Foreword

Thank you for choosing Smile3000 series integrated elevator controller independently designed and manufactured by Shenzhen Megmeet Electrical Co., Ltd.

This manual provides detailed explanations about the product features, safety instructions, design and installation, operation and maintenance, and troubleshooting of Smile3000 series integrated elevator controller.

Read this manual carefully before you use the product.

To ensure your personal safety and avoid property damage, pay close attention to the safety precautions in this manual. The company is not liable for any damage or loss incurred due to users' illegal operations.

The product/system mentioned in this manual is only allowed to be operated by qualified personnel. During operation, the attached instructions in files must be strictly abided by, especially those about safety and warning. Qualified personnel refer to people who have already received necessary safety and product use instructions along with considerable experience.

If you have any questions or special requirements about the controller, contact the company's local offices or distributors, or directly contact the company's technical departments. We are happy to serve you.

Our company is dedicated to the function upgrade and improvements of products. The contents in this document are subject to change without notice.

Technical Features

Smile3000 series integrated elevator controller is a smart elevator control system which incorporates computer technology, automatic control, network communication and motor vector control, capable for various requirements.

Advanced Technology

- ✧ Direct-to-floor technology: optimum speed curve based on distance control, with smooth speed and high efficiency.
- ✧ Integrated design: proper integration of elevator logic control and motor drive control, dual CPU control, CANbus, Modbus and IoT communication.
- ✧ No-load-cell startup torque compensation technology: zero-speed smooth elevator start without the load cell, compatible with various kinds of encoders and motors.
- ✧ With-load auto-tuning: capable of doing both PM syn. motor and asyn. motor with-load auto-tuning.
- ✧ Parallel control for 2 elevators and group control for 8 elevators: cutting-edge parallel and group control algorithms based on the modern control theory.

Easy to Use Features

- ✧ Integration of drive and control with compact structure, suitable for small machine room or MRL deployment
- ✧ Simplified parameter settings, making on-site commissioning much easier
- ✧ Onboard keypad design, facilitating commissioning, inspection and maintenance
- ✧ Load cell auto-tuning for any weight
- ✧ Multiple commissioning methods: PC host software, operating panel and mobile phone App
- ✧ Leveling accuracy adjustment in the car
- ✧ Auto-detection of balance coefficient, and test of slippage

Robust Safety

- ✧ Multiple ways of protection, with strict compliance with GB-T7588.1-2020
- ✧ Fault tolerance design of hardware & software and classified fault countermeasures, preventing accidents (top-hitting & bottom-clashing)
- ✧ Cutting-edge drive manufacturing technology, with strong adaptations to harsh environments such as power grid fluctuation, dust, high temperature and lightning
- ✧ Dual chip control, brake and STO functions
- ✧ UCMP, braking force and door lock shorting detection

Comfortable Experience

- ✧ No-load-cell technology or special load cell compensation device, providing smooth startup torque compensation
- ✧ High-performance vector control, unleashing the potential of motor drive and bringing superb comfort

Cost-Effective System

- ✧ Highly integrated system, with peripheral cables largely reduced, thus lowering costs and improving elevator safety and stability
- ✧ Collaboration of CANbus and Modbus communication, reducing traveling cables to the greatest extent
- ✧ Abundant and flexible modular expansions
- ✧ Just 2 cables required to achieve parallel connection, with no need for the group control board

Contents

Introduction

1. Basic functions

Function	Description	Note
Common running functions		
VIP service	The elevator directly travels to the target VIP floor, designed for special persons.	-
Stuck hall call cancellation	The system detects whether the hall call buttons are stuck, and automatically cancels the stuck state to ensure the door can be properly closed.	P12-09 Bit4
Disability service	When the elevator is waiting at the leveling position, if there is a call or door open command from the car operating panel (COP) for the disabled at this floor, the door open holding time will be prolonged.	P08-15 (Special door open holding time)
Overload protection	When the car load exceeds the rated elevator load (overload: over 110% of the rated load), the elevator alarms, keeps the door open, and stops running.	-
Low-speed self-rescue	When the elevator is in the non-inspection state and stops in the non-leveling zone, the elevator automatically runs to the leveling zone at low speed and opens the door if the safe running requirements are met.	-
Independent running	The elevator does not respond to any call, and the door needs to be closed manually. In the group control mode, the elevator runs independently.	Signal input: CCB JP23
Service floor setting	You can enable or disable the system service for one or more floors as required.	P11-15/P11-16/ P11-17
Service floor	The standard controller supports up to 48 floors. More floors are available by non-standard customization.	-
Auxiliary operation box	The auxiliary operation box can be additionally added. The functions of main and auxiliary operation boxes are the same.	-
Fault data record	The system automatically records the detailed fault information, improving the efficiency of maintenance.	Groups E00–E10
Advance door closing using the door close button	During door open holding in the automatic running state, you can close the door in advance by pressing the door close button to improve the efficiency.	-
Light curtain signal judgment	If the car door is blocked by stuff during door close, the light curtain acts and the elevator opens the door. This function is inactive in the fire emergency state.	-

Function	Description	Note
Landing at another floor	If the door open time exceeds the door open protection time but the door open limit signal is still inactive, the elevator closes the door and automatically runs to the next landing. The system reports E55.	-
Response at acceleration	The system allows the elevator to automatically respond to calls from the service floors during acceleration.	-
Car arrival gong	After the elevator arrives at the destination floor, the car top board gives a prompt tone.	-
Door open holding	In the automatic running state, you can hold down the door open button in the car to postpone the door close so that goods can be moved in or out.	P08-14 (Duration of door open holding delay)
Door open time setting	You can set the door open holding time for car call, hall call, at main floor, upon open delay valid and other conditions separately.	Set in group P08
Idle elevator returning to main floor	In the automatic running state, the elevator automatically returns to the set parking floor and waits for passengers if it does not receive any car calls or hall calls within the set time.	P16-00 (Maximum idle time before returning to parking floor)
Floor display setting	The system supports display of floor numbers in the form of numbers and letters, meeting the requirements of special conditions.	Set in group P21
Direct travel ride with full-load	When the car is fully loaded in the automatic running state, the elevator does not respond to hall calls from passing floors. These hall calls, however, can still be registered. They will be executed during the next running (in the case of single elevator) or by other elevators (in the case of parallel/group control).	-
Door operator service floor setting	You can set the required service floors of door operators.	P08-01–P08-06
Door control features	You can set whether the system keeps outputting door open/close commands after door open/close limit based on the type of the door operator.	-
Automatic door open upon door lock abnormality	If the system detects that the door lock circuit is abnormal during door open/close, the elevator automatically opens and closes the door again, and reports a fault after the set door open/close times is reached.	P08-09 (Door open/close times)
Automatic startup torque compensation	Before running, the system automatically implements the startup torque compensation based on the current car load to achieve a smooth startup, improving the riding comfort.	P12-00 (Pre-torque selection)

Function	Description	Note
Independent control of the front and rear doors	When the elevator has two car doors, automatic control on the two doors can be implemented as required.	-
Forced door close	When the door fails to close within the set time due to the action of the light curtain or safety edge, the elevator enters the forced door close state, closes the door slowly, and gives a prompt tone.	-
Full collective selective	In the automatic running state, this function enables the elevator to respond to both car calls and hall calls. Passengers at any service floor can call the elevator by pressing the up call button and down call button.	P11-23 (Collective selective mode)
Attendant running	In the attendant state, the elevator running is controlled by the attendant.	Signal input: CCB JP21
Hall arrival indicator	When the elevator is about to arrive at the destination floor, the hall arrival indicator will be output.	-
Hall arrival gong	When the elevator is about to arrive at the destination floor, the hall arrival gong will be output.	-
Cancellation of wrong calls	Passengers can cancel a wrong car call by double-pressing the floor button in the car.	-
Down collective selective control	In the automatic running or attendant state, the elevator responds to only hall down calls besides car calls.	-
Voice announcement	The elevator automatically announces information such as the running direction and next arriving floor during running.	Smile3000-BCB-03 required
Running times recording	In the automatic running state, the system automatically records the running times of the elevator.	D01-11/D01-23
Running time recording	The system automatically records the accumulative power-on time, working hours, and working days of the elevator.	D01-21
Service suspension output	When the elevator cannot respond to hall calls, the corresponding terminal outputs a service suspension signal.	-
Direct travel ride	The system automatically computes and generates the running curves based on the distance, which enables the elevator to directly stop at the leveling position.	-
Independent command	When there are both main and auxiliary operation boxes, the auxiliary operation box can be configured as rear door command or disability command input. The system can independently control door open/close according to commands from the two boxes in the automatically running state.	-
Repeated door close	If the door lock is not applied after the elevator performs door close for a certain time, the elevator automatically opens the door	P08-08 (Door close

Function	Description	Note
	and then closes the door repeatedly.	protection time)
Auto-leveling	The system implements automatic accurate leveling based on the floor pulse counting and up/down leveling feedback signals.	-
Automatic generation of the optimum curve	The system automatically calculates the optimum speed curve compliant with the human-machine interaction principle based on the distance, without being limited by the number of curves or short floor.	-
Inspection-related functions		
Operation box commissioning	A keypad can be connected to the system in the car to improve the efficiency of commissioning.	-
Test running	The test running includes the fatigue test of a new elevator, car/hall call test, hall call forbidden, door open/close forbidden, limit switches disabled, overload signal disabled, and so on.	-
Motor auto-tuning	With a simple parameter setting of auto-tuning, the system can obtain the parameters of the motor with or without load.	-
Dual-speed for inspection	Considering inaccurate running control at high inspection speed but long running time at low inspection speed, the system provides the dual-speed curve for inspection, which greatly improves the efficiency at inspection.	-
Inspection running	After the elevator enters the inspection state, the system cancels automatic running and automatic door operations. You can press the up/down button to make the elevator jog at the inspection speed.	-
Simple maintenance keypad	The 3-button keypad on the main control board (MCB) allows the commissioning of running floors, door open/close, and so on.	-
Emergency electric operation	After entering the emergency electric operation (EEO) state, the system cancels automatic running and related operations. You can press the up or down call button to make the elevator jog at the EEO speed.	Refer to group P06
Shaft auto-tuning	Shaft auto-tuning is required before first-time automatic running. During shaft auto-tuning, the elevator runs from the bottom floor to the top floor at the inspection speed and automatically records all position signals in the shaft.	P02-11 (Auto-tuning mode)
Floor position intelligent correction	Every time the elevator runs to the terminal floor, the system automatically checks and corrects the car position based on slow-down switch 1, and eliminates top-hitting or bottom-clashing with the assistance of the slow-down system.	-
User-defined parameter	You can view the parameters that are modified and different from the default setting.	P01-02

Function	Description	Note
checking		
Fire emergency and safety functions		
Security floor	After the security floor function is enabled, the security floor remains active from 10:00 p.m. to 06:00 a.m. During this period, the elevator runs to the security floor, stops, and opens the door, before moving to the destination floor every time. This enhances safety.	P11-14
Earthquake protection	When the earthquake detection device acts and inputs a signal to the system, the elevator lands at the nearest floor and stops running. After the earthquake signal becomes inactive and the fault is reset manually, the elevator restores to normal running.	-
Current cancellation in ramp mode	For the permanent magnet synchronous motor (PMSM), after the elevator decelerates to stop, the holding current of the motor is canceled in ramp mode, preventing abnormal noise during current cancellation.	P04-15
Automatic voltage identification	The system detects the bus voltage and automatically adjusts the running speed of the elevator to adapt to the situation of insufficient power from the power supply, such as emergency UPS.	-
Independent working power supply	Smile3000 series integrated control system supports not only three-phase 380 VAC but also single-phase 220 VAC to meet different applications of the power supply system.	-
Runaway prevention	The system detects the running state of the elevator in real time. If the elevator speed exceeds the limit, the system immediately stops running of the elevator.	-
Interference degree judgment	The system judges the degree of communication interference.	Viewed in D04-03
Troubleshooting based on fault level	Faults are classified into different levels based on the severity. Different levels of faults are rectified using different methods.	-
Main floor verification	After detecting a position abnormality, the system runs the elevator to each floor until reaching the terminal floor for verification, guaranteeing system safety.	-
Elevator lock	In the automatic running state, when the elevator lock switch acts or the set lock time is reached, the elevator returns to the elevator lock floor after responding to all car calls, stops running, and turns off the lighting and fan in the car.	P11-11 (Elevator lock floor)
Running direction	When the power supply is interrupted, the system can automatically identify the current car load and determine the	P11-54 (Emergency

Function	Description	Note
identification at power failure	running direction.	evacuation function selection)
Automatic running mode switchover at power failure	For the synchronous motor, when the power supply is interrupted, the system can perform automatic switchover between shorting stator braking mode and controller drive mode, implementing quick and stable self-rescue.	P11-54 (Emergency evacuation function selection)
Automatic identification of power failure	The system automatically identifies power failure and outputs a signal to the relay to which emergency evacuation automatic switchover function is allocated to implement emergency evacuation at power failure.	Y6 especially used for emergency evacuation switchover
Returning to main floor at fire emergency	After receiving a fire emergency signal, the elevator does not respond to any call but directly runs to the fire emergency floor and waits.	P11-09 and P11-10 (Fire emergency floor)
Firefighter running	After the elevator enters the firefighter running mode, door open/close is implemented by the jog operation (optional) by using the door open and close buttons rather than automatically. In addition, the elevator responds to only car calls and only one call can be registered once.	P11-53
Passenger unloading first upon the fault	The system automatically determines the fault level. If the safety running conditions are met, the elevator first runs to the leveling position to unload passengers.	-
Parallel/Group control and other functions		
Parallel/Group control	The system supports parallel/group control and provides multiple scheduling algorithms to meet different requirements of customers.	-
Parallel/Group control automatic exit	If an elevator in the parallel/group control system cannot respond to calls in time due to faults, the elevator automatically exits the parallel/group control system and runs independently. This does not affect normal running of the parallel/group control system.	-
Anti-nuisance function	The system automatically compares the number of passengers in the car with the number of registered car calls. If there are excessive car calls, the system determines that it is nuisance and cancels all car calls. In this case, passengers need to register correct car calls again.	P10-05 (Anti-nuisance function)
Dispersed waiting	In parallel/group control, elevators can wait at different floors.	P11-21

Function	Description	Note
Full-load indication	HOP displays the full-load state, and the elevator directly runs to the car call floors.	-
Prompt of stop in non-door zone	The system gives a prompt when the elevator stops in a non-door zone area due to faults.	-
Parallel/Group control exit	If the parallel/group control exit switch is valid or the elevator is within the designated time for no parallel/group control, the elevator will exit parallel/group control and runs independently. This does not affect normal running of the parallel/group control system.	-
Energy-saving functions		
Energy-saving running with standby power supply	When the normal power supply is interrupted and the emergency power supply is used, the system reduces the running speed of the elevator, and yet still guarantees smooth running curves.	-
Car energy-saving function	If there is no running command within the set time (P16-01), the system automatically cuts off the power supply to the lighting and fan in the car.	P16-01 (Fan/Lighting turn-off time)
Arrival gong disabled at night	This function allows the elevator to cancel the arrival gong announcement within the set time range.	P12-04 Bit4

2. Optional functions

Function	Description	Note
IC card	Passengers need to use the IC card to go to floors that require authorization.	IC card required
Micro-leveling	After landing at a floor, the elevator may move upward or downward due to the load change and the car door is not aligned with the landing sill, which is inconvenient for passengers and goods to get in and out. In this case, the system allows the elevator to run to the leveling position in the door open state at the re-leveling speed.	Smile3000-SCB required
Advance door opening	In the automatic running state, when the elevator speed is smaller than 0.25 m/s during stop and the door zone signal is active, the system shorts the door lock through the shorting door lock circuit contactor and outputs a door open signal in advance. This maximizes the elevator use efficiency.	Smile3000-SCB required
Emergency evacuation at power failure	For elevators configured with an emergency power supply, the system uses this power supply to implement low-speed self-rescue at power failure.	
Residential monitoring	By using special monitoring software, you can view the floor position, running direction and fault state of the elevator remotely.	

Chapter 1 Safety Instructions

1.1 Safety precautions

(1) Read the safety instructions before you install, use and maintain the equipment, and comply with them during operations.

(2) To ensure the safety of humans and equipment, follow the signs on the equipment and all the safety instructions in this user manual.

(3) "CAUTION", "WARNING", and "DANGER" items in the manual do not indicate all safety precautions that need to be followed; instead, they just supplement the safety precautions.

(4) Use this equipment according to the specified environment requirements. Damage caused by improper usage is not covered by warranty.

(5) Our company shall take no responsibility for any personal injuries or property damage caused by improper usage.

1.2 Safety levels and definitions

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

1.2.1 Unpacking


CAUTION

- ✧ Check whether the package is intact and whether there is damage, water seepage, damp and deformation.
- ✧ Unpack the package by following the package sequence. Do not hit the package with force.
- ✧ Check whether there are damage, rust, or injuries on the surface of the equipment or equipment accessories.
- ✧ Check whether the number of packing materials is consistent with the packing list.


WARNING

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

1.2.2 Storage and transportation


CAUTION

- ✧ Store and transport this equipment based on the storage and transportation requirements for humidity and temperature.
- ✧ Avoid transporting the equipment in environments such as water splashing, rain, direct sunlight, strong electric field, strong magnetic field, and strong vibration.
- ✧ Avoid storing this equipment for more than 3 months. Long-term storage requires stricter protection and necessary inspection.
- ✧ Pack this equipment strictly before transportation. Use a sealed box for long-distance transportation.
- ✧ Never transport this equipment with other equipment or materials that may harm or have negative impacts on this equipment.


WARNING

- ✧ Use professional loading and unloading equipment to carry large-scale or heavy equipment.
- ✧ When carrying this equipment with bare hands, hold the equipment casing firmly with care to prevent parts falling. Failure to comply may result in personal injuries.
- ✧ Handle the equipment with care during transportation and mind your step to prevent personal injuries or equipment damage.
- ✧ Never stand or stay below the equipment when the equipment is lifted by hoisting equipment.

1.2.3 Installation


WARNING

- ✧ Thoroughly read the safety instructions and the user manual before installation.
- ✧ Do not modify this equipment.
- ✧ Do not rotate the equipment components or loose fixed bolts (especially those marked in red) on equipment components.
- ✧ Do not install this equipment in places with strong electric or magnetic fields.
- ✧ When this equipment is installed in a cabinet or final equipment, protection measures such as a fireproof enclosure, electrical enclosure, or mechanical enclosure must be

provided. The IP rating must meet IEC standards and local laws and regulations.


DANGER

- ✧ Equipment installation, wiring, maintenance, inspection or parts replacement must be performed by only professionals.
- ✧ Installation, wiring, maintenance, inspection, or parts replacement must be performed by only experienced personnel who have been trained with necessary electrical information.
- ✧ Installation personnel must be familiar wit equipment installation requirements and relevant technical materials.
- ✧ Before installing equipment with strong electromagnetic interference, such as a transformer, install an electromagnetic shielding device for this equipment to prevent malfunctions.

1.2.4 Wiring


DANGER

- ✧ Equipment installation, wiring, maintenance, inspection, or parts replacement must be performed by only professionals.
- ✧ Never perform wiring at power-on. Failure to comply will result in an electric shock.
- ✧ Before wiring, cut off all equipment power supplies. Wait at least 10 minutes before further operations because residual voltage exists after power-off.
- ✧ Make sure that the equipment is well grounded. Failure to comply will result in an electric shock.
- ✧ During wiring, follow the proper electrostatic discharge (ESD) procedures, and wear an antistatic wrist strap. Failure to comply will result in damage to internal equipment circuits.


WARNING

- ✧ Never connect the power cable to output terminals of the equipment. Failure to comply may cause equipment damage or even a fire.
- ✧ When connecting a drive with the motor, make sure that the phase sequences of the drive and motor terminals are consistent to prevent reverse motor rotation.
- ✧ Wiring cables must meet diameter and shielding requirements. The shielding layer of shielded cables must be reliably grounded at one end.
- ✧ After wiring, make sure that no screws are fallen and cables are exposed in the equipment.

1.2.5 Power-on


DANGER

- ✧ Before power-on, make sure that the equipment is installed properly with reliable wiring and the motor can be restarted.
- ✧ Before power-on, make sure that the power supply meets equipment requirements to prevent equipment damage or even a fire.
- ✧ At power-on, unexpected operations may be triggered on the equipment. Therefore, stay away from the equipment.
- ✧ After power-on, do not open the cabinet door and protective cover of the equipment. Failure to comply will result in an electric shock.
- ✧ Do not touch any wiring terminals at power-on. Failure to comply will result in an electric shock.
- ✧ Do not remove any part of the equipment at power-on. Failure to comply will result in an electric shock.

1.2.6 Operation


DANGER

- ✧ Do not touch any wiring terminals during operation. Failure to comply will result in an electric shock.
- ✧ Do not remove any part of the equipment during operation. Failure to comply will result in an electric shock.
- ✧ Do not touch the equipment shell, fan, or resistor for temperature detection. Failure to comply will result in heat injuries.
- ✧ Signal detection must be performed by only professionals during operation. Failure to comply will result in personal injuries or equipment damage.


WARNING

- ✧ Prevent metal or other objects from falling into the equipment during operation. Failure to comply may result in equipment damage.
- ✧ Do not start or stop the equipment using the contactor. Failure to comply may result in equipment damage.

1.2.7 Maintenance


DANGER

- ✧ Equipment installation, wiring, maintenance, inspection or parts replacement must be performed by only professionals.
- ✧ Do not maintain the equipment at power-on. Failure to comply will result in an electric shock.
- ✧ Before maintenance, cut off all equipment power supplies and wait for at least 10 minutes.


WARNING

- ✧ Perform daily and periodic inspection and maintenance for the equipment according to maintenance requirements and keep a maintenance record.

1.2.8 Repair


DANGER

- ✧ Equipment installation, wiring, maintenance, inspection, or parts replacement must be performed by only professionals.
- ✧ Do not repair the equipment at power-on. Failure to comply will result in an electric shock.
- ✧ Before inspection and repair, cut off all equipment power supplies and wait at least 10 minutes.


WARNING

- ✧ Require for repair services according to the product warranty agreement.
- ✧ When the equipment is faulty or damaged, require professionals to perform troubleshooting and repair by following repair instructions and keep a repair record.
- ✧ Replace quick-wear parts of the equipment according to the replacement guide.
- ✧ Do not operate damaged equipment. Failure to comply may result in worse damage.
- ✧ After the equipment is replaced, perform wiring inspection and parameter settings again.

1.2.9 Disposal

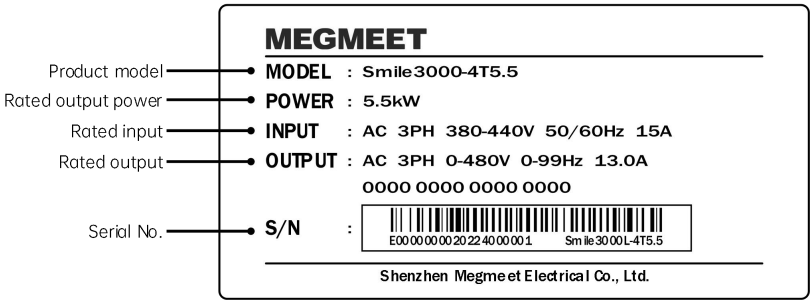

WARNING

- ✧ Dispose of retired equipment by following local regulations or standards. Failure to comply may result in property damage, personal injuries, or even death.
- ✧ Recycle retired equipment by following industry waste disposal standards to avoid environmental pollution.

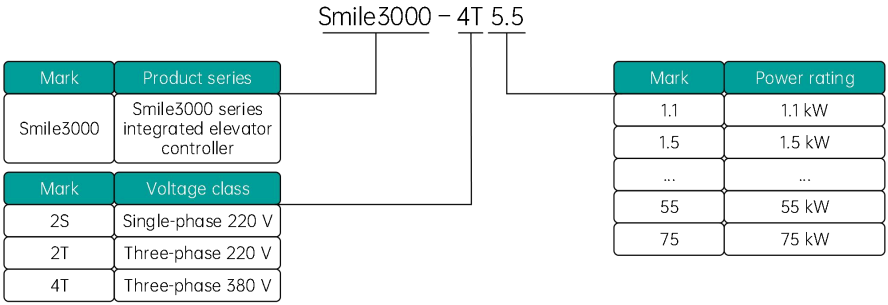
Chapter 2 Product Information

2.1 Nameplate and model

2.1.1 Product nameplate



2.1.2 Product model



2.2 Technical data

Model	Power capacity (kVA)	Input current (A)	Output current (A)	Motor power (kW)
Single-phase 220 V, range: 220 to 240 V, 50/60 Hz				
Smile3000-2S1.1	1.8	8.8	5.5	1.1
Smile3000-2S1.5	2.7	12.5	7.7	1.5
Smile3000-2S2.2	4.0	17.9	9.9	2.2
Smile3000-2S3.7	6.0	25.3	16	3.7
Smile3000-2S5.5	8.6	34.6	23	5.5

Three-phase 220 V, range: 220 to 240 V, 50/60 Hz				
Smile3000-2T2.2	4.0	11.0	10.0	2.2
Smile3000-2T3.7	6.0	17.0	15.0	3.7
Smile3000-2T5.5	9.0	29.0	27.0	5.5
Smile3000-2T7.5	12.6	36.0	33.0	7.5
Smile3000-2T11	15.0	41.0	47.0	11.0
Three-phase 380 V, range: 380 to 440 V, 50/60 Hz				
Smile3000-4T5.5	8.5	15	13	5.5
Smile3000-4T7.5	11	21	18	7.5
Smile3000-4T11	18	28	27	11
Smile3000-4T15	22	33	33	15
Smile3000-4T18.5	24	40	39	18.5
Smile3000-4T22	30	50	48	22
Smile3000-4T30	42	62	60	30
Smile3000-4T37	50	75	75	37
Smile3000-4T45	60	90	90	45
Smile3000-4T55	72	112	110	55
Smile3000-4T75	100	157	152	75

2.3 Controller components

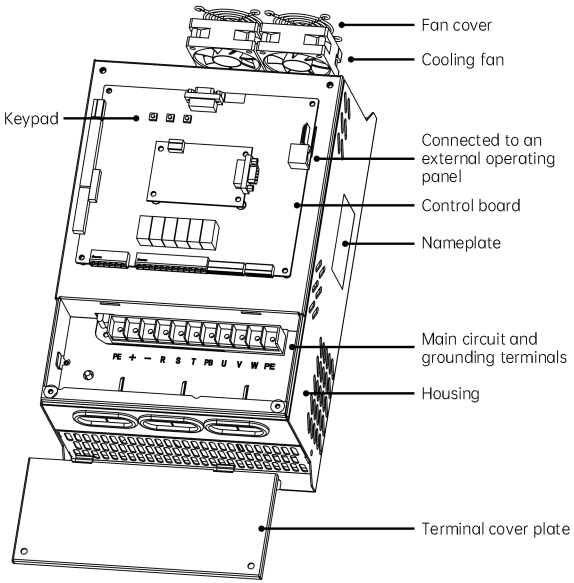


Fig. 2-1 Components of controller

2.4 Outline and installation dimensions

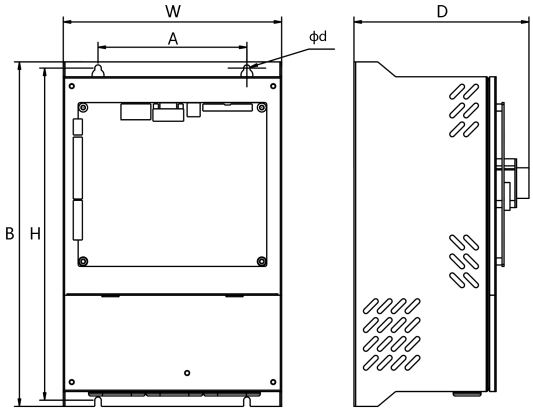


Fig. 2-2 Size A

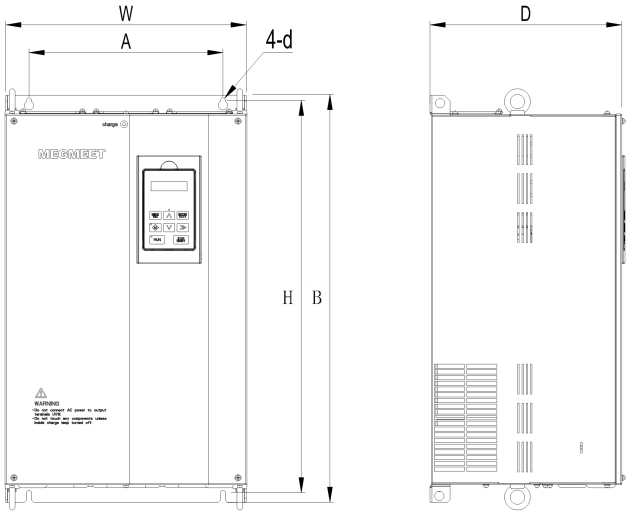


Fig. 2-3 Size B

Table 2-1 Installation dimensions for models with metal plate structure

Model	W (mm)	A (mm)	B (mm)	H (mm)	D (mm)	Diameter (mm)	Fig.
Smile3000-2S1.1	223	150	347	334.5	143	6.5	Fig. 2-2
Smile3000-2S1.5							
Smile3000-2S2.2							

Model	W (mm)	A (mm)	B (mm)	H (mm)	D (mm)	Diameter (mm)	Fig.
Smile3000-2S3.7							
Smile3000-2S5.5							
Smile3000-2T2.2	220	150	347	334.5	176.3	6.5	
Smile3000-2T3.7							
Smile3000-2T5.5							
Smile3000-2T7.5	337.5	292.5	520.5	502.5	279.5	7.0	
Smile3000-2T11							
Smile3000-4T5.5	220	150	307	294	160.1	7.0	
Smile3000-4T7.5							
Smile3000-4T11	220	150	347	335	167	7.0	
Smile3000-4T15							
Smile3000-4T18.5	225	195	347	335	186.3	6.5	
Smile3000-4T22							
Smile3000-4T30							
Smile3000-4T37	335	270	570	549	267	7.0	Fig. 2-3
Smile3000-4T45							
Smile3000-4T55	335	270	600	579	292	7.0	
Smile3000-4T75							

2.5 Technical specifications

Item	Specification
Power supply	
Phase, voltage, frequency	220 V: single-phase 220 V to 240 V, 50/60 Hz
	400 V: three-phase 380/400/415/440, 50/60 Hz
Voltage range	-15% to +10%
Frequency range	-5% to +5%
Instantaneous voltage dip allowed	220 V: continuous running at above 150 VAC; undervoltage protection after 15 ms running upon reduction from rated input to below 150 VAC 400 V: continuous running at above 300 VAC; undervoltage protection after 15 ms running upon reduction from rated input to below 300 VAC
Basic features	
Standard floors	48

Elevator speed	⩽ 4.00 m/s
Group control elevators	⩽ 8
Communication method	CAN, Modbus
Drive features	
Motor control mode	Feedback vector control (FVC), PG card required
Startup torque	According to the load, 200% at maximum
Speed adjustment range	1:1000 (FVC)
Speed stability accuracy	±0.05% (FVC)
Torque limit	200% of rated torque
Torque control accuracy	±5%
Frequency range	0 to 99 Hz
Frequency accuracy	±0.1%
Frequency reference minimum unit	0.01 Hz / 99 Hz
Output frequency minimum unit (for calculation)	0.01 Hz
No-load-cell startup torque compensation	When the elevator load is unknown, the system outputs a proper torque to start the motor smoothly based on the elevator running direction, minimizing the instantaneous rollback and improving the riding comfort.
Braking torque	150% (external braking resistor), built-in braking unit
Acceleration/ Deceleration time	0.1 to 8 s
Carrier frequency	2 to 16 kHz
PG interface	
PG car ty	ABZ, UVW, Sin/Cos, Endat absolute
PG card signal frequency-division output	Orthogonal/differential signal output
Input/Output signal	
Optocoupler input control power	Isolated 24 VDC
Low-voltage optocoupler isolated input	28 DIs, optocoupler control signal is isolated 24 VDC power input

High-voltage optocoupler isolated input	4 DIs
Relay output	6 normally-open contacts, single-pole single-throw, contact switching capacity 5 A, contact load (resistive): 5 A, 250 VAC, or 5 A, 28 VDC
USB interface	Commissioning
CAN communication	2 (CTB communication, parallel control or group control)
MOD communication	2 (HCB communication or IoT)
Analog input	One single-end or differential input, input voltage: -10 V to +10 V, accuracy 1%
Protection functions	
Motor overload protection	Motor protection curves set in parameters
AC drive overload protection	60 s for 150% of rated current, 10 s for 200% of rated current
Short-circuit protection	The drive controller is protected when any two-phase short circuit on the output side causes overcurrent.
Phase loss protection	The AC drive provides the phase loss detection function. In case of incorrect input phase sequence, the control system will report phase loss and stop the elevator to prevent accidents.
Overvoltage threshold	Bus voltage 800 V (380 V models), 400 V (220 V models)
Undervoltage threshold	Bus voltage 350 V (380 V models), 150 V (220 V models)
Instantaneous power failure compensation	Above 15 ms protection
Heatsink overheat	Protection with thermistors
Stall prevention	Protection at speed deviation exceeding 15% of the rated speed during running
Rotary encoder abnormality protection	The system performs protection immediately to prevent accidents when any of the following rotary encoder malfunctions occurs: phase loss, reverse direction, disconnection, and pulse interference.
Braking unit protection	Automatic detection and protection at braking unit abnormality
Module protection	Overcurrent, short-circuit, and overheat protection
Current sensor protection	Self-check at power-on
Speed abnormality protection	When the encoder feedback speed exceeds the limit or the deviation between the torque limit and the feedback speed is too large, the system will immediately perform protection, generate an alarm, and prohibit running, achieving quick protection against abnormal elevator speed.

Protection of output short-circuited to ground	Output disabled when any phase is short-circuited to ground during running
Output imbalance protection	Output disabled when imbalance among the UVW phases is detected
Braking resistor short-circuit protection	Detection during braking
Running time limit	Protection when the running time at a certain floor exceeds the limit
Leveling switch fault protection	Leveling switches are malfunctioned when they fail and are stuck. The system judges the malfunction type according to the change of leveling signal feedback. If the leveling signals have no change in the set time, the system will generate an alarm.
EEPROM fault	Self-check at power-on
Display	
Keypad	3-digit LED display, providing some commissioning functions
Operating panel	5-digit LED display for you to view and modify most parameters and monitor the system state
Host computer software	Connecting the control system and the host computer, convenient for viewing/monitoring the system state
Environment	
Ambient temperature	-10℃ to +50℃ (derating required if the ambient temperature is above 40℃)
Humidity	Below 95% RH, non-condensing
Vibration	< 5.9 m/s^2 (0.6 g)
Storage temperature	-20 to +60℃ (temperature during transportation)
Location	Indoors (no corrosive gas or dust)
Pollution degree	PD3
IP rating	IP20
Power distribution system	TN/TT
Altitude	Below 1000 m (derated by 1% for each 100 m higher)
Structure	
Ingress protection	IP20
Cooling method	Forced air cooling
Mounting method	Cabinet installation

2.6 System configuration

Smile3000 series integrated elevator controller is integrated with elevator control technologies and high-performance vector control AC drive functions. With it as the core, a complete elevator control system can be formed. Smile3000 elevator control system includes the integrated elevator controller, car top board, HOP, COP, optional advance door opening module, remote monitoring system, and so on. The system is illustrated as below:

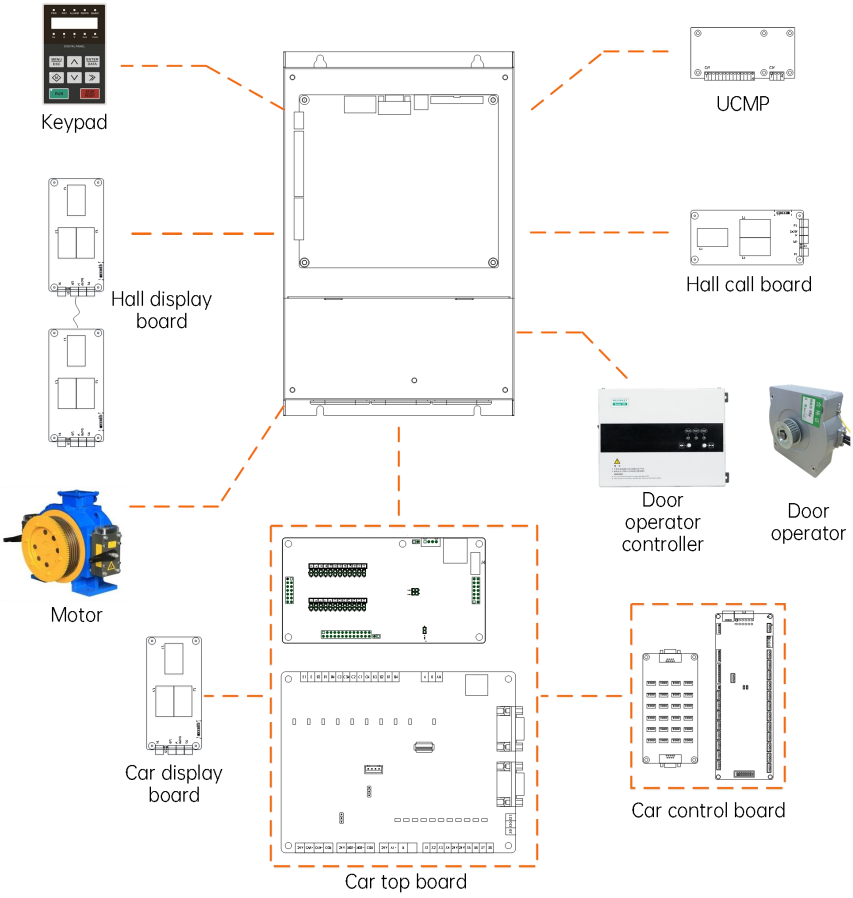


Fig. 2-4 System topology

(1) The integrated controller controls the motor through feedback signals from the motor's encoder, and meanwhile records the height information of switches in the shaft by pulse counting, so as to achieve accurate leveling and direct travel ride, ensuring safety in operation;

(2) The integrated controller communicates with the car top control board through CANbus, collecting

data and controlling the car and relevant components;

(3) The integrated controller communicates with the hall display through Modbus. Just set the addresses, then hall calls of all floors can be registered and displayed.

The system diagram of Smile3000 integrated elevator controller is shown below:

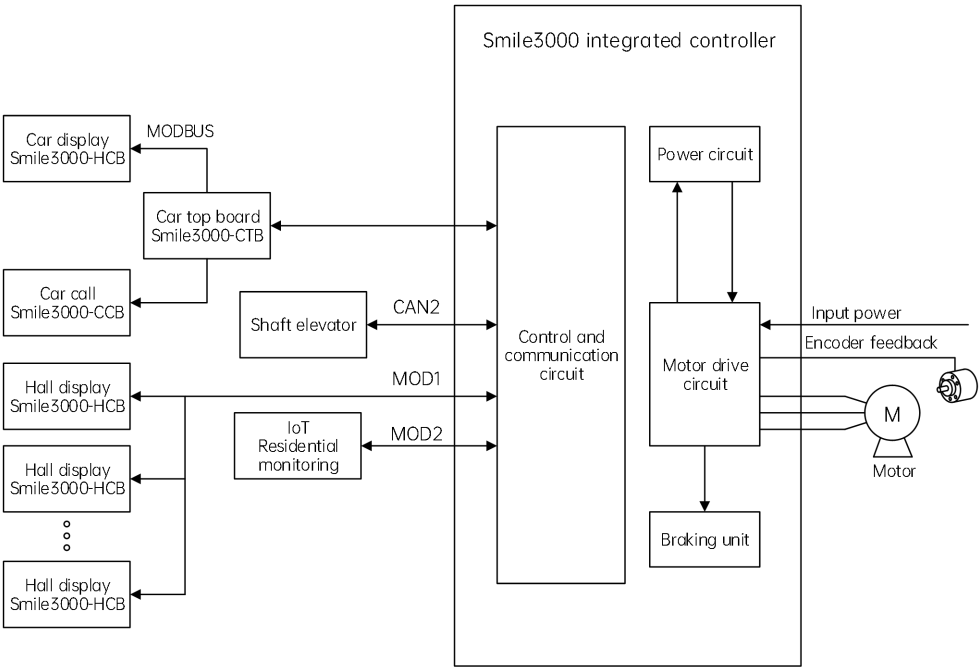


Fig. 2-5 Smile3000 integrated control system diagram

Chapter 3 Installation and Wiring

3.1 Installation

3.1.1 Environmental requirements

Item	Requirement
Altitude	Below 1000 m (derated by 1% for each 100 m higher), 3000 m at maximum
Ambient temperature	-10℃ to +50℃, air temperature change < 0.5℃/min, derating required if above 40℃ (rated current derated by 1.5% for each 1℃ higher), 50℃ at maximum
Storage temperature	-40℃ to +60℃
Ambient humidity	Below 95% RH, non-condensing
Storage humidity	Below 95% RH, non-condensing
Shock and vibration	Less than 5.9 m/s^2 (0.6 g) for sine vibration from 2 to 200 Hz
IP rating	IP20
Heat dissipation and ventilation	Leave enough space for heat dissipation when installing the AC drive on the back plate.
Installation site	Free from direct sunlight Below 95% RH, non-condensing Free from corrosive, explosive and combustible gas Free from oil dirt, dust and metal powder Away from vibration (≤0.6 g)
Enclosure	The product is installed in the cabinet as a part of the whole system. The whole system shall provide fireproof enclosure, electrical enclosure, mechanical enclosure and others. The IP rating must meet IEC standards and local laws and regulations.

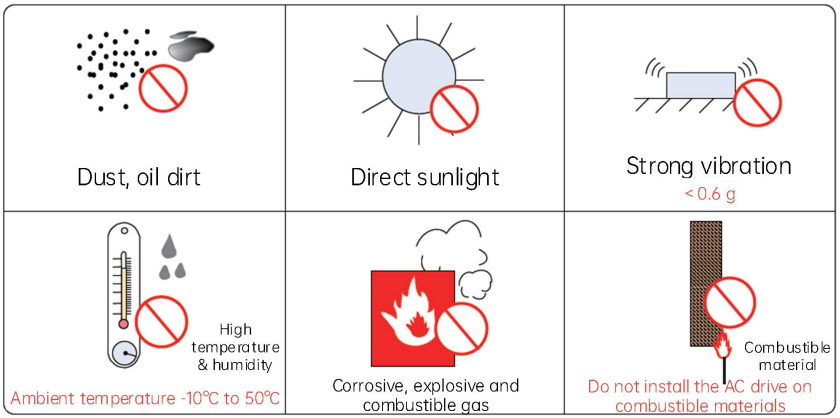


Fig. 3-1 Environmental requirements

3.1.2 Installation direction and clearance

(1) Generally, the controller shall be vertically installed, as shown in the following figure. Horizontal installation largely affects heat dissipation.

(2) Depending on the power rating of Smile3000 integrated elevator controller, the clearances to be reserved differ, as shown in the following figure.

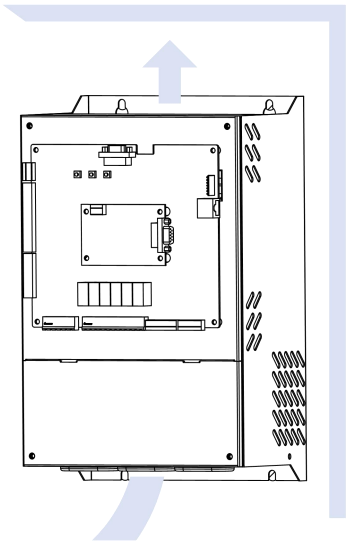
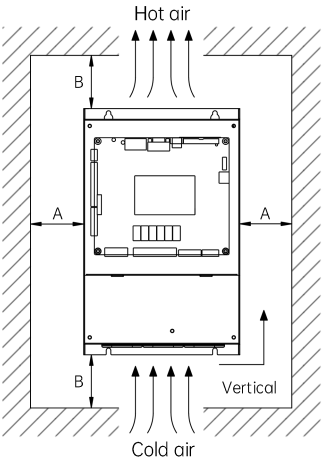


Fig. 3-2 Heat dissipation of controller



Installation clearance for Smile3000

Power rating	Clearance	
⩽ 15 kW	A ⩾ 10 mm	B ⩾ 100 mm
⩾ 18.5 kW	A ⩾ 50 mm	B ⩾ 100 mm

Fig. 3-3 Installation clearance

3.1.3 Installation instructions

Smile3000 integrated elevator controller is generally mounted in the control cabinet of the machine room.

Note the following about the design of control cabinet:

(1) The temperature inside the cabinet cannot rise to 10℃ higher than the temperature outside the cabinet;

(2) A closed cabinet must be configured with a fan (or other air cooling device such as air conditioner) to ensure air circulation;

(3) The air from the fan cannot blow directly to the drive unit because this easily causes dust adhesion and further a fault on the drive unit;

(4) A vent must be available at the bottom of the control cabinet to form bottom-up air flow, which prevents heat island effect on the surface of components or partial thermal conductivity effect;

(5) If the fan does not meet the cooling requirements, install an air conditioner in the cabinet or in the machine room. Note that the temperature inside the cabinet cannot be too low; otherwise, condensation may occur, causing a short circuit of components;

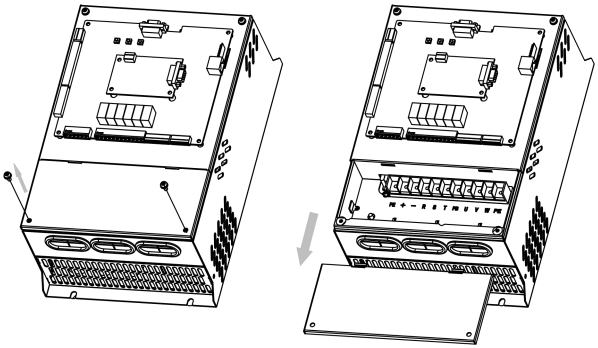
(6) For a special environment where the temperature is high but cannot be reduced effectively, derate the controller during use.

3.1.4 Removal and installation of terminal cover plate

Removal:

①: Unscrew the two screws on the cover plate;

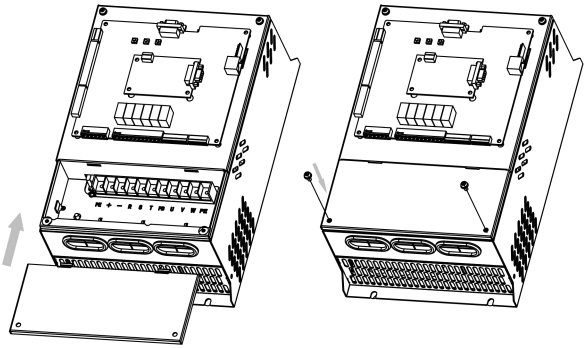
②: Remove the cover plate.



Installation:

①: Hold the cover plate with your hands, and buckle the snap joints (on the upper part of the cover plate) into the holes on the enclosure;

②: Use a screwdriver to fasten the two screws to fix the cover plate.



3.2 Terminal description and wiring

3.2.1 Main circuit terminal description and wiring

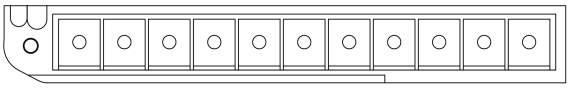
3.2.1.1 Terminal description

(1) Terminal type 1

Applicable models: Smile3000-2S2.2 to Smile3000-5.5

Smile3000-2T2.2 to Smile3000-2T11

Smile3000-4T5.5 to Smile3000-4T30

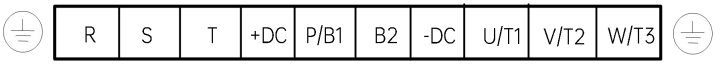


Mark	Description

Mark	Description
R, S, T	Three-phase AC power supply input terminals
+, -	Positive and negative terminals of DC bus
+, PB	Connected to a braking resistor
U, V, W	Connected to a three-phase motor
⏚	Grounding terminal

(2) Terminal type 2

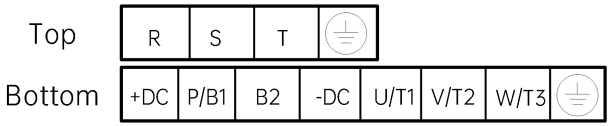
Applicable models: Smile3000-4T37, Smile3000-4T45



Mark	Description
R, S, T	Three-phase 380 VAC input terminals
+DC, P/B1	Reserved for external DC reactor, connected to copper busbar upon delivery
P/B1, B2	Reserved for external braking resistor
-DC	Output terminal of DC bus negative
U/T1, V/T2, W/T3	Three-phase AC output terminals
⏚	Grounding terminal

(3) Terminal type 3

Applicable models: Smile3000-4T55, Smile3000-4T75



Mark	Description
R, S, T	Three-phase 380 VAC input terminals
+DC, P/B1	Reserved for external DC reactor, connected to copper busbar upon delivery
P/B1, B2	Reserved for external braking resistor
-DC	Output terminal of DC bus negative
U/T1, V/T2, W/T3	Three-phase AC output terminals
⏚	Grounding terminal

Table 3-1 Smile3000 series input specifications

Model	Rated input current (A)	Recommended IO power cables (mm^2)	Tightening torque (N·m)	Recommended cable lug
Smile3000-4T5.5	15	2.5	1.2	GTNR2.5-4
Smile3000-4T7.5	21	4	2.5	GTNR4-5
Smile3000-4T11	28	6	2.5	GTNR6-5
Smile3000-4T15	33	6	2.5	GTNR6-5
Smile3000-4T18.5	40	10	4.0	GTNR10-6
Smile3000-4T22	50	10	4.0	GTNR16-6
Smile3000-4T30	62	10	4.0	GTNR10-6
Smile3000-4T37	75	25	10.5	GTNR0.75-4
Smile3000-4T45	90	35	10.5	GTNR1.25-4
Smile3000-4T55	112	50	10.5	GTNR2.5-4
Smile3000-4T75	157	70	20	GTNR70-10

3.2.1.2 Wiring

(1) Input power R, S, T

① For the input side wiring, there are no requirements on phase sequence.

② The specifications and installation of external power cables must comply with local regulations and related IEC standards.

③ For the selection of power cables, refer to "Table 4-2 Specifications for peripheral devices of Smile3000 integrated controller" for copper lead cables with appropriate dimensions.

④ Install the filter near the input terminals of the controller. The cable between the filter and the controller must be shorter than 30 cm. Connect the grounding terminal of the filter together with the grounding terminal of the controller. Ensure the filter and the controller are installed onto the same conductive mounting surface that is connected to the main grounding of the control cabinet.

(2) DC bus (+), (-)

① After power-off, residual voltage still exists on DC bus (+) and (-) terminals. Wait at least 10 minutes and ensure that the controller voltage is below 36 VDC before wiring. Otherwise, there will be an electric shock.

② When wiring an external braking component, ensure correct polarity (+)/(-). Failure to comply will result in damage to the integrated controller and braking components even fire.

③ The cable length of the braking unit must not exceed 10 m. Use the twisted pair cables or closely-paired cables for parallel connection.

④ Avoid connecting the braking resistor directly to the DC bus. Failure to comply will result in damage to the integrated controller or even fire.

(3) Braking resistor connection terminal (+), PB

① The braking resistor connection terminals are valid for models below 75 kW with a built-in braking unit.

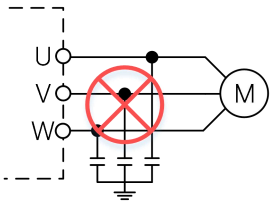
② Use recommended braking resistors and the cable length must not exceed 5 m. Failure to comply will result in damage to the integrated controller.

(4) U, V, and W terminals on the output side

① The specification and installation method of external power cables must comply with local regulations and related IEC standards.

② For the selection of power cables, refer to "Table 4-2 Specifications for peripheral devices of Smile3000 integrated controller" for copper lead cables with appropriate dimensions.

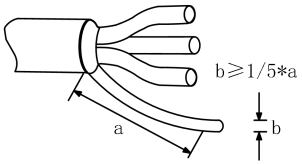
③ Avoid connecting a capacitor or surge protection device on the output side because the integrated controller output has high harmonics. Failure to comply will result in overheat or even damage of the controller.



④ An excessively long motor cable may result in electrical resonance due to the distributed capacitance. The electrical resonance may lead to damage to motor insulation or high leakage current, triggering the overcurrent protection mechanism of the integrated controller. When using a motor cable longer than 100 m, install an AC output reactor close to the integrated controller.

⑤ Use shielded cables for motor output cables, and ground the shield layer.

⑥ Keep the drain wire of the motor cable shield as short as possible, with its width not shorter than 1/5 of its length.



(5) Grounding terminal ⏚ (PE)

① The PE terminal must be reliably grounded. The grounding cable resistance must be lower than 10 Ω. Failure to comply will cause abnormality or even damage to the device.

② The grounding terminal ⏚ and the N terminal of neutral wire cannot be shared.

③ The impedance of protective grounding conductor must be sufficient to bear the short-circuit current possibly generated upon a fault.

④ You can choose the protective grounding conductor based on the following dimensions.

Table 3-2 Cross sectional area of protective conductor

Cross sectional area (S) of one phase conductor	Minimum cross sectional area (Sp) of protective conductor
$S \leqslant 16\ mm^2$	S
$16\ mm^2 < S \leqslant 35\ mm^2$	$16\ mm^2$
$S > 35\ mm^2$	S/2

⑤ The protective grounding conductor must be the yellow-green cable.

⑥ It is recommended to install the controller onto a conductive metal mounting surface. The conductive bottom of controller and the mounting surface shall be properly arranged.

⑦ The filter and the controller shall be installed onto the same mounting surface in order to ensure the filtering effect.

(6) Requirements for upstream protective devices

① Install appropriate protective devices on the power input side to provide overcurrent, short-circuit, and isolation protections.

② When selecting protective devices, take the following factors into consideration: current capacity of the power cable, required system overload capacity, and short-circuit capacity of the upstream power input. Generally, select those recommended in "Table 4-2 Specifications for peripheral devices of Smile3000 integrated controller".

3.2.2 Control circuit terminal description and wiring

3.2.2.1 Terminal layout

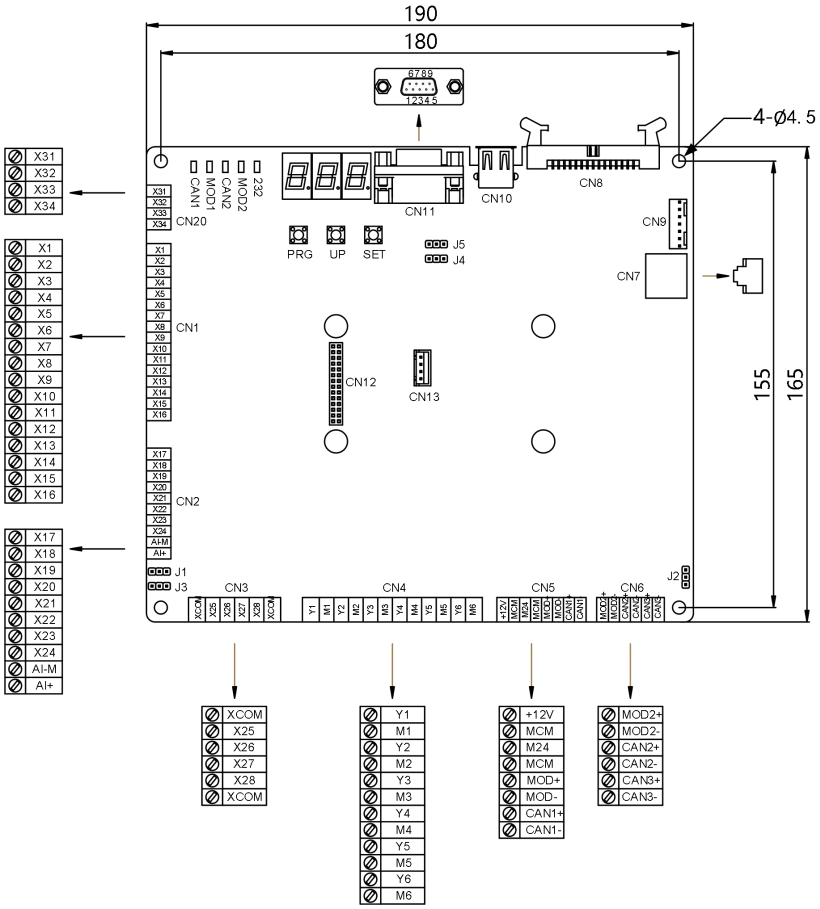


Fig. 3-4 Control circuit terminal layout and dimensions (unit: mm)

3.2.2.2 Terminal description

Table 3-3 Control circuit terminal description

Mark		Terminal name	Function description
CN1	X1 to X16	DI	Input voltage range: 10–30 VDC Input impedance: 5.6 kΩ optocoupler isolation Input current limit: 5 mA DI terminal functions are set by P06-01 to P06-24
CN2	X17 to X24	DI	

Mark		Terminal name	Function description
	AI-M/AI+	Analog differential input	Used for the analog load cell device
CN5	+12V/MCM	External 12 VDC input	12 V emergency power input
	M24V/MCM	External 24 VDC input	24 V power supply, used for external communication
	MOD+/-	485 differential signals	Standard isolated RS-485 communication interface for hall call and display
	CAN1+/-	CAN bus differential signals	CAN communication interface with the CTB and MRL monitoring board
CN3	X25 to X28/ XCOM	High-voltage detection terminal	Input voltage 110 VAC±15% and 110 VDC±20% for safety and door lock feedback circuits: functions are set by P06-25 to P06-28
CN4	Y1/M1 to Y6/M6	Relay output	Relay NO output 5 A / 250 VAC, functions set by P06-35 to P06-40
CN10	USB interface	RS232 communication interface	Mobile phone bluetooth commissioning interface
CN6	MOD2+/-	485 differential signals	MOD2 communication interface, used for residential monitoring and IoT
	CAN2+/-	CAN2 bus differential signals	CAN2 communication interface, used for parallel/group control
	CAN3+/-	Reserved	
CN7	RJ45 interface	Operating panel interface	Operating panel connection
CN12	PG card connection		
J1	Used by the manufacturer only, optional grounding terminal for AI, and COM not shorted by default		
J2	Used by the manufacturer only, optional grounding terminal for internal power supply, and COM not shorted by default		
J3	Used by the manufacturer only, optional grounding terminal for DI, and COM not shorted by default		
J4/J5	Used by the manufacturer only, no shorting allowed without official instructions.		

