5a	6a	7a		
1b	2b	3b	4b	5b	6b	7b																
1a	2a	3a	4a	5a	6a	7a																
5a		B-					1	B-														
4b		R+ (Z+)					3	R+														
4a		R- (Z-)					4	R-														
6b		A+					5	A+														
2a		A-					6	A-														
3a + 5b		0V					7	PGGND														
3b		B+					8	B+														
7a + 1b		5V					9	PGVCC														
7b		C+ (SIN-)					10	C+														
1a		C- (SIN+)					11	C-														
2b		D+ (COS+)					12	D+														
6a		D- (COS-)					13	D-														

Note: The signal phase sequence of C+/C- and D+/D- in the motor auto-tuning will automatically learn the wiring mode, and there is no special requirement for its wiring. I.e. C+/C- can be exchanged for C-/C+, D+/D- can be exchanged for D-/D-.

4.3.4 MT700-PG3-UVW

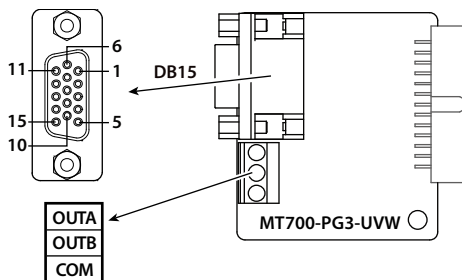


Figure 4-13 MT700-PG3-UVW

Terminals Description

Table 4-8 DB15 and FD terminal description

Terminal		Description	Terminal		Description
1/2	A+/A-	Differential signal A+/A-	13	PGVCC	+5V power supply
3/4	B+/B-	Differential signal B+/B-	14	PGGND	Power supply ground
5/6	Z+/Z-	Differential signal Z+/Z-	15		Invalid
7/8	U+/U-	Differential signal U+/U-	OUTA		A signal output of encoder
9/10	V+/V-	Differential signal V+/V-	OUTB		B signal output of encoder
11/12	W+/W-	Differential signal W+/W-	COM		Power ground, isolated from GND

4.3.5 MT700-PG4-SC

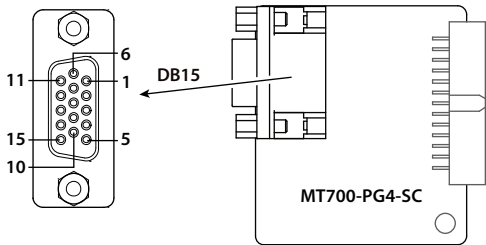


Figure 4-14 MT700-PG4-SC

Terminals Description

Table 4-9 Terminals description

Terminal	Description	Terminal	Description
1/8	B-/B+	10	CLK+
2/3/4	Invalid	11	CLK-
5/6	A+/A-	12	DATA+
7	GND	13	DATA-
9/15	PGP	14	Invalid

Encoder Connection

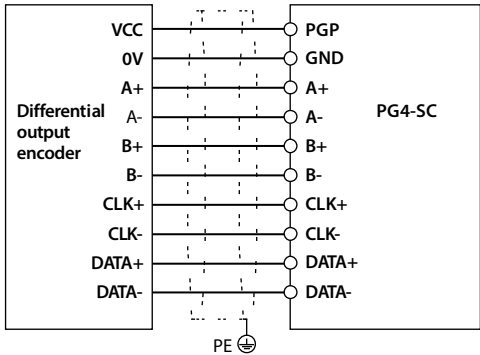


Figure 4-15 Differential output encoder connection

4.4 COOL100-CTB-B

COOL100-CTB-B is the control box of the elevator car and an important transfer station for COOL100 to collect signals and control signal input/output.

If the system is equipped with a light curtain and a touch panel at the same time, there are two ways to achieve protection.

1. Connect the light curtain and the touch panel to the input terminals of the car top inspection box respectively, and set the corresponding function parameters.
2. Connect the light curtain and touch panel signals in series or in parallel to one input terminal. If two signals are NC, use series connection; If two signals are NO, use parallel connection.

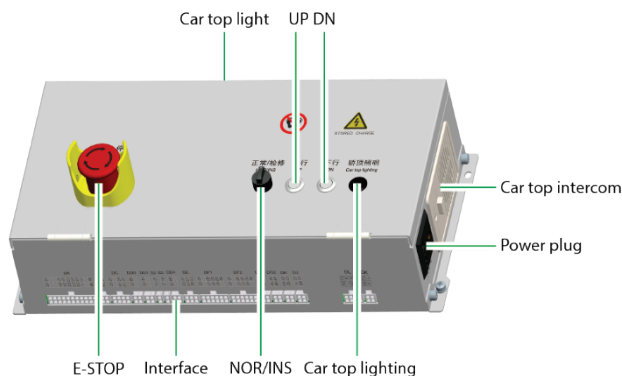


Figure 4-16 Car top inspection box

Table 4-10 Function description

Name	Function
E-STOP	Cut off the system output to stop the elevator
Car top light	Car top light
Car top lighting	Control car top light
UP/DN	Inspection up/down button
NOR/INS	Inspection/normal transfer switch
Power plug	Provide 220VAC power supply to car top
Car top intercom	Car top intercom
Interface	See below

Dimension

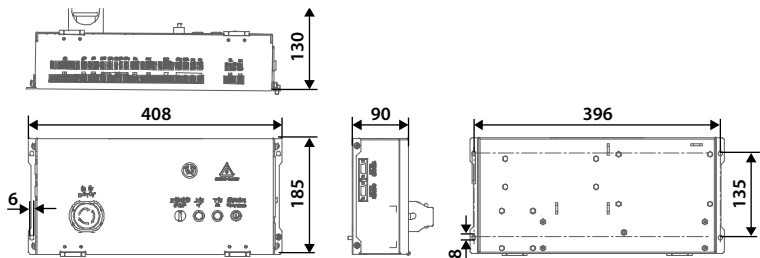


Figure 4-17 Car top inspection box

Interface Description

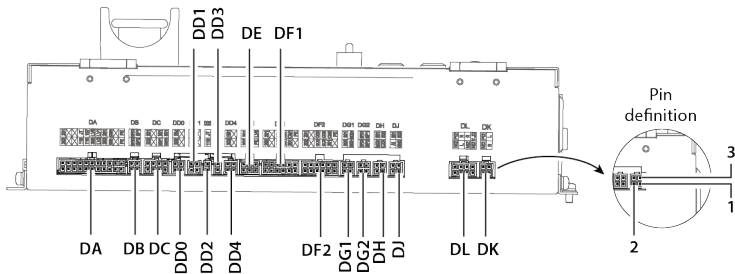


Figure 4-18 Interface of car top inspection box

Table 4-11 Interface description of car top inspection box

DA: Travelling Cable		
Pin	Signal	Definition
1/12	PE	Grounding
2/13	/	Reserved
3/14	CAN-/+	CAN communication
4/15	302/301	24V power supply -/+
5/16	LV2/LV1	Down/up leveling signal
6	305	Inspection signal
17	LV0	Door zone signal
7/18	110/107	Car top safety switch
8/19	118/JT	Car door lock
9/20	/	Reserved
10/21	/	Reserved
11/22	202/201	Door motor power supply

DB: Travelling Cable		
Pin	Signal	Definition
1/3	SP2/SP1	Microphone -/+
2/4	SPK2/1	Speaker -/+

DC: Light Curtain Cable		
Pin	Signal	Definition
1	EDP2 (X4)	Light curtain signal 2
5	301	Light curtain signal 2 power supply
2	EDP1 (X1)	Light curtain signal
6	301	Light curtain signal 1 power
3/7	/	Reserved
4/8	202/201	Light curtain power supply

DD0: Lighting Cable		
Pin	Signal	Definition
1/3	/	Reserved
2	202	Light COM
4	EM (Y6)	Light control signal

DD1: Fan Cable		
Pin	Signal	Definition
1/3	/	Reserved
2	202	Fan COM
4	FA (Y7)	Fan control signal

DD2: Safety Gear Cable		
Pin	Signal	Definition
1/2	110/JT	Safety gear switch

DD3: Car Door Lock Cable		
Pin	Signal	Definition
1/2	JT/118	Car door lock switch

DD4: Electromagnetic Valve Cable		
Pin	Signal	Definition
1/3	/	Reserved
1/2	202/HS1	Manual door electromagnetic valve coil -/+

DE: Door Zone Cable		
Pin	Signal	Definition
1	PE	Grounding
4	LV0	Door zone signal
2/5	LV2/LV1	Down /up leveling signal
3/6	302/301	Door zone power supply

DF1: Front Door Cable		
Pin	Signal	Definition
1	/	Reserved
7	PE	Grounding
2	301	Front door open&close arrival COM
8	CM1	Front door open&close command COM
3	CLT1 (X3)	Front door close arrival
9	CD1 (Y2)	Front door closing command
4	OLT1 (X2)	Front door close arrival
10	OD1 (Y1)	Front door close command
5/11	/	Reserved
6/12	202/201	Door motor power supply

DF2: Back Door Cable		
Pin	Signal	Definition
1	/	Reserved
7	PE	Grounding
2	301	Back door open and close arrival COM
8	CM2	Back door open and close command COM
3	CLT2 (X6)	Back door close arrival
9	CD2 (Y4)	Back door close command
4	OLT2 (X5)	Back door close arrival
10	OD2 (Y3)	Back door command arrival
5/11	/	Reserved
6/12	202/201	Door motor power supply

DG1: COP Cable		
Pin	Signal	Definition
1/3	MOD-/+	Built-in Modbus
2/4	302/301	24V power supply -/+

DG2: Floor Announcement		
Pin	Signal	Definition
1/3	SP2/SP1	Microphone -/+
2/4	SPK2/SPK1	Speaker -/+

DH: Weighing Signal		
Pin	Signal	Definition
1	CZK (X8)	Overload signal
2	MZK (X7)	Full load signal
3/4	302/301	24V power supply -/+

DJ: Weighing Analog Cable		
Pin	Signal	Definition
1	GND	Weighing analog GND
2	AI	Weighing analog signal
3/4	302/301	24V power supply -/+

DL: Car Intercom Cable		
Pin	Signal	Definition
1	N12	Emergency light power supply ground
2	N12	Alarm power supply ground
5	YJD	Emergency lighting signal
6	R	Alarm signal
3/7	L/R	Car intercom signal
4/8	N12/P12	12V power supply -/+

DK: Intercom Cables of Control Panel		
Pin	Signal	Definition
1/3	R/L	Intercom communicational signal
2/4	N12/P12	12V power supply -/+

Chapter 5 Debugging Tools Introduction

5.1 Seperable Inspection Box (SIB)

Description

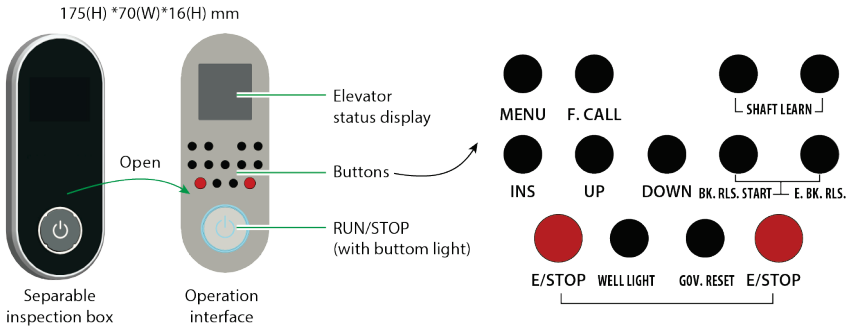


Figure 5-1 Separable inspection box
Table 5-1 Separable inspection box description

Separable Inspection Box	Description
RUN/STOP	With mains electricity: - Press and hold the button for 5s, the elevator system turns on/off. - When the elevator is running normally, the button light is blue;When there is a fault, the button light is red. <i>Note: The condition of turning off the control panel is the CD arrival signal is valid, the door lock signal is valid, and the leveling signal is valid.</i> Without mains electricity: - When the emergency rescue is outputting, short press twice to stop. - When the ARD is on standby, press and hold for 2s to turn off. <i>Note: When the leveling signal is valid, the EPB does not work.</i>
Elevator status display	Display elevator running status and fault information. Elevator status — Ins Terminal status — 0000 0000 1101 0000 MCB signal — Up forced Dec. Door status — OD arrival INS — Inspection status of SIB 5F ↑ — Leveling signal

Table 5-2 Separable inspection box button description

Button	Description
MENU	Language selection: - Long press the MENU button to enter the language selection interface, then click the MENU button to select Chinese/English and the setting will be valid after 3s. Cursor selection: - Press the MENU button once in the home page, move the cursor one bit to the left.
INS	In the automation mode: - In the automation mode, pressing the INS button will prompt "Enter INS?", pressing the INS button again will prompt "INS", wait for 2s to exit the current interface, and INS mode is set completely. In the inspection mode: - Pressing the INS button will prompt "Exit INS?", press the INS button again to prompt "Normal", wait 2s to exit the current interface, INS mode is exited completely.
UP/DOWN	Inspection up and down (used in inspection mode, long press the inspection up/down button to make the car up/down).
E/STOP	Press any one emergency stop button to output an emergency stop signal, and to reset, you need to press and hold two emergency stop buttons for 3 seconds at the same time.
SHAFT LEARN	Long press the 2 self-learning buttons for 3s at the same time to start the shaft self-learning (the current state of the elevator needs to meet the shaft self-learning conditions).
GOV. RESET	Press the reset button to output the governor reset signal.
BK. RLS. START	Start emergency rescue.
E. BK. RLS.	EPB: - Note: The shaft lighting defaults to 24VDC, please do not connect to high voltage. - See section 6.3.2, page 63 for details.
WELL LIGHT	Shaft lighting status selection.
F. CALL	Press the floor button to enter the call selection interface. Each time you press the floor button, the floor increase 1, and there will register the current input floor after 3s.

Installation

The separable inspection box can be installed with the control panel or be installed separately.

When separable inspection box is installed separately, it can be installed beside the hall door and connected by the standard 3m cable.

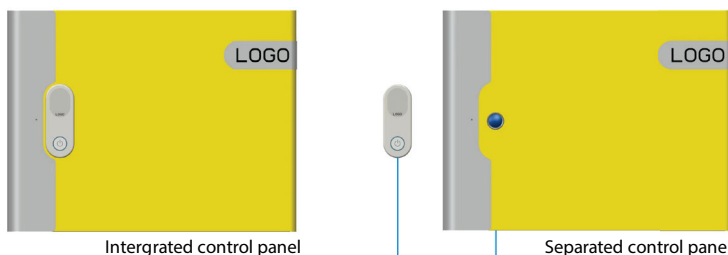


Figure 5-2 Separable inspection box installation

5.2 IoT Debugging

COOL100 has a built-in WiFi module (MT70-CIC-E), which enables remote monitoring of the elevator system. Managers can view the elevator operation status and operate the elevator remotely through the elevator IoT system.

Elevator IoT Login Website: https://www.hpmontserver.com/Springlot/pc_login.jsp.

5.2.1 Binding Elevator with WiFi Module

Add WiFi Modules

- Login to the elevator IoT system, click "File Management" ①, "Hardware" ②, click "New" ③ in the interface, fill in the information in the window that opens, and click "Confirm" ④ when finished, as shown in Figure 5-3.
- Registration code: Automatically generated by the server after filling in the mac.
- Hardware: Select "MT70-CIC-E".
- Controller type: Controller connected with WiFi module.
- mac: Obtained via WiFi module label or by scanning the QR code on the label on the right side of the nameplate, letters are capital, see section 2.3.

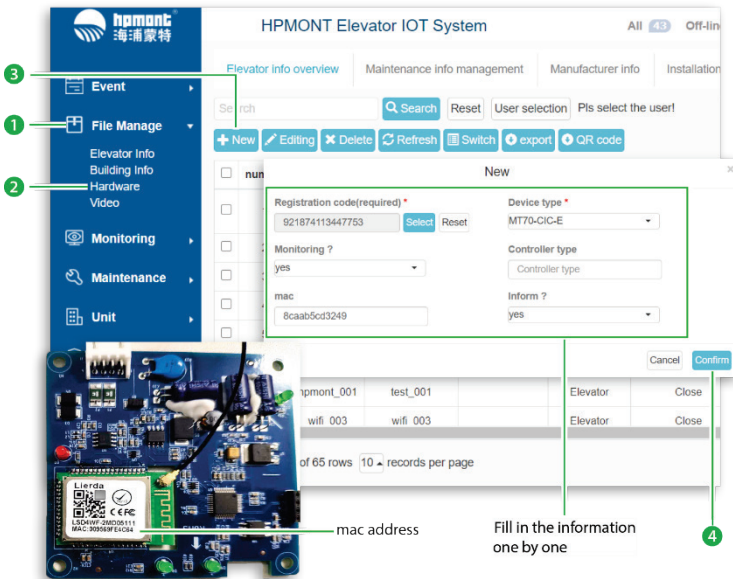


Figure 5-3 Adding WiFi modules to elevator IoT systems

Binding Elevator with WiFi Module

Click "File Management" ①, "Elevator Information" ②, click "New" ③ in the interface, fill in the information in the opened window, and click "Confirm" ④ when finished, as shown in Figure 5-4.

- Hardware: The registration code of the WiFi module bound to the elevator. Click "Select" button and check it in the list. One elevator can only be bound to one hardware.

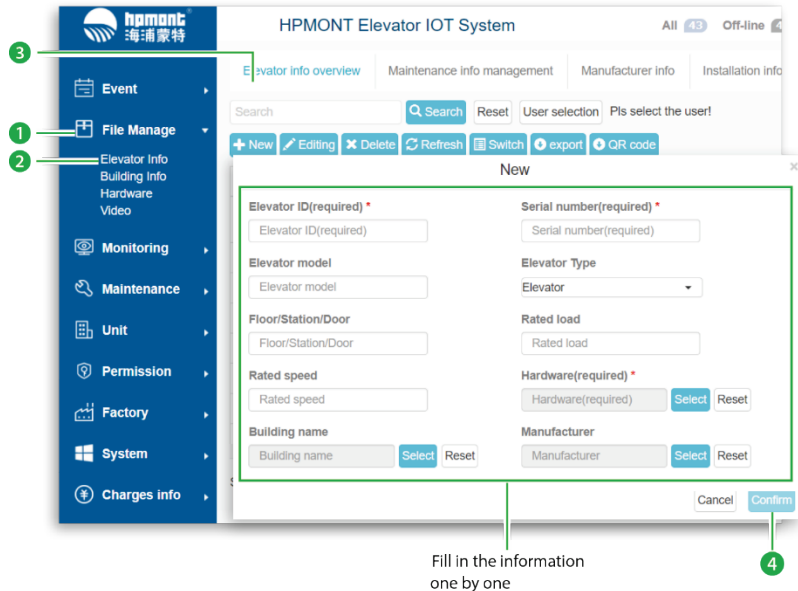


Figure 5-4 Binding elevator with WiFi module

5.2.2 WiFi Module Setting

WiFi module can only be used after setting parameters via PC.

The default power-on mode is STA mode, and it will automatically switch to AP mode if there is no successful WiFi connection within 10s.

The setup procedure is the same for both modes, and the setup parameters are shown in the table below.

Table 5-3 WiFi module default parameters setting

Name	hp-Link
Password	12345678
IP Address	AP mode: 11.11.11.254 STA mode: Need to check, see below
Subnet Mask	255.255.255.0
Username/password	admin

The IP address to be set in STA mode:

- Check through the local router settings interface, see Figure 5-5.
- If the WiFi module has been successfully connected, it can be checked through the elevator IoT system, see Figure 5-6.

已连接的设备: 2 台(共 8 台)		
设备名称	IP 地址	物理地址(MAC)
lierda_jiLink_dbe...	192.168.137.235	00:95:69:db:ee:ca

New IP address

Figure 5-5 Router query IP address

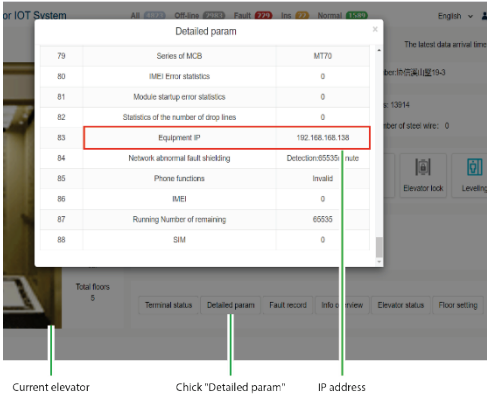


Figure 5-6 Elevator IoT system query IP address

The setup steps are as follows:

1. PC enter the name and password of the WiFi module to connect to WiFi, enter the IP address in the browser address bar and enter.
2. Enter the username and password in the "Log in" interface, and click "Log in" to open the administration interface.
3. Set the local WiFi parameters in the "STA settings" menu of the management interface.
Network name: Click "Search" to select or enter manually.
Encryption method: Select the encryption method of the network.
Password: Enter manually.
Note: WiFi module only supports 2.4G WiFi.
4. Click "Save".
5. Select the "Reboot" menu in the management interface or disconnect the PC from WiFi to reboot the WiFi module.

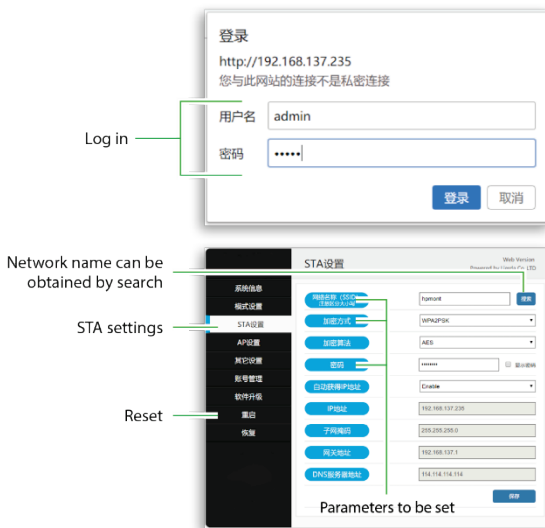


Figure 5-7 Setting up the WiFi module

Chapter 6 System Adjustment and Typical Application

6.1 Electrical System Structure

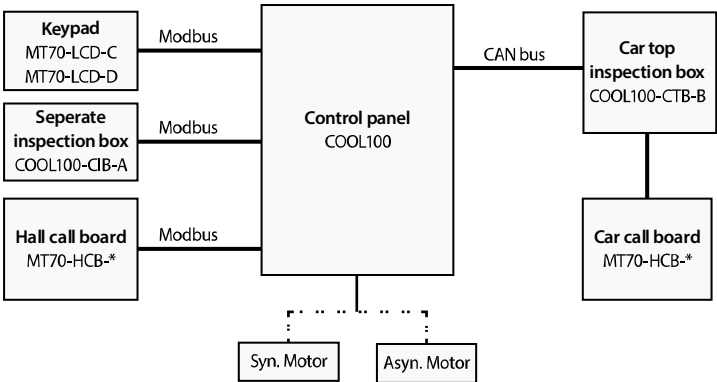


Figure 6-1 COOL100 electrical system structure

6.2 Adjustment Process

As the periphery circuit and machine installed are finished fully, you can adjust the COOL100 in accordance with the process of the following table.

1.	Check Wiring, see section 6.2.1, page 40
2.	Setting Parameter, see section 6.2.2, page 41
3.	Motor Auto-tuning, see section 6.2.3, page 43
4.	Inspection Running, see section 6.2.4, page 45
5.	Shaft Self-learning, see section 6.2.5, page 46
6.	Check before High Speed, see section 6.2.6, page 47
7.	High Speed Running, see section 6.2.7, page 49
8.	Test Function, see section 6.2.8, page 50
9.	Adjustment Comfortable Feeling, see section 6.2.9, page 52
10.	Brake Force Detection Function, see section 6.2.10, page 59

6.2.1 Check Wiring

1.	Check the electrical and mechanical wiring to ensure the safety.
2.	Check each connection whether is right in accordance with the manual and the wiring description. At least two staffs are required in debugging. And cut off the power immediately if abnormal situation occurs.
3.	Check if the parts types are matched. The safety circuit is passed through and the signal is normal. The door lock circuit is passed through and work reliably.
4.	Shaft is smooth and no one is in the car, and it possesses the conditions suitable for the elevator safety running.
5.	Really check the input power and the motor wirings whether are correct to avoid misusing power transmission and cause COOL100 damage.
6.	Make sure the following items is grounded reliably : • The control panel is grounded; • The motor is grounded; • The car is grounded; • The hall door is grounded; • The door motor is grounded; • The pipeline is grounded; • The shielded encoder and motor end are grounded. <i>Note:</i> 1. The control panel and the motor should be confidential single point grounded. 2. The encoder shield is grounded at the single end on the COOL100 side.
7.	Check the short-circuiting. If there is shortcircuiting, please do not power on until exclude the short-circuiting. • The input power supply interphase to the ground; • The motor interphase to the ground; • 220V interphase to the ground; • The switch power supply 24V to the ground; • The communication wire to the ground; • The encoder wire to the ground.
8.	• Check the wirings of communication wire, encoder wire and power supply wire. • The shaft's communication wire is twisted pair and twisted distance is <35mm. • The car's communication wire is twisted pair and twisted distance is <35mm. • The parallel group control communication wire is twisted pair and twisted distance is <35mm (only in parallel and group control elevator). • The encoder wire and the power supply wire should be separated from the alignment. • The communication wire and the power supply wire should be separated from the alignment. • The parallel group control communication wire and the power supply wire should be separated from the alignment (only in parallel and group control elevator).

6.2.2 Setting Parameter

1.	Remove the brake control wire before power on.
2.	Confirm that the +24V power supply of the COOL100 interface board has output, and there should be 24V between PIN8 and PIN9 at the CA terminal.
3.	Observe the SIB display and confirm that there is no fault, or check D02.03 to make sure the safety circuit and door lock circuit are normal and valid.
4.	Refer to section 6.3.2 for brake release operation electrically by electric supply.
5.	Measure the M1 interface PIN9 (BK+) and PIN8 (BK-) terminal voltages.