Table 3-4 Indicator description of MCB

Mark	Name	Function description
MOD2	Modbus2 indicator	Flashing (green) for normal communication with IoT and

		remote monitoring board
CAN1	CAN1 indicator	Flashing (green) for normal communication between the MCB and CTB
MOD1	Modbus1 indicator	Flashing (green) for normal communication between teh MCB and HCB
CAN2	Group control indicator	Steady on (green) for parallel/group control communication and flashing for normal running in parallel/group control mode
232	Serial communication indicator	Flashing (green) for normal communication with the host controller and remote monitoring board
X1 to X24	Low-voltage input signal indicator	Lights up when the external input signal is active
X25 to X28	High-voltage input signal indicator	Lights up when the external input signal is active
X31 to X34	Low-voltage input signal indicator	Lights up when the external input signal is active
Y1 to Y6	Output signal indicator	Lights up when the system has an output

3.2.2.3 Wiring description

(1) Cable selection for control circuit

For the selection of control cables, refer to "Table 4-2 Specifications for peripheral devices of Smile3000 integrated controller" for copper lead cables with appropriate dimensions.

(2) Wiring requirements for control circuit

① Motor cables must be placed away from all control cables.

② It is recommended to place motor cables, input power cables and control circuit cables at different cable troughs, so as to avoid electromagnetic interference caused by long-distance parallel coupling of motor cables and control circuit cables.

③ When the power cables and control cables must be intersected, the intersection angle shall be 90 degrees.

④ Refer to "Fig. A-6 Requirements on system wiring" for the recommended cable wiring diagram.

3.2.3 Cable dimensions and tightening torque of control circuit terminals

Tubular terminals:

Use tubular terminals with insulation sheath.

Keep the exposed conductor of a single or twisted cable no longer than 6 mm.

Table 3-5 Control circuit cable specifications

Terminal name	Single cable (mm^2) (AWG)	Twisted cable (mm^2) (AWG)	Tightening torque (N·m)

Control circuit terminal block	0.2 to 0.75 (AWG24 to 18)	0.565

3.3 Interface and communication

3.3.1 DI signal input

Quantity	32
Mark	X1 to X32
Parameter	P06-01 to P06-32
Input impedance	5.6 kΩ
Input valid voltage	18 VDC to 30 VDC
Electrical feature	Optocoupler isolation

24 digital inputs are used by the MCB in parallel to detect the running state of elevator. All input signals share the COM, with 24 V voltage input and the corresponding indicator lit up.

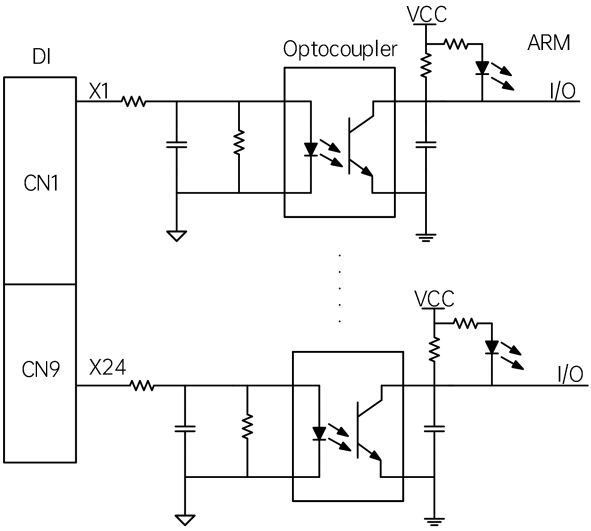


Fig. 3-5 DI signal circuit

3.3.2 Analog differential input

Quantity	2
Mark	AI+/AI-M
Input voltage	-10 VDC to 10 VDC
Input impedance	20 kΩ

Used for the analog load cell device. The weak analog voltage signal is vulnerable to external interference, so it is necessary to use shielded cables with the cable length as short as possible, not more than 20 meters. In some cases where the analog signals are strong interfered, a filter capacitor or ferrite core should be added at the analog signal side.

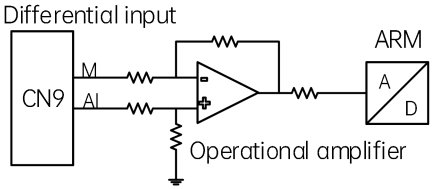


Fig. 3-6 Analog differential input circuit

3.3.3 Relay output

Relay	Quantity	Mark	Parameter
Y1/Y2/Y3	3	Y1/M1 to Y3/M3	P06-35 to P06-37

Relay features:

Relay	Rate load	Max. switching current	Response time
Y1/Y2/Y3	5 A 250 VAC / 30 VDC	10 A	10 ms
Y4/Y5/Y6	5 A 250 VAC / 30 VDC	5 A	10 ms

6 relay outputs are provided. ARM I/O signals control the coil current of relay after optocoupler isolation. The corresponding indicator lights up when the coil is energized. The relay output signals do not share a same ground.

For inductive loads (relay, contactor and motor), the cut-off of current will cause voltage spikes. Relay Y1/M1 to Y3/M3 contacts are protected by TVS, so the running, brake and shorting motor stator control shall be configured at Y1/M1 to Y1/M3, with XCOM of high-voltage detection terminal CN4 connected to the neutral wire of safety circuit 110 V. No adsorption circuit is needed at the two sides of the external contactor coil.

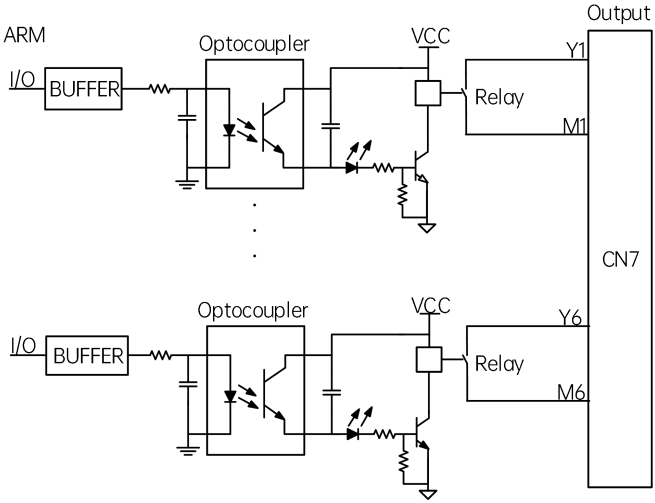


Fig. 3-7 Relay output circuit

3.3.4 Modbus communication

3.3.4.1 Wiring diagram

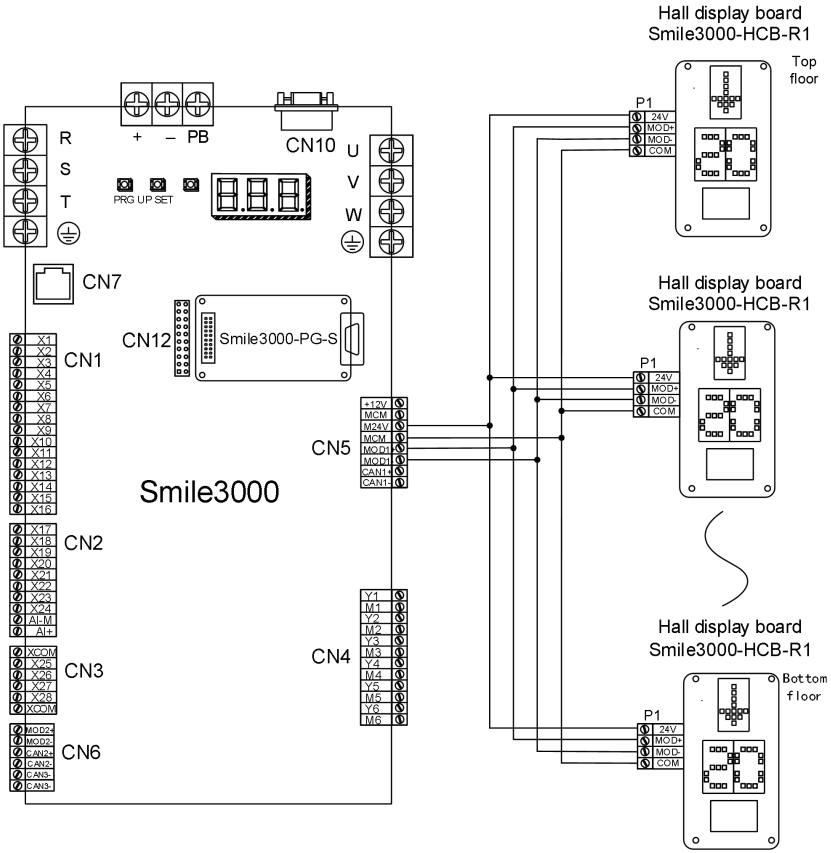


Fig. 3-8 Wiring of MCB and hall display boards

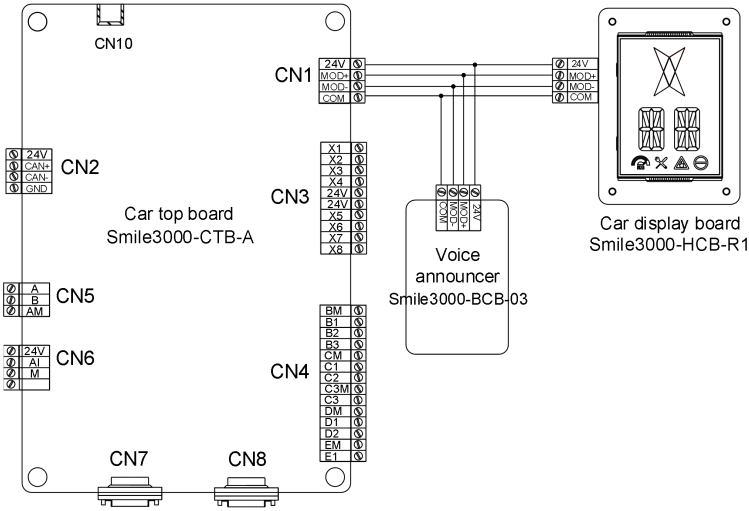


Fig. 3-9 Wiring of CTB and the car display board & voice announcer board

3.3.4.2 Communication address setting of hall and car display boards

When connected to MCB, the hall display board can only have one single address. Otherwise, the communication fails.

When the car display board and voice announcer are connected to CTB, the car display board has 0 as its address, and the voice announcer is plug and play with no need for an address. Many display board models are available. For the floor address setting method of a specific model, refer to "4.3.3 Car/Hall display board Smile3000-HCB-R1".

Address assignment principle: 0: Car display board address; 1 to 48: Hall display board address

The car display board address is 0 while the hall display board address is 1 to 48. MCB communicates with CTB (Smile3000-CTB-A) for the floor, running direction and other information through CAN. Standard Smile3000 system can control up to 48 floors (for service above 48 floors, contact Megmeet for non-standard customization).

3.3.4.3 Topology requirements

For cases with many node, 485 structure can adopt two connection types: hand-in-hand and branch. For branch connection, the length between the bus and the node should be as short as possible, not more than 3 meters. Star topology is strictly forbidden. The common bus topologies are shown below:

(1) Hand-in-hand connection

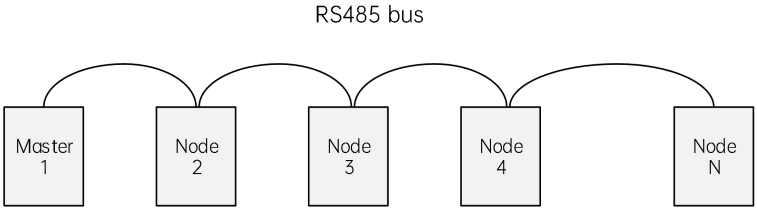


Fig. 3-10 Hand-in-hand connection

(2) Branch connection

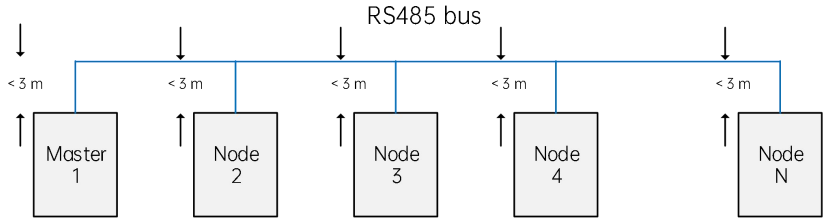
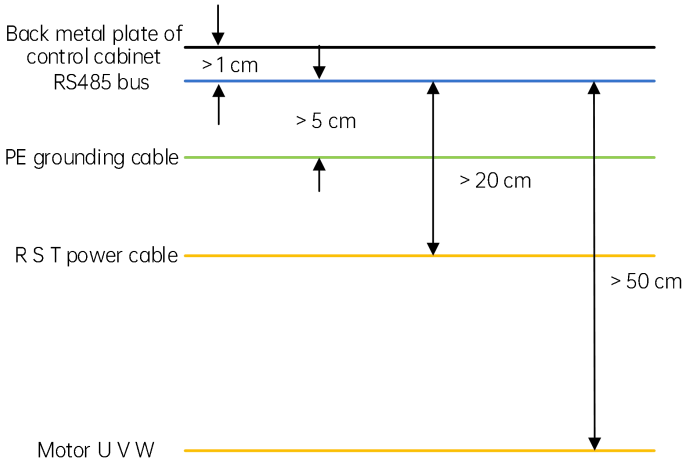


Fig. 3-11 Branch connection

3.3.4.4 EMC cautions

485 communication cables must be twisted pair cables.

485 bus shall be place away from other interference cables.



CAUTION

- ✧ The distance between 485 bus and high-voltage cables should be more than 20 cm;
- ✧ The distance between 485 bus and motor U/V/W cables should be more than 50 cm;
- ✧ The distance between 485 bus and grounding cables should be more than 5 cm;
- ✧ The distance between 485 bus and the back metal plate should be more than 1 cm.

3.3.4.5 Common problems and solutions for Modbus communication

Problem 1: How to connect termination resistors

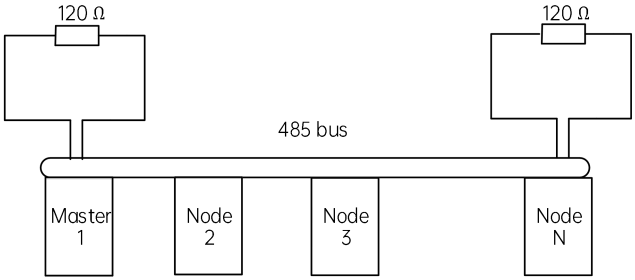


Fig. 3-12 Wiring for termination resistors

CAUTION

- ✧ Butt joint and matching are only allowed at the two ends;
- ✧ Use a multimeter to calculate the resistance of 485 bus. During calculation, the device must be powered off:

If the result is about 60 Ω, the circuit is normal.

If the result is less than 50 Ω, check if there are other matching resistors added to other nodes besides the two ends of bus. If yes, disconnect them.

If the result is 0 Ω, check if there is short circuit or node damage.

Problem 2: How to suppress external interference on system

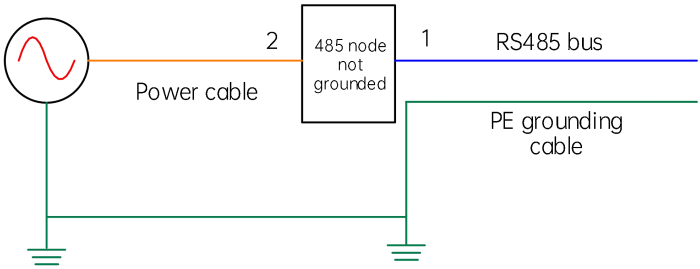


Fig. 3-13 External interference suppression

Solutions:

(1) Adding a magnetic ring at position 1 can effectively suppress external interference. This solution is especially recommended.

(2) Adding a magnetic ring at position 2 can also suppress external interference.

Problem 3: How to suppress controller interference

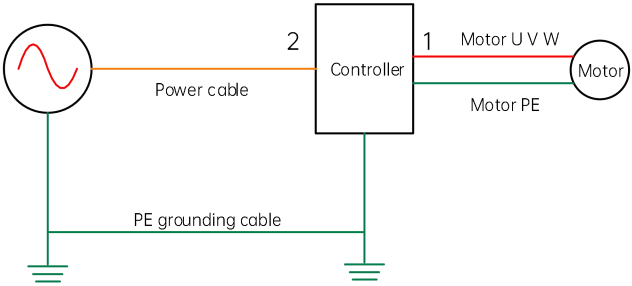


Fig. 3-14 Controller interference suppression

Solutions:

(1) Add a filter magnetic ring at position 1, and thread UVW three cables (PE excluded) through the magnetic ring (recommended to wind three coils). This solution is the first choice with great effect.

(2) Add a filter magnetic ring at position 2, and thread UVW three cables (PE excluded) through the magnetic ring (recommended to wind three coils).

3.3.5 CAN communication

3.3.5.1 Wiring

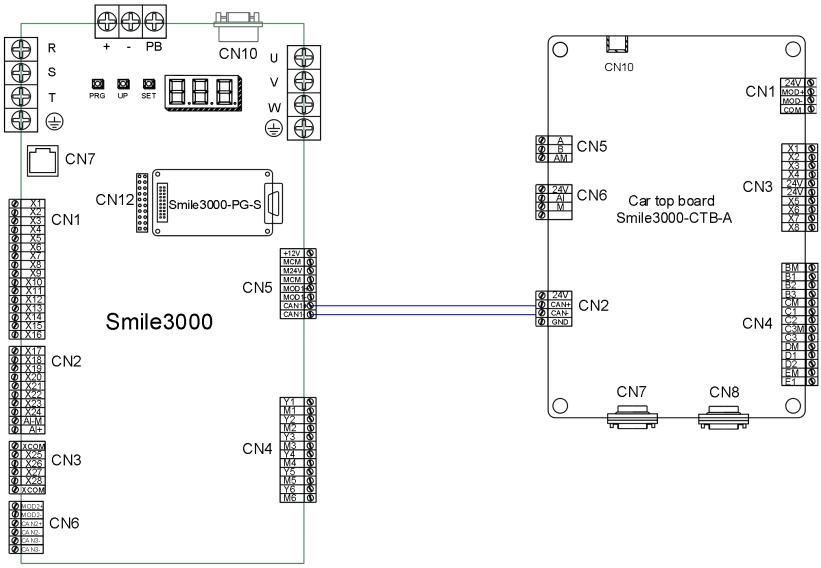


Fig. 3-15 CAN communication between MCB and CTB

3.3.5.2 EMC cautions

Prevent short circuits between 24 V, COM, CAN+, CAN- and other cables. Before power-on, use a multimeter to check whether there is any short circuit between the four cables and other cables.

Communication cables and power cables must be away from each other. If high-voltage cables and low-voltage cables are in parallel, place high-voltage cables at one side and low-voltage cables at the other side. High-voltage cables and low-voltage cables must be separated by the grounding cable.

Ground traveling cables.

Communication cables shall be four-core. One core is connected to DC 24 V, two cores are connected to CAN+ and CAN-, and the last core is connected to COM.

Shielded cables are not recommended for long-distance transmission because the large delay will affect the transmission distance and communication rate. However, the diameter of cables has little influence on CAN transmission.

3.3.5.3 Common problems and solution for CAN communication

Problem 1: How to check whether the matching resistor is correct

After powering off all devices, use a multimeter to calculate the resistance between CAN+ and CAN- at

any end of CAN communication, which should be about 60 Ω. If the resistance is too small, it means some matching resistors are wrongly connected at other positions besides the two ends. Just disconnect them.

Problem 2: How to evaluate the reliability of communication cables

The cables must be twisted pair cables with metal shield. The diameter of cross-sectional area should exceed 0.75 mm^2. All common terminals (COM) should be connected together (just hang the common terminals in the air, and do not connect them to the system's grounding). Power supplies of all sites should be reliably grounded.

3.4 Installation of shaft position switches

In elevator control, shaft position switches are need for car position identification to implement accurate landing and safe running. The shaft position switch signals include the leveling switch signals, up/down slow-down switch signals, up/down limit switch signals, and up/down final limit switch signals. These shaft position signals are directly transmitted to MCB of the controller through shaft cables.

The following figure shows the arrangement of shaft position switches in the shaft:

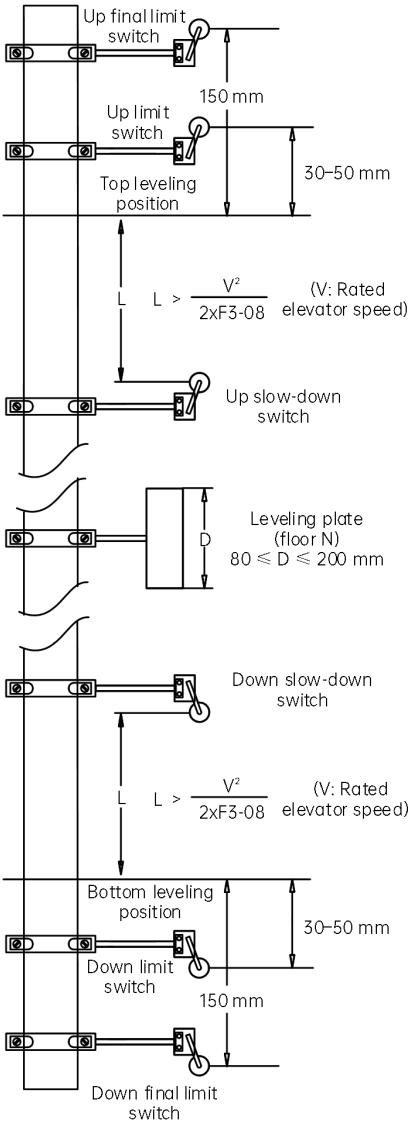


Fig. 3-16 Arrangement of shaft position switches

3.4.1 Installation of leveling switches

Leveling signals are detected by the leveling switches and leveling plates and directly connected to the input terminals of the controller. It is used to enable the car to land at each floor accurately.

The leveling switches are generally installed on the top of the car. Smile3000 can use 4 leveling signals, which means 4 leveling switches can be installed. The leveling plates are installed on the guide rail in the shaft. A leveling plate needs to be installed at each floor. Ensure that leveling plates at all floors are mounted with the same depth and verticality.

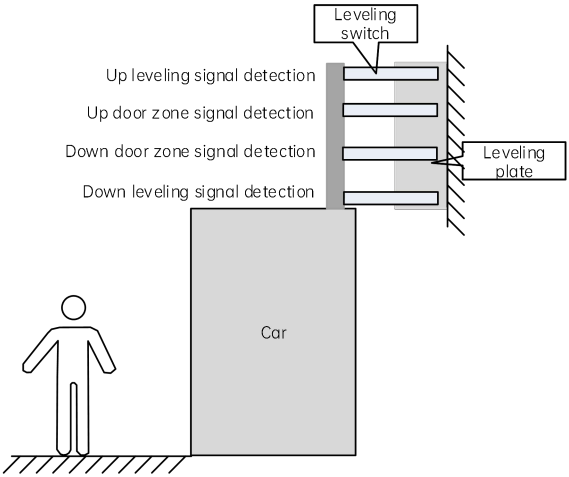
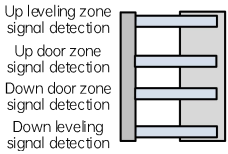
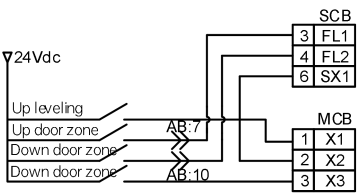
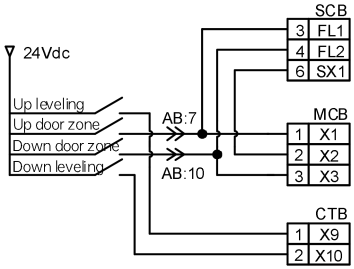


Fig. 3-17 Installation position of leveling switches

Table 3-6 Installation description and parameter setting of leveling switches

Installation	Input terminals of controller	Parameter	State monitoring
		P06-01=1 P06-02=3 P06-03=2 P12-30 Bit6=0 (Disabled)	D02-00 Bit1: Up leveling state monitoring D02-00 Bit2: Down leveling state monitoring D02-00 Bit3: Door zone signal monitoring

Installation	Input terminals of controller	Parameter	State monitoring
		P06-01=1 P06-02=3 P06-03=2 P12-30 Bit6=1 (Enabled)	D03-00 Bit10: Up leveling state monitoring D03-00 Bit11: Down leveling state monitoring D02-00 Bit3: Door zone signal monitoring D02-00 Bit1: Up door zone signal monitoring D02-00 Bit2: Down door zone signal monitoring

3.4.2 Installation of slow-down switches

The slow-down switch is one of the key protective components to prevent the elevator from top-hitting or bottom-clashing at maximum speed when the elevator position becomes abnormal. Smile3000 supports three pairs of slow-down switches, which are 1, 2 and 3 in sequence from shaft ends to middle floors. Generally, low-speed elevators need one pair of slow-down switches while high-speed elevators need two or three pairs of slow-down switches.

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

$$L > \frac{V^2}{2 \times P3.08}$$

In the formula, L indicates the slow-down distance, V indicates the rated elevator speed (P00-04), and P05-08 indicates the special deceleration rate.

The default value of P05-08 (Special deceleration rate) is 0.9 m/s^2. The slow-down distances calculated based on different rated elevator speeds are listed in the following table:

Table 3-7 Terminal slow-down distances

Rated elevator speed (m/s)	0.25	0.4	0.5	0.63	0.75	1	1.5	1.6	1.75	2	2.5	3	3.5	4
Slow-down 1 distance (m)	0.4	0.4	0.4	0.4	0.4	0.7	1.5	1.7	2.0	2.0	2.0	2.0	2.0	2.0
Slow-down	None	None	None	None	None	None	None	None	None	2.5	4.0	4.0	4.0	4.0

2 distance (m)														
Slow-down 3 distance (m)	None	None	None	None	None	None	None	None	None	None	None	6	8	11

Note:

① For elevators with V < 1 m/s, the error tolerance for actual installation distance of slow-down switches is ±0.1 m compared to the above recommended values;

② For elevators with 1 m/s ⩽ V ⩽ 2 m/s, the error tolerance for actual installation distance of slow-down switches is ±0.2 m compared to the above recommended values;

③ For elevators with 2 m/s < V ⩽ 4 m/s, the error tolerance for actual installation distance of slow-down switches is ±0.3 m compared to the above recommended values.

CAUTION

- ✧ The above slow-down distances are calculated based on the special deceleration rate 0.9 m/s^2;
- ✧ Both the reducing of acceleration/deceleration rate and increasing of special deceleration rate do not affect safety. But, the reducing of special deceleration rate causes harm to safety. So, calculate a proper slow-down distance based on the formula before installation if you want to change relevant parameters.

3.4.3 Installation of limit switches

The up/down limit switch protects the elevator from over travel top/bottom terminal when the elevator does not stop at the leveling position of the terminal floor.

(1) The up limit switch needs to be installed 30–50 mm away from the top leveling position. The limit switch acts when the car continues to run upward 30–50 mm above the top leveling position.

(2) The down limit switch needs to be installed 30–50 mm away from the bottom leveling position. The limit switch acts when the car continues to run downward 30–50 mm below the bottom leveling position.

3.4.4 Installation of final limit switches

The up/down final limit switch protects the elevator from over travel top/bottom terminal when the elevator does not stop completely upon passing the up/down limit switch.

(1) The up final limit switch is mounted above the up limit switch. It is usually 150 mm away from the top leveling position.

(2) The down final limit switch is mounted below the down limit switch. It is usually 150 mm away from the bottom leveling position.

3.5 Standard system wiring

3.5.1 Wiring diagram

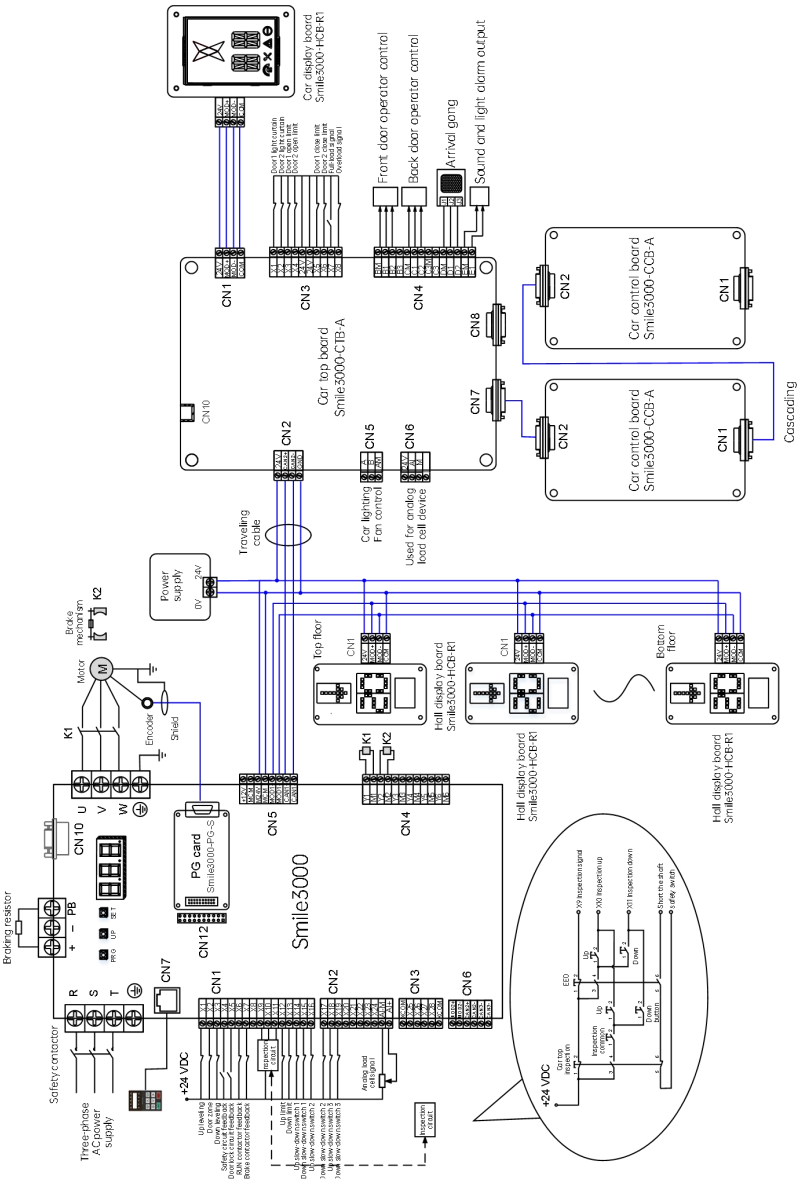


Fig. 3-18 Smile3000 standard system wiring

CAUTION

- ✧ The wiring of Smile3000 series integrated elevator control system is shown in the above figure. The input and output terminal functions of controller can be set by the P06 group. The wiring in the figure is based on default parameters.
- ✧ The connection cables for car control boards are configured by the manufacturer. Please note in your order.

3.5.2 Wiring check

Table 3-8 Items to check about wiring

□	No.	Item
□	1	Is the integrated controller same as the model you ordered?
□	2	Do peripheral devices (braking resistor, braking unit, AC reactor, filter, circuit breaker and so on) meet design requirements?
□	3	Is the option card same as the model you ordered?
□	4	Do the installation method and site of integrated controller meet relevant requirements?
□	5	Is the input voltage of integrated controller within 380–440 V?
□	6	Is the rated voltage of motor consistent with the output specifications of integrated controller?
□	7	Are power input cables connected to R,S,T terminals?
□	8	Are motor input cables connected to U,V,W terminals?
□	9	Does the diameter of main circuit cables meet requirements?
□	10	Are motor output cables shorter than 50 meters? If they exceed 50 meters, carrier frequency P00-08 should be lowered.
□	11	Is the grounding correct?
□	12	Are output terminals and control signal terminals of integrated controller connected firmly?
□	13	Is the wiring of braking resistors and braking units correct? Is the resistance proper?
□	14	Are shielded twisted pair cables chosen for control signal cables of integrated controller?
□	15	Is the wiring of option card correct?
□	16	Do you separate the control circuit cables and main circuit cables?

3.5.3 Parameter setting

The wiring of Smile3000 series integrated elevator control system is shown in the above figure. The input and output terminal functions of controller can be set by the P06 group. The wiring in the figure is based on default parameters.

Chapter 4 Peripheral Devices and Options

4.1 Peripheral devices

4.1.1 Wiring of peripheral devices

It is required to install peripheral electrical devices at input and output sides of Smile3000 integrated controller to ensure the safety and stability of system.

The system wiring diagram is shown in the following figure.

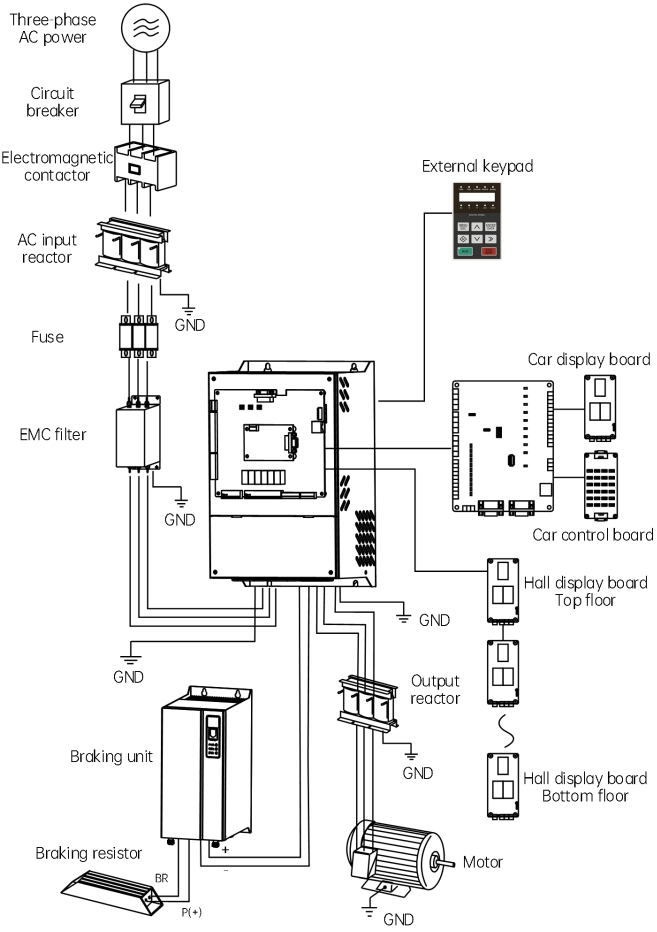


Fig. 4-1 Connection of Smile3000 integrated controller and peripheral devices

WARNING

To prevent the risk of fire, when the controller is installed in a closed cabinet or enclosure, use a cooling fan or air conditioner to keep the inlet temperature below 50℃. Otherwise, overheat or even fire may occur.

DANGER

To prevent the risk of electric shock, do not connect cables when the power supply is on. Otherwise, there will be an electric shock. Check that the breaker is kept at the OFF state.

CAUTION

To avoid damage to devices, note the following cautions:

- ✧ During installation, cover the upper part of the controller with cloth or paper to prevent metal filings, oil, water and the like generated by drilling from entering the controller. If foreign objects enter the controller, the controller may fail to work.
- ✧ After installation, remove the cloth or paper. Otherwise, the controller will overheat due to poor ventilation.
- ✧ When operating the controller, comply with the procedures specified by electrostatic discharge (ESD). Otherwise, the static electricity may damage the controller circuits.
- ✧ When the motor is running at low speed, the cooling effect will be decreased to certain level which may cause motor overheat and fault. The speed range of motor depends on the lubrication methods and manufacturers. If you need to run the motor outside the speed range, consult the motor manufacturer first.
- ✧ The torque characteristics of the controller drive are different from those of a commercial power supply drive. Check the load torque characteristics of the machine to be connected.
- ✧ If the cables between the motor and the controller are pretty long, the motor torque will be reduced due to voltage drop. In this case, use thick cables for connection.
- ✧ The rate current of pole-changing motors is different from that of standard motors. Check the maximum current of motor, and choose a corresponding controller. The motor must be stopped before you change poles.
- ✧ Do not lift the controller if the outer cover is removed. Otherwise, the circuit boards and terminal blocks may be damaged.

4.1.2 Description of peripheral devices

Table 4-1 Description of peripheral devices

Peripheral device	Installation position	Function description
Circuit breaker	Between the power supply	Short circuit breaker: cuts off the power supply upon overcurrent of downstream devices to prevent accidents.

Peripheral device	Installation position	Function description
	and the input side of controller	RCD: high-frequency leakage current may be generated when the controller is working, which requires you to install an RCD according to the actual conditions to avoid an electric shock or fire.
Electromagnetic contactor	Between the air switch and the input side of controller	Used to power on and power off the controller. Do not use the contactor to power on and power off the controller frequently (less than 2 times for each minute) or make a direct start.
AC input reactor	At the input side of controller	Used to improve the power factor at the input side; Effectively suppresses the high harmonics at the input side to avoid device damage due to voltage waveform distortion; Eliminates the current unbalance caused by phase unbalance of power supply.
Fuse	Between the power supply and the input side of controller	Prevents accidents caused by short circuit, and protects downstream semiconductor devices.
EMC filter	At the input side of controller	Reduces transmission and radiation emission of controller to the outside; Reduces the transmission interference from the power supply end to the controller, improving the anti-interference ability of controller.
Output reactor	Between the output side of controller and the motor, near the controller	High harmonics exist at the output side of controller. When the motor is far from the controller, there will be large distributed capacitance. Some harmonics may generate resonance in the circuit, causing two bad effects: a) affects the insulation performance of motor, causing damage to the motor in the long run. b) generates large leakage current, causing frequent protection of controller. Generally, if the distance between the controller and the motor exceeds 100 m, it is recommended to install an output AC reactor.
dv/dt reactor	At the output side of controller, near the controller	A dv/dt reactor can be added to protect the insulation of motor and reduce shaft current.
Common mode filter	At the output side of controller, near the controller	Mainly used to reduce shaft current.

Peripheral device	Installation position	Function description
Motor	At the output side of controller	Choose a suitable motor according to recommendations.

Cautions for connection of Smile3000 and peripheral devices:

(1) Do not install an capacitor or surge protection device at the output side of controller. Failure to comply will cause controller fault or damage to the surge protection device;

(2) Install an anti-interference filter to minimize the interference that is caused by the harmonics at the input and output sides of main circuit;

(3) Select proper peripheral devices by referring to "4.2 Selection guide for peripheral devices" based on actual conditions.

4.2 Selection guide for peripheral devices

4.2.1 Selection of cables, breakers and contactors

(1) Selection of input/output current, breakers and electromagnetic contactors

Table 4-2 Specifications for peripheral devices of Smile3000 integrated controller

Controller model	Input fuse Bussmann FWH in compliance with UL	Breaker (A)	Contactor (A)	Main circuit cable (mm^2)	Control cable (mm^2)	Grounding cable (mm^2)
Single-phase 380 V, range: 380 to 440 V, 50/60Hz						
Smile3000-4T5.5	FWH-35B	25	18	2.5	0.75	2.5
Smile3000-4T7.5	FWH-35B	32	25	4	0.75	4
Smile3000-4T11	FWH-45B	40	32	6	0.75	6
Smile3000-4T15	FWH-60B	50	38	6	0.75	6
Smile3000-4T18.5	FWH-70B	63	40	10	0.75	10
Smile3000-4T22	FWH-80B	80	50	10	0.75	10
Smile3000-4T30	FWH-100B	100	65	10	0.75	10
Smile3000-4T37	FWH-125B	100	80	25	1.0	16
Smile3000-4T45	FWH-150B	160	95	35	1.0	16
Smile3000-4T55	FWH-200B	160	115	50	1.0	25
Smile3000-4T75	FWH-275A	225	170	70	1.0	35

The values in the above table are for recommendation.

(2) Selection of RCD

If the earth leakage current of controller is larger than 3.5 mA, grounding protection is required.

The controller device may generate DC leakage current in the protective conductor, which requires a type-B (delay type) RCD.

If the RCD wrongly acts, take the following measures:

① Choose a delay-type RCD with higher action current;

② Lower the carrier frequency of controller;

③ Reduce the length of motor drive cables;

④ Take other measures to suppress the leakage current;

⑤ Choose recommended RCD brands, such as Chint and Schneider.

4.2.2 Selection of EMC filters

CAUTION

The connection cable between the filter and the controller must be as short as possible (less than 30 cm). At the same time, ensure that the filter and the controller are connected to the same ground reference plane to ensure that the filter is reliably grounded. Otherwise, the filtering function may fail to work.

4.2.2.1 Standard EMC filter

The filter series chosen here complies with the emission requirements of EN 61800-3 C2 type and EN12015 of CE certification. The filter must be reliably grounded, and the connection cable between the filter and the controller must be less than 30 cm. For cable selection, refer to "Table 4-2 Specifications for peripheral devices of Smile3000 integrated controller".

SCHAFFNER and JIANLI are recommended, as shown in the following table.

Table 4-3 Recommended manufacturers and models of EMC input filters

Controller model	Power capacity (kVA)	Rated input current (A)	AC input filter model (JIANLI in Changzhou city, China)	AC input filter model (SCHAFFNER)
Three-phase 380 V, range: 380 to 440 V				
Smile3000-4T5.5	8.5	14.8	DL-16BK5	FN 3258-16-44
Smile3000-4T7.5	11.0	20.5	DL-25BK5	FN 3258-30-33
Smile3000-4T11	17.0	29.0	DL-35BK5	FN 3258-30-33
Smile3000-4T15	21.0	36.0	DL-50BK5	FN 3258-42-33
Smile3000-4T18.5	24.0	41.0	DL-50BK5	FN 3258-42-33
Smile3000-4T22	30.0	49.5	DL-50BK5	FN 3258-55-34
Smile3000-4T30	40.0	62.0	DL-65BK5	FN 3258-75-34
Smile3000-4T37	57.0	77.0	DL-80BK5	FN 3258-100-35
Smile3000-4T45	69.0	93.0	DL-100BK5	FN 3258-100-35
Smile3000-4T55	85.0	113.0	DL-130BK5	FN 3258-130-35
Smile3000-4T75	114.0	157.5	DL-160BK5	FN 3258-180-35

4.2.2.2 Simple EMC input filter

Simple EMC input filters can effectively suppress the field interference and controller generated

interference.

The simple EMC input filter must be reliably grounded, and the connection cable between the filter and the controller must be less than 30 cm.

Table 4-4 Recommended models of simple EMC input filters

Controller model	Power capacity (kVA)	Rated input current (A)	Simple EMC input filter model (JIANLI in Changzhou city, China)
Three-phase 380 V, range: 380 to 440 V			
Smile3000-4T5.5	8.9	14.8	DL-15EB1/10
Smile3000-4T7.5	11.0	20.5	DL-35EB1/10
Smile3000-4T11	17.0	29.0	DL-35EB1/10
Smile3000-4T15	21.0	36.0	DL-65EB1/10
Smile3000-4T18.5	24.0	41.0	DL-65EB1/10
Smile3000-4T22	30.0	49.5	DL-65EB1/10
Smile3000-4T30	40.0	62.0	DL-65EB1/10
Smile3000-4T37	57.0	77.0	DL-120EBK5
Smile3000-4T45	69.0	93.0	DL-120EBK5
Smile3000-4T55	85.0	113.0	DL-120EB1/10
Smile3000-4T75	114.0	157.5	DL-180EB1/10

4.2.3 Selection of braking components

4.2.3.1 Braking resistor

Table 4-5 Selection of braking components

Integrated controller model	Motor power (kW)	Max. braking resistance (Ω)	Min. braking resistance (Ω)	Power (W)	Braking unit
Single-phase 220 V, range: 220 to 240 V, 50/60 Hz					
Smile3000-2S1.1	1.1	90	64	650	Built-in braking unit
Smile3000-2S1.5	1.5	85	64	1000	
Smile3000-2S2.2	2.2	58	50	1200	
Smile3000-2S3.7	3.7	45	37	1600	
Smile3000-2S5.5	5.5	32	18	2000	
Three-phase 220 V, range: 220 to 240 V, 50/60 Hz					
Smile3000-2T2.2	2.2	90	64	1200	Built-in braking unit
Smile3000-2T3.7	3.7	85	64	1600	
Smile3000-2T5.5	5.5	32	18	2000	
Smile3000-2T7.5	7.5	23	17	2500	
Smile3000-2T11	11	19	15	3000	

Three-phase 380 V, range: 380 to 440 V					
Smile3000-4T5.5	5.5	108	82	1800	Built-in braking unit
Smile3000-4T7.5	7.5	80	60	2500	
Smile3000-4T11	11	56	43	3500	
Smile3000-4T15	15	44	33	4500	
Smile3000-4T18.5	18.5	36	27	5500	
Smile3000-4T22	22	33	25	6400	
Smile3000-4T30	30	21	16	9000	
Smile3000-4T37	37	18	14	11000	
Smile3000-4T45	45	14.5	11.5	15000	
Smile3000-4T55	55	12	10	16500	
Smile3000-4T75	75	8	6.5	24000	

CAUTION

- The above values take the synchronous motor as the example. For the asynchronous motor with lower transmission efficiency, you can lower the power of braking resistor or increase the resistance of braking resistor.
- It is recommended to choose the resistor with resistance close to the minimum value.

4.2.4 Selection of motors

Table 4-6 Selection of motors

Controller model	Power capacity (kVA)	Input current (A)	Output current (A)	Motor (kW)
Single-phase 220 V, range: 220 to 240 V				
Smile3000-4T5.5	8.5	15	13	5.5
Smile3000-4T7.5	11	21	18	7.5
Smile3000-4T11	18	28	27	11
Smile3000-4T15	22	33	33	15
Smile3000-4T18.5	24	40	39	18.5
Smile3000-4T22	30	50	48	22
Smile3000-4T30	42	62	60	30
Smile3000-4T37	50	75	75	37
Smile3000-4T45	60	90	90	45
Smile3000-4T55	72	112	110	55
Smile3000-4T75	100	157	152	75

4.3 Options

4.3.1 List of options

Table 4-7 List of options for Smile3000 integrated controller

Model	Name	Function
Smile3000-CTB-A	Car top control board	Used to control the car in the Smile3000 system.
Smile3000-HCB-R1	Car/Hall display and call board	Receives hall calls and displays the current floor and direction; and can also be used for car display
Smile3000-CCB-A	Car control board (car call board)	Smile3000-CCB-A is the channel for users to communicate with the control system, which is in charge of the register of button commands and the output of button light
Smile3000-PG-S	PG card 1	For SIN/COS encoders
Smile3000-PG-P	PG card 2	For push-pull output and open-collector incremental encoders
Smile3000-SCB-A	UCMP board	Detects the unintended movement of car, achieving advance door opening
Smile3000-MCB-A	Main control board	Used to receive and perform shaft and car signals.
Smile3000-MCB-B	Main control board	Used to receive and perform shaft and car signals.
Smile3000-CTB-B	Car top control board	Communicates with the MCB and CCB boards, controlling the door system signals
Smile3000-CPB-A	Pit board	Communicates with the MCB, controlling the elevator during pit inspection
Smile3000-CCB-B	Car control board	Communicates with the CTB, receiving car input commands and outputting display information
Smile3000-CEB-B	Car control expansion board	Used together with Smile3000, achieving control for up to 48 elevators
Smile-IOT	IoT module	Used for elevator monitoring, including functions like collection of running parameters, information transmission, and automatic alarm. Managers can monitor the elevator running status remotely in real time through Megmeet IoT platform.

4.3.2 Car top control board: Smile3000-CTB-A

Car top control board Smile3000-CTB-A includes 8 DIs, 1 AI, 7 relay outputs (9 for non-standard type).

(1) Dimensions and installation

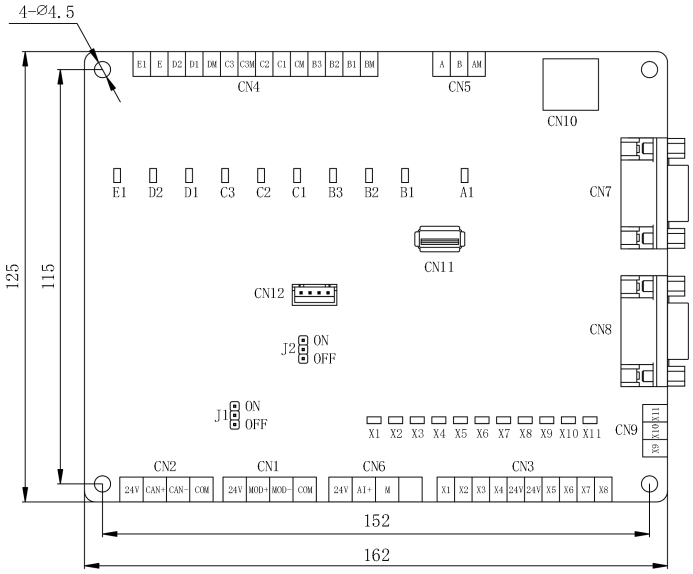


Fig. 4-2 Car top board appearance and dimensions (unit: mm)

CAUTION

The bottom of car top board shall be over 10 mm away from the fixing position.

(2) Terminal wiring

Table 4-8 Terminal description of car top board

Terminal mark		Terminal name	Function description
CN2	+24V/COM	External 24 VDC power supply	Connected to external 24 V power supply to provide power for the car top board
	CAN+/CAN-	CAN interface with MCB	Connected to the MCB of Smile3000 integrated controller for CAN communication
CN1	+24V/COM	24 VDC voltage output	Provides 24 V power to Smile3000-HCB-R1
	MOD+/MOD-	Modbus interface with the display board	Connected to the car display board Smile3000-HCB-R1 for Modbus communication
CN6	AI-M	Analog load cell signal input	Input voltage range: 0 VDC to 10 VDC
CN3	24V	+24V power supply	DI power common terminal
	X1	Light curtain 1 input	Digital input terminals 1. Optocoupler isolation, unipolar input, common cathode 2. Input impedance: 5.6 kΩ When 24 VDC is input, Smile3000-CTB-A signals
	X2	Light curtain 2 input	
	X3	Door open limit 1 input	
	X4	Door open limit 2 input	
	X5	Door close limit 1 input	

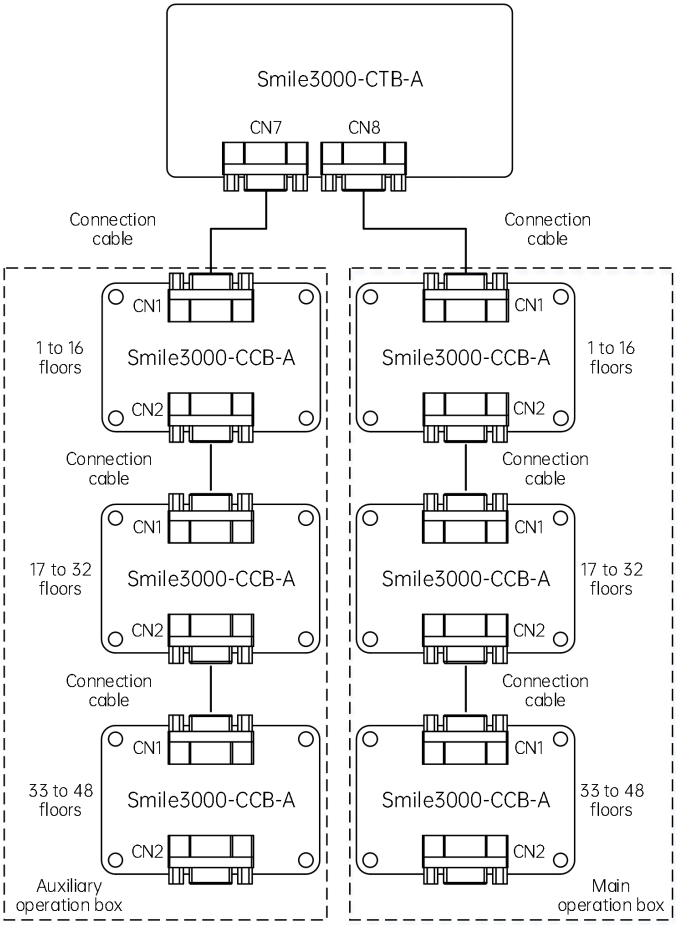
Terminal mark		Terminal name	Function description
	X6	Door close limit 2 input	become valid.
	X7	Full-load signal (100%) input	
	X8	Overload signal (110%) input	
	X9	Inspection	
	X10	Inspection up	
	X11	Inspection down	
CN4	B1-BM	Door open signal 1 output	Relay output terminals, contact drive capacity: 30 VDC, 5 A
	B2-BM	Door close signal 1 output	
	B3-BM	Forced door close 1 output	
	C1-CM	Door open signal 2 output	
	C2-CM	Door close signal 2 output	
	C3-C3M	Forced door close 2 output	
	D1-DM	Up arrival signal output	
	D2-DM	Down arrival signal output	
	E1-EM	Sound and light alarm output	
CN5	A-AM (NC) B-AM (NO)	Car fan/lighting control output	Relay output terminals, drive capacity: 250 VAC, 5 A or 30 VDC, 5A
CN7/CN8		Communication with the car control board DB9	Connected to the car control board Smile3000-CCB-A. CN7 is used for front door or common calls, and CN8 is used for back door or disability calls.
CN10		External keypad RJ45 interface	Connected to an external LED keypad or LCD keypad
J2		Reserved	Used by the manufacturer. Do not short it without guidance. Failure to comply may cause malfunction of the board.
CAN		CAN communication indicator	Indicator of CAN communication between the car top board and Smile3000 integrated controller MCB. Flashing when the communication is normal;

Terminal mark	Terminal name	Function description
		Flashing slowly when the communication is faulty.
POWER	Power indicator	Indicator steady on when the power supply is normal.
X1 to X11	DI indicator	On (Green) when the external input signals are connected
A1 to E1	Relay output indicator	On (Green) upon system output
CN1	USB communication interface	Used by the manufacturer.

CAUTION

- ✧ To avoid external interference, it is recommended to use shielded twisted pair cables for communication, and not to place cables in parallel;
- ✧ Connect cables strictly according to terminal marks, and fasten them.

(3) Cascading of control boards



4.3.3 Car/Hall display and call board: Smile3000-HCB-R1

Car/Hall display board Smile3000-HCB-R1 is an important link between passengers and the control system, which can respond to hall calls from passengers, can display the current floor and running direction as well as can be used for display in the car.

(1) Appearance and dimensions

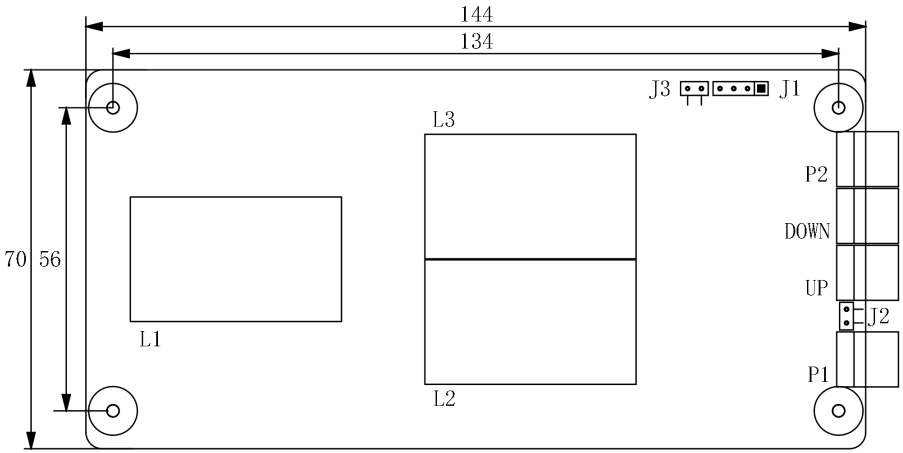
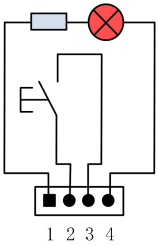
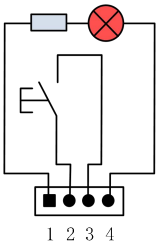
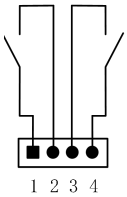
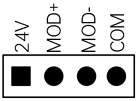


Fig. 4-3 Smile3000-HCB-R1 appearance and dimensions (unit: mm)

(2) Terminal description

Table 4-9 Input and output terminal description

Terminal	Function description	Terminal wiring
UP	Up call button terminal: Pin 2&3 are digital input pins -- on/off control of up button; Pin 1&4 are power pins -- up button indicator. (24 VDC output, load capacity 40 mA)	
DOWN	Down call button terminal: Pin 2&3 are digital input pins -- on/off control of down button; Pin 1&4 are power pins -- down button indicator. (24 VDC output, load capacity 40 mA)	

Terminal	Function description	Terminal wiring
P2	Elevator lock and fire emergency terminal: Pin 1&2 are elevator lock input pins; Pin 3&4 are fire emergency input pins.	
J1	Used to set the floor address: Short J1, and press the up and down call buttons to set the floor address. Remove the jumper cap to save the address (0 to 48).	
P1	Modbus communication and power terminals: Pin 2&3 are Modbus communication pins; Pin 1&4 are power pins.	

4.3.4 Car control board: Smile3000-CCB-A

Car control board Smile3000-CCB-A is also called car call board. It contains 24 inputs and 22 outputs, among which 16 are floor button signals, and 8 are function signals. It is mainly used for the collection of button commands and the output of button indicators. By cascading, the control can be extended to 48 floors (CN2 is the input interface, and CN1 is the cascading output interface).