Ref. Code	Function	Value	Remark
F00.00	Motor type	Based on the actual setting	
F00.01	Control mode	2 (VC control)	
F00.02	Elevator Max. running speed	Based on the actual setting	
F00.03	Elevator rated speed	Based on the actual setting	
F00.04	Elevator rated load	Based on the actual setting	
F00.05	Controller Max. output frequency	Based on the motor setting	Generally set as the motor rated frequency
Group F03	Acc. and Dec. curve parameter	Set as needed	
Group F04	Speed parameter	Set as needed	
F07.00	Asyn. motor rated power	Based on the actual setting	Selected as Asyn. motor, need to set Asyn. motor name plate parameter in group F07
F07.01	Asyn. motor rated voltage	Based on the actual setting	
F07.02	Asyn. motor rated current	Based on the actual setting	
F07.03	Asyn. motor rated frequency	Based on the actual setting	
F07.04	Asyn. motor rated Rpm	Based on the actual setting	
F07.05	Asyn. motor power factor	Based on the actual setting	
F10.01	Syn. motor rated power	Based on the actual setting	Selected as Asyn. motor, need to set Asyn. motor name plate parameter in group F10
F10.02	Syn. motor rated voltage	Based on the actual setting	
F10.03	Syn. motor rated current	Based on the actual setting	
F10.04	Syn. motor rated frequency	Based on the actual setting	Note: If F10.00, F10.06 - F10.09 is not accurate parameters, please set to 0, otherwise it may not run properly!
F10.05	Syn. motor rated Rpm	Based on the actual setting	
F10.09	Syn. motor counter emf	Based on the actual setting	
F11.00	Encoder card selection	Based on the actual setting	Set according to encoder
F11.01	Encoder card pulses	Based on the actual setting	
F11.02	Encoder card rotation direction setting	Based on the actual setting	

Ref. Code	Function	Value	Remark
F12	MCB input terminal setting	Set according to the drawings	Set the parameters to select NC.or NO. inputs. Observe the input logic status of D02.03 - D05 on the keypad to confirm the terminal input status. X18 - X20 are 24V safety and door lock inputs. Please make sure the safety circuit and door lock circuit are correct.
	MCB relay output terminal setting	Set according to the drawings	Observe the output logic status of the D02.06 on the keypad to confirm the relay output status.
F13	CTB input terminal setting	Set according to the drawings	Observe the LED light corresponding to the CTB terminals to confirm the input status. The terminal input status can also be confirmed by observing the input logic status of D03.03 to D03. 04 on the keypad.
	CTB relay output terminal setting	Set according to the drawings	Observe the LED light corresponding to the relays to confirm the relay output status. The relay output status can also be confirmed by observing the input logic status of D03.05 to D03.06 on the keypad.
F23	Time parameters	Based on the actual setting	Confirm that the time of F23.03 - F23.08 is consistent with the actual situation. If not, please reset.

6.2.3 Motor Auto-tuning

Note:

- 1. The crane car is needed for the rotation auto-tuning but not for the static auto-tuning.
- 2. The motor and the encoder parameters must be set correctly before parameter auto-tuning.

Asyn. Motor——Parameter Auto-tuning

1.	Set F00.07 = 0 (keypad control).
2.	Static auto-tuning: Set F07.06 = 1 (static auto-tuning), then press key of keypad to do parameter auto-tuning. • Open the running relay automatically. • Traction motor makes a whistling sound, lasting about 30s. • Traction motor rotates slowly for one circl. Rotation auto-tuning: Set F07.06 = 2 (rotation auto-tuning), then press key of keypad to do parameter auto-tuning. • Automatically open the running relay, and the brake relay will automatically close. • Traction motor rotates. • If traction motor vibration or even overcurrent occurs, press STOP to terminate the auto-tuning and adjust F07.21 and F07.22 (suppression of oscillation) appropriately.
3.	After finish auto-tuning, set F00.07 = 1 (distance control).
Note:	
1.	Parameter self-tuning does not require encoder pole angle learning. When the self-tuning is completed and the inspection running is performed, if a fault E0030 (encoder reversal) is reported, it is possible that the encoder AB direction is reversed. Solution: Change the encoder direction (F11.02).

Syn. Motor——Static Auto-tuning

1.	Refer to section 6.2.4 Inspection Running preparation for confirmation.
2.	Set the SIB of the control panel to INS status, as shown in Table 5-2 (page 34).
3.	Set F10.12 = 0 (Syn. motor initial angle), F00.07 = 1 (distance control), F10.10 = 1 (static angle self-tuning).
4.	- Press and hold the UP or DOWN button of SIB, then the elevator goes up or down for inspection and starts self-tuning. - The control panel sends out a series of pulse voltages and the traction motor makes a humming sound. - After the buzzing sound ends, the traction motor goes for inspection mode and stops automatically after running for one rotation.
5.	- Release the button, confirm that the parameter has data, and record the F10.12 data (not 0). - ABZ/UVW encoder: If F10.12 (initial angle of the motor) is obtained, it means that the self-tuning is correct. - SINCOS encoder: If F10.14 - F10.17 (encoder parameters, default 2048) and F10.12 (initial angle of the motor) are obtained, it means that the self-tuning is correct.
6.	Repeat the self-tuning 2 times (3 - 5 steps), record the F10.12 data, and subtract the data of three times self tuning in pairs. - ABZ/UVW encoder: The difference should be within 30°, otherwise it needs to be re-tuned. - SINCOS encoder: The difference should be within 5°, or within 5° of 360° / the integral multiple of the number of pole pairs of the traction motor, otherwise it needs to be re-tuned.
Note:	
1.	The given direction and the actual running direction do not match. Solution: Reverse the value of F00.10 (elevator running direction), and perform auto-tuning again.
2.	During self-tuning, when the traction machine is just from standstill to starting, if it reports E0030 fault (encoder reverse) or E0031 fault (encoder disconnection). Solution: Change the encoder direction (F11.02). If the fault is still reported, try to adjust the speed loop KP and KI (group F08).
3.	During auto-tuning, if there is a fault such as over-current or encoder reverse, it may be that the encoder direction is reversed. Solution: Set F11.02 = 1 (the direction of the encoder card is reversed), and perform self-tuning again.
4.	Unsuccessful self-tuning will cause the danger of car overspeed. It is recommended that two people cooperate (one presses the maintenance button and the other presses the emergency stop button). When overspeed occurs, the power supply can be cut off in time.
5.	When the auto-tuning is abnormal, press the E/STOP button to stop the auto-tuning.

6.2.4 Inspection Running

Preparation Work before Inspection Operation

1.	The SIB of control panel shows "INS" state, and CTB switch is set to NOR position.
2.	The safety circuit and the door lock circuit of machine room and shaft are normal and effective. <i>Note: No short-circuit the safety circuit or the door lock circuit.</i>
3.	The encoder is installed correctly and wiring is normal.
4.	After power on, the COOL100 display is normal, the COOL100 parameters are correctly set, and the keypad "Status Display Interface" shows that the elevator operation status is "INS".
5.	Motor brake cable is properly connected to the terminals of the control panel.
6.	The wirings of upper and lower terminal Dec. switch and car top inspection priority circuit are normal.

Machine Room Inspection Operation

1.	Press and hold the UP or DOWN button, elevator operates for inspection. If the elevator can run and the traction motor is running in the correct direction, it is successful.
2.	Check up and down two leveling switches and door zone signal wiring. If the sequence is wrong, check the external wiring. The correct is: - At the elevator slow speed up running, the successively effective signal is: Up leveling signal, door zone signal and down leveling signal. - At the elevator slow speed down running, the successively effective signal is: Down leveling signal, door zone signal and up leveling signal. If the sequence is not correct, please check the external wiring. Refer to "MT70-AOB-C Instruction Manual" for leveling signal installation.
Note:	
1.	On many occasions, the slow speed running of the machine room is not inspection run, but the emergency electrical operation. At this time, in the safety circuit, the safety gear switch, the governor switch, the up overspeed protection switch, the up and down terminal limit switch and the buffer reset switch are jump out in the slow speed run, so you must pay particular attention to it. Suggestion: The emergency electrical running time and distance of the machine room are not too long, but do not run the car to the end terminal position.
2.	The motor is not running in the correct direction. Solution: Please check the wiring and parameter setting of the up/down input terminal. If the wiring is correct, please set F00.10 = 1 (direction is reversed) and retry the shaft self-learning.
3.	The feedback speed of the motor displayed by COOL100 is unstable or deviates greatly from the given value when the elevator is in inspection operation. Solution: Check the wiring between the encoder and the encoder card by: - Confirm that the correct cable is used. If the encoder is a differential signal, use twisted shielded cable; Others can use normal shielded cable. - Make sure that the wiring is correct. The encoder connection cable and the power cable must be strictly separated, not in the same cable slot. - Make sure the shield is reliably grounded.
4.	Syn. motor is equipped with SINCOS encoder but error or overspeed is reported during inspection operation. Solution: Check the C/D phase connection wire to make sure it is correct.

Car Top Inspection Operation

It can not run car top inspection until fully verify the machine room inspection run properly.

Actually set F03.06 (Acc. inspection), F04.00 (inspection running speed), and F26.12 (treating parameter setting) during the first run, inspection speed can be set as smaller value.

1.	The NOR/INS switch of the car top inspection box is set to INS .
2.	Tap the UP or DOWN button of the car top inspection box to confirm that the car is running in the correct direction.
3.	Runs a round trip in inspection mode, during the process carefully observe around the car to confirm: • There is no obstacle in the shaft that hinders the car operation. If there is, stop in time. • The shaft terminal Dec. switch operates and operates in the correct position. • The shaft leveling switches and level spiles are correctly installed; At each level position, the action point of each leveling switch is correct.
Note:	
1.	At inspection runtime, if the shaft switch is not installed in place, the system may alarm fault. Solution: Set F26.12 (inspection parameter setting).

6.2.5 Shaft Self-learning

1.	The elevator is in inspection status.
2.	Elevator runs to the lower limit position to confirm: • Lower forced Dec. signal valid. • The current floor is 1 floor. • When the total floor is 2, the lower leveling switch is below the level spile. • When the total floor is more than 2, there is at least one leveling switch in the leveling spile.
3.	Initiate a shaft self-learning with either of the following operations: • Keypad: Set F26.01 = 1 (initiate shaft self-tuning). • Separate inspection box: Simultaneously press and hold that two SHAFT LEARN buttons on the SIB for 3s.
4.	The elevator runs at self-tuning speed (F04.03), and records the length of the level spile, the floor height of each floor, and the position of the up/down forced Dec. switch.
5.	When the elevator runs to the upper limit position, it will automatically stop. If there is no fault alarm, it indicates the completion of the self-tuning process. • When a fault occurs, the self-tuning is interrupted and a fault E0050 (shaft self-tuning fault) is reported. Refer to section 7.1.2 to clear the fault and then re-run the shaft self-tuning.
6.	Confirm the self-tuning data. • Check F19.12 and F19.13 to confirm that the forced Dec. position is correct. • Check the group F20 and confirm the correct floor data. • Check D04.02 (shortest floor distance) and D04.03 (highest floor distance) to confirm that they match the actual. • Check D06.06 (number of leveling switch), D06.07 (length between leveling switch) and D06.08 (length of leveling spile) to confirm that they match the actual.
Note:	
1.	If the position of the leveling spile or forced Dec. switch is adjusted, the shaft self-tuning must be performed again.

6.2.6 Check before High Speed

Check the System Communication

1.	Confirm that there is no communication fault and the SIB can display. If there is a fault, please check: • Confirm that control panel interface CAN1+, CAN1- communication terminal and CAN1+, CAN1- communication terminal of car top inspection box are connected properly. • Confirm that the MOD+ and MOD- communication terminals of the control panel interface terminal, and the MOD+ and MOD- communication terminals of the hall call board and the MOD+ and MOD- communication terminals of the SIB are connected properly.
2.	The system is powered off and then measure the impedance between CAN1+ and CAN1- of the control panel interface, which should be 60Ω. If it is short-circuited, please do the troubleshoot. If the impedance is not correct, check the selection switch for the termination resistor on each board.
3.	System power on.

Set the Address of Car Call Board

The address of the car call board is set to 0. The setting method is the same as the hall call board.

The signal of car and hall call, communication status, communication interference and other signals can be viewed through group D, see the following table.

Ref. Code	Function	Ref. Code	Function
D04.00	Current floor	D04.10	16 - 1 hall call down registration status
D04.01	Current height	D04.13	16 - 1 communication status of hall call board
D04.02	Shortest floor distance	D04.16	Communication status display in the car
D04.03	Highest floor distance	D04.17	Hall call Modbus communication interference evaluation
D04.04	16 - 1 car call floor registration status	D04.18	Evaluation of CAN communication interference in the car top board
D04.07	16 - 1 hall call up registration status	D04.19	Parallel CAN communication interference evaluation

Open and Close Door Debug

1.	The NOR/INS button of the car top inspection box is set to INS .
2.	Set the parameters of the door motor controller to ensure that the operation curve of the door controller is normal and can output the opening and closing door in place signal normally.
3.	The door controller's open/close door in place signal is connected to the control system (car top inspection box). The operation command input terminal of the door motor controller is connected to the control system (car top inspection box opening and closing output terminal).
4.	Run in inspection mode and the elevator reaches the leveling floor.
5.	Give the open/close door command and do any of the following operations: • Press and hold the inspection UP and DOWN buttons at the same time to open the door; Press and hold the inspection UP or DOWN button separately to close the door. • Hold the RUN key of the keypad to open the door and STOP key to close the door. • Inside the car, press the open button to open the door and press the close button to close the door.
6.	Confirm that the door motor is running in the correct direction, the opening and closing of the door in place signal is normal, and the light curtain and contact plate signal action is effective.
Note:	
1.	The keypad can be connected with RJ45 port for debugging: MCB board (control panel), CTB board (car top inspection box), and HCB board (COP). Check D05.00 and D05.01 of the keypad and monitor signals such as door opening and closing doors in place, light curtains, and safety contact plate etc. In the inspection mode, the light curtain and safety contact plate are operated, and no door opening operation is performed, but the signal can be monitored.

6.2.7 High Speed Running

Confirmation before Running

1.	The safety circuit is on and the door lock circuit is on.
2.	No level 2 or 3 fault, no overload signal input.
3.	The door closing signal in place is valid.
4.	The floor height data is correct.
5.	When the motor is synchronous, F10.12 (initial angle of Syn. motor) is not 0.
6.	The inspection operation is running normally, and the shaft self-tuning is successful.

High Speed Running Test

1.	The inspection switch is set to the "Normal" position.
2.	The keypad sets F26.00 (calling elevator floor setting) for single-floor, double-floor, multi-floors and full floor automatic operation respectively. During the shaft self-tuning, according to the elevator floor distance, the system automatically calculates the speed curve of this elevator operation and stores it to F19.07 - F19.11 (the highest speed of the curve), which generally needs no modification.
3.	Confirm that the elevator can open and close doors, Acc. and Dec., call the elevator, and stop properly.

Safe Test Running

Safety Circuit Test	
1.	At the elevator standby, and safety circuit is disconnected, the elevator can not run and alarm E0041 fault (safety circuit disconnection).
2.	At the elevator running, and the safety circuit is disconnected, the elevator emergency stop and alarm E0041 fault (safety circuit disconnection).
3.	After the safety circuit is closed, the fault is automatically reset.
Door Lock Circuit Test	
1.	At the elevator standby, and the door lock circuit is disconnected, the elevator can not run.
2.	At the elevator running, and the door lock circuit is disconnected, the elevator emergency stop and alarm E0042 fault (door locked disconnection during running).
3.	After the door lock circuit is closed, the fault is automatically reset.
Contactor Adhesion Protection Test	
1.	Artificially create sticking conditions for contactors such as running, holding, synchronous sealing star and sealing door of the system configuration respectively to confirm that the system can be protected and report faults. - E0056: Abnormal running contactor feedback. - E0057: Abnormal the brake contactor feedback. - E0054: Abnormal feedback from Syn. sealed star contactor. - E0047: Abnormal feedback from the door sealing contactor.

Run Timeout Protection Test	
1.	The inspection switch is set to the INS position, and the elevator runs to the middle of the floor (not leveling zone).
2.	Remove the leveling signal cable.
3.	The inspection switch is set to the "Normal" position.
4.	When the elevator returns to the leveling floor at inspection speed and the running duration beyond F23.02 (Max. time protection), the system stops urgently and reports E0040 fault (elevator operation timeout).
5.	Connects the leveling signal.
Over-load Function Test	
1.	The elevator overload switch operates, confirming that the elevator does not close, the buzzer inside the car rings, and the car call board shows overload.
Wrong Floor Protection Test	
1.	The elevator runs to the middle floor (not the ground floor or the top floor).
2.	Change F19.01 (physical floor of the current floor) to other value (wrong floor). - Change F19.01 to a smaller value to call the elevator at the highest floor to make sure the elevator can decelerate normally to the leveling floor and not strike to the top. - Change F19.01 to a larger value to call the elevator at the lowest floor to make sure that the elevator can decelerate normally to the leveling floor and not down to the pit. - F19.01 cannot be set to 1 or the highest floor, otherwise it will report E0039/E0038 fault (lower/upper forced Dec. switch is disconnected).
3.	The system automatically changes F19.01, and will automatically correct F19.01 after the up and down forced Dec. switch is triggered.

Note:

- When the forced speed change action is activated, the elevator climbs to the end station leveling area at a speed of 0.100m/s. After the leveling signal is valid, F03.14 (forced speed change stop emergency Dec.) is adjusted to ensure the leveling accuracy (F03.14 will be updated automatically after the shaft self-tuning).
- If the function of detecting excessive position deviation (F26.24 = 1) is enabled, when the elevator position deviation > the base value (F26.25) is detected, the elevator immediately decelerates and climbs to the leveling area at a speed of 0.100m/s, and automatically returns to the ground station at a speed of 0.100m/s after opening the door.

6.2.8 Test Function

Auto Running Test

1.	Register certain car call signals in the car. Confirm that the elevator can normally close the door, start, run at high speed, and in the recent instruction registered floors can automatically slow down, stop, correctly eliminate number (elimination number of instructions and stopping floors should be the same), and open the door.
2.	Register certain up/down hall call signals outside the hall. Confirm that the elevator can normally close the door, start, run at high speed, and can normally stop, slow down, correctly eliminate number and open the door.

Driver Running Test

1.	Open the driver running (factory default). • Set F26.02 Bit0 = 1 in the keypad.
2.	Turn the car switch to the driver state and register certain car call signals. • Confirm that the elevator closes when the close button is continuously pressed (if the close button is released before the door closes, the elevator will immediately change from a close action to an open action until the door is opened in place). • After the door is closed, it will automatically start and run at high speed, and will automatically decelerate, stop, cancel the number correctly and open the door automatically at the nearest floor where the instruction is registered.
3.	Register certain up/down hall call signals outside the hall. • Confirm that the elevator closes when the door close button is continuously pressed (if the door close button is released before the door closes, the elevator will immediately change from the closing action to the opening action until the door is opened). • After the door is closed, it will start automatically, run at high speed, and can automatically intercept, decelerate, cancel the number correctly and open the door automatically.

Automatic Leveling Operation

1.

The elevator stops in the non-leveling area due to fault or other reasons.

2.

Parameter setting:

Ref. Code	Function	Value	Remark
F03.07	Dec.speed in inspection mode	1.000m/s ²	
F04.04	Re-leveling speed	0.040m/s	
F26.30	Return to leveling stop delay	0.100s	Automatically updated after shaft self-tuning

3.

The elevator can automatically return to the leveling floor.

- After meeting the operating conditions, the elevator runs at a speed of 0.100m/s to the nearest leveling floor area.
- When the leveling area is reached (one switch is activated and the other switch is not activated), the elevator running speed changes to F04.04 (re-leveling speed).
- When both leveling levels are valid, the elevator delays in F26.30 (return to leveling stop delay) and then decelerates and stops at F03.07 (Dec. speed in inspection mode).

6.2.9 Adjustment Comfortable Feeling

The Lift Started with a Sense of Frustration

Phenomenon

When the elevator starts, the car has a sense of frustration.

Troubleshooting

Possible Cause		Detection Method	Processing Measures	Remark
Parameter setting problem	The pretorque is not opened	Check whether the parameter Settings are reasonable	Set parameter related with pretorque	1
	Brake open slowly	Whether the elevator starts with the brake	Check brake open time and increase F02.01	
	Brake not open fully	Observe opening clearance	Adjust gap	2
Guide shoe is too tight, static friction force is too big		Try shaking the car and feel the gap between guides	Adjust guide shoe clearance, add guide rail oil or adjust speed loop PI	

Remark

1. How to set pretorque parameter

Since the opening time of various brakes is different, and the response time of the brake is greatly affected by the ambient temperature (the temperature of the brake coil is too high, which will cause the brake response to slow down), appropriately increase the curve operation delay time F02.01.

The pre-torque parameter setting is shown in the following table:

Ref. Code	Function	Setting Range	Default	Remark
F02.01	Curve running delay time	0.0 - 2.0s	0.5s	Elevator brake opened and then after F02.01 time, to run again
F05.00	Start pretorque selection	0: No pretorque 1: Analog weighing 2: Digital weighing 3: Pretorque auto-compensation	0	According to requirement, select the pre-torque compensation function, generally selected 3
F05.16	No weighing current coefficient	0 - 9999	1500	Slipping in starting, increase F05.16 - F05.18, too high value will cause oscillation
F05.17	No weighing speed loop KP	1 - 9999	200	
F05.18	No weighing speed loop KI	1 - 9999	200	

2. The problem of brake interval

The steps are as follows:

1.	First to confirm the brake can open, brake power is enough and brake coil loop is connected.
2.	Make sure that the brake opening clearance is sufficient. If the brake is fricting, adjust the brake clearance.
3.	Check the brakes on both sides is synchronized, if not synchronized, please adjust it into the synchronization.
4.	The brake opening sound is too loud, if so, please make the sound small.

Remark				
3. Guide shoe is too tight, static friction is too large				
The steps are as follows:				
1. Make sure the guide shoes are not too tight. If it is too tight, adjust the guide shoe. 2. Adjust the starting speed or the speed loop PI to overcome the static friction force, see the following for adjustment parameters.				
Ref. Code	Function	Setting Range	Default	Remark
F02.02	Starting speed	0.000 - 0.030m/s	0.000m/s	Define the initial speed of the system starting, the appropriate starting speed can overcome the static friction
F02.03	Keeping time of starting speed	0 - 2s	0s	The holding time of the starting speed
F02.06	Start ramp time	0 - 2s	2s	Define the time required (F00.03) for the elevator to accelerate from zero speed to the rated speed of the elevator, in conjunction with F02.02
F08.00	Low speed loop KP	1 - 9999	200	Increase the PI parameters, you can increase the dynamic response of the system, too high will cause oscillation
F08.01	Low speed loop KI	1 - 9999	200	

Run with Jitter

Phenomenon

Jitter up and down during Acc., Dec. or constant speed.

Troubleshooting

Possible Cause	Detection Method	Processing Measures	Remark
Guide shoes too tight, the friction is too large	Use the curve running delay time F02.01 to determine the jitter is caused in starting of the opening or the curve caused	Adjust the gap between the guide shoe and the guide rail, reduce friction; Increase the starting speed	1
Mechanical rotating parts	Check for periodic jitter	Adjust, replace mechanical parts	Bearing
Guid rail problem	Running, left and right shaking or relative fixed position jitter	Adjust the guide rail or the grinding joint	Rail is not horizontal, there are foreign body, the interface is not flat
System control (Acc./ Dec., constant speed jitter)	Whether there is periodic jitter, PI parameter is too small	Adjust PI parameters	2
There is a resonance in the running	The buzzing sound in the car running	Check for mechanical problems or adjust PI parameters	

Remark

1. Determine whether it is the jitter caused by the start of the car slipping or the beginning of the curve operation

Set F02.01 (curve running delay time) to the Max., that is, the elevator will run at speed again after the F02.01 time has passed after the brake is opened.

- If it is jittering when starting to open the brake and car slipping, after the jitter, the elevator will stabilize within the time of maintaining F02.01 at zero speed, and then start running.
- If it is the jitter caused by the beginning of the S curve, after the brake is opened, the elevator will wait for F02.01 to jitter again when the elevator is at a standstill.

2. System control issues

Jitter during Acc., Dec. or constant speed, adjust the PI parameters as follows:

Ref. Code	Function	Setting Range	Default	Remark
F08.00	Low speed loop KP	1 - 9999	200	Jitter within frequency 1, to increase F08.00/F08.01
F08.01	Low speed loop KI	1 - 9999	200	
F08.02	High speed loop KP	1 - 9999	200	Jitter above frequency 2, to increase F08.02/F08.03
F08.03	High speed loop KI	1 - 9999	200	
F08.04	Speed loop PI switching frequency 1	0 - 50Hz	3Hz	Between frequency 1 and frequency 2 to take average value of two low-speed PI and two high-speed PI
F08.05	Speed loop PI switching frequency 2	0 - 50Hz	5Hz	• Too big parameter adjustment will cause oscillation.
F09.00	Current loop KP	1 - 4000	100	Appropriate increase will improve jitter, but this parameter adjustment may lead to excessive system overcurrent
F09.01	Current loop KI	1 - 4000	100	

Note: After the vibration suppression function F10.20 Bit15 = 1 is enabled, F09.04 (current loop execution period) and F18.00 (carrier frequency) can be adjusted to avoid the mechanical resonance point.

Running Curve Adjustment

Phenomenon

COOL100 adopts S-curve Acc. and Dec., which Min. the impact during Acc. and Dec., and makes the start and stop more stable.

But different application occasions require different Acc. and Dec. curve parameters. Too fast Acc. and Dec. affect comfort, and too slow Acc. and Dec. reduce the operating efficiency of the elevator.

Troubleshooting

Please adjust the value of the parameter F03.00 - F03.05 when the Acc./Dec. is slow, otherwise increase the value of parameter F03.00 - F03.05.

- Acc./Dec. (F03.00/F03.03): Rate of change in speed.
- Acc./Dec. (F03.01, F03.02/F03.04, F03.05): Rate of Acc./Dec.

Frustration in End Station**Phenomenon**

The elevator runs to the forced Dec. switch position, and change speed rapidly to move to the leveling zone at the crawling speed.

Troubleshooting

Possible Cause	Detection Method	Processing Measures	Remark
Forced Dec. switch problem	Check whether the switch action is normal	Replace the switch	
	Check whether the circuit is normal	Wiring	
Forced Dec. switch distance problem	Check the forced Dec. switch installation distance	Adjust the installation distance	1
Rope slips	Check rope slip	Adjust the mechanical part	2
Incorrect mechanical parameter setting	Check whether the mechanical parameter F00.06 is accurate	Modify the mechanical parameters as well as the actual mechanical parameters	

Remark**1. Installation distance**

The calculation of the installation distance S of forced Dec. switch and the end station leveling position:

$$S > \frac{V^2}{2 \times F03.12}$$

Rated Speed (m/s)	0.25	0.4	0.5	0.75	1	1.5
First-level Forced Dec. Distance (m)	0.4	0.4	0.4	0.4	0.7	1.4

2. Rope slips

1. Make sure to check that there is no excessive oil seeping out of the rope. If so, wipe dry with a cloth.
2. Confirm that the wrap angle of the rope and the traction sheave is set reasonably.
3. Confirm that the elevator balance system is correct. If it is not correct, make a balance system first, generally between 0.4 - 0.5.

Frustration in Stop**Phenomenon**

There is a sense of frustration in the car when the elevator runs normally to stop at leveling area.

Troubleshooting

Possible Cause	Detection Method	Processing Measures	Remark
Door lock disconnection in the moment of stop	Check the gap between the door knife and the doorball	Adjust the gap	
System fault	Check the fault	Processing fault	
Can not catch up with speed loop PI	Reinforce PI parameters	Appropriate increase F08.00/F08.01	Increase the PI parameter, the system will respond faster, if it is too large, it will easily oscillate
The brake is opened slowly	Adjust brake force	Adjust the brake force, ensure the brake can be opened with no resistance	
	Cancel the renewal delay	Ensure that the brake contactor is released and the brake is turned off immediately	
	Observe whether the car has a slip	Increase the stop zero speed hold time F02.05	1

Remark**1. Why increase the parking zero speed holding time**

Since the brake coil is energized for a long time, heating causes the brake to release slowly. After the operating relay is released (the system does not output torque), the brake is not completely opened, causing the car to slip and there is a sense of frustration in the car.

At this time, it is necessary to increase the torque output when elevator parking, that is, increase the parking zero speed holding time F02.05.

Leveling Accuracy Adjustment

Phenomenon

When the elevator stops opening the car door, the leveling inside the elevator car is not level with the leveling outside the hall. The inside of the car is higher than the outside of the hall for super-leveling, and lower than the floor is under-leveling.

Troubleshooting

- 1. First to ensure that installation of the leveling plate is accurate. And the length of each leveling plate should be the same.
- 2. The speed loop parameter (F08) also has an effect on the leveling accuracy, ensuring that no overadjustment occurs.
- 3. Encoder interference has also an effect on leveling accuracy. Make sure that the encoder signal is good.

Leveling Accuracy Adjustment Method in Normal Mode	
F19.06 = 0 (direct stop mode 0)	It can be fine-tuned by F19.03 (leveling distance adjustment). • When the elevator stops, if it's super-leveling, then reduce the F19.03, if it's under-leveling, then increase F19.03.
F19.06 = 1 (direct stop mode 1)	First to ensure that the elevator has a short crawling (creep distance is set by F19.03), and then set F03.13 (parking emergency Dec.) and F04.02 (crawling speed) to fine tune the leveling accuracy. • When the elevator stops, if it's super-leveling, you need to increase F03.13; If it's under-leveling, you need to reduce F03.13. • F03.13 parameters generally do not need to be changed by the user, and will be automatically updated after the shaft self-learning to ensure the leveling accuracy.

Leveling Adjustment

Leveling Adjustment Method	
F03.17 = 0	F19.03 adjusts all up and down leveling.
F03.17 = 1	F03.15 adjusts all up leveling, F03.16 adjusts all down leveling.

Leveling Fine-tune

Fine Leveling Method		
F27.01 = 0	Each parameter of F27.02 - F27.25 adjusts 2 floors. 48 floors can be fine-tuned. Adjustment method (F27.02 as an example) - The two digits on the far left and right are the adjustment bases for floor 1 and floor 2 respectively. - The Max. adjustment range is 0 - 60mm.	【 F27.02 】 ----- = 3 0 0 3 0 Leveling adjust records Floor 1Floor 2
F27.01 = 1	Each parameter of F27.02 - F27.25 adjusts 1 floor. 24 floors can be fine-tuned. Adjustment method (F27.02 as an example) - The two digits on the far left and right are the adjustment bases for the up and down directions of floor 1 respectively. - The Max. adjustment range is 0 - 60mm.	【 F27.02 】 ----- = 3 0 0 3 0 Up and down leveling Up Down

New Elevator Fatigue Test

New Elevator Fatigue Test
After the new elevator is installed, it is necessary to conduct a running-in test on the new elevator. Setting F25 can be carried out: Random operation for set times, fixed operation on designated floor.

6.2.10 Brake Force Detection Function

Instructions

Apply a predetermined torque when the elevator is stationary or open a brake and then check whether the elevator can move.

Parameter Setting

Ref. Code	Function	Value	Default
F03.18	Brake force detection method	0: Invalid 1: Manual start detection 2: Automatic start detection	Asyn. motor is 0, Syn. motor is 2
F03.19	Brake force detection cycle	1 - 15 day	1 day
F03.20	Brake force detection time point	00:00 - 23:59	3:00
F25.04 Bit8	Manually start the brake brake force detection	0: Invalid 1: Manual start detection	0
F04.14	Brake detection duration	1 - 10s	5s
F04.15	Brake detection torque	60 - 150%	100%
F04.16	Brake detection allows pulse size	1 - 99	5
F04.17	Brake detection success times	0 - 65535 (after the brake brake force detection is successful, add 1 to the original value)	0

Brake Force Detection Method

1.	When the elevator is in the automatic state, the safety circuit is normal and the door lock circuit is closed.
2.	Automatic detection - Start the automatic brake force detection function: Set F03.18 = 2. - When the detection period and detection time point are reached, the elevator stops in the leveling area after responding to the internal and external call elevator signals, running contactor outputs, and starts the automatic detection of the brake force. Manual detection - Start manual detection function: F03.18 = 1 or F25.04 Bit8 = 1. - After the elevator responds to the internal and external call elevator signals, it stops at the leveling area, running contactor outputs, and starts the brake force detection. Manual check under inspection - Start manual detection function: Set F03.18 = 1 or F25.04 Bit8 = 1. - Electrically spect up or down button, running contactor outputs, start brake force detection.
3.	The running contactor stops and the brake force detection ends.
4.	Confirm that F04.17 adds 1 to the original value, which means the holding force detection is successful. If E66 fault is reported, it means the detection fails and the value of F04.17 remains unchanged.

Reset E66 fault

Perform any of the following operations to reset the fault:

- Redo brake force detection reset: F17.07 Bit3 = 0 (fault cannot be reset automatically), must redo the test in automatic state until the test is successful.
- Manual reset in inspection status: F17.07 Bit3 = 1 (manually reset once in inspectionstatus), the keypad returns to the fault interface, press **STOP** to reset.
- Power-off and power-on reset: F16.05 Bit10 = 1 (power-off and power-on reset fault). 0: E65, E66 cannot be reset after power off.

Close the Brake Force Test

If brake force detection fails, in order avoid periodic detection reporting E66 fault, after resetting the fault, set F03.18 = 0 (closing the function).

6.3 Typical Application

6.3.1 Power Failure Emergency Running

In the process of elevator use, if the system suddenly loses power, there may be passengers locked in the car, COOL100 designed a power failure emergency operation plan to solve this situation.

When the elevator is in automatic operation and COOL100 detects that there is no electric power supply input, the system will immediately start the emergency power failure rescue function.

COOL100 enters into emergency power failure operation, the buzzer will beep, the system will judge the car's light load operation direction and run to the nearest leveling floor area at emergency speed to keep the door open, after 20s the buzzer will stop outputting and the system will be powered off.

Parameter Setting

Ref. Code	Function	Settings and Description
F04.01	Emergency operation speed	0.020 - 0.100m/s
F12.17	MCB X17 terminal	28: Emergency operation NO input
F26.15	Emergency operation parameter setting	Bit0: Emergency self-help timeout protection • 0: Protection • 1: No protection Bit1: Emergency self-skidding operation of Syn. motor • 0: Not open • 1: Open Bit2: Emergency operation direction judgment • 0: Automatic judgment • 1: Judging from the weighing signal Bit3: Emergency operation direction fixed upward • 0: Not determined by this bit • 1: Fixed upward Bit4: Emergency operation direction fixed downward • 0: Not determined by this bit • 1: Fixed downward Bit5: Car self-slipping turn to drive function enable • 0: Not enabled • 1: Enabled Bit6: Car self-slipping turn to drive mode • 0: Time setting, drive before 50s leveling • 1: Speed setting, after 10s of rolling the car, the speed is less than F26.28 Bit7: Emergency beep alert method • 0: Continuous • 1: Intermittent Bit8: Automatic compensation for emergency operation start • 0: Not open • 1: Open Bit9: Emergency completion of door motor action • 0: Keep the door open • 1: Close the door after opening the door in place

Ref. Code	Function	Settings and Descrtption
F26.15	Emergency operation parameter setting	Bit10: Emergency operation automatically judges the direction of the brake action • 0: Action 2 times • 1: Action 1 time Bit11: Emergency operation overtime protection time selection • 0: 60s protection • 1: Automatic calculation based on operating speed and floor distance Bit12: Emergency operation and inspection mode judgment • 0: Judging by external terminals • 1: Judgment by input voltage and external terminals Bit13: Emergency operation command selection • 0: UPC output contactor feedback • 1: Provided by external ARD Bit14: Dec. stop mode • 0: Dec. and stop when encountering upper or lower leveling floor • 1: Slow down and stop when encounter a leveling floor Bit15: Reserved

6.3.2 Electric Brake Release Function

Note: This function should be operated by elevator professionals.

When there is no electric power supply or ARD is power off or abnormal, the electric brake release function can make the car reach the leveling floor area.

Operation Steps

1.	When the car stops in the leveling floor area, observe the position of the car and judge the running direction of the car.
2.	Set the elevator in inspection status. • With electric power supply: • Set F14.09 Bit10 = 1 (allows electric brake release to be enabled). • Without electric power supply: • Press and hold the BK. RLS. START button of the SIB until ARD starts (about 8s), the elevator system is powered up in an emergency, and the SIB displays and the button lights up.
3.	Press and hold the E. BK. RLS. button of the SIB, output the power of brake, and the car will slide and stop after 3 - 5s.
4.	Release the button and press it again repeatedly until the car reaches the leveling floor area.

Parameter Settings

Ref. Code	Function	Settings and Description
F12.12	MCB X12 terminal	59: NC. input for electric brake release start
F14.09	Enable brake release function with electric power supply	Bit10 = 0: No release (default setting) Bit10 = 1: Release

6.3.3 Manual Door Application

Application Background

Elevator Manual Door Use Classification	When both the car door and the hall door are manual door, the elevator has no car door, and only the hall door is used. The electromagnetic valve opens and closes the hall door. The door lock is connected, the electromagnetic valve is connected, the elevator runs when there is a call signal.
Semi-automatic Door Function Description	The hall door is a manual door, and the car door is an automatic door. After the hall door is closed, the car door closes automatically when there is a car/hall call signal.
Double-door Front and Back Door Manual Door Function	The front door is an automatic door, the back door is a manual door or the front door is a manual door, and the back door is an automatic door. The manual door is handled according to the manual door processing procedure, and the automatic door is handled according to the automatic door processing procedure.

Function Description

COOL100 MCB software version: D00.03 ≥ 2.10.

- If the manual door lock is disconnected for 5s, the buzzer output for reminding.
- The manual door lock uses low-voltage door lock signals, one has both car door lock and hall door lock signals. The other has only the hall door lock signal. The manual door electromagnetic valve output is judged by the low-voltage door lock signal, please refer to the flow chart of the manual door for specific control output.
- Double-door front and back door manual door function: Set the number of door motor F22.00 = 2, front door is automatic door and back door is manual door; Or front door is manual door, back door is automatic door (when this function is not in use on site, need to set F12.38 Bit14&Bit13 = 00 to avoid affecting the normal operation of the manual door).
- The Min. time from elevator stop to next startup when there is manual door is 1s (F26.02 Bit12 = 0, F22.07 = 1, F22.08 = 1, F22.11 = 1, F22.12 = 1 can be set freely).
- Clear the car and hall call registration command time, which is the maximum action time of electromagnetic valve, which can be set: $(8s + 8s) * 8 = 128s$. The relevant parameters are: (electromagnetic valve connecting time + electromagnetic valve disconnecting time) * the number of electromagnetic valve action time.
- The deceleration stop function of the manual door light curtain: F27.28 Bit5 = 1.
- Fan and lighting setting:
Method 1: Use normal fan lighting (F26.02 Bit11 = 0), when there is no hall call after the elevator arrives at the station and wait for F23.01 time, the fan and lighting stop output.
Method 2: Turn on the energy-saving mode of the manual door (F26.02 Bit11 = 1), when the elevator has no running direction and the hall door lock or the car door lock is connected, the fan and lighting stop output. When the elevator has running direction, the lighting and fan output immediately.

Parameter Setting

Ref. Code	Function	Range	Default	Suggestion
F26.16 Bit9	Enable manual door function	0: Not enabled 1: Enabled	0	1
F26.22 Bit11	Buzzer reminding function when the door lock is disconnected	0: Don't remind 1: Remind	0	1
F26.02 Bit9	Manual door close automatically	0: The door is closed automatically 1: Close the door by door closing button	0	0
F26.02 Bit10	Manual door mode 2	0: Not enable the manual door mode 2 1: Enable manual door mode 2 (door opening and closing torque F22.10 and door opening and closing protection time F22.07 and F22.08 can be modified)	0	0
F26.02 Bit11	Manual door energy-saving mode	0: Normal 1: New energy-saving mode (when the elevator has no running direction and the hall door lock or the car door lock is closed, the elevator will enter lighting energy-saving mode)	0	0
F26.02 Bit12	Manual door close arrival judgement	0: Close arrival according to the door close time 1: Close arrival when door lock connected	0	0
F12.19	X19 low voltage car door lock signal	6/106: Low voltage door lock 1	0	6
F12.20	X20 low voltage hall door lock signal	7/107: Low voltage door lock 2	0	7
F13.29	CTB F13 output Y5	31: Car top electromagnetic valve output	0	31
F12.38 Bit0	Manual door lock disconnection reminder display	0: Normal display 1: Manual door reminder display When set to 1, if the car door is not closed, "C" and "floor" will be displayed, and if the hall door is not closed, "L" and "floor" will be displayed	0	0
F12.38 Bit3&Bit2&Bit1	Electromagnetic valve connecting time (000 = 1s, 111 = 8s)	1 - 8s	2s	3s
F12.38 Bit6&Bit5&Bit4	Electromagnetic valve disconnecting time (000 = 1s, 111 = 8s)	1 - 8s	5s	2s

Ref. Code	Function	Range	Default	Suggestion
F12.38 Bit7	The condition of the door lock disconnection buzzer reminder is related to the call command	0: When there is a call command, buzzer reminds when the door lock is disconnected 1: Buzzer reminds once the door lock is disconnected	1	0
F12.38 Bit10&Bit9&Bit8	Action times of electromagnetic valve (000 = 1, 111 = 8)	1 - 8	3	3
F12.38 Bit11	Semi-automatic manual door function	0: Normal close 1: The car door will only close after the hall door lock is connected	1	0
F12.38 Bit12	The function output mode of the electromagnetic valve of the manual door	0: Always output 1: Interval output	0	1
F12.38 Bit14&Bit13	Double-door front and back door manual door function	00: Turn off function 01: Double-door front door is automatic door and back door is manual door 10: Double-door front door is manual door and back door is automatic door	00	00
F13.31	CTB F13 output Y7	7: Lighting and fan output	7	7
F23.01	Light and fan turning off delay time	0 - 240min	2min	2min
F27.18 Bit5	Manul door light curtain decelerate to stop	0: Do not process 1: Decelerate to stop	0	1
D06.11	Buzzer action source	16: Remind that the door lock of manual door is not closed	0	0
The time from elevator stop to the next start when there is manual door (s) = (F22.07 + F22.08) / 2 + F22.11 (hall door open holding time) or F22.12 (car door open holding time), the Min. can be set as 1s.				

Manual Door Lock Signal and Electromagnetic Valve Feedback Signal Setting

Note:

Related terminal functions need to set corresponding parameters according to the actual electrical diagram.

Case 1: Both the hall door and the car door are manual doors with electromagnetic valves (using the door lock signal as the electromagnetic valve feedback signal).

Use Low Voltage Door Lock Signal Parameter Setting	
Low voltage door lock signal setting F12.19 X19 = 6	
Low pressure electromagnetic valve feedback signal F12.20 X20 = 7	

Case 2: Both the car door and the hall door are manual doors with electromagnetic valves (the electromagnetic valves without feedback signals).

Use Low Voltage Door Lock Signal Parameter Setting	
Electromagnetic Valve Use Method 1	Electromagnetic Valve Use Method 2
Door lock signal setting F12.20 X20 = 7	Car door lock signal setting F12.20 X20 = 6

Case 3: The hall door is a manual door, without a car door, with electromagnetic valve function (electromagnetic valve without feedback signal).

Use Low Voltage Door Lock Signal Parameter Setting	
Electromagnetic Valve Use Method 1	Electromagnetic Valve Use Method 2
Door lock signal setting F12.20 X20 = 7	Door lock signal setting F12.20 X20 = 6

Case 4: The hall door is a manual door, without a car door, with electromagnetic valve function (using the door lock signal as the electromagnetic valve feedback signal).

Use Low Voltage Door Lock Signal Parameter Setting	
Electromagnetic Valve Use Method 1	Electromagnetic Valve Use Method 2
Door lock signal setting F12.19 X19 = 6	Door lock signal setting F12.19 X19 = 7
Electromagnetic valve feedback signal F12.20 X20 = 7	Electromagnetic valve feedback signal F12.20 X20 = 6

Chapter 7 Troubleshooting and Maintenance

7.1 Troubleshooting

7.1.1 Faults Description

Fault Category Description

COOL100 has more than 80 protection functions.

COOL100 constantly monitors various input and output signals, operating conditions, etc. In the event of an abnormality, the corresponding protection function will be activated and a fault code will be displayed.

COOL100 is divided into 4 categories according to the degree of influence of the fault information on the system, and the fault handling methods of different categories are also different, as shown in the table below.

Fault Category	Troubleshooting	Remark
Level 1 fault	• Display fault code • Error relay output action	Any kind of working condition will not be influenced
Level 2 fault	• Display fault code • Error relay output action • Stop at the nearest landing when in distance control, then stop running • Stop running at once in other work condition	After stop, the system will close off output at once, and close brake
Level 3 fault	• Display fault code • Error relay output action • The system blank off output at once, close brake and stop running	Forbid running
Level 4 fault	• Display fault code • Error relay output action • Forbid fast running • Allow slow running	Forbid fast running

7

Fault Code Description

The display code, cause, countermeasure, and category of the fault are shown in Table 7-1.

Keypad displays 5 digits of data: E + fault code

The keypad can give a prompt for the cause of the current fault code and countermeasures.

7.1.2 Faults and Countermeasures

Table 7-1 Fault alarm content and countermeasures

Lu: DC bus undervoltage		Level 3	Countmeasures
Fault reasons: 1: Power-on initial state, power-down end state 2: Input voltage is too low		3: Unregulated wiring leads to hardware undervoltage 4: Model setting error	1: Normal power-on/power-down state, normal 2: Check the input supply voltage 3: Check wiring, standard wiring 4: Set the model correctly (Y00.01)
E0001: Controller output Acc. overcurrent		Level 3	Countmeasures
Faulty subcode: 101: Software Acc. overcurrent 102: Hardware Acc. overcurrent 103: Motor overcurrent software Acc. overcurrent 104: Short circuit caused by overcurrent during Acc.	Fault reasons: 1: Main circuit output is grounding 2: Main circuit output is short wiring 3: The motor has not done parameter auto-tuning 4: Load is too heavy 5: Encoder signal is wrong 6: Encoder signal interference is serious 7: Acc. curve is too steep		1: Check the main circuit output side whether ground is short-circuited and output phase is short-circuited 2: Check whether the power wiring is damaged and the wiring is solid 3: Check whether the motor internal exists a short circuit or shorted to ground 4: Output side contactor is abnormal 5: Star-delta contactor causes COOL100 output short-circuited 6: Set the correct motor parameters (group F07/F10) 7: Restart motor parameter auto-tuning (group F07/F10)
E0002: Controller output Dec. overcurrent		Level 3	
Faulty subcode: 201: Software Dec. overcurrent 202: Hardware Dec. overcurrent 203: Motor overcurrent software decelerates overcurrent 204: Output short circuit causes OC	Fault reasons: 1: Main circuit output is grounding 2: Main circuit output is short wiring 3: The motor has not done parameter auto-tuning 4: Load is too heavy 5: Encoder signal is wrong 6: Encoder signal interference is serious 7: Dec. curve is too steep		8: Check whether the brake is abnormal 9: Check whether the mechanical is stuck 10: Check whether the elevator balance coefficient is correct 11: Check whether the encoder wiring is reliable 12: Set the correct encoder parameters (group F11) 13: Encoder is installed reliably 14: Check whether the encoder alignment is independence wear tube, trace distance is too long and the shielded cable is single end grounded
E0003: Controller output constant speed overcurrent		Level 3	
Faulty subcode: 301: Software zero speed or constant speed over current 302: Hardware zero speed or constant speed over current 303: Motor overcurrent software constant speed overcurrent 304: Short circuit caused by overcurrent during zero speed or constant speed	Fault reasons: 1: Main circuit output is grounding 2: Main circuit output is short wiring 3: The motor has not done parameter auto-tuning 4: Load is too heavy 5: Encoder signal is wrong 6: Encoder signal interference is serious		15: Check whether the Acc./Dec. curve (group F03) is too large

E0004: DC bus voltage Acc. overvoltage		Level 3	Countmeasures
Fault reasons: 1: Input voltage is too high 2: Acc. curve is too steep		3: Brake resistance is too much 4: Braking unit is abnormal	1: Adjust the input voltage, check whether the bus voltage (D01.06) is normal 2: Check the balance coefficient 3: Select the appropriate braking resistor 4: Connect with braking unit, check the related equipment
E0005: DC bus voltage Dec. overvoltage		Level 3	
Fault reasons: 1: Input voltage is too high 2: Acc. curve is too steep		3: Brake resistance is too much 4: Braking unit is abnormal	
E0006: DC bus voltage constant speed overvoltage		Level 3	
Fault reasons: 1: Input voltage is too high 2: Brake resistance is too much		3: Braking unit is abnormal	
E0007: Static current is too high		Level 3	Countmeasures
Fault reasons: The current detected during the elevator stop process > allowable static current F09.05			1: Check whether there is feedback load into the inverter output terminals 2: Whether F09.05 parameter setting is too small 3: Set F09.05 = 0.0 to shield the fault
E0008: Power module fault		Level 3	Countmeasures
Faulty subcode: 800: FO fault protection (edge trigger) 801: FO fault protection (level trigger) 802: FO fault caused by phase to phase short circuit or short circuit to ground 803: FO fault caused by phase to phase short circuit or short circuit to ground (level trigger) 804: Output short circuit leads to FO	Fault reasons: 1: Short circuit between phases output or the ground 2: Motor wiring is too long 3: Work environment is overheating 4: Power module is damaged		1: Check the wiring and regulate it 2: Install the reactor or filter 3: Check whether the fan and the ventilation duct are normal 4: Please contact the supplier for repairing
E0009: Heatsink overheated		Level 3	Countmeasures
Faulty subcode: 901: Software over temperature 902: Hardware over temperature	Fault reasons: 1: Ambient temperature exceeds specifications 2: The controller external ventilation is adverse 3: Fan is fault 4: Temperature detection circuit is fault		1: Derated for using and increase power 2: Rectify controller external ventilation 3: Replace the fan 4: Seek for technical support
E0010: Braking unit fault		Level 3	Countmeasures
Fault reasons: The braking circuit is fault			Seek for technical support

E0012: Parameter auto-tuning fault		Level 3	Countmeasures
Faulty subcode: 1201: Distance control for Syn. motor rotation autotuning 1202: Syn. motor static auto-tuning detection current is too small 1203: Syn. motor static auto-tuning timeout 1204: Stator resistance self-tuning current is too large 1205: Stator resistance autotuning timeout 1206: Rotor resistance auto-tuning timeout 1207: No-load current selftuning is too small 1208: Static auto-tuning, the upper and lower limit switches are valid at the same time 1209: Static auto-tuning timing, when the upstream command is repaired, the upper limit switch action 1210: Static auto-tuning timing, when the downstream command is repaired, the lower limit switch action	Fault reasons: 1: Parameter auto-tuning timeout 2: Over current at parameter autotuning 3: Under the distance control (F00.07 = 1) doing permanent magnet Syn. motor rotating auto-tuning (F10.10 = 2)		1: Check the motor wiring 2: Input correct motor parameters (group F07/F10) 3: Do the permanent magnet Ayn. motor rotating auto-tuning under the keypad control (F00.07 = 0)
E0013: Buffer contactor not engaged after power on		Level 3	Countmeasures
Fault reasons: 1: Contactor fault 2: Control circuit fault			1: Replace the contactor 2: Seek for technical support
E0014: Current detect fault		Level 3	Countmeasures
Faulty subcode: 1400: U phase, W phase current detection fault 1401: U phase current detection fault 1402: W phase current detection fault 1403: Current correction circuit failure 1404: Current correction input fault	Fault reasons: 1: Current detection circuit damage 2: Permanent magnet Syn. motor is out of control 3: Encoder signal short circuit		1: Please contact the supplier for repairing 2: Check the brake signal
E0015: Input phase loss		Level 3	Countmeasures
Fault reasons: For three phase input controller, three phase input power phase loss			1: Check the three phase input power 2: Check the settings of F17.00 and F17.01

E0016: Output phase loss		Level 3	Countmeasures
Faulty subcode: 1600: Output phase loss detected during operation 1601: No output current detected during startup 1602: One phase output missing in three phases is detected during startup 1603: One phase output missing in three phases detected during startup	Fault reasons: 1: Controller three phase output broken or loss of phase 2: Controller with serious imbalance in three phase load		1: Check the wiring between controller and motor 2: Check the motor 3: Check the settings of F17.02 and F17.03
E0017: Controller overloaded		Level 3	Countmeasures
Fault reasons: 1: Brake circuit abnormal 2: Load is excessive 3: Encoder feedback signal abnormal 4: Motor parameter error 5: Check motor power cable			1: Check the brake circuit 2: Reduce the load 3: Check the encoder feedback signal 4: Check the motor parameters and restart the parameter auto-tuning (group F07/F10) 5: Check the power cable
E0018: Excessive speed deviation		Level 3	Countmeasures
Faulty subcode: 1801: Speed deviation level 1 1802: Speed deviation level 2 1803: Speed deviation level 3 1804: Speed deviation level 4	Fault reasons: 1: Brake contactor fault or run contactor fault 2: Encoder pulse number setting error 3: Excessive deviation of detection value and time setting unreasonable 4: Controller output torque is not enough 5: Speed-loop PI parameter setting is improper 6: Encoder signal error 7: Motor parameter error 8: F10.12 error 9: Encoder direction setting error, reverse F11.02		1: Check the brake contactor or the run contactor 2: Reasonably set encoder pulse parameter (F11.01) 3: Correctly set F04.11 (detected value) and F04.12 (detected time) 4: Select larger capacity controller 5: Correctly set speed-loop PI parameter (F08) 6: Check encoder wiring and installation 7: Check the motor parameter 8: Restart parameter auto-tuning
E0019: Motor overloaded		Level 2	Countmeasures
Fault reasons: 1: Brake circuit abnormal 2: Motor overload protect factor set incorrectly 3: Load is excessive			1: Check the brake circuit 2: Correctly set motor overload protect factor (F17.04) 3: Reduce the load
E0020: Motor overheated		Level 2	Countmeasures
Fault reasons: 1: Motor is overheated 2: Motor overheating input signal action 3: Motor parameter setting error			1: Reduce the load 2: Detect whether the overheating input terminal signal is correct 3: Correctly set motor parameter (F07/F10)