(1) Appearance and dimensions

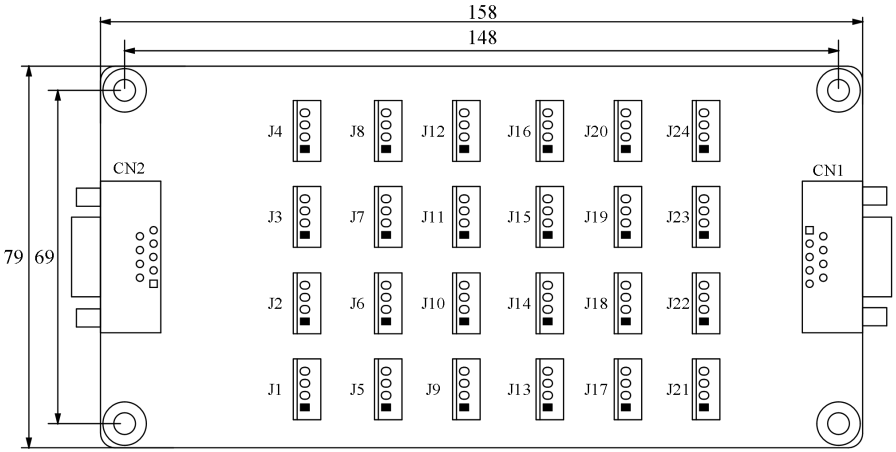
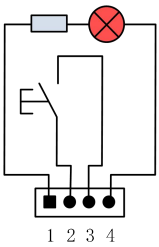


Fig. 4-4 Smile3000-CCB-A appearance and dimensions (unit: mm)

(2) Terminal description

Table 4-10 CCB terminal description

No.	Interface	Pin 2&3	Pin 1&4	Terminal wiring
1	JP1	Floor 1 button input	Floor 1 display output	 When the car control board is used for cascading, JPn input signals correspond to (16+n) floor button inputs.
2	JP2	Floor 2 button input	Floor 2 display output	
3	JP3	Floor 3 button input	Floor 3 display output	
4	JP4	Floor 4 button input	Floor 4 display output	
5	JP5	Floor 5 button input	Floor 5 display output	
6	JP6	Floor 6 button input	Floor 6 display output	
7	JP7	Floor 7 button input	Floor 7 display output	
8	JP8	Floor 8 button input	Floor 8 display output	
9	JP9	Floor 9 button input	Floor 9 display output	
10	JP10	Floor 10 button input	Floor 10 display output	
11	JP11	Floor 11 button input	Floor 11 display output	
12	JP12	Floor 12 button input	Floor 12 display output	
13	JP13	Floor 13 button input	Floor 13 display output	
14	JP14	Floor 14 button input	Floor 14 display output	
15	JP15	Floor 15 button input	Floor 15 display output	
16	JP16	Floor 16 button input	Floor 16 display output	
17	JP17	Door open button input	Door open display output	When the car control board is used for cascading, terminals here are ineffective (when it is used for back door control as a cascading board, JP17 can achieve back door open).
18	JP18	Door close button input	Door close display output	
19	JP19	Door open delay button input	Door open delay display output	
20	JP20	Direct travel ride input	Non-door zone stop output	
21	JP21	Attendant input	Reserved	
22	JP22	Direction change input	Reserved	
23	JP23	Independent running input	Reserved	
24	JP24	Firefighter running input	Reserved	
Note: Pin 1&2 are positive poles. Pin 1 on the PCB can be identified by the white dot mark or square shape.				

4.3.5 PG card: Smile3000-PG-S

A PG card is required to achieve the feedback vector control in the Smile3000 integrated control system. Insert the CN2 terminal of PG card into the CN12 terminal on the MCB of Smile3000 integrated controller.

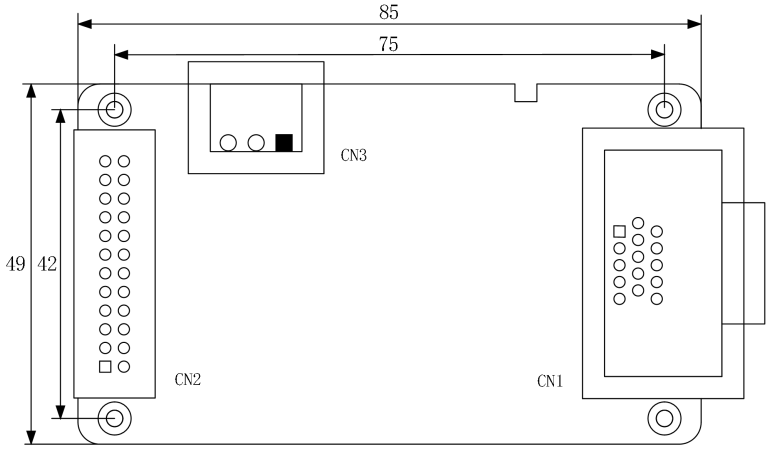


Fig. 4-5 Smile3000-PG-S appearance and dimensions (unit: mm)

Table 4-11 CN1 terminal definitions of PG card

CN1 pin definition														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
B-	None	Z+	Z-	A+	A-	COM	B+	VCC	C+	C-	D+	D-	None	None

Cautions for PG card connection:

(1) The cable from the PG card to an encoder must be arranged separately from the control circuit and power circuit cables, and cables are not allowed to be placed near with each other in parallel;

(2) The cable from the PG card to an encoder must be shielded. The shield shall be connected to the PE terminal at the end near to the controller (individual grounding recommended for less interference);

(3) The cable from the PG card to an encoder must be individually sheathed in the duct, and the metal shell must be reliably grounded.

4.3.6 UCMP board: Smile3000-SCB-A

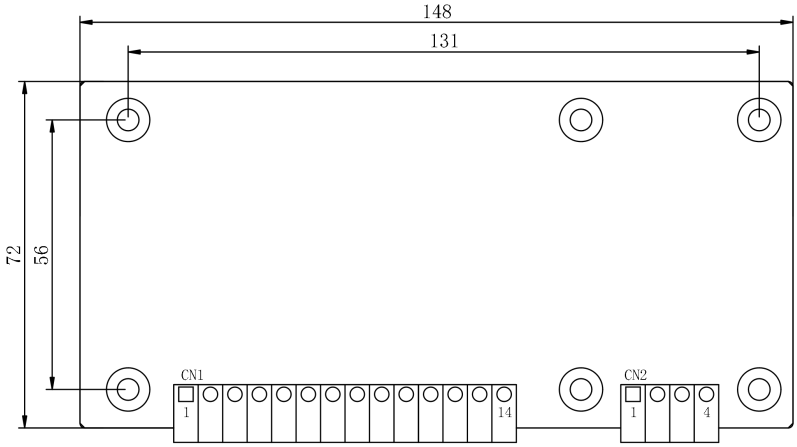


Fig. 4-6 Smile3000-SCB-A appearance and dimensions (unit: mm)

(1) Terminal description

Terminal	Pin	Name	Terminal description
CN1	1	+24V	Power +24 V
	2	0V	Power ground
	3	DZU	Up leveling
	4	FL1	Up re-leveling
	5	FL2	Down re-leveling
	6	DZD	Down leveling
	7	SY	Advance output
	8	SX1	Door zone
	9	SX2	Advance feedback
	10	SEL	SEL
	11	NC	/
	12	S05	Accessory brake A
	13	S06	Accessory brake B
	14	NC	/
CN2	1	S01	Shorting door A1
	2	S02	Shorting door A2
	3	S03	Shorting door B1
	4	S04	Shorting door B2

4.3.7 MCB: Smile3000-MCB-A

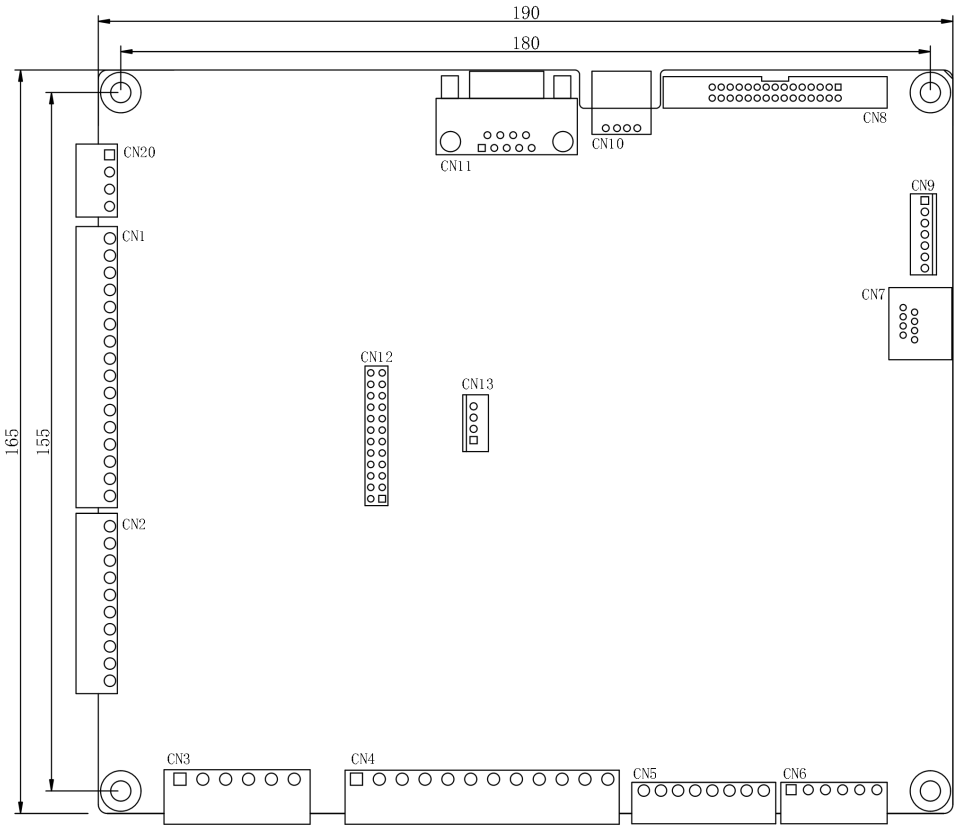


Fig. 4-7 Smile3000-MCB-A appearance and dimensions (unit: mm)

(1) Terminal description

Terminal	Pin	Name	Description	Function
CN1	1 to 16	X1 to X16	Digital inputs 1 to 16	External low-voltage digital input signals
CN2	1	AI+	Analog input	External low-voltage digital/analog input signals
	2	AI/M	Analog input ground	
	3 to 10	X17 to X24	Digital inputs 17 to 24	
CN3	1	HCOM	High-voltage digital input ground	External high-voltage digital input signals
	2 to 5	X25 to X28	Digital input 25 to 28	
	6	HCOM	High-voltage digital input ground	
CN4	1, 2	Y1, M1	Relay output 1	Relay output signals
	3, 4	Y2, M2	Relay output 2	

Terminal	Pin	Name	Description	Function
	5, 6	Y3, M3	Relay output 3	
	7, 8	Y4, M4	Relay output 4	
	9, 10	Y5, M5	Relay output 5	
	11, 12	Y6, M6	Relay output 6	
CN5	1	CAN1-	CAN1 communication	External power input and communication signals
	2	CAN1+		
	3	MOD1-	MOD1 communication (RS485)	
	4	MOD1+		
	5	MCOM	External power ground	
	6	M24V	External power 24 V positive	
	7	MCOM	External power ground	
	8	M12V	External power 12 V positive	
CN6	1	MOD2+	MOD2 communication (RS485)	Communication signals
	2	MOD2-		
	3	CAN2+	CAN2 communication	
	4	CAN2-		
	5	CAN3+	CAN3 communication	
	6	CAN3-		
CN7	1	RS485+	RS485 communication	RS485 communication signals
	2	RS485-		
	3 to 6	GND	+5 V ground	
	7, 8	+5V	+5 V	
CN10	1	+5V	+5 V power supply positive	Used by the host controller
	2	USBTX	USB interface, actually for RS232 communication	
	3	USBRX		
	4	GND	+5 V power supply ground	

4.3.8 MCB: Smile3000-MCB-B

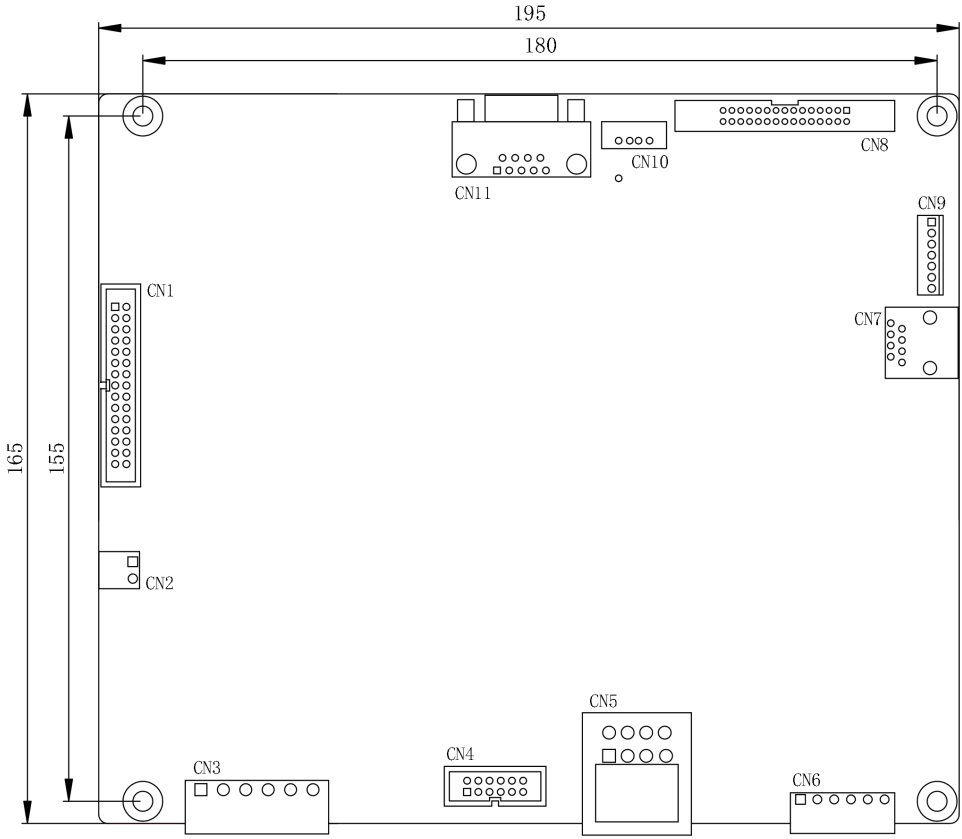


Fig. 4-8 Smile3000-MCB-B appearance and dimensions (unit: mm)

(1) Terminal description

Terminal	Pin	Name	Description	Function
CN1	1 to 24	X1 to X24	Input signals X1 to X24	External low-voltage digital input signals
	25 to 28	X31 to X34	Input signals X31 to X34	
	29, 30	XMCOM	Digital input 24 VDC negative	
CN2	1	AI+	Analog input	External low-voltage analog input signals
	2	AI/M	Analog input ground	
CN3	2 to 5	X25 to X28	Digital inputs 25 to 28	External high-voltage digital input signals
	1, 6	HCOM	High-voltage digital input ground	
CN4	1 to 10	Y1 to Y10	Output control signals 1 to 10	Output control signals
	11, 12	MCOM	Digital input 24 VDC negative	

Terminal	Pin	Name	Description	Function
CN5	1	M12V	24 VDC for single board power supply	External power input and communication signals
	2	PE	Grounding protection for the single board, connected to the shield cable	
	3	MOD1+	MOD1 communication (RS485+)	
	4	MOD1-	MOD1 communication (RS485-)	
	5	CAN1+	CAN1 communication (CAN+)	
	6	CAN1-	CAN1 communication (CAN-)	
	7	M24V	External power 24 V positive	
	8	MCOM	External power 24 V ground	
CN6	1	MOD2+	MOD2 communication (RS485)	Communication signals
	2	MOD2-		
	3	CAN2+	CAN2 communication	
	4	CAN2-		
	5	CAN3+	CAN3 communication	
	6	CAN3-		
CN7	1	RS485+	RS485 communication	
	2	RS485-		
	3 to 6	GND	+5 V ground	
	7, 8	+5V	+5 V	
CN10	1	+5V	+5 V power supply positive	Used by the host controller
	2	USBTX	USB interface, actually for RS232 communication	
	3	USBRX		
	4	GND	+5 V power supply ground	

4.3.9 Car top control board: Smile3000-CTB-B

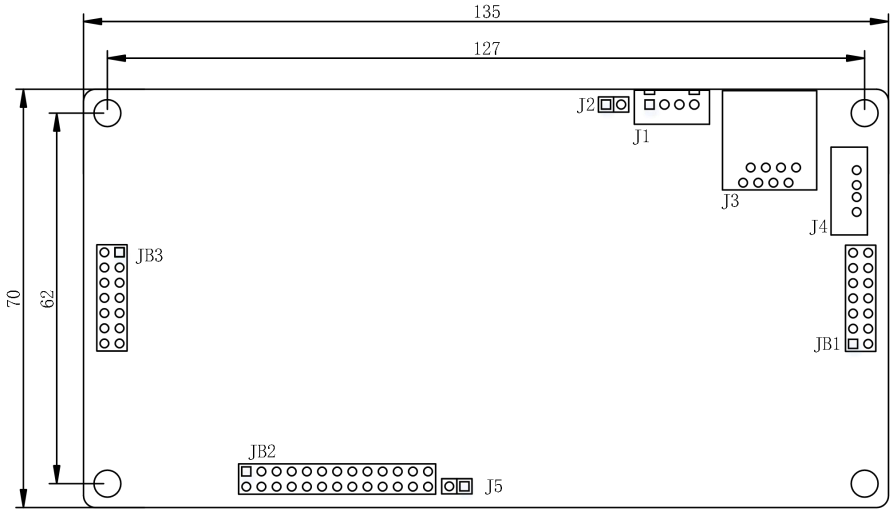


Fig. 4-9 Smile3000-CT-B appearance and dimensions (unit: mm)

(1) Terminal description

Terminal	Pin	Name	Description	Function
J3	1, 2	RS485+/-	RS485+/RS485-	RS485 communication interface
	3 to 5	GND	5 V power supply ground	
	6	NC		
	7, 8	5V	5 V power supply	
J5	1	R115 pin 1	Jumper connection to R115	External load cell voltage 5 VDC and 10 VDC, jumper connection of 30 kΩ resistor
	2	R115 pin 2	Jumper connection to R115	
JB1	1, 2	+24V	+24 V power supply	External 24 V power supply and communication terminal input
	3, 4	0V	24 V power supply negative	
	5, 6	CAN2H	CAN+ communication	
	7, 8	CAN2L	CAN- communication	
	9, 10	RS485+	RS485+ communication	
	11, 12	RS485-	RS485- communication	
	13, 14	-	-	
JB2	1 to 24	X1 to X24	Digital inputs from 1 to 24	
	25	GND	Digital input power ground	
	26	VI	Load cell analog input 5 VDC	
JB3	1 to 10	OUT21 to	Output control signals 1 to 10	Control signal output

Terminal	Pin	Name	Description	Function
		OUT30		terminals of external relay
	11	-	-	
	12	OUT31	Output control signal 11	
	13, 14	-	-	

4.3.10 Pit board: Smile3000-CPB-A

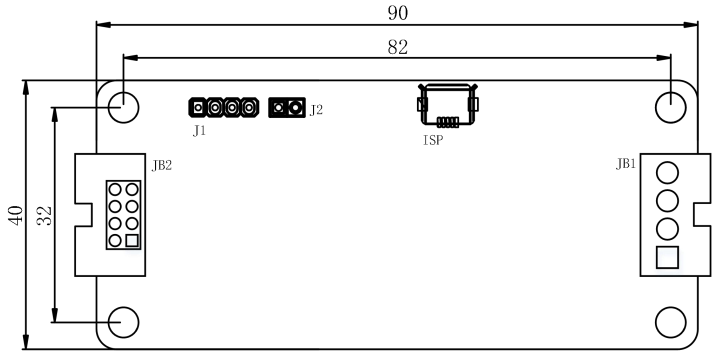


Fig. 4-10 Smile3000-CPB-A appearance and dimensions (unit: mm)

(1) Terminal description

Terminal	Pin	Name	Description	Function
JB1	1	24V	24 V input	RS485 communication and power port
	2, 3	RS485+/RS485-	RS485+/RS485-	
	4	0V	0 V input	
JB2	1	+241	24 V external output	External 24 V power supply and communication terminal input
	2	G241	0 V corresponding to the 24 V external output	
	3 to 6	X1 to X4	Digital inputs 1 to 4	
	7	OUT11	Digital output 1	
	8	OUT12	Digital output 2	

4.3.11 Car control board: Smile3000-CCB-B

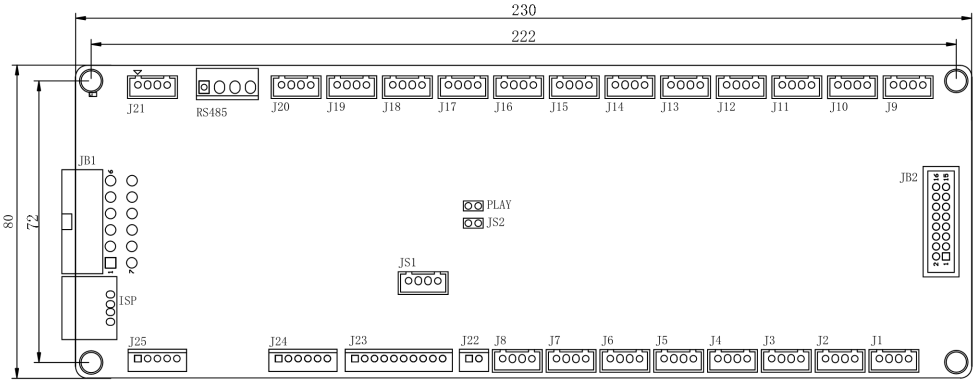


Fig. 4-11 Appearance and dimensions (unit: mm)

(1) Terminal description

Terminal	Pin	Name	Description	Function
J1 to J20	-	J1 to J20	Pin1: +24 VDC internal power supply; Pin2: +24 VDC internal power supply; Pin3: Button input; Pin4: Indicator output	Button input socket
J21	1	TL+	Intercom device power supply positive	Intercom device connection
	2	COM	Intercom device power supply negative	
	3	DR	Intercom signal	
	4	DL	Intercom signal	
J22	1	YY+	External speaker positive	Speaker for voice announcer
	2	YY-	External speaker negative	
J23	1	+24VDC	+24 VDC internal power supply	multi-function input
	2	X4	multi-function input 4	
	3	+24VDC	+24 VDC internal power supply	
	4	X5	multi-function input 5	
	5	+24VDC	+24 VDC internal power supply	
	6	X6	multi-function input 6	
	7	+24VDC	+24 VDC internal power supply	
	8	X7	multi-function input 7	
	9	+24VDC	+24 VDC internal power supply	
	10	X8	multi-function input 8	
J24	1	+24VDC	+24 VDC internal power supply	

Terminal	Pin	Name	Description	Function
	2	X1	multi-function input 1	
	3	+24VDC	+24 VDC internal power supply	
	4	X2	multi-function input 2	
	5	+24VDC	+24 VDC internal power supply	
	6	X3	multi-function input 3	
J25	1	EL+	Emergency light positive	Emergency light and alarm button connection
	2	COM	Emergency light negative	
	3	AL+	Alarm button input	
	4	JL	Alarm button output	
	5		Empty and fool-proofing	
RS485	1	+24V	+24 VDC power supply	RS485 device connection
	2, 3	RS485+/-	MOD communication (RS485+/-)	
	4	0V	Power supply negative	
PLAY	1	GND	Power ground	Shorting pin for voice play test
	2	TEST	Play test signal	
TF Micro SD	-	Slot	Slot for voice play Micro SD card	TF Micro SD slot, used to place the voice play Micro SD card

4.3.12 Car control expansion board: Smile3000-CEB-A

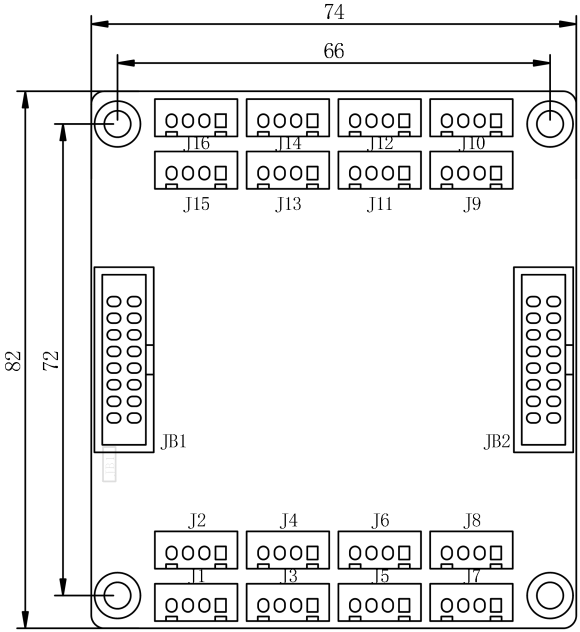


Fig. 4-12 Smile3000-CEB-A appearance and dimensions (unit: mm)

(1) Terminal description

Terminal	Pin	Name	Description	Function
J1 to J16	-	J1 to J16	Pin1: +24 VDC internal power supply; Pin2: +24 VDC internal power supply; Pin3: Button input; Pin4: Indicator output	Button input socket
JB1	-	-	-	Connected to the car top board
JB2	-	-	-	Cascading connection to the control board of next level

4.3.13 IoT module: Smile-IOT

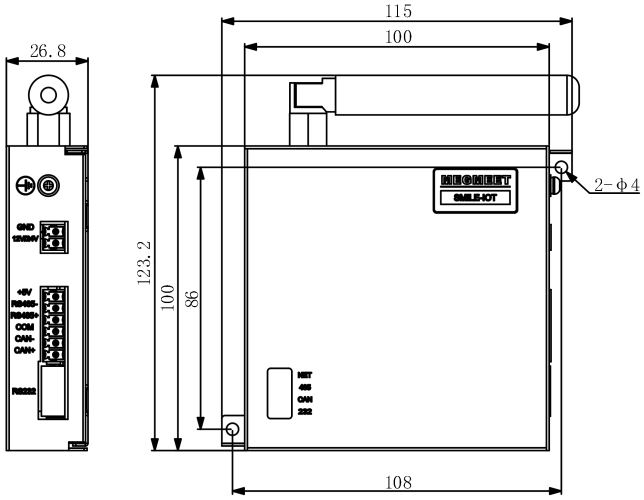


Fig. 4-13 Smile1000-PG-Z appearance and dimensions (unit: mm)

(1) Terminal description

Terminal		Description
GND/12V/24V	12 or 24 V power supply	External DC 12 V or 24 V input
RS485-/RS485+	485 communication	485 communication with the elevator control system
COM/+5V	+5 V power supply	+5 V backup power output
CAN-/CAN+	CAN communication	CAN communication with the elevator control system
RS232	232 communication	232 communication with the elevator control system

(2) Indicator description

Indicator	Description
NET (Green)	Flashing slowly (200 ms on / 1800 ms off): Searching for network Flashing slowly (1800 ms on / 200 ms off): In standby Flashing quickly (125 ms on / 125 ms off): Transmitting data
485 (Green)	Flashing: Normal communication Off: Communication disconnected
CAN (Green)	
232 (Green)	

(3) Antenna connection

Just screw the rubber duck antenna or sucker antenna with SMA connector to the corresponding interface.

(4) SMI card

Smile-IOT has an ESIM as the standard configuration, which will be automatically registered after power-on. If you want to use another applicable SIM card, insert the SIM card after complete power-off. Then, power on the device again, the device will switch to the new SIM network.

Chapter 5 Commissioning Tools

Smile3000 provides three commissioning tools: 3-button keypad on the control board ("keypad" for short), LED operating and display panel ("operating panel" for short) and host controller monitoring software.

Tool	Function description	Remark
Keypad	Used to input commands for shaft commissioning and view floor information	Standard
LED operating panel	Used to view and modify all parameters related to elevator drive and control, facilitating commissioning on site	Optional
Host controller monitoring software	Used to upload/download, view and modify parameters of the integrated controller	Optional

This manual only describes the commonly used keypad and LED operating panel.

5.1 Keypad

The keypad consists of 3 digital tubes and 3 buttons by which you can view the information and input simple commands.

The keypad is shown below: 3 digital tubes (7-segment) as the display, and 3 buttons defined as PRG, UP and SET.

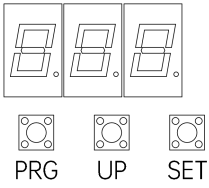


Fig. 5-1 Keypad appearance

Table 5-1 Keypad definition

Button	Function
PRG	Press this button in any state to exit the current operation and enter the function menu mode (that is, display the current group number).
UP	Press this button to increase the function group number or data. In the group P6 menu, this button is used to input the door open command.
SET	Used to enter the function menu edit mode, confirm and save the current operation. In the group P6 menu, this button is used to input the door close command.

The following figure shows the setting of 4th floor call through the keypad.

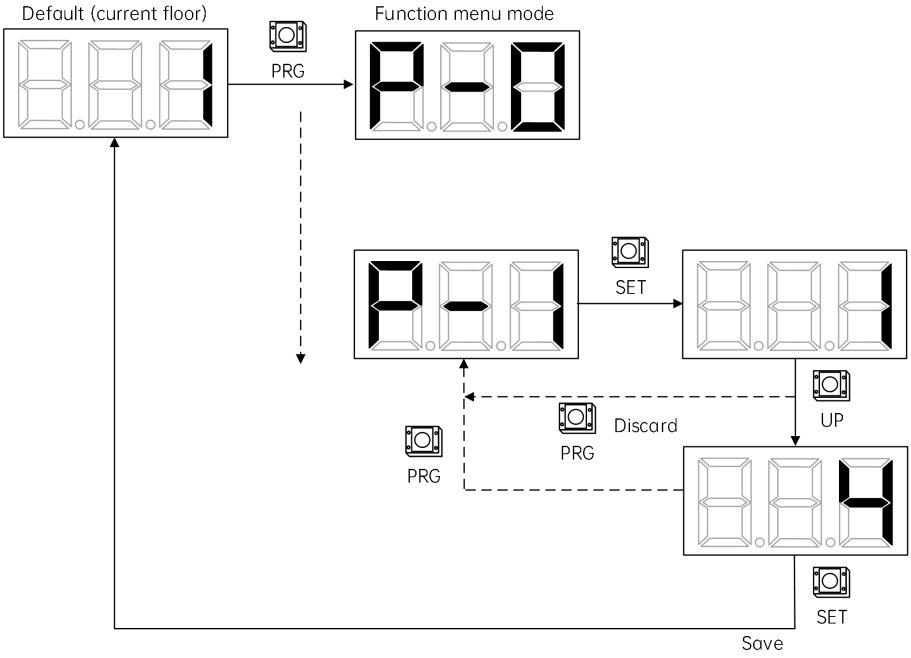


Fig. 5-2 Floor call setting

To learn more about menu modes of the keypad, see "7.1 Keypad parameter description".

5.2 Operating panel

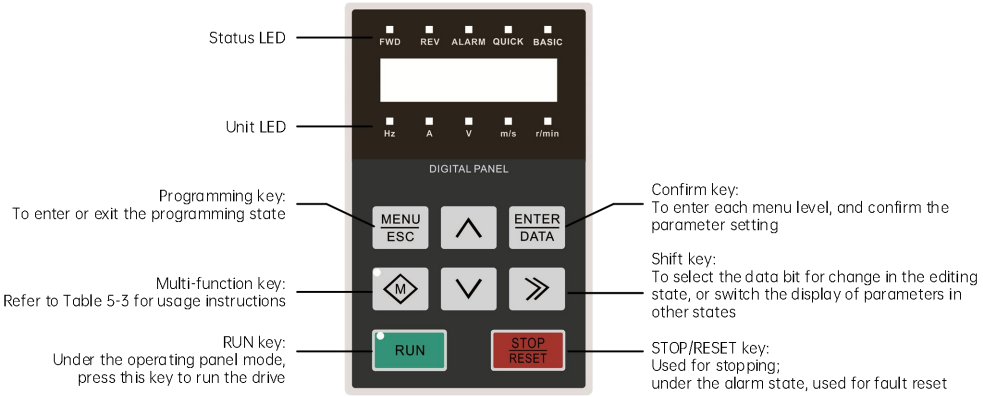


Fig. 5-3 Operating panel appearance and functions

5.2.1 LED and multi-function key description

Table 5-2 LED description

LED	Name	Meaning	Color
Status LED			
FWD	Forward running LED	On: During stop, it means there is a forward running command for the drive During running, it means the drive is running forward Flashing: The drive is switching from FWD to REV	Green
REV	Reverse running LED	On: During stop, it means there is a reverse running command for the drive During running, it means the drive is running reversely Flashing: The drive is switching from REV to FWD	Green
ALARM	Alarm LED	On: The drive enters the alarm status	Red
QUICK	Menu mode LED	QUICK LED BASIC LED Menu mode On Off Quick menu Off On Basic menu Off Off Verification menu	Green
BASIC			Green
Unit LED			
Hz	Frequency LED	On: The current parameter is the running frequency Flashing: The current parameter is the set frequency	Green
A	Current LED	On: The current parameter is the current	Green
V	Voltage LED	On: The current parameter is the voltage	Green
m/s	Line speed LED	On: The current parameter is the line speed	Green
r/min	Rotating speed LED	On: The current parameter is the rotating speed	Green

Table 5-3 Usage of the multi-function key

Key	Name	Function
0	No function	The M key is disabled.
1	JOG	The M key is used as JOG key. In the operating panel command channel, press and hold the key, then the drive starts jog running in real time. Release the key, the jog running stops.
2	FWD/REV switchover	The M key is used for FWD/REV switchover. In the operating panel command channel, it can be used to switch the direction of output

Key	Name	Function
		frequency online.
3	Command channel switchover 1	The M key is used for command channel switchover, which is only valid at stop. The switching sequence is: Operating panel command channel (M key on)→Terminal command channel (M key off)→Serial port command channel (M key flashing)→Operating panel command channel (M key on)
4	Command channel switchover 2	The M key is used for command channel switchover, which is valid at both stop and running. The switching sequence is shown above.
5	Keypad locking function	The M key is used to lock the keypad. Hold the M key and press the ∧ key for three times at the same time to lock the keypad. The locking mode of the keypad depends on the thousands place of the function code. To unlock the keypad, set the thousands place to 5, hold the M key and press the ∨ key for three times at the same time to unlock the keypad. If the thousands place is set to 0, there is no keypad locking function.
6	Emergency stop	The M key is used for emergency stop. In the open loop mode or V/F mode, press this key, then the elevator immediately decelerates to stop.
7	Coast to stop	The M key is used to coast to stop. Press this key, then the drive coasts to stop in any running mode.

5.2.2 Identification of LED display symbols

The panel has 5 digits to display, which can display the set frequency, output frequency, various monitoring data, fault code and so on.

Table 5-4 LED symbols and corresponding letters/figures

LED display	Meaning	LED display	Meaning	LED display	Meaning	LED display	Meaning	LED display	Meaning
	0		7		d		J		r
	1		8		E		L		S
	2		9		F		N		T
	3		A		G		n		U

LED display	Meaning	LED display	Meaning	LED display	Meaning	LED display	Meaning	LED display	Meaning
4	4	b	b	H	H	O	O	V	V
5	5	C	C	h	h	P	P	Y	Y
6	6	c	c	I	I	q	q	-	-

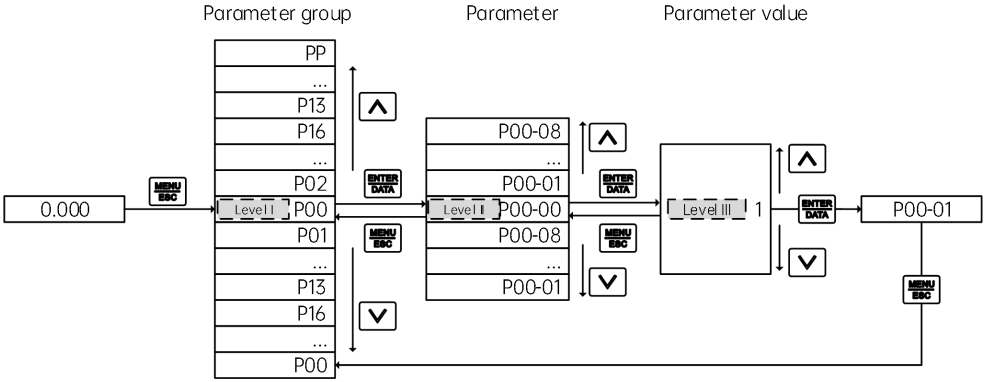
5.2.3 Basic operation

The operating panel has three levels of menu:

Level I: Parameter group

Level II: Parameter

Level III: Parameter value



5.2.3.1 Parameter display

You can set the parameters to be displayed through P13-01 (Parameter display in the running state) and P13-02 (Parameter display in the stop state). Each binary bit of P13-01 and P13-02 indicates a specific parameter. If the binary bit is set to 1, the corresponding parameter is displayed. If the binary bit is set to 0, the parameter is not displayed.

At stop or running, press the ≫ key to switch each byte of P13-01 and P13-02, then you can view multiple status parameters.

(1) Running state parameters

At running, there are 16 state parameters, which can be set to display or not through the binary bits of P13-01.

(2) Stop state parameter

At stop, there are 16 state parameters, which can be set to display or not through the binary bits of P13-02.

CAUTION

For details, see P13-01 and P13-02.

5.2.3.2 Parameter view

Press the MENU ESC key, then press ∧/∨ to display the level I menu, that is, different parameter groups.

After entering each level of the menu, when the display bit blinks, it indicates that you can press ∧, ∨, and ≫ to modify.

5.2.3.3 Parameter modification

After entering each level of the menu, when the display bit blinks, it indicates that you can press ∧, ∨, and ≫ to modify.

In the level III menu, you can press MENU ESC or ENTER DATA to return to the level II menu. The difference between them are:

(1) Press ENTER DATA, then the parameter change will be saved, and the menu returns to level II and automatically moves to the next parameter;

(2) Press MENU ESC, then the parameter change will be discarded, and the menu returns to level II of the current parameter.

In the level III menu, if the parameter value does not blink, it cannot be modified. It may be because:

(1) The parameter is read-only, such as the drive type, actually detected data, running records, etc.

(2) The parameter cannot be modified at running, and can be modified only after shutdown.

Chapter 6 System Commissioning

This chapter describes the basic procedure for Smile3000 commissioning. Through this chapter, you can complete elevator commissioning to achieve basic functions during elevator running.

6.1 Trial run commissioning flowchart

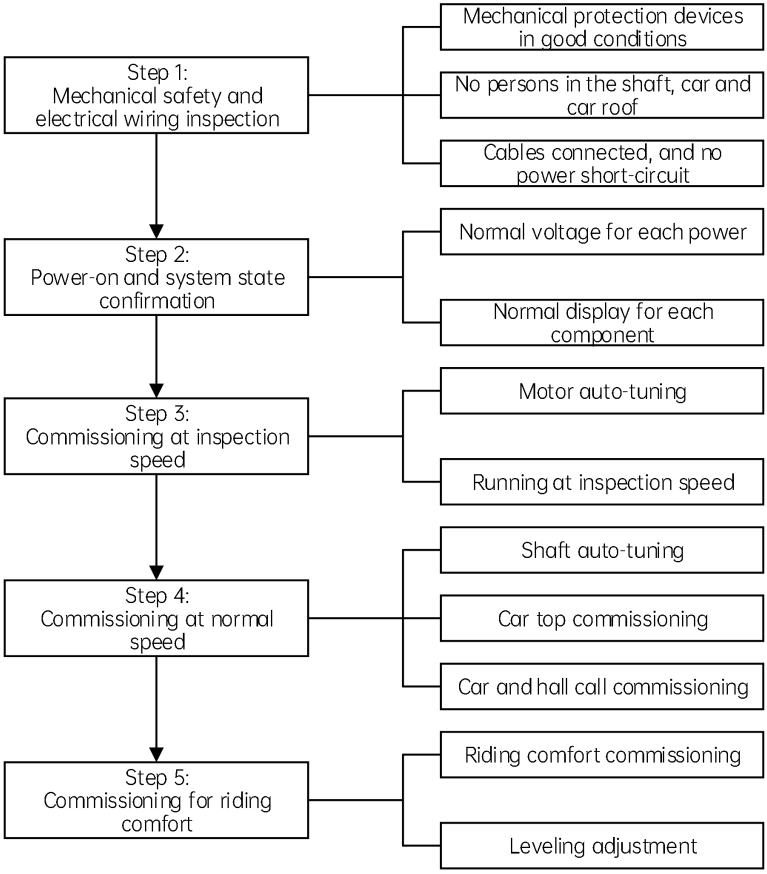


Fig. 6-1 Smile3000 controller commissioning flowchart

6.2 Mechanical safety and electrical wiring inspection

CAUTION

Smile3000 has default I/O allocations and settings. You can change the allocations and settings based on your usage habits. The application examples in this manual are all

based on the default settings.

6.2.1 System wiring diagram

The wiring diagram is detailed in "3.5 Standard system wiring".

6.2.2 System wiring safety inspection flowchart

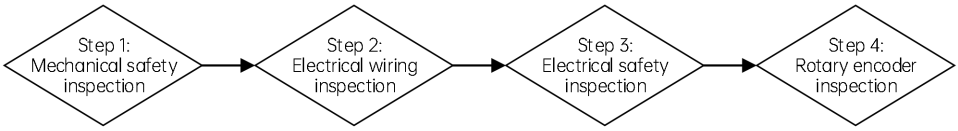


Fig. 6-2 Flowchart of wiring and safety inspection before power-on

Step 1: Mechanical safety inspection

The mechanical safety devices are working normally, and there are no persons in the shaft, inside or on top of the car, creating a safe environment for commissioning.

Step 2: Electrical wiring inspection

(1) Ensure that the power input terminals (R/S/T) are connected correctly and securely.

(2) Ensure that motor cables (U/V/W) are connected to the controller correctly and securely.

(3) Ensure that the controller (cabinet) and motor are grounded correctly.

(4) The safety circuit is conducted, and the emergency stop buttons and switches in the cabinet and in the machine room can be enabled.

(5) Ensure that the door lock circuit is energized and that the door lock circuit is disconnected when the car door or any landing door opens.

DANGER

- ✧ Be careful to short the safety circuit. If you start the elevator when the safety circuit is shorted, severe personal injuries or even death may be caused.
- ✧ Before inspection running, check that there are no persons in the shaft. Failure to comply will cause personal injuries or death.
- ✧ It is forbidden to run the elevator at normal speed with the safety circuit shorted.
- ✧ Never start the elevator when the door lock circuit is shorted. Failure to comply will result in sever personal injuries or even death.

Step 3: Electrical safety inspection

(1) Ensure that the line voltage of the user power supply is within 380 to 440 VAC.

(2) Ensure that the total lead-in wire gauge and total switching capacity meet the requirements.

(3) Ensure that input power supply (R/S/T) is not short-circuited between phases or to ground.

(4) Ensure that the inter-phase short circuit or short circuit to ground does not occur in the UVW phases of the controller, and short circuit to ground does not occur in the UVW phases of the motor.

(5) Ensure that the short circuit to ground does not exist on the output side of the transformer.

(6) Ensure that the 220 V user power supply is not short-circuited between phases or to ground.

(7) Ensure that the 24 V switched-mode power supply has no short circuit to ground or between positive and negative output.

(8) Ensure that the CANbus/Modbus communication cables have no short circuit to the 24 V power supply or short circuit to ground.

Step 4: Rotary encoder inspection

(1) Ensure that the encoder is installed reliably with correct wiring.

(2) Ensure that the encoder signal cables and high-voltage circuit cables are laid in different ducts to prevent interference.

(3) The encoder cables are preferably directly connected to the control cabinet. If the cables are not long enough and an extension cable is required, the extension cable must also be a shielded cable and preferably welded to the original encoder cables by using the soldering iron.

(4) Ensure that the shield of the encoder is reliably grounded on the controller side (Single-end grounding is recommended to prevent interference).

6.3 Controller state confirmation

6.3.1 Checking power-on state

☐ √	No.	Item
☐	1	After power-on, check whether the line voltage of the three-phase controller input power supply (R/S/T) is within 380 V to 440 V, with the phase unbalance factor not exceeding 3%. If the voltage is abnormal, turn the power off and check the user power supply and the wiring of input power supply (R/S/T).
☐	2	Check whether the input voltage of the MCB power supply terminal CN3 is 24 VDC±15%. If the voltage is abnormal, turn the power off and check the switched-mode power supply and the wiring of 24 VDC circuit.

6.3.2 Checking the state at normal power-on

☐ √	No.	Item
☐	1	After power-on, check whether the LEDs have a display. If the LEDs do not light up, check the controller power supply.
☐	2	If the input signal indicators become ON, it indicates that the 24 VDC power supply is normal, and the X input terminals work properly. If none of the indicators is ON, it indicates that the 24 VDC power supply is abnormal, and you need to solve the problem.

6.3.3 Controller state and fault handling before commissioning

During commissioning, especially at first-time power-on, certain faults may occur because the conditions for automatic elevator running are not met or some peripheral signals are not connected. Such faults include E41, E42, E35, E51, E52, and E58. The following table describes the troubleshooting solutions before commissioning at inspection speed.

Table 6-1 Fault handling before commissioning at inspection speed

Fault	Name	Description	Solution
E41	Safety circuit fault	① At this fault, the elevator cannot run or be commissioned. ② By default, the safety circuit input signal is connected to terminals X4 and X25.	Observe whether the signal indicator of input terminals X4 and X25 is ON. If this indicator is OFF, the safety circuit is disconnected. In this case, you need to repair the safety circuit before commissioning at inspection speed.
E42	Door lock circuit fault	① At this fault, the elevator cannot run or be commissioned. ② By default, the door lock circuit signal is connected to terminals X5, X26, and X27.	Observe whether the signal indicator of terminals X5, X26, and X27 is ON. If this indicator is OFF, the door lock circuit is disconnected. In this case, you need to repair the door lock circuit before commissioning at inspection speed. Never short the door lock circuit for commissioning.
E35	Shat auto-tuning data abnormal	This fault is reported at each power-on before shaft auto-tuning is performed. It does not affect commissioning at inspection speed.	Press STOP RESET on the operating panel to hide the fault display. Then, you can perform inspection at inspection speed.
E51	CAN communication fault	① This fault does not affect commissioning at inspection speed, and it affects only commissioning at normal speed. ② The COP indicator is OFF at this fault.	
E52	Hall call communication fault	① This fault does not affect motor auto-tuning or commissioning at inspection speed. ② The HOP indicator is OFF at this fault.	
E58	Shaft position switches abnormal	① The elevator cannot run. You need to troubleshoot the fault first and then perform commissioning at inspection speed.	① Connect X14 and X15 to slow-down switches 1 (NC inputs) and check whether they are OFF simultaneously. Additionally, confirm whether

Fault	Name	Description	Solution
		② The fault cause may be: The feedback inputs of both up and down slow-down switches 1 are active; feedback inputs of both up and down limit switches are active.	slow-down switches 1 are connected to the MCB and act properly. ② Terminals X12 and X13 are connected to the up and down limit switches (NC inputs). Observe whether the signal indicators of both X12 and X13 are OFF. Check whether limited switches act properly.

6.4 Commissioning at inspection speed

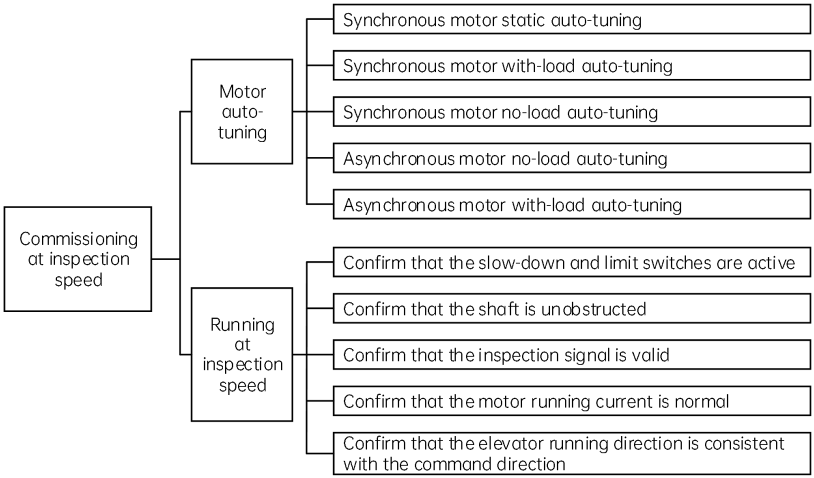
CAUTION

- ✧ Before starting commissioning at inspection speed, make sure that all installations and wiring comply with the technical specifications for electrical safety.
- ✧ During auto-tuning with the car, pay attention to the motor running direction to prevent the elevator from getting too close to terminal floors. It is recommended to start commissioning at inspection speed at a floor at least two floors away from terminal floors.
- ✧ For certain cabinets, "emergency electric running" is used instead of "inspection running". Note that "emergency electric running" shorts certain safety circuit in the shaft, So when performing EEO during commissioning at inspection speed, take care when the car runs in a position close to the top/bottom terminal floor.

DANGER

- ✧ The motor may rotate during auto-tuning. Keep a safe distance from the motor to prevent personal injuries.
- ✧ During with-load auto-tuning, make sure that nobody is in the shaft. Failure to comply will cause personal injuries or even death.

The commissioning at inspection speed includes two stages: motor auto-tuning and running at inspection speed.



6.4.1 Motor auto-tuning

6.4.1.1 Motor auto-tuning related parameters

Parameter	Description	Note
P02-00	Motor type	0: Asynchronous motor 1: Synchronous motor
P02-08	Encoder type	0: Sin/Cos encoder 1: UVW encoder 2: ABZ encoder 3: Reserved
P02-09	Encoder PPR	0 to 10000
P02-01 to P02-05	Rated motor power/voltage/ current/ frequency/speed	Model dependent, manually input
P00-01	Command source selection	0: Operating panel control 1: Distance control
P02-11	Auto-tuning mode	0: No operation 1: Rotary with-load auto-tuning 2: Rotary no-load auto-tuning 3: Shaft auto-tuning 1 4: Shaft auto-tuning 2 5: Synchronous motor static auto-tuning

6.4.1.2 Motor auto-tuning flowcharts

1. Synchronous motor auto-tuning

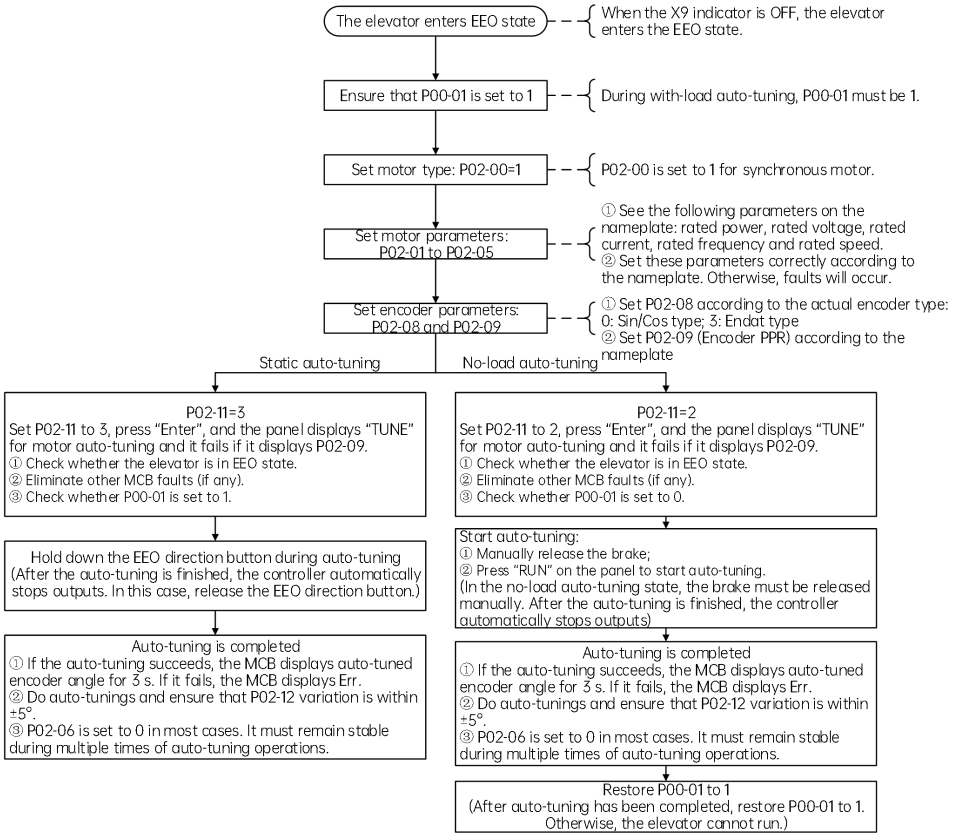


Fig. 6-3 Synchronous motor auto-tuning flowchart

CAUTION

- ✧ Static auto-tuning is only applicable to the Sin/Cos encoder and absolute encoder of synchronous motor. Ensure that the wiring sequence of output UVW cables is consistent with that of encoder AB and CD. Otherwise, the motor auto-tuning will fail, and you need to manually change the sequence of two phases among UVW and do auto-tuning again. Auto-tuning is successful if there is not fault during inspection running.
- ✧ During static auto-tuning, the motor is auto-tuned along with the car, with brake not released and motor not rotating.
- ✧ During no-load auto-tuning, the motor must be disconnected from the car.

Cautions for synchronous motor auto-tuning:

(1) Synchronous motor auto-tuning learns the initial motor pole angle, initial encoder angle, motor wiring mode, and D-axis and Q-axis inductance.

(2) Perform three or more times of auto-tuning. Compare the obtained values of P02-12 (Encoder initial angle), and ensure a difference of within ±5°.

(3) Each time the encoder, encoder cable connection or motor wiring sequence as well as rated motor current, frequency and speed is changed, perform motor auto-tuning again.

(4) You can modify P02-12 manually. The modification takes effect immediately. After replacing the MCB, therefore, you can directly run the controller by manually setting P02-12 to the previous value, without performing motor auto-tuning.

2. Asynchronous motor auto-tuning

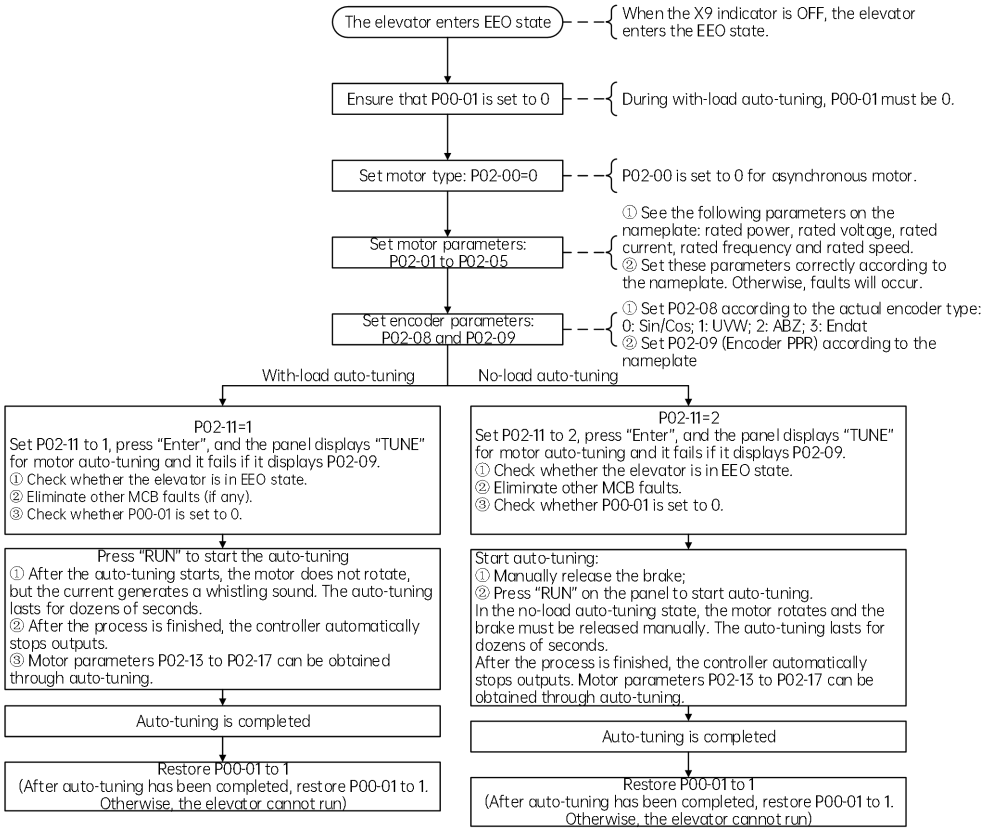


Fig. 6-4 Asynchronous motor auto-tuning flowchart

Cautions for asynchronous motor auto-tuning:

(1) For asynchronous motor with-load auto-tuning, the motor is auto-tuned along with the car; for asynchronous motor no-load auto-tuning, the motor must be disconnected from the car for auto-tuning.

(2) The A/B phase sequence of the encoder must be correct. If the sequence is incorrect, Err38 is reported. To solve the problem, interchange the A/B phase of the encoder.

The system handles the output commands to the RUN contactor or brake contactor differently in different motor auto-tuning modes, as described in the following table.

Table 6-2 Output state of RUN and brake contactors and motor state

Auto-tuning/ Working mode/ Control object	No-load auto-tuning		With-load auto-tuning		
	Synchronous motor	Asynchronous motor	Synchronous motor	Synchronous motor static	Asynchronous motor
RUN contactor	Working	Working	Working	Working	Working
Brake contactor	Not working	Not working	Working	Not working	Not working
Motor	Rotating	Rotating	Rotating	Not rotating	Not rotating

Possible faults and handling

Issue	Symptom	Solution
Auto-tuning failure	Subcode 1: Compared with the phase sequence of power lines UVW, AB in same direction, CD in different direction	Set P04-30 to reverse the encoder CD direction, then do dynamic auto-tuning again.
	Subcode 2: Compared with the phase sequence of power lines UVW, AB in different direction, CD in same direction	Set P04-29 to reverse the encoder AB direction, then do dynamic auto-tuning again.
	Subcode 3: The directions of AB and CD are opposite to UVW	① Check whether encoder pulses per revolution (PPR) is set correctly. ② Check whether the encoder signal is interfered: whether the encoder cable runs through the duct independently, whether the cable is too long, and whether the shield is grounded at one end. ③ Check whether the encoder is installed firmly, and whether the rotating shaft is firmly connected to the motor shaft by observing whether the encoder is stable during normal-speed running. ④ Check whether the encoder wiring is correct.
	Subcode 4: AB, CD and power lines are in the same direction, but the installation angle result is large deviated, causing AB and CD abnormalities	
	Subcode 5: CD signals abnormal	
	Subcode 6: AB signals abnormal	
	Subcode 7: AB and CD signals abnormal	

CAUTION

- ✧ When the above problems occur, change the sequence of motor cables connected to the controller.
- ✧ Adjustment principle of motor wiring sequence: interchange any two adjacent motor cables once.

6.4.2 Running test at inspection speed

Parameters related to the running test at inspection speed are listed below.

Parameter	Description	Note	Default
P00-07	Elevator running direction	0: Running direction unchanged 1: Running direction reversed	0
P03-05	Elevator speed in the EEO state	0.100 to 0.300 m/s	1.000 m/s

Running test process at inspection speed

(1) Check that the motor running direction is correct.

After the auto-tuning is completed, perform trial run at inspection speed to check whether the actual motor running direction is consistent with the command direction. If not, change the motor direction by setting F00-07 (Elevator running direction).

(2) Check that the motor running current is normal.

In the inspection state, the motor current during no-load running is smaller than 1 A, and does not exceed the rated motor current during with-load running at a constant speed in most cases. After multiple times of auto-tuning, if the difference between two adjacent auto-tuned encoder angles is very small but the motor current during with-load running at a constant speed exceeds the rated motor current, check the following items:

① Check whether the brake is fully released.

② Check whether the elevator balance coefficient is normal.

③ Check whether the guide shoes for the car or counterweight are too tight.

(3) Confirm that car top inspection is valid.

Confirm that the car top inspection signal is active and the EEO is inactive when the car top inspection signal is active. That is, the car top inspection takes precedence over the EEO.

(4) Confirm that the shaft is unobstructed.

Check that the shaft is unobstructed without any obstacles, so that the car will not be damaged.

(5) Confirm that the slow-down switches and limit switches are active.

Check whether the slow-down switches and limit switches are active when the car moves to a terminal floor. Take care in this process. Avoid too long running time and distance each time because overtravel will cause mechanical damage to the car.

6.5 Commissioning at normal speed

6.5.1 Shaft auto-tuning

6.5.1.1 Preparations for shaft auto-tuning

(1) Check whether shaft switches act properly.

The shaft switches include final limit switches, limit switches, slow-down switches, and leveling switches.

(2) Check that the acting sequence of the leveling switches is correct.

Installing one leveling switch is recommended. If multiple leveling switches are installed, check that the acting sequence is correct. For example, if three leveling switches are installed:

① Acting sequence at inspection up: up leveling switch → door zone switch → down leveling switch

② Acting sequence at inspection down: down leveling switch → door zone switch → up leveling switch

(3) Confirm that CAN communication is normal.

Ensure that CAN communication between the MCB and CTB is normal (the signal indicator CAN1 flashing and E51 not reported). If CAN communication is abnormal, see E51 in "8.4 Fault handling" to find solutions.

Related parameters:

Parameter	Description	Range	Default	Note
P00-04	Rated speed	0.250 to 4.000 m/s	1.600 m/s	-
P11-06	Top floor of elevator	1 to 48	9	Actual number of floors+1-bottom floor
P11-07	Bottom floor of elevator	1 to 48	1	-
P03-06	Shaft auto-tuning speed	0.100 to 0.630	0.500 m/s	-

CAUTION

After modifying P00-04, perform shaft auto-tuning again. Otherwise, the elevator runs improperly.

6.5.1.2 Conditions for shaft auto-tuning

(1) The elevator is in EEO state.

(2) The elevator runs to a position below the leveling position of the bottom floor and at least one leveling switch is disconnected from the leveling plate. The down slow-down switch 1 signal input to the MCB is active (This condition is specific to two-floor elevators.)

(3) The system is not in the fault state. If there is a fault, press STOP RESET to reset the fault.

6.5.1.3 Perform shaft auto-tuning

When the preceding conditions are met, start shaft auto-tuning in any of the following methods:

(1) Set P02-11 to 3 on the operating panel and switch EEO (or inspection) to normal state.

(2) Set P7 to 1 on the keypad of the MCB. Switch emergency drive (or inspection) to normal.

After shaft auto-tuning starts, the elevator runs at the speed set in P03-06 (Shaft auto-tuning speed). It automatically runs down to the limit position at the bottom floor and then runs up to the leveling plate of the top floor and stops. If the keypad on the MCB displays the current floor number (top floor) at this time, it indicates that shaft auto-tuning succeeds.

If E35 is reported during shaft auto-tuning, it indicates that shaft auto-tuning fails. Refer to "8.4 Fault handling" to solve the problem and perform shaft auto-tuning again.

6.5.1.4 Running test at normal speed

After shaft auto-tuning has been completed successfully, the running at normal speed may fail because the door operator controller and full-load and overload functions are not commissioned. To solve this problem, enable the door open forbidden and overload functions by setting parameters before performing a running test at normal speed:

Step 1: Forbid door open by setting P17-05 to 1.

Step 2: Shield the overload signal by setting P17-06 to 1.

Step 3: Turn the inspection switch to the normal state. Check that the elevator parameter D01-14 is automatic running.

Step 4: Call the floor for test at normal speed by setting P17-00.

Step 5: After the running test at normal speed is completed, set P17-00–P17-07 to 0.


CAUTION

After power-off and then power-on, P17-00/01/02/05/06/07 will be restored to 0. If you need to continue the test at normal speed, set these parameters again.

6.5.2 CTB commissioning

This section takes the single-door (door 1) elevator system as the example. Related signals include: light curtain 1, door 1 open and close limit, door 1 open and close output, and so on, as shown below.

Table 6-3 Car top commissioning related signals

CTB terminal	Function code	Terminal definition
X1	P07-01=103	Front door open limit
X2	P07-02=105	Front door close limit
X4	P07-02=101	Front door light curtain
Y1	P07-05=1	Front door open output
Y2	P07-05=2	Front door close output


CAUTION

- ✧ Ensure that the car top inspection is in the active state to avoid personal injuries.
- ✧ Change the level active conditions (high or low) of input signals.

For a two-door system, door 2 is controlled by terminals like light curtain 2, door 2 open and close limit,

etc, just same as door 1. Hence, no further description will be made in this section.

The system can monitor the input and output of light curtain and door control signals and corresponding valid states.

(1) Input and output status shown by the corresponding indicators on CTB

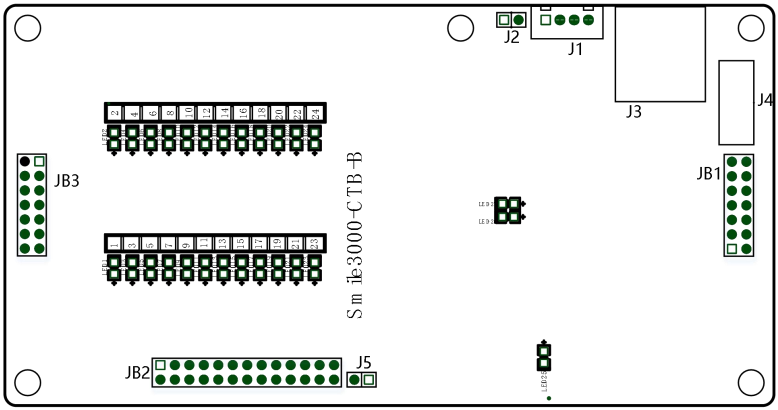


Fig. 6-5 Car top board signals

Table 6-4 Signal indicator status

Indicator	Status
X1 to X24 input indicators ON	Indicates high-level input at certain input terminal
Y1 to Y10 output indicators ON	Indicates output at certain output terminal

6.5.2.1 Light curtain commissioning

(1) Check whether the light curtain wiring is correct and firm, and whether the power supply voltage is proper.

(2) Confirm whether the light curtain works normally through the input indicator on the CTB. If X4 keeps unchanged or changes abnormally, it indicates that the light curtain is abnormal.

Table 6-5 Light curtain judgment

Signal / State	Light curtain block state	X4 indicator state
When the light curtain signal is "NO"	Unblocked	OFF
	Blocked	ON
When the light curtain signal is "NC"	Unblocked	ON
	Blocked	OFF

(3) After the commissioning of light curtain, check whether the settings of P07 parameters are consistent with the actual "NO/NC" state of light curtain. If not consistent, the input signals shall be opposite.

6.5.2.2 Door operator commissioning

The interaction between the door operator controller and the elevator system is: door open and close command output by CTB, and door open and close limit signal feedback by the door operator controller. After door operator commissioning and installation, check whether the wiring is correct, and limit signals are consistent with the system default settings.

Perform door operator commissioning by the following steps:

(1) Check that P17-05 is set to 0 (door open is allowed).

(2) Check whether the door operator controller is wired correctly and securely, and whether the power voltage is proper.

(3) Perform door operator commissioning, and check whether the input and output control of door operator controller are normal in the terminal control mode.

Check that the door open/close output is normal:

① Short Y1 on the CTB, then door 1 opens.

② Short Y2 on the CTB, then door 1 closes.

If the door acts abnormally after you short Y1 or Y2 on the CTB, check:

① whether the wiring between the CTB and the door operator controller is correct.

② whether the function setting of door open/close input terminals is correct.

③ whether door operator controller commissioning fails. If yes, perform commissioning again.

Check whether the door open/close limit signal feedback from the door operator controller is normal by observing the X input terminal indicators on the CTB according to the following table.

Table 6-6 Door open/close limit judgment

Signal / State	Door state	X3 indicator state	X5 indicator state
When the door open/close signal is "NO"	At door open limit	Steady ON	Steady OFF
	During door open/close	Steady OFF	Steady OFF
	At door close limit	Steady OFF	Steady ON
When the door open/close signal is "NC"	At door open limit	Steady OFF	Steady ON
	During door open/close	Steady ON	Steady ON
	At door close	Steady ON	Steady OFF

Signal / State	Door state	X3 indicator state	X5 indicator state
	limit		

If the states of X3 and X5 indicators are inconsistent with the actual door state or keep unchanged, check:

① whether the wiring between the CTB and the door operator controller is correct.

② whether the function setting of door open/close limit output terminals is correct.

③ whether door operator controller commissioning fails. If yes, perform commissioning again.

(4) After the commissioning of door operator controller, check whether the settings of P07-01 and P07-02 are consistent with the actual "NO/NC" state of door open/close limit signals. If not consistent, you need to change the NO/NC of input signals.

Troubleshooting common door control abnormalities:

(1) When the door is closed, an open command cannot open the door.

① Check whether the "door open limit" signal is constantly effective.

② Check whether D03-01 has a door open output (section 1 of digital tube 1). If there is an output, you need to check whether the wiring between the CTB and the door operator controller is correct, or whether the door operator controller is working normally.

(2) When the door is open, a close command cannot close the door.

① Check whether the light curtain signal is constantly effective.

② Check whether D03-01 has a door close output (section 2 of digital tube 1). If there is an output, you need to check whether the wiring between the CTB and the door operator controller is correct, or whether the door operator controller is working normally.

(3) If the elevator does not open the door at the door zone, E53 is reported. Refer to "8.4 Fault handling" for instructions.

6.5.3 HCB installation and setting

This section describes HCB installation and setting of an independent single-door elevator system. For HCB description of through-type door and parallel door systems, refer to the sections of "Through-type door solution" and "Parallel & Group control".

(1) HCB installation

The number of service floors is the same as the number of HCBs. Non-service floors do not need HCBs, as shown in the following figure.

HCB communicates with the main board through Modbus. All HCBs are connected to the main board in parallel.

(2) HCB address setting

You need to set an address for each HCB before use.

The HCBs must be configured with different addresses. To learn how to set HCB addresses, refer to the

corresponding HCB manual).

Set the address based on the floor leveling plate No.

From the bottom floor, set the HCB address to N if the Nth leveling plate is located at the floor, as shown in the following figure.

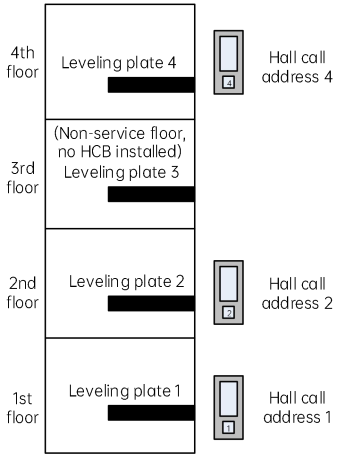


Fig. 6-6 HCB installation and address setting

After completing HCB installation and address setting, you can call the elevator by the HCB to start normal-speed running.

CAUTION

When the display board is installed in the car, its address must be set to 0.

6.6 Comfort adjustment

Auto-tuning mode	Type	Adjustment method
Auto-tuning at inspection speed	Riding comfort adjustment	Elevator startup/stop comfort adjustment
		Running curve comfort adjustment
	Leveling accuracy adjustment	Proper use of leveling components
		All floors leveling accuracy adjustment
		Single floor leveling accuracy adjustment

6.6.1 Riding comfort adjustment

The riding comfort is an important factor of the elevator's overall performance. Improper installation of mechanical parts and improper parameter settings will cause discomfort. Thus, improving the riding comfort mainly involves the adjustment of output control and the elevator's mechanical construction.

6.6.1.1 Adjustment of system control performance

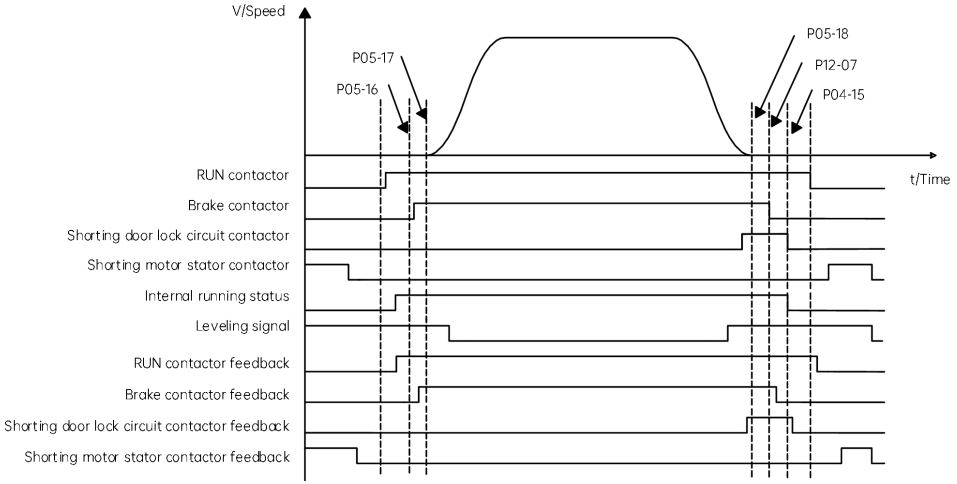


Fig. 6-7 Running time sequence of the controller

(1) Elevator startup and stop comfort adjustment

Related parameters:

Parameter	Name	Range	Default
P04-00	Speed loop proportional gain 1	0 to 100	40
P04-01	Speed loop integral time 1	0.01 to 10.00 s	0.60 s
P04-03	Speed loop proportional gain 2	0 to 100	35
P04-04	Speed loop integral time 2	0.01 to 10.00 s	0.80 s

a) Adjustment to abnormal motor startup

Parameters P04-00, P04-01, P04-03, and P04-04 are used to adjust the speed dynamic response characteristics of the motor.

To achieve a faster system response, increase the proportional gain or reduce the integral time. Be aware that either a too big gain or a too short time may lead to system oscillation.

Decreasing the proportional gain or increasing the integral time will slow the dynamic response of the motor. However, a too small proportional gain or a too long integral time may cause motor speed tracking abnormality, resulting the fault E33 or instable leveling at stop.

The default setting is proper for most large-power motors, with no modifications required. These parameters need to be adjusted only for small-power motors (P ≤ 5.5 kW) because an oscillation may occur.

Perform the following steps to adjust:

① Decrease the proportional gain first (between 10 and 40) to ensure that the system does not oscillate.

② Reduce the integral time (between 0.1 and 0.8) to ensure that the system has a quick response but small overshoot.

b) Adjustment to elevator startup

Adjustment for no-load-cell startup

■ No-load-cell (sensor) startup comfort adjustment

Related parameters:

Parameter	Name	Range	Default	Description
P12-00	Pre-torque selection	0: Pre-torque disabled 1: Pre-torque enabled 2: Automatic compensation enabled 3: Both zero servo and load cell pre-torque compensation enabled	0	When a load cell is used and the inconsistency of startup effects at different loads is caused by improper load cell linearity, set P12-00 to 3
P12-01	Pre-torque offset	0.0% to 100.0%	50.0%	Load cell pre-torque compensation regulation parameters
P12-02	Drive gain	0.00 to 2.00	0.60	
P12-03	Brake gain	0.00 to 2.00	0.60	
P04-09	Zero servo gain coefficient	2.0% to 50.0%	15.0%	Zero servo adjustment parameters (P04-09, P04-10 and P04-11 are valid only when P12-00 is set to 2 or 3.)
P04-10	Zero servo speed loop KP	0.01 to 2.00	0.40	
P04-11	Zero servo speed loop KI	0.01 to 2.00	1.00	

Adjustment description:

When the load cell and automatic pre-torque compensation are both enabled, the controller identifies the motor state (braking or driving) according to the load cell signal and then automatically computes the required torque compensation. It also rectifies the compensation value quickly based on the slight movement of the encoder startup.

Adjust the riding comfort at startup based on the methods used in "Adjustment for no-load-cell startup" and "Adjustment for load cell startup".

c) Handling of rollback at elevator startup and stop

Related parameters:

Parameter	Name	Range	Default
P05-17	Holding time of zero-speed torque current upon brake release	0.000 to 2.000 s	0.600 s
P12-07	Holding time of zero-speed torque current upon brake close	0.200 to 1.500 s	0.600 s

P05-17 specifies the time from the moment the system sends a brake release command. Within the set time range, the system maintains the zero-speed torque current output to prevent rollback. If there is obvious rollback at elevator startup, increase P05-17 properly.

P12-07 specifies the time from the moment the system sends a brake close command. Within the set time range, the system maintains the zero-speed torque current output to prevent rollback. If there is obvious rollback at elevator startup, increase P12-07 properly.

d) Handling of current noise at motor startup and stop

During elevator startup or stop, certain motors may generate noise when the current is applied before the brake is released or when the current is removed after the brake is closed. In this case, increase P04-14 and P04-15 properly.

Parameter	Name	Range	Default
P04-14	Torque acceleration time	1 to 500 ms	1 ms
P04-15	Torque deceleration time	1 to 3000 ms	350 ms

e) Adjustment of large mechanical static friction

Parameter	Name	Range	Default
P05-00	Startup speed	0.000 to 0.050 m/s	0.000 m/s
P05-01	Holding time of startup speed	0.000 to 5.000 s	0.000 s

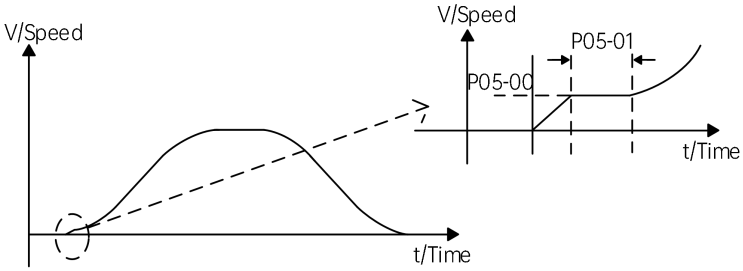


Fig. 6-8 Startup timing diagram for countering static friction

Terrible riding experience due to static friction may often exist in villa elevators. Great static friction is generated at the moment of startup out of the large friction between the guide shoes and the guide rails. You need to start the elevator at a specified speed by setting P05-00 and F05-01 to counter static friction for riding comfort.

(2) Running curve adjustment for riding comfort

Parameter	Name	Range	Default
P05-02	Accelerate rate	0.200 to 1.500 m/s²	0.700 m/s²
P05-03	Acceleration start segment	0.300 to 4.000 s	1.500 s
P05-04	Acceleration end segment	0.300 to 4.000 s	1.500 s
P05-05	Deceleration rate	0.200 to 1.500 m/s²	0.700 m/s²
P05-06	Deceleration end segment	0.300 to 4.000 s	1.500 s

Parameter	Name	Range	Default
P05-07	Deceleration start segment	0.300 to 4.000 s	1.500 s

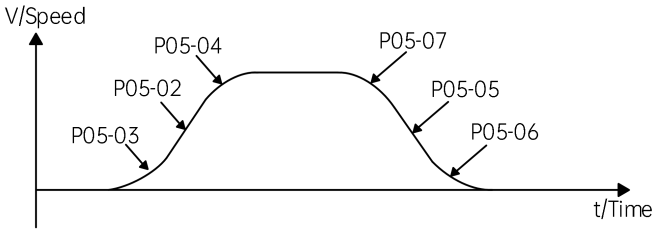


Fig. 6-9 Running curve

P05-02, P05-03, and P05-04 are used to set the running curve during which the elevator accelerates from zero at startup to the maximum speed. If the acceleration is too fast causing bad riding comfort, decrease P05-02 and increase P05-03 and P05-04 to make the acceleration curve smoother. If the acceleration is found too slow, increase P05-02, and decrease P05-03 and P05-04.

Similarly, adjust P05-05, P05-06 and P05-07 properly to make the deceleration process more acceptable.

6.6.1.2 Mechanical factors affecting riding comfort

The mechanical factors affecting the riding comfort include guide rails, guide shoes, steel rope, brake, car balancing level, as well as the vibration resonance. For asynchronous motors, gearbox wear or installation errors may also lead to poor riding experience.

No.	Mechanical factor	Description
1	Guide rail	Installation of the guide rail mainly involves perpendicularity, surface flatness, joint connection smoothness and parallel level between two guide rails.
2	Guide shoe	Tightness of the guide shoes influences the riding comfort. The guide shoes must not be too loose or tight.
3	Steel rope	The steel ropes help the traction machine to drive the car. Too flexible steel ropes combined with irregular resistance during the car running may cause oscillation of the car. In addition, unbalanced stress of multiple steel ropes may cause the car to jitter during running.
4	Brake	The riding comfort during running may be influenced if the brake arm is installed too tightly or released incompletely.
5	Car balancing level	If the car weight is unbalanced, it will cause uneven stress of the guide shoes that connect the car and guide rails. As a result, the guide shoes will rub with the guide rails during running, affecting the riding comfort.
6	Gearbox	For asynchronous motors, gearbox wear or installation errors may

No.	Mechanical factor	Description
		affect the riding comfort.
7	Vibration resonance	Resonance is an inherent feature of a physical system, related to the material and quality of system components. Reduce the vibration resonance by adjusting the car weight or counterweight and adding isolators at component connections (for example, placing rubber gasket under the traction machine)

6.6.2 Leveling accuracy adjustment

6.6.2.1 Description of leveling components

(1) Leveling plate

The length of the leveling plate needs to match the leveling switch.

Generally, when the leveling switch runs across the middle of the leveling plate, there is at least 10 mm distance between the leveling switch and each end of the leveling plate. All leveling plates must have roughly the same length, with deviation smaller than 5 mm.

(2) Leveling switch

The leveling plate must be perpendicular to the leveling switch. When the car arrives at the floor, the leveling plate must be into the leveling switch by at least 2/3 of its own length.

(3) Optoelectronic switch

The NO-type photoelectric switches are recommended to improve signal sensing stability.

6.6.2.2 Leveling accuracy adjustment description

(1) All-floor adjustment

Parameter	Name	Range	Default
P11-00	Leveling adjustment	0 to 60 mm	30 mm

P11-00 is used to adjust the car landing position at all floors, which is 30 mm by default. The landing position at all floors will change after P11-00 is modified.

Simple principle: Increase P11-00 if under-leveling occurs at every floor, and decrease P11-00 if over-leveling occurs at every floor.

(2) Single-floor adjustment

Adjust the car landing position at each floor separately by setting group P20 parameters.

Leveling adjustment parameters in group P20:

Parameter	Name	Range	Default	Unit
P20-00	Leveling adjustment mode	0 to 1	0	-
P20-01	Leveling adjustment record 1	00000 to 60060	30030	mm
P20-02	Leveling adjustment record 2		30030	mm

Parameter	Name	Range	Default	Unit
...	...		to	to
P20-23	Leveling adjustment record 23		30030	mm

The leveling adjustment method is described below:

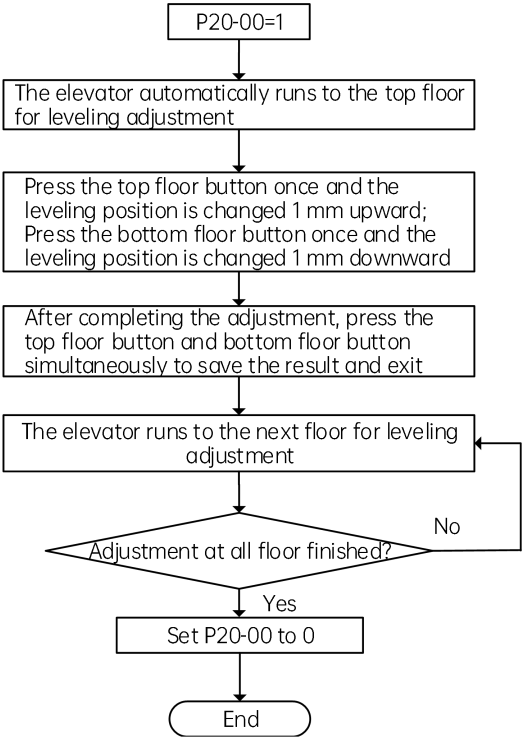


Fig. 6-10 Single-floor leveling accuracy adjustment

CAUTION

- ✧ Ensure that shaft auto-tuning has been completed successfully, and the elevator runs properly at normal speed.
- ✧ After P20-00 is set to 1, the elevator does not respond to hall calls any more. It automatically runs to to top floor and keeps the door open after arrival.
- ✧ During adjustment, the car display board displays "00" or the value after adjustment. Positive value: up arrow + value; Negative value: down arrow + value; Adjustment range: ±30 mm.
- ✧ After you save the adjustment result, the car display board displays the current floor number.
- ✧ Note: If the leveling accuracy at a certain floor needs no adjustment, you also need

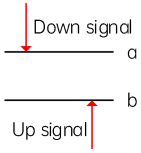
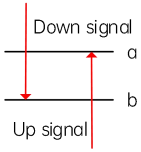
to save the data once. Otherwise, the car calls cannot be registered.

6.6.2.3 Leveling adjustment guide

(1) If the stop positions when the elevator arrives at each floor are fixed and the same in up and down directions and the car is not leveled with the hall sill, make adjustment for related floors by setting group P20 parameters.

(2) If the stop positions when the elevator arrives at each floor are fixed but different in up and down directions, make adjustment by setting both P11-00 and group P20 parameters. The specific adjustment methods are as follows:

First, adjust the overall leveling error of all floors by setting P11-00. Assume that the car landing positions in down and up directions are "a" and "b" respectively. The values to be adjusted and the adjustment methods are shown in the following table.

Type	Name	Value to be adjusted	Adjustment method
Under-leveling		H=(a-b)/2	(P11-00)+H
Over-leveling		H=(b-a)/2	(P11-00)-H

Then, adjust the leveling accuracy of all the floors with leveling error by setting parameters in group P20.

Additional information:

Prevent over-adjustment in group P20 parameters when the leveling deviation is too large.

Assume that after the car arrives at the leveling zone, the distance between the edge of the leveling switch and the edge of the leveling plate is A, and the height deviation between the car sill and the landing door sill is B (shown in the following figure). If B $\geqslant$ A for a certain floor, you need to adjust the leveling plate position of this floor first to ensure that B $\leqslant$ A upon arrival. Otherwise, the elevator may still stop outside the leveling zone even if you have adjusted the leveling accuracy of this floor by setting parameters in group P20.

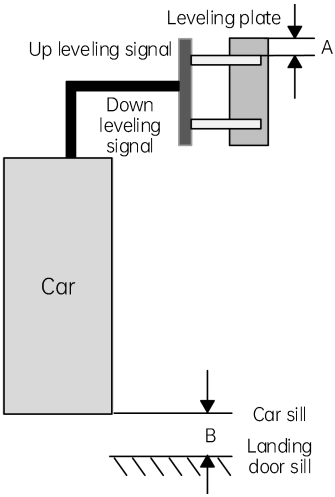


Fig. 6-11 Leveling distance

If the elevator stop position or leveling is not consistent for different travels or loads, it may be caused by improper speed loop parameters. To solve the problem, adjust the speed loop proportional gain or reduce the speed loop integral time properly.

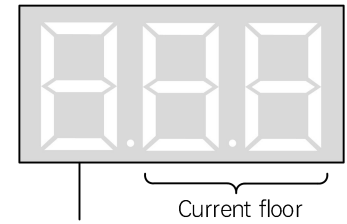
Chapter 7 Parameter Description

7.1 Keypad parameter description

The function menus displayed on the keypad are described as follows:

- P-0: Display of floor and running direction

By default, the P-0 menu is displayed on the keypad upon power-on. The first LED indicates the running direction, and the last two LEDs indicate the current floor number. When the elevator stops, the first LED has no display. When the elevator runs up/down, the first LED flashes to indicate the running direction. When the system has a fault (no fault exists before), the fault code scrolls automatically. If the fault is reset automatically, the P-0 menu is displayed.



- P-1: Command input of the running floor

After you enter the P-1 menu by pressing the PRG, UP and SET keys, the LEDs display the bottom floor of the elevator (P11-07). Use the UP key to set your destination floor and press SET to save the setting. Then, the elevator runs to the destination floor, and the display automatically switches to the P menu.

- P-2: Fault reset and fault time display

After you enter the P-2 menu by pressing the PRG, UP and SET keys, the LEDs displays "0". You can press the UP key to change the setting to 0–2:

"1": If you select this value and press the SET key, the system fault is cleared. Then, the display automatically switches to the P-0 menu.

"2": If you select this value and press the SET key, the LEDs display the codes and occurrence time of 10 faults. You can press the PRG key to exit.

- P-3: Time display

After you enter the P-3 menu by pressing the PRG, UP and SET keys, the LEDs display the current system time.

- P-4: Contract number display

After you enter the P-4 menu by pressing the PRG, UP and SET keys, the LEDs display the user's contract number.

- P-5: Running times display

After you enter the P-5 menu, the LEDs display the elevator running times.

- P-6: Door open/close control

After you enter the P-6 menu by pressing the PRG, UP and SET keys, the LEDs display 1-1, and UP and SET control the door open and close respectively. You can press the PRG key to exit.

- P-7: Floor auto-tuning command input

After you enter the P-7 menu by pressing the PRG, UP and SET keys, the LEDs display "0". You can choose 0–2 using the UP key. 1 and 2 indicate the shaft auto-tuning command (1: Leveling adjustment parameters in group P20 not cleared; 2: Leveling adjustment parameters in group P20 cleared). After you select 1 or 2 and press SET, shaft auto-tuning is implemented if the conditions are met. Meanwhile, the display switches to the P-0 menu. After shaft auto-tuning is completed, P-7 is back to 0 automatically. If shaft auto-tuning conditions are not met, fault code E35 is displayed.

- P-8: Test function

After you enter the P-8 menu by pressing the PRG, UP and SET keys, the LEDs display "0". The setting of P-8 is described as follows:

1	Hall call forbidden
2	Door open forbidden
3	Overload forbidden
4	Limit switches disabled
6	Slip test
7	Manual UCMP test
8	Manual braking force test

After setting, press the SET key to save. The LEDs flashes "E88", indicating the elevator is under test. When you press PRG to exit, P-8 restores to 0 automatically.

- P-9: Reserved
- P-A: Auto-tuning

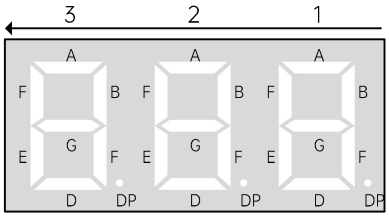
After you enter the P-A menu by press the PRG, UP and SET keys, the LEDs display "0".

0	Disabled
1	With-load auto-tuning

After setting, press the SET key to save. The LEDs display "TUNE", and the elevator enters the auto-tuning state. After confirming that the safe running conditions are met, press the SET key again to start motor auto-tuning. After the auto-tuning is finished, the LEDs display the current angle for 2 s and then switch to the P-0 menu automatically. You can press the PRG key to exit the auto-tuning state.

- P-b: CTB state display

After you enter the P-b menu by pressing the PRG, UP and SET keys, the LEDs display the input/output state of the CTB. The following figure shows the meaning of each segment:



LED segments ON: valid signal
LED segments OFF: invalid signal

	1	2	3
A	Light curtain 1 input	Light-load	Door open 1 output
B	Light curtain 2 input	-	Door close 1 output
C	Door open limit 1 input	-	Forced door close 1 output
D	Door open limit 2 input	-	Door open 2 output
E	Door close limit 1 input	-	Door close 2 output
F	Door close limit 2 input	-	Forced door close 2 output
G	Full-load input	-	Up arrival gong output
DP	Overload input	-	Down arrival gong output

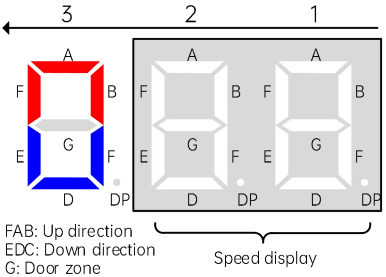
- P-C: Do not modify the value of PC randomly. The function of PC is the same as that of P00-07.

0: Direction unchanged

1: Direction reversed

- P-d: Emergency and test operation functions

After you enter the Pd menu by pressing the PRG, UP and SET keys, the LEDs display the car state under emergency and test operation. The following figure shows the meaning of each segment of the LEDs:



The system automatically displays this interface in the emergency evacuation, 12 V supply or shorting stator braking state.

Note: When the elevator speed is below 1.000 m/s, ".xx m/s" is displayed. When the speed is greater than 1 m/s, "x.x m/s" is displayed. Therefore, the decimal places are different.

7.2 Operating panel parameter description

There are 3 levels for Smile3000 parameters, as described below:

① Function parameter groups correspond to the level I menu

② Function parameters correspond to the level II menu

③ Parameter values correspond to the level III menu

(1) Term explanation of the function code table

Field	Meaning
Parameter	Parameter No.
Name	Full name of parameter
Range	Value range of parameter
Default	Factory setting of parameter
Unit	Unit of parameter
Property	○: indicates that the function code can be modified during running. ×: indicates that the function code can only be modified at stop. *: indicates that the function code is read-only and cannot be modified.

(The system has made fool-proofing design on the modification properties of function codes to prevent misoperation.)

(2) Parameter group

After pressing MENU ESC and then ∧/∧ on the LED operating panel, you can view the parameter groups.The following table shows the details.

Group	Name	Group	Name
P00	Basic parameters	P15	Communication parameters
P01	User parameters	P16	Time parameters
P02	Motor parameters	P17	Test function parameters
P03	Speed control parameters	P18	Maintenance parameters
P04	Vector control parameters	P19	Floor height parameters
P05	Running control parameters	P20	Leveling adjustment parameters
P06	MCB terminal parameters	P21	Floor display parameters
P07	CTB terminal parameters	D00	Basic configuration
P08	Door operator parameters	D01	Running state
P09	Hall call parameters	D02	MCB state
P10	Load cell parameters	D03	CTB state
P11	Basic elevator parameters	D04	Communication state
P13	Keypad setting parameters	E00 to E10	Fault record parameters

7.2.1 P00: Basic parameters

Parameter	Name	Range	Default	Unit	Property
P00-00	Control mode	0: SVC	1	-	×

Parameter	Name	Range	Default	Unit	Property
		1: FVC 2: V/F 3: I/F			

It is used to set the control mode of the system, as described in the following table:

Value	Control mode	Function	Encoder needed?
0	SVC	It is applicable to: Low-speed running during no-load commissioning and fault judgment at inspection of the asynchronous motor; Synchronous motor running under special operating conditions (used only by professional engineers, not specified in this manual)	No
1	FVC	It is applicable to normal running under distance control	Yes
2	V/F	It is applicable to equipment detection (Almost fixed voltage/frequency ratio, simple control, and poor low-frequency torque characteristics)	No
3	I/F	-	No

Parameter	Name	Range	Default	Unit	Property
P00-01	Command source selection	0: Operating panel control 1: Distance control	1	-	×

It is used to set the source of running commands and running speed references, as described in the following table:

Value	Running mode	Working mode		Application	Note
		(X) input	(Y) output		
0	Operating panel control	X input signals not judged	No output (During motor auto-tuning, the relay controlling the RUN contactor has an output.)	Applies only to motor test or no-load auto-tuning	Control by pressing the RUN and STOP keys on the operating panel, and the running speed is set by P00-02 (Running speed under operating panel control).
1	Distance control	X input signals judged	Output	Used during normal elevator running	① During inspection, the elevator runs at the speed set in P03-01. ② During normal

Parameter	Name	Range	Default	Unit	Property
					running, the control system automatically computes the speed (within the rated elevator speed) and running curve for the elevator based on the distance between the current floor and the destination floor, and it implements direct travel ride.

Parameter	Name	Range	Default	Unit	Property
P00-02	Running speed under operating panel control	0.050 to P00-04	0.050	m/s	○
P00-03	Maximum running speed of elevator	0.250 to P00-04	1.600	m/s	×
P00-04	Rated elevator speed	0.250 to 4.000	1.600	m/s	×
P00-02 is used to set the running speed in the operating panel control mode. P00-03 is used to set the actual maximum running speed of the elevator. The value is not greater than the rated elevator speed. P00-04 is used to set the nominal rated speed of the elevator. The value of this parameter depends on the elevator mechanism and the traction motor. Do not modify it randomly.					

Parameter	Name	Range	Default	Unit	Property
P00-05	Rated load	300 to 9999	1000	kg	×
Used to set the rated elevator load capacity. It is used in the anti-nuisance function.					

Parameter	Name	Range	Default	Unit	Property
P00-06	Maximum frequency	P02-04 to 99.00	50.00	Hz	×
Used to set the maximum output frequency of the system. This value must be greater than the rated motor frequency.					

Parameter	Name	Range	Default	Unit	Property
P00-07	Elevator running direction	0, 1	0	-	×
Used to set the elevator running direction. The values are as follows: 0: Direction unchanged 1: Direction reversed					

Parameter	Name	Range	Default	Unit	Property
You can modify F00-07 to reverse the motor running direction without changing motor wiring. When you perform inspection running for the first time after motor auto-tuning is successful, check whether the actual motor running direction is consistent with the inspection command direction. If not, change the motor running direction by setting F00-07. Pay attention to the setting of this parameter when restoring the factory parameters.					

Parameter	Name	Range	Default	Unit	Property
P00-08	Carrier frequency	0.5 to 16.0	6.0	kHz	×

Used to set the carrier frequency of the controller.

The carrier frequency is closely related to the motor noise during running. When the carrier frequency is generally set above 6 kHz, quiet running is achieved. It is recommended to set the carrier frequency to a much lower value within the allowable noise range, which reduces the controller loss and radio frequency interference.

- When the carrier frequency is low, the high harmonic components of output current will increase with greater motor loss and temperature rise.
- When the carrier frequency is high, the motor loss and temperature rise decrease with greater controller loss, temperature rise, and interference.

The correlation between the carrier frequency and the system performance is shown in the following table.

Carrier frequency	Low/High
Motor noise	Large/Small
Output current waveform	Bad/Good
Motor temperature rise	High/Low
Controller temperature rise	Low/High
Leakage current	Small/Large
External radiation interference	Small/Large

7.2.2 P01: User parameters

Parameter	Name	Range	Default	Unit	Property
P01-00	Level 1 password	0 to 65535	0	-	○

Used to set the user password (0: No password).

The password prohibits unauthorized personnel from viewing and modifying parameters. If it is set to any non-zero number, the password protection function is enabled. After a password has been set and taken effect, you must enter the correct password in order to enter the menu. If the entered password is incorrect, you cannot view or modify parameters. If P01-00 is set to 00000, the previously set user password is cleared, and the password protection function is disabled. Remember the password that you set.

If the password is set incorrectly or forgotten, contact the manufacturer to replace the control board.

Parameter	Name	Range	Default	Unit	Property
P01-01	Parameter update	0: Not available 1: Restoring default parameters 2: Clearing records 3: Clearing shaft data	0	-	×
P01-01 is used to reset some system parameters. The possible values are as follows: 0: Not available 1: Restoring default parameters: It is to restore factory parameters except group P02. Use this function with caution. 2: Clearing fault records: Fault records are cleared. E00-00 to E00-10 and parameters in groups E1 to E10 are set to 0. 3: Clearing shaft data: Floor pulse data in the shaft is cleared. Shaft pulses of P05-10 to P05-15 and group P19 are set to 0. The leveling adjustment parameters in group P20 are set to 30030. Shaft auto-tuning must be performed again after clearing.					

Parameter	Name	Range	Default	Unit	Property
P01-02	Check on user-defined parameters	0: Inactive 1: Active	0	-	×
P01-02 is used to view the parameters that are different from the default settings. When it is set to 1, you can view the parameters that are different from the default parameters.					

Parameter	Name	Range	Default	Unit	Property
P01-03	Level 2 password	0 to 65535	0	-	×
P01-04	Level 3 password	0 to 65535	0	-	×

7.2.3 P02: Motor parameters

Parameter	Name	Range	Default	Unit	Property
P02-00	Motor type	0, 1	1	-	×
This parameter is used to select the motor type. The values are as follows: 0: Asynchronous motor 1: Synchronous motor					

Parameter	Name	Range	Default	Unit	Property
P02-01	Rated motor power	0.7 to 75.0	11.0	kW	×
P02-02	Rated motor voltage	0 to 600	380	V	×
P02-03	Rated motor current	0.00 to 655.00	21.80	A	×

Parameter	Name	Range	Default	Unit	Property
P02-04	Rated motor frequency	0.00 to P00-06	50.00	Hz	×
P02-05	Rated motor speed	0 to 3000	1460	rpm	×
Set these parameters according to the motor type and motor nameplate.					

Parameter	Name	Range	Default	Unit	Property
P02-06	Wiring mode	0, 1	0	-	×
P02-06 specifies the motor wiring mode, that is, whether the output phase sequence of the drive board is consistent with the UVW phase sequence of the motor. If the value obtained by means of no-load auto-tuning is an even number, the phase sequence is correct. If the value is an odd number, the sequence is incorrect; in this case, interchange any two phases.					

Parameter	Name	Range	Default	Unit	Property
P02-07	DSP fault block	0 to 65535	0	-	×

Parameter	Name	Range	Default	Unit	Property
P02-08	Encoder type selection	0: Sin/Cos encoder 1: UVW encoder 2: ABZ encoder 3: Reserved	0	-	×
Set P02-08 to a proper value according to the type of encoder used together with the motor. ● When P02-00 is set to 1 (Synchronous motor), set this parameter correctly before auto-tuning. Otherwise, the motor cannot run properly. ● When P02-00 is set to 0 (Asynchronous motor), this parameter is automatically changed to 2 (ABZ encoder). You need not modify it manually.					

Parameter	Name	Range	Default	Unit	Property
P02-09	Encoder pulses per revolution	0 to 10000	2048	PPR	×
Used to set the pulses per revolution of the encoder (according to the encoder nameplate).					

Parameter	Name	Range	Default	Unit	Property
P02-10	Encoder disconnection detection time	0 to 10.0	0	s	×
Used to set the time that the encoder disconnection lasts before it is detected. After the elevator starts running at non-zero speed, the system prompts the encoder fault and stops running if there is no encoder signal input within the time set in this parameter. When the value is smaller than 0.5 s, this function is disabled.					

Parameter	Name	Range	Default	Unit	Property
P02-11	Auto-tuning selection	0 to 5	0	-	×
Used to select the auto-tuning mode. The values are as follows: 0: No operation 1: Rotary with-load auto-tuning 2: Rotary no-load auto-tuning 3: Shaft auto-tuning 1 4: Shaft auto-tuning 2 5: Synchronous motor static auto-tuning					

Parameter	Name	Range	Default	Unit	Property
P02-12	Encoder installation angle	0.0 to 359.9	0	°	×
P02-12 specifies the encoder angle at zero point. After multiple times of auto-tuning, compare the obtained values, and the value deviation of P02-12 shall be within ±5°.					

Parameter	Name	Range	Default	Unit	Property
P02-13	Stator resistance	0.001 to 30.000	0.400	Ω	×
P02-14	Rotor resistance	0.001 to 30.000	0.001	Ω	×
P02-15	Leakage inductance	0.01 to 300.00	0.01	mH	×
P02-16	Mutual inductance	0.1 to 3000.0	0.1	mH	×
P02-17	No-load current	0.01 to 300.00	0.01	A	×
These parameters are obtained through asynchronous motor auto-tuning. After motor auto-tuning is completed, the parameter values are updated automatically. If motor auto-tuning cannot be performed on-site, manually enter the parameter values of the motor with same nameplate. Each time the rated power (P02-01) of the asynchronous motor is modified, these parameters automatically restore to the standard default values.					

Parameter	Name	Range	Default	Unit	Property
P02-18	Q-axis inductance (torque)	0.00 to 650.00	3.00	mH	×
P02-19	D-axis inductance (excitation)	0.00 to 650.00	3.00	mH	×
P02-20	Back EMF coefficient	0 to 65535	0	-	×
P02-18 to F02-20 are used to display the D-axis and Q-axis inductances and back EMF coefficient of the synchronous motor obtained by means of motor auto-tuning.					

7.2.4 P03: Speed control parameters

Parameter	Name	Range	Default	Unit	Property
P03-00	Re-leveling speed	0.020 to 0.080	0.040	m/s	×

Parameter	Name	Range	Default	Unit	Property
Used to set the elevator speed during re-leveling. This parameter is valid when the advance door opening module is added for the re-leveling function (set in P12-09).					

Parameter	Name	Range	Default	Unit	Property
P03-01	Inspection speed	0.100 to 0.630	0.250	m/s	×
P03-01 is used to set the elevator speed during inspection.					

Parameter	Name	Range	Default	Unit	Property
P03-02	Low-speed re-leveling speed	0.080 to P03-01	0.100	m/s	×
P03-02 is used to set the elevator speed of returning to the leveling position at normal non-leveling stop.					
Parameter	Name	Range	Default	Unit	Property
P03-03	Emergency evacuation speed at power failure	0.020 to 0.300	0.050	m/s	×
P03-03 is used to set the elevator speed for emergency evacuation operation at power failure.					

Parameter	Name	Range	Default	Unit	Property
P03-04	Emergency evacuation switching speed	0.010 to 0.630	0.010	m/s	×
P03-05	Elevator speed in the EEO state	0.100 to 0.300	0.250	m/s	×
P03-06	Shaft auto-tuning speed	0.100 to 0.630	0.250	m/s	×
P03-04 is used to set the switching speed for the switchover of the shorting stator braking mode to controller drive.					

7.2.5 P04: Vector control parameters

Parameter	Name	Range	Default	Unit	Property
P04-00	Speed loop proportional gain 1	0 to 100	15	-	×
P04-01	Speed loop integral time 1	0.01 to 10.00	0.80	s	×
P04-02	Switchover frequency 1	0.00 to P04-05	2.00	Hz	×
P04-03	Speed loop proportional gain 2	0 to 100	20	-	×
P04-04	Speed loop integral time 2	0.01 to 10.00	0.80	s	×
P04-05	Switchover frequency 2	P04-02 to P00-06	9.00	Hz	×
Speed loop proportional gain and speed loop integral time are PI regulation parameters when the running frequency is lower than the switchover frequency 1. Speed loop proportional gain and speed loop integral time are PI regulation parameters when the					

Parameter	Name	Range	Default	Unit	Property
running frequency is higher than the switchover frequency 2. If the running frequency is between the switchover frequency 1 and 2, the PI regulation parameters are the weighted average of P04-00, P04-01, P04-03 and P04-04. The following figure shows the details.					

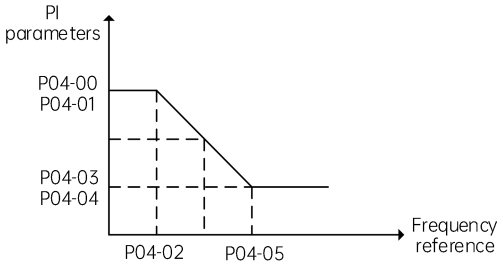


Fig. 7-1 PI parameter

The speed dynamic response characteristics in vector control can be adjusted by setting the proportional gain and integral time of the speed regulator. To achieve a faster system response, increase the proportional gain or reduce the integral time. Be aware that a too large proportional gain or too small integral time may lead to system oscillation. Recommended adjustments:

- If the default setting cannot meet the requirements, do some fine-tuning. Decrease the proportional gain to make sure that the system does not oscillate. Then reduce the integral time to make sure that the system has a quick response while maintaining a small overshoot.
- If both switchover frequency 1 and switchover frequency 2 are 0, only P04-03 and P04-04 are valid.

Parameter	Name	Range	Default	Unit	Property
P04-06	Current loop proportional gain Kp	10 to 500	100	-	×
P04-07	Current loop integral gain Ki	10 to 500	100	-	×
Current loop proportional gain Kp and current loop integral gain Ki are the regulation parameters for the torque axis current loop. Note: The parameters are used as the torque axis current regulator in vector control. The optimum values matching the motor characteristics are obtained through motor auto-tuning. Generally, you need not modify these parameters.					

Parameter	Name	Range	Default	Unit	Property
P04-08	Torque upper limit	0.0 to 200.0	200.0	%	×
Used to set the motor torque upper limit. The value 100% corresponds to the rated output torque of the AC drive.					

Parameter	Name	Range	Default	Unit	Property
P04-09	Zero servo gain coefficient	2.0 to 50.0	5.0	%	×
P04-10	Zero servo speed loop KP	0.01 to 2.00	0.40	-	×
P04-11	Zero servo speed loop KI	0.01 to 2.00	1.00	-	×

Used for no-load-cell startup pre-torque self-adaption. You can enable the no-load-cell startup function by setting P12-00 (Pre-torque selection) to 2 or 3.
Decrease these parameters properly in the case of car lurch at startup, and increase them properly in the case of rollback at startup.

Parameter	Name	Range	Default	Unit	Property
P04-14	Torque acceleration time	1 to 500	1	ms	×
P04-15	Torque deceleration time	1 to 3000	350	ms	×

Used to set the acceleration and deceleration time of the torque current.
At stop, take following possible measures due to the differences of motor characteristics:

- If some abnormal sound occurs when the current increases from zero at startup, increase the value of P04-14 to eliminate the sound.
- If some abnormal sound occurs when the current decreases to zero at stop, increase the value of P04-15 to eliminate the sound.

Parameter	Name	Range	Default	Unit	Property
P04-16	Startup acceleration time	0.000 to 1.500	0.000	s	×
P04-17	Speed filter coefficient	0.00 to 20.00	0.20	ms	×

Parameter	Name	Range	Default	Unit	Property
P04-18	Function setting	0 to 65535	0	-	○
P04-19	Obtained pulse width	0 to 100	8	-	×

Parameter	Name	Range	Default	Unit	Property
P04-24	Number of motor pole pairs	0 to 100	8	-	×
P04-25	IF current limit	0 to 200	30	%	○

Parameter	Name	Range	Default	Unit	Property
P04-26	Current upper threshold	0 to 200	100	%	×
P04-27	Current lower threshold	0 to 200	60	%	×

Parameter	Name	Range	Default	Unit	Property
P04-29	Encoder AB direction	0 to 1	0	-	×
P04-30	Encoder CD direction	0 to 1	0	-	×
P04-31	IF function selection	0 to 1	0	-	×

0: DC positioning

Parameter	Name	Range	Default	Unit	Property
1: IF rotation					
P04-32	IF DC set angle	0.0 to 360.0	0.0	-	○
P04-33	Detection speed for shorting motor stator rollback fault	0.050 to P00-04	0.300	m/s	○
P04-34	Detection time for shorting motor stator rollback fault	0.0 to 20.0	4.0	s	○

7.2.6 P05: Running control parameters

Parameter	Name	Range	Default	Unit	Property
P05-00	Startup speed	0.000 to 0.050	0.000	m/s	×
P05-01	Startup speed holding time	0.000 to 5.000	0.000	s	×
P05-00 and P05-01 are used to set the startup speed and startup speed holding time of the system respectively. See "Fig. 7-2 Speed curve". The parameters may reduce the terrace feeling at startup due to static friction between the guide rail and the guide shoes.					

Parameter	Name	Range	Default	Unit	Property
P05-02	Acceleration rate	0.200 to 1.500	0.700	m/s2	×
P05-03	Acceleration start segment	0.300 to 4.000	1.500	s	×
P05-04	Acceleration end segment	0.300 to 4.000	1.500	s	×

P05-02, P05-03, and P05-04 are used to set the running curve during acceleration of the elevator, as shown in Fig. 7-2 and Fig. 7-3.

- P05-02 is the acceleration rate of the elevator speed curve (constant acceleration).
- P05-03 is the time for the acceleration rate from 0 to the value set in P05-02 in the speed curve (increasing acceleration). The larger the value is, the smoother the speed curve is.
- P05-04 is the time for the acceleration rate from the value set in P05-02 to 0 in the speed curve (decreasing acceleration). The larger the value is, the smoother the speed curve is.

Parameter	Name	Range	Default	Unit	Property
P05-05	Deceleration rate	0.200 to 1.500	0.700	m/s^2	×
P05-06	Deceleration end segment	0.300 to 4.000	1.500	s	×
P05-07	Deceleration start segment	0.300 to 4.000	1.500	s	×

P05-05, P05-06, and P05-07 are used to set the running curve during deceleration of the elevator, as shown in Fig. 7-2 and Fig. 7-3.

- P05-05 is the deceleration rate of the elevator speed curve (constant deceleration).
- P05-06 is the time from the value set in P05-05 to 0 in the speed curve (decreasing deceleration). The larger the value is, the smoother the speed curve (deceleration end segment) is.
- P05-07 is the time from 0 to the value set in P05-05 in the speed curve (increasing deceleration). The larger the value is, the smoother the speed curve (deceleration start segment) is.

Parameter	Name	Range	Default	Unit	Property
The following figure shows the settings of the entire running curve. P05-02 (P05-05) is the acceleration (deceleration) rate of the S-curve in the linear acceleration process. P05-03 (P05-07) is the time for the acceleration (deceleration) rate to change from 0 to the value set in P05-02 (P05-05) in the start jerk segment. The larger the value is, the smoother the jerk is. P05-04 (P05-06) is the time for the acceleration (deceleration) rate to decrease from the value set in P05-02 (P05-05) to 0 in the end jerk segment. The larger the value is, the smoother the jerk is.					

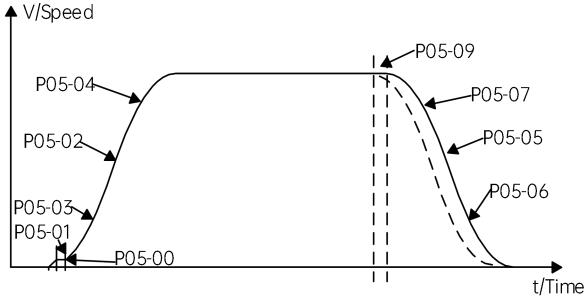


Fig. 7-2Speed curve

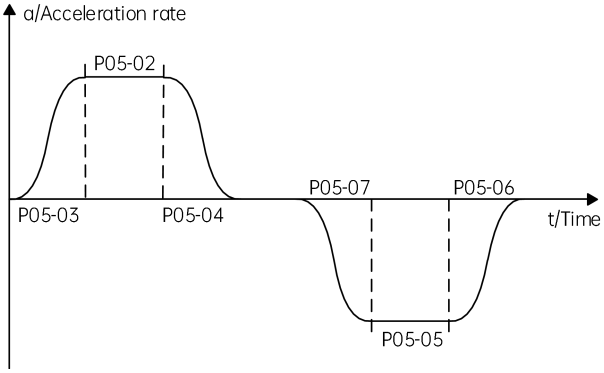


Fig. 7-3Acceleration/Deceleration curve

Parameter	Name	Range	Default	Unit	Property
P05-08	Special deceleration rate	0.500 to 1.500	0.900	m/s^2	×
It is used to set the deceleration rate when the elevator has a level 4 fault or in the inspection, shaft auto-tuning, re-leveling, and terminal floor verification state. This parameter is not used during normal running. It is used only when the elevator position is abnormal or the slow-down signal is abnormal, preventing the elevator top-hitting or bottom-clashing.					

Parameter	Name	Range	Default	Unit	Property
P05-09	Pre-deceleration distance	0 to 90.0	0.0	mm	×
It is used to set the pre-deceleration distance of the elevator, as shown in Fig. 7-2. This function is to eliminate the influence of encoder signal loss or leveling signal delay.					

Parameter	Name	Range	Default	Unit	Property
P05-10	Position of up slow-down switch 1	0.00 to 300.00	0.00	m	×
P05-11	Position of down slow-down switch 1	0.00 to 300.00	0.00	m	×
P05-12	Position of up slow-down switch 2	0.00 to 300.00	0.00	m	×
P05-13	Position of down slow-down switch 2	0.00 to 300.00	0.00	m	×
P05-14	Position of up slow-down switch 3	0.00 to 300.00	0.00	m	×
P05-15	Position of down slow-down switch 3	0.00 to 300.00	0.00	m	×
P05-10 to P05-15 specify the positions of all slow-down switches relative to the bottom leveling position, and the positions are automatically recorded during shaft auto-tuning. Smile3000 supports a maximum of three pairs of slow-down switches. From two sides of the shaft to the middle, slow-down 1, slow-down 2, and slow-down 3 are installed in order; that is, slow-down 1 is installed near the terminal floor. There may be only one pair of slow-sown switches for the low-speed elevator, and two or three pairs of slow-down switches for the high-speed elevator. The system automatically detects the speed when the elevator reaches a slow-down switch. If the detected speed or position is abnormal, the system enables the elevator to slow down at the special deceleration rate set in P05-08, preventing the elevator top-hitting or bottom-clashing.					

Parameter	Name	Range	Default	Unit	Property
P05-16	Zero-speed current output time	0.200 to 1.000	0.200	s	×
P05-17	Holding time of zero-speed torque current upon brake release	0.000 to 2.000	0.600	s	×
P05-18	Zero-speed control time at end	0.000 to 0.500	0.300	s	×
P05-16, P05-17, and P05-18 are used to set the zero-speed current output holding time and the braking action delay. ● P05-16 specifies the time from output of the RUN contactor to output of the brake contactor, during					

Parameter	Name	Range	Default	Unit	Property

which the controller performs excitation on the motor and outputs zero-speed current with large startup torque.