E0021: MCB EEPROM read/write fault		Level 3	Countmeasures
Faulty subcode: 2101: In-board EEPROM write data error 2102: On-board EEPROM read data error 2103: In-board EEPROM read data error too many times 2104: On-board EEPROM read operation timed out 2105: On-board EEPROM write operation timed out	Fault reasons: MCB EEPROM circuit fault		Contact the supplier for repairing
E0022: Keypad EEPROM read/write fault		Level 1	Countmeasures
Fault reasons: Keypad EEPROM circuit fault			1: Replace the keypad 2: Contact the supplier for repairing 3: Keypad manually reset to continue normal use (exclude parameter upload and download)
E0023: Parameter setting fault		Level 3	Countmeasures
Faulty subcode: 2301: Permanent magnet Syn. traction machine self-tuning selection F07.07 2302: Asyn. traction machine self-tuning selection F10.10 2303: F04.02 > F19.07 2304: F04.02 > F19.08 2305: F04.02 > F19.09 2306: F04.02 > F19.10 2307: F04.02 > F19.11 2308: F19.07 < 0.100m/s 2309: F19.08 < 0.100m/s 2310: F19.09 < 0.100m/s 2311: F19.10 < 0.100m/s 2312: F19.11 < 0.100m/s 2313: The fire station is set to the non-service layer 2314: The second fire station corresponds to the door motor as a non-service layer 2315: The idle base station is set to the non-service layer 2316: Locking station base station corresponding door motor is set to non-service layer	2317: F11.01 is set to 1 when the permanent magnet Syn. traction machine 2318: The rated current of the traction machine is set to 0 2319: F07.11 > F07.02 2320: F08.04 > F08.05 2321: The total thickness of the elevator's real and Max. floors is greater than 48 2322: The door motor does not serve when it is 1 minute, and the door motor does not serve when it is 2 minutes 2323: MCB-A sets PG4-SC-A encoder card 2324: Door motor 1 minute time no service time setting error 2325: CTB board input terminal No. 33 function setting repeat 2326: CTB board input terminal No. 34 function setting repeat 2327: CTB board input terminal No. 35 function setting repeat 2328: CTB board input terminal set flat layer signal not together		1: At Asyn. motor parameter auto-tuning, set F00.07 as 0 (keypad control) 2: For the Syn. motor, F11.00 (encoder card selection) should be set as 2 (UVW encoder card) or 3 (SINCOS encoder card) 3: At Syn. motor static auto-tuning, set F00.07 as 1 (distance control) 4: Correctly set motor current (F07.02/F10.03) 5: Correctly set Asyn. motor no-load current (F07.11) 6: Restart to set F04.02 7: Restart to set F21.07 - F21.09 8: Change the door service floors (F22.01 - F22.06) into allow service

E0023: Parameter setting fault		Level 3	Countmeasures
Fault reasons: 1: In the non-keypad mode Asyn. motor parameter auto-tuning to set parameters auto-tuning 2: Syn. motor selects ABZ encoder 3: Syn. motor static auto-tuning, the operating mode is keypad setting 4: Motor current is set to zero 5: Asyn. motor no-load current setting value is larger than motor rated current 6: The creeping speed at distance control (F04.02) is larger than highest speed of running curve (F19.07 - F19.11) 7: $0.000\text{m/s} < \text{F19.07} - \text{F19.11} < 0.100\text{m/s}$ 8: Firefighting base station, locked-elevator base station and idle base station are set to non-service floor 9: Door service floors of firefighting base station, locked elevator base station and idle base station are set to prohibit service			
E0024: Input voltage detection fault		Level 1	Countmeasures
Fault reasons: Input normal bus voltage, but the line voltage detection circuit is abnormal			1: Power-down treatment 2: Contact to factory for repairing
E0028: ARD fault		Level 1	Countmeasures
Faulty subcode: 2800: ARD and motherboard communication failure 2801: No battery or damaged battery 2802: Battery undervoltage 2803: Reserved 2804: ARD FO (bus overcurrent) 2805: Bus undervoltage 2806: Wiring error 2807: Battery charge overcurrent 2808: Battery software protection discharge overcurrent 2809: Battery charge over-voltage 2810: Overheating 2811: Contactor failure 2812: Overload 2813: Zero bias fault 2814: ARD OC (output overcurrent) 2815: AC undervoltage 2816: Input overvoltage 2817: Output overvoltage 2818: Battery control relay (RLY7) adhesion 2819: Button SW1 adhesion			1: Disconnect the battery and reconnect it 2: Contact the manufacturer for repair
Fault reasons: The emergency rescue board (MTCC-ARD-C) has failed			
E0030: Encoder reverse direction		Level 3	Countmeasures
Faulty subcode: 3000: Encoder reverse fault 3001: Static self-tuning with UVW encoder detects encoder reverse fault 3002: Static self-tuning SINCOS encoder detects encoder reverse fault	Fault reasons: 1: The preset speed direction is inconsistent with the actual direction 2: Load is too large 3: Controller output torque is not enough 4: Brake circuit abnormal 5: Run contactor abnormal		1: At elevator commissioning, F11.02 (encoder direction) value is reverse; During normal running, do not modify F11.02 2: Reduce the load 3: Select larger capacity controller 4: Check the brake circuit 5: Check the run contactor

E0031: Encoder disconnection		Level 3	Countmeasures
Faulty subcode: 3101: Encoder AB disconnected 3107: SINCOS encoder C+, C- or 3102: Self-tuning SINCOS D+, D- disconnected encoder C+, C- disconnection 3108: 1313 encoder 3103: Self-tuning SINCOS communication failure encoder D+, D- disconnection 3109: 1313 encoder 3104: Self-tuning SINCOS communication failure encoder C+, C-, D+, D- 3110: Static self-tuning with disconnection UVW encoder detected encoder 3105: SINCOS encoder C+, C- disconnection fault disconnection 3111: Static self-tuning with 3106: SINCOS encoder D+, D- SINCOS encoder detected disconnected encoder disconnection fault			1: Check the encoder wiring and encoder installed reliably 2: Check the brake circuit
Fault reasons: 1: Encoder without input signal 2: Brake circuit abnormal			
E0032: Motor over speed		Level 3	Countmeasures
Faulty subcode: 3201: Elevator speeding 3202: Self-driving elevator speeding 3203: Elevator running speeding 3204: Elevator overspeed detected when the all-in-one stops outputting	Fault reasons: 1: Encoder pulse number setting error 2: Controller output torque is not enough 3: Speed-loop PI parameter setting is improper 4: Encoder signal error 5: F10.12 error 6: Motor parameter error		1: Reasonably set encoder P/R (F11.01) 2: Select larger capacity controller 3: Correctly set speed-loop PI parameter (group F08) 4: Check the encoder wiring and encoder installed reliably 5: Restart parameter auto-tuning 6: Check motor parameter
E0033: Loss of Z signal of ABZ encoder		Level 3	Countmeasures
Faulty subcode: 3300: Z signal is abnormal 3301: UVW encoder static selftuning reverse fault 3302: SINCOS encoder static selftuning reverse fault	Fault reasons: 1: Wiring problem 2: Serious interference		Check the wiring
E0034: UVW signal wrong of UVW encoder		Level 3	Countmeasures
Fault reasons: UVW encoder sector confirmation is wrong			Whether the wiring of UVW is correct
E0035: CD phase wrong of Sincos encoder		Level 3	Countmeasures
Faulty subcode: 3500: Encoder C/D phase amplitude is too small 3501: Encoder C/D amplitude ratio is too large 3502: Encoder C/D is too biased 3503: Encoder C phase amplitude is abnormal 3504: Encoder D phase amplitude is abnormal	Fault reasons: 1: Encoder fault 2: Encoder disconnection		1: Check the encoder 2: Check the wirings of encoder C phase and D phase

E0035: CD phase wrong of Sincos encoder		Level 3	Countmeasures
Faulty subcode: 3504: Encoder D phase amplitude is abnormal 3505: Encoder C phase zero offset anomaly 3506: Encoder D phase zero offset anomaly			
E0036: Exceed the shortest distance		Level 3	Countmeasures
Faulty subcode: 3600: Greater than the shortest floor distance ahead 3601: Less than the current floor distance	Fault reasons: Acc./Dec. setting is inappropriate		1: Set appropriate speed curve (F19.07 - F19.11) 2: Set appropriate Acc./Dec. curve (F03.00 - F03.05)
E0037: Abnormal control board logic		Level 3	Countmeasures
Fault reasons: The MCB logic is abnormal			Please contact the supplier for changing the MCB
E0038: Up forced Dec. switch disconnection		Level 3	Countmeasures
Fault reasons: Elevator on the top floor, up forced Dec. switch is turned off			1: Check the up forced Dec. switch 2: Restart shaft self-learning 3: Check the leveling switch signal
E0039: Down forced Dec. switch disconnection		Level 3	Countmeasures
Fault reasons: Elevator on the first floor, down forced Dec. switch is turned off			1: Check the down forced Dec. switch 2: Restart shaft self-learning 3: Check the leveling switch signal
E0040: Elevator run timeout		Level 3	Countmeasures
Fault reasons: Leveling signal without any change within F23.02 specified time			1: Elevator speed is too low, or floor height is too high 2: Leveling signal is abnormal 3: Steel wire skid
E0041: Safety circuit disconnection		Level 3	Countmeasures
Fault reasons: Safety circuit signal disconnection			1: Check the safety circuit switch, and view the status 2: Check the safety circuit power supply circuit 3: Check the safety circuit contactor signal 4: Check the safety circuit feedback contact signal characteristics (NO or NC)

E0042: Door locked disconnection during running		Level 3	Countmeasures
Faulty subcode: 4200: Running door lock disconnected 4201: Door lock disconnected during door closing operation 4202: Door lock disconnection failure causing overcurrent 4203: Door lock disconnection failure during auto-tuning 4204: Door lock disconnection failure during power failure emergency operation 4205: Start the hoistway self-learning door lock is not closed	Fault reasons: During elevator running process, the door locked signal is disconnected or the door lock adhesion detection signal is disconnected during operation		1: Check whether the hall and the car door lock contact is normal 2: Check whether the door lock contactor action is normal 3: Check the door lock contactor feedback contact characteristics (NO or NC) 4: Check the door lock power supply circuit 5: If there is MT70-AOB-A, check the corresponding signal 6: During the operation, the door lock adhesion detection signal is disconnected, and the door lock adhesion detection signal is checked
E0043: Up final limit signal disconnection during running		Level 3	Countmeasures
Fault reasons: 1: The signal of up final limit is cut off when elevator is up running 2: Encoder signal interference makes elevator position error			1: Check whether the hall and the car door lock contact is normal 2: Check whether the door lock contactor action is normal 3: Check the door lock contactor feedback contact characteristics (NO or NC) 4: Check the door lock power supply circuit 5: If there is MT70-AOB-A, check the corresponding signal 6: During the operation, the door lock adhesion detection signal is disconnected, and the door lock adhesion detection signal is checked
E0044: Down final limit signal disconnection during running		Level 3	Countmeasures
Fault reasons: 1: The signal of down final limit is cut off when elevator is down running 2: Encoder signal interference makes elevator position error			1: Check that the down final limit switch contact is normal or not 2: Check the down final limit switch signal characteristics (NO or NC) 3: Down final limit switch installed high, normal run to the bottom will be action 4: Check encoder wiring and installation
E0045: Up/down forced Dec. switch disconnection		Level 3	Countmeasures
Fault reasons: Up/down forced Dec. switches simultaneously disconnected			1: Check whether up/down forced Dec. switches are normal 2: Up/down forced Dec. signal characteristics (NO or NC) 3: Set F26.12 Bit4 = 1

E0046: Re-leveling abnormal		Level 3	Countmeasures
Faulty subcode: 4600: No leveling signal and speed greater than 0.200m/s 4601: No leveling signal 4602: Speed is greater than 0.200m/s	Fault reasons: 1: Elevator actual speed is larger than re-leveling speed + 0.050m/s 2: Re-leveling position is not in the leveling area		1: Check the encoder signal 2: Check the leveling signal 3: Check the advanced open door block
E0047: Lock-door contactor adhesion		Level 3	Countmeasures
Faulty subcode: 4700: Door contactor feedback contact does not pick up 4701: Door contactor feedback contact sticking	Fault reasons: Lock-door contactor feedback signal abnormal		1: Check lock-door contactor feedback signal characteristics (NO or NC) 2: Check lock-door contactor action is normal or not 3: Check lock-door contactor feedback signal 4: Check the advanced open door block
E0048: OD fault		Level 3	Countmeasures
Faulty subcode: 4801: Front door opening fault 4802: Front door opening fault 4803: Door opening fault 4804: Door opening fault 4805: The door closing signal is detected after the front door is opened for 3s 4806: After the door is opened for 3s, the door closing signal is detected 4807: The car door switch is detected closed 3s after the front door is opened	4808: After the door is opened for 3s, the car door switch is detected to be closed 4809: After the front door is opened for 3s, the car door switch and the door closing signal are detected to be closed 4810: After the door is opened for 3s, the car door switch and the door closing signal are detected to be closed		1: Check the door motor system 2: Check the CTB is normal or not 3: Check the OD arrival signal is normal or not
Fault reasons: OD continuous non-arrival times are over F22.09			
E0049: CD fault		Level 3	Countmeasures
Faulty subcode: 4901 - 4907: Front door closing fault 4908 - 4912: Rear door closing fault	Fault reasons: CD continuous non-arrival times are over F22.09		1: Check the door motor system 2: Check the CTB is normal or not 3: Check the CD arrival signal is normal or not 4: Check the door lock circuit
E0050: Shaft self-learning fault		Level 3	Countmeasures
Faulty subcode: 5001: The upper limit is valid and the current floor is not the highest level 5002: Self-learning internal commands are missing 5003: Self-learning direction is down	5004: Forced to be invalid 5005: The current floor is not the first floor 5006: Current control mode is not closed loop vector control 5007: Forced invalid on the top floor		1: Check the up/down forced Dec. switch signal 2: Actual floor is consistent with present floor (F19.01) or not 3: Syn. motor is auto-tuning parameters or not 4: Check whether the motor actual running direction is correct

E0050: Shaft self-learning fault	Level 3	Countmeasures
Faulty subcode: 5008: Forced 1 learning height is 0 5009: Forced 1 learning height is 0 5010: Forced 2 learning height is 0 5011: Forced 2 learning height is 0 5012: Forced 3 learning height is 0 5013: Forced 3 learning height is 0 5014: Forced 2 position below lower forced 1 position 5015: Forced 2 position above upper forced 1 position 5016: Forced 3 position below lower forced 2 position 5017: Forced 3 position above upper forced 2 position 5018: The current floor is not top when forced 1 is active 5019: Flat keypad length is greater than 50cm 5020: Self-learning data overflow 5021: Self-learning data overflow 5022: Self-learning height is less than 50cm 5023: Lost maintenance command during self-learning 5024: Permanent magnet Syn. motor does not perform parameter auto-tuning	5025: The lower leveling layer is not separated from the leveling board 5026: Self-learning start upper limit is valid 5027: When the hoistway starts self-learning, the upper forced Dec. switch is effective 5028: The lower forced Dec. switch distance is higher than the upper forced Dec. switch distance 5029: Forced Dec. switch adhesion 5030: Upper level switch sticking 5031: Lower leveling switch sticking 5032: When the floor is larger than 2 floors, the upper and lower leveling signals are invalid at startup 5033: The upper and lower leveling switches are reversed 5034: Abnormal signal in the self-learning gate area of the hoistway	5: Check whether the leveling plate installation is correct 6: Check whether the leveling switch NO/NC setting is right 7: Check the up/down final limit signal
Fault reasons: At the beginning of the learning, if any of the following conditions is met, the fault will be alarmed: 1. The present floor is not the first floor 2. The self-learning direction is not up running 3. Down forced signal is invalid 4. Initial angle of the Syn. motor is 0 5. The upper limit signal is valid 6. At two floors, the down leveling sensor isn't out off the leveling plate Run to the second floor, if meet the following condition, alarm fault: At the second floor self-learning, the learned adjustment distance is greater than 50cm	Run to the top floor, if meet any of following conditions, alarm fault: 1. Up forced Dec. 1 action is valid and in the door zone, and the present floor is inconsistent with the preset Max. floor 2. Elevator reaches the set floor and in the door zone, and the up forced Dec. 1 is no action 3. The learned height of total floor is lower than 50cm 4. The learned up/down forced Dec. 1 position is 0 5. If configured 2 and 3 level forced Dec. switches, the learned up and down forced Dec. position is 0 6. If you select multiple forced Dec. signal, if does not meet the following conditions, it will alarm fault:	

Down forced position 1 < down forced position 2 < down forced position 3 Up forced position 1 > up forced position 2 > up forced position 3		
E0051: CAN communication fault		Level 3
Faulty subcode: 5101: CAN initialization hardware fault 5102: CAN communication fault	Fault reasons: CAN communication did not receive the correct data	Countmeasures 1: Check the communication cable 2: Check the CTB power supply 3: Check the 24V power supply 4: Check D04.18 communication degree of interference 5: Check the matching resistor switch is valid or not
E0052: Hall call communication fault		Level 3
Faulty subcode: 5200: Calling communication fault 5201: IOB communication fault	Fault reasons: Hall call communication did not receive the correct data	Countmeasures 1: Check the communication cable 2: Check the 24V power supply 3: Check whether the HCB address conflicts 4: Check D04.17 communication degree of interference
E0053: Lock-door short-circuit fault		Level 3
Faulty subcode: 5301: Front door open door lock is shorted 5302: Rear door open door lock is shorted 5303: Front and rear door open door locks are shorted 5304: When the front door is opened, the door lock short 1 signal is detected 5305: After the front door is opened for 3s, it is detected that the door lock short 1 signal is valid 5306: When the rear door is opened, the door lock short circuit 2 signal is detected to be valid 5307: After the door is opened for 3s, the door lock short circuit 2 signal is detected to be valid	Fault reasons: OD arrival signal and lock door closure signal are valid at the same time	Countmeasures 1: Check the door lock circuit action is normal or not 2: Check the door lock contactor feedback is normal or not 3: Check the door motor OD arrival signal 4: F26.12 (inspection parameter setting) of Bit3 is set as 1

E0054: Syn. motor star-delta contactor feedback abnormal		Level 3	Countmeasures
Faulty subcode: 5401: The contact contact of the star contactor does not pick up 5402: Seal contactor contact contact adhesion	Fault reasons: Syn. motor star-delta contactor feedback abnormal		1: Check whether the contactor feedback contact is consistent with MCB parameter setting (NO or NC) 2: Check whether the indicator on MCB output side is consistent with contactor action 3: After the contactor acts, check whether the corresponding feedback contact and MCB corresponding feedback input point acts 4: Check whether the output characteristics of contactor is consistent with that of MCB 5: Check the contactor coil circuit
E0055: Changed floor park fault		Level 3	Countmeasures
Fault reasons: When elevator runs automatically, the floor did not receive OD arrival signal			1: Check the door motor OD arrival signal 2: Check the door mechanical system
E0056: Run contactor feedback abnormal		Level 3	Countmeasures
Faulty subcode: 5601: Output contactor feedback contact does not pick up 5602: Output contactor feedback contact sticking	Fault reasons: Run contactor feedback abnormal or the door lock is broken when the contactor is operated		1: Check whether the contactor feedback contact is consistent with MCB parameter setting (NO or NC) 2: Check whether the indicator on MCB output side is consistent with contactor action 3: After the contactor acts, check whether the corresponding feedback contact and MCB corresponding feedback input point acts 4: Check whether the output characteristics of contactor is consistent with that of MCB 5: Check the contactor coil circuit 6: F26.17 is set as 1, the fault will restore 7: F26.10 Bit6 is set to 1 to avoid E56 fault caused by the door lock being disconnected when the contactor is operated

E0057: Brake contactor feedback abnormal		Level 3	Countmeasures
Faulty subcode: 5701: Brake contactor feedback contact does not pull 5702: Brake contactor feedback contact sticking 5703: Brake trip switch does not open 5704: Brake trip switch is not closed 5705: Brake force contactor feedback contact does not pull 5706: Brake strong contactor feedback contact adhesion 5707: Brake switch 2 does not open 5708: Brake trip switch 2 is not closed	Fault reasons: 1: Brake contactor feedback signal abnormal 2: Brake mechanical switch feedback abnormal 3: Brake forced feedback abnormal		1: Check whether the contactor feedback contact is consistent with MCB parameter setting (NO or NC) 2: Check whether the indicator on MCB output side is consistent with contactor action 3: After the contactor acts, check whether the corresponding feedback contact and MCB corresponding feedback input point acts 4: Check whether the output characteristics of contactor is consistent with that of MCB 5: Check the contactor coil circuit 6: Check the brake mechanical switch feedback signal 7: Check the brake forced feedback signal 8: Check the brake forced contactor coil 9: Set F26.17 = 1, the fault will restore
E0058: Leveling signal abnormal		Level 3	Countmeasures
Faulty subcode: 5801: Door area signal bonding 5802: Door signal disconnected 5803: Upper level signal adhesion 5804: Upper level signal is disconnected 5805: Lower level signal adhesion 5806: Lower leveling signal is disconnected	Fault reasons: Leveling or door zone signal is adhesion or cut off		1: Check whether the leveling and the door zone can work normally 2: Check the vertical and depth of leveling plate installation 3: Check the MCB input point
E0059: Receive OD and CD arrival signals at the same time		Level 3	Countmeasures
Faulty subcode: 5901: The front door switch door is in place at the same time 5902: The rear door switch door is in place at the same time	Fault reasons: Receive door motor OD and CD arrival signals at the same time		1: Check the door motor controller 2: Check OD/CD arrival signal characteristics (NO or NC) 3: At inspection mode, F26.12 (inspection parameter setting) of Bit5 = 1, which can shield the fault
E0060: Forced Dec. distance is too short		Level 3	Countmeasures
Faulty subcode: 6001: The upper and lower forcing distance is too short 6002, 6003: The lower/upper forcing distance is too short	Fault reasons: Forced Dec. distance is too short		1: Check up/down forced Dec. 1 switch installation 2: Check the forced Dec. speed (F03.12)
E0061: Parallel group control communication abnormal		Level 3	Countmeasures
Faulty subcode: 6101: CAN hardware error 6102: CAN disconnection	Fault reasons: CAN communication did not receive the correct data		1: Check the communication cable 2: Check the parallel parameter setting 3: Check D04.19 communication degree of interference

E0062: Inspection run overcurrent		Level 3	Countmeasures
Fault reasons: Inspection running current is 110% over motor rated current			1: Reduce the load 2: F26.12 of Bit1 is set as zero 3: Permanent magnet Syn. motor identified the encoder angle does not match with the actual, restart parameter auto-tuning 4: Encoder abnormal 5: Brake circuit abnormal
E0063: Advanced open door abnormal		Level 3	Countmeasures
Fault reasons: 1: Speed is larger than advanced open speed + 0.050m/s 2: Advanced open operation is not in the leveling			1: Check the encoder signal 2: Check the leveling signal 3: Check the advanced open module (MT70-AOB-A)
E0064: Car slipping accident		Level 3	Countmeasures
Faulty subcode: 6400: Car illegal movement fault 6401: Elevator roll is detected during elevator stop	Fault reasons: The elevator stop state detects that the elevator position changes more than 5cm		1: Check the brake 2: Check the encoder 3: Check the balance factor 4: Check the load 5: F27.28 Bit15 is set to 1 to shield the fault
E0065: UCMP fault		Level 3	Countmeasures
Faulty subcode: 6500: UCMP test fault 6501: UCMP protection fault 6502: UCM contactor feedback error (no feedback) 6503: UCM contactor feedback error (with feedback) 6504: Abnormal brake feedback switch detected when stopping the elevator 6505: Abnormal brake feedback switch detected during operation	Fault reasons: 1: When sealed contactor outputs, door area signal is detected from valid to invalid and door lock signal is disconnected, the elevator reports the E65 fault, the elevator stops running, and sealed contactor stops output 2: When the controller is in the stop state, it detects that the door area signal is changed into invalid and the door lock signal is disconnected at the same time, and it is judged that any layer signal is invalid, the elevator reported E65 fault, the elevator stops running 6504: When the elevator is stopped, the brake mechanical feedback switch is detected abnormally, and the E57 fault is reset up to three times, and the E65 fault is reported for the fourth time		1: Check whether the brake is abnormal 2: Check the door signal and level signal 3: Check if the elevator brake mechanical feedback switch is abnormal

E0065: UCMP fault		Level 3	Countmeasures
	6505: The brake mechanical feedback switch is detected abnormally during operation, and the E57 fault is reset up to three times, and the E65 fault is reported for the fourth time		
E0066: Brake force auto-checking fault		Level 3	Countmeasures
Faulty subcode: 6600: Too much pulse movement or excessive detection speed during brake braking force test 6601: SINCOS encoder C, D phase displacement is too large during brake braking force test	Fault reasons: 1: During brake force detection process, pulse exceeds the set value F04.16 2: During brake force detection process, detection speed is more than 0.50m/s		1: Check whether the brake is normal
E0067: Speed regulator feedback abnormal		Level 3	Countmeasures
Faulty subcode: 6701: Speed limiter contactor feedback contact does not pull 6702: Speed limiter contactor feedback contact sticking	Fault reasons: Governor contactor feedback abnormal		1: Check the contactor feedback setting is the same with the main control board (NO, NC) 2: Check the main control board output indicator and contactor action to ensure consistency 3: Check the contactor action, confirm the corresponding feedback contact has action, the main control board corresponding to the feedback input point action 4: Check the contactor and the main control board output characteristics, to confirm the same 5: Check the contactor coil circuit
E0068: CIC-B communicaiton abnormal		Level 3	Countmeasures
Faulty subcode: 6801: CIC-B communicates abnormally with the motherboard 6802: CIC-B itself is faulty	Fault reasons: The elevator main control board communicates with CIC-B abnormally		1: Check the main control board and CIC-B communication wire 2: Check the CIC-B internal mobile phone card communication is normal
E0069: Wrong logic		Level 2	Countmeasures
Fault reasons: Wrong logic			1: Return to factory
E0070: Bottom pit water fault		Level 2	Countmeasures
Fault reasons: The control system detects that the bottom hole water protection signal is valid			1: Check the bottom pit inlet switch 2: Check group F12 bottom pit water signal NO/NC setting
E0071: Over-load switch fault		Level 1	Countmeasures
Fault reasons: When elevator zero speed start operation detection current exceeds F02.07, overload switch is not action			1: Check overload switch 2: Check if the F02.07 is set correctly

E0072: Car illegal movement fault		Level 3	Countmeasures
Fault reasons: Elevator parking process summary to detect illegal movement of the car			1: Check the brake condition 2: Adjust the parking sequence (make sure the elevator stops during the parking process)
E0073: Forbidden fast car alarm		Level 4	Countmeasures
Fault reasons: 1: There is fast running forbidden at multi-function input terminal 2: There is bypass input signal at multi-function input terminal			Check the external signal
E0074: Internal fault		Level 3	Countmeasures
Faulty subcode: 7400: Parameter auto-tuning is prohibited 7401: Prohibition of self-learning fault of the well 7402: Rotating auto-tuning is prohibited 7403: Static auto-tuning is prohibited	Fault reasons: 1: Parameter auto-tuning can not be performed 2: Can not be shaft self-learning		Contact the elevator factory, the agent
E0075: External energy feedback fault		Level 3	Countmeasures
Fault reasons: External energy feedback fault input terminal signal detected			Check if the main control board input signal and the external energy feedback device are in a fault state
E0076: External UPS fault		Level 4	Countmeasures
Fault reasons: External UPS fault input terminal signal detected			Check the main board input signal and whether the external UPS unit is in a fault state
E0077: EIO communication fault		Level 3	Countmeasures
Faulty subcode: 7700: EIO start communication fault 7701: EIO has output communication fault	Fault reasons: The motherboard and EIO communication are abnormal		Check wiring
E0078: Clock chip fault		Level 3	Countmeasures
Fault reasons: Clock chip read time range is out of limits			1: Check external battery signal 2: Reset time parameters 3: Replace the motherboard
E0079: External seismic signal fault		Level 4	Countmeasures
Fault reasons: External seismic input terminal signal detected			Check if the external seismic signal is normal

7.1.3 Reset Fault

After the fault is eliminated, reset COOL100 by any of the following methods:

- Press **STOP** (keypad) to reset.
- Switch on COOL100 after completely power off.
- Some faults may auto-reset, see the table below.