- P05-17 specifies the time from the moment the system sends a brake release command. Within the set time range, the system maintains the zero-speed torque current output to prevent rollback.
- P05-18 specifies the zero-speed output time when the running curve ends.

The following figure shows the running timing.

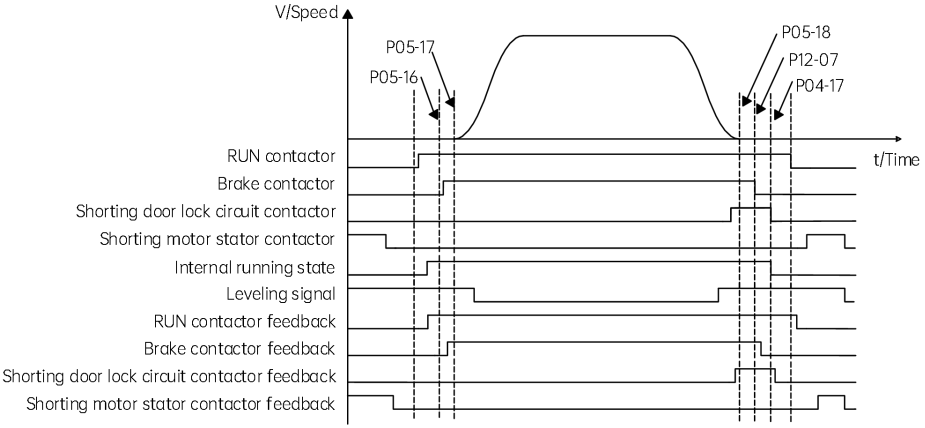


Fig. 7-4Running timing diagram

CAUTION

P12-07 specifies the time from the moment the system sends a brake close command. Within the set time range, the system maintains the zero-speed torque current output to prevent rollback.

Parameter	Name	Range	Default	Unit	Property
P05-19	Acceleration rate at emergency evacuation	0.100 to 1.300	0.300	m/s^2	×
P05-19 is used to set the acceleration rate at emergency evacuation.					

Parameter	Name	Range	Default	Unit	Property
P05-20	Deceleration delay time upon hitting slow-down switch	0.00 to 10.00	0	s	×
P05-20 indicates the delay that the elevator speed decreases to 0.1 m/s upon hitting the slow-down switch during inspection, re-leveling, terminal floor verification, and shaft auto-tuning.					

Parameter	Name	Range	Default	Unit	Property
P05-21	Slip test	0 to 2	0	s	×
0: Inactive 1: Slip test 2: UCMP test					

7.2.7 P06: MCB terminal parameters

Parameter	Name	Range	Default	Unit	Property
P06-01	X1 function selection	00 to 199 (NO: 0 to 99) (NC=NO+100)	1	-	×
P06-02	X2 function selection		3	-	×
P06-03	X3 function selection		2	-	×
P06-04	X4 function selection		22	-	×
P06-05	X5 function selection		130	-	×
P06-06	X6 function selection		106	-	×
P06-07	X7 function selection		107	-	×
P06-08	X8 function selection		132	-	×
P06-09	X9 function selection		50	-	×
P06-10	X10 function selection		57	-	×
P06-11	X11 function selection		154	-	×
P06-12	X12 function selection		152	-	×
P06-13	X13 function selection		9	-	×
P06-14	X14 function selection		10	-	×
P06-15	X15 function selection		116	-	×
P06-16	X16 function selection		118	-	×
P06-17	X17 function selection		117	-	×
P06-18	X18 function selection		119	-	×
P06-19	X19 function selection		126	-	×
P06-20	X20 function selection		146	-	×
P06-21	X21 function selection		147	-	×
P06-22	X22 function selection		58	-	×
P06-23	X23 function selection		27	-	×
P06-24	X24 function selection		0	-	×
Parameters P06-01 to P06-24 are used to set the digital signal input X1 to X24. Select the correct input parameters according to the function of input signals. Smile3000 provides 24 low-voltage DIs (X1 to X24), 3 high-voltage DIs (X25 to X27), and 1 AI (Ai/M). All low-voltage inputs share the COM terminal. When the 24 VDC is applied, the corresponding input indicator becomes ON. If a certain function cannot be set, check whether this function is operating or has been assigned to other terminals.					

Parameter	Name	Range	Default	Unit	Property

CAUTION

The parameter values that can be set repeatedly include:
04/104: Safety circuit feedback NO/NC
05/105: Door lock circuit feedback NO/NC
06/106: RUN contactor feedback NO/NC
07/107: Brake output feedback NO/NC
26/126: Brake travel switch 1 NO/NC

The NO setting of each function is as follows (NC value=NO value +100):

00: Inactive

Even if there is signal input to the terminal, the system has no response. You can set unassigned terminals to invalid state to prevent malfunction.

01: Up leveling signal

02: Down leveling signal

03: Door zone signal

The Smile3000 system determines the elevator leveling position based on the leveling switch signal. The system supports three types of leveling configurations: single door zone switch, up and down leveling switches, and door zone switch plus the up and down leveling switches. If three switches are used, the system successively receives "up leveling signal → door zone signal → down leveling signal" during up running and "down leveling signal → door zone signal → up leveling signal" during down running. If two switches are used, the system successively receives "up leveling signal → down leveling signal" during up running and "down leveling signal → up leveling signal" during down running. If the leveling signal is abnormal (stuck or disconnected), the system reports E22.

04: Safety circuit feedback

05: Door lock circuit feedback

29: Safety circuit input 2

31: Door lock circuit 2 feedback input

The safety circuit is an important guarantee of safe and reliable elevator running, and the door lock circuit ensures that the landing door and car door have been closed when the elevator starts to run. Active feedback signals from the safety circuit and door lock circuit are necessary to elevator running. It is recommended to set these signals to NO inputs. If they are set to NC inputs, the system considers the signal input active when the NC signal input is not connected. In this case, the actual state of the safety circuit cannot be detected, which may cause safety risks.

06: RUN contactor output feedback input

07: Brake output feedback input

26: Brake travel switch 1 feedback input

The system sends commands to the RUN and brake contactors and automatically detects the feedback. If the commands and the feedback are inconsistent, the system reports a fault.

08: Inspection signal input

09: Inspection up signal input

10: Inspection down signal input

11: Fire emergency signal input

When the fire emergency switch is turned on, the elevator enters the fire emergency state, and

Parameter	Name	Range	Default	Unit	Property
immediately cancels the registered hall calls and car calls. The elevator directly runs to the fire emergency floor and automatically opens the door after arrival. 12: Up limit signal input 13: Down limit signal input When the elevator runs over the leveling position of the terminal floor but does not stop, the up limit signal and down limit signal are used as the stop switches at the terminal floors to prevent any runaway elevator operation. 14: Overload NO input During normal use, the elevator enters the overload state when the elevator load exceeds 110% of the rated load. In this case, the overload buzzer sounds, the overload indicator in the car lights up, and the elevator doors keep open. The overload signal becomes inactive after the door lock is closed. If the running with 110% of the rated load is required during inspection, you can set P17-06 to 1 to allow overload running (Note that this function has potential safety risks and use it with caution). It is recommended that the overload signal be set to NC input. If it is set to NO input, the system cannot detect the overload situations where the overload switch is damaged or disconnected. In this case, the elevator running may cause safety hazards. Similarly, it is also recommended to set the up limit signal, down limit signal, and slow-down signals to NC inputs. 15: Full-load NO input When the elevator load is 80% to 110% of the rated load, the HCB displays the full-load state and the running elevator does not respond to hall calls. 16: Up slow-down 1 input 17: Down slow-down 1 input 18: Up slow-down 2 input 19: Down slow-down 2 input 20: Up slow-down 3 input 21: Down slow-down 3 input These parameters are used to set corresponding input terminals to slow-down switch signals. The slow-down signals are used to enable the elevator to stop at the slow-down speed when the car position is abnormal, which is an important method to guarantee elevator safety. The Smile3000 system automatically records the positions of the switches in group P3 during shaft auto-tuning. 22: Shorting door lock circuit output feedback input It is the door lock shorting feedback signal when the advance door opening module or re-leveling at door open function of elevators is enabled. This is to ensure safe elevator running. 23: Firefighter running input It is for firefighter switch signal input and is used to enable the firefighter operation. After the elevator returns to the fire emergency floor, the elevator enters the firefighter running state if the firefighter signal is active. 24: Door operator 1 light curtain input 25: Door operator 2 light curtain input They are used to detect the light curtain signals of door 1 and door 2 (if the elevator has two doors). 27: UPS (Emergency evacuation signal at power failure)					

Parameter	Name	Range	Default	Unit	Property
If the signal is active, it indicates that the elevator is running for emergency evacuation at power failure. 28: Elevator lock NO input If this signal is active, the elevator enters the lock state, returns to the elevator lock floor and does not respond to any calls until the signal becomes inactive. It has the same function as the hall call elevator lock signal (For details, see P09-00 and P09-01). 30: Synchronous motor shorting motor stator feedback input The shorting motor stator contactor protects the elevator from falling at high speed in the case of brake failure. This signal is used to monitor whether the shorting motor stator contactor is normal. 32: Brake 2 output feedback input 33: Door operator 1 safety edge input 34: Door operator 2 safety edge input They are used to detect the safety edge signal state of door 1 and door 2 (if the elevator has two doors). 35: Reserved 36: Earthquake signal input If this signal remains active for more than 2s, the elevator enters the earthquake stop state, stops at the nearest landing floor and opens the door. Then the elevator closes the door, does not respond to hall calls and stops running before the earthquake signal becomes inactive. 37: Rear door forbidden input If there are two doors, this signal is used to prohibit the use of the rear door. 38: Light-load input This signal is used for nuisance judgment when the anti-nuisance function is enabled. If P10-05 bit2 is set to 1, the light-load switch is used for nuisance judgment. The load below 30% of the rated load is regarded as a light-load. 39: Half-load input It is mainly used for judgment of the emergency running direction at power failure. 40: Fire emergency floor switchover input The Smile3000 controller supports two fire emergency floors. By default, the elevator stops at fire emergency floor 1 in fire emergency state. If this signal is active, the elevator stops at fire emergency floor 2 in fire emergency state. 41: Dummy floor input The dummy floor signal is required if the distance between two adjacent floors of the elevator in the shaft is so large that the running time exceeds the minimum values set in P16-02 and D01-25. 42: Motor overheat input 43: ARD fault input 44: Door 1 open input 45: Door 2 open input 46: Brake travel switch 2 feedback input 47: External fault input External fault input is used to notify the controller of stop when other modules in the control cabinet					

Parameter	Name	Range	Default	Unit	Property
such as the external braking unit are faulty. 48: Terminal floor signal input The terminal floor signal is used with slow-down 1 to determine the terminal floor position when some terminal floors are short. 49: Door lock 1 shorting input Door lock 1 shorting detection is used to detect any door lock 1 short circuit faults. 50: Door lock 2 shorting input Door lock 2 shorting detection is used to detect any door lock 2 short circuit faults. 51: Reserved 52: EEO (Emergency Electrical Operation) a. When 08/108 (inspection signal) is allocated to input terminal X, the inspection switch signal is transmitted to the system in the DI form. When 08/108 is not allocated to input terminal X, the inspection switch signal is transmitted to the system through CAN communication. b. When the inspection or EEO switch is active, the elevator enters the inspection or EEO state, and the system cancels all automatic running including the automatic door operations. When the up/down signal is active, the elevator runs at the speed set in P03-06 in the EEO state and at the speed set in P03-01 in the inspection state. c. The inspection signal overrides the EEO signal. When both signals are active, the elevator runs in the inspection state. 53: Reserved 54: Door lock bypass input It is the signal input in the event of the bypassed door lock. After the signal becomes active, the sytem enters the inspection state. 55: Reserved 56: Rope gripper feedback input Function "88" (rope gripper feedback input) is added to the MCB. (1) In the normal or inspection state, the elevator reports E67 and stops running immediately when the rope gripper feedback signal is inactive. At the same time, the system detects whether the UCMP fault occurs. If the car moves unexpectedly, the elevator reports E65 which overrides E67. (2) Fault E67 reset: Reset E67 by pressing the RES/STOP key on the operating panel, setting F-2 to 1 through the MCB keypad, or making the rope gripper feedback signal remain active for 1 s or above. If the roper gripper feedback signal is inactive after the fault reset, the elevator continues to report E67. 57: Electric brake release input 58: Forced electric brake release input 59: Reserved 60: KAM feedback input 61: Maintenance switch input 62: Integrated shorting motor stator contactor online input					

Parameter	Name	Range	Default	Unit	Property

Parameter	Name	Range	Default	Unit	Property
P06-25	X25 function selection	0 to 8	4	-	×
P06-26	X26 function selection		7	-	×
P06-27	X27 function selection		8	-	×
P06-28	X28 function selection		5	-	×

P06-25 to P06-28 are used to set high-voltage detection input terminals X25 to X28. The possible values to be set:
0: Inactive
1 to 3: Reserved
4: Safety circuit signal
5: Door lock circuit signal
6: Door lock circuit signal 2
7: Door lock 1 shorting detection
8: Door lock 2 shorting detection

Parameter	Name	Range	Default	Unit	Property
P06-29	X29 function selection	00 to 199 (NO: 0 to 99) (NC=NO+100) Same as X1 to X24	0	-	×
P06-30	X30 function selection		0	-	×
P06-31	X31 function selection		114	-	×
P06-32	X32 function selection		0	-	×
P06-33	X33 function selection		11	-	×
P06-34	X34 function selection		36	-	×

The settings of X29 to X34 are the same as X1 to X24.

Parameter	Name	Range	Default	Unit	Property
P06-35	Y1 function selection	0 to 31	12	-	×
P06-36	Y2 function selection		1	-	×
P06-37	Y3 function selection		2	-	×
P06-38	Y4 function selection		24	-	×
P06-39	Y5 function selection		28	-	×
P06-40	Y6 function selection		27	-	×
P06-41	Y7 function selection		3	-	×
P06-42	Y8 function selection		4	-	×
P06-43	Y9 function selection		0	-	×
P06-44	Y10 function selection		23	-	×

These parameters are used to set relay output terminals Y1 to Y6.
0: Inactive
1: RUN contactor output
2: Brake contactor output
3: Shorting door lock circuit contactor output

Parameter	Name	Range	Default	Unit	Property
The system relays control the opening and closing of the circuit contacts. 4: Fire emergency floor arrival signal In the fire emergency state, the system sends the feedback signal for monitoring after the elevator returns to the fire emergency floor and reaches the door open limit. 5: Door operator 1 open 6: Door operator 1 close 7: Door operator 2 open 8: Door operator 2 close The terminal parameters are used for the opening and closing of door 1 or 2. 9: Brake and RUN contactors normal When the brake and RUN contactors operate properly (E36 and E37 indicate that brake and RUN contactors are abnormal), the system sends a feedback signal for monitoring. 10: Fault state output The fault state is output when the system is in the level 3, level 4 or level 5 fault state. 11: Running state output The controller has output when it is running. 12: Synchronous motor self-locking output When the shorting motor stator contactor is applied in the synchronous motor, the terminal is used for the opening and closing of the contactor. 13: Emergency evacuation automatic switchover After the main power supply is disconnected, the controller outputs an emergency evacuation automatic switchover signal when detecting that the bus voltage declines to a certain value. The battery is used to power up the elevator to implement emergency evacuation. Note: Only Y6/M6 can be used when the relay needs to be driven by the residual power of the controller after the external power supply is cut off. 14: Controller normal The terminal has output when the system operates properly. 15: Emergency buzzer output The terminal has output when the system is in the emergency evacuation running state. The buzzer tweets to prompt. 16: High-voltage startup of brake This signal is used for the brake that keeps the release state with voltage reduction. The terminal with this signal keeps the output for 4 s to release the brake, and then the voltage is reduced to keep the brake release state. 17: Elevator up signal The terminal with the signal has output when the elevator runs in the up direction. 18: Lighting/Fan output It is used for the lighting/fan running output, the same as the energy-saving control output of the CTB. 19: Medical sterilization output It is used to control the medical sterilization output, such as the ultraviolet sterilizing lamp. After the elevator stops running and the lighting/fan stops operating, the medical sterilization output is started.					

Parameter	Name	Range	Default	Unit	Property
20: Non-door zone stop The terminal with this signal has output when the elevator stops at the non-door zone. 21: Electromagnetic lock control output It is used to control the applying and releasing of the electromagnetic lock in the case of manually operated door. 22: Non-service state output It is output when the elevator is in the non-service state and cannot respond to hall calls. 23: Emergency evacuation completed output The output is used to notify that ARD emergency evacuation is completed. 24: Brake contactor 2 output 25: Rope gripper reset 26: Destination floor arrival output 27: Electric brake release output 28: KAM output 29: Overspeed governor test output 30: Overspeed governor reset output					

7.2.8 P07: CTB terminal parameters

Parameter	Name	Range	Default	Unit	Property
P07-01	CTB input X1	0 to 199	103	-	×
P07-02	CTB input X2		105	-	×
P07-03	CTB input X3		112	-	×
P07-04	CTB input X4		101	-	×
P07-05	CTB input X5		117	-	×
P07-06	CTB input X6		104	-	×
P07-07	CTB input X7		106	-	×
P07-08	CTB input X8		116	-	×
P07-09	CTB input X9		102	-	×
P07-10	CTB input X10		118	-	×
P07-11	CTB input X11		119	-	×
P07-12	CTB input X12		113	-	×
P07-13	CTB input X13		14	-	×
P07-14	CTB input X14		15	-	×
P07-15	CTB input X15		120	-	×
P07-16	CTB input X16		121	-	×
P07-17	CTB input X17		122	-	×
P07-18	CTB input X18		123	-	×
P07-19	CTB input X19		10	-	×
P07-20	CTB input X20		11	-	×
P07-21	CTB input X21		108	-	×

Parameter	Name	Range	Default	Unit	Property
P07-22	CTB input X22		9	-	×
P07-23	CTB input X23		0	-	×
P07-24	CTB input X24		0	-	×

These parameters are used to set CTB input X terminals. The NO settings are shown below (NO: 0 to 99; NC: NO+100):
0: Inactive
1: Light curtain 1
2: Light curtain 2
3: Door open limit 1
4: Door open limit 2
5: Door close limit 1
6: Door close limit 2
7: Full-load input
8: Overload input
9: Light-load input
10: Up leveling
11: Down leveling
12: Front door operator overheat
13: Inspection
14: Inspection up
15: Inspection down
16: Rear door operator overheat
17: Front door safety edge
18: Rear door safety edge
19: Fan motor overheat protection
19: Motor overheat protection
20: Up slow-down 1 NO input
21: Down slow-down 1 NO input
22: Up slow-down 2 NO input
23: Down slow-down 2 NO input

Parameter	Name	Range	Default	Unit	Property
P07-25	CTB output Y1	0 to 31	1	-	×
P07-26	CTB output Y2		2	-	×
P07-27	CTB output Y3		3	-	×
P07-28	CTB output Y4		4	-	×
P07-29	CTB output Y5		5	-	×
P07-30	CTB output Y6		6	-	×
P07-31	CTB output Y7		7	-	×
P07-32	CTB output Y8		8	-	×

Parameter	Name	Range	Default	Unit	Property
P07-33	CTB output Y9		11	-	×
P07-34	CTB output Y10		16	-	×
P07-35	CTB output Y11		15	-	×
P07-36	CTB output Y12		0	-	×
P07-37	CTB output Y13		0	-	×
P07-38	CTB output Y14		0	-	×
P07-39	CTB output Y15		0	-	×
P07-40	CTB output Y16		0	-	×

0: Reserved
1: Door 1 open
2: Door 1 close
3: Forced door 1 close
4: Door 2 open
5: Door 2 close
6: Forced door 2 close
7: Up arrival gong
8: Down arrival gong
9: Arrival gong
10: Fault
11: Sound and light alarm
12, 13: Reserved
14: Forced output
15: Fan
16: Lighting
17: Running allowed
18: Elevator non-overspeed output (output stopped if the elevator overspeeds)
19: Auto-dial output (output when the elevator remains stopped outside the door zone for over 60 seconds in non-inspection mode)

7.2.9 P08: Door operator parameters

Parameter	Name	Range	Default	Unit	Property
P08-00	Number of door operators	1 to 2	1	-	×

It is used to set the number of door operators. Set this parameter based on actual conditions.
Set it to 1 for single door and 2 for through-type door.

Parameter	Name	Range	Default	Unit	Property
P08-01	Service floor 1 of door operator 1	0 to 65535	65535	-	○

Parameter	Name	Range	Default	Unit	Property
P08-02	Service floor 2 of door operator 1	0 to 65535	65535	-	○
P08-03	Service floor 3 of door operator 1	0 to 65535	65535	-	○
P08-04	Service floor 1 of door operator 2	0 to 65535	65535	-	○
P08-05	Service floor 2 of door operator 2	0 to 65535	65535	-	○
P08-06	Service floor 3 of door operator 2	0 to 65535	65535	-	○

These parameters are used to set the service floors of door operator 1 and door operator 2:
Service floor 1 corresponds to floors 1 to 16.
Service floor 2 corresponds to floors 17 to 32.
Service floor 3 corresponds to floors 33 to 48.
These parameters are used to set the service floors of door operators 1 and 2. The setting of door operator service floors is the same as that of service floors set by P11-15.

Parameter	Name	Range	Default	Unit	Property
P08-07	Door open protection time	5 to 99	10	s	○
P08-08	Door close protection time	5 to 99	15	s	○

P08-07 is used to set the door open protection time.
The door reopens if no door open limit signal is received after reaching the time value set in P08-07. When the door open/close times reach the value set in P08-09, the system reports fault E48.
P08-08 is used to set the door close protection time.
The door opens and closes again if no door close limit signal is received after reaching the time value set in P08-08. When the door open/close times reach the value set in P08-09, the system reports door close fault E49.

Parameter	Name	Range	Default	Unit	Property
P08-09	Door open/close times	0 to 20	0	-	○
P08-10	Door state of standby elevator	0 to 2	0	-	○

P08-09 is used to set the door re-open/re-close times allowed when door open/close is abnormal.
P08-10 is used to set the door state when the elevator is in stop and waiting state.
The possible values to be set:
0: Normal door close at main floor
1: Waiting with door open at main floor

Parameter	Name	Range	Default	Unit	Property
2: Waiting with door open at each floor					

Parameter	Name	Range	Default	Unit	Property
P08-11	Door open holding time for hall call	1 to 1000	5	s	○
P08-12	Door open holding time for car call	1 to 1000	3	s	○
P08-13	Door open holding time at main floor	1 to 1000	10	s	○
P08-14	Duration of door open holding delay	10 to 1000	30	s	○
P08-11 is used to set the door open holding time when there is a hall call. The elevator closes the door immediately after receiving a door close command. P08-12 is used to set the door open holding time when there is a car call. The elevator closes the door immediately after receiving a door close command. P08-13 is used to set the door open holding time after the elevator arrives at the main floor. The elevator closes the door immediately after receiving a door close command. P08-14 is used to set the door open holding time when there is door open delay input. The elevator closes the door immediately after receiving a door close command.					

Parameter	Name	Range	Default	Unit	Property
P08-15	Special door open holding time	10 to 1000	30	s	○
P08-16	Manually operated door open limit delay	1 to 60	5	s	○
P08-17	Waiting time for forced door close	5 to 180	120	s	○
P08-15 is used to set the door open holding time when there is a disability call. P08-16 is used to set the door open limit delay in the case of manually operated door. This parameter is valid when the manually operated door function is used. P08-17 is used to set the holding time before forced door close is implemented. If the forced door close function is enabled, the system enters the forced door close state and sends a signal when there is no door close signal after the time set in this parameter is reached.					

Parameter	Name	Range	Default	Unit	Property
P08-18	Manually operated door lock waiting time	0 to 60	0	s	○
This parameter is used to set interval time from door lock circuit disconnection to the next running startup after reconnection.					

Parameter	Name	Range	Default	Unit	Property
P08-19	Arrival gong output delay	0 to 1000	0	ms	○
When the value of this parameter is greater than 10 and the car display is switched over to the destination floor, the system outputs the arrival gong after reaching the time value set in this parameter. If the value is smaller than 10, the system outputs the arrival gong at stop.					

Parameter	Name	Range	Default	Unit	Property
P08-20	Through-type door control selection	0 to 3	0	-	×
P08-00 is used to set the number of door operators based on actual conditions. Set P08-00 to 1 for single door and 2 for through-type door. P08-20 is used to set the through-type door control mode. The possible values to be set: 0: Simultaneous control for door open/close 1: Independent control for door open/close for hall calls, and simultaneous control for car calls 2: Independent control for door open/close for hall calls, and manual control for car calls 3: Independent control for hall calls and car calls					

7.2.10 P09: Hall call parameters

Parameter	Name	Range	Default	Unit	Property
P09-00	HCB-JP1 input	0 to 63	1	-	×
P09-01	HCB-JP2 input		2	-	×
P09-00 and P09-01 are the input parameters of pins 2 and 3 of JP1 and JP2 on the HCB. The settings are effective for all HCBs. 0: Reserved 1: Elevator lock signal 2: Fire emergency signal 3: Current floor forbidden 4: VIP signal 5: Security signal 6: Door close button input 7: Fire emergency floor 2 signal input					

Parameter	Name	Range	Default	Unit	Property
P09-02	HCB-JP1 output	0 to 15	1	-	×
P09-03	HCB-JP2 output		2	-	×
P09-02 and P09-03 are the output parameters of pins 1 and 4 of JP1 and JP2 on the HCB. The settings are effective for all HCBs. 0: Inactive					

Parameter	Name	Range	Default	Unit	Property
1: Up arrival indicator 2: Down arrival indicator 3: Fault signal 4: Non-door zone stop 5: Non-service state output 6: Door close button output					

Parameter	Name	Range	Default	Unit	Property
P09-04	Start address of hall call auxiliary command	0 to 40	0	-	×
P09-04 is used to set the HCB start address of the rear door for through-type door applications. HCB address of rear door = HCB address of front door at the same floor + P09-04.					

Parameter	Name	Range	Default	Unit	Property
P09-05	Hall call protocol selection	0 to 65535	0	-	○
0: Standard 1: VL protocol 2: ML800 (CAN1 communication) 3: INOVANCE protocol 4: Jiangling protocol 5: Guangri protocol					

Parameter	Name	Range	Default	Unit	Property
P09-06	Hall call parameter setting	0 to 65535	0	-	○
P09-07	Hall call address verification	0 to 65535	0	-	○

7.2.11 P10: Load cell parameters

Parameter	Name	Range	Default	Unit	Property
P10-00	Load cell input selection	0 to 4	1	-	×
It is used to select the channel of load cell signals. When a load cell device is used, set this parameter correctly first. The values are as follows: 0: Inactive 1: Car call digital input 2: Car call analog input					

Parameter	Name	Range	Default	Unit	Property
3: MCB analog input 4: MCB digital input					

Parameter	Name	Range	Default	Unit	Property
P10-01	Car load ratio during load cell auto-tuning	0 to 100	0	%	×
To perform load cell auto-tuning, do as follows: (1) Ensure that P12-00 is set to 0 and P10-00 (Load cell input selection) is set to 2 (Car call analog input) or 3 (MCB analog input) to make the system allow load cell auto-tuning. (2) Stop the elevator at any floor, with the car in the no-load state. Set P10-01 to 0 and press ENTER DATA. (3) Put N% load in the car. Then set P10-01 to N and press ENTER DATA. For example, if you put 500 kg load in the elevator with rated load of 1000 kg, set P10-01 to 50. After the load-cell auto-tuning is completed, the corresponding no-load and full-load data will be recorded in P10-03 and P10-04. You can also manually input the data as needed.					

Parameter	Name	Range	Default	Unit	Property
P10-02	Current car load	0 to 255	0	-	*
P10-02 is a read-only parameter and reflects the load condition in the car. The value is sampled by Smile3000 by using a load cell to judge overload or full-load, or calculate the torque current for load cell pre-torque compensation.					

Parameter	Name	Range	Default	Unit	Property
P10-03	No-load measured by load cell	0 to 255	0	-	×
P10-04	Full-load measured by load cell	0 to 255	100	-	×
P10-03 and P10-04 set the no-load and full-load conditions in the car. They are AD sampling values.					

Parameter	Name	Range	Default	Unit	Property
P10-05	Anti-nuisance function	0 to 65535	0	-	○
It is used to set the conditions to judge nuisance. The possible values to be set: Bit0: Nuisance judged by load cell. A load cell is required. The system judges whether nuisance exists by comparing the load cell data and the number of car calls. Bit1: Nuisance judged by light curtain. The system determines that nuisance exists when the light curtain does not act after the elevator stops at arrival floor for three consecutive times. Bit2: Nuisance judged by light-load signal. If the light-load signal is active, the system determines that nuisance exists when the number of car calls is greater than a certain value. When the system determines that the elevator is in the nuisance state, it cancels all car calls. In this					

Parameter	Name	Range	Default	Unit	Property
case, car calls need to be registered again.					

7.2.12 P11: Basic elevator parameters

Parameter	Name	Range	Default	Unit	Property
P11-00	Leveling adjustment	0 to 60	30	mm	×
P11-00 is used to adjust the car landing position at all floors. Decrease this parameter if over-leveling occurs at every floor, and increase this parameter if under-leveling occurs at every floor. For inaccuracy at only single floor, adjust the leveling plate or group P20 parameters. Smile3000 is equipped with advanced distance control algorithms, and uses multiple methods to ensure the landing accuracy. Generally, you do not need to adjust the parameter.					

Parameter	Name	Range	Default	Unit	Property
P11-01	Current floor	P11-07 to P11-06	1	-	×
P11-01 indicates the current floor of the elevator car. The system automatically changes the value of this parameter during running and corrects it at leveling position (door open limit) after the up slow-down and down slow-down switches act. At non-bottom floor and top-floor leveling, you can also manually modify this parameter, but the value must be consistent with the actual current floor.					

Parameter	Name	Range	Default	Unit	Property
P11-02	High bits of current floor position	0 to 65535	0	Pulses	○
P11-03	Low bits of current floor position	0 to 65535	0	Pulses	○
P11-02 and P11-03 indicate the absolute pulses of the current car position relative to the leveling of the bottom floor. The position data of Smile3000 in the shaft is recorded in pulses. Each position is expressed by a 32-bit binary number, where the high 16 bits indicate the high digit place of the floor position, and the low 16 bits indicate the low digit place of the floor position.					

Parameter	Name	Range	Default	Unit	Property
P11-04	Leveling plate length 1	0 to 65535	0	Pulses	×
P11-05	Leveling plate length 2	0 to 65535	0	Pulses	×
P11-04 indicates the pulses corresponding to the leveling plate length. P11-05 indicates the distances between the up and down leveling switches and two ends of the leveling plate and the pulses. These two parameters are automatically recorded during shaft auto-tuning.					

Parameter	Name	Range	Default	Unit	Property
P11-06	Top floor of elevator	P11-07 to 48	9	-	×
P11-07	Bottom floor of elevator	1 to P11-06	1	-	×
The parameters are to set the top floor and bottom floor of the elevator, determined by the number of leveling plates installed.					

Parameter	Name	Range	Default	Unit	Property
P11-08	Parking floor	P11-07 to P11-06	1	-	×
When the idle time of the elevator exceeds the value set in P16-00, the elevator returns to the parking floor set in P11-08 automatically.					

Parameter	Name	Range	Default	Unit	Property
P11-09	Fire emergency floor	P11-07 to P11-06	1	-	×
When the elevator enters the state of returning to fire emergency floor, the elevator will return to the set floor.					

Parameter	Name	Range	Default	Unit	Property
P11-10	Fire emergency floor 2	0 to P11-06	0	-	×
This parameter is used to set fire emergency floor 2. After the fire emergency floor switchover signal set on the MCB is active, the elevator enters the fire emergency running state and returns to this fire emergency floor.					

Parameter	Name	Range	Default	Unit	Property
P11-11	Elevator lock floor	P11-07 to P11-06	1	-	×
After entering the elevator lock state, the elevator returns to the floor set in P11-11. When the elevator lock switch operates or it is the time for preset elevator lock in the running state, the elevator clears all hall calls registered, responds to all car calls registered and returns to the elevator lock floor. After arrival, it stops running and turns off the lighting and fan in the car. The hall call is not displayed after door close.					

Parameter	Name	Range	Default	Unit	Property
P11-12	VIP floor	0 to P11-06	0	-	×
It is used to set the VIP floor. See "10.9 VIP running function".					

Parameter	Name	Range	Default	Unit	Property
P11-13	Emergency evacuation parking floor	0 to P11-06	0	s	×
If P11-54 Bit2 is set to 1 (Stop at the main floor), the elevator stops at the emergency evacuation					

Parameter	Name	Range	Default	Unit	Property
parking floor set in P11-13.					

Parameter	Name	Range	Default	Unit	Property
P11-14	Security floor	0 to P11-06	0	-	×

P11-14 is used to set the security floor of the elevator.

During the night security period or when the security signal is active, the elevator runs to the security floor first. It opens and closes the door once every time before it goes to the destination floor. Enter the security state in either of the following methods:

- Set P09-00 or P09-01 to 5. When the security signal is active, the elevator enters the security state.
- The night security floor function is enabled (P12-09 Bit5 = 1) and the elevator enters the security state from 22: 00 to 6:00 .

Parameter	Name	Range	Default	Unit	Property
P11-15	Service floor 1	0 to 65535 (floors 1 to 16)	65535	-	×
P11-16	Service floor 2	0 to 65535 (floors 17 to 32)	65535	-	×
P11-17	Service floor 3	0 to 65535 (floors 33 to 48)	65535	-	×

These parameters are used to set the service floors among floors 1 to 48.

P11-15 corresponds to floors 1 to 16, P11-16 floors 17 to 32 and P11-17 floors 33 to 48.

The following part takes P11-15 as an example to describe how to set the service floors.

The 16 binary bits of this parameter respectively correspond to the 16 floors. If a bit is set to 1, the elevator will respond to the calls at this floor. If this bit is set to 0, the elevator will not respond to the calls at this floor.

Example: For a 16-floor elevator, if it does not respond to the calls at floors 3, 5, and 7, set Bit2, Bit4 and Bit6 to 0, and other bits to 1.

Floor	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Bit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Binary	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1
Decimal	1	2	0	8	0	32	0	128	256	512	1024	2048	4096	8192	16384	32768

1+2+8+32+128+256+512+1024+2048+4096+8192+16384+32768=65451

Thus, P11-15 should be set to 65451.

The setting method for P11-16 and P11-17 is the same as that for P11-15.

Parameter	Name	Range	Default	Unit	Property
P11-18	Number of elevators in group control	1 to 8	1	-	×
P11-19	Elevator No.	1 to 8	1	-	×

Parameter	Name	Range	Default	Unit	Property
P11-18 and P11-19 are used to set the number of elevators and elevator No. in parallel/ group control mode.					

Parameter	Name	Range	Default	Unit	Property
P11-20	Floor offset in parallel control	0 to 40	0	-	×
It is used when the bottom floors of two elevators in parallel control are inconsistent. When this function is enabled, the parallel control can be implemented directly. You need not adjust the top and bottom floors of the two elevators and perform shaft auto-tuning again.					

Parameter	Name	Range	Default	Unit	Property
P11-21	Program selection	0 to 65535	0	-	×

Parameter	Name	Range	Default	Unit	Property
P11-22	Leveling switch delay	10 to 50	14	ms	×
It indicates the delay time from the moment the leveling switch acts to the moment the leveling signal becomes active. You need not modify it.					

Parameter	Name	Range	Default	Unit	Property
P11-23	Collective selective mode	0 to 2	0	-	×
It is used to set the collective selective mode of the control system. The possible values to be set: 0: Full collective selective: The elevator responds to both up and down hall calls. 1: Down collective selective: The elevator only responds to down hall calls. 2: Up collective selective: The elevator only responds to up hall calls.					

Parameter	Name	Range	Default	Unit	Property
P11-24	Start time of down collective selective 1	00.00 to 23.59	00.00	HH.MM	×
P11-25	End time of down collective selective 1	00.00 to 23.59	00.00	HH.MM	×
P11-26	Start time of down collective selective 2	00.00 to 23.59	00.00	HH.MM	×
P11-27	End time of down collective selective 2	00.00 to 23.59	00.00	HH.MM	×
P11-24 to P11-27 define the time periods of down collective selective 1 and down collective selective 2, during which the elevator responds to only downward calls.					

CAUTION

To enable the peak service of down collective selective control, set P12-09 Bit6 to 1.

Parameter	Name	Range	Default	Unit	Property
P11-28	Start time of time-based floor service 1	00.00 to 23.59	00.00	HH.MM	×
P11-29	End time of time-based floor service 1	00.00 to 23.59	00.00	HH.MM	×
P11-30	Service floor 1 of time-based floor service 1	0 to 65535	65535	-	×
P11-31	Service floor 2 of time-based floor service 1	0 to 65535	65535	-	×
P11-32	Service floor 3 of time-based floor service 1	0 to 65535	65535	-	×
P11-33	Start time of time-based floor service 2	00.00 to 23.59	00.00	HH.MM	×
P11-34	End time of time-based floor service 2	00.00 to 23.59	00.00	HH.MM	×
P11-35	Service floor 1 of time-based floor service 2	0 to 65535	65535	-	×
P11-36	Service floor 2 of time-based floor service 2	0 to 65535	65535	-	×
P11-37	Service floor 3 of time-based floor service 2	0 to 65535	65535	-	×

The above parameters set the time range and service floors of two groups of time-based floor services.

Service floors 1, 2 and 3 correspond to floors 1 to 16, floors 17 to 32 and floors 33 to 48 respectively. For example, in the time period of time-based floor service 1 (set by P11-28 and P11-29), the elevator responds to the service floors 1, 2 and 3 (set by P11-30, P11-31 and P11-32) regardless of the service floors set by P11-15, P11-16 and P11-17. The setting of time-based service floors is the same as that of service floors in P11-15.

CAUTION

To enable the time-based floor service, set P12-09 Bit8 to 1. Then, you can set the time range and service of floors.

Parameter	Name	Range	Default	Unit	Property
P11-38	Peak 1 start time for parallel/group control	00.00 to 23.59	00.00	HH.MM	×

Parameter	Name	Range	Default	Unit	Property
P11-39	Peak 1 end time for parallel/group control	00.00 to 23.59	00.00	HH.MM	×
P11-40	Peak 1 floor for parallel/group control	P11-07 to P11-06	1	-	×
P11-41	Peak 2 start time for parallel/group control	00.00 to 23.59	00.00	HH.MM	×
P11-42	Peak 2 end time for parallel/group control	00.00 to 23.59	00.00	HH.MM	×
P11-43	Peak 2 floor for parallel/group control	P11-07 to P11-06	1	-	×

P11-38, P11-39, and P11-40 are used to set peak service time period 1 and corresponding service floors for parallel/group control.

P11-41, P11-42, and P11-43 are used to set peak service time period 2 and corresponding service floors for parallel/group control.

If there are more than three car calls from the peak floor during peak periods, the elevator enters the peak service state. In this case, all the car calls from the peak floor are active. The elevator returns to this floor when it sits idle.

CAUTION

To enable the peak service for parallel/group control, set bit7 of P12-09 to 1. To disable this function, set Bit7 of P12-09 to 0.

Parameter	Name	Range	Default	Unit	Property
P11-47	Elevator lock start time	00.00 to 23.59	00.00	HH.MM	×
P11-48	Elevator lock end time	00.00 to 23.59	00.00	HH.MM	×

P11-47 and P11-48 are used to set the elevator lock time period, during which the elevator is in lock state just as what the elevator key switch can do.

CAUTION

The elevator can switch to the lock state in the following two ways:

① Set P11-49 Bit5 to 1 to enable the timed elevator lock function. P11-47 and P11-48 set the elevator lock time period when the system will automatically lock the elevator.

② Set P09-00 to 1 to activate the hall elevator lock key switch.

Parameter	Name	Range	Default	Unit	Property
P11-49	Program control selection 1	0 to 65535	0	-	×

Parameter	Name	Range	Default	Unit	Property
P11-50	Program control selection 2	0 to 65535	0	-	×
P11-51	Program control selection 3	0 to 65535	0	-	×
P11-52	Attendant function selection	0 to 65535	128	-	×
P11-53	Fire emergency function selection	0 to 65535	16456	-	×
P11-54	Emergency evacuation function selection	0 to 65535	16384	-	×
P11-55	VIP function selection	0 to 65535	0	-	×
P11-56	Blinking advance time	0.0 to 15.0	1.0	s	○
P11-57	CAN communication setting	0 to 65535	0	-	○
P11-58	Soft limit position setting	0 to 65535	0	-	○
P11-59	High bits of current pulse	0 to 65535	0	-	*
P11-60	Low bits of current pulse	0 to 65535	0	-	*

7.2.13 P13: Keypad setting parameters

Parameter	Name	Range	Default	Unit	Property
P13-00	Keypad display selection	0 to 3	3	-	×

The Smile3000 controller has three LEDs on the MCB. You can change the display content through the setting of this parameter.

The possible values to be set:

0: Reverse display of physical floor

1: Forward display of physical floor

2: Reverse display of hall call floor

3: Forward display of hall call floor

Parameter	Name	Range	Default	Unit	Property
P13-01	Parameter display in the running state	1 to 65535	65535	-	×

It is used to set the running parameters displayed on the operating panel when the elevator is running. P13-01 includes 16 binary bits, corresponding to 16 parameters that can be displayed during running. You can press the Shift key to view different parameters. Every parameter is controlled by a binary bit. If a bit is set to 1, the parameter indicated by this bit is displayed; if this bit is set to 0, the parameter is not displayed. You can modify this parameter for your own convenience.

Parameter	Name	Range	Default	Unit	Property

The correlation between the parameters and binary bits is as follows.

Binary bit	Parameter	Default
Bit0	Running speed	1
Bit1	Rated speed	1
Bit2	Bus voltage	1
Bit3	Output voltage	1
Bit4	Output current	1
Bit5	Output frequency	1
Bit6	High bits of input terminals	1
Bit7	Low bits of input terminals	1
Bit8	Output terminals	1
Bit9	Current floor	1
Bit10	Current position	1
Bit11	Car load	1
Bit12	CTB input state	1
Bit13	CTB output state	1
Bit14	System state	1
Bit15	Pre-torque current	1

The method of viewing P13-01 is as follows:

In the running state, P13-01 is displayed as a decimal value. You can press the Shift key to view the parameter indicated by each bit circularly.

Parameter	Name	Range	Default	Unit	Property
P13-02	Parameter display in the stop state	1 to 65535	65535	-	×

It is used to set the state parameters displayed on the operating panel when the elevator is at stop.

P13-02 includes 16 binary bits, corresponding to 16 parameters that can be displayed at stop.

The correlation between the parameters and binary bits is as follows.

Binary bit	Parameter	Default	Binary bit	Parameter	Default
Bit0	Rated speed	1	Bit8	Slow-down distance at rated speed	1
Bit1	Bus voltage	1	Bit9	CTB input state	1
Bit2	Low bits of input terminals	1	Bit10	CTB output state	1
Bit3	High bits of input terminals	1	Bit11	System state	1
Bit4	Output terminals	1	Bit12	Reserved	1
Bit5	Current floor	1	Bit13	Reserved	1

Parameter	Name	Range		Default	Unit	Property
Bit6	Current position	1	Bit14	Reserved		1
Bit7	Car load	1	Bit15	Reserved		1

The method of setting and viewing P13-02 is similar to that of P13-01.

The running and stop parameters of the Smile3000 controller are the important references for engineers to perform commissioning on site. The parameters are described as follows.

Running speed: indicates the actual running speed of the elevator (m/s). Its peak value is the maximum elevator speed (P00-03).

Rated speed: indicates the allowed maximum running speed (m/s) in the current elevator state.

Bus voltage: indicates the DC bus voltage (V).

Output voltage: indicates the effective equivalent voltage of the PWM wave output (V).

Output current: indicates the effective current as the controller drives the motor (A).

Output frequency: indicates the actual frequency of the running motor (Hz). It is proportional to the running speed.

7.2.14 P15: Communication parameters

Parameter	Name	Range	Default	Unit	Property
P15-00	Baud rate setting	0: 9600 1: 38400	1	-	×
P15-02	Local address	0 to 127 (0: broadcast address)	1	-	×
P15-03	Response delay	0 to 20	0	ms	×
P15-04	Communication timeout	0 to 60	0	s	×

These RS232 serial port communication parameters are used for host controller monitoring software communication.

P15-00 specifies the baud rate for serial communication.

P15-02 specifies the address of the controller. The setting of these two parameters must be consistent with the setting of the serial port parameters.

P15-03 specifies the delay for the controller to send data by means of the serial port.

P15-04 specifies the communication timeout of the serial port. Transmission of each frame must be completed within the time set in P15-04. Otherwise, a communication fault occurs.

Parameter	Name	Range	Default	Unit	Property
P15-05	Re-leveling stop delay	0.00 to 2.00	0.00	s	×

P15-05 is used to set the re-leveling stop delay. During re-leveling, the elevator decelerates to stop after this delay timed from the moment it receives the leveling signal.

Parameter	Name	Range	Default	Unit	Property
P15-07	Host controller setting	0 to 65535	0	-	○
P15-08	Local log setting	0 to 65535	0	-	×

7.2.15 P16: Time parameters

Parameter	Name	Range	Default	Unit	Property
P16-00	Maximum idle time before returning to parking floor	0 to 240	10	min	○
It is used to set the time of idle elevator parking. When the idle time of the elevator exceeds the setting of this parameter, the elevator returns to the parking floor. 0: This function is invalid.					

Parameter	Name	Range	Default	Unit	Property
P16-01	Fan/Lighting turn-off time	0 to 240	2	min	○
It is used to set the time that fan and lighting stays ON before being turned off automatically. If there is no running command in the automatic running state, the system turns off the fan and lighting automatically after reaching the value set in this parameter.					

Parameter	Name	Range	Default	Unit	Property
P16-02	Motor running time limit	0 to 45	45	s	×
It is used to set the running time limit of the motor. In the normal running state, if the continuous motor running time in the same direction between two adjacent floors exceeds the setting of this parameter but no leveling signal is received, the system will perform protection. This parameter is mainly used for timeout protection in the case of steel rope slipping on the traction sheave. If this parameter is set to a value smaller than 3 s, it becomes inactive.					

Parameter	Name	Range	Default	Unit	Property
P16-03	Clock: year	2010 to 2100	2011	YYYY	×
P16-04	Clock: month	1 to 12	1	MM	×
P16-05	Clock: day	1 to 31	1	DD	×
P16-06	Clock: hour	0 to 23	0	HH	×
P16-07	Clock: minute	0 to 59	0	MM	×
These parameters are used to set the current date and time of the system. These parameters are the internal time of the control system. Time keeping is supported at power					

Parameter	Name	Range	Default	Unit	Property
failure. You need to set the current system time correctly so that functions related to the time can be implemented.					

Parameter	Name	Range	Default	Unit	Property
P16-10	Attendant/Normal state switchover time	3 to 200	3	s	×
In the attendant state, if there is a hall call at non-current floors, the elevator automatically switches to the automatic (normal) state after the time set in P16-10 is reached. After this running is completed, the elevator returns to the attendant state (Bit2 of P11-52 must be set properly). When P16-10 is smaller than 5, the attendant/normal state switchover is disabled.					

Parameter	Name	Range	Default	Unit	Property
P16-11	Maintenance notification period	0 to 99	0	day	×

Parameter	Name	Range	Default	Unit	Property
P16-12	Motor running protection time	0 to 99	45	-	○

7.2.16 P17: Test function parameters

The parameters in this group are provided to facilitate elevator commissioning.

Before the elevator running test at normal speed is performed, check that the shaft is unimpeded and the parameters have been set. Let the elevator run to the middle floor of the entire travel to prevent any elevator running direction error. Run the single-floor call and enter the multi-floor calls to perform commissioning. After commissioning is completed, check whether the parameters in this group are set correctly.

Parameter	Name	Range	Default	Unit	Property
P17-00	Car call floor registered	0 to P11-06	0	-	×
P17-01	Up hall call floor registered	0 to P11-06	0	-	×
P17-02	Down hall call floor registered	0 to P11-06	0	-	×
The three parameters are used to set the destination floors during commissioning or repair. They can be used as the car call button, hall call up button, and hall call down button respectively. After the test references are set, the parameter settings remain effective until the parameters are changed to 0 or a power failure occurs.					

Parameter	Name	Range	Default	Unit	Property
P17-03	Random running times	0 to 60000	0	-	×
P17-03 is used to set the random running times of the system. Smile3000 has the random automatic running function. If the setting of P17-03 is greater than 60000, the system keeps implementing random automatic running until you set P17-03 to 0. You can set the random running interval in P17-08.					

Parameter	Name	Range	Default	Unit	Property
P17-04	Hall call	0, 1	0	-	×
P17-04 is used to forbid or allow the hall calls. The possible values to be set: 0: Hall call allowed 1: Hall call forbidden					

Parameter	Name	Range	Default	Unit	Property
P17-05	Door open	0, 1	0	-	×
P17-05 is used to forbid or allow door open. The possible values to be set: 0: Door open allowed 1: Door open forbidden					

CAUTION

Continuous running of the elevator without opening the door accelerates overheating of the controller module. Long-time use in such mode may cause overheat protection, and therefore, use the function with caution.

Parameter	Name	Range	Default	Unit	Property
P17-06	Overload function	0, 1	0	-	×
P17-06 is used to set the overload function. The possible values to be set: 0: Overload forbidden 1: Overload allowed					

CAUTION

P17-06 is enabled only for test purpose. Once the test is completed, disable overload running immediately.

Parameter	Name	Range	Default	Unit	Property
P17-07	Limit function	0, 1	0	-	×
P17-07 is used to set limit switches. The possible values to be set: 0: Limit switch enabled 1: Limit switch disabled					

CAUTION

The limit switch is disabled only in the test of the final limit switch. Use the function with caution.

Parameter	Name	Range	Default	Unit	Property
P17-08	Random running interval	0 to 1000	0	s	×
P17-08 is used to set the random running interval.					

Parameter	Name	Range	Default	Unit	Property
P17-09	Test function	0 to 65535	0	-	○
P17-10	Output time for overspeed governor test	0 to 100	0	s	○
P17-11	Tested floor 1	0 to P11-06	0	-	○
P17-12	Tested floor 2	0 to P11-06	0	-	○
P17-13	Tested floor 3	0 to P11-06	0	-	○
P17-14	Overspeed test threshold	0.000 to 4.000 m/s	0	m/s	○

7.2.17 P18: Maintenance parameters

Parameter	Name	Range	Default	Unit	Property
P18-00	Set running time	0 to 60000	0	-	×
P18-01	Set running days	0 to 999	999	-	×
P18-02	Maintenance days setting	0 to 99	0	-	○
P18-03	Maintenance days check	0 to 99	0	-	*
P18-04	Remote password	0 to 65535	0	-	○
P18-05	Maintenance status check	0 to 1	0	-	*

7.2.18 P19: Floor height parameters

Parameter	Name	Range	Default	Unit	Property
P19-00	High bits of floor height 1	0 to 65535	0	Pulses	×
P19-01	Low bits of floor height 1	0 to 65535	0	Pulses	×
High/Low bits of floor height 2 to 47					
P19-94	High bits of floor height 48	0 to 65535	0	Pulses	×
P19-95	Low bits of floor height 48	0 to 65535	0	Pulses	×
These parameters indicate the pulses corresponding to the floor height i (between the leveling plates of floor i and floor i + 1). Each floor height is expressed by a 32-bit binary number, where the high 16 bits indicate the high digit place of the floor height, and the low 16 bits indicate the low digit place of the floor height. Normally, the floor height i of each floor corresponds to almost the same number of pulses.					

7.2.19 P20: Leveling adjustment parameters

Parameter	Name	Range	Default	Unit	Property
P20-00	Leveling adjustment mode	0: Inactive 1: Leveling adjustment enabled	0	-	×
P20-00 is used to set whether to enable the leveling adjustment function.					

Parameter	Name	Range	Default	Unit	Property
P20-01	Leveling adjustment record 1	00000 to 60060	30030	mm	×
P20-02	Leveling adjustment record 2		30030	mm	×
P20-03	Leveling adjustment record 3		30030	mm	×
P20-04	Leveling adjustment record 4		30030	mm	×
P20-05	Leveling adjustment record 5		30030	mm	×
P20-06	Leveling adjustment record 6		30030	mm	×
P20-07	Leveling adjustment record 7		30030	mm	×
P20-08	Leveling adjustment record 8		30030	mm	×
P20-09	Leveling adjustment record 9		30030	mm	×
P20-10	Leveling adjustment record 10		30030	mm	×
P20-11	Leveling adjustment record 11		30030	mm	×
P20-12	Leveling adjustment record 12		30030	mm	×
P20-13	Leveling adjustment record 13		30030	mm	×
P20-14	Leveling adjustment record 14		30030	mm	×
P20-15	Leveling adjustment record 15		30030	mm	×
P20-16	Leveling adjustment record 16		30030	mm	×
P20-17	Leveling adjustment record 17		30030	mm	×
P20-18	Leveling adjustment record 18		30030	mm	×
P20-19	Leveling adjustment record 19		30030	mm	×
P20-20	Leveling adjustment record 20		30030	mm	×
P20-21	Leveling adjustment record 21		0	mm	×
P20-22	Leveling adjustment record 22		0	mm	×
P20-23	Leveling adjustment record 23		0	mm	×
P20-24	Leveling adjustment record 24		0	mm	×
These parameters are used to record the leveling adjustment values. Each parameter records the adjustment information of two floors, and therefore, 56 floor adjustment records are supported totally. The method of viewing the record is shown in the following figure.					

Parameter	Name	Range	Default	Unit	Property

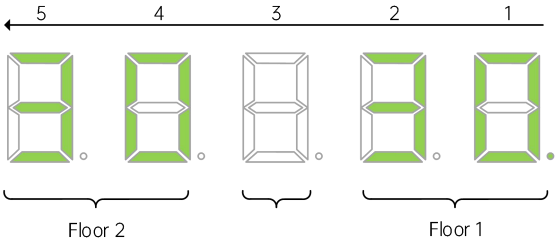


Fig. 7-5 Viewing the leveling adjustment record

As shown in the above figure, the right two LEDs and the left two LEDs respectively show the adjustment bases of floor 1 and floor 2. If the value is larger than 30, it is upward leveling adjustment. If the value is smaller than 30, it is downward leveling adjustment. The default value "30" indicates that there is no leveling adjustment. Maximum adjustment range is ±30 mm.

Leveling adjustment is performed as follows:

(1) Ensure that shaft auto-tuning has been completed successfully, and that the elevator runs properly at normal speed.

(2) Set P20-00 to 1 to enable the car leveling adjustment function. In this case, the elevator does not respond to any hall calls, automatically runs to the top floor, and keeps the door open after arrival. If the elevator has been at the top floor, it directly keeps the door open.

(3) Go into the car, press the top floor button once, and the leveling position is changed 1 mm upward. Press the bottom floor button once, and the leveling position is changed 1 mm downward. The value is displayed in the car. Positive value: up arrow + value; Negative value: down arrow + value; Adjustment range: ±30 mm.

(4) After completing the adjustment, press the top floor button and bottom floor button in the car at the same time to save the adjustment result. The car display restores to the normal state. If the leveling position of the current floor need not be adjusted, you also need to press the top floor button and bottom floor button in the car at the same time to exit the leveling adjustment state. Otherwise, you cannot register the car call.

(5) Press the door close button, and press the button for the next floor. The elevator runs to the next floor and keeps the door open after arrival.

(6) After the leveling adjustment is completed, set P20-00 to 0 to disable the leveling adjustment function. Otherwise, the elevator cannot run properly.

7.2.20 P21: Floor display parameters

Parameter	Name	Range	Default	Unit	Property
P21-01	Floor 1 display	00: Display "0" 01: Display "1" 02: Display "2"	1901	-	○
P21-02	Floor 2 display		1902	-	○
P21-03	Floor 3 display		1903	-	○

Parameter	Name	Range	Default	Unit	Property
P21-04	Floor 4 display	03: Display "3" 04: Display "4" 05: Display "5" 06: Display "6" 07: Display "7" 08: Display "8" 09: Display "9" 10: Display "A" 11: Display "B" 12: Display "G" 13: Display "H" 14: Display "L" 15: Display "M" 16: Display "P" 17: Display "R" 18: Display "-" 19: No display 20: Display "12" 21: Display "13" 22: Display "23" > 22: No display	1904	-	○
P21-05	Floor 5 display		1905	-	○
P21-06	Floor 6 display		1906	-	○
P21-07	Floor 7 display		1907	-	○
P21-08	Floor 8 display		1908	-	○
P21-09	Floor 9 display		1909	-	○
P21-10	Floor 10 display		100	-	○
P21-11	Floor 11 display		101	-	○
P21-12	Floor 12 display		102	-	○
P21-13	Floor 13 display		103	-	○
P21-14	Floor 14 display		104	-	○
P21-15	Floor 15 display		105	-	○
P21-16	Floor 16 display		106	-	○
P21-17	Floor 17 display		107	-	○
P21-18	Floor 18 display		108	-	○
P21-19	Floor 19 display		109	-	○
P21-20	Floor 20 display		200	-	○
P21-21	Floor 21 display		201	-	○
P21-22	Floor 22 display		202	-	○
P21-23	Floor 23 display		203	-	○
P21-24	Floor 24 display		204	-	○
P21-25	Floor 25 display		205	-	○
P21-26	Floor 26 display		206	-	○
P21-27	Floor 27 display		207	-	○
P21-28	Floor 28 display		208	-	○
P21-29	Floor 29 display		209	-	○
P21-30	Floor 30 display		300	-	○
P21-31	Floor 31 display		301	-	○
P21-32	Floor 32 display		302	-	○
P21-33	Floor 33 display		303	-	○
P21-34	Floor 34 display		304	-	○
P21-35	Floor 35 display		305	-	○
P21-36	Floor 36 display		306	-	○
P21-37	Floor 37 display		307	-	○
P21-38	Floor 38 display		308	-	○
P21-39	Floor 39 display		309	-	○
P21-40	Floor 40 display		400	-	○
P21-41	Floor 41 display		401	-	○
P21-42	Floor 42 display		402	-	○

Parameter	Name	Range	Default	Unit	Property
P21-43	Floor 43 display		403	-	○
P21-44	Floor 44 display		404	-	○
P21-45	Floor 45 display		405	-	○
P21-46	Floor 46 display		406	-	○
P21-47	Floor 47 display		407	-	○
P21-48	Floor 48 display		408	-	○

These parameters are used to set the display of each floor. The setting range is 0000 to 9999, where the two high bits indicate the display code of tens place of the floor number, and the two low bits indicate the display code of ones place.

Parameter	Name	Range	Default	Unit	Property
P21-49	Highest digit selection 1	0 to 4099	0	-	○
P21-50	Highest digit selection 2		0	-	○
P21-51	Highest digit selection 3		0	-	○
P21-52	Highest digit selection 4		0	-	○
P21-53	Highest digit selection 5		0	-	○

P21-52 to P21-56 are used to set the special display of floor numbers.

When the 2-digit floor display cannot meet your requirements, add the third digit by setting the above parameters.

Set the floor address that requires a special display in two high digits and the display content in two low digits. For example, if you want floor 18 to be displayed as "17A", set P21-18 to 0710 first (it displays "7A"). Then, set P21-49 to 1801, indicating that the highest digit display of floor 18 is "1".

7.2.21 P22: Configuration parameters

Parameter	Name	Range	Default	Unit	Property
P22-00	Magnetic scale function enable	0 to 65535	0	-	×
P22-01	Magnetic scale model selection	0 to 65535	0	-	×
P22-02	Magnetic scale function selection	0 to 65535	0	-	×
P22-03	Floor position setting	0 to 999	0	-	×
P22-04	Magnetic scale learning	0 to 999	0	-	○
P22-05	Micro-adjustment of current floor position	0 to 99	50	mm	×
P22-06	Door zone length	100 to 400	200	-	×
P22-07	Magnetic scale limit distance setting	0 to 400	30	-	×

Parameter	Name	Range	Default	Unit	Property
P22-08	High bits of 1st floor absolute position	0 to 65535	0	-	×
P22-09	Low bits of 1st floor absolute position	0 to 65535	0	mm	×
P22-10	Speed deviation threshold between encoder and magnetic scale	0.000 to 4.000	0.000	m/s	×
P22-11	High bits of pulses per decimeter	0 to 65535	0	-	×
P22-12	Low bits of pulses per decimeter	0 to 65535	0	-	×

7.2.22 P40: Commissioning parameters

Parameter	Name	Range	Default	Unit	Property
P40-00	Control data 1 address	0 to 65535	0	-	○
P40-01	Control data 1 value	0 to 65535	0	-	*
P40-02	Control data 2 address	0 to 65535	0	-	○
P40-03	Control data 2 value	0 to 65535	0	-	*
P40-04	Control data 3 address	0 to 65535	0	-	○
P40-05	Control data 3 value	0 to 65535	0	-	*
P40-06	Control data 4 address	0 to 65535	0	-	○
P40-07	Control data 4 value	0 to 65535	0	-	*
P40-08	Control data setting 1	0 to 65535	0	-	○
P40-09	Control data setting 2	0 to 65535	0	-	○
P40-10	Control data setting 3	0 to 65535	0	-	○
P40-11	Control data setting 4	0 to 65535	0	-	○

7.2.23 D00: Configuration information

Parameter	Name	Range	Default
D00-00	Rate power of AC drive	0.1 to 999.9	kW
D00-01	Rated voltage of AC drive	0 to 999	V
D00-02	Rated current of AC drive	0.1 to 999.9	A
D00-03	MCB software version	0.00 to 9.99	-
D00-04	Drive board software version	0.00 to 9.99	-
D00-05	CTB software version	0.00 to 9.99	-
D00-06	MCB customized software version	0.00 to 9.99	-
D00-07	Drive board customized software version	0.00 to 9.99	-
D00-08	CTB customized software version	0.00 to 9.99	-
D00-09	MCB manufacturer software version	0.00 to 9.99	-

Parameter	Name	Range	Default
D00-10	Drive board manufacturer software version	0.00 to 9.99	-
D00-11	CTB manufacturer software version	0.00 to 9.99	-
D00-12	Functional specification version	0.00 to 9.99	-
D00-13	MCB software temporary version	0.00 to 99.99	-
D00-14	Drive board software second version	0.00 to 9.99	-
D00-15	Product model	0 to 9999	-
D00-16	CTB model	0 to 100	-

7.2.24 D01: Running state

Parameter	Name	Range	Default
D01-00	Speed reference	0.000 to 4.000	m/s
D01-01	Feedback speed	0.000 to 4.000	m/s
D01-02	Bus voltage	0 to 999.9	V
D01-03	Current position	0.00 to 300.00	m
D01-04	Output current	0.0 to 999.9	A
D01-05	Output frequency	0.00 to 99.99	Hz
D01-06	Torque current	0.0 to 999.9 (with positive/negative display)	A
D01-07	Output voltage	0.0 to 999.9	V
D01-08	Output torque	0.0 to 200.0 (with positive/negative display)	%
D01-09	Output power	0.00 to 99.99 (with positive/negative display)	KW
D01-00 to D01-09 display the current performance state of the system (the output torque and output power support positive/negative display).			

Parameter	Name	Range	Default
D01-10	Heatsink temperature	0 to 100	m/s
D01-10 displays the current temperature of the heatsink. Normally, the heatsink temperature is below 40°C. When the temperature is too high, the system lowers the carrier frequency automatically to reduce heat. When the heatsink overtemperature reaches a certain level, the system reports the module overheat fault and stops running.			

Parameter	Name	Range	Default
D01-13	Pre-torque current	0.0 to 200.0	%
D01-13 displays the percentage of pre-torque current out of the rated current (with positive/negative display, motor driving or regenerative state).			

Parameter	Name	Range	Default
D01-14	Logic information	0 to 65535 Thousands place and ten thousands place: Elevator state Ones place to hundreds place: Car state	-

This parameter is used to display the elevator state.

As shown in the following figure, five LEDs are expressed as 1, 2, 3, 4, and 5 from right to left. 1 indicates door 1 state. 2 and 3 are reserved. The combination of 4 and 5 indicates elevator state. The following table shows the specific contents of the numbers.

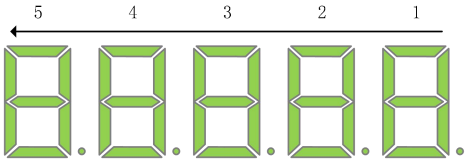


Fig. 7-6 LED display

5		4		3	2	1	
Elevator state				Reserved	Reserved	Door 1 state	
00	Inspection state	08	Elevator lock	Reserved	Reserved	0	Waiting state
01	Shaft auto-tuning	09	Idle elevator parking			1	Door open state
02	Micro-leveling	10	Low-speed re-leveling			2	Door open limit
03	Returning to fire emergency floor	11	Emergency evacuation operation			3	Door close state
04	Firefighter operation	12	Motor auto-tuning			4	Door close limit
05	Fault state	13	Keypad control			5	Operation state
06	Attendant operation	14	Main floor verification			-	-
07	Automatic	15	VIP state			-	-

Parameter	Name	Range	Default
D01-15	Curve information	0 to 65535 Hundreds place to ten thousands place: Curve information Ones place and tens place: Timing	-

Parameter	Name	Range	Default
		information	

D01-15 displays the system running curve information. As shown in the following table, LEDs 1 and 2 indicate the curve information and LEDs 4 and 5 timing information.

5	4	3	2	1
Timing information		No display	Curve information	
00	Stop state		00	Standby state
01	Shorting door lock circuit contactor output		01	Startup speed segment
02	Output of shorting motor stator and RUN contactors		02, 03	Acceleration start segment
03	Zero-speed torque current holding		04	Linear acceleration segment
04	Brake contactor output		05, 06, 07	Acceleration end segment
05	Curve running		08	Steady-speed running segment
06	Stop zero-speed		09, 10, 11	Deceleration start segment
07	Brake contactor OFF		12	Linear deceleration segment
08	Stop timing		13, 14	Deceleration end segment
			15	Curve stop

Parameter	Name	Range	Default
D01-16	System state 2	0 to 65535	-

Description of D01-16 system state 2

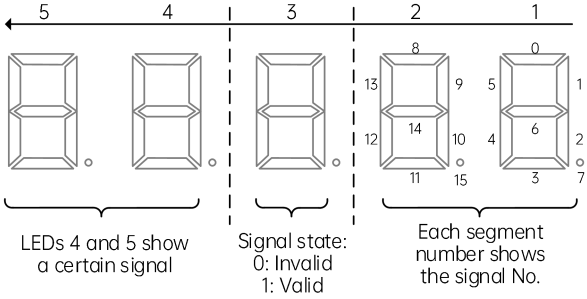


Fig. 7-7 D01-16 system state 2 display

No.	Definition	No.	Definition
0	Up direction display	8	Reserved
1	Down direction display	9	Reserved

Parameter	Name		Range		Default
	2	Operation state	10	Reserved	
	3	System full-load	11	Reserved	
	4	System overload	12	Reserved	
	5	System half-load	13	Reserved	
	6	System light-load	14	Reserved	
	7	Reserved	15	Reserved	

Parameter	Name	Range	Default
D01-17	Input state 6	0 to 65535	-
D01-18	Input state 7	0 to 65535	-
D01-19	Output state 3	0 to 65535	-
D01-20	Output state 4	0 to 65535	-

Parameter	Name	Range	Default
D01-21	Accumulated running time	0 to 65535	h
D01-22	High bits of running times	0 to 9999	-
D01-23	Low bits of running times	0 to 9999	-
These parameters are used to view the actual running time and running times of the elevator. Running times of the elevator = D01-22 × 10000 + D01-23			

Parameter	Name	Range	Default
D01-24	Current encoder angle	0.0 to 359.9	-
D01-24 displays the real-time encoder angle. This parameter cannot be modified.			

Parameter	Name	Range	Default
D01-25	Maximum floor running time interval	0 to 200	-
D01-25 indicates the time required for the elevator to run from the bottom floor to the top floor at normal speed. The smaller value of "D01-25 + 10s" and P16-02 (Motor running time limit) is used as the reference time for motor running time protection. During running, if the leveling signal does not change within the reference time, the system reports E30 and the elevator stops running.			

Parameter	Name	Range	Default
D01-26	Zero servo rollback distance	0 to 65535	-

Parameter	Name	Range	Default
D01-27	Quiescent current	0.00 to 655.00	-
D01-27 is used to set the quiescent current during the certification of static elements.			

Parameter	Name	Range	Default
D01-32	Braking force detection result	0 to 2	-
D01-33	Shorting motor stator test result	0 to 2	-
0: Meaningless 1: Passed 2: Failed			

Parameter	Name	Range	Default
D01-34	System power-on time	0 to 65535	h
D01-35	TD2 temperature	0 to 999	℃
D01-36	Rescue state	0 to 65535	-

7.2.25 D02: MCB state

Parameter	Name	Range	Default
D02-00	Input state 1	0 to 65535	-
D02-01	Input state 2	0 to 65535	-
D02-02	Input state 3	0 to 65535	-
D02-03	Input state 4	0 to 65535	-
D02-04	Input state 5	0 to 65535	-
D02-05	Output state 1	0 to 65535	-
D02-06	Output state 2	0 to 65535	-

D02-00 to D02-06 display the system input and output states.

(1) Description of D02-00 input state 1 display

As shown in the following figure, five LEDs are numbered 1, 2, 3, 4, and 5 from right to left. 5 and 4 indicate an input or output terminal function. 3 indicates that this function is enabled (1) or disabled (0). 1 and 2 display the overall state of 16 functions contained in this parameter using 16-segment LEDs.

Parameter	Name	Range	Default

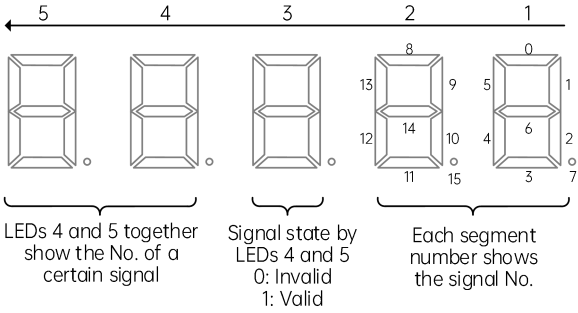


Fig. 7-8 D02-00 input state 1 display

No.	Definition	No.	Definition
0	Reserved	8	Inspection signal
1	Up leveling signal	9	Inspection up signal
2	Down leveling signal	10	Inspection down signal
3	Door zone signal	11	Fire emergency signal
4	Safety circuit feedback	12	Up limit signal
5	Door lock circuit feedback	13	Down limit signal
6	RUN contactor feedback	14	Overload signal
7	Brake contactor feedback	15	Full-load signal

Example:

As shown in the following figure, LEDs 5, 4, and 3 together indicate that function 10 (Inspection down signal) is active (1). LEDs 1 and 2 indicate that functions 4 (Safety circuit feedback), 5 (Door lock circuit feedback), 6 (RUN contactor feedback), 7 (Brake contactor feedback), and 8 (Inspection signal) are also active.

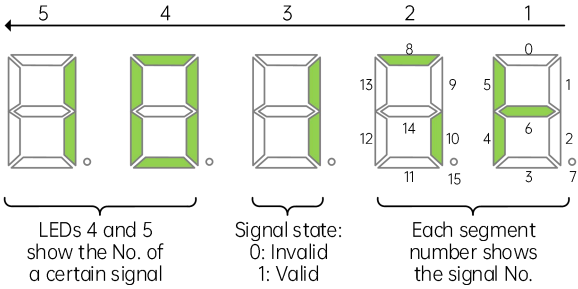


Fig. 7-9 Example of D02-00 input state 1

No.	Definition	No.	Definition

Parameter	Name	Range	Default

0	Reserved	8	Inspection signal
1	Up leveling signal	9	Inspection up signal
2	Down leveling signal	10	Inspection down signal
3	Door zone signal	11	Fire emergency signal
4	Safety circuit feedback	12	Up limit signal
5	Door lock circuit feedback	13	Down limit signal
6	RUN contactor feedback	14	Overload signal
7	Brake contactor feedback	15	Full-load signal

(2) Description of D02-01 input state 2 display

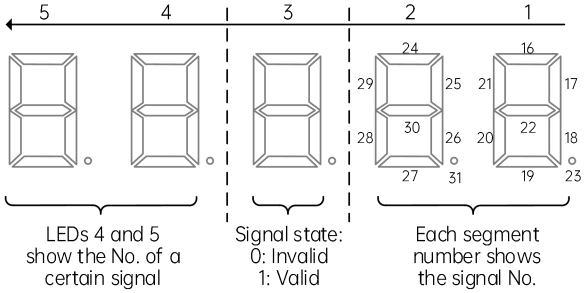


Fig. 7-10 D02-01 input state 2 display

No.	Definition	No.	Definition
16	Up slow-down 1 signal	24	Door operator 1 light curtain
17	Down slow-down 1 signal	25	Door operator2 light curtain
18	Up slow-down 2 signal	26	Brake travel switch 1 feedback
19	Down slow-down 2 signal	27	UPS input
20	Up slow-down 3 signal	28	Elevator lock input
21	Down slow-down 3 signal	29	Safety circuit 2 feedback
22	Shorting door lock circuit output feedback	30	Synchronous motor self-locking feedback input
23	Firefighter operation input	31	Door lock circuit 2 feedback

(3) Description of D02-02 input state 3 display

Parameter	Name	Range	Default

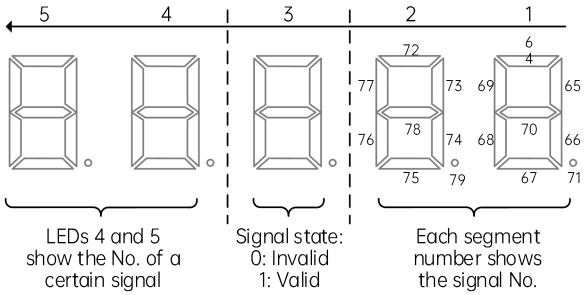


Fig. 7-11 D02-02 input state 3 display

No.	Definition	No.	Definition
32	Reserved	40	Fire emergency floor switchover signal
33	Door 1 safety edge	41	Dummy floor signal
34	Door 2 safety edge	42	Reserved
35	Motor overheat	43	Reserved
36	Earthquake signal	44	Door 1 open button
37	Rear door forbidden	45	Door 2 open button
38	Light-load	46	Brake travel switch 2 feedback
39	Half-load	47	External fault input

(4) Description of D02-03 input state 4 display

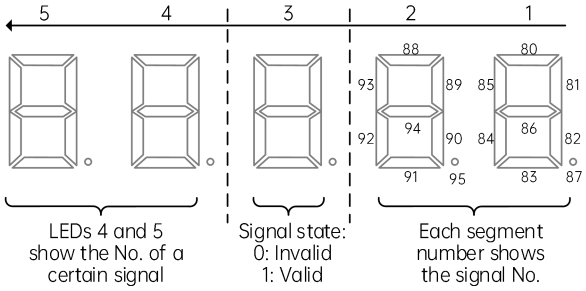


Fig. 7-12 D02-03 input state 4 display

No.	Definition	No.	Definition
48	Terminal floor signal	56	Reserved
49	Door lock 1 shorting	57	Reserved
50	Door lock 2 shorting	58	Reserved

Parameter	Name	Range	Default

51	Reserved	59	Reserved
52	EEO input	60	Reserved
53	Main switch detection	61	Reserved
54	Door lock bypass input	62	Reserved
55	Reserved	63	Reserved

(5) Description of D02-04 input state 5 display

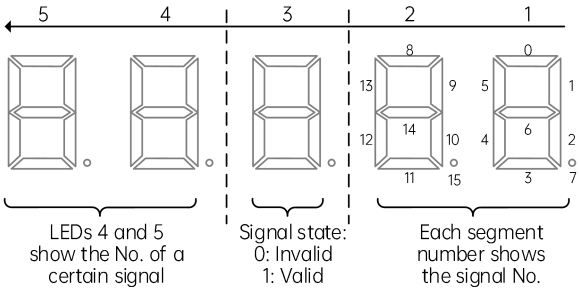
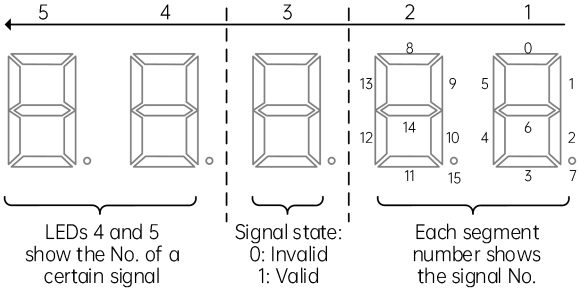


Fig. 7-13 D02-04 input state 5 display

No.	Definition	No.	Definition
0	Reserved	8	High-voltage door lock 2 shorting
1	Reserved	9	Reserved
2	Reserved	10	Reserved
3	Reserved	11	Reserved
4	High-voltage safety circuit input	12	Reserved
5	High-voltage door lock circuit input	13	Reserved
6	High-voltage door lock circuit 2 input	14	Reserved
7	High-voltage door lock 1 shorting	15	Reserved

(6) Description of D02-05 output state 1



Parameter	Name	Range	Default

Fig. 7-14 D02-05 output state 1 display

No.	Description	No.	Description
0	Reserved	8	Door close by door operator 2
1	RUN contactor output	9	Brake and RUN contactors normal
2	Brake contactor output	10	State of fault levels 3, 4 and 5
3	Shorting door lock circuit contactor output	11	Operator state
4	Fire emergency floor arrival signal	12	Synchronous motor self-locking output
5	Door open by door operator 1	13	Emergency evacuation output at power failure
6	Door close by door operator 1	14	Controller healthy
7	Door open by door operator 2	15	Emergency buzzer output

(7) Description of D02-06 output state 2

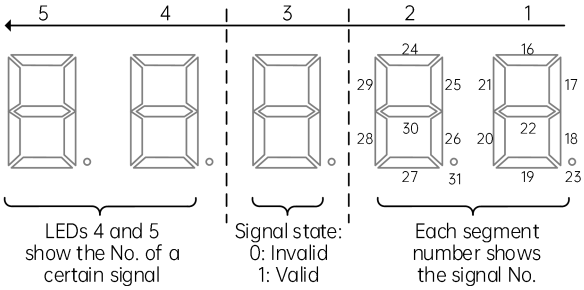


Fig. 7-15 D02-06 output state 2 display

No.	Definition	No.	Definition
16	High-voltage startup of brake	24	Reserved
17	Up running signal	25	Rope gripper reset
18	Fan/Lighting signal	26	Brake transistor shoot-through output
19	Medical sterilization output	27	Alarm filter output
20	Non-door zone stop	28	Reserved
21	Electromagnetic lock output	29	Reserved
22	Non-service output	30	Reserved
23	Emergency evacuation output	31	Reserved

Parameter	Name	Range	Default

Parameter	Name	Range	Default
D02-07	Terminal state display 1	0 to 65535	-
D02-08	Terminal state display 2	0 to 65535	-

These parameters are used to monitor the state of all I/O terminals of the system.

As shown in the following figure, the LEDs for D02-07 and D02-08 are respectively numbered as 5, 4, 3, 2, and 1 from left to right. The segments are defined as follows.

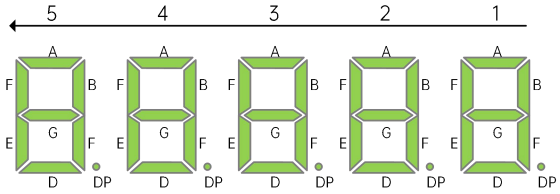


Fig. 7-16 Terminal state monitoring

D02-07 Terminal state display					
	1	2	3	4	5
A	Reserved	Inspection signal	Up slow-down 1 signal	Door operator 1 light curtain	Reserved
B	Up leveling signal	Inspection up signal	Down slow-down 1 signal	Door operator 2 light curtain	RUN contactor output
C	Down leveling signal	Inspection down signal	Up slow-down 2 signal	Brake output feedback 2	Brake contactor output
D	Door zone signal	Fire emergency signal	Down slow-down 2 signal	UPS input	Shorting door lock circuit contactor output
E	Safety circuit feedback 1	Up limit signal	Up slow-down 3 signal	Elevator lock input	Fire emergency floor arrival signal
F	Door lock circuit feedback 1	Down limit signal	Down slow-down 3 signal	Safety circuit feedback 2	Reserved
G	RUN contactor output feedback	Overload signal	Shorting door lock circuit output feedback	Synchronous motor self-locking feedback	Reserved
DP	Brake output feedback 1	Full-load signal	Firefighter operation signal	Door lock circuit feedback 2	Reserved

D02-08 Terminal state display

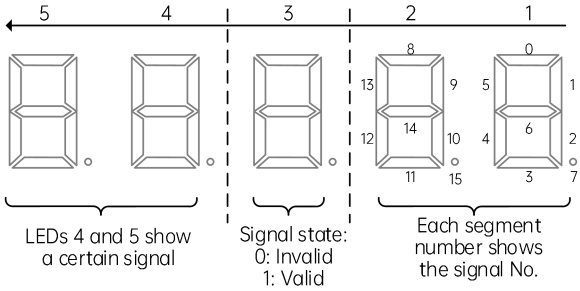
Parameter	Name		Range		Default
	1	2	3	4	5
A	Light curtain 1	Door open button	Door open output 1	Door open button display	System light curtain state 1
B	Light curtain 2	Door close button	Door close output 1	Door close button display	System light curtain state 2
C	Door open limit 1	Door open delay button	Door lock signal	Door open delay button display	Hall call elevator lock input
D	Door open limit 2	Direct travel ride signal	Door open output 2	Non-door zone stop output	Hall call fire emergency input
E	Door close limit 1	Attendant signal	Door close output 2	Reserved	Full-load signal
F	Door close limit 2	Direction change signal	Door lock signal	Buzzer output	Overload signal
G	Full-load signal	Independent running signal	Up arrival gong	Reserved	Reserved
DP	Overload signal	Firefighter operation signal	Down arrival gong	Energy-saving sign	Reserved

7.2.26 D03: CTB state

Parameter	Name	Range	Default
D03-00	Car input state	0 to 65535	-
D03-01	Car output state	0 to 65535	-

D03-00 and D03-01 are used to display the car input and output states. The way they are set is the same as the MCB input and output display.

(1) Description of D03-00 car input display



Parameter	Name	Range	Default

Fig. 7-17 D03-00 car input state display

No.	Definition	No.	Definition
0	Inactive	8	Overload signal
1	Door 1 light curtain	9	Light-load signal
2	Door 2 light curtain	10	Reserved
3	Door 1 open limit	11	Reserved
4	Door 2 open limit	12	Reserved
5	Door 1 close limit	13	Reserved
6	Door 2 close limit	14	Reserved
7	Full-load signal	15	Reserved

(2) Description of D03-01 car output display

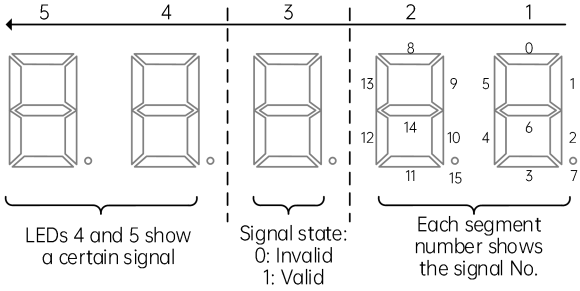


Fig. 7-18 D03-01 car output state display

No.	Definition	No.	Definition
0	Fan/Lighting	8	Down arrival signal
1	Door 1 open	9	Reserved
2	Door 1 close	10	Reserved
3	Forced door close 1	11	Reserved
4	Door 2 open	12	Reserved
5	Door 2 close	13	Reserved
6	Forced door close 2	14	Reserved
7	Up arrival signal	15	Reserved

Parameter	Name	Range	Default
D03-02	Hall state	0 to 65535	-
D03-03	System state 1	0 to 65535	-

These parameters are used to display the hall and system states. The way they are set is the same as the MCB input and output display.

Parameter	Name	Range	Default

(1) Description of D03-02 hall state display

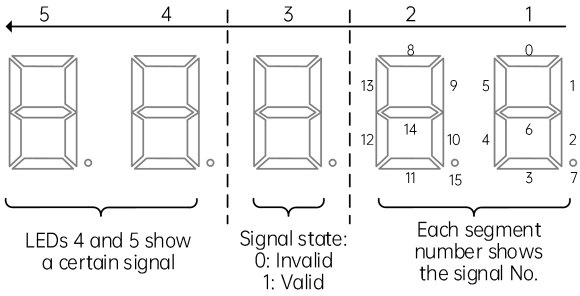


Fig. 7-19 D03-02 hall state display

No.	Definition	No.	Definition
0	Reserved	8	Reserved
1	Elevator lock signal	9	Reserved
2	Fire emergency signal	10	Reserved
3	Current floor forbidden	11	Reserved
4	VIP signal	12	Reserved
5	Reserved	13	Reserved
6	Reserved	14	Reserved
7	Reserved	15	Reserved

(2) Description of D03-03 system state 1 display

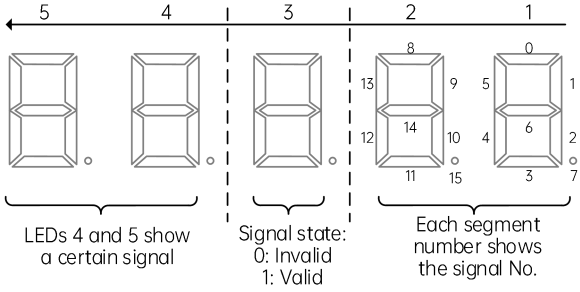


Fig. 7-20 D03-03 system state 1 display

No.	Definition	No.	Definition
0	Door open 1 button	8	Door open 2 button
1	Door close 1 button	9	Door close 2 button
2	Door open delay 1	10	Door open delay 2

Parameter	Name	Range	Default
3	Direct travel ride switch	11	Reserved
4	Attendant switch	12	Reserved
5	Direction change switch	13	Reserved
6	Independent switch	14	Reserved
7	Fire emergency 2 switch	15	Reserved

7.2.27 D04: Communication state

Parameter	Name	Range	Default
D04-00	Hall call communication state 1	Displays the communication state between 1–16F of the MCB and the HCB.	-
D04-01	Hall call communication state 2	Displays the communication state between 17–32F of the MCB and the HCB.	-
D04-02	Hall call communication state 3	Displays the communication state between 33–48F of the MCB and the HCB.	-

These parameters display the communication state between HCBs of all floors and the MCB. Parameters D04-00 to D04-02 display the communication state between the MCB Modbus interface and the HCB.

States 1, 2 and 3 respectively correspond to the hall call communication state of floors 1 to 16, 17 to 32 and 33 to 48. The following figure shows the state description.

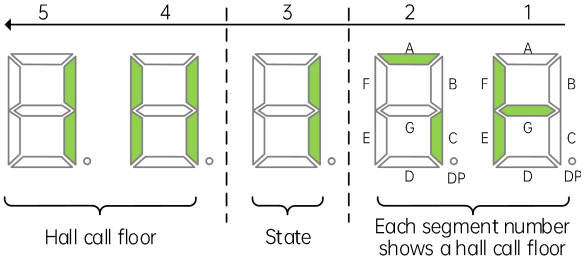


Fig. 7-21 Hall call communication state

As shown in the above figure, LEDs 3 to 5 indicate hall call communication at floor 11 is normal. You can view hall calls at other floors by shifting LEDs 4 and 5 display. It can be seen from LEDs 1 and 2 that the hall call communication states at floors 5, 6, 7, 8, 9, and 11 are normal.

Parameter	Name	Range	Default
D04-03	Communication interference	0 to 65535	-

Parameter	Name	Range	Default
D04-03 displays the current quality of different system communication types, as described in the following table.			

5		4		3		2		1	
Inverter SPI		Rectifier SPI		CAN2		MOD		CAN1	
0	Best quality	0	Best quality	0	Best quality	0	Best quality	0	Best quality
↓	↑	↓	↑	↓	↑	↓	↑	↓	↑
9	Interruption	9	Interruption	9	Interruption	9	Interruption	9	Interruption

0–9 indicate the quality of communication. A larger number means stronger communication interference.

Parameter	Name	Range	Default
D04-04	Encoder interference	0 to 65535	-

Parameter	Name	Range	Default
D04-06	Version display selection	0 to 65535	-
D04-08	Log cache quantity	0 to 65535	-
D04-09	Magnetic scale communication status	0 to 65535	-
D04-10	Magnetic scale operation status	0 to 65535	-
D04-11	High bits of magnetic scale current position	0 to 65535	-
D04-12	Low bits of magnetic scale current position	0 to 65535	-
D04-13	Magnetic scale current speed	0.100 to 4.000	m/s
D04-14	Magnetic scale communication error count	0 to 65535	-
D04-15	Magnetic scale fault register value	0 to 65535	-
D04-16	Inspection box communication status	0 to 10	-
D04-17	Inspection box input status	0 to 65535	-
D04-18	Inspection box software version	0 to 99.99	-
D04-19	ARD communication status	0 to 10	-
D04-20	ARD status	0 to 65535	-
D04-21	ARD fault code	0 to 99	-
D04-22	ARD battery voltage	0.0 to 99.9	-
D04-23	ARD software version	0.00 to 99.99	-

7.2.28 E00 to E10: Fault record parameters

Parameter	Name	Range	Default
E00-00	1st fault	0 to 9999	-
E00-01	1st fault subcode	0 to 65535	-
E00-02	Month and day upon 1st fault	0 to 1231	-
E00-03	Hour and minute upon 1st fault	0 to 23.59	-
E00-04	2nd fault	0 to 9999	-
E00-05	2nd fault subcode	0 to 65535	-
E00-06	Month and day upon 2nd fault	0 to 1231	-
E00-07	Hour and minute upon 2nd fault	0 to 23.59	-
...			
E00-96	25th fault	0 to 9999	-
E00-97	25th fault subcode	0 to 65535	-
E00-98	Month and day upon 25th fault	0 to 1231	-
E00-99	Hour and minute upon 25th fault	0 to 23.59	-

If the 10 detailed fault records are full, the earliest detailed fault record will be moved to the latest brief fault record. For example, if a new fault occurs, the fault code, subcode and time information of the fault recorded in the group E09 will be moved to E00-00 to E00-03.

The brief fault record is a 4-digit number. The two high digits indicate the floor where the car is located when the fault occurs, and the two low digits indicate the fault code. For example, the 1st fault record is 0835, indicating that when the latest brief fault record (fault E35) occurs, the car is near floor 8.

The fault subcode is used to locate the causes of the fault. Fault month and day and fault hour and minute record accurate occurrence time of the fault.

Parameter	Name	Range	Default
E01-00	1st fault	0 to 9999	-
E01-01	1st fault subcode	0 to 65535	-
E01-02	Month and day upon 1st fault	0 to 1231	-
E01-03	Hour and minute upon 1st fault	0 to 23.59	-
E01-04	Logic information upon 1st fault	0 to 65535	-
E01-05	Curve information upon 1st fault	0 to 65535	-
E01-06	Speed reference upon 1st fault	0.000 to 4.000	m/s
E01-07	Feedback speed upon 1st fault	0.000 to 4.000	m/s
E01-08	Bus voltage upon 1st fault	0 to 999.9	V
E01-09	Current position upon 1st fault	0.0 to 300.0	m
E01-10	Output current upon 1st fault	0.0 to 999.9	A
E01-11	Output frequency upon 1st fault	0.00 to 99.99	Hz
E01-12	Torque current upon 1st fault	0.0 to 999.9	A
E01-13	Output voltage upon 1st fault	0 to 999.9	V

Parameter	Name	Range	Default
E01-14	Output torque upon 1st fault	0 to 200.0	%
E01-15	Output power upon 1st fault	0.00 to 99.99	KW
E01-16	Communication interference upon 1st fault	0 to 65535	-
E01-17	Encoder interference upon 1st fault	0 to 65535	-
E01-18	Input state 1 upon 1st fault	0 to 65535	-
E01-19	Input state 2 upon 1st fault	0 to 65535	-
...			
E10-00	10th fault	0 to 9999	-
E10-01	10th fault subcode	0 to 65535	-
E10-02	Month and day upon 10th fault	0 to 1231	-
E10-03	Hour and minute upon 10th fault	0 to 23.59	-
E10-04	Logic information upon 10th fault	0 to 65535	-
E10-05	Curve information upon 10th fault	0 to 65535	-
E10-06	Speed reference upon 10th fault	0.000 to 4.000	m/s
E10-07	Feedback speed upon 10th fault	0.000 to 4.000	m/s
E10-08	Bus voltage upon 10th fault	0 to 999.9	V
E10-09	Current position upon 10th fault	0.0 to 300.0	m
E10-10	Output current upon 10th fault	0.0 to 999.9	A
E10-11	Output frequency upon 10th fault	0.00 to 99.99	Hz
E10-12	Torque current upon 10th fault	0.0 to 999.9	A
E10-13	Output voltage upon 10th fault	0 to 999.9	V
E10-14	Output torque upon 10th fault	0 to 200.0	%
E10-15	Output power upon 10th fault	0.00 to 99.99	kW
E10-16	Communication interference upon 10th fault	0 to 65535	-
E10-17	Encoder interference upon 10th fault	0 to 65535	-
E10-18	Input state 1 upon 10th fault	0 to 65535	-
E10-19	Input state 2 upon 10th fault	0 to 65535	-
These parameters record the latest 10 faults and system state parameters upon each fault.			

Chapter 8 Troubleshooting

8.1 Fault display

The integrated elevator controller records and reports fault information as described below:

- The keypad on the controller scrolls to display the current fault code and subcode, such as "E22 b01".
- When an operating panel is connected to the controller, the panel will display the current fault code and subcode, such as "E2201".
- When you set the keypad P-2 to 2, it will scroll to display the latest 10 faults, including the fault code, fault subcode and occurrence time.
- The system can record the detailed information of the latest 10 faults and the brief information of the latest 25 faults. Refer to groups E00 to E10.

Fig. 8-1 Scrolling display of fault code and subcode on the keypad

When an operating panel is connected to the controller, the panel will display the current fault code, such as "Err22".

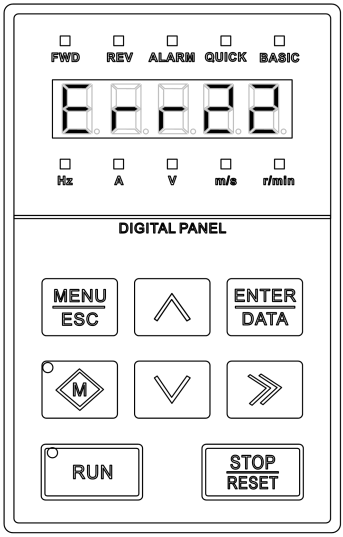
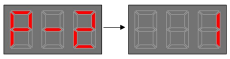
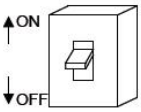


Fig. 8-2 Fault display on the operating panel

When you set the keypad P-2 to 2, the panel will scroll to display the latest 10 faults, including the fault code, fault subcode and occurrence time.

The system can record the detailed information of the latest 10 faults and the brief information of the latest 25 faults. Refer to groups E00 to E10.

8.2 Procedure for fault reset before elevator restart

Stage	Measure	Note
Fault occurrence	Set the keypad P-2 to 2, then the keypad scrolls to display the latest 10 faults, including the fault code, subcode, and occurrence time.	Refer to groups E00 to E10 for parameter description.
Before fault reset	Locate the fault cause based on the displayed fault code, and troubleshoot the fault	Refer to "8.4 Fault handling".
Reset the fault	1. Automatic reset of fault For some faults, if the automatic reset conditions are met after troubleshooting, the controller will automatically reset the fault.	
	2. Manual reset of fault Some faults need to be manually reset after troubleshooting. You can press STOP RESET on the operating panel to reset the fault, or set the keypad P-2 to 1 to reset the fault.	Press STOP RESET to reset Set P-2 to 1 to reset 
	3. Fault reset requiring power-off To reset some faults after troubleshooting, you need to power off and then power on the controller again.	

8.3 Description of fault levels

The controller is a complicated electronic control system and the displayed fault information is graded into 5 levels according to the severity. The faults of different levels are handled according to the following table:

Table 8-1 Description of fault levels

Fault level	Fault state	Note (Stop mode)
Level 1	① Display the fault code. ② Output the fault relay action command.	The elevator running is not affected on any condition.
Level 2	① Display the fault code. ② Output the fault relay action command. ③ Continue normal running of the elevator.	The advance door opening/re-leveling, and parallel/group control functions are disabled.
Level 3	① Display the fault code. ② Output the fault relay action command.	3A: In low-speed running, the elevator stops at special deceleration rate and cannot

Fault level	Fault state	Note (Stop mode)
	③ Stop output and apply the brake immediately after stop.	restart.
		3B: In low-speed running, the elevator does not stop. In running at normal speed, the elevator stops and can start running at low speed after a delay of 3 s.
Level 4	① Display the fault code. ② Output the fault relay action command. ③ In distance control, the elevator decelerates to stop and cannot run again.	4A: In low-speed running, the elevator stops at special deceleration rate and cannot restart.
		4B: In low-speed running, the elevator does not stop. In running at normal speed, the elevator stops and can start running after a delay of 3 s.
		4C: In low-speed running, the elevator does not stop. In running at normal speed, the elevator stops and can start running at low speed after a delay of 3 s.
Level 5	① Display the fault code. ② Output the fault relay action command. ③ The elevator stops immediately.	5A: In low-speed running, the elevator stops immediately and cannot restart.
		5B: In low-speed running, the elevator does not stop. In running at normal speed, the elevator stops and can start running at low speed after a delay of 3 s.

8.4 Fault handling

If a fault is reported, the system performs corresponding processing based on the fault level. You can handle the fault according to the possible causes described in the following table.

Fault code	Fault description	Possible cause	Solution	Level
E01	Hardware overcurrent	The main circuit output is grounded or short circuited.	① Check whether the motor wiring is correct, and whether the grounding is correct. ② Check whether the abnormal status of shorting motor stator contactor and RUN contactor causes controller output short circuit. ③ Check whether the power cable jacket is damaged.	5A
		Motor auto-tuning is not performed.	Perform motor auto-tuning properly according to the motor nameplate.	
		The encoder signal is abnormal.	① Check whether encoder pulses per revolution (PPR) is set correctly.	

Fault code	Fault description	Possible cause	Solution	Level
			② Check whether the encoder signal is interfered, whether the encoder cable runs through the duct independently, whether the cable is too long, and whether the shield is grounded at one end. ③ Check whether the encoder is installed reliably, whether the rotating shaft is connected to the motor shaft reliably, and whether the encoder is stable during high-speed running. ④ Check whether the encoder wiring is correct and secure. ⑤ Check whether the system is reliably grounded.	
		The motor phase sequence is incorrect.	Change the UVW phase sequence of motor, and do auto-tuning again.	
		The acceleration/ deceleration time is too short.	Lower the acceleration/deceleration rate.	
		Dynamic braking causes overcurrent.	Check whether the braking circuit and braking resistor functions normally.	
E02	Overvoltage	The input voltage is too high.	Check whether the input voltage is too high. Observe whether the bus voltage is too high. (Bus voltage shall be within 540 V to 580 V for normal 380 V input)	5A
		The braking resistance is too large, or the braking unit is abnormal.	① Check whether the balance coefficient is correct. ② Check whether the bus voltage rises too quickly during running. If yes, it means the braking resistor does not work or is not suitable. ③ Check whether the cable connecting the braking resistor is damaged, whether the copper wire touches the ground, and whether the connection is secure. ④ Select a proper braking resistor according to the recommendations. ⑤ If overvoltage occurs each time when the elevator reaches the target speed (proper braking resistance), try to decrease	

Fault code	Fault description	Possible cause	Solution	Level
			P04-01/P04-04 in order to reduce the following error, preventing overvoltage caused by speed overshoot.	
		The acceleration/ deceleration rate is too large.	Lower the rate.	
E03	Undervoltage	Instantaneous power failure occurs on the input power supply.	① Check whether the power fails during running. ② Check whether the wiring of all power input cables is secure.	5A
		The input voltage is too low.	Check whether the external power voltage is too low.	
		The drive control board fails.	Contact the agent or Megmeet.	
E04	AC drive software overcurrent	The main circuit output is grounded or short circuited.	① Check whether the motor wiring is correct, and whether the grounding is correct. ② Check whether the abnormal status of shorting motor stator contactor and RUN contactor causes controller output short circuit. ③ Check whether the power cable jacket is damaged.	5A
		Motor auto-tuning is not performed.	Perform motor auto-tuning properly according to the motor nameplate.	
		The encoder signal is abnormal.	① Check whether encoder pulses per revolution (PPR) is set correctly. ② Check whether the encoder signal is interfered, whether the encoder cable runs through the duct independently, whether the cable is too long, and whether the shield is grounded at one end. ③ Check whether the encoder is installed reliably, whether the rotating shaft is connected to the motor shaft reliably, and whether the encoder is stable during high-speed running. ④ Check whether the encoder wiring is correct and secure. ⑤ Check whether the system is reliably grounded.	

Fault code	Fault description	Possible cause	Solution	Level
		The motor phase sequence is incorrect.	Change the UVW phase sequence of motor, and do auto-tuning again.	
		The acceleration/ deceleration time is too short.	Lower the acceleration/deceleration rate.	
E05	Resistance identification error	The motor is abnormal.	Check whether the motor wiring is correct, and whether the motor coil is normal.	5A
		The external voltage is abnormal.	Check whether the bus voltage is too low, or unstable.	
E06	Excessive speed deviation	The speed PI parameters are improper.	Change function code values in P04.	5A
		Motor parameters are set incorrectly.	Check the parameters according to the motor nameplate	
		The detection threshold for speed deviation is set too small.	Change the detection threshold for speed deviation	
		The load fluctuation is too strong.	Eliminate the load fluctuation.	
		The brake acts abnormally.	Check the brake circuit and its power supply.	
		Output phase loss during AC drive running	Check the motor wiring.	
E07	AC drive overheat	The ambient temperature is too high.	Lower the ambient temperature.	5A
		The fan is damaged.	Replace the fan.	
		The air duct is blocked.	① Clean the air duct. ② Check whether the installation clearance of the controller meets the requirements.	
		The AC drive model setting is incorrect.	Check the AC drive power.	
E08	AC drive phase loss at the output side	The output wiring of the main circuit is loose.	① Check the motor wiring. ② Check whether the RUN contactor at the output side is normal.	5A
		The motor is damaged.	Check whether the internal coil of motor is normal.	
E09	AC drive overload	The external mechanical resistance	① Check whether the brake is released, and whether the brake power supply is normal.	5A

Fault code	Fault description	Possible cause	Solution	Level
		is too large.	② Check whether the guide shoes are too tight.	
		The balance coefficient is improper.	Check whether the balance coefficient is proper.	
		The encoder feedback signal is abnormal.	Check whether the encoder feedback signal and parameter setting are correct, and whether the initial angle of the encoder for the synchronous motor is correct.	
		Motor auto-tuning is not performed properly.	① Check the motor parameter setting and encoder installation angle, and perform motor auto-tuning again. ② If this fault is reported when the slip test is carried on, perform the slip test by using the slip function.	
		The motor phase sequence is incorrect.	Change the UVW phase sequence of motor.	
		The power rating of AC drive model in use is too small.	Replace the model with a larger one (The AC drive model is below requirements, if the actual current reaches above the rated AC drive current when the elevator car without load is in constant speed running.)	
E10	Motor overload	The external mechanical resistance is too large.	① Check whether the brake is released, and whether the brake power supply is normal. ② Check whether the guide shoes are too tight.	5A
		The balance coefficient is improper.	Check whether the balance coefficient is proper.	
		Motor auto-tuning is not performed properly.	① Check the motor parameter setting and encoder installation angle, and perform motor auto-tuning again. ② If this fault is reported when the slip test is carried on, perform the slip test by using the slip function.	
		The motor phase sequence is incorrect.	Change the UVW phase sequence of motor.	
		The power rating of motor model in use is too small.	Replace the model with a larger one (The motor model is below requirements, if the actual current reaches above the rated motor current when the elevator car without	

Fault code	Fault description	Possible cause	Solution	Level
			load is in constant speed running.)	
E11	AC drive input phase loss	The power input phases are not symmetric.	① Check whether any phase of the three-phase power supply is lost. ② Check whether the three phases of power supply are balanced. ③ Check whether the power voltage is normal, and adjust the power voltage.	5A
		The drive control board is abnormal.	Contact the agent or Megmeet.	
E12	Motor software overcurrent	The main circuit output is grounded or short circuited.	① Check whether the motor wiring is correct, and whether the grounding is correct. ② Check whether the shorting motor stator contactor causes controller output short circuit. ③ Check whether the power cable jacket is damaged.	5A
		Motor auto-tuning is not performed.	Perform motor auto-tuning properly according to the motor nameplate.	
		The encoder signal is abnormal.	① Check whether encoder pulses per revolution (PPR) is set correctly. ② Check whether the encoder signal is interfered, whether the encoder cable runs through the duct independently, whether the cable is too long, and whether the shield is grounded at one end. ③ Check whether the encoder is installed reliably, whether the rotating shaft is connected to the motor shaft reliably, and whether the encoder is stable during high-speed running. ④ Check whether the encoder wiring is correct and secure. ⑤ Check whether the system is reliably grounded.	
		The motor phase sequence is incorrect.	Change the UVW phase sequence of motor, and do auto-tuning again.	
		The acceleration/ deceleration time is too short.	Lower the acceleration/deceleration rate.	
E13	Dynamic	Subcode 6: The AB	① Reverse the AB directions of the encoder	5A

Fault code	Fault description	Possible cause	Solution	Level
	auto-tuning fault	directions may be reversed.	in P04-29, and do auto-tuning again. ② Check whether the brake is released and whether there is any other fault. ③ Check motor parameters according to its nameplate, and perform dynamic auto-tuning again.	
		Subcode 7: Timeout	If the speed during auto-tuning is too high, lower the inspection speed properly.	
		Subcode 8: Sin/Cos encoder A signal abnormal	① Check if the encoder is abnormal. ② Check for encoder signal interference: whether the encoder wiring is independently conduit-run, whether the wiring distance is too long, and whether the shield layer is single-point grounded. ③ Check if the encoder is securely installed, whether the rotating shaft is firmly connected to the motor shaft, and whether it runs smoothly at high speed. ④ Check whether the encoder wiring is correct and secure. ⑤ Check if the PG card is abnormal. ⑥ Check whether the system is reliably grounded.	
		Subcode 9: Sin/Cos encoder B signal abnormal		
		Subcode 10: Sin/Cos encoder AB signals abnormal		
E14	Reserved	-	-	-
E15	Strong encoder interference	The interference to AB signals or Z signal is too strong.	① Check whether encoder pulses per revolution (PPR) is set correctly. ② Check whether the encoder signal is interfered, whether the encoder cable runs through the duct independently, whether the cable is too long, and whether the shield is grounded at one end. ③ Check whether the encoder is installed reliably, whether the rotating shaft is connected to the motor shaft reliably, and whether the encoder is stable during high-speed running. ④ Check whether the encoder wiring is correct and secure. ⑤ Check if the system is reliably grounded. ⑥ Perform auto-tuning again.	5A

Fault code	Fault description	Possible cause	Solution	Level
E16	Reserved	-	-	-
E17	Sin/Cos encoder signal abnormal	Subcode 1: AB disconnection Subcode 2: CD disconnection Subcode 3: Z disconnection Subcode 4: A disconnection Subcode 5: B disconnection	① Check if the encoder is abnormal. ② Check the encoder wiring. ③ Check if the PG card is abnormal. ④ Check if the system is reliably grounded.	5A
E18	Hardware abnormal	Current zero drift fault	Contact the agent or Megmeet.	5A
E19	STO function abnormal	Subcode 1: The STO hardware feedback is abnormal. Subcode 2: The STO hardware output is abnormal.	Check whether the STO hardware is normal.	5A
E20	Motor short-circuit to ground	AC drive output short-circuit to ground	① Check the motor insulation. ② Check whether the motor power cable is grounded. ③ Check whether the contactor is grounded.	5A
E21	Parameter setting error	Subcode 1: SVC is used in the distance control mode.	① Set the control mode to FVC in distance control. ② If SVC is needed, set the system to the keypad control mode first.	5A
E22	Leveling signal abnormal	Subcode 1: The leveling signal is stuck.	① Check whether the leveling and door zone sensors work properly. ② Check the installation verticality and depth of the leveling plates. ③ Check the leveling signal input points of the MCB.	1A
		Subcode 2: The leveling signal is lost.		
		Subcode 3: During normal running of elevator, the deviation of leveling position pulse check is too large.	Check whether the steel rope slips.	
E23	Reserved			

Fault code	Fault description	Possible cause	Solution	Level
E24	RTC clock fault	Subcode 1: The RTC clock information of the MCB is abnormal.	① Replace the clock battery. ② Replace the MCB.	3B
E25	Storage data abnormal	Subcode 1, 2, 3: The storage data of the MCB is abnormal.	Contact the agent or Megmeet.	4A
E26	Earthquake signal	Subcode 1: The earthquake signal is active and the duration exceeds 2 s.	Check that the earthquake input signal is consistent with the parameter setting (NC, NO) of the MCB.	3B
E27	Maintenance reminder fault	The elevator has not undergone power-off maintenance within the set time.	① Perform power-off maintenance on the elevator. ② Disable the P16-11 Maintenance notification period function. ③ Contact the agent or manufacturer.	-
E28	Reserved	-	-	-
E29	Shorting motor stator contactor feedback abnormal	Subcode 1: Shorting motor stator contactor feedback to the MCB is abnormal. Subcode 2: Shorting motor stator contactor feedback to the I/O expansion board is abnormal.	① Check that the signal feature (NO, NC) of the feedback contact on the contactor is correct. ② Check that the contactor and corresponding feedback contact act correctly. ③ Check the power supply to the coil circuit of the shorting motor stator contactor.	5A
E30	Elevator position abnormal	Subcode 1: In the normal running or re-leveling mode, the up leveling signal has no change within a certain time period. Subcode 2: In the normal running or re-leveling mode, the down leveling signal has no change within a certain time period. Subcode 3: In the normal running or re-leveling mode, the	① Check whether the leveling signal cables are connected reliably and whether touch the ground or be short circuited with other signal cables. ② Check whether the distance between two floors is too large or the low-speed re-leveling speed (P03-02) is set too low causing over long re-leveling running time.	4A

Fault code	Fault description	Possible cause	Solution	Level
		door zone leveling signal has no change within a certain time period.		
E31	Reserved	-	-	-
E32	Reserved	-	-	-
E33	Elevator speed abnormal	Subcode 1: The speed exceeds the limit during normal running.	① Check whether the parameter setting and wiring of the encoder are correct. ② Check the setting of motor nameplate parameters, and perform motor auto-tuning again.	5A
		Subcode 2: The speed exceeds the limit during inspection or shaft auto-tuning .	Decrease the inspection speed or perform motor auto-tuning again.	
		Subcode 3: The speed exceeds the limit in the shorting stator braking mode.	① Check whether the shorting motor stator function is enabled. ② Check whether the motor UVW phase sequence is correct.	
		Subcode 4, 5: The speed exceeds the limit during emergency running.	① Check whether the emergency power capacity meets the requirements. ② Check whether the emergency running speed is set properly.	
		Subcode 6: The speed deviation detected by the MCB is too large.	① Check wiring of the encoder. ② Check whether SPI communication between the MCB and drive board is normal.	
E34	Logic fault	Logic of the MCB is abnormal.	Contact us or our agent to replace the MCB.	5A
E35	Shaft auto-tuning data abnormal	Subcode 1: When shaft auto-tuning is started, the elevator is not at the bottom floor or the down slow-down switch is invalid.	Check that the down slow-down switch is valid, and that P11-01 (Current floor) is set to the bottom floor number.	4C
		Subcode 2: The inspection switch is turned off when shaft auto-tuning is	Check that the inspection switch is turned to the inspection state.	

Fault code	Fault description	Possible cause	Solution	Level
		performed.		
		Subcode 3: It is judged upon power-on that shaft auto-tuning is not performed.	Perform shaft auto-tuning again.	
		Subcode 4, 14, 24: In the distance control mode, it is judged at startup that shaft auto-tuning is not performed.		
		Subcode 5: The elevator running direction and the pulse change are inconsistent.	Check whether the elevator running direction is consistent with the pulse change in P11-03: P11-03 increases in up direction and decreases in down direction.	
		Subcode 6, 7, 9: The plate pulse length sensed at up/down leveling is abnormal.	① Check that the NO/NC state of the leveling sensor is set correctly. ② Check whether the leveling plates are inserted properly and whether there is strong power interference if the leveling sensor signal blinks.	
		Subcode 8, 10: No leveling signal is received within 45 s continuous running	① Check whether wiring of the leveling sensor is correct. ② Check whether the floor distance is too large, causing running timeout. Increase the speed set in P03-06 and perform shaft auto-tuning again to ensure that learning the floors can be completed within 45 s.	
		Subcode 11, 15: The stored floor height is smaller than 50 cm.	Enable the super short floor function if the floor distance is less than 50 cm. If the floor distance is normal, check installation of the leveling plate for this floor and check the sensor.	
		Subcode 12: The floor when auto-tuning is completed is not the top floor.	Check whether the setting of P11-06 (Top floor of elevator) is correct and whether the leveling plate is absent.	
		Subcode 16: The up leveling and down	① Check whether the wiring of up leveling and down leveling is correct.	

Fault code	Fault description	Possible cause	Solution	Level
		leveling signals are opposite.	② Check whether the clearances for up leveling and down leveling are proper.	
E36	RUN contactor feedback abnormal	Subcode 1: The RUN contactor has no output, but the RUN contactor feedback is active.	① Check whether the feedback contact of the contactor acts properly. ② Check the signal feature (NO, NC) of the feedback contact.	5A
		Subcode 2: The RUN contactor has output, but the RUN contactor feedback is inactive.		
		Subcode 5: The RUN contactor feedback is active before re-leveling begins.		
		Subcode 3: The current of the asynchronous motor from acceleration to constant-speed running is too small (≤ 0.1 A).	Check whether the output cables UVW of the controller are connected properly, and check whether the control circuit of the RUN contactor coil is normal.	
E37	Brake contactor feedback abnormal	Subcode 1: The output of the brake contactor is inconsistent with the brake feedback.	① Check whether the brake contactor opens and closes properly. ② Check that the signal feature (NO, NC) of the feedback contact on the brake contactor is set correctly. ③ Check whether the feedback circuit of the brake contactor is normal.	5A
		Subcode 3: The output of the brake contactor is inconsistent with the brake travel switch 1 feedback.	① Check whether the signal feature (NO, NC) of the brake travel switch 1/2 feedback is set correctly. ② Check whether the circuit of the brake travel switch 1/2 feedback is normal.	
		Subcode 10: The output of the brake contactor 2 is inconsistent with the brake 2 feedback.	Check whether the circuit of the brake travel switch 1/2 feedback is normal.	
		Subcode 11: The output		

Fault code	Fault description	Possible cause	Solution	Level
		of the brake contactor is inconsistent with the brake travel switch 2 feedback.		
E38	Encoder signal abnormal	Subcode 1: The pulses in P11-03 does not change within the time threshold in P02-10.	① Check whether the encoder is used correctly. ② Check whether the brake works properly.	5A
		Subcode 2: Pulses (P11-03) increases in the down direction.	① Check whether parameter setting and wiring of the encoder are correct. ② Check whether system grounding and signal grounding are reliable. ③ Check whether the motor UVW phase sequence is correct.	
		Subcode 3: Pulses (P11-03) decreases in the up direction.		
		Subcode 4: SVC is used in the distance control mode.	Set the control mode to FVC in distance control (P00-00=1).	
E39	Component fault	Subcode 1: The motor overheat relay input remains valid for a certain time.	① Check whether the parameter setting (NO, NC) is correct. ② Check whether the thermal protection relay socket is normal. ③ Check whether the motor is used properly and whether it is damaged. ④ Improve cooling conditions of the motor.	3A
		Subcode 2: The front door operator overheat relay input remains valid for a certain time.		
		Subcode 3: The back door operator overheat relay input remains valid for a certain time.		
		Subcode 4: The fan motor overheats.		
		Subcode 5: The external fault signal remains valid for 2 seconds.	① Check the NO/NC setting of external faults. ② Check the input state of the external fault signal.	
		Subcode 6: ARD fault	ARD is abnormal. Check that ARD works properly.	
		Subcode 10: ARD battery damaged upon	ARD is abnormal. Check that ARD works properly.	