Table 7-2 Automatic reset fault

Faults		Reset Conditions
E0009	Heatsink overheated fault	After the heatsink temperature drops to 50°C, the fault will reset automatically
E0020	Motor overheated fault	After motor overheated switch recovers, the fault will reset automatically
E0041	Safety circuit disconnection fault	After the safety circuit is connected, the fault will reset automatically
E0042	Door locked disconnection fault	After locked-door is connected and auto reset, or door zone signal is valid, 1s later, the fault will reset automatically
E0051	Car top CAN communication fault	The fault only recorded once at power-on and after communication resumes, the fault will reset automatically
E0052	Hall call Modbus communication fault	The fault only recorded once at power-on and after communication resumes, the fault will reset automatically
E0055	Change of station stopping fault	The fault only recorded once at power-on
E0059	The door open/close in place signal is valid at the same time	The fault only recorded once at power-on, and if OD/CD arrival signals are not valid at the same time, the fault will reset automatically
E0061	Parallel group control communication abnormal	The fault only recorded once at power-on and after communication resumes, the fault will reset automatically
E0048, E0049, E0055		Can be reset by inspection button
E0001, E0002, E0003, E0008, E0017, E0030, E0031		In order to protect the internal device of the controller, the fault reset needs to be delayed for a period of time
E0070, E0071, E0073		Can be reset automatically

7.2 Maintenance

Due to the environmental temperature, humidity, pH, dust, vibration and other factors, as well as the aging and wear of the internal components of the COOL100, it will cause potential failures of the COOL100. Therefore, it is necessary to implement daily or regular maintenance on COOL100 during storage and use.

If COOL100 has been transported for a long distance, check whether the components of COOL100 are complete and the screws are well tightened.

- Periodically clean the dust inside COOL100 and check whether the screws are loose.

 Danger
- Only a trained and qualified professional person can maintain COOL100. - Maintenance personnel should take off all metal jewellery before carrying out maintenance or internal measurements in the control panel. Suitable clothes and tools must be used. - High voltage exists when COOL100 is powered up or running. - Checking and maintaining can only be done after AC power of COOL100 is cut off and wait for at least 10 minutes, and the voltage between power terminals (+) and (-) is below 36V.
 Warning
- For COOL100 stored for more than 6 months, please use voltage regulator to increase the input voltage gradually. - Do not leave metal parts like screws or pads inside the control panel. - Do not make modification on the inside of control panel without instruction from the supplier. - There are IC components inside the control panel, which are sensitive to static electricity. Directly touch the components on the PCB board is forbidden.

Daily Maintenance

COOL100 must be operated in specified environment (refer to section 3.2, on page 11).

Therefore maintain it according to table below. To prolong the lifetime of COOL100, keep good running environment, record the daily run data and detect any abnormal behavior.

Table 7-3 Daily maintenance

Items	Content	Criteria
Running environment	Temperature and humidity	-10 - +55℃ Less than 95%RH, non-condensing
	Dust and water dripping	No conductive dust accumulating, no water dripping
	Gas	No strange smell
COOL100	Oscillation and heating	Stable oscillation and proper temperature
	Noise	No abnormal sound
Motor	Heating	No overheat
	Noise	Low and regular noise
Running status parameters	Output current	Within rated range
	Output voltage	Within rated range

Periodical Maintenance

Customer should check COOL100 every 3 to 6 months according to the actual environment so as to avoid hidden problems and make sure the control panel runs well for a long time.

General inspection:

- Check whether the screws of control terminals are loose. If so, tighten them with a screw driver.
- Check whether the main circuit terminals are properly connected; Whether the copper bar and mains cables are overheated.
- Check whether the power cables and control cables are damaged, check especially for any wear on the cable tube.
- Check whether the insulating tapes around the cable lugs are stripped, and for signs of overheating near terminations.
- Clean the dust on PCBs and air ducts with a vacuum cleaner.

Note:

1. *Dielectric strength test of COOL100 has already been conducted in the factory. Do not do the test again. Otherwise, COOL100 might be damaged.*
2. *If insulation test to the motor is necessary, it should be done after input terminals U/V/W of motor have been detached from COOL100. Otherwise, COOL100 will be damaged.*
3. *For control panels that have been stored for a long time, they must be powered up every 6 months. When supplying AC power to the control panel, use a voltage regulator to gradually raise the input voltage to rated input voltage at least 5 hours.*

Replacing Damaged Parts

The components that are easily damaged are: Cooling fan and electrolytic capacitors of filters.

Their lifetime depends largely on their application environment and preservation. Users can decide the time when the components should be replaced according to their service time.

Easily Damaged	Cooling fan	Electrolytic capacitors
Life	60,000 hours	50,000 hours
Possible Cause of Damages	Wear of the bearing, aging of the fan vanes	High ambient temperature, aging of electrolyte and large pulse current induced by rapid changing loads
Criteria	After the control panel is switched off, check if the abnormal conditions such as crack existing on fan vanes and other parts. When the control panel is switched on, check if control panel running is normal, and check if there is any abnormal oscillation	Check if frequent over-current or overvoltage failures occur during control panel start-up with load. Check if there is any leakage of liquids. Check if the safety valve protrudes. Measure the static capacitance and insulation resistance

Unwanted Control Panel Recycling

When disposing COOL100, pay attention to the following factors:

- The capacitors may explode if they are burnt.
- Plastic parts will produce toxic gases when burned. Please treat it as industrial waste.
- Lead-acid batteries are heavily polluted. Please submit them to a recyclable repair shop or other specialized recycling agencies. Do not throw away randomly.

Chapter 8 Parameters

Function Parameter Group Descriptions

There are three function parameter groups:

- Group D is monitoring, which is used to check COOL100 the various states of the configuration parameters and the system.
- Group F is the changeable function parameter.
- Group Y is factory parameters, which can not be changed. If the MCB board is changed, you should input the factory password. Please contact with agents or our company.

Parameter Attributes:

“*”: The parameters cannot be modified.

“×”: It cannot be modified during operation.

“○”: It can be modified during operation.

Ref. Code	Function	Setting Range	Default	Attribute	Setting
D00: Configurations of integrated hardware and software					
D00.00	Control panel series	0x10 - 0x99 LCD display: COOL100 home lift control panel	Actual	*	
D00.01	Control panel rated power	0.1 - 999.9kW	Actual	*	
D00.02	Control panel rated current	0.1 - 999.9A	Actual	*	
D00.03	MCB software version	0.00 - 9.99	Actual	*	
D00.04	CTB software version	0.00 - 9.99	Actual	*	
D00.05	HCB software version	0.00 - 9.99	Actual	*	
D00.06	Keypad software version	0.00 - 9.99	Actual	*	
D00.07	MCB non-standard software version	0.00 - 9.99	Actual	*	
D00.08	CTB non-standard software version	0.00 - 9.99	Actual	*	
D00.09	HCB non-standard software version	0.00 - 9.99	Actual	*	
D01: Drive status display parameters					
D01.00	S-curve preset speed	0.000 - 4.000m/s	Actual	*	
D01.01	Elevator actual speed	0.000 - 4.000m/s	Actual	*	
D01.02	Running RPM	0 - 9999rpm	Actual	*	
D01.03	Output voltage	0 - 999V	Actual	*	
D01.04	Output current	0.1 - 999.9A	Actual	*	
D01.05	Output frequency	0.01 - 100.00Hz	Actual	*	
D01.06	DC bus voltage	0 - 999V	Actual	*	
D02: MCB status display parameters					
D02.00	MCB analog input voltage	0.00 - 10.00V	Actual	*	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
D02.01	MCB input IO state 1	Bit0: X1 terminal Bit1 - Bit14: X2 - X15 terminal Bit15: X16 terminal	Actual	*	
D02.02	MCB input IO state 2	Bit0: X17 terminal Bit1 - Bit10: X18 - X27 terminal Bit11: X28 terminal Bit12 - Bit15: Reserved	Actual	*	
D02.03	MCB input logic state 1	Bit0: Up leveling Bit1: Down leveling Bit2: Door zone Bit3: Safe circuit 1 Bit4: Safe circuit 2 Bit5: Door lock circuit 1 Bit6: Door lock circuit 2 Bit7: Run output feedback Bit8: Brake output feedback Bit9: Inspection Bit10: Inspection up Bit11: Inspection down Bit12: Up final limit Bit13: Down final limit Bit14: Lock elevator Bit15: Overload	Actual	*	
D02.04	MCB input logic state 2	Bit0: Full load Bit1: Up forced 1 Dec. Bit2: Down forced 1 Dec. Bit3: Up forced 2 Dec. Bit4: Down forced 2 Dec. Bit5: Up forced 3 Dec. Bit6: Down forced 3 Dec. Bit7: Firefighting signal Bit8: Fireman switch Bit9: Front door light curtain Bit10: Back door light curtain Bit11: Emergency run Bit12: Door-closed output feedback Bit13: Syn. motor star-delta feedback Bit14: Motor over-heated input Bit15: Brake limit switch feedback input	Actual	*	
D02.05	MCB input logic state 3	Bit0: Earthquake monitoring input Bit1: Brake forced feedback input Bit2: Edge feedback input for front door Bit3: Edge feedback input for back door Bit4: High-voltage safe signal Bit5: High-voltage door lock signal 1 Bit6: High-voltage door lock signal 2	Actual	*	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
D02.05	MCB input logic state 3	Bit7: Half-load signal input Bit8: Firefighting second base station input Bit9: Back door prohibit Bit10: Light load signal Bit11: Brake limit switch feedback input 2 Bit12: Low-voltage door lock short Bit13: Governor feedback input Bit14: Terminal automatic running Bit15: Pit watered input	Actual	*	
D02.06	MCB output logic state	Bit0: Run relay output Bit1: Brake relay output Bit2: Door-closed contactor output Bit3: Syn. star-delta contactor output Bit4: Brake forced feedback output Bit5: Front door open Bit6: Front door close Bit7: Back door open Bit8: Back door close Bit9: Light and fan output Bit10: Fault output Bit11: Emergency running enable after power fault Bit12: Fire linkage output Bit13: Medical disinfection output Bit14: Electric lock output Bit15: Stop output in non-door zone	Actual	*	
D03: CTB status display parameters					
D03.00	CTB analog input voltage	0.00 - 10.00V	Actual	*	
D03.01	CTB input IO status	Bit0: X1 terminal Bit1 - Bit13: X2 - X14 terminal Bit14 - Bit15: Unused	Actual	*	
D03.02	CCB input IO status	Bit0: Main COP CCB X1 terminal Bit1 - Bit6: Main COP CCB X2 - X7 terminal Bit7: Main COP CCB X8 terminal Bit8: Vice COP CCB X1 terminal Bit9 - Bit14: Vice COP CCB X2 - X7 terminal Bit15: Vice COP CCB X8 terminal	Actual	*	
D03.03	CTB input logic state 1	Bit0: Front door light curtain Bit1: Front door OD arrival Bit2: Front door CD arrival Bit3: Back door OD arrival Bit4: Back door CD arrival Bit5: Back door light curtain Bit6: Full load signal Bit7: Overload signal	Actual	*	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
D03.03	CTB input logic state 1	Bit8: OD button Bit9: CD button Bit10: OD delay button Bit11: Direct arrival signal Bit12: Driver signal Bit13: Reverse signal Bit14: Isolated run signal Bit15: Fireman switch signal	Actual	*	
D03.04	CTB input logic state 2	Bit0: Light load signal Bit1: Back door OD button Bit2: Edge signal for front door Bit3: Edge signal for back door Bit4: Back door CD button Bit5: Front/back door switch input Bit6: Back door OD delay button Bit7: Back door prohibition Bit8: Car call floors management Bit9: Manual fan input Bit10: Car VIP Bit11: Car door closed detection switch Bit12: Inspection input Bit13: Inspection up input Bit14: Inspection down input Bit15: Motor overheating input	Actual	*	
D03.05	CTB output logic state 1	Bit0: Front door OD output Bit1: Front door CD output Bit2: Back door OD output Bit3: Back door CD output Bit4: Up arrival chime output Bit5: Down arrival chime output Bit6: Lighting and fan output Bit7: Buzzer output Bit8: Overload signal output Bit9: Front door OD button display Bit10: CD button display Bit11: OD delay button display Bit12: Full load signal output Bit13: Driver run signal Bit14: Driver direction signal Bit15: Isolated run display	Actual	*	
D03.06	CTB output logic state 2	Bit0: Firefighting run display Bit1: Back door OD button display Bit2: Direct arrival signal display Bit3: Up arrival chime forecast Bit4: Down arrival chime forecast Bit5: Back door CD button display	Actual	*	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
D03.06	CTB output logic state 2	Bit6: Back door OD delay button display Bit7: Front door forced CD output Bit8: Back door forced CD output Bit9: Arrival chime output Bit10: Leveling area car unintended movement Bit11: Timing output Bit12: Mechanical lock output Bit13: Electromagnetic valve output Bit14: Manual fan Bit15: Bypass output	Actual	*	
D04: State display parameters of communication between the service floor and HCB/CTB					
D04.00	Current floor	1 - F19.00	1	×	
D04.01	Current height	0.00 - 299.99m	0.00m	×	
D04.02	Min. floor distance	0.00 - 299.99m	0.00m	×	
D04.03	Max. floor distance	0.00 - 299.99m	0.00m	×	
D04.04	Registration state of 16 - 1 car call	It is composed of 16-bit binary number, from high to low to represent: D04.04: 16 - 1 floor registration state D04.05: 32 - 17 floor registration state D04.06: 48 - 33 floor registration state • 1: Registration • 0: No registration	Actual	*	
D04.05	Registration state of 32 - 17 car call		Actual	*	
D04.06	Registration state of 48 - 33 car call		Actual	*	
D04.07	Registration state of 16 - 1 up hall call		Actual	*	
D04.08	Registration state of 32 - 17 up hall call	It is composed of 16-bit binary numbers, from high to low to represent: D04.07: 16 - 1 floor hall call address registration state D04.08: 32 - 17 floor hall call address registration state D04.09: 48 - 33 floor hall call address registration state • 1: Registration • 0: No registration	Actual	*	
D04.09	Registration state of 48 - 33 up hall call		Actual	*	
D04.10	Registration state of 16 - 1 down hall call		Actual	*	
D04.11	Registration state of 32 - 17 down hall call	It is composed of 16-bit binary numbers, from high to low to represent: D04.10: 16 - 1 floor hall call address registration state D04.11: 32 - 17 floor hall call address registration state D04.12: 48 - 33 floor hall call address registration state • 1: Registration • 0: No registration	Actual	*	
D04.12	Registration state of 48 - 33 down hall call		Actual	*	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
D04.13	HCB communication state of 16 - 1	It is composed of 16-bit binary numbers, from low to high to represent: D04.13: 16 - 1 floor HCB communication state D04.14: 32 - 17 floor HCB communication state D04.15: 48 - 33 floor HCB communication state • 1: Abnormal • 0: Normal	Actual	*	
D04.14	HCB communication state of 32 - 17		Actual	*	
D04.15	HCB communication state of 48 - 33		Actual	*	
D04.16	Car communication state display	It is composed of 16-bit binary numbers, from low to high to represent: Bit0: Communication status between CTB and MCB Bit1: Communication status of cabin display board Bit2: CIC-B communication status • 0: Normal • 1: Abnormal Bit3 - Bit15: Unused	Actual	*	
D04.17	Evaluation of HCB Modbus communication interference	0.0 - 100.0 <i>The larger the value, the greater the communication interference</i>	Actual	*	
D04.18	Evaluation of car top CAN communication interference		Actual	*	
D04.19	Evaluation of Parallel CAN communication interference		Actual	*	
D05: Elevator running status display parameters					
D05.00	Elevator system status	Bit0: System front door light curtain Bit1: System back door light curtain Bit2: Lock signal of HCB Bit3: Fire signal of HCB Bit7 - Bit4: Elevator state • 0000: Automation • 0001: Inspection • 0010: Emergency run • 0011: Shaft self-learning • 0100: Firefighting back to base station • 0101: Fireman mode • 0110: Driver mode • 0111: Isolated run • 1000: Auto back to leveling • 1001: VIP run Bit8 - Bit11: Unused Bit12: System full load	Actual	*	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
		Bit13: System over load Bit14: System front door edge Bit15: System back door edge			
D05.01	Door motor status	Bit2 - Bit0: Front door motor state Bit5 - Bit3: Back door motor state • 000: Opening • 001: Open door arrival • 010: Closing • 011: Close door arrival • 100: Door motor fault • 101: Door motor stop • 110: Unused • 111: No service of door motor Bit6 - Bit15: Unused	Actual	*	
D05.02	High bit of elevator running times	0 - 65535	Actual	*	
D05.03	Low bit of elevator running times	0 - 65535	Actual	*	
D05.04	Cumulative running time (hour)	0 - 65535	Actual	*	
D05.05	Radiator temperature	0.0 - 999.9°	Actual	*	
D05.06	Current fault code	0 - 100	Actual	*	
D06: Elevator hardware configuration display parameters					
D06.00	C phase AD sampling value of sincos encoder	0 - 4095	Actual	*	
D06.01	D phase AD sampling value of sincos encoder	0 - 4095	Actual	*	
D06.02	A phase AD sampling value of sincos encoder	0 - 4095	Actual	*	
D06.03	B phase AD sampling value of sincos encoder	0 - 4095	Actual	*	
D06.04	UVW status of UVW encoder	0 - 7	Actual	*	
D06.05	Electrical angle	0 - 65535	Actual	*	
D06.06	Number of leveling switch	1 - 2	Actual	*	
D06.07	Length between leveling switch	0 - 999mm	Actual	*	
D06.08	Length of leveling plate	0 - 999mm	Actual	*	
D06.09	Encoder pulse count	0 - 65535	Actual	*	
D06.10	MCB hardware version	1.00 - 9.99	Actual	*	
D06.11	Buzzer action reason	0: No action 1: Return to the base station when the position deviation is too large 2: There have hall call in the driver mode 3: Elevator overload 4: Emergency running 5: Forced close door 6: Return to base station when firefighting	Actual	*	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
D06.11	Buzzer action reason	7: Earthquake signal input 8: UCMP fault 9: Automatic return to leveling area 10: Light curtain reminder 11: Ultimate brake zero speed running 12: Bypass run signal reminder 13: Car cal registration reminder 14: External fire switch action in inspection mode 15: External emergency input valid in inspection mode 16: Manual door doesn't close 17: Shaft self-learning reminder 18: Inspection running reminder	Actual	*	
D06.12	Bluetooth status 1	0 - 0xFFFF	Actual	*	
D06.13	Front door motor status	0 - 6	Actual	*	
D06.14	Back door motor status	0 - 6	Actual	*	
D06.15	MCB output logic 2	Bit0: Non-service status output Bit1: Brake, running relay output is normal Bit2: Integrated controller running output Bit3: Run up signal output Bit4: Run down signal output Bit5: Unintended cabin movement at leveling area Bit6: Emergency running completed Bit7: Emergency rescue buzzer output Bit8: Governor output Bit9: Unused Bit10: Electromagnetic valve output Bit11: External energy feedback fault reset output Bit12: UCM contactor output Bit13 - Bit15: Unused	Actual	*	
D06.16	HDRU feedback power display	0.00 - 999.99kW	Actual	*	
D06.17	HDRU energy feedback high bit	0 - 65535k kW.h	Actual	*	
D06.18	HDRU energy feedback low bit	0.1 - 999.9kW.h	Actual	*	
D06.19	Number of re-leveling	0 - 65535	Actual	*	
D06.20	Position deviation	0 - 999cm	Actual	*	
D06.21	Number of excessive position deviation	0 - 65535	Actual	*	
D06.22 - D06.27 Manufacturer debugging parameter, prohibit to change					
D06.28	Logical step	0 - 9	Actual	*	
D06.29	Bluetooth status 2	0 - 0xFFFF	Actual	*	
D06.30 - D06.33 Manufacturer debugging parameter, prohibit to change					
D06.34	Inspection step	0 - 99	Actual	*	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
D06.35 - D06.40 Manufacturer debugging parameter, prohibit to change					
D06.41	R phase voltage	0 - 999V	Actual	*	
D06.42	S phase voltage	0 - 999V	Actual	*	
D06.43	T phase voltage	0 - 999V	Actual	*	
D06.44	Day (power-on time)	0 - 65535	Actual	*	
D06.45	Minute (power-on time)	0 - 1440	Actual	*	
D06.46	Number of car top communication frames lost	0 - 100	Actual	*	
D06.47	Car slipping distance after brake action	0.00 - 99.99m	Actual	*	
D06.48	Brake force detection software version	1.00 - 9.99	Actual	*	
D06.49	Braking force last detection time	0101 - 1231	Actual	*	
D06.50	Time of OD completely	0.0 - 999.9s	Actual	*	
D06.51	Time of CD completely	0.0 - 999.9s	Actual	*	
D06.52	Remain time of running	0 - 65535	Actual	*	
D06.53	Automatic steps	0 - 99	Actual	*	
D06.54	UPS steps	0 - 99	Actual	*	
D06.55	Input terminal logic status 4	Bit0: High-voltage door lock adhesion Bit1: High-voltage door lock adhesion 2 Bit2: Normal running prohibited input Bit3: Bypass input Bit4: HDRU fault input signal Bit5: UPS fault input signal Bit6: Emergency electric running Bit7: Main switch disconnect input signal Bit8: UCM contactor feedback signal Bit9: High voltage door lock 3 signal Bit10 - Bit15: Unused	Actual	*	
D06.57	Static current detection value	0.1 - 999.9A	Actual	*	
D06.58 - D06.63 Manufacturer debugging parameter, prohibit to change					
D06.64	Remained days of maintenance	0 - 99	Actual	*	
D06.65	Input RS line voltage	0 - 999V	Actual	*	
D06.66	Input ST line voltage	0 - 999V	Actual	*	
D06.67	Input RT line voltage	0 - 999V	Actual	*	
D06.68	Code wheel angle	0.0 - 359.9°	Actual		
D06.69	Bluetooth parameters	0 - 65535	Actual	*	
D06.70	High bit of wire rope bending operations	0 - 65535	Actual	*	
D06.71	Low bit of wire rope bending operations	0 - 65535	Actual	*	
D06.72	High bit of wire rope running mileage (m)	0 - 65535m	Actual	*	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
D06.73	Low bit of wire rope running mileage (m)	0 - 65535m	Actual	*	
D06.74	Start car slipping pulse monitoring	0 - 65535	Actual	*	
D06.75	Start stable judgment source	0 - 20	Actual	*	
D06.76	UPS variable 1	0 - 2	Actual	*	
D06.77	UPS Variable 2	0	Actual	*	
D06.78	UPS Variable 3	0	Actual	*	
D06.79	Correcting angle deviation 1	0.0 - 359.9°	Actual	*	
D06.80	Correcting angle deviation 2	0.0 - 359.9°	Actual	*	
D06.81 - D06.96 Manufacturer debugging parameter, prohibit to change					
D06.97	CTB input logic 3	Bit0: Door zone signal Bit1: Up leveling signal Bit2: Down leveling signal Bit3 - Bit15: Unused	Actual	*	
D06.98	Record the running current when the elevator counterweight and the car are in the same position	0.1 - 999.9A	Actual	*	
D06.99	Software internal version number	0.01 - 0.99	Actual	*	
F00: Basic parameters					
F00.00	Motor type	0: Asynchronous motor (Asyn. motor) 1: Synchronous motor (Syn. motor)	1	×	
F00.01	Control mode	0: V/f control 1: SVC control 2: VC control	2	×	
F00.02	Elevator Max. running speed	0.250m/s - F00.03	0.400m/s	×	
F00.03	Elevator rated speed	0.250 - 4.000m/s	0.400m/s	×	
F00.04	Elevator rated load	100 - 50000kg	400kg	×	
F00.05	Controller max. output frequency	5.00 - 100.00Hz	50.00Hz	×	
F00.06	Traction machine mechanical parameter	10.0 - 6000.0	60.0	×	
F00.07	Operating mode	0: Keypad control 1: Distance control	1	×	
F00.08	Elevator balance coefficient	0 - 100%	45%	×	
F00.09	Speed setting of keypad	0.000m/s - F00.02	0.400m/s	○	
F00.10	Run direction	0: The same as run command 1: Opposite to run command	0	×	
F01: User parameters					
F01.00	User password	00000 - 65535	12345	○	
F01.01	Menu mode	0: Full menu mode 1: Checking menu mode 2: Unused	0	○	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F01.02	MCB parameter update	0: No operation 1: Restore factory parameters 2: Download keypad parameter group 1 to the main control board 3: Clear fault information 4 - 12: Download keypad parameter group 2 - 10 to the MCB <i>Functions 4 - 12 are only valid for MT70-LCD-B</i>	0	×	
F01.03	Keypad parameter update	0: No operation 1 - 10: Upload the MCB parameters to the keypad parameter group 1 - 10 <i>Functions 2 - 10 are only valid for MT70-LCD-B</i>	0	○	
F02: Start and stop parameters					
F02.00	Retention time of start zero-speed	0.000 - 2.000s	0.200s	×	
F02.01	Delay time of curve run	0.000 - 2.000s	0.500s	×	
F02.02	Start speed	0.000 - 0.030m/s	0.000m/s	×	
F02.03	Retention time of start speed	0.000 - 2.000s	0.000s	×	
F02.04	Brake open delay time at stop	0.000 - 2.000s	0.200s	×	
F02.05	Zero-speed retention time at stop	0.000 - 2.000s	0.300s	×	
F02.06	Start ramp time	0.000 - 2.000s <i>0.000: The ramp is invalid</i>	2.000s	×	
F02.07	Over current setting	80 - 150% (motor rated current)	120%	×	
F02.08	Emergency running torque limit	70.0 - 180.0%	100.0%	×	
F02.09 Manufacturer debugging parameter, prohibit to change					
F03: Acc. and Dec. curve parameters					
F03.00	Acc. speed	0.020 - 2.000m/s ²	0.400m/s ²	×	
F03.01	Start Acc. jerk	0.020 - 2.000m/s ³	0.200m/s ³	×	
F03.02	End Acc. jerk	0.020 - 2.000m/s ³	0.200m/s ³	×	
F03.03	Dec. speed	0.020 - 2.000m/s ²	0.400m/s ²	×	
F03.04	Start Dec. jerk	0.020 - 2.000m/s ³	0.200m/s ³	×	
F03.05	End Dec. jerk	0.020 - 2.000m/s ³	0.200m/s ³	×	
F03.06	Inspection Acc. speed	0.020 - 2.000m/s ²	0.200m/s ²	×	
F03.07	Inspection Dec. speed	0.200 - 2.000m/s ²	1.000m/s ²	×	
F03.08	Emergency run Acc. speed	0.020 - 2.000m/s ²	0.200m/s ²	×	
F03.09	Emergency run Dec. speed	0.020 - 2.000m/s ²	1.000m/s ²	×	
F03.10	Asyn. motor parameter auto-tuning Acc. speed	0.020 - 2.000m/s ²	0.100m/s ²	×	
F03.11	Asyn. motor parameter auto-tuning Dec. speed	0.020 - 2.000m/s ²	0.100m/s ²	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F03.12	Forced Dec. speed	0.500 - 2.000m/s ²	1.000m/s ²	×	
F03.13	Stop Dec. jerk	0.002 - 2.000m/s ³	0.230m/s ³	×	
F03.14	Forced stop Dec. jerk	0.002 - 2.000m/s ³	0.080m/s ³	×	
F03.15	Up leveling distance adjustment	0 - 60mm	30mm	×	
F03.16	Down leveling distance adjustment	0 - 60mm	30mm	×	
F03.17	Enable of up and down leveling isolated adjustment	0: Up and down leveling via F19.03 1: In up, leveling adjustmen via F03.15, in down, leveling adjustmen via F03.16	0	×	
F03.18	Brake force detection mode	0: Invalid 1: Manual start detection 2: Automatic start detection	0	×	
F03.19	Brake force detection period	1 - 15day	1day	×	
F03.20	Brake force detection time	00:00 - 23:59	3:00	×	
F04: Speed parameters					
F04.00	Inspection run speed	0.000 - 0.630m/s	0.150m/s	○	
F04.01	Battery driven run speed	0.020 - 0.100m/s	0.050m/s	○	
F04.02	The creeping speed at distance control	0.050 - 0.150m/s	0.100m/s	○	
F04.03	Shaft self-learning speed	0.100 - 0.300m/s	0.200m/s	×	
F04.04	Re-leveling speed	0.020 - 0.080m/s	0.040m/s	×	
F04.05	Advanced open speed	0.020 - 0.100m/s	0.050m/s	○	
F04.06	Forced Dec. speed setting 1	0.0 - 105.0% (F00.03)	103.0%	○	
F04.07	Forced Dec. speed setting 2	0.0 - 105.0% (F00.03)	103.0%	○	
F04.08	Forced Dec. speed setting 3	0.0 - 105.0% (F00.03)	103.0%	○	
F04.09	Over-speed setting	80.0 - 120.0% (F00.03)	115.0%	○	
F04.10	Over-speed detection time	0.1 - 2.0s	0.3s	○	
F04.11	Detected value of speed deviation	5.0 - 30.0% (F00.03)	20.0%	×	
F04.12	Detected time of speed deviation	0.1 - 2.0s	1.0s	×	
F04.14	Low speed back leveling speed	1 - 10s	5s	×	
F04.15	Brake detection torque	60 - 150%	100%	×	
F04.16	Brake detection allowable pulse size	1 - 99	30	×	
F04.17	Times of successful brake detection	0 - 65535	0	×	
F05: Weighing compensation parameters					
F05.00	Pre-torque selection	0: No pre-torque 1: Analog weighing 2: Digital weighing 3: Pre-torque auto-compensation	0	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F05.01	Weighing input selection	0: No weighing 1: CTB digital weighing 2: CTB analogue weighing 3: MCB analogue weighing	2	×	
F05.02	Weighing analogue filter time	0.00 - 2.00s	0.50s	×	
F05.03	Analog weighing self-learning	0: No self-learning 1: No-load self-learning 2: Other load self-learning	0	×	
F05.04	Car no-load	0.00 - 10.00V	0.00V	×	
F05.05	Car full load	0.00 - 10.00V	8.00V	×	
F05.06	Self-learning car load	0 - 100%	0%	×	
F05.07	Anti-nuisance function	0: No anti-nuisance function 1: In accordance with weighing 2: In accordance with light curtain 3: Both weighing and light curtain	0	×	
F05.08	Pre-torque bias	0.0 - 100.0%	50.0%	×	
F05.09	Up electrical pre-torque gain	0.000 - 9.000	1.000	×	
F05.10	Up brake pre-torque gain	0.000 - 9.000	1.000	×	
F05.11	Down electrical pre-torque gain	0.000 - 9.000	1.000	×	
F05.12	Down brake pre-torque gain	0.000 - 9.000	1.000	×	
F05.13	Light-load digital weighing signal	0.0 - 100.0% (F00.04)	20.0%	×	
F05.14	Heavy-load digital weighing signal	0.0 - 100.0% (F00.04)	80.0%	×	
F05.15	Compensation coefficient of wire rope	0.000 - 1.000s	0.000s	×	
F05.16	No weighing current coefficient	0 - 9999	1500	×	
F05.17	No weighing speed-loop KP	1 - 9999	200	○	
F05.18	No weighing speed-loop KI	1 - 9999	200	○	
F07: Asyn. motor parameters					
F07.00	Asyn. motor rated power	0.2 - 500.0kW	Depend on model	×	
F07.01	Asyn. motor rated voltage	0 - 999V		×	
F07.02	Asyn. motor rated current	0.0 - 999.9A		×	
F07.03	Asyn. motor rated frequency	1.00Hz - F00.05	50.00Hz	×	
F07.04	Asyn. motor rated RPM	1 - 24000rpm	1440rpm	×	
F07.05	Asyn. motor power facto	0.001 - 1.000	0.850	×	
F07.06	Asyn. motor auto-tuning	0: No action 1: Static auto-tuning 2: Rotational auto-tuning	0	×	
F07.07	Asyn. motor stator resistance	0.000 - 65.535Ω	Depend on model	×	
F07.08	Asyn. motor rotor resistance	0.000 - 65.535Ω		×	
F07.09	Asyn. motor leakage inductance	0.0 - 6553.5mH		×	
F07.10	Asyn. motor mutual inductance	0.0 - 6553.5mH		×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F07.11	Asyn. motor Idling excitation current	0.0 - 999.9A	Depend on model	×	
F07.12	Asyn. motor core saturation coefficient 1	0.00 - 0.50	0.50	×	
F07.13	Asyn. motor core saturation coefficient 2	0.00 - 0.75	0.75	×	
F07.14	Asyn. motor core saturation coefficient 3	0.00 - 1.20	1.20	×	
F07.15	Asyn. motor torque boost	0.1 - 30.0%	0.1%	○	
F07.16	Asyn. motor torque boost end-point	0.0 - 50.0% (F07.03)	10.0%	○	
F07.17	Asyn. motor slip compensation gain	0.0 - 300.0%	100.0%	○	
F07.18	Asyn. motor slip compensation filter time	0.1 - 10.0s	0.1s	○	
F07.19	Asyn. motor slip compensation limitation	0.0 - 250.0%	200.0%	×	
F07.20	Asyn. motor performance optimization	Bit0: Exciting current optimization 0: Normal processing 1: Optimization processing Bit1: Methods of exciting current optimization 0: Voltage method 1: Current method Bit2: Asyn. pre-torque compensation new algorithm 0: Invalid 1: Valid Bit3: Dec. point processing Bit4: Rotor resistance identification frequency 0: Optimize 1: Normal Bit5: Magnetic field orientation 0: According to the rotor resistance orientation 1: Simple orientation according to current Bit7&Bit6: Syn. motor startup current limiter 00: Normal 01: 2 times 10: 4 times 11: 8 times	1	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F07.20	Asyn. motor performance optimization	Bit8: Digital pre-torque with strong drive (without counterweight) start 0: No digital pre-torque 1: Add digital pre-torque Bit9 - Bit15: Unused	1	×	
F07.21	Asyn. motor oscillation-suppression mode	0: Depend on exciting component 1: Depend on torque component	1	○	
F07.22	Asyn. motor oscillation-suppression coefficient	0 - 200	100	○	
F08: Vector control speed-loop parameters					
F08.00	Low speed ASR KP	1 - 9999	200	○	
F08.01	Low speed ASR KI	1 - 9999	200	○	
F08.02	High speed ASR KP	1 - 9999	200	○	
F08.03	High speed ASR KI	1 - 9999	200	○	
F08.04	ASR PI swithcing frequency 1	0.00 - 50.00Hz	3.00Hz	○	
F08.05	ASR PI swithcing frequency 2	0.00 - 50.00Hz	5.00Hz	○	
F08.06	ASR integral limitation	0.0 - 200.0% (motor rated current)	180.0%	○	
F08.07	ASR differential time	0.000 - 1.000s <i>0.000: There isn't speed-loop differential</i>	0.000s	○	
F08.08	ASR output filter time	0.000 - 0.256s <i>0.000: The speed-loop filter is not enabled</i>	0.008s	○	
F08.09	Torque limit	0.0 - 200.0% (motor rated current)	180.0%	×	
F09: Vector control current-loop parameters					
F09.00	ACR KP	1 - 4000	100	○	
F09.01	ACR KI	1 - 4000	100	○	
F09.02	ACR output filter time	0.000 - 1.000s <i>0.000: The current-loop output has no filter</i>	0.000s	○	
F09.03	Manufacturer debugging parameter, prohibit to change				
F09.04	Current loop execution period	1 - 10kHz	8kHz	×	
F09.05	Static current	0.0 - 9.9A	0.0A	×	
F09.06	High speed ACR KP	0 - 4000	500	×	
F09.07	High speed ACR KI	0 - 4000	500	×	
F10: Syn. motor parameters					
F10.00	Syn. motor type	0: IPM 1: SMPM	0	×	
F10.01	Syn. motor rated power	0.4 - 400.0kW	Depend on model	×	
F10.02	Syn. motor rated voltage	0 - 999V		×	
F10.03	Syn. motor rated current	0.0 - 999.9A		×	
F10.04	Syn. motor rated frequency	1.00Hz - F00.05	19.20Hz	×	
F10.05	Syn. motor rated RPM	1 - 24000rpm	96rpm	×	
F10.06	Syn. motor stator resistance	0.000 - 9.999Ω	0.000Ω	×	
F10.07	Syn. motor cross axis inductance	0.0 - 999.9mH	0.0mH	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F10.08	Syn. motor direct axis inductance	0.0 - 999.9mH	0.0mH	×	
F10.09	Syn. motor back EMF	0 - 999V	0V	×	
F10.10	Syn. motor of angle auto-tuning	0: No action 1: Static angle auto-tuning 2: Rotation angle auto-tuning	0	×	
F10.11	Syn. motor static auto-tuning voltage setting	0.0 - 100.0% (F10.02)	100.0%	×	
F10.12	Syn. motor initial angle	0.0 - 359.9°	0.0°	×	
F10.13	Manufacturer debugging parameter, prohibit to change				
F10.14	Sincos encoder C amplitude	0 - 9999	2048	×	
F10.15	Sincos encoder C zero-bias	0 - 9999	2048	×	
F10.16	Sincos encoder D amplitude	0 - 9999	2048	×	
F10.17	Sincos encoder D zero-bias	0 - 9999	2048	×	
F10.18	Sincos encoder CD phase	0: Normal 1: CD phase is opposite	0	×	
F10.19	Syn. motor current filter coefficients	0 - 40	1	×	
F10.20	Performance optimization parameters	Bit0: Inspection run parameter auto-tuning 0: Do not do parameter tuning automatically 1: Do parameter tuning automatically Bit1: Current loop parameters optimization 0: Optimized manually 1: Optimized automatically Bit2: SINCOS encoder performance optimization Bit3: Elevator speed and grid voltage optimization 0: Normal processing 1: Optimization processing Bit4: High speed current loop parameter enable 0: Not enabled 1: Enabled Bit5: High-speed current loop parameter range 0: Calculated based on the speed corner frequency 1: Automatic pre-torque start adopts F09.00/F09.01, others use F09.06/F09.07	0x344C	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F10.20	Performance optimization parameters	Bit6: Start comfort Bit7: High speed comfortability 0: Mode 0 1: Mode 1 Bit8: Loop algorithm selection 0: Old algorithm 1: New algorithm Bit10&Bit9: Performance optimization 00: Mode 0 01: Mode 1 10: Mode 2 11: Mode 3 Bit11: Unused Bit12: Syn. motor start oscillation suppression 0: No suppression 1: Suppression Bit13: Start optimization 2 0: Not start 1: Start Bit14: Current sampling method 0: Mean sampling 1: Single sampling Bit15: Vibration optimization 0: Old method 1: New method	0x344C	×	
F11: Encoder parameters					
F11.00	Encoder card selection	1: MT700-PG1-ABZ 2: MT700-PG3-UUVW 3: MT700-PG2-SINCOS 4: Unused	3	×	
F11.01	Encoder P/R	1 - 11000	2048	×	
F11.02	Encoder direction setting	0: The same direction 1: The reverse direction	0	×	
F11.03	Encoder signal filter coefficient	00 - 99 Unit: Low speed of filter coefficient Ten: High speed of filter coefficient	11	○	
F11.04	Manufacturer debugging parameter, prohibit to change				
F11.05	Detecting time of encoder wire disconnection	0.00 - 2.00s <i>0.00: The encoder wire disconnection can be detected</i>	1.00s	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F12: MCB terminal parameters					
F12.00	MCB input terminal filter time	2 - 40ms	10ms	×	
F12.01	MCB X1 terminal function	0: No function 1: Up leveling NO input (DZU) 2: Down leveling NO input (DZD)	0	×	
F12.02	MCB X2 terminal function	3: Door zone NO input (SX1) 4: Safety circuit 1 NO input (JT1) 5: Safety circuit 2 NO input (JT2)	3	×	
F12.03	MCB X3 terminal function	6: Door locked circuit 1 NO input (DLC1) 7: Door locked circuit 2 NO input (DLC2)	0	×	
F12.04	MCB X4 terminal function	8: Run output feedback NO input (SW) 9: Brake output feedback NO input (BZK) 10: Inspection NO input (INS)	110	×	
F12.05	MCB X5 terminal function	11: Inspection up NO input (UP) 12: Inspection down NO input (DN) 13: Up final limit NO input (LSU)	0	×	
F12.06	MCB X6 terminal function	14: Down final limit NO input (LSD) 15: Elevator lock NO input (LOCK) 16: Over load NO input (LWD)	0	×	
F12.07	MCB X7 terminal function	17: Full load NO input (LWX) 18, 19: Up/down forced 1 Dec. NO input (ULS1/DLS1)	118	×	
F12.08	MCB X8 terminal function	20, 21: Up/Down forced 2 Dec. NO input (ULS2/DLS2)	119	×	
F12.09	MCB X9 terminal function	22, 23: Up/down forced 3 Dec. NO input (ULS3/DLS3) 24: Fire signal NO input (FIRS1)	0	×	
F12.10	MCB X10 terminal function	25: Fireman switch NO input (FIRS2) 26: Front door light curtain NO input (EDP1)	0	×	
F12.11	MCB X11 terminal function	27: Back door light curtain NO input (EDP2) 28: Emergency running NO input (UPC)	0	×	
F12.12	MCB X12 terminal function	29: Door-closed output feedback NO input (FMFB) 30: Syn. motor star-delta feedback NO input (FX)	59	×	
F12.13	MCB X13 terminal function	31: Motor over-heated NO input (MT) 32: Brake limit switch feedback NO input (BZK1)	0	×	
F12.14	MCB X14 terminal function	33: Earthquake monitoring switch NO input (EQ)	0	×	
F12.15	MCB X15 terminal function	34: Brake forced feedback NO input (KMZ) 35: Edges feedback for front door NO input (EDK1)	0	×	
F12.16	MCB X16 terminal function	36: Edges feedback for back door NO input (EDK2)	29	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F12.17	MCB X17 terminal function	37: Half-load signal NO input (HALFLOAD) 38: Firefighting second base station NO input (SECONDFIRE)	28	×	
F12.18	MCB X18 terminal function	39: Back door prohibition NO input (DNA2) 40: Light load NO input (LWL) 41: Brake limit switch feedback NO input 2 (BZK2)	4	×	
F12.19	MCB X19 terminal function	42: Shaft self-learning input 43, 44: Unused 45: Bottom pit water protection (WAPR)	60	×	
F12.20	MCB X20 terminal function	46: Door lock adhesive input 47: Governor feedback contact 48: Automatic test run 3 hours input point	6	×	
F12.21	MCB X21 terminal function	49: Normal running prohibition input 59: EPB start signal input 60, 61: Unused	9	×	
F12.22	MCB X22 terminal function	62: Front door close in place input 64: Back door close in place input 65: 1 st floor call input 66: 2 nd floor call input 67: 3 rd floor call input	30	×	
F12.23	MCB X23 terminal function	68: 4 th floor call input 69: 5 th floor call input	0	×	
F12.24	MCB X24 terminal function	<i>The hundreds digit is 1 corresponding to NC input For example, if X1= 110, the corresponding inspection is NC input</i>	0	×	
F12.25	MCB X25 high voltage terminal function	0: No function 1: High voltage safe circuit signal (JT) 2: High voltage door lock signal 1 (DS1)	0	×	
F12.26	MCB X26 high voltage terminal function	3: High voltage door lock signal 2 (DS2) 4: High voltage door lock of the front door is adhesive	0	×	
F12.27	MCB X27 high voltage terminal function	5: High voltage door lock of the back door is adhesive	0	×	
F12.28	MCB Y1 relay function	0: Unused 1: Run contactor output (SW) 2: Brake contactor output (BZK) 3: Door-closed contactor output (FM) 4: Syn. star-delta contactor output (FX) 5: Brake forced output (KMZ) 6, 7: Front door open/close (OD1/CD1) 8, 9: Back door open/close (OD2/CD2) 10: Lighting and fan output (FAN) 11: Error output (ERROR)	2	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F12.29	MCB Y2 relay fuction	12: Power fault emergency run is enabled (UPC) 13: Fire linkage output (FIRE) 14: Medical disinfection output (HOSPITAL) 15: Electric lock output (LOCK)	1	×	
F12.30	MCB Y3 relay fuction	16: Non-door zone parking output (UNSTOP) 17: Non-service state output (OUTSERVICE) 18: Brake, run contactor output normally (BZKSWOK)	3	×	
F12.31	MCB Y4 relay fuction	19: Integrated controller run output (RUN) 20: Up run signal output (UPRUN) 21: Down run signal output (DNRUN) 22: Unintended cabin move at leveling area (LayerMove)	0	×	
F12.32	MCB Y5 relay fuction	23: Emergency running completed (UPSOVER) 24: Emergency running buzzer output (UPSBUZZ) 25: Governor output control	0	×	
F12.33	MCB Y6 relay fuction	26: Unused 27: Electromagnetic valve output 28: External energy feedback fault reset output 29: UCM contactor control signal 30: Safety circuit short circuit output	0	×	
F12.34 - F12.36 Manufacturer debugging parameter, prohibit to change					
F12.37	Emergency electric running speed	0.100 - 0.300m/s	0.100m/s	×	
F12.38	Advanced parameter for manual door	Bit0: Car and hall display when manual door lock disconnected 0: Normal display 1: Manual door reminder display Bit3 - Bit1: Connecting time of electromagnetic valve Bit6 - Bit4: Disconnecting time of electromagnetic valve 000 - 111: 1 - 8s 000: 1s 111: 8s	0x12C3	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F12.38	Advanced parameter for manual door	Bit7: Buzzer reminder when door lock disconnected related to elevator call command 0: When there is a call command, buzzer reminder when the door lock is disconnected 1: Buzzer reminder once the door lock is disconnected Bit10 - Bit8: Action times of electromagnetic valve 000: 1 time 111: 8 times Bit11: Semi-automatic car door close conditions 0: Normal close 1: Closed after hall door lock connected Bit12: Electromagnetic valve output mode 0: Continous output when closing door command valid 1: Interval output when door closing command valid Bit14 - Bit13: Manual door selection of front and back door 00: No meaning 01: Front door is automatic and back door is manual 10: Front door is manual and back door is automatic 11: No meaning Bit15: Unused	0x12C3	×	
F13: CTB terminal parameters					
F13.00	CTB car command filter settings	Unit: CTB input filter setting 0: Filter time 4ms 1: Filter time 10ms 2: Filter time 20ms 3: Filter time 30ms 4: Filter time 40ms 5: Filter time 50ms 6: Filter time 60ms 7: Filter time 70ms 8: Filter time 80ms	61	○	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F13.00	CTB car command filter settings	Ten: CCB filter input setting 0: Filter time 20ms 1: Filter time 30ms 2: Filter time 40ms 3: Filter time 50ms 4: Filter time 60ms 5: Filter time 70ms 6: Filter time 80ms 7: Filter time 100ms 8: Filter time 120ms 9: Filter time 150ms	61	○	
F13.01	CTB X1 input terminal	0: No function 1: Front door light curtain NO input (EDP1)	101	×	
F13.02	CTB X2 input terminal	2: Front door OD arrival NO input (OLT1) 3: Front door CD arrival NO input (CLT1)	102	×	
F13.03	CTB X3 input terminal	4: Back door OD arrival NO input (OLT2) 5: Back door CD arrival NO input (CLT2)	103	×	
F13.04	CTB X4 input terminal	6: Back door light curtain NO input (EDP2)	106	×	
F13.05	CTB X5 input terminal	7: Full load signal NO input (LWX) 8: Over load signal NO input (LWD)	104	×	
F13.06	CTB X6 input terminal	9: OD button NO input (DOB1) 10: CD button NO input (DCB1)	105	×	
F13.07	CTB X7 input terminal	11: OD delay button NO input (DDOB)	7	×	
F13.08	CTB X8 input terminal	12: Direct arrival signal NO input (NSB) 13: Driver signal NO input (ATS)	108	×	
F13.09	Input of main COP CCB X1	14: Commutation signal NO input (ACB) 15: Isolated run signal NO input (ISS)	9	×	
F13.10	Input of main COP CCB X2	16: Fireman switch NO input (FIRS2) 17: Light load signal NO input (LWL)	10	×	
F13.11	Input of main COP CCB X3	18: Back door OD button NO input (DOB2) 19: Edge signal for front door NO input (EDK1)	11	×	
F13.12	Input of main COP CCB X4	20: Edge signal for back door NO input (EDK2)	12	×	
F13.13	Input of main COP CCB X5	21: Back door CD button NO input (DCB2) 22: Front/back door switching NO input (GABS)	13	×	
F13.14	Input of main COP CCB X6	23: Back door OD delay button NO input (DDOB2)	14	×	
F13.15	Input of main COP CCB X7	24: Back door prohibition NO input (DNA2)	15	×	
F13.16	Input of main COP CCB X8	25: Car call floor control (CaFI)	16	×	
F13.17	Input of vice COP CCB X1	26: Manual fan control	18	×	
F13.18	Input of vice COP CCB X2	27: Start the VIP run in the car NO input	21	×	
F13.19	Input of vice COP CCB X3	28: Car door close detection switch	23	×	
F13.20	Input of vice COP CCB X4	29: Inspection input 30: Inspection up input	0	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F13.20	Input of vice COP CCB X4	31: Inspection down input 32: Door motor overheating	0	×	
F13.21	Input of vice COP CCB X5	33: Door area input 34: Up leveling input 35: Down leveling input	0	×	
F13.22	Input of vice COP CCB X6	36: Front door service prohibition input 37: Car top inspection priority input 38: Turn on the fan	0	×	
F13.23	Input of vice COP CCB X7	39: Turn on the lighting <i>When hundreds is set as 1, it corresponds to NC input</i>	0	×	
F13.24	Input of vice COP CCB X8	<i>For example, If X1 = 102, the corresponding OD arrival signal is NC input</i>	0	×	
F13.25	CTB Y1 relay	0: No function	1	×	
F13.26	CTB Y2 relay	1, 2: Front door OD/ CD output (OD1/ CD1) 3, 4: Back door OD/ CD output (OD2/ CD2)	2	×	
F13.27	CTB Y3 relay	5: Up arrival chime output (CHMUP) 6: Down arrival chime output (CHMDN)	3	×	
F13.28	CTB Y4 relay	7: Lighting and fan output (FAN) 8: Buzzer output (BUZ)	4	×	
F13.29	CTB Y5 relay	9: Over load signal output (LWD)	5	×	
F13.30	CTB Y6 relay	10, 11: OD/CD button display (DOB1/ DCB1)	40	×	
F13.31	CTB Y7 relay	12: OD delay button display (DDOB) 13: Full load signal output (LWX)	39	×	
F13.32	Output of main COP CCB X1	14: Driver run signal (ATS) 15: Driver direction signal (ACB)	10	×	
F13.33	Output of main COP CCB X2	16: Isolated run display (ISS) 17: Fire run display (FIRE)	11	×	
F13.34	Output of main COP CCB X3	18: Back door OD button display (DOB2) 19: Direct arrival output signal (NSB)	12	×	
F13.35	Output of main COP CCB X4	20: Up arrival chime forecast (CHMPUP)	13	×	
F13.36	Output of main COP CCB X5	21: Down arrival chime forecast (CHMPDN) 22: Back door CD button display (DCB2)	14	×	
F13.37	Output of main COP CCB X6	23: Back door OD delay button display (DDOB2)	15	×	
F13.38	Output of main COP CCB X7	24: Front door forced CD output (FCD1) 25: Back door forced CD output (FCD2)	16	×	
F13.39	Output of main COP CCB X8	26: Arrival chime output (CHM)	17	×	
F13.40	Output of vice COP CCB X1	27: Unintended cabin move at leveling area (LayerMove)	18	×	
F13.41	Output of vice COP CCB X2	28: Unused 29: Timer output function	22	×	
F13.42	Output of vice COP CCB X3	30: Unused	23	×	
F13.43	Output of vice COP CCB X4	31: Electromagnetic valve output 32: Bypass signal output reminder	0	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F13.44	Output of vice COP CCB X5	33: Red light output warning for door closing and opening	0	×	
F13.45	Output of vice COP CCB X6	34: Green light output warning for door open arrival	0	×	
F13.46	Output of vice COP CCB X7	35 - 38: Unused	0	×	
F13.47	Output of vice COP CCB X8	39: Fan independent output 40: Lighting independent output	0	×	
F13.48	CTB output logic setting	0 - 0xFF	0x60	×	
F13.49	Main/vice COP CCB output logic setting	0 - 0xFFFF	0	×	
F14: Communication parameters					
F14.00	Data format	0: 1-8-2 format, no parity, RTU 1: 1-8-1 format, even parity, RTU 2: 1-8-1 format, odd parity, RTU 3: 1-7-2 format, no parity, ASCII 4: 1-7-1 format, even parity, ASCII 5: 1-7-1 format, odd parity, ASCII	0	×	
F14.01	Baud rate	0: 1200bps 1: 2400bps 2: 4800bps 3: 9600bps 4: 19200bps 5: 38400bps	3	×	
F14.02	Local address	0 - 247	2	×	
F14.03	Host computer response delay	0 - 1000ms	0ms	×	
F14.04	Car call floor control	16-bit binary composition, from low to high: Bit7 - Bit0: Whether the car call floor 8 - 1 is controlled 0: Floor is controlled 1: Floor is not controlled	0xFFFF	×	
F14.07	Host computer function parameters	Bit0: Host computer connection selection 0: Communication is connected without keypad 1: Communication is connected with keypad Bit2&Bit1: Parallel baud rate selection 00: 50k 01: 125k 10: 20k 11: 10k Bit3 - Bit15: Unused	0	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F14.08	Homeliffit dedicated function setting	Bit0: Electronic star-delta function Bit1 - Bit3: Unused Bit4: EPB leveling parking selection 0: Single leveling parking with EPB 1: Double leveling parking with EPB Bit5: Back door address setting selection 0: The back door address is set from 24 + 1 1: The back door address is set from total + 1	0x11	×	
F14.09	Non-standard function enable setting	Bit0: Car call communication abnormal error report function Bit1: Keep the door open when the car call communication is abnormal 0: Not enabled 1: Enabled Bit2: Open the door when running contactor feedback error 1: Normally open door 0: Normal processing Bit3: Processing method of maintenance expiration 0: Base station stops 1: Acts according to F16 maintenance definition Bit4: Unintended cabin move warning function enable Bit5: Hall call button flashing function enable 0: Not enabled 1: Enabled Bit6: Can fault detection sensitivity level 0: High sensitivity 1: Low sensitivity Bit7: CAN communication fault level 0: Low priority 1: High priority Bit8: UCMP function in inspection mode 0: Not enabled 1: Enabled Bit9: Inspection box selection 0: For COOL100 1: For MTCC-V3-B/V3L-B	0x800	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F14.09	Non-standard function activating setting	Bit10: EPB with mains power supply enable 0: Prohibit 1: Allow Bit11: Manual door 0: Non-standard manual door 1: Standard manual door Bit12: Limit of emergency rescue undervoltage times 0: No limit 1: Run up to 3 times Bit13: Homelift hall call protocol selection 0: Dedicated protocol 1: Standard protocol Bit14: Unused Bit15: Elevator drive mode selection 0: Traction type 1: Forced driving type	0x800	×	
F14.10	Brake abnormal detection distance	6 - 9cm	7cm	×	
F15: Keypad display parameters					
F15.00	LCD keypad language	0: Chinese 1: English	0	○	
F15.01	LCD keypad display contrast	1 - 8	6	○	
F15.02	Small keypad display direction	0: Positive display, physical floor 1: Reverse display, physical floor 2: Positive display, hall call data 3: Reverse display, hall call data	0	○	
F15.03	Run display parameter 1 setting	0: Unused 1: Preset speed 2: Feedback speed 3: Output frequency 4: Running RPM 5: Output voltage 6: Output current 7: DC bus voltage 8: AI input voltage 9: Present height	2	○	
F15.04	Run display parameter 2 setting		3	○	
F15.05	Run display parameter 3 setting		6	○	
F15.06	Run display parameter 4 setting		0	○	
F15.07	Run display parameter 5 setting		0	○	
F15.08	Run display parameter 6 setting		0	○	
F15.09	Stop display parameter 1 setting		2	○	
F15.10	Stop display parameter 2 setting		0	○	
F15.11	Stop display parameter 3 setting		7	○	
F15.12	Stop display parameter 4 setting		0	○	
F15.13	Stop display parameter 5 setting		0	○	
F15.14	Stop display parameter 6 setting		0	○	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F16: Enhance function parameters					
F16.00	Current keep time after stop command	0 - 500ms	350ms	×	
F16.01	Fan control mode	0: Auto stop 1: Immediately stop 2: Always run when power on 3: Auto-control by module temperature	3	○	
F16.02	Fan control delay time	0.0 - 600.0s	300.0s	○	
F16.03	Brake unit action voltage	220V: 360 - 400V	380V	×	
		380V: 630 - 750V	720V		
F16.04	Contactora fault detect time	0.3 - 3.0s	2.0s	×	
F16.05	Fault shield	Bit0: E0038 and E0039 fault shield Bit1: E0024 fault shield Bit2: E0058 fault shield Bit3: E0059 fault shield Bit4: E0045 fault shield Bit5: Sincos CD break fault shield Bit6: Sincos CD signal deviation shield Bit7: UCMP E65 fault mask Bit8: CIC-B communication fault shield Bit9: Syn. motor static auto-tuning encoder fault shield 0: Not shielded 1: Shielded Bit10: Reset E65, E66 after power off 0: E65, E66 can not be reset 1: E65, E66 can reset Bit11: E0013 fault shield Bit12: Shield bypass running monitor fault signal Bit13: Shield clock chip read/write fault 0: Not shielded 1: Shielded Bit14 - Bit15: Unused	0x80	×	
F16.06	Car manual fan running time	0 - 14400s	30s		
F16.07	Elevator manufacturer selection	0 - 999	0	×	
F16.08 - F16.10 Manufacturer debugging parameter, prohibit to change					
F16.11	Star-delta contactor fault detection time	0.3 - 7.0s	5.0s	×	
F16.12	Governor start delay	50 - 5000ms	500ms	×	
F16.13	Governor stop delay	50 - 5000ms	500ms	×	
F16.14 - F16.24 Manufacturer debugging parameter, prohibit to change					