Fault code	Fault description	Possible cause	Solution	Level
		power-on detection		
		Subcode 11: ARD battery charging fault	ARD is abnormal. Check that ARD works properly.	
E40	Reserved	-	-	-
E41	Safety circuit disconnected	Subcode 1: The safe circuit signal becomes off.	① Check the safety circuit switches and their states. ② Check whether the external power supply is normal. ③ Check whether the safety circuit contactor acts properly. ④ Confirm the signal feature (NO, NC) of the feedback contact of the safety circuit contactor.	5A
E42	Door lock disconnected during running	Subcode 1, 2: The door lock circuit feedback is invalid during elevator running.	① Check whether the hall door lock and the car door lock are in good contact. ② Check whether the door lock contactor acts properly. ③ Check the signal feature (NO, NC) of the feedback contact on the door lock contactor. ④ Check whether the external power supply is normal.	5A
E43	Up limit signal abnormal	Subcode 1: When the elevator runs in the up direction, the up limit switch acts.	① Check the signal feature (NO, NC) of the up limit switch. ② Check whether the up limit switch is in good contact. ③ Check whether the limit switch is installed at a relatively low position and acts even when the elevator arrives at the terminal floor normally.	4A
		Subcode 2: When the elevator runs in the down direction, both the up slow-down switch and up limit switch act.		4A
E44	Down limit signal abnormal	Subcode 1: When the elevator runs in the down direction, the down limit switch acts.	① Check the signal feature (NO, NC) of the down limit switch. ② Check whether the down limit switch is in good contact. ③ Check whether the limit switch is installed at a relatively high position and acts even when the elevator arrives at the terminal floor normally.	4A
		Subcode 2: When the elevator runs in the up direction, both the down slow-down		4A

Fault code	Fault description	Possible cause	Solution	Level
		switch and down limit switch act.		
E45	Slow-down switch abnormal	Subcode 1: The down slow-down distance is insufficient during shaft auto-tuning.	① Check whether the up and down slow-down switches are in good contact. ② Check the signal feature (NO, NC) of the up and down slow-down switches. ③ Ensure that the obtained slow-down distance satisfies the slow-down requirement at the elevator speed.	4B
		Subcode 2: The up slow-down distance is insufficient during shaft auto-tuning.		
		Subcode 3: The slow-down switch is stuck or abnormal during normal running.		
		Subcode 6: The up and down slow-down switches 2 act improperly during shaft auto-tuning.	① Check whether the up and down slow-down switches 2 are wired correctly. ② Check the signal feature (NO, NC) of the up and down slow-down switches 2.	
		Subcode 7: The up and down slow-down switches 3 act improperly during shaft auto-tuning.	① Check whether the up and down slow-down switches 3 are wired correctly. ② Check the signal feature (NO, NC) of the up and down slow-down switches 3.	
E46	Re-leveling abnormal	Subcode 1: The leveling signal is inactive during re-leveling.	Check whether the leveling signal is normal.	2B
		Subcode 2: The re-leveling running speed exceeds 0.1 m/s.	Check whether the encoder is used properly.	
E47	Shorting door lock circuit contactor abnormal	Subcode 1: The shorting door lock circuit contactor outputs for continuous 2 s, but the feedback is invalid or the door lock feedback is disconnected.	① Check the signal feature (NO, NC) of the feedback contact on the shorting door lock circuit contactor. ② Check whether the shorting door lock circuit contactor acts properly.	2B
		Subcode 2: The shorting door lock		

Fault code	Fault description	Possible cause	Solution	Level
		circuit contactor has no output, but the feedback is valid for continuous 2 s.		
		Subcode 6: The feedback from the shorting door lock circuit contactor is valid before re-leveling.		
		Subcode 3: During re-leveling or pre-open running, the output time of the shoring door lock circuit contactor is larger than 15 s.	① Check whether the leveling and re-leveling signals are normal. ② Check whether the re-leveling speed is set too small.	
E48	Door open fault	Subcode 1: The consecutive times that the door does not open to the limit reaches the setting in P08-09.	① Check whether the door operator system works properly. ② Check whether the CTB output is normal. ③ Check whether the door open limit signal and door lock signal are normal.	5A
E49	Door close fault	Subcode 1: The consecutive times that the door does not close to the limit reaches the setting in P08-09.	① Check whether the door operator system works properly. ② Check whether the CTB output is normal. ③ Check whether the door close limit signal and door lock signal are normal.	5A
E50	Consecutive loss of leveling signal	Subcode 1: Leveling signal stuck is detected for three consecutive times.	① Check whether the leveling and door zone sensors work properly. ② Check the installation verticality and depth of the leveling plates. ③ Check the leveling signal input points of the MCB. ④ Check whether the steel rope slips.	5A
		Subcode 2: Leveling signal loss is detected for three consecutive times.		
E51	CAN communication fault	Subcode 1: Feedback data of CAN communication with the CTB remains incorrect.	① Check the communication cable connection. ② Check the power supply of the CTB. ③ Check whether the 24 V power supply of the controller is normal.	1A

Fault code	Fault description	Possible cause	Solution	Level
			④ Check whether there is strong-power interference on communication.	
E52	HCB communication fault	Subcode 1: Feedback data of Modbus communication with the HCB remains incorrect.	① Check the communication cable connection. ② Check whether the 24 V power supply of the controller is normal. ③ Check whether the HCB addresses are repeated. ④ Check whether there is strong-power interference on communication.	1A
E53	Door lock fault	Subcode 1: The door lock feedback signal remains active when the shorting door lock circuit is already canceled 3 s after door open output.	① Check whether the door lock circuit is shorted. ② Check whether the door lock feedback setting is correct.	5A
		Subcode 2: The states of the door lock multi-way feedback contacts are inconsistent, or the states of door lock 1 and door lock 2 are inconsistent.		
		Subcode 5: Door lock 1 shorting signal is active upon shorting door lock circuit output 3 s after door open output.		
		Subcode 6: Door lock 2 shorting signal is active upon shorting door lock circuit output 3 s after door open output.		
		Subcode 4: The high-voltage and low-voltage door lock signals are inconsistent.	When the high-voltage and low-voltage door lock signals are detected at the same time, the time when the MCB receives the two signals has a deviation of above 1.5 s. This subcode can be reset at power-off and	

Fault code	Fault description	Possible cause	Solution	Level
			power-on again.	
		Subcode 7: The door lock shorting input is selected but the feedback signal remains off or disconnected.	Check whether the signal cable of door lock shorting feedback is not connected or breaks.	
E54	Overcurrent at inspection startup	Subcode 2: The current at startup for inspection exceeds 120% of the rated current.	① Reduce the load. ② Check whether the motor UVW phase sequence is correct. ③ Change PC.00 Bit1 to 1 to cancel the startup current detection function.	5A
E55	Stop at another landing floor	Subcode 1: During automatic running of the elevator, the door open limit is not received within the time threshold in P08-07.	Check the door open limit signal at the current floor.	1A
E56	Door open/close signal fault	Subcode 1: The door open limit signal is active during running.	① Check the door open and close NO/NC setting. ② Check wiring of the door open and close signals.	5A
		Subcode 2: The door close limit signal is active during running.		
		Subcode 3: Both the door open and close signals are active.		
		Subcode 4: The door close limit signal keeps active at 3 s after door open. This fault subcode is detected after the door lock bypass is set.	Check whether the door open/close limit signals keep active.	
E57	SPI communication fault	Subcode 1&2: The communication between the MCB and the drive board is abnormal.	Check the wiring between the control board and the drive board.	5A

Fault code	Fault description	Possible cause	Solution	Level
		Subcode 3: The MCB does not match the underlying drive.	Contact the agent or Megmeet.	
E58	Shaft position switches abnormal	Subcode 1: The up slow-down switch and down slow-down switch are disconnected simultaneously.	① Check whether the signal feature (NO, NC) of the slow-down switches and limit switches are consistent with the parameter setting of the MCB. ② Check whether malfunction of the slow-down switches and limit switches exists.	4B
		Subcode 2: The up limit feedback and down limit feedback are disconnected simultaneously.		
E59	Reserved	-	-	-
E60	Reserved	-	-	-
E61	Reserved	-	-	-
E62	Analog input cable broken	Subcode 1: The load cell analog input cable breaks.	① Check whether P10-00 (Load cell input selection) is set correctly. ② Check whether the analog input cable of the CTB or MCB is connected incorrectly or broken. ③ Adjust the load cell switch function.	3B
E64	Reserved	-	-	-
E65	UCMP detection abnormal	This fault is reported when the UCMP function is enabled or accidental car movement occurs.	Check that the motor brake is applied completely and the car will not move accidentally.	5A
E66	Braking force detection abnormal	The braking force detected is insufficient.	Detect the brake clearance.	5A
E69	Reserved	-	-	-
E70	Shorting motor stator contactor fault	Subcode 1: The rollback speed exceeds the limit after the braking by shorting motor stator.	Check the shorting motor stator contactor.	5A
		Subcode 2: The integrated shorting	Check the shorting motor stator contactor.	5A

Fault code	Fault description	Possible cause	Solution	Level
		motor stator contactor is detected abnormal.		

CAUTION

- ✧ Fault E41 is not reported in the elevator stop state.
- ✧ Fault E42 is reset automatically when the door lock circuit is switched on or 1 s after a fault occurs in the door zone.
- ✧ If faults E51, E52, and E57 persist, they are record once every one hour.

Chapter 9 Maintenance

The influence of the ambient temperature, humidity, dust and vibration will cause the aging of the components inside the controller, thereby leading to potential faults or reduced service life of the controller. Therefore, it is necessary to carry out routine and periodic maintenance.

9.1 Routine inspection

CAUTION

Follow the safety instructions below before inspection and maintenance. Otherwise, there will be an electric shock.

- ✧ The controller power supply has been cut off.
- ✧ The charge indicator is off.
- ✧ The voltage between DC+ and DC- measured by a DC high-voltage voltmeter shall be lower than 36 V.

The controller shall be operated in the environment specified in the section 3.1. It is recommended to conduct routine inspection, record daily running data, locate fault causes, and perform maintenance to prolong the lifespan.

Table 9-1 Routine inspection items

Item	Inspection			Inspection standard
	Aspect	Time	Means	
Environment	① Temperature and humidity	Anytime	① Thermometer and hygrometer	① -10℃ to +40℃, derating required for 40℃ to 50℃
	② Dust, water and drips		② Watch	② No dust, water and water drips
	③ Smell		③ Smell	③ No strange smell
Controller	① Vibration and heat	Anytime	① Touch the housing	① The vibration is small, and the fan works with normal housing temperature.
	② Noise		② Hear	② No strange sound
Motor	① Heat	Anytime	① Touch with hand	① No abnormal heat
	② Noise		② Hear	② Regular noise
Operation state	① Output current	Anytime	① Ammeter	① Three-phase balance, within the rated range
	② Output voltage		② Voltmeter	② Three-phase balance, within the rated range
	③ Internal temperature		③ Thermometer	③ The temperature difference compared to the environment is less

Item	Inspection			Inspection standard
	Aspect	Time	Means	
				than 35℃

9.2 Periodic maintenance

Conduct a thorough check on the controller every 3 months or 6 months depending on the environment.

CAUTION

- ✧ Only trained professionals are qualified to replace components and conduct maintenance.
- ✧ Do not leave screws or gaskets inside the equipment. Otherwise, there will be equipment damage.

Periodic check items:

(1) Fasten the screws on the control terminals with a screwdriver if they are loose.

(2) Check whether the main circuit terminals are in good contact, and whether overheat exists at the connection part of copper busbar.

(3) Check whether the power cables and control cables are damaged, especially whether the jackets are leaved with traces of cuts in contact with the metal surface.

(4) Check whether the insulation wrap on the power cable lug has come off.

(5) Clean the dust on the circuit boards and in the air duct. A dust collector is recommended.

(6) Before testing the grounding insulating performance of the controller, short all the input and output terminals (R, S, T, U, V, W, DC+, DC-, PB) of the main circuit first, and then conduct the grounding test. It is strictly forbidden to conduct the grounding test for a signal terminal. Otherwise, the controller will be damaged. Use a 500 V megger during the test.

(7) To test the insulating performance of the motor, you need to disconnect the input terminals U, V, W of the motor from the controller, and conduct test independently. Otherwise, the controller will be damaged.

CAUTION

- ✧ The controller has passed the dielectric strength test before delivery. Thus, you need not conduct the test again. Improper test may damage the controller.
- ✧ To replace the original components, make sure that the new components are the same models with same specifications. Otherwise, the controller will be damaged.

9.3 Replacement of quick-wear parts

Quick-wear parts of the controller include the cooling fan and filter electrolytic capacitor. Their service life is closely related to the operating environment and maintenance. The service life is listed in the following table.

Table 9-2 Service life of components

Component	Service life
Fan	30,000 to 40,000 hours
Electrolytic capacitor	40,000 to 50,000 hours
Relay	About 100,000 times

The general service life can be used as time reference to replace the parts.

(1) Cooling fan

Possible damage causes: bearing worn or blade aging.

Judging criteria: whether there is crack on the blade; and whether there is abnormal vibration noise at startup.

(2) Filter electrolytic capacitors

Possible damage causes: high ambient temperature, increased pulsating current caused by frequent load jumping or electrolytic aging.

Judging criteria: whether these is liquid leakage; whether the safety valve has projected; the value of the static capacitance; and the value of the insulation resistance.

(3) Relay

Possible damage causes: corrosion or frequent actions.

Judging criterion: on-off malfunction.

9.4 Storage of the controller

After purchasing the controller, pay attention to the following aspects for temporary and long-term storage:

(1) Do not use the controller in the environment with high temperature, high humidity, lots of dust, metal power and the like. Ensure good ventilation.

(2) Long-term storage degrades the electrolytic capacitor. Thus, the controller must be energized once every two years, with each time lasting at least five hours. The input voltage must be increased slowly to the rated value with the regulator.

Chapter 10 Functions and Applications

10.1 Attendant function

10.1.1 Function

The function is offered by the system by default. Certain actions can be modified by parameter setting.

(1) The elevator responds to hall calls.

(2) The elevator does not close the door automatically. You need to hold down the door close button to close the door. If you release the door close button during door close, the elevator doors will open again automatically.

(3) Direct travel ride and direction change can be implemented by respectively using JP20 and JP22 on the CCB. When the direct travel ride signal is active, the elevator does not respond to hall calls. After the direction change signal becomes active once, the elevator responds to calls in the reverse direction.

(4) If the elevator that enters the attendant state is under parallel/group control, the hall calls of this elevator is responded to by other elevators in the system.

10.1.2 Wiring

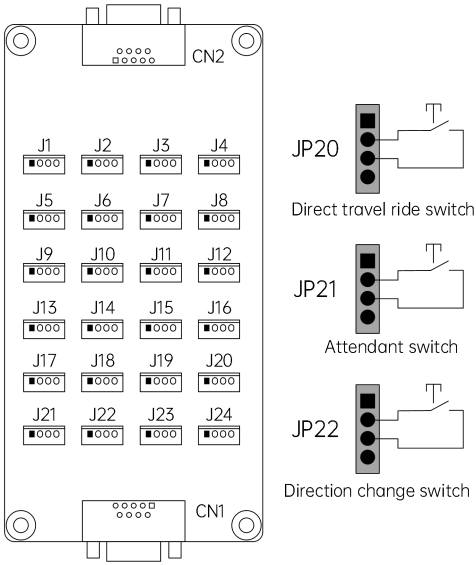


Fig. 10-1 Wiring of attendant mode

After pins 2 and 3 of JP21 of the CCB are ON, the elevator enters the attendant state.

After pins 2 and 3 of JP20 of the CCB are ON, the elevator enters the direct travel ride state.

After pins 2 and 3 of JP22 of the CCB are ON, the elevator in the attendant state changes its running direction once.

10.1.3 Related parameters

Parameter	Name	Range	Default
P16-10	Attendant/Normal state switchover time	3 to 200	3
P11-50	Program control selection 2	Bit10: Elevator lock in the attendant state	0
P11-52	Attendant function selection	Bit0: Calls canceled after entering the attendant state Bit1: Not responding to hall calls Bit2: Attendant/Normal state switchover Bit3: Door close at jog Bit4: Automatic door close Bit5: Buzzer tweeting at intervals in the attendant state Bit6: Continuous buzzer tweeting in the attendant state Bit7: Car call button blinking to prompt	128

Attendant/Normal state switchover:

In the attendant state, if there is a hall call at non-current floors, the elevator automatically switches to the automatic (normal) state after the time set in P16-10 is reached. After this running is completed, the elevator automatically returns to the attendant state (Bit2 of P11-52 must be set properly). When P16-10 is smaller than 5, the attendant/normal state switchover is disabled.

10.2 Fire emergency function

10.2.1 Function

Returning to fire emergency floor:

(1) The elevator clears car calls and hall calls automatically.

(2) The elevator stops at the nearest floor without opening the door, and then directly runs to the fire emergency floor.

(3) The elevator keeps the door open after arriving at the fire emergency floor.

(4) If the elevator is under parallel/group control, it will exit automatically after entering the fire emergency running state.

Firefighter operation:

(1) The elevator responds only to car calls, and only one call can be registered.

(2) The elevator does not open/close the door automatically. You need to press (jog) the button for door open/close control.

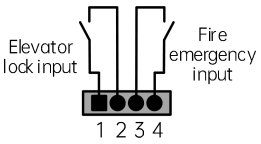
(3) The light curtain signal input is inactive, and safety edge signal input is active.

10.2.2 Wiring

(1) State of returning to fire emergency floor

Method 1: Input the fire emergency signal through the HCB

Table 10-1 Fire emergency signal input through the HCB

HCB	Terminal	Definition	Terminal wiring
Smile3000-HCB-R1	XF/ST	Interface for the fire emergency and elevator lock switches: Pins 1 and 2 are for elevator lock input. Pins 3 and 4 are for fire emergency input.	

Method 2: Fire emergency signal input through the MCB

Parameter	Name	Range	Default
P06-04	X4 function selection	11: Fire emergency signal input	11
P06-42	Y8 function selection	4: Fire emergency floor arrival signal	4

(2) Firefighter operation state:

Method 1: Enter the firefighter operation state through the CCB.

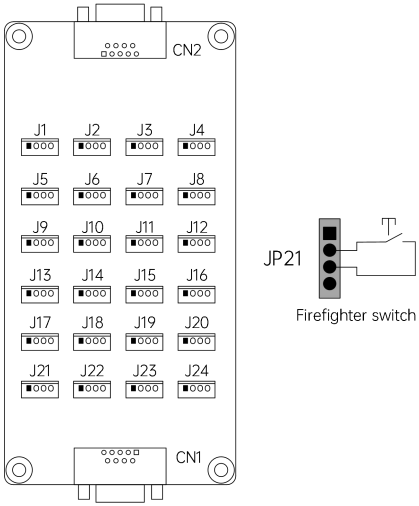


Fig. 10-2 Wiring of firefighter operation signal input through the CCB

Method 2: Enter the firefighter operation state through the MCB.

Parameter	Name	Range	Default
P06-24	X24 function selection	23: Firefighter operation input	23

10.2.3 Related parameters

Parameter	Name	Range	Default
P11-53	Fire emergency function selection	Bit0 to Bit2: Reserved Bit3: Arrival gong output in inspection or fire emergency state Bit4: Multiple car calls registered in the fire emergency state Bit5: Retentive at power failure in the fire emergency state Bit6: Door close by holding down the door close button Bit7: Reserved Bit8: Door close at car call registration Bit9: Display floor number upon hall call in the fire emergency state Bit10: JP22 as the input of the second firefighter operation Bit11: Exiting the firefighter state upon arrival at fire emergency floor Bit12: Not clearing car calls at reverse door open in the firefighter state Bit13: Reserved Bit14: Door open by holding down the door open button Bit15: Automatic door open at fire emergency floor	16456
P11-09	Fire emergency floor	P11-07 to P11-06	0
P11-10	Fire emergency floor 2	0 to P11-06	0
P6	MCB input function selection	11: Fire emergency signal input 23: Firefighter operation input	Define terminals based on actual conditions
P6	MCB output function selection	4: Fire emergency floor arrival signal	Define the terminal based on actual

Parameter	Name	Range	Default
			conditions

Input setting:

The fire emergency signal is input through the fire emergency switch on the HCB at any floor, and the firefighter signal is input through JP24 on the CCB. If you input the signal through the MCB, set the parameters according to the preceding table.

The elevator controller supports the switchover of fire emergency floor. The switchover signal must be input through terminal X on the MCB.

Output setting:

The fire emergency floor arrival signal is output through output terminal Y on the MCB.

10.3 Elevator lock function

10.3.1 Function

The function is offered by the system by default. Certain actions can be modified by parameter setting.

Elevator lock procedures:

(1) After responding to all registered car calls, the elevator returns to the elevator lock floor.

(2) After arriving at the elevator lock floor, the elevator door opens and then closes to stop.

(3) After stopping, the elevator cancels all hall call displays and closes the lighting and fan in the car.

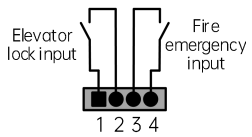
10.3.2 Wiring

Elevator lock signal input and corresponding parameter settings

Generally, the elevator lock signal is input through the elevator lock switch on the HCB at any floor. If this signal needs to be input through the MCB, perform parameter setting according to the following table (X21 as the input terminal is taken as an example).

Method 1: Input the elevator lock signal through the HCB.

Table 10-2 Elevator lock signal input through the HCB

HCB	Terminal	Definition	Terminal wiring
Smile3000-HCB-R1	XF/ST	Interface for the fire emergency and elevator lock switches: Pins 1 and 2 are for elevator lock input. Pins 3 and 4 are for fire emergency input.	

Method 2: Input the elevator lock signal through the MCB.

Parameter	Name	Range	Default
P06	MCB input function selection	28: Elevator lock NO input	28

10.3.3 Related parameters

Parameter	Name	Range	Default
P11-11	Elevator lock floor	P11-07 to P11-06	1
P11-47	Elevator lock start time	00.00 to 23.59	0
P11-48	Elevator lock end time	00.00 to 23.59	0
P11-49	Program control selection 1	Bit5: Timed elevator lock	0
P11-50	Program control selection 2	Bit8: Elevator lock at door open Bit9: Display available at elevator lock Bit10: Elevator lock in the attendant state	0
P11-51	Program control selection 3	Bit5: Clearing calls immediately at elevator lock	0

10.4 Full-load/Overload Function

10.4.1 Function

Overload:

(1) The buzzer tweets.

(2) The door cannot close, even if you press the door close button.

(3) The car display board displays overload state with "OL" or "OVERLOAD".

(4) The full-load indication or "FL" is displayed at the hall.

Full-load:

(1) The full-load indication or "FL" is displayed at the hall.

(2) Elevator car calls operate normally.

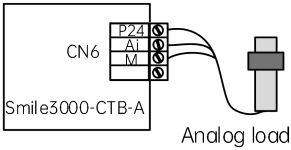
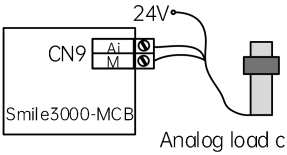
(3) The elevator registers hall calls but not respond to them.

The elevator overload and full-load switches are classified into analog and digital types. The following part describes their parameter settings.

10.4.2 Wiring

Wiring and parameter setting of analog full-load/overload switches

Type	Wiring diagram	Parameter setting
Analog signals connected to the CTB	P24 and M are connected to positive and negative wires of the power cable. Ai is connected to the signal cable of the analog load cell.	P10-00=2

Type	Wiring diagram	Parameter setting
		
Analog signal connected to the MCB	Terminal 24 V of the system is connected to the positive of the analog load cell power cable. Pins M and Ai of terminal CN9 on the MCB are connected to the negative of the power cable and signal cable of the analog load cell respectively. 	P10-00=3

When the analog load cell is used, load cell auto-tuning must be performed. Otherwise, the analog load cell cannot be used. Perform overload/full-load auto-tuning process in the following chart.

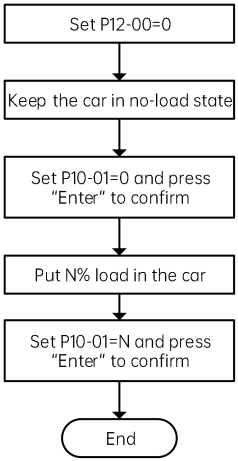


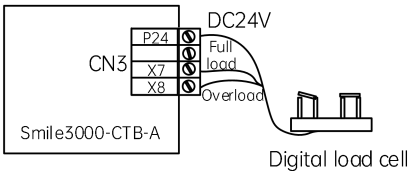
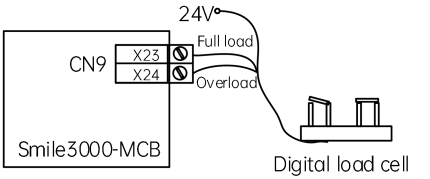
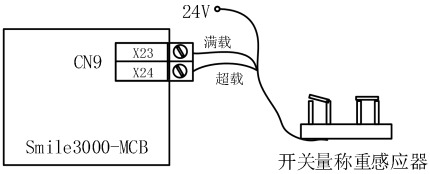
Fig. 10-3 Analog full-load/overload auto-tuning flowchart

P10-03 and P10-04 record the obtained no-load and full-load data respectively after the auto-tuning has been completed. You can also monitor the current load of the elevator by viewing P10-02. When the current car load reaches 110% of the rated load, the system reports an overload fault.

CAUTION

P10-02, P10-03 and P10-04 record the binary data indicating the car load condition rather than the actual car load or the ratio of the actual car load to the rated load.

Wiring and parameter setting of digital full-load/overload switches

Type	Wiring diagram	Parameter setting
Digital signals connected to the CTB	The full-load signal and overload signal must be connected to X7 and X8 respectively. 	P07-07=1 P07-08=108
Digital signal connected to the MCB	This figure uses X23 and X24 as full-load signal and overload signal inputs.  	P06-23=5 P06-24=114

10.4.3 Related parameters

The parameters involved in the full-load/overload auto-tuning of the analog load cell are described in the following table.

Parameter	Name	Range	Description
P10-01	Car load ratio during load cell auto-tuning	0 to 100	Used to set the car load ratio properly during analog load cell auto-tuning.
P12-00	Pre-torque selection	0: Pre-torque disabled 1: Pre-torque enabled 2: Automatic compensation enabled 3: Both zero servo and load cell pre-torque	Set this parameter to 0 before starting analog load cell auto-tuning.

Parameter	Name	Range	Description
		compensation enabled	
P10-02	Current car load	0 to 255	Displays the current load condition in the car.
P10-03	No-load measured by load cell	0 to 255	Records the no-load auto-tuning data.
P10-04	Full-load measured by load cell	0 to 255	Records the full-load auto-tuning data.

Parameter settings of digital full-load/overload switches:

Type	Parameter	Name	Range	Setting
Setting of input type	P10-00	Load cell input selection	0: Inactive 1: Car call digital input 2: Car call analog input 3: MCB analog input 4: MCB digital input	0
MCB input	P6	Input function selection	0 to 199	14: Overload NO input 15: Full-load NO input (NC=NO+100)
CTB input	P7	Input function selection	0 to 199	7: Full-load input 8: Overload input 9: Light-load input (NC=NO+100)

Monitoring of overload/full-load signal:

If D02-00 Bit15 of the MCB is 1, it indicates that the system is full-loaded.

10.5 Time-based floor service

10.5.1 Function

Time-based floor service: The elevator only responds to car/hall calls of specified service floors during certain periods.

10.5.2 Related parameters

Parameter	Name	Range	Default
P12-09	Elevator function selection	Bit8: Time-based service floor function	0
P11-28	Start time of time-based floor service 1	00.00 to 23.59	00.00
P11-29	End time of time-based floor	00.00 to 23.59	00.00

Parameter	Name	Range	Default
	service 1		
P11-30	Service floor 1 of time-based floor service 1	0 to 65535	65535
P11-31	Service floor 2 of time-based floor service 1	0 to 65535	65535
P11-32	Service floor 3 of time-based floor service 1	0 to 65535	65535
P11-33	Start time of time-based floor service 2	00.00 to 23.59	00.00
P11-34	End time of time-based floor service 2	00.00 to 23.59	00.00
P11-35	Service floor 1 of time-based floor service 2	0 to 65535	65535
P11-36	Service floor 2 of time-based floor service 2	0 to 65535	65535
P11-37	Service floor 3 of time-based floor service 2	0 to 65535	65535

P11-28 to P11-37 set the time range and service floors of two groups of time-based floor services.

Beyond the time range, the elevator responds to the service floors set by P11-15, P11-16, and P11-17.

(1) Service floor 1 corresponds to floors 1 to 16.

(2) Service floor 2 corresponds to floors 17 to 32.

(3) Service floor 3 corresponds to floors 33 to 48.

For example, in the period of time-based floor service 1 (set by P11-28 and P11-29), the elevator responds only to the service floors 1, 2, and 3 (set by P11-30, P11-31, and P11-32), and ignores P11-15, P11-16, and P11-17.

The setting of time-based service floors is the same as that of service floors in P11-15.

10.6 Test function

10.6.1 Function

The running test parameters are set to facilitate elevator commissioning and maintenance. The tests include:

(1) Car/Hall call test

(2) Random running test

(3) Running test with certain functions disabled (hall call, door open, overload, and limit)

Before the running test at normal speed, ensure that the shaft is unobstructed and the safety circuits, door lock circuits, and shaft switches are all normal.

10.6.2 Related parameters

Group P17 test parameters set on MCB

Parameter	Name	Range	Default
P17-00	Car call floor registered	0 to P11-06	0
P17-01	Up hall call floor registered	0 to P11-06	0
P17-02	Down hall call floor registered	0 to P11-06	0
P17-03	Random running times	0 to 60000	0
P17-04	Hall call	0: Hall call allowed 1: Hall call forbidden	0
P17-05	Door open	0: Door open allowed 1: Door open forbidden	0
P17-06	Overload function	0: Overload forbidden 1: Overload allowed	0
P17-07	Limit function	0: Limit function enabled 1: Limit function disabled	0

Example of parameter settings:

P17-00, P17-01=3, and P17-02=5 mean the the car call registered is floor 6, the up call registered is floor 3, and the down call registered is floor 5. After the test commands are set, the parameter settings remains effective until the parameters are changed to 0 or a power failure occurs.

Set P-8 on the keypad, and E88 is displayed.

(1) P-1: Command input of the running floor

After you enter the P1 menu by pressing the PRG, UP and SET keys, the LEDs display the bottom floor of the elevator (P11-07). Use the UP key to set your destination floor and press SET to save the setting. Then, the elevator runs to the destination floor, and the display automatically switches to the P0 menu.

(2) P-8: Test function

After you enter the P-8 menu by pressing the PRG, UP and SET keys, the LEDs display "0". The setting of P-8 is described as follows:

1	Hall call forbidden
2	Door open forbidden
3	Overload forbidden
4	Limit switches disabled
6	Slip test
7	Manual UCMP test
8	Manual braking force test

After setting, press the SET key to save. The LEDs flashes "E88", indicating the elevator is under test. When you press PRG to exit, P-8 restores to 0 automatically.

10.7 Anti-nuisance function

10.7.1 Function

The system automatically compares the number of passengers in the car with the number of registered car calls. If there are excessive car calls, the system determines that it is nuisance and cancels all car calls. In this case, passengers need to register correct car calls again. There are three judging methods:

(1) Nuisance judged by load cell. Analog load cell must be enabled to use this function. The system determines that nuisance exists when the number of car calls exceeds the number of passengers in the car plus 3. It is assumed that each person' weight is 70 kg.

(2) Nuisance judged by light curtain. The system determines that nuisance exists when the light curtain signal is not received after the elevator stops in normal running for three consecutive times.

(3) Nuisance judged by light-load signal. If the light-load signal is active, the system determines that nuisance exists when the number of car calls is greater than 3.

10.7.2 Related parameters

Parameter	Name	Range	Default
P00-05	Rated load	300 to 9999	1000
P10-05	Anti-nuisance function	Bit0: Load cell judgment (requiring a load cell device) Bit1: Light curtain judgment Bit2: Light-load judgment	0

P00-05 sets the rated elevator load to be used in the anti-nuisance function.

The light-load signal is mainly used for nuisance judgment. Set P10-05 Bit2 to 1 to judge nuisance using the light-load switch. Below 30% of the rated elevator load is considered as light-load.

10.8 Accessibility function

10.8.1 Function

This function, which allows wheelchair passengers to use the elevator conveniently, is implemented using the operation box and the hall call box for the disabled.

(1) If there is a call at this floor from the disability operation box, the door open holding time is prolonged.

(2) If there is a door open command from the disability operation box, the door open holding time is prolonged.

(3) If there is a call registered using the hall call box for the disabled, the door open holding time is prolonged.

10.8.2 Wiring

Disability operating panel inside the car:

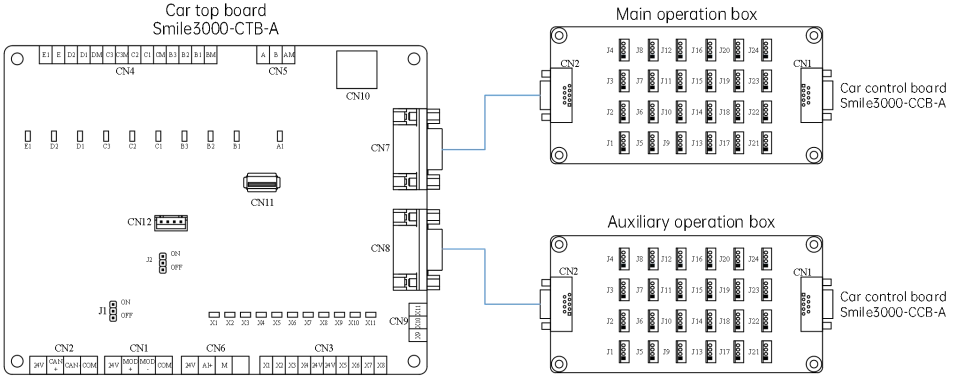


Fig. 10-4 Wiring diagram 1 of disability operating panel

CN8 as the interface for the disability operation box (P11-49 Bit12 enabled)

The second CCB in cascade connection as the interface for the disability operating panel (P11-49 Bit13 and Bit14 enabled)

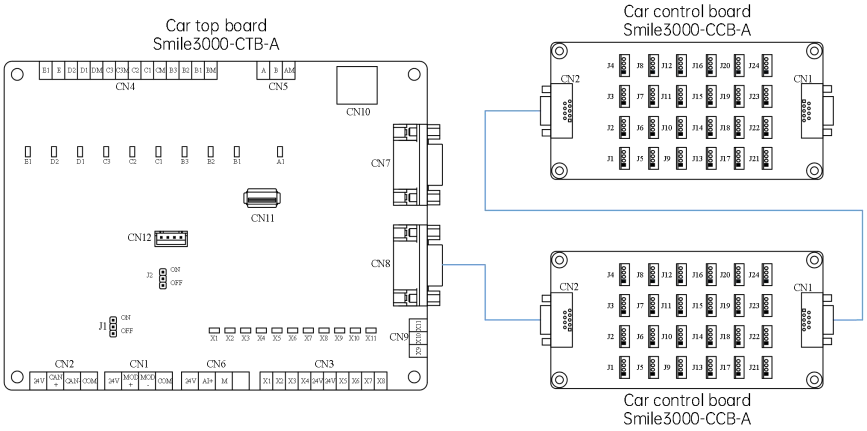


Fig. 10-5 Wiring diagram 2 of disability operating panel

10.8.3 Related parameters

Parameter	Name	Range	Default
P11-49	Program control selection 1	Bit0: Accessibility function selection Bit12: Car call auxiliary command terminal used for accessibility function Bit13: Duplicated command used as accessibility and rear door functions	0

Parameter	Name	Range	Default
		(1: Accessibility function; 0: Rear door function) Bit14: Car call command duplication	
P08-15	Special door open holding time	10 to 1000	30

Bit definitions of P11-49

Bit	Definition	Description
Bit0	Accessibility function selection	Enable the accessibility function.
Bit12	Car call auxiliary command terminal used for accessibility function	Used to set the CTB auxiliary command terminal (CN8) as input of calls from the disabled (command duplication is not required).
Bit13	Duplicated commands used as accessibility function and rear door function	It is valid only when the function of Bit14 is enabled: 1: Accessibility function 0: Rear door
Bit14	Car call command duplication	Car call command duplication: A. Function disabled: CN7 is used for front door calls or ordinary calls, and CN8 is used for rear door calls or disability calls B. Function enabled: For CN7 and CN8, floors 1 to 16 are for front door calls or ordinary calls, and floors 17 to 32 for rear door calls or disability calls.

P08-15 Special door open holding time: Set the door open holding time when there is a disability call.

10.9 VIP running function

10.9.1 Function

After the VIP function is enabled, the elevator directly runs to the VIP floor as a priority service.

(1) The elevator responds only to car calls. Registered hall calls are cleared automatically.

(2) The elevator does not close the door automatically. You need to hold down the door close button to close the door. If you release the door close button during door close, the elevator doors will open again automatically.

(3) The VIP running times is set in P11-55 Bit8.

(4) When the parameter is set valid, the elevator responds only to one car call (the last one registered). After arriving at the destination floor, the elevator automatically exits the VIP state. When the parameter is set invalid, there is no limit on the number of car calls. The elevator automatically exits the VIP state in either of the following conditions: 1. It has executed all car calls. (The elevator automatically enters the car call running 30 s after each stop if the door open/close button is not pressed; 2. No car call is registered within 30 s after the elevator has entered the VIP state.

10.9.2 Wiring

VIP enabled by HCB terminal:

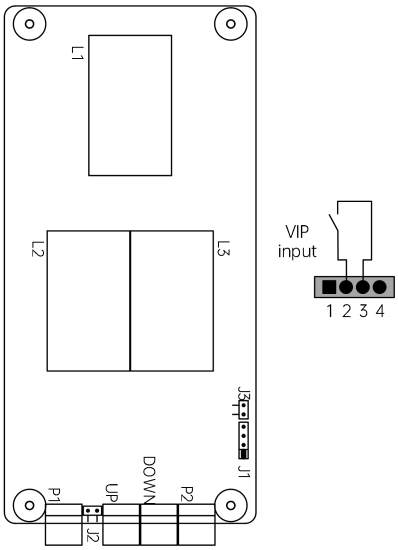


Fig. 10-6 Wiring of VIP enabled by HCB

10.9.3 Related parameters

Parameter	Name	Range	Default
P11-12	VIP floor	0 to P11-06	8
P12-09	Elevator function selection	Bit9: VIP function	Bit9=1
P11-55	VIP function selection	Bit0: VIP enabled by hall call at VIP floor Bit1: VIP enabled by terminal Bit8: Number of VIP car calls limited	0

Example: Using VIP service and setting VIP floor

(1) Parameter setting (for example, set floor 8 as the VIP floor out of elevator floors 1 to 20)

Parameter	Name	Range	Default	Note
P11-06	Top floor of elevator	P11-07 to 48	20	The parameters are to set the top floor and bottom floor of the elevator, determined by the number of leveling plates installed.
P11-07	Bottom floor of elevator	1 to P11-06	1	
P11-12	VIP floor	0 to P11-06	8	Set floor 8 as the VIP floor

Parameter	Name	Range	Default	Note
P12-09	Elevator function selection	Bit9: VIP function	Bit9=1	Enable the VIP function
P11-55	VIP function selection	Bit8: Number of VIP car calls limited	----	If this function is enabled, only one car call can be selected simultaneously in the VIP state. When the parameter is set invalid, the number of car calls is not limited in the VIP state.

(2) Method of enabling VIP

VIP enabled by hall call at VIP floor: The elevator enters the VIP state only when there is a hall call (input by the up/down hall call button) at the VIP floor. The parameter that needs to be set is shown below.

Parameter	Name	Range	Default	Note
P11-55	VIP function selection	Bit0: VIP enabled by hall call at VIP floor	Bit0=1	The elevator enters the VIP state when there is an active hall call at the VIP floor.

10.10 UCMP function

10.10.1 Function

When the landing door is unlocked and the car door is not closed, accidents may be caused by unintended car movement at the landing level if any component guaranteeing safe running fails. The UCMP device will stop the elevator to ensure the passengers' safety.

CAUTION

Advanced door opening module Smile3000-SCB is required for the UCMP function.

Table 10-3 Selection of the detection component

Item	Synchronous motor	Asynchronous motor
	Without auxiliary brake	With auxiliary brake
Model	Smile3000-SCB	Smile3000-SCB

Only Smile3000-SCB is suitable for the through-type door.

10.10.2 Wiring

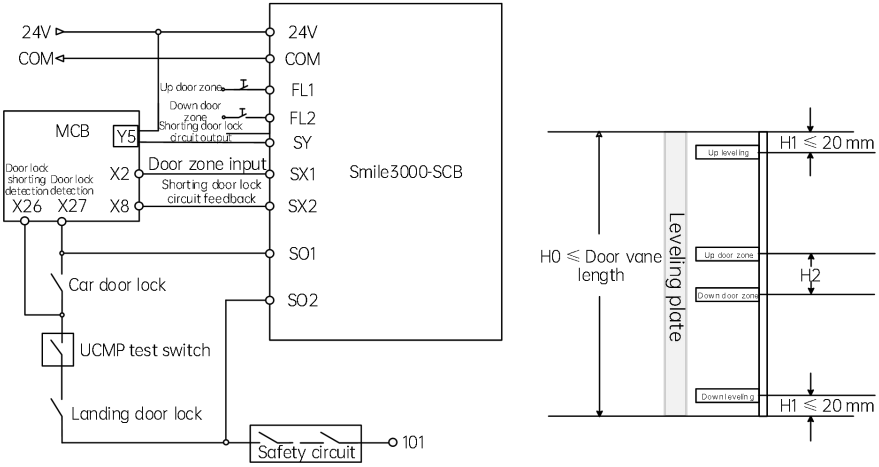


Fig. 10-7 UCMP without auxiliary brake

Requirements for UCMP switch installations:

(1) H1 ⩽ 20 mm; H2 = 60 mm.

(2) Leveling plate length ⩽ 300 mm; 300 mm is recommended.

(3) Two door zone switches are required. The length of leveling plates is determined by the actual door open area (door vane length) of the elevator.

(4) Door zone switches of NO type must be used.

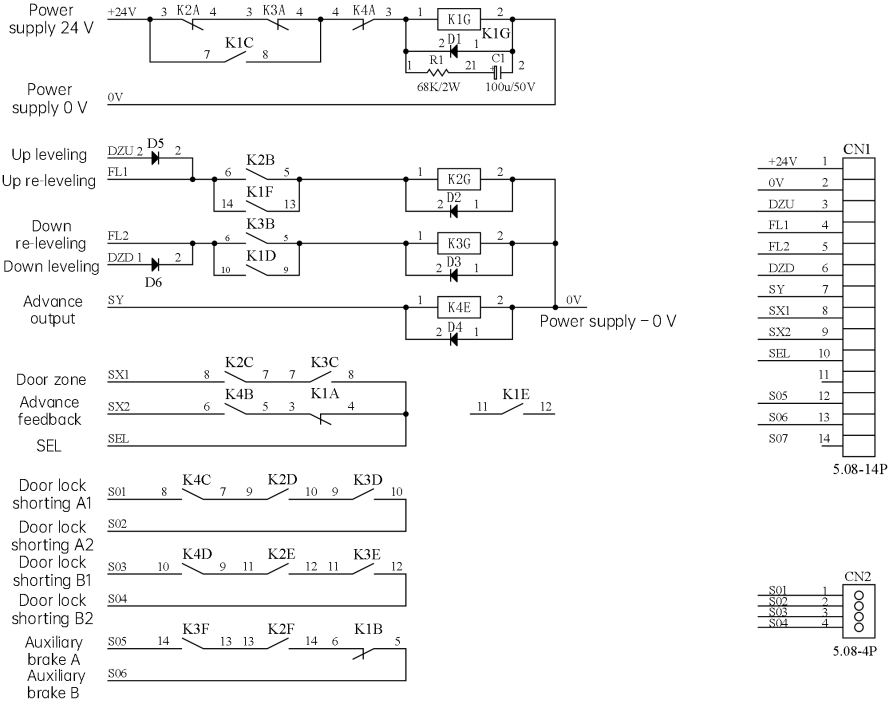


Fig. 10-8 Wiring of UCMP with auxiliary brake

10.10.3 Related parameters

Parameter	Name	Range
P-8	Test function	7: Enter the UCMP test using the keypad
P05-21	Slip test	0: Reserved 1: Slip test 2: Manual UCMP test

Parameter	Name	Range
P06-01	X1 function selection	01/101: Up leveling NO/NC
		01: Up leveling NO
P06-03	X3 function selection	02/102: Down leveling NO/NC
		02: Down leveling NO
P06-02	X2 function selection	03: Door zone NO
P06-08	X8 function selection	22: Shorting door lock circuit feedback NO
P06-39	Y5 function selection	03: Shorting door lock circuit contactor output

Test method:

(1) The elevator is in inspection state with door lock closed and in the door zone.

(2) Set P-8 to 7 or P05-21 to 2 using the keypad, and the system displays E88 and enters the UCMP test function. At this moment, the door lock circuit is open.

(3) Manually press and hold down the inspection up or down button. Combined with the shorting door lock circuit contactor output and shorting door lock, the elevator performs inspection running.

(4) After the elevator is divorced from the door zone (the door zone signal is invalid), the hardware UCMP module will cancel door lock shorting. At this moment, the elevator reports E65 (UCMP fault) and stops running.

CAUTION

- ✧ It is invalid to set P-8 to 7 and P05-21 to 2 if the elevator is not in inspection state or door zone or has inactive door lock.
- ✧ After P-8 is set to 7 or P05-21 is set to 2, clearing is automatically performed after one running and after power failure.
- ✧ In UCMP test mode, the start acceleration curve is linearly accelerated to the inspection speed with P05-08.
- ✧ Automatic resetting cannot be performed in the case of the fault E65 or getting power back on after power-off.
- ✧ The fault E65 can be manually reset only in the inspection state.

10.11 Braking force detection

10.11.1 Function

The function is offered by the system by default. Certain actions can be modified by parameter setting.

To prevent motor brake failure for safe running, check whether the braking force meets the requirements periodically. The control system will monitor the braking force regularly.

10.11.2 Wiring

No need for wiring.

10.11.3 Related parameters

Parameter	Name	Range	Default	Note
P-8	Test selection	8: Manual braking force test	0	Use the keypad to start the braking force test.
D01-32	Braking force detection result	0 to 2	0	/
P12-25	Braking torque detection time	1 to 10 s	5	When it is set to 0, the system uses the default value 5 s.

Parameter	Name	Range	Default	Note
P12-26	Braking torque amplitude	1 to 150% of the rated motor torque	110	When it is set to 0, 110% of the rated motor torque is used by default.
P12-27	Pulse threshold of braking force detection	1 to 100 encoder feedback pulses	0	When it is set to 0, 30 encoder feedback pulses are used by default.
P12-28	Threshold of excessive slip distance	1° to 20° (mechanical motor rotation angle)	0	When it is set to 0, the system uses 5° for synchronous motors and 10° for asynchronous motors by default.
P12-24	Countdown time for braking force detection	0 to 1440	1440	The countdown time is automatically restored to 1440 after the test finishes

Manual test:

(1) The system is in inspection state and the inspection switch is active.

(2) The elevator stops in the door zone with the door lock closed.

(3) Use the keypad to set P-8 to 8.

(4) When the system enters the test state, the MCB displays E88.

(5) The shorting motor stator and RUN contactors have output, and the brake contactor has no output.

(6) The system starts testing according to the output torque related to the braking force.

(7) E88 disappears on the MCB and the test is completed. D01-32 indicates the test result. If D01-32 is 2, E66 is reported immediately for test failure, then the elevator stops running, and the fault cannot be reset.

Automatic test:

After condition 1 is met for braking force detection, the system automatically enters the test state. The steps are the same as steps 4, 5, 6 and 7 of the manual test.

Fault E66 cannot be reset through power failure and can be automatically reset only when a new braking force test is performed with qualified results.


CAUTION

- ✧ Countdown function: After 12 hours pass, the system starts to judge whether the following condition 1 is met. If the braking force test has been performed, the countdown parameter restores to 24 hours. If not, the system proceeds to condition 2 (forced test).
- ✧ During the automatic braking force test, no fault is reported for hall calls. The keypad displays E88 to indicate the test state. Hall calls can be registered, but the elevator does not respond to them. After the test is completed, the system returns to normal state and responds to registered hall calls, but the car calls are canceled. The

elevator doors cannot be opened or closed.

Test conditions:

- ✧ Condition 1: Normal braking force test. Under the condition of no car and hall calls, the braking force test is performed after the elevator energy-saving time is reached or after three minutes.
- ✧ Condition 2: Forced braking force test. The system makes a judgment 10 minutes ahead. When the time set in P12-24 is 10 minutes or below, the buzzer tweets for 30 seconds. In this case, the registered hall calls are kept, but the car calls are canceled. The elevator doors can be opened or closed. The system starts the braking force test after door close.

10.12 Shorting PMSM stator scheme

(1) Background

Shorting PMSM stator means shorting phases UVW of the PMSM, which produces resistance to restrict movement of the elevator car. This prevents car slip during brake failure and ensures safety.

(2) Overview

An independent contactor for shorting PMSM stator is installed. On the coil circuit of the RUN contactor, an NO contact of the shorting PMSM stator contactor is connected in serial, to ensure that output short circuit does not occur when the parameter setting is incorrect.

- Scheme 1: for AC applications
- Scheme 2: for DC applications

10.12.1 Scheme 1

(1) Wiring

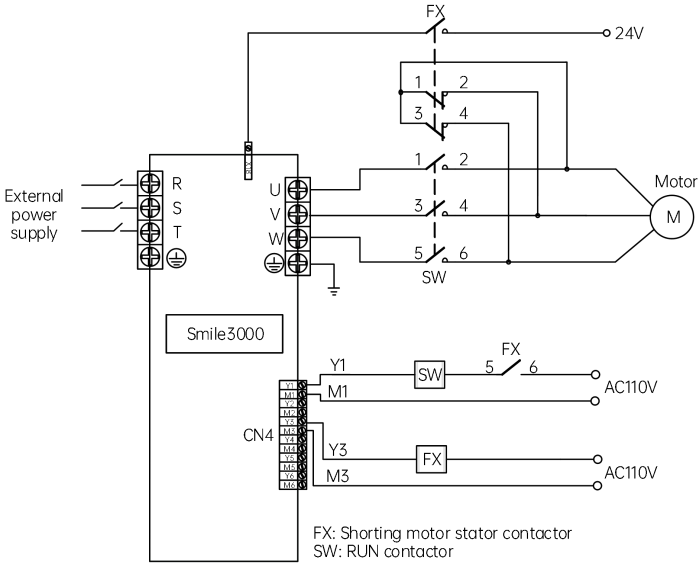


Fig. 10-9 Wiring of the independent shorting motor stator contactor

(2) Related parameters

The parameter setting in shorting PMSM stator mode is described in the following table.

Parameter	Name	Setting	Description
P06-18	X18 function selection	30	Allocate X18 with feedback input of shorting PMSM stator
P06-37	Y3 function selection	3	Allocate Y3 with output of shorting PMSM stator contactor control
P12-10	Elevator function selection	-	NC shorting motor stator contactor: Bit8=0 NO shorting motor stator contactor: Bit8=1

10.12.2 Scheme 2

(1) Wiring

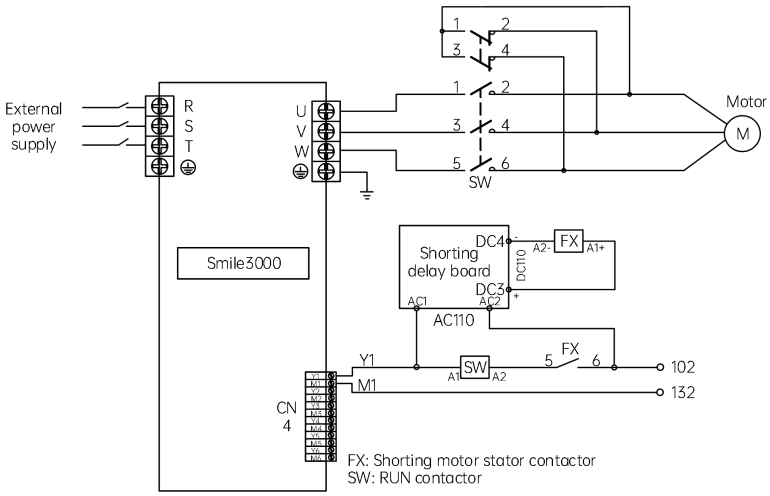


Fig. 10-10 Wiring of shorting delay board

(2) Related parameters

No parameter setting is needed. During running output, the 110 VAC and 100 VDC of the delay board are live. Then, the FX shorting contactor is closed and auxiliary contact 5.6 is actuated, and in turn, the SW RUN contactor is closed. The elevator starts to run. When the elevator stops, the SW RUN contactor is opened, and the delay board makes the FX contactor open after a delay of 1 to 2 s. That is how shorting delay works.

10.13 Automatic emergency evacuation at power failure

(1) Background

Passengers may be trapped in the car if the power fails during the use of an elevator. Therefore, an emergency evacuation device that can automatically release passengers at power failure is required.

(2) Overview

Scheme 1: UPS standby power supply (220 V)

The 220 V UPS provides motor drive power and control circuit power.

Scheme 2: ARD

The ARD provides motor drive power and control circuit power.

Different brands of ARDs may differ in terms of control and related wiring. Thus, strictly comply with the

user manual of the ARD you actually use in the elevator system. This section takes the ARD manufactured by Megmeet as an example.

Automatic emergency evacuation method	Working principle
Evacuation by controller drive	After the failure of mains power supply, the standby power supply is activated to power up the control system. The controller drives the motor to move the car to the leveling zone where passengers can go out.
Evacuation by shorting stator braking	After the failure of mains power supply, the standby power supply is activated to power up the control system. The controller shorts the motor stator and releases the brake, allowing the car to slip slowly to the leveling zone where passengers can go out.

There are two standby power supply modes in the industry.

Standby power supply	Description
Uninterruptible Power Supply (UPS)	The UPS serves as a standby power supply device. The UPS RUN contactor and UPS control circuit need to be added in the control cabinet.
Automatic Rescue Device (ARD)	ARD: The ARD is used as the standby power supply for emergency power supply. Nothing more cost is required, but the input terminal for emergency evacuation signal feedback must be reserved in the control cabinet. The ARD itself has the control system which can diagnose the mains power supply status and operates for emergency evacuation.

10.13.1 220 V UPS

(1) Wiring

The following figure shows the emergency 220 V UPS circuit.

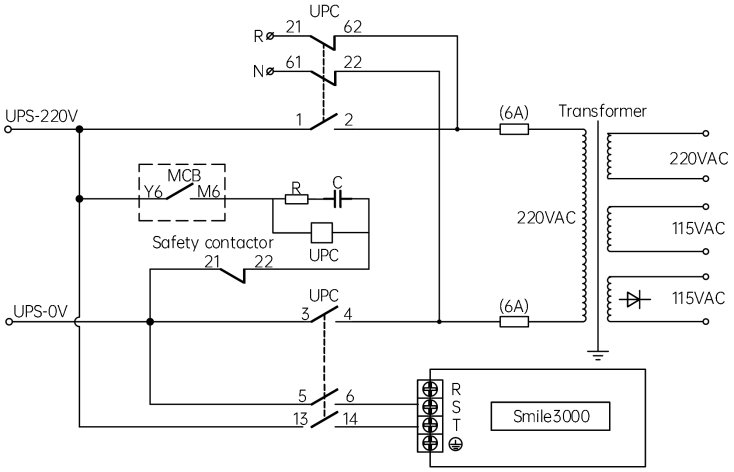


Fig. 10-11 Wiring of 220 V UPS power circuit

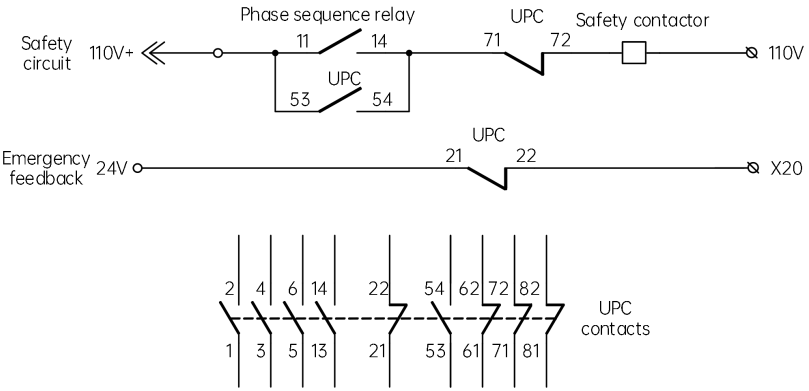


Fig. 10-12 Contacts of the contactor

(2) Related parameters

The parameters related to emergency evacuation by controller drive is described in the following table.

Parameter	Setting	Description	Note
P12-06	1: UPS-powered operation	Emergency evacuation mode selection	-

Parameter	Setting	Description	Note
P06-20 (X20)	127	UPS valid input	Assume that X20 is used as the NC input of emergency evacuation signal.
P06-40 (Y6)	13	Emergency evacuation output at power failure	Y6 must be used for emergency evacuation output.

The parameters related to emergency evacuation by shorting stator braking is described in the following table.

Parameter	Setting	Description	Note
P12-06	0: Motor not running	Emergency evacuation mode selection	-
P06-20 (X20)	127	UPS valid input	Assume that X20 is used as the NC input of emergency evacuation signal.
P06-40 (Y6)	13	Emergency evacuation output at power failure	Y6 must be used for emergency evacuation output.
P11-54	Bit15=1	Enable shorting stator braking function	-

Recommended UPS power

Table 10-4 Recommended UPS power

UPS power	Controller power
1 kVA (700 W to 800 W)	P ≤ 5.5 kW
2 kVA (1400 W to 1600 W)	5.5 kW < P ≤ 11 kW
3 kVA (2100 W to 2400 W)	15 kW ≤ P ≤ 22 kW

10.13.2 ARD

(1) Wiring

The following figure shows wiring of the ARD for elevator emergency evacuation.