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F17: Fault protect parameters					
F17.00	The detection base of phase loss of input	0 - 100% (rated voltage of control panel)	30%	×	
F17.01	The detection time of phase loss of input	0.0 - 5.0s	1.0s	×	
F17.02	The detection base of phase loss of output	0 - 100% (rated current of control panel)	20%	×	
F17.03	The detection time of phase loss of output	0.0 - 20.0s	3.0s	×	
F17.04	Motor overload protect factor	20.0 - 110.0%	100.0%	×	
F17.05	Fault auto reset times	0 - 100 0: No auto-reset function	0	×	
F17.06	Fault auto reset interval	2.0 - 20.0s/times	5.0 s/times	×	
F17.07	Fault advanced parameter	Bit0: Fault relay action selection during automatic resetting Bit1: Fault relay action selection during undervoltage 0: Not act 1: Acts Bit2: When the elevator starts, the brake switch is automatically reset 0: Automatically reset 3 times 1: Not automatically reset Bit3: E66 fault can be manually reset 0: Cannot be reset manually 1: Can be reset manually Bit4: Three phase input phase loss detection 0: Detect 1: Not detect Bit5 - Bit15: Unused	0	○	
F17.08	Type of the 1 st fault (the farthest time)	E0001: Control panel output Acc. overcurrent E0002: Control panel output Dec. overcurrent E0003: Control panel output constant speed overcurrent E0004: DC bus voltage Acc. overvoltage E0005: DC bus voltage Dec. overvoltage E0006: DC bus voltage constant speed overvoltage E0007: Static current is too high E0008: Power module fault	0	*	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F17.10	Type of the 2 nd fault	E0009: Heatsink overheated E0010: Braking unit fault E0012: Parameter auto-tuning fault E0013: Soft start contactor disconnected E0014: Current detect fault E0015: Input phase loss E0016: Output phase loss E0017: Control panel overload E0018: Excessive speed deviation of traction machine	0	*	
F17.12	Type of the 3 rd fault	E0019: Traction machine overload E0020: Traction machine overheat E0021: MCB EEPROM read/write fault E0022: Keypad EEPROM read/write fault (display on the keypad only, control panel does not protect it) E0023: Parameter setting fault E0024: Input voltage detection fault E0025 - E0029: Unused	0	*	
F17.14	Type of the 4 th fault	E0030: Encoder reverse direction E0031: Encoder disconnection E0032: Traction machine over speed E0033: Loss of Z signal of ABZ encoder E0034: UVW signal error of UVW encoder E0035: CD phase error of sincos encoder E0036: Exceed the shortest distance E0037: Abnormal control board logic E0038: Up forced Dec. switch disconnection	0	*	
F17.16	Type of the 5 th fault	E0039: Down forced Dec. switch disconnection E0040: Elevator run timeout E0041: Safety circuit disconnection E0042: Door lock disconnection during running E0043: Up final limit signal disconnection during running E0044: Down final limit signal disconnection during running			
F17.18	Type of the 6 th fault	E0045: Up/down forced Dec. switch disconnection E0046: Re-leveling abnormal E0047: Door-closed contactor feedback abnormal E0048: OD fault E0049: CD fault E0050: Shaft self-learning fault E0051: CAN communication fault	0	*	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F17.20	Type of the 7 th fault	E0052: Hall call communication fault E0053: Door lock short-circuit fault E0054: Syn. star-delta contactor feedback abnormal E0055: Changed floor park fault E0056: Run contactor feedback abnormal E0057: Brake contactor feedback abnormal	0	*	
F17.22	Type of the 8 th fault	E0058: Leveling signal abnormal E0059: Receive OD and CD arrival signals at the same time E0060: Forced Dec. distance is too short E0061: Parallel group control communication abnormal E0062: Inspection run overcurrent E0063: Advanced open door abnormal E0064: Car slipping accident	0	*	
F17.24	Type of the 9 th fault	E0065: UCMP fault E0066: Brake force auto-checking fault E0067: Governor feedback abnormal E0068: CIC-B communication abnormal E0069: Logic fault E0070: Pit watered fault E0071: Over-load switch fault E0072: Unintended car move fault	0	*	
F17.26	Type of the 10 th fault	E0073: Normal running prohibition warning E0074: Internal fault E0075: External energy feedback fault E0076: External UPS fault E0077: EIO communication fault E0078: Clock chip fault E0079: External earthquake signal fault	0	*	
F17.09	Time of the 1st fault (month&day)	0101 - 1231	0	*	
F17.11	Time of the 2 nd fault (month&day)	0101 - 1231	0	*	
F17.13	Time of the 3 rd fault (month&day)	0101 - 1231	0	*	
F17.15	Time of the 4 th fault (month&day)	0101 - 1231	0	*	
F17.17	Time of the 5 th fault (month&day)	0101 - 1231	0	*	
F17.19	Time of the 6 th fault (month&day)	0101 - 1231	0	*	
F17.21	Time of the 7 th fault (month&day)	0101 - 1231	0	*	
F17.23	Time of the 8 th fault (month&day)	0101 - 1231	0	*	
F17.25	Time of the 9 th fault (month&day)	0101 - 1231	0	*	
F17.27	Time of the 10 th fault (month&day)	0101 - 1231	0	*	
F17.28	The latest fault type	0 - 4899	0	*	
F17.29	The latest fault time (month&day)	0101 - 1231	0	*	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F17.30	The latest fault time (hour:minute)	00:00 - 23:59	00:00	*	
F17.31	The latest fault running speed	0.000 - 4.000m/s	0.000m/s	*	
F17.32	The latest fault DC bus voltage	0 - 999V	0V	*	
F17.33	The latest fault output current	0.0 - 999.9A	0.0A	*	
F18: PWM control parameters					
F18.00	Carrier frequency	1 - 16kHz	Depend on model	×	
F18.01	Carrier frequency auto adjust	0: Not enabled	0	×	
F18.02	PWM overmodulation enable	1: Enabled	1	×	
F18.03	PWM overmodulation mode	0: Two phase/three phase switch 1: Three phase	1	×	
F19: Distance control parameters					
F19.00	Total floor	2 - 48	5	×	
F19.01	Current floor	1 - F19.00	1	×	
F19.02	Current height	0.00 - 299.99m	0.00m	×	
F19.03	Leveling distance adjustment/ parking allowance of distance control	0 - 60mm F19.06 = 0, F19.03 is the leveling distance adjustment F19.06 = 1, F19.03 is the parking allowance of distance control	30mm	×	
F19.04	Leveling position correction coefficient	0 - 750mm	0mm	×	
F19.05	Dec. point through output adjustment	0.050 - 2.000s	0.250s	×	
F19.06	Direct parking selection	0: Direct parking mode 0 (without creep) 1: Direct parking mode 1 (with creep)	0	*	
F19.07	Highest speed of curve 1	0.000m/s - F00.02	0.000m/s	*	
F19.08	Highest speed of curve 2		0.000m/s	*	
F19.09	Highest speed of curve 3		0.000m/s	*	
F19.10	Highest speed of curve 4		0.000m/s	*	
F19.11	Highest speed of curve 5		0.000m/s	*	
F19.12	Up forced Dec. 1 position	0.00 - 300.00m	0.00m	×	
F19.13	Down forced Dec. 1 position	0.00 - 300.00m	0.00m	×	
F19.14	Up forced Dec. 2 position	0.00 - 300.00m	0.00m	×	
F19.15	Down forced Dec. 2 position	0.00 - 300.00m	0.00m	×	
F19.16	Up forced Dec. 3 position	0.00 - 300.00m	0.00m	×	
F19.17	Down forced Dec. 3 position	0.00 - 300.00m	0.00m	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F20: Floor height parameters					
F20.00	High bit of floor height 1	0 - 50000 Parameter number of floor height high bit = 2N - 2 Parameter number of floor height low bit = 2N - 1	0	×	
F20.01	Low bit of floor height 1		0	×	
F20.02	High bit of floor height 2		0	×	
F20.xx	High bit of floor height N		0	×	
F20.xx	Low bit of floor height N		0	×	
F20.91	High bit of floor height 46	The floor height = 50000 × high bit of floor height + low bit of floor height	0	×	
F20.92	High bit of floor height 47		0	×	
F20.93	Low bit of floor height 47		0	×	
F21: Elevator parameters					
F21.00	Parking base station	1 - F19.00	1	×	
F21.01	Fire base station	1 - F19.00	1	×	
F21.02	Elevator lock base station	1 - F19.00	1	×	
F21.03	VIP floor	0 - F19.00	0	×	
F21.04	Offset real floors	0 - 48	0	×	
F21.05	Group control number	1: Single elevator operation 2: Duplex elevator operation 3 - 8: Group control operation	1	×	
F21.06	Elevator number	1 - 8	1	×	
F21.07	Service floor 1	0 - 0xFFFF	0xFFFF	×	
F21.08	Service floor 2	0 - 0xFFFF	0xFFFF	×	
F21.09	Service floor 3	0 - 0xFFFF	0xFFFF	×	
F21.10	Time-sharing service 1 start time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.11	Time-sharing service 1 end time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.12	Time-sharing service 1 floor 1	0 - 0xFFFF (set floor 16 - 1)	0xFFFF	○	
F21.13	Time-sharing service 1 floor 2	0 - 0xFFFF (set floor 32 - 17)	0xFFFF	○	
F21.14	Time-sharing service 1 floor 3	0 - 0xFFFF (set floor 48 - 33)	0xFFFF	○	
F21.15	Time-sharing service 2 start time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.16	Time-sharing service 2 end time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.17	Time-sharing service 2 floor 1	0 - 0xFFFF (set floor 16 - 1)	0xFFFF	○	
F21.18	Time-sharing service 2 floor 2	0 - 0xFFFF (set floor 32 - 17)	0xFFFF	○	
F21.19	Time-sharing service 2 floor 3	0 - 0xFFFF (set floor 48 - 33)	0xFFFF	○	
F21.20	Peak 1 start time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.21	Peak 1 end time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.22	Peak 1 floor	1 - F19.00	1	○	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F21.23	Peak 2 start time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.24	Peak 2 end time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.24	Peak 2 end time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.25	Peak 2 floor	1 - F19.00	1	○	
F21.26	Down-collective 1 start time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.27	Down-collective 1 end time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.28	Down-collective 2 start time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.29	Down-collective 2 end time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.30	Up-collective 1 start time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.31	Up-collective 1 end time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.32	Up-collective 2 start time	00:00 - 23:59 (hour:minute)	00:00	○	
F21.33	Up-collective 2 end time	00:00 - 23:59 (hour:minute)	00:00	○	
F22: Door motor parameters					
F22.00	Door motor number	1 - 2	1	×	
F22.01	Front door service floor 1	0 - 0xFFFF (set floor 16 - 1)	0xFFFF	○	
F22.02	Front door service floor 2	0 - 0xFFFF (set floor 32 - 17)	0xFFFF	○	
F22.03	Front door service floor 3	0 - 0xFFFF (set floor 48 - 33)	0xFFFF	○	
F22.04	Back door service floor 1	0 - 0xFFFF (set floor 16 - 1)	0xFFFF	○	
F22.05	Back door service floor 2	0 - 0xFFFF (set floor 32 - 17)	0xFFFF	○	
F22.06	Back door service floor 3	0 - 0xFFFF (set floor 48 - 33)	0xFFFF	○	
F22.07	OD time protection	5 - 99s	10s	○	
F22.08	CD time protection	5 - 99s	15s	○	
F22.09	Limited times of OD/CD overtime	0 - 20	0	○	
F22.10	OD/CD torque holding	0: Without OD/CD torque holding 1: With OD torque holding 2: With CD torque holding 3: With OD&CD torque holding 4: Run process with CD torque holding	3	○	
F22.11	Hall call OD holding time	1 - 30s	5s	○	
F22.12	Car call OD holding time	1 - 30s	5s	○	
F22.13	Door state at waiting elevator	0: Normal closes the door 1: Base station OD waiting elevator 2: Each floor OD waiting elevator	0	○	
F22.14	Holding time for base station OD	1 - 30s	10s	○	
F22.15	Delay time of OD holding	10 - 1000s	30s	○	
F22.16	Arrival chime output time	0: Always output at arrival 1 - 10: Output pulse signals for 1 - 10s separately	0	○	
F22.17	Open-through door control mode	0: Open-through door control mode 0 1: Open-through door control mode 1 2: Open-through door control mode 2 3: Open-through door control mode 3	0	○	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F22.18	Arrival chime delay time	0 - 10000ms	500ms	○	
F23: Time parameters					
F23.00	Free return base station time	0 - 240min	0min	○	
F23.01	Delay time of close lighting and fan	0 - 240min 0: No close delay function	2min	○	
F23.02	Largest floors run interval	0 - 45s	45s	×	
F23.03	Clock: year	2000 - 2100	Actual	○	
F23.04	Clock: month	1 - 12	Actual	○	
F23.05	Clock: day	1 - 31	Actual	○	
F23.06	Clock: hour	00 - 23	Actual	○	
F23.07	Clock: minute	00 - 59	Actual	○	
F23.08	Clock: second	00 - 59	Actual	○	
F24: Display parameters of floor information					
F24.00	Collective mode	0: Full collective 1: Up collective 2: Down collective	0	○	
F24.01	1 st floor display	Two high bits represent ten of floors Two low bits represent unit of floors • The 15 th floor displays 15, set F24.15 = 0105; • The first floor displays 1, set F24.01 = 1801	1901	○	
F24.02	2 nd floor display		1902	○	
...	...		...		
F24.09	9 th floor display		1909	○	
F24.10	10 th floor display	00: Display "0" 23: Display "C"	0100	○	
F24.11	11 th floor display	01: Display "1" 24: Display "D"	0101	○	
...	...	02: Display "2" 25: Display "E"	...	○	
F24.19	19 th floor display	03: Display "3" 26: Display "F"	0109	○	
F24.20	20 th floor display	04: Display "4" 27: Display "I"	0200	○	
F24.21	21 th floor display	05: Display "5" 28: Display "J"	0201	○	
...	...	06: Display "6" 29: Display "K"	...		
F24.29	29 th floor display	07: Display "7" 30: Display "N"	0209	○	
F24.30	30 th floor display	08: Display "8" 31: Display "O"	...		
F24.31	31 th floor display	09: Display "9" 32: Display "Q"	0209	○	
...	...	10: Display "A" 33: Display "S"	0300	○	
F24.39	39 th floor display	11: Display "B" 34: Display "T"	0301	○	
F24.40	40 th floor display	12: Display "G" 35: Display "U"	...		
F24.41	41 th floor display	13: Display "H" 36: Display "V"	0309	○	
...	...	14: Display "L" 37: Display "W"	0400	○	
F24.47	47 th floor display	15: Display "M" 38: Display "X"	0401	○	
F24.48	48 th floor display	16: Display "P" 39: Display "Y"	...		
		17: Display "R" 40: Display "Z"	0407	○	
		18: Display "..." 41: Display "LB"	...		
		19: No display 42: Display "1/2"	0408	○	
		20: Display "12"			
		21: Display "13"			
		22: Display "23"			
		44 - 99: No display			

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F25: Test running parameters					
F25.00	Test floor 1	0 - F19.00	0	○	
F25.01	Test floor 2		0	○	
F25.02	Test floor 3		0	○	
F25.03	Test times	0 - 60000	0	○	
F25.04	Special test parameter	Bit0: Hall call enable Bit1: OD enable 0: Enabled 1: Not enabled Bit2: Running when overload enable 0: Not enabled 1: Enabled Bit3: Limit switch enable 0: Valid 1: Invalid Bit4: Random run enable Bit5: Test running floor by floor for 3 hours Bit6: Analog overload switch action Bit7: Start UCMP test Bit8: Start brake force test 0: Not enabled 1: Enabled Bit9 - Bit15: Unused	0	×	
F25.05	Parallel automatic return to base station time	10 - 9999s	30s	○	
F25.06	Set days of maintenance	0 - 99 day	0day	○	
F25.07	CIC-B parameter setting	Bit0: CIC-B function enabled 0: Not enabled 1: Enabled Bit2&Bit1: Max. number of reminders for elevator fault messages 00: 1 01: 2 10: 3 11: 4 Bit3: Interval time of elevator fault SMS reminder 0: One hour interval 1: Two hour interval	0	○	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F25.07	CIC-B parameter setting	Bit4: SMS reminder of maintenance time arrival 0: Not enabled 1: Enabled Bit5: SMS reminder of elevator fault 0: Enabled 1: Not enabled Bit6 - Bit15: Unused	0	○	
F26: Elevator function selections					
F26.00	Call elevator floor setting	0 - F19.00	0	○	
F26.01	Shaft self-learning	0: Does not work 1: Start shaft self-learning (not clear F27.01 - F27.25) 2: Start shaft self-learning (clear F27.01 - F27.25) 3: Automatic back to base floor and automatically start shaft self-learning (not clear F27.01 - F27.25) 4: Automatic back to base floor and automatically start the shaft self-learning (clear F27.01 - F27.25)	0	×	
F26.02	Driver function parameter	Bit0: Driver function enable 0: Without driver function 1: With driver function Bit2&Bit1: Hall call at driver mode 00: Buzzer no action, car call no flashing 01: Buzzer no action, car call flashing 10: Buzzer action, car call no flashing 11: Buzzer action, car call flashing Bit3: CD arrival without registration command and auto open door 0: Auto open door 1: Do not auto open door Bit4: Parallel/group control at driver mode 0: Can parallel/group control 1: Out off parallel/group control Bit5: Clear the call signal when enter driver mode 0: For the first time enter driver mode without clearing car/hall call signal 1: For the first time enter driver mode clearing car/hall call signal	0x113	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.02	Driver function parameter	Bit6: Response the hall call in driver mode 0: Response the hall call 1: Not response the hall call (flashing inside the car for reminding) Bit7: Modes of close the door 0: To close the door via long pressing the closed button 1: Jog to close the door Bit8: Lock elevator in driver mode 0: Can not lock the elevator 1: Can lock elevator Bit9: Manual door closes automatically 0: Manual door automatically closes 1: Close the door by pressing the close button Bit10: Manual door mode 2 enabled 0: Not enabled 1: Enabled Bit11: Manual door energy saving mode 0: Normal 1: New energy saving method Bit12: Manual door close arrival judgement 0: Close arrival according to the door close time 1: Close arrival when door lock connected Bit13: Unused Bit14: Back to leveling area when the up or down leveling is break away during the closing arrival process 0: Not handled 1: Back to leveling area Bit15: Manual fan mode selection 0: Press the button fan to run, then press the button to stop 1: Press the button on the fan to run, stop after executing time set by F16.06 <i>Remarks: Bit9 - Bit15 function is independent of the driver mode</i>	0x113	×	
F26.03	Firefighting function		1	×	
F26.04	OD re-leveling function	0: Without corresponding function	0	×	
F26.05	Advanced open function	1: With corresponding function	0	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.06	VIP floor function	0: No open	0	×	
F26.07	Isolated run	1: Open	0	×	
F26.08	Elevator function parameters 5	Bit2 - Bit0: CTB X9 function selection 000: Leveling input function is not enabled 001: Up leveling NO input 010: Up leveling NC input 011: Door area NO input 100: Door area NC input 101, 110, 111: No meaning Bit3: Unused Bit6 - Bit4: CTB X10 function 000: Leveling input function is not enabled 001: Down leveling NO input 010: Down leveling NC input 011: Door area NO input 100: Door area NC input 101, 110, 111: No meaning Bit7: Unused Bit9&Bit8: CTB X11 function 00: Inspection up input function is not enabled 01: Inspection up NO input 10: Inspection down NC input 11: No meaning Bit11&Bit10: CTB X12 function 00: Inspection down input function is not enabled 01: Inspection down NO input 10: Inspection down NC input 11: No meaning Bit13&Bit12: CTB X13 function 00: Door motor over-heat detection is not enabled 01: Door motor over-heat NO input 10: Door motor over-heat NC input 11: No meaning Bit15&Bit14: CTB X14 function 00: Inspection input function is not enabled 01: Inspection NO input 10: Inspection NC input 11: No meaning	0x8500	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.09	Elevator function parameters 6	Bit0: Down-collective service Bit1: Up-collective service Bit2: Peak service 0: No open 1: Open Bit3: Firefighting service 0: No function 1: Have function Bit4: OD re-leveling function Bit5: Advanced OD function Bit6: VIP layer function Bit7: Isolated run 0: No open 1: Open Bit8: Leveling buzzer 0: On 1: Off Bit9 - Bit15: Unused	0	×	
F26.10	Elevator function parameters 7	0 - 0xFFFF	0	×	
F26.11	Miss delete car command	0: No open 1: Double-click to cancel floor command 2: Long press to cancel floor command 3: Single click to cancel floor command	1	×	
F26.12	Inspection parameter setting	Bit0: Inspection auto close door 0: Inspection without close door 1: Inspection auto close door Bit1: Inspection run over-current detection 0: Without limiting 110% rated current 1: With limiting 110% rated current Bit2: Stop mode selection at inspection 0: Immediate stop 1: Dec. stop Bit3: Detect door lock short-circuit fault at inspection mode Bit4: Detect up/down forced simultaneous operation at inspection mode 0: Detect 1: Do not detect	0x3D	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.12	Inspection parameter setting	Bit5: Detect open/close door simultaneous operation at inspection mode 0: Detect 1: Do not detect Bit6: Door motor non-service floor allow open/close door at inspection 0: Do not allow open/close door 1: Allow open/close door Bit7: Detect the leveling switch abnormality Bit8: Detect the door motor CD arrival in inspection running 0: Do not detect 1: Detect Bit9: Forced Dec. stop at ground and top floor in inspection running 0: Not stop 1: Stop Bit10: Open door at non-leveling area in inspection running 0: Do not allow to open the door 1: Allow to open the door Bit11: Output loop detection mode 0: Only detect in inspection mode 1: Detect in both inspection and normal mode Bit12: Curve selection in inspection run 0: Linear Acc./Dec. 1: S curve Acc./Dec. Bit13: Buzzer prompt in inspection running 0: No prompt 1: Intermittent buzzer prompt Bit14: Brake open in zero-speed inspection running brake 0: Do not open 1: Open Bit15: Buzzer act with fire signal in inspection mode 0: Act 1: Do not act	0X3D	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.13	Forced close door	0: Not open 1: Open	0	×	
F26.14	Door lock short detection function	Bit0: Door lock short-circuit detect function 0: Not open 1: Open Bit1: Door lock short-circuit detect mode 0: Test total door lock circuit together 1: Test each door lock circuit independently Bit2: Auto-reset at door lock short-circuit fault 0: No auto-reset 1: Auto-reset Bit3: Door-closed output to detect door lock short-circuit 0: Do not open 1: Open Bit4: X28 high voltage door lock short-circuit input 0: Invalid 1: Valid Bit5: Detection of car door switch adhesion or door closing signal adhesion after 3s of door opening 0: Detect 1: Not detect Bit6: Car door switch adhesion detection conditions 0: Detected when door lock is disconnected 1: Detected when door lock is connected and disconnected Bit7: X28 high voltage signal as door lock 3 detection signal 0: Invalid 1: Valid Bit8: Door lock shorted E53 fault UCMP protection 0: No protection 1: Protection Bit9 - Bit15: Unused	0x1	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.15	Emergency running parameter setting	Bit0: Emergency self-rescue timeout protection 0: Protection 1: No protection Bit1: PM Syn. motor emergency auto-running 0: Not open 1: Open Bit2: Emergency running direction judgment 0: Auto judge 1: Judge in accordance to weighing signal Bit3: Fixed up running 0: This bit should not decide the direction 1: Fixed up running Bit4: Fixed down running 0: This bit should not decide the direction 1: Fixed down running Bit5: Open the function of auto-running change into driving 0: Not open 1: Open Bit6: Mode of auto-running change into driving 0: Time setting, for 50s not yet reached the leveling area change into driving 1: Speed setting, after auto-running for 10s and the speed is smaller than F26.28 Bit7: Buzzer prompt mode in emergency running 0: Continuous 1: Intermittent Bit8: Auto-compensation when start emergency running 0: Not open 1: Open Bit9: Door motor action in emergency mode 0: Keep open 1: Close after open arrival	0xD081	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.15	Emergency running parameter setting	Bit10: Brake action times in direction atuo-judgement in emergency mode 0: Act for two times 1: Act for one time Bit11: Protection time selection In emergency running timeout 0: 60s protection 1: Automatic calculation based on running speed and floor distance Bit12: Inspection mode judgment in emergency running 0: Judge based on external terminal 1: Judge based on input voltage and external terminal Bit13: Emergency run command selection 0: UPC output contactor feedback 1: External ARD provided Bit14: Dec. parking mode 0: Dec. to stop at the up and down leveling 1: Dec. to stop at leveling Bit15: Unused	0xD081	×	
F26.16	Added function selection	Bit0: Stop without run command and auto open door 0: Do not auto open door 1: Auto open door Bit1: Parallel waiting elevator function selection 0: Dispersion waiting elevator 1: Centralization waiting elevator Bit2: Auto return to base station after emergency running 0: Auto return to base station 1: Do not return to base station Bit3: Cleared conditions of firefighting back to base station mode 0: Power off or firefighting switch is invalid 1: Fireman input valid and then clear Bit4: Non-service floor is allowed to be service at fireman operating elevator 0: Not allow 1: Allow	0x405	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.16	Added function selection	Bit5: Non-service floor is allowed to open the door at fireman operating door motor 0: Not allow 1: Allow Bit6: OD selection at firefighting back to base station power-on 0: Open door 1: No open door Bit7: E0041 clear the car call Bit8: E0051 clear the car call 0: Clear the car call when fault 1: Do not clear the car call when fault Bit9: Manual door function 0: Not open 1: Open Bit10: Selections of up/down final limit switch 0: Use the actual up/down final limit switch 1: Use the synthesis of leveling floor and end station switch Bit11: Automatically back to leveling 0: Due to meeting the running condition 1: Back to leveling for the setting run command Bit12: Car energy-saving selections at open door waiting for elevator 0: Not energy-saving 1: Energy-saving Bit13: Floor registration number at firemen mode 0: Only register one car call 1: Can register more then one car call Bit14: Detect the timeout at automatic back to leveling 0: Detect 1: Do not detect Bit15: Reverse cancelling 0: Cancel car call in normal reverse 1: Not cancel car call in normal reverse	0x405	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.17	Contact or contact adhesion fault auto reset	0: Not open	0	×	
F26.18	Forced Dec. switch adhesion detection	1: Open	1	×	
F26.19	Syn. motor star-delta contactor parameter setting	Bit0: Syn. star-delta contactor control selection 0: No control the output 1: Control the output Bit1: Syn. star-delta contactor NO or NC setting 0: NC 1: NO Bit2: HDRU fault level 0: Warning, continue to run 1: Stop running Bit3: STO function enable 0: Not open 1: Open Bit4: Run timeout fault handling mode 0: Stop after reporting a fault 1: Still run after reporting a fault Bit5: LOCK signal usage from LOP 0: Lock elevator 1: Close door Bit6: Fire signal usage from LOP 0: Fire signal 1: Open door Bit7: Small keypad undervoltage and E41 display 0: Priority to display undervoltage 1: Priority to display E41 Bit8: MRL 12V power supply display 0: Priority to display speed and running direction 1: Priority to display floor fault information Bit9: Emergency mode Dec. parking mode 0: Dec. to stop 1: Brake open and stop	0x8801	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.19	Syn. motor star-delta contactor parameter setting	Bit10: Leveling signal optimization processing 0: Normally processed 1: Software optimization processing Bit11: Emergency mode Dec. stop to determine bus voltage 0: Do not determine the bus voltage 1: Determine the bus voltage Bit12: Idle back to the base station to open the door 0: Open the door 1: Do not open Bit13: Remove the direction signal when no registered floor in front 0: Remove the direction signal when close the door 1: Remove the direction signal when open the door Bit14: Open door hold time is automatically associated with the controller temperature 0: Not associated 1: Associated Bit15: Inspection command processing in automation running 0: Switch to inspection mode after stop directly 1: Switch to inspection mode after decelerating to stop	0x8801	×	
F26.20	Arrival chime output selection at night	0: Output 1: No output	1	×	
F26.21	Open-through door control	0: Not open 1: Open	0	×	
F26.22	Added function selection 2	Bit0: Car call to open door at current floor 0: Not open door 1: Open door Bit1: Buzzer reminder of car call floor registration 0: Reminder 1: Not reminder	0x4080	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.22	Added function selection 2	Bit2: Electromagnetic valve output mode 0: Keep output with car closing command 1: Interval output with car closing command Bit3: Start service floor in group control 0: Invalid 1: Floor set service floor via communication in group control Bit4: External initial mode of fire-fighting return to base station 0: Level mode 1: Pulse trigger mode Bit5: No-trapped elevator optional card function opened 0: Not open 1: Open Bit6: No-trapped door lock sequency 0: The door lock are arranged from 1st floor to top floor 1: The door lock are arranged from the top floor to the 1st floor Bit7: Door close arrival but no door lock connection 0: Keep closing 1: Keep the door open after closing the door 3 times repeatedly Bit8: Control mode in front and back door opening delay 0: Simultaneous control 1: Separate control Bit9: Keypad fault turns to faulty mode display 0: Turn to faulty mode display 1: Keep the original menu Bit10: Service floor setting in isolated run 0: Invalid 1: Valid Bit11: Buzzer reminder in manual door lock disconnection 0: No reminder 1: Reminder	0x4080	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.22	Added function selection 2	Bit12: Semi-auto car door closing conditions 0: Normal close 1: Close after hall door lock connected Bit13: Automatically disconnect door-closed contactor when UCMP test 0: Disconnect the door-closed contactor by software 1: Disconnect the door-closed contactor by hardware Bit14: The system floor is associated with the door motor service floor 0: Associated 1: Not associated Bit15: Car lights off in fire-fight back to the base station 0: Normal processing 1: Off during the process of returning base station	0x4080	×	
F26.23	Added function selection 3	Bit0: Door open function of door open delay button 0: Door open delay button not work in door closing process 1: Press door open delay button to open door in door closing process Bit1, Bit2: Unused Bit3: Detect ground short before starting 0: Enabled 1: Not enabled Bit4: Elevator positon judgement is added in door open condition 0: Not related with positon 1: Related with positon Bit5: Unused Bit6: Door open/closing fault can be reset by door closing button 0: Can not reset 1: Can reset Bit7: Leveling switch fault processing 0: Stop in Dec. 1: Stop with fault shows	0x41	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.23	Added function selection 3	Bit8: Output condition of door open command 0: Door open command is given after controller output voltage is off 1: Door open command is given after detecting output relay disconnection when output voltage is off Bit9: The group control board opens the single elevator lock and enters the driver mode function 0: Not allowed 1: Allowed Bit10: Not respond to the door opening signal outside the hall when full load 0: Respond 1: Not respond Bit11: Front door service floor is related to system time 0: Not related 1: Related to the F21.20 and F21.21 Bit12: Back door service floor is related to system time 0: Not related 1: Related to the F21.23 and F21.24 Bit13: Small keypad displays fault code 0: Display 1: Do not display Bit15&Bit14: Distance control margin with crawler segment 00: The margin is 5cm 01: The margin is 10cm 10: The margin is 20cm 11: The margin is 30cm	0x41	×	
F26.24	Position deviation too large and return to base station	0: Do not return to the base station 1: Return to the base station	1	×	
F26.25	Position deviation too large and base setting	180 - 1200mm	400mm	×	
F26.26	Functions of optional card enable	Bit0: HDRU grid connection enable 0: Not enabled 1: Enabled Bit1: True color LCD configuration in car 0: No true color LCD configuration	0	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.26	Functions of optional card enable	1: True color LCD configuration Bit2: True color LCD display mode 0: Vertical display 1: Horizontal display Bit5&Bit4&Bit3: Hall call protocol type 000: Standard 001: MNC 010: Used 011: General protocol Bit6: Residential area monitoring CIC converter card enable 0: Not enable 1: Enable Bit7 - Bit15: Unused	0	×	
F26.27	Firefighting second base station	0 - F19.00	0	×	
F26.28	Min. speed judgment at auto-running	0.005 - 0.630m/s	0.010m/s	×	
F26.29	Emergency return leveling and stop delay	0.000 - 3.000s	0.100s	×	
F26.30	Return leveling and stop delay	0.000 - 3.000s	0.100s	×	
F26.31	Hall call address verification	0: Normal display of hall call 1: The hall call floor display data is changed to display hall call address	0	×	
F26.32	Added hall call parameters	Bit0: Hall call display automatically arranged 0: Invalid 1: Valid Bit1: Lock elevator and firefighting at any floor 0: Not enabled 1: Enabled Bit2: E52 fault clear hall call registration information 0: Clear 1: Not clear Bit3: Scroll speed selections of hall call 0: Associated with the elevator speed 1: Not associate with the elevator speed Bit4: Arrival chime output selection 0: Hall call, car top to the station normal output 1: Only base station have output	0x2	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.32	Added hall call parameters	Bit5: Hall call into the display self-test status 0: Hall call normal display 1: Hall call display self-test mode Bit6: Small keypad standby display 0: Display direction, floor 1: MRL display speed, leveling floor Bit7 - Bit9: Unused Bit10: Hall call which do not distinguish up and down 0: Not enabled 1: Enabled Bit11 - Bit15: Unused	0x2	×	
F26.33	Elevator start working time	00:00 - 23:59	00:00	×	
F26.34	Elevator stop working time	00:00 - 23:59	00:00	×	
F26.35	Hall call parameter setting	Bit0: Digital arrow display mode 0: Scroll 1: Fixed Bit1: Arrow display format 0: Big arrow 1: Small arrow Bit2: Direction key input type Bit3: Fire signal input type Bit4: Lock signal input type 0: NO 1: NC Bit5: Floor switching display 0: Dynamic scrolling 1: Directly over-switch Bit6: Single number center display 0: Centered display 1: Unilateral display Bit7: Energy saving display 0: Enabled 1: Not enabled Bit9&Bit8: LCD display brightness adjustment 00: Low brightness 01: Medium brightness 10: high brightness 11: Highest brightness	0x200	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F26.35	Hall call parameter setting	Bit10: Hall call board display fault code 0: Not display 1: Display Bit11: Manufacturer protocol compatible 0: Mode 0 1: Mode 1 Bit12 - Bit15: Unused	0x200	×	
F26.36	Hall call parameter setting confirm	0: No action 1: Hall call parameter setting confirming	0	×	
F26.37	Hall call HCB-H indicator 1 meaning	0: No function 1: Full load indication 2: Inspection instructions 3: Out of service instruction 4: Overload indication 5: Fault indication	1	×	
F26.38	Hall call HCB-H indicator 2 meaning		2	×	
F26.39	Car call HCB-H indicator 1 meaning		4	×	
F26.40	Car call HCB-H indicator 2 meaning		5	×	
F27: Elevator adjustment enhanced function					
F27.00	Leveling sensor delay	0 - 50ms	4ms	×	
F27.01	Leveling fine-tuning mode	0: F27.02 - F27.25 each parameter can adjust every two floors 1: F27.02 - F27.25 each parameter can adjust every one floor	0	×	
F27.02	Leveling adjustment record 1-2 Up/down leveling adjustment for the 1 st floor	00000 - 60060	30030	×	
F27.03	Leveling adjustment record 3-4 Up/down leveling adjustment for the 2 nd floor	00000 - 60060	30030	×	
...	...	00000 - 60060	30030	×	
F27.10	Leveling adjustment record 17-18 Up/down leveling adjustment for the 9 th floor	00000 - 60060	30030	×	
F27.11	Leveling adjustment record 19-20 Up/down leveling adjustment for the 10 th floor	00000 - 60060	30030	×	
F27.12	Leveling adjustment record 21-22 Up/down leveling adjustment for the 11 th floor	00000 - 60060	30030	×	
F27.13	Leveling adjustment record 23-24 Up/down leveling adjustment for the 12 th floor	00000 - 60060	30030	×	
...	...	00000 - 60060	30030	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F27.20	Leveling adjustment record 37-38 Up/down leveling adjustment for the 19 th floor	00000 - 60060	30030	×	
F27.21	Leveling adjustment record 39-40 Up/down leveling adjustment for the 20 th floor	00000 - 60060	30030	×	
F27.22	Leveling adjustment record 41-42 Up/down leveling adjustment for the 21 th floor	00000 - 60060	30030	×	
F27.23	Leveling adjustment record 43-44 Up/down leveling adjustment for the 22 th floor	00000 - 60060	30030	×	
F27.24	Leveling adjustment record 45-46 Up/down leveling adjustment for the 23 th floor	00000 - 60060	30030	×	
F27.25	Leveling adjustment record 47-48 Up/down leveling adjustment for the 24 th floor	00000 - 60060	30030	×	
F27.26	Program control selection 1	Bit0: Flashing prompt at car/hall call arrival Bit1: Double-click to cancel OD delay command function 0: Not open 1: Open Bit2: Priority function of car call 0: Invalid 1: If there is car call, it will not response hall call Bit3: No hall call display when elevator locked 0: No hall call display 1: Normal hall call display Bit4: Small keypad displays fault code 0: Display 1: Not display Bit5: Small keypad allows parameter auto-tuning Bit6: Small keypad allows modifying the encoder direction 0: Not allow 1: Allow	0x7061	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F27.26	Program control selection 1	Bit7: CD button closes the door without OD arrival 0: Can not close 1: Can close Bit8: Door state when elevator locked 0: Close door and lock elevator 1: Open door and lock elevator Bit9: Fireman run at low speed to open/close the door 0: Not open/close the door at low speed 1: Open/close the door at low speed Bit10: Buzzer acts when firefighting back to base station Bit11: Buzzer acts when excessive position deviation 0: Act 1: Not act Bit12: E38, E39 fault auto-reset Bit13: E45 fault auto-reset Bit14: E55 fault auto-reset 0: Not auto-reset when the condition is met 1: Up to 3 times resets Bit15: Ultra short floor function 0: Invalid 1: Valid	0x7061	×	
F27.27	Program control selection 2	Bit0: Safety circuit fault priority processing 0: Fault level is normal 1: Fault level is high Bit1: Door lock fault detection 0: Normal detection 1: Quick detection Bit2: E43, E44 fault auto reset 0: Not reset automatically 1: Automatic reset Bit3: Single door car call slave instructions is used fo disability 0: Invalid 1: Valid	0x9C07	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F27.27	Program control selection 2	Bit4: Use of the folding instructions 0: Disability 1: Back door Bit5: Bend the car call command 0: Invalid 1: Valid Bit6: Not enabled hall call board disability function Bit7: Ordinary hall call disabled function Bit8: Slipping protection function enable at stop 0: Not enabled 1: Enabled Bit11&Bit10&Bit9: Car call display protocol 000: Standard 001: MNC 010: Unused 011: IKS 100: General protocol 101: EXXT Other: Unused Bit12: Return to base station when E38/E39 0: Not return to base station 1: Return to base station Bit13: Car movement monitoring output is automatically reset 0: Auto reset (auto reset when door lock connected) 1: Manual reset (report E0064) Bit14: Power-down recovery in firefighting running 0: Normal processing 1: Direct firefighting run Bit15: Allow small keypad to modify the elevator running direction 0: Not allowed 1: Allow	0x9C07	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F27.28	Program control selection 3	Bit0: Light curtain judgement for OD arrival 0: Light curtain work 1: Light curtain not work Bit1: Exit fireman mode at fireman base station 0: Exit by fireman switch 1: Can not exit by fireman switch Bit2: Hall call floor display in fireman mode 0: Have floor display 1: No floor display Bit3: Fault auto-reset 0: Fault can not be reset 1: Auto-reset 1 time per hour Bit4: Reverse logic of MCB light 0: Do not reverse 1: Reverse Bit5: Manual door light curtain stop in Dec. 0: Don't process 1: Stop in Dec. Bit6: Brake protection by door lock 0: Brake protection is excuted when door lock is disconnected 1: Brake protection is excuted both in connection and disconnection of door lock Bit7: Leveling direction in terminal station 0: Back to leveling nearby 1: Back to leveling far from terminal station Bit8: Keep parallel elevator idle 0: Invalid 1: Valid Bit9: Judge CD arrival during back to leveling 0: Judged 1: Not judged	0x21	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F27.28	Program control selection 3	Bit10: Auto-closing door without OD arrival signal 0: Can not auto-close door 1: Auto-close door when there is without OD arrival signal after time set by F22.03 Bit11: Forced Dec. switch type 0: Ordinary 1: Touchable Bit12: Brake abnormal detection adhesion 0: Not detect 1: Detect Bit13: Car slipping detection judged by door lock 0: Detect when door lock connected 1: Judged by by F27.28 Bit6 Bit14: Detect output circuit whether is normal Bit15: Detecting car slip in stop 0: Not detect 1: Detect	0x21	×	
F27.29	Program control selection 4	Bit1&Bit0: Elevator selection in same floor in parallel 00: Elevator which has less running times 01: Main elevator 10: Slave elevator 11: Slave elevator Bit2: Centralized standby and return to base station mode 0: Return to the respective base station 1: Return to the nearest base station Bit4&Bit3: Door state when emergency stop at door area 00: Keep OD 01: Keep CD 10, 11: Keep original door state Bit5: OD/CD arrival signal type 0: Level signal 1: Edge trigger with self-holding Bit6: Light curtain action of front and back door 0: Seperately act	0	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F27.29	Program control selection 4	1: Act at the same time Bit7: Door motor action after OD/CD fault for 30s 0: Keep OD 1: Not output OD/CD signal Bit8: Fault reset selection 0: Fault can be reset after power off 1: Only keypad can be used to reset fault Bit9: Buzzer remind when continuous actions of light curtain board are over 15s 0: No reminder 1: Interval buzzer reminder Bit10: Overtime detection during shaft self-learning 0: Detect 1: Not detect Bit11: Detecting time extended by 15s when back to leveling overtime 0: Not extend 1: Extend Bit12: Overload detection when door lock connected 0: Detect 1: Not detect Bit13: CD action selection in VIP mode 0: Door closing in continiouse pressing of closing button 1: Door closing in pressing button for only one time Bit14: Enable assist overload detection 0: Not enabled 1: Enabled Bit15: Take disabled up/down call signal as current floor OD/CD signal 0: Invalid 1: Valid	0	×	
F27.30	Latest fault subcode	0 - 9999	0	×	
F27.31	Latest elevator setting speed	0.000 - 4.000m/s	0.000m/s	×	
F27.32	Latest elevator location	0.00 - 299.99m	0.00m	×	
F27.33	Latest X1 - X16 terminal status	Bit15 - Bit0 in turn represents X16 - X1 terminal	0	×	

Ref. Code	Function	Setting Range	Default	Attribute	Setting
F27.34	Latest X17 - X28 terminal status	Bit11 - Bit0 in turn represents X28 - X17 terminal	0	×	
F27.35	Latest output frequency	0.00 - 100.00Hz	0.00Hz	×	
F27.36	Specify the fault setting	0 - 99	0	×	
F27.37	Specify the fault	0 - 99	0	×	
F27.38	Specify the fault subcode	0 - 9999	0	×	
F27.39	Specify the month and day of fault	1 - 1231	0	×	
F27.40	Specify the time of fault	00:00 - 23:59	00:00	×	
F27.41	Specify the running speed of fault	0.000 - 4.000m/s	0.000m/s	×	
F27.42	Specify the DC bus voltage of fault	0 - 999V	0V	×	
F27.43	Specify the output current of fault	0.0 - 999.9A	0.0A	×	
F27.44	Specify the setting speed of fault	0.000 - 4.000m/s	0.000m/s	×	
F27.45	Specify the elevator location of fault	0.00 - 299.99m	0.00m	×	
F27.46	Specify the X1 - X16 terminal state of fault	Bit15 - Bit0 in turn represents X16 - X1 terminal	0	×	
F27.47	Specify the X17 - X28 terminal state of fault	Bit11 - Bit0 in turn represents X28 - X17 terminal	0	×	
F27.48	Specify the output frequency of fault	0.00 - 100.00Hz	0.00Hz	×	
F27.49	1 st fault subcode	0 - 9999	0	×	
F27.50	2 nd fault subcode	0 - 9999	0	×	
F27.51	3 rd fault subcode	0 - 9999	0	×	
F27.52	4 th fault subcode	0 - 9999	0	×	
F27.53	5 th fault subcode	0 - 9999	0	×	
F27.54	6 th fault subcode	0 - 9999	0	×	
F27.55	7 th fault subcode	0 - 9999	0	×	
F27.56	8 th fault subcode	0 - 9999	0	×	
F27.57	9 th fault subcode	0 - 9999	0	×	
F27.58	10 th fault subcode	0 - 9999	0	×	
F27.59	Manufacturer debugging parameter, prohibit to change				

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