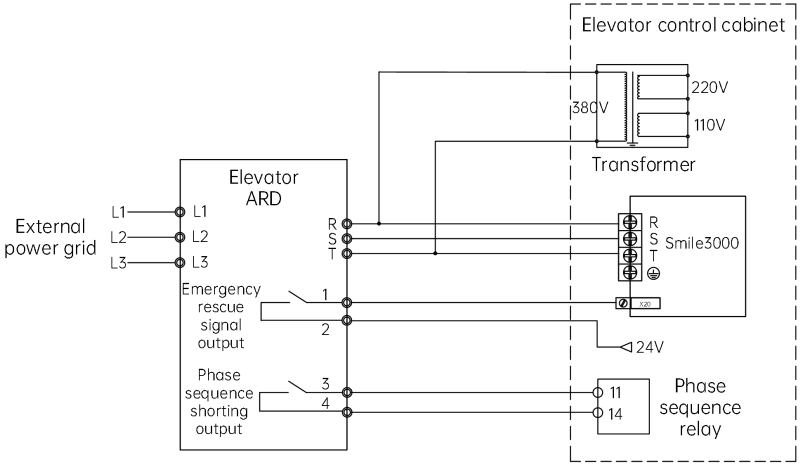


Fig. 10-13 Wiring of three-phase (380 V) elevator ARD

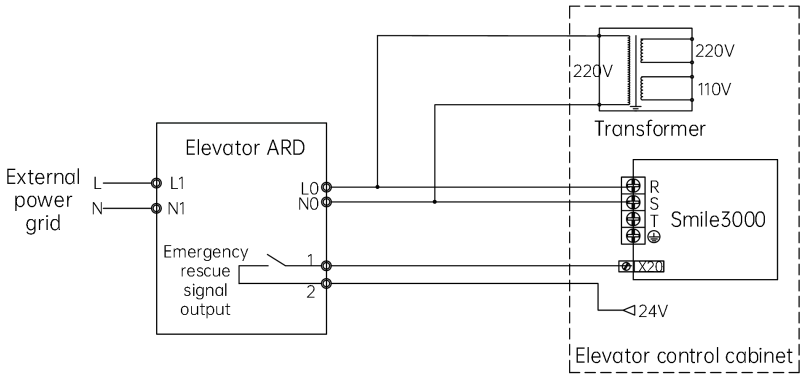


Fig. 10-14 Wiring of single-phase (220 V) elevator ARD

(2) Related parameters

The parameters related to emergency evacuation by controller drive is described in the following table.

Parameter	Setting	Description	Note

Parameter	Setting	Description	Note
P12-06	1: UPS-powered operation	Emergency evacuation mode selection	-
P06-20 (X20)	27	UPS valid input (NO)	Assume that X20 is used as the NO input of emergency evacuation signal.
P06-40	23	Emergency evacuation completed output	Used to notify that ARD emergency evacuation is completed.

The parameters related to emergency evacuation by shorting stator braking is described in the following table.

Parameter	Setting	Description	Note
P12-06	0: Motor not running	Emergency evacuation mode selection	-
P06-20 (X20)	27	UPS valid input (NO)	Assume that X20 is used as the NO input of emergency evacuation signal.
P06-40	23	Emergency evacuation completed output	Used to notify that ARD emergency evacuation is completed.

CAUTION

- ✧ Select the emergency evacuation device at power failure with nominal output power equal to or greater than the rated motor power.
- ✧ For the 380 V ARD, only two phases are used for emergency evacuation output. Therefore, ensure the correct wiring on the controller side. The output is single-phase 380 V power supply. Ensure that the input side of the transformer matches this power.
- ✧ If CAN communication is adopted, P06-20 and P06-40 are not required to set for ARD evacuation.

Other parameters related to emergency evacuation

Parameter	Range	Description
P05-19	0.100 to 1.300 m/s^2	Acceleration rate at emergency evacuation
P03-04	0.010 to 0.630 m/s	Emergency evacuation switching speed
P11-13	0 to P11-06	Emergency evacuation parking floor
P03-03	0.05 m/s	Emergency evacuation speed at power failure

10.14 Parallel control

(1) Background

Parallel control and group control are respectively for 2 elevators and 2 to 8 elevators, in order to improve running efficiency and saving energy.

(2) Overview

Smile3000 integrated control system provides the function of elevator parallel control.

Parallel control: Parallel control of two elevators implemented by directly using the CAN2 communication port

10.14.1 Parallel control

(1) Wiring

CAN2 port connection of CN6

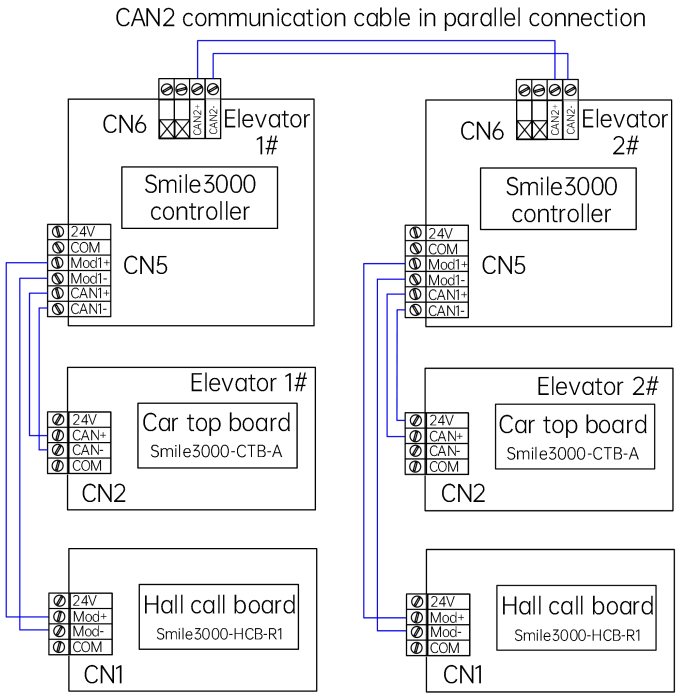


Fig. 10-15 Wiring diagram of parallel control (CN4)

Before using the elevators, set the floor offset in parallel control (P11-20≠0).

User floor: the actual floor of the building.

Physical floor: the floor which any elevator stops at and provides service for, or the floor installed with a leveling plate.

For the same physical floor, the leveling plate must be installed for both elevators. Even if one elevator does not need to stop at a certain floor, one leveling plate must be installed for this floor.

You can set the service floors of this elevator so that it does not stop at this floor.

Set the HCB addresses for each elevator according to its physical floors. The physical floors of different elevators may vary.

Set the top floor (P11-07) and bottom floor (P11-06) of each elevator based on actual physical floors.

(2) Related parameters

Parameter	Description	Range	Setting in parallel connection	Note
P11-18	Number of elevators in group control	0 to 8	2	--
P11-19	Elevator No.	0 to 8	Master elevator: 1 Slave elevator: 2	--
P11-21	Program selection	---	Bit3=1: CAN2 parallel control	Set Bit3 to 1 when the CAN2 communication port of terminal 6 is used for parallel control

Example: two elevators in parallel control

Elevator 1 has one user floor below ground and four floors above ground, but stops only at floor B1, floor 1, floor 2, and floor 3.

Elevator 2 has four user floors above ground, but it stops only at floors 1, 3, and 4.

The following figure shows the floor layout of the two elevators in parallel control.

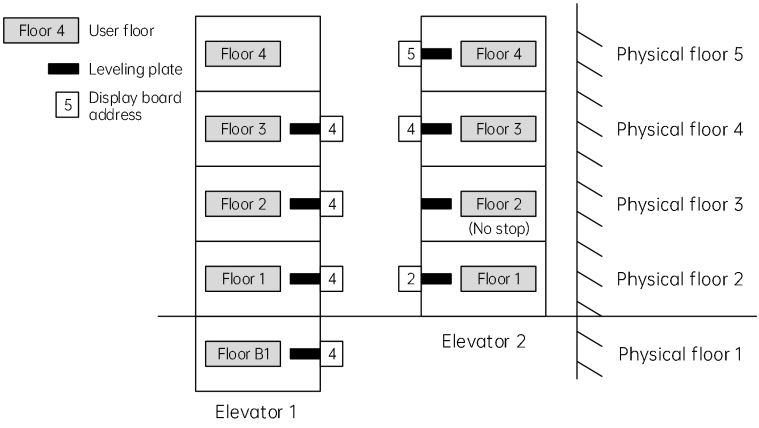


Fig. 10-16 Floor layout of two elevators in parallel control

Corresponding parameter settings are shown in the following table.

Table 10-5 Floor address setting for elevators in parallel control

	Elevator 1	Elevator 2
Number of elevators in group	2	2

		Elevator 1		Elevator 2	
control (P11-18)					
Elevator No. (P11-19)		1		2	
User floor	Physical floor	HCB address	HCB display	HCB address	HCB display
B1	1	1	P21-01=1101	1	P21-01=1901
1	2	2	P21-02=1901	Non-stop floor, no hall call, but leveling plate required	--
2	3	3	P21-03=1902	3	P21-03=1903
3	4	4	P21-04=1903	4	P21-04=1904
4	5	No hall call	No hall call		
Bottom floor of elevator (P11-07)		1		1	
Top floor of elevator (P11-06)		4		4	
Service floors (P11-05)		65535		65533 (not stop at physical floor 2)	
Floor offset (P11-20)		0		1	

10.15 Through-type door

(1) Background

The through-type door solution is applied when separate control on two doors of an elevator is required.

(2) Overview

Smile3000 supports four through-type door control modes: mode 1, mode 2, mode 3, and mode 4.

Table 10-6 Through-type door control modes

Type	Door control mode	Description
Mode 1	Simultaneous control of the front and rear doors	The front and rear doors open simultaneously upon arrival for any calls.
Mode 2	Independent control for door open/close for hall calls, and simultaneous control for car calls	Hall call: The front door opens upon arrival for hall calls from the front door, and the rear door opens upon arrival for hall calls from the rear door. Car call: The front and rear doors open simultaneously upon arrival for car calls.
Mode 3	Independent control for door open/close for hall calls, and manual control for car calls	Hall call: The front door opens upon arrival for hall calls from the front door, and the rear door opens upon arrival for hall calls from the rear door.

Type	Door control mode	Description
		Car call: The door open mode for car calls is controlled by the switch in the car. Two open modes are available: only the front door opens and only the rear door opens.
Mode 4	Independent control for hall calls and car calls	Hall call: The front door opens upon arrival for hall calls from the front door, and the rear door opens upon arrival for hall calls from the rear door. Car call: The front door opens upon arrival for car calls from the front door, and the rear door opens upon arrival for car calls from the rear door.

10.15.1 Through-type door control scheme 1 (recommended)

(1) Wiring

① CCB wiring

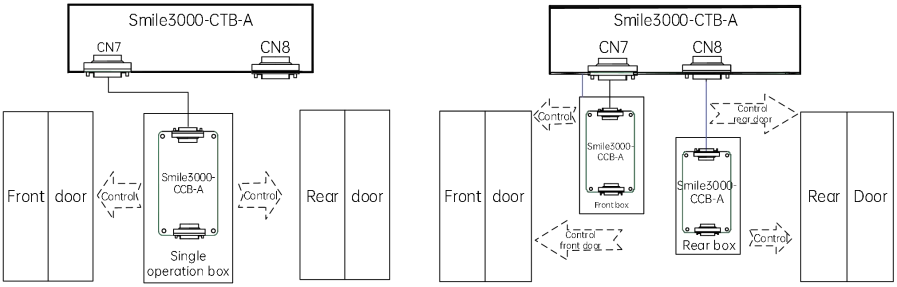


Fig. 10-17 Wiring of the car CCB

② Hall call setting

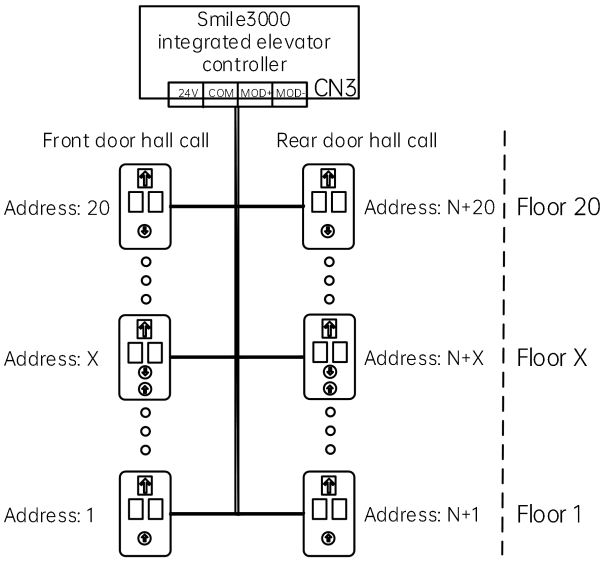


Fig. 10-18 Hall call setting 1

(2) Related parameters

Type	Door control mode	Parameter setting		Floor	Wiring of operation box CCB	Hall call address setting
		Mode selection	Other parameters			
Mode 1	Simultaneous control of the front and rear doors	P08-20=0	P08-00=2 P09-04=N (N>P11-06)	20	The CCB of the front door is connected to CN7 on the CTB. The CCB of the rear door is connected to CN8 on the CTB.	HCB addresses of the front door: (1 to 20); HCB addresses of the rear door: (N to N+20)
Mode 2	Independent control for door open/close for hall calls, and simultaneous control for car calls	P08-20=1	Same as mode 1	20		
Mode 3	Independent control for door open/close for hall calls, and manual control for	P08-20=2 P11-49 Bit4=1	Same as mode 1	20		

Type	Door control mode	Parameter setting		Floor	Wiring of operation box CCB	Hall call address setting
		Mode selection	Other parameters			
	car calls					
Mode 4	Independent control for hall calls and car calls	P08-20=3	Same as mode 1	20		
Notes: In mode 3, the car door open is controlled as follows. ① Control by button: Connect the button to JP16 on the CCB, and set P11-49 Bit2 to 1. When this button is steady ON, only the front door opens. When this button is steady OFF, only the rear door opens. ② Control by switch: Connect the switch to JP20 on the CCB, and set P11-49 Bit15 to 1. When JP20 is ON, only the front door opens. When JP20 is OFF, only the rear door opens.						

10.15.2 Through-type door control scheme 2

(1) Wiring

① CCB wiring

The wiring of CCB for modes 1, 2 and 3 is shown in the following figure.

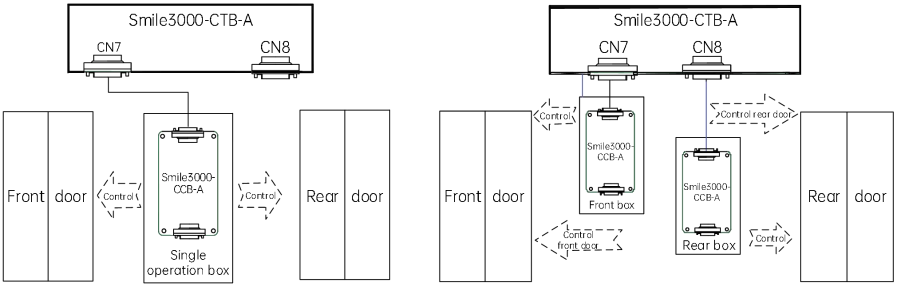


Fig. 10-19 Wiring of CCB for modes 1, 2 and 3

The wiring of CCB for mode 4 is shown in the following figure.

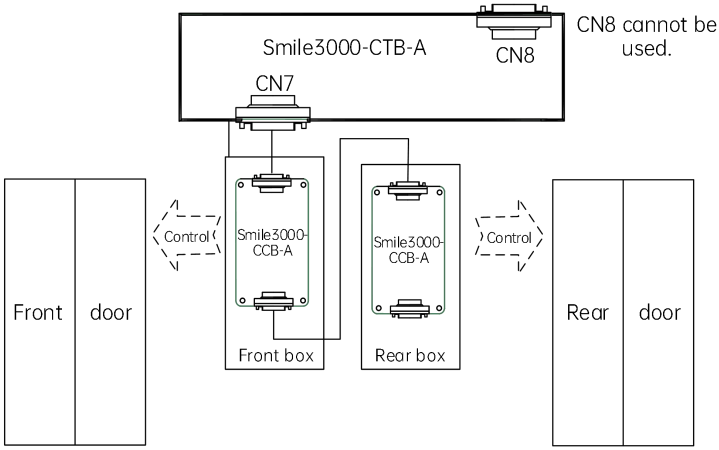


Fig. 10-20 Wiring of CCB for mode 4

② Hall call setting

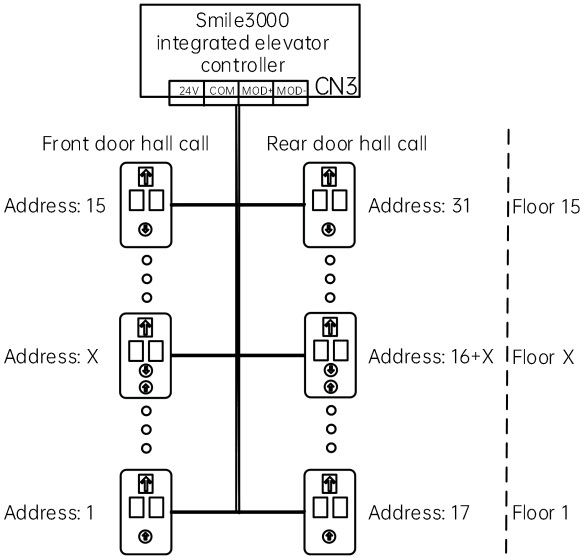


Fig. 10-21 Hall call setting of 15-floor through-type door

HCB addresses of the front door: 1 to 15

HCB addresses of the rear door (front door+16): 17 to 31

(2) Related parameters

<table>
<tr><th rowspan="2">Type</th><th rowspan="2">Door control mode</th><th colspan="2">Parameter setting</th><th rowspan="2">Floor</th><th rowspan="2">Wiring of operation box CCB</th><th rowspan="2">Hall call address setting</th></tr>
<tr><th>Mode selection</th><th>Other parameters</th></tr>
<tr><td>Mode 1</td><td>Simultaneous control of the front and rear doors</td><td>P08-20=0</td><td>P08-00=2
P12-10 Bit15=1</td><td>15</td><td rowspan="3">The CCB of the front door is connected to CN7 on the CTB.
The CCB of the rear door is connected to CN8 on the CTB.</td><td rowspan="4">HCB addresses of the front door: (1 to 15);
HCB addresses of the rear door: (17 to 31)</td></tr>
<tr><td>Mode 2</td><td>Independent control for door open/close for hall calls, and simultaneous control for car calls</td><td>P08-20=1</td><td>Same as mode 1</td><td>15</td></tr>
<tr><td>Mode 3</td><td>Independent control for door open/close for hall calls, and manual control for car calls</td><td>P08-20=2
P11-49 Bit4=1</td><td>Same as mode 1</td><td>15</td></tr>
<tr><td>Mode 4</td><td>Independent control for hall calls and car calls</td><td>P08-20=3</td><td>Same as mode 1</td><td>15</td><td>The CCB of the front door is connected to CN7 on the CTB.
The CCB of the rear door is connected in series to the CCB of the front door.</td></tr>
<tr><td colspan="7">Note: In mode 3, the car door open is controlled as follow.
• The control switch shall be connected to JP16 on the CCB. When JP16 is ON, only the front door opens. When JP16 is OFF, only the rear door opens.</td></tr>
</table>

10.16 Leveling accuracy adjustment

(1) Leveling adjustment

Parameter	Name	Range	Default
P11-00	Leveling adjustment	0 to 60	30

P11-00 is used to adjust the car landing position at all floors, which is 30 mm by default. The landing position at all floors will change after P11-00 is modified.

(2) Single-floor adjustment

Parameter	Name	Range	Default
P20-00	Leveling adjustment mode	0 to 1	0
P20-01	Leveling adjustment record 1	00000 to 60060	30030
P20-02	Leveling adjustment record 2		30030
...	...		30030
P20-24	Leveling adjustment record 24		30030

Note: The ones place and tens place show the leveling adjustment value of floor 1. The thousands place and tens thousands place show the leveling adjustment value of floor 2.

Leveling adjustment method

(1) Set P20-00 to 1 to enable the leveling adjustment function. In this case, the elevator does not respond to any hall calls, and automatically runs to the top floor. Then, the maintenance personnel go into the car for commissioning.

(2) Adjust the leveling position based on the actual deviation. Press the top floor button once, and the leveling position is changed 1 mm upward. Press the bottom floor button once, and the leveling position is changed 1 mm downward.

(3) After completing the adjustment, press the top floor button and bottom floor button in the car at the same time to save the adjustment result. Press the car call button for the next floor. Then, the elevator runs to the next floor for leveling adjustment.

(4) After the leveling adjustment of all floors is completed, set P20-00 to 0 to restore the elevator to normal running.

Notes for leveling adjustment

(1) When leveling adjustment is completed, check whether the records of P20-01 to P20-23 are updated. After leveling adjustment, if shaft auto-tuning is needed, select the shaft auto-tuning type with cautions.

(2) When P02-11 is set to 3, the elevator enters shaft auto-tuning state 1. In this state, the system will not clear the leveling adjustment parameters.

(3) When P02-11 is set to 4, the elevator enters shaft auto-tuning state 2. In this state, the system will clear the leveling adjustment parameters, and all records return to the default value 30.

(4) If the leveling position still cannot be reached after leveling adjustment, you can use shaft auto-tuning 2 to clear the leveling adjustment parameters, or manually modify the leveling records.

10.17 Shorting motor stator test function

(1) Common NC shorting motor stator contactor

Parameter	Name	Range
D01-33	Shorting motor stator test result	0: Meaningless 1: Passed

Parameter	Name	Range
		2: Failed
P06-05	X5 function selection	130: Synchronous motor shorting motor stator feedback NC input
P04-33	Rollback speed	0.1 m/s (unit: 0.001 m/s)
P04-34	Shorting motor stator rollback time	2 s (unit: 0.1 s)
P12-14	Enhanced parameter 4	Bit7: 0: Manual test 1: Automatic test (The automatic test time is based on the time of automatic braking force detection)
P8	Keypad	11 (enable automatic test function)

① Ensure that the elevator is in inspection state, and the door lock is valid.

② Set the keypad P8=11 to start the slip test of shorting motor stator.

③ The shorting motor stator contactor does not act, the brake is released, KAJ has outputs, and the elevator slips slowly. The keypad displays the rollback speed. When the shorting motor stator rollback time is reached and the brake is closed, if the feedback speed is larger than the rollback speed, the system reports the fault E7001.

④ If D01-33=1, it means the anti-rollback test of shorting motor stator is passed.

Automatic test: After the automatic braking force test is finished, the elevator automatically runs to the middle floor to perform the slip test of shorting motor stator. During the test, the registered hall calls are kept, but the car calls are canceled. The elevator doors can be opened or closed. The system starts the test after door close.

(2) Integrated shorting motor stator contactor

Parameter	Name	Range
D01-33	Shorting motor stator test result	0: Meaningless 1: Passed 2: Failed
P06-05	X5 function selection	62: Integrated shorting motor stator contactor online input

The integrated shorting motor stator contactor judges whether the contactor has the shorting motor stator function through the pulse signal. The detection starts upon the first power-on of the system. The E7002 fault is reported for a failed detection. Then, the detection is performed each one hour, and the E7002 fault is reported for two consecutive failed detection.

10.18 Door lock shorting detection

(1) Function codes related to door lock shorting detection

Parameter	Name	Value

Parameter	Name	Value
P06-25	X25 function selection	4: Safety circuit signal
P06-26	X26 function selection	7: Door lock 1 shorting
P06-27	X27 function selection	5: Door lock circuit signal
P06-28	X28 function selection	0: Invalid
P06-41	Y7 function selection	3: Shorting door lock circuit contactor output
P12-13	Enhanced parameter 3	Bit0=0: Enable door lock shorting detection Bit11=0: Door lock shorting detection using the old scheme by default
P11-49	Program control selection 1	Bit6-0: Disable manual doors

(2) Parameter settings related to UCMP safety circuit module

Parameter	Name	Value
P06-01	X1 function selection	01: Up leveling NO
P06-03	X3 function selection	02: Down leveling NO
P06-02	X2 function selection	03: Door zone NO
P06-08	X8 function selection	22: Shorting door lock circuit feedback NO
P06-39	Y5 function selection	03: Shorting door lock circuit contactor output
P06-25	X25 function selection	5: Door lock circuit 1
P06-26	X26 function selection	6: Door lock circuit 2
P06-27	X27 function selection	7: Door lock 1 shorting
P06-28	X28 function selection	8: Door lock 2 shorting
P08-00	Number of door operators	Single door: 1 Through-type door: 2

(3) Door lock shorting detection method

① Manually short the door lock circuit.

② Call the elevator, then the elevator runs to the next leveling position and the system reports the fault E53.

Fault description:

Fault code	Description	Fault cause	Solution
E53	Door lock fault	Subcode 1: The door lock feedback signal remains active when the shorting door lock circuit is already canceled 3 s after door open output.	① Check whether the door lock circuit is shorted. ② Check whether the door lock feedback setting is correct.
		Subcode 2: The states of the door lock multi-way feedback contacts are inconsistent, or the states of	

Fault code	Description	Fault cause	Solution
		door lock 1 and door lock 2 are inconsistent.	
		Subcode 5: Door lock 1 shorting signal is active upon shorting door lock circuit output 3 s after door open output.	
		Subcode 6: Door lock 2 shorting signal is active upon shorting door lock circuit output 3 s after door open output.	
		Subcode 4: The high-voltage and low-voltage door lock signals are inconsistent.	When the high-voltage and low-voltage door lock signals are detected at the same time, the time when the MCB receives the two signals has a deviation of above 1.5 s. This subcode can be reset at power-off and power-on again.
		Subcode 7: The door lock shorting input is selected but the feedback signal remains off or disconnected.	Check whether the signal cable of door lock shorting feedback is not connected or breaks.

(4) E53 fault reset

Remove the shorting wire of door lock, and manually reset the fault E53.

(5) Exception handling

During the door lock shorting detection at the leveling position, with the "door zone signal" already set, if you use the inspection switch to open the door, but no "door zone signal" is received, the elevator will not report the fault E53. In this case, you need to call the elevator to run to the next floor to report E53.

10.19 Single-Arm braking force detection

Parameter	Name	Value
P12-30	Program control selection 4	Bit1=1: Enable single-arm dual-brake detection

① When the elevator is in the inspection state and the door lock is active, set the keypad P8 to 8.

② The shorting motor stator and RUN contactors have output, and the brake contactor has no output. Activate brake 1 first, then activate brake 2. The action time of each brake is set in P12-25 (Braking torque detection time).

③ When E88 on the MCB disappears, the detection is over. If D01-32=1, the result is normal. If D01-32=2, E66 is reported (unqualified braking force) immediately. The elevator is stopped and the fault cannot be reset.

10.20 Electric brake release (MR and MRL)

The electric brake release operations differ when the system is powered or when it is encountered with a power failure (mainly for MRL elevators). Upon a power failure, the elevator without a machine room needs an ARD for electric brake release. In this case, an independent electric brake release device is not required.

Parameter	Name	Value
P06-10	X10 function selection	57: Electric brake release input

① Set the inspection switch to the inspection state.

② Press the "Electric Brake Release Ready Button", then the relay Y4 is closed, safety relay Y1 is closed, and the MCB displays "Electric Brake Release" to enter the brake release state.

③ Press "Brake Release", then the system will release the brake if relevant conditions (door lock active, non door zone, no system fault) are met through detection.

④ During rollback, the system detects the rollback speed in real time.

⑤ After the elevator stops at the leveling position, turn the "Emergency Electrical Switch KCI" to "Auto" state to automatically open the door.

⑥ If car slip is required at the leveling position, hold the "Ready Button" and "Brake Release Button", and then press the "Forced Brake Release Button".

10.21 Bypass of door lock

Parameter	Name	Value
P06-11	X11 function selection	154: Door lock bypass NC input

Test method:

① Turn the control cabinet to the EEO state, and remove the normal shorting switch of door bypass to enter the bypass state.

② Manually disconnect the hall door lock of certain floor, (open the hall door with the triangle key) and insert the shorting plug in the shorting plug-in position of the hall door lock.

③ During inspection running, the hall door lock circuit can be properly shorted.

④ Even the system is switched to the normal state, the bypass function is not switched to the normal state, and the system still can not work normally.

⑤ During bypass running, the buzzer tweeting function at car top still exists.

Appendix A Standard Compliance

A.1 European Conformity

Fig. A-1 CE mark

(1) The CE mark indicates compliance with European safety and environmental regulations. The European Norm includes the Machinery Directive for machinery manufacturers, the LVD for electronics manufacturers, and EMC Directive for electromagnetic interference control.

(2) The CE mark is required for engaging in commercial business (production, importation, and distribution) in Europe.

(3) This controller carries the CE mark and complies with the LVD and EMC directives.

(4) LVD: 2014/35/EU

(5) EMC Directive: 2014/30/EU

(6) Machines and devices integrating this controller must also be CE certified and marked.

(7) The integrator who integrates this controller into other products and attaches CE mark to the final assembly has the responsibility of ensuring compliance with CE standards and the European Norm.

A.2 LVD compliance

This controller has been tested according to EN61800-5-1, and it complies with the Low Voltage Directive.

To enable machines and devices integrating this controller to comply with the Low Voltage Directive, be sure to meet the following conditions.

A.2.1 Mounting location

Mount the controller in places with pollution not higher than severity 2 and overvoltage category 3 in accordance with IEC 60664.

A.2.2 Installing fuse on the input (primary) side

To prevent accidents caused by short circuit, install fuse on the input side and the fuse must comply with the UL standard.

For the input and output current of the controller, refer to "2.2 Technical data".

For the recommended fuse, refer to "4.2.1 Selection of cables, breakers and contactors".

A.2.3 Preventing entry of foreign objects

The controller must be installed inside a cabinet. The final system installing the controller must have covers providing fire, electrical, and mechanical protection, and satisfy the regional laws & regulations and related IEC requirements.

A.2.4 Grounding

If you use a 400 V controller, ground the neutral point of the power supply.

Smile3000 standard system wiring, which is compliant with the Low Voltage Directive, is described in the section 3.5.

A.3 EMC compliance

Electromagnetic compatibility (EMC) describes the ability of devices or systems to work properly in the electromagnetic environment and not to generate electromagnetic interference that influences other local devices or systems. In other words, EMC includes two aspects: the electromagnetic interference generated by a device or system must be restricted within a certain limit; the device or system must have sufficient immunity to the electromagnetic interference in the environment.

The controller complies with the EMC directives and standards EN12015:2014 and EN12016:2013 only when meeting the following requirements:

(1) An EMC filter is required at the input side of the controller and the cable at the output side must be shielded. The filter must be reliably grounded and the shield must be 360° grounded. For the selection of EMC filters, see "4.2 Selection guide of peripheral devices"

(2) The cable between the controller and the motor must be shielded. For cable selection and installation, see "A.4.1 Requirements on shielded cables".

(3) Install the controller and wire the cables as recommended. For details, see"A.4.2 System wiring".

(4) When the controller is installed in the elevator system, the integrator of the system is responsible for compliance of the system with the European EMC directives (2014/30/EU) and standards EN 12015:2014 and EN 12016:2013.

When the system integrated with the controller is used in other scenarios, the integrator of the system is responsible for compliance of the system with the European EMC directives (2014/30/EU) and standards EN 61800-3: 2004+A1:2012.

WARNING

When used in the first environment, the controller may cause radio interference. Besides the CE requirements mentioned in this chapter, users need to take other measures to avoid interference.

A.4 Requirements on cables and wiring

A.4.1 Requirements on shielded cables

(1) Shielded cables must be used to meet EMC requirements. Shielded cables include 3-conductor

shielded cables, and 4-conductor (recommended) shielded cables (one of which is a PE cable). If a 3-conductor shielded cable cannot meet your requirements, you can use an additional PE cable.

Recommended power cables:

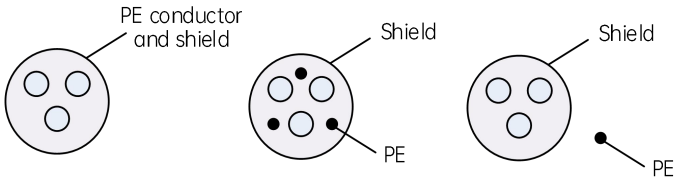


Fig. A-2 Cross section of recommended shielded cables

Not recommended power cables:

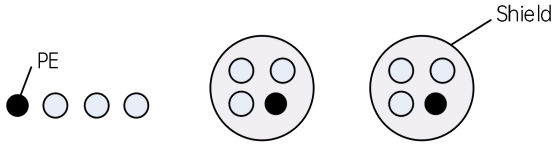


Fig. A-3 Cross section of not recommended shielded cables

(2) To suppress emission frequency interference, the shield of the shielded cable should be coaxial cooper braided. The weaving density of the copper braid should be greater than 90% to enhance the shielding efficiency and conductivity. See the following figure.

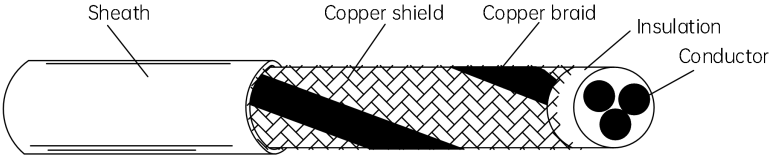


Fig. A-4 Weaving density of the cable shield

(3) The grounding area of the shielded cable must be as large as possible. Fasten the shield to the metal plate with the metal cable clamp, as shown in the following figure.

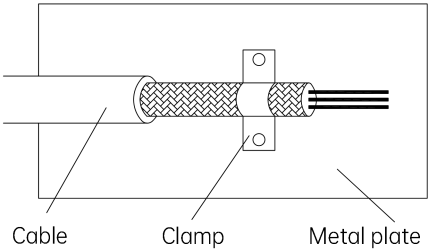
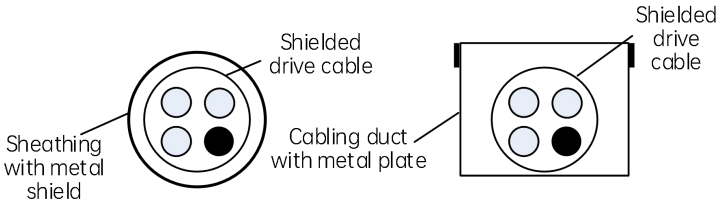


Fig. A-5 Fixing the shield with a clamp

A.4.2 System wiring

(1) The motor cables must be laid away from other cables. The recommended distance is larger than 0.5 m. The motor cables of several controllers can be laid in parallel.

(2) It is recommended that the motor cables be protected in the sheathing with metal shield or cabling duct with metal plate. Both sides of the sheathing and cabling duct must be grounded reliably.



(3) The motor cables and other cables cannot be laid in parallel for a long distance to prevent the electromagnetic interference caused by the rapid change of the controller's output voltage. It is recommended that the motor cables, power input cables, and control cables be laid in different cable trays. Cable trays must be in good connection and well grounded.

(4) If the control cable must run across the power cable, make sure the angle between them is close to 90 degrees. Other cables cannot run across the controller.

(5) Power input and output cables and weak-current signal cables (such as control cables) of the controller must, if possible, be laid vertically rather than in parallel.

(6) Cable trays must be in good connection and well grounded. Aluminum cable trays can be used to improve equal potential.

(7) The controller must be properly connected to the control cabinet, with spraying protection applied at the installation part and the conductive metal kept in full contact.

(8) The motor must be properly connected to systems (machines or devices), with spraying protection applied at the installation part and the conductive metal kept in full contact.

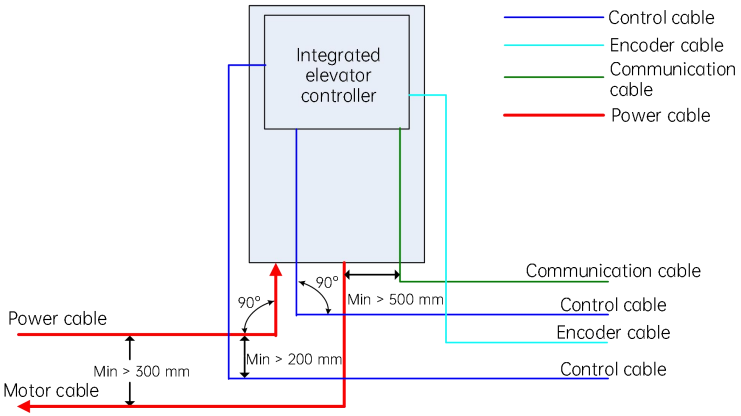


Fig. A-6 Requirements on system wiring

A.5 Leakage current suppression

Without a built-in EMI filter, the leakage current of each controller is more than 100 mA. Therefore, the sensitivity current of the RCD should be above 200 mA.

With a built-in EMI filter, the leakage current of each controller is less than 100 mA. Therefore, the sensitivity current of the RCD should be above 100 mA.

The controller can generate DC leakage current in a protective conductor. Therefore, use a time-delay type-B RCD.

If multiple controllers are used, each controller must be equipped with an RCD.

(1) The following can affect the leakage current:

① Controller capacity

② Carrier frequency

③ Types and length of motor cable

④ EMI filter

(2) Take the following measures when the RCD is tripped by the leakage current generated by the controller:

① Increase the sensitivity current of the RCD

② Replace the RCD with a time-delay type-B one with high-frequency suppression

③ Reduce the carrier frequency

④ Shorten the length of the output cable

⑤ Install a current leakage suppression device

⑥ Choose big brands such as Chint and Schneider

A.6 RCD requirements

The controller generates high leakage current during running, which flows through the protective grounding conductor. Install a type-B RCD at the primary side of the power supply. When selecting the RCD, you should consider the transient and steady-state leakage current to ground that may be generated at startup and during running of the controller. You can select a specialized RCD with the function of suppressing high harmonics or a general-purpose 300 mA RCD (2 to 4 times of the flowing current).

A.7 Solutions to common EMC problems

The controller generates strong interference. Although EMC measures are taken, interference may still exist due to improper wiring or grounding during use. When the controller interferes with other devices, adopt the following solutions.

Table A-1 Common EMC interference problems and solutions

Interference type	Solution
RCD tripping	① Reduce the carrier frequency. ② Shorten the length of the controller cables. ③ Install a magnetic ring around the power supply input cable (except the PE cable). ④ For tripping at the moment of power-on, cut off the large capacitor to ground on the power input side (by disconnecting the grounding terminal of the built-in or external filter, and disconnecting the grounding terminal of Y capacitor to ground of the input ports). ⑤ For tripping during running or when the controller is enabled, take leakage current suppression measures on the input side (install a filter, install a safety capacitor + wind a magnetic ring, or wind a magnetic ring)
Interference generated during running	① Connect the motor housing to the PE terminal of the controller. ② Connect the PE terminal of the controller to the PE terminal of the mains power supply. ③ Wind the power input cable with magnetic rings. ④ Add a safety capacity or magnetic ring to the interfered signal terminal. ⑤ Add an extra common ground.
Communication interference	① Connect the motor housing to the PE of the controller. ② Connect the PE of the controller to the PE of the power grid. ③ Wind the power input cable with magnetic rings. ④ Add a termination resistor between the communication cable source and the load side ⑤ Add a common grounding cable besides the communication differential cable. ⑥ Adopt shielded communication cables, and connect the cable shield to the

Interference type	Solution
	common ground of communication. ⑦ Adopt daisy chain wiring mode for multi-node communication, with branch length less than 30 cm.
I/O interference	① Enlarge the capacitance filter of low-speed DI terminals. The recommended maximum value is 0.1 uF. ② Enlarge the capacitance filter of AI terminals. The recommended maximum value is 0.22 uF.

Appendix B List of Parameters

B.1 Symbol definition

"○": The parameter can be modified when the controller is in either stop or running state.

"×": The parameter cannot be modified when the controller is in the running state.

"*": The parameter is the measured value and cannot be modified.

B.2 Parameter list

B.2.1 Quick running parameters

Parameter	Name	Range	Default	Unit	Property
A00: Motor and encoder parameters					
A00-00	Control mode	0: SVC 1: FVC 2: V/F 3: I/F	1	-	×
A00-01	Rated motor power	0.7 to 75.0	0	kw	×
A00-02	Rated motor voltage	0 to 600	0	V	×
A00-03	Rated motor current	0.00 to 655.00	0	A	×
A00-04	Rated motor frequency	0.00 to P00-06	0	Hz	×
A00-05	Rated motor speed	0 to 3000	0	rpm	×
A00-06	Wiring mode	0 to 1	0	-	×
A00-07	Encoder type selection	0: Sin/Cos 1: UVW 2: ABZ 3: Reserved	0	-	×
A00-08	Encoder pulses per revolution	0 to 10000	0	-	×
A00-09	Elevator running direction	0: Running direction unchanged 1: Running direction reversed	0	-	×
A00-10	Auto-tuning selection	0: No operation 1: Rotary with-load auto-tuning 2: Rotary no-load auto-tuning 3: Shaft auto-tuning 1 4: Shaft auto-tuning 2 5: Synchronous motor static auto-tuning	0	-	×

Parameter	Name	Range	Default	Unit	Property
A00-11	Current encoder angle	Real-time encoder angle	-	-	×
A01: Basic elevator parameters					
A01-00	Rated elevator speed	0.250 to 4.000	1.600	m/s	×
A01-01	Maximum running speed of elevator	0.250 to P00-04	1.600	m/s	×
A01-02	Inspection speed	0.100 to 0.630	1	m/s	×
A01-03	Top floor of elevator	1 to 48	9	-	×
A01-04	Bottom floor of elevator	1 to 48	1	-	×
A01-05	Parking floor	P11-07 to P11-06	1	-	×
A01-06	Elevator lock floor	P11-07 to P11-06	1	-	×
A01-07	Fire emergency floor	P11-07 to P11-06	1	-	×
A01-08	Service floor 1	Corresponds to floors 1 to 16. 0: No respond 1: Respond	65535	-	×
A01-09	Service floor 2	Corresponds to floors 17 to 32. 0: No respond 1: Respond	65535	-	×
A01-10	Service floor 3	Corresponds to floors 33 to 40. 0: No respond 1: Respond	65535	-	×
A01-11	Service floor 1 of door operator 1	0 to 65535	65535	-	×
A01-12	Service floor 2 of door operator 1	0 to 65535	65535	-	×
A01-13	Service floor 3 of door operator 1	0 to 65535	65535	-	×
A01-14	Service floor 1 of door operator 2	0 to 65535	65535	-	×
A01-15	Service floor 2 of door operator 2	0 to 65535	65535	-	×
A01-16	Service floor 3 of door operator 2	0 to 65535	65535	-	×
A02: Door open and close parameters					
A02-00	Door open holding time for hall call	1 to 1000	5	s	×
A02-01	Door open holding time for car call	1 to 1000	3	s	×
A02-02	Duration of door open holding delay	10 to 1000	30	s	×

Parameter	Name	Range	Default	Unit	Property
A02-03	Through-type door control selection	0: Simultaneous control for door open/close 1: Independent control for door open/close for hall calls, and simultaneous control for car calls 2: Independent control for door open/close for hall calls, and manual control for car calls 3: Independent control for hall calls and car calls	0	-	×
A03: Floor display parameters					
A03-00	Reserved	0 to 9999	-	-	×
A03-01	Floor 1 display	The two high bits indicate the display code of tens place of the floor number, and the two low bits indicate the display code of ones place. 00: Display "0" 01: Display "1" 02: Display "2" 03: Display "3" 04: Display "4" 05: Display "5" 06: Display "6" 07: Display "7" 08: Display "8" 09: Display "9" 10: Display "A" 11: Display "B" 12: Display "G" 13: Display "H" 14: Display "L" 15: Display "M" 16: Display "P" 17: Display "R" 18: Display "-" 19: No display 20: Display "12" 21: Display "13" 22: Display "23"	1901	-	×
A03-02	Floor 2 display		1902	-	×
A03-03	Floor 3 display		1903	-	×
A03-04	Floor 4 display		1904	-	×
A03-05	Floor 5 display		1905	-	×
A03-06	Floor 6 display		1906	-	×
A03-07	Floor 7 display		1907	-	×
A03-08	Floor 8 display		1908	-	×
A03-09	Floor 9 display		1909	-	×
A03-10	Floor 10 display		100	-	×
A03-11	Floor 11 display		101	-	×
A03-12	Floor 12 display		102	-	×
A03-13	Floor 13 display		103	-	×
A03-14	Floor 14 display		104	-	×
A03-15	Floor 15 display		105	-	×
A03-16	Floor 16 display		106	-	×
A03-17	Floor 17 display		107	-	×
A03-18	Floor 18 display		108	-	×
A03-19	Floor 19 display		109	-	×
A03-20	Floor 20 display		200	-	×
A03-21	Floor 21 display		201	-	×
A03-22	Floor 22 display		202	-	×
A03-23	Floor 23 display		203	-	×
A03-24	Floor 24 display		204	-	×
A03-25	Floor 25 display		205	-	×
A03-26	Floor 26 display		206	-	×
A03-27	Floor 27 display		207	-	×

Parameter	Name	Range	Default	Unit	Property
A03-28	Floor 28 display	>22: No display	208	-	×
A03-29	Floor 29 display		209	-	×
A03-30	Floor 30 display		300	-	×
A03-31	Floor 31 display		301	-	×
A03-32	Floor 32 display		302	-	×
A03-33	Floor 33 display		303	-	×
A03-34	Floor 34 display		304	-	×
A03-35	Floor 35 display		305	-	×
A03-36	Floor 36 display		306	-	×
A03-37	Floor 37 display		307	-	×
A03-38	Floor 38 display		308	-	×
A03-39	Floor 39 display		309	-	×
A03-40	Floor 40 display		400	-	×
A03-41	Floor 41 display		0	-	×
A03-42	Floor 42 display		0	-	×
A03-43	Floor 43 display		0	-	×
A03-44	Floor 44 display		0	-	×
A03-45	Floor 45 display		0	-	×
A03-46	Floor 46 display		0	-	×
A03-47	Floor 47 display		0	-	×
A03-48	Floor 48 display		0	-	×
A04: Shaft auto-tuning parameters					
A04-00	Shaft auto-tuning speed	0.100 to 0.630	0.250	m/s	×
A04-01	Auto-tuning selection	0: No operation 1: Rotary with-load auto-tuning 2: Rotary no-load auto-tuning 3: Shaft auto-tuning 1 4: Shaft auto-tuning 2 5: Synchronous motor static auto-tuning	0	-	×

B.2.2 Function parameters

Parameter	Name	Range	Default	Unit	Property
P00: Basic parameters					
P00-00	Control mode	0: SVC 1: FVC 2: V/F	1	-	×

Parameter	Name	Range	Default	Unit	Property
		3: I/F			
P00-01	Command source selection	0: Operating panel control 1: Distance control	1	-	×
P00-02	Running speed under operating panel control	0.050 to P00-04	0.050	m/s	○
P00-03	Maximum running speed of elevator	0.250 to P00-04	1.600	m/s	×
P00-04	Rated elevator speed	0.250 to 4.000	1.600	m/s	×
P00-05	Rated load	300 to 9999	1000	kg	×
P00-06	Maximum frequency	P02-04 to 99.00	50.00	Hz	×
P00-07	Elevator running direction	0: Direction unchanged 1: Direction reversed	0	-	×
P00-08	Carrier frequency	0.5 to 16.0 kHz	6.0	kHz	×
P01: User parameters					
P01-00	Level 1 password	0 to 65535 0: No password	0	-	○
P01-01	Parameter update	0: Not available 1: Restoring default parameters 2: Clearing records 3: Clearing shaft data	0	-	×
P01-02	Check on user-defined parameters	0: Inactive 1: Active	0	-	×
P01-03	Level 2 password	0 to 65535	0	-	×
P01-04	Level 3 password	0 to 65535	0	-	×
P01-05 to P01-10	Reserved				
P02: Motor parameters					
P02-00	Motor type	0: Asynchronous motor 1: Synchronous motor	1	-	×
P02-01	Rated motor power	0.7 to 75.0	11.0	kW	×
P02-02	Rated motor voltage	0 to 600	380	V	×
P02-03	Rated motor current	0.00 to 655.00	21.8	A	×
P02-04	Rated motor frequency	0.00 to P00-06	50.00	Hz	×
P02-05	Rated motor speed	0 to 3000	1460	rpm	×
P02-06	Wiring mode	Synchronous motor	0	-	×
P02-07	DSP fault block	0 to 65535	0	-	×
P02-08	Encoder type selection	0: Sin/Cos encoder	0	-	×

Parameter	Name	Range	Default	Unit	Property
		1: UVW encoder 2: ABZ encoder 3: Reserved			
P02-09	Encoder pulses per revolution	0 to 10000	2048	PPR	×
P02-10	Encoder disconnection detection time	0 to 10.0 (When the value is smaller than 0.5 s, this function is disabled.)	2.1	s	×
P02-11	Auto-tuning selection	0: No operation 1: Rotary with-load auto-tuning 2: Rotary no-load auto-tuning 3: Shaft auto-tuning 1 4: Shaft auto-tuning 2 5: Synchronous motor static auto-tuning	0	-	×
P02-12	Encoder installation angle	0.0 to 359.9	0	°	×
P02-13	Stator resistance	0.000 to 30.000	0.400	Ω	×
P02-14	Rotor resistance	0.000 to 30.000	0.001	Ω	×
P02-15	Leakage inductance	0.00 to 300.00	0.01	mH	×
P02-16	Mutual inductance	0.1 to 3000.0	0.1	mH	×
P02-17	No-load current	0.01 to 300.00	0.01	A	×
P02-18	Q-axis inductance	0.00 to 650.00	3.00	mH	×
P02-19	D-axis inductance	0.00 to 650.00	3.00	mH	×
P02-20	Back EMF coefficient	0 to 65535	0	-	×
P02-21 to P02-23	Reserved				
P03: Speed control parameters					
P03-00	Re-leveling speed	0.020 to 0.080	0.040	m/s	×
P03-01	Inspection speed	0.100 to 0.630	0.250	m/s	×
P03-02	Low-speed re-leveling speed	0.080 to P03-01	0.100	m/s	×
P03-03	Emergency evacuation speed at power failure	0.020 to 0.300	0.050	m/s	×
P03-04	Emergency evacuation switching speed	0.010 to 0.630	0.010	m/s	×
P03-05	Elevator speed in the EEO state	0.100 to 0.300	0.250	m/s	×

Parameter	Name	Range	Default	Unit	Property
P03-06	Shaft auto-tuning speed	0.100 to 0.630	0.250	m/s	×
P04: Vector control parameters					
P04-00	Speed loop proportional gain 1	0 to 100	15	-	×
P04-01	Speed loop integral time 1	0.01 to 10.00	0.80	s	×
P04-02	Switchover frequency 1	0.00 to P04-05	2.00	Hz	×
P04-03	Speed loop proportional gain 2	0 to 100	20	-	×
P04-04	Speed loop integral time 2	0.01 to 10.00	0.80	s	×
P04-05	Switchover frequency 2	P04-02 to P00-06	9.00	Hz	×
P04-06	Current loop proportional gain	10 to 500	100	-	×
P04-07	Current loop integral gain	10 to 500	100	-	×
P04-08	Torque upper limit	0.0 to 200.0	200.0	%	×
P04-09	Zero servo gain coefficient	2.0 to 50.0	5.0	%	×
P04-10	Zero servo speed loop KP	0.01 to 2.00	0.40	-	×
P04-11	Zero servo speed loop KI	0.01 to 2.00	1.00	-	×
P04-12	Reserved				
P04-13	Reserved				
P04-14	Torque acceleration time	1 to 500	1	ms	×
P04-15	Torque deceleration time	1 to 3000	350	ms	×
P04-16	Startup acceleration time	0.000 to 1.500	0.000	s	×
P04-17	Speed filter coefficient	0.00 to 20.00	0.20	ms	×
P04-18	Function setting	0 to 65535	0	-	○
P04-19	Obtained pulse width	0 to 100	8	-	×
P04-20 to P04-23	Reserved				
P04-24	Number of motor pole pairs	0 to 100	8	-	×
P04-25	IF current limit	0 to 200	30	%	○
P04-26	Current upper threshold	0 to 200	100	%	×
P04-27	Current lower threshold	0 to 200	60	%	×
P04-28	Reserved				
P04-29	Encoder AB direction	0 to 1	0	-	×
P04-30	Encoder CD direction	0 to 1	0	-	×

Parameter	Name	Range	Default	Unit	Property
P04-31	IF function selection	0 to 1	0	-	×
P04-32	IF DC set angle	0.0 to 360.0	0.0	-	○
P04-33	Detection speed for shorting motor stator rollback fault	0.050 to P00-04	0.300	m/s	○
P04-34	Detection time for shorting motor stator rollback fault	0.0 to 20.0	4.0	s	○
P05: Running control parameters					
P05-00	Startup speed	0.000 to 0.050	0.000	m/s	×
P05-01	Startup speed holding time	0.000 to 5.000	0.000	s	×
P05-02	Acceleration rate	0.200 to 1.500	0.700	m/s^2	×
P05-03	Acceleration start segment	0.300 to 4.000	1.500	s	×
P05-04	Acceleration end segment	0.300 to 4.000	1.500	s	×
P05-05	Deceleration rate	0.200 to 1.500	0.700	m/s^2	×
P05-06	Deceleration end segment	0.300 to 4.000	1.500	s	×
P05-07	Deceleration start segment	0.300 to 4.000	1.500	s	×
P05-08	Special deceleration rate	0.500 to 1.500	0.900	m/s^2	×
P05-09	Pre-deceleration distance	0 to 90.0	0.0	mm	×
P05-10	Position of up slow-down switch 1	0.00 to 300.00	0.00	m	×
P05-11	Position of down slow-down switch 1	0.00 to 300.00	0.00	m	×
P05-12	Position of up slow-down switch 2	0.00 to 300.00	0.00	m	×
P05-13	Position of down slow-down switch 2	0.00 to 300.00	0.00	m	×
P05-14	Position of up slow-down switch 3	0.00 to 300.00	0.00	m	×
P05-15	Position of down slow-down switch 3	0.00 to 300.00	0.00	m	×
P05-16	Zero-speed current output time	0.200 to 1.000	0.200	s	×
P05-17	Holding time of	0.000 to 2.000	0.600	s	×

Parameter	Name	Range	Default	Unit	Property
	zero-speed torque current upon brake release				
P05-18	Zero-speed control time at end	0.000 to 0.500	0.300	s	×
P05-19	Acceleration rate at emergency evacuation	0.100 to 1.300	0.300	m/s^2	×
P05-20	Deceleration delay time upon hitting slow-down switch	0.00 to 10.00	0	s	×
P05-21	Slip test	0 to 2	0	-	×
P06: MCB terminal parameters					
P06-00	Reserved				
P06-01	X1 function selection	00 to 199 (NO: 0 to 99) (NC=NO+100) 00: Inactive 01: Up leveling input 02: Down leveling input 03: Door zone input 04: Safety circuit feedback input 05: Door lock circuit feedback input 06: RUN contactor output feedback input 07: Brake output feedback input 08: Inspection signal input 09: Inspection up signal input 10: Inspection down signal input 11: Fire emergency signal input 12: Up limit signal input 13: Down limit signal input 14: Overload NO input 15: Full-load NO input 16: Up slow-down 1 input 17: Down slow-down 1 input 18: Up slow-down 2 input 19: Down slow-down 2 input 20: Up slow-down 3 input 21: Down slow-down 3 input	1	-	×
P06-02	X2 function selection		3	-	×
P06-03	X3 function selection		2	-	×
P06-04	X4 function selection		22	-	×
P06-05	X5 function selection		130	-	×
P06-06	X6 function selection		106	-	×
P06-07	X7 function selection		107	-	×
P06-08	X8 function selection		132	-	×
P06-09	X9 function selection		50	-	×
P06-10	X10 function selection		57	-	×
P06-11	X11 function selection		154	-	×
P06-12	X12 function selection		152	-	×
P06-13	X13 function selection		9	-	×
P06-14	X14 function selection		10	-	×
P06-15	X15 function selection		116	-	×
P06-16	X16 function selection		118	-	×
P06-17	X17 function selection		117	-	×
P06-18	X18 function selection		119	-	×
P06-19	X19 function selection		126	-	×
P06-20	X20 function selection		146	-	×
P06-21	X21 function selection		147	-	×
P06-22	X22 function selection		58	-	×
P06-23	X23 function selection		27	-	×
P06-24	X24 function selection		0	-	×

Parameter	Name	Range	Default	Unit	Property
		22: Shorting door lock circuit output feedback input 23: Firefighter running input 24: Door operator 1 light curtain input 25: Door operator 2 light curtain input 26: Brake travel switch 1 feedback input 27: UPS 28: Elevator lock NO input 29: Safety circuit input 2 30: Synchronous motor shorting motor stator feedback input 31: Door lock circuit 2 feedback input 32: Brake 2 output feedback input 33: Door operator 1 safety edge input 34: Door operator 2 safety edge input 35: Reserved 36: Earthquake signal input 37: Rear door forbidden input 38: Light-load input 39: Half-load input 40: Fire emergency floor switchover input 41: Dummy floor input 42: Motor overheat input 43: ARD fault input 44: Door 1 open input 45: Door 2 open input 46: Brake travel switch 2 feedback input 47: External fault input 48: Terminal floor signal input 49: Door lock 1 shorting input 50: Door lock 2 shorting input 51: Reserved 52: EEO input			

Parameter	Name	Range	Default	Unit	Property
		53: Reserved 54: Door lock bypass input 55: Reserved 56: Rope gripper feedback input 57: Electric brake release input 58: Forced electric brake release input 59: Reserved 60: KAM feedback input 61: Maintenance switch input 62: Integrated shorting motor stator contactor online input			
P06-25	X25 function selection	0: Inactive 1 to 3: Reserved 4: Safety circuit signal 5: Door lock circuit signal 6: Door lock circuit signal 2 7: Door lock 1 shorting detection 8: Door lock 2 shorting detection	4	-	×
P06-26	X26 function selection		7	-	×
P06-27	X27 function selection		8	-	×
P06-28	X28 function selection		5	-	×
P06-29	X29 function selection	Same as X1 to X24	0	-	×
P06-30	X30 function selection		0	-	×
P06-31	X31 function selection		114	-	×
P06-32	X32 function selection		0	-	×
P06-33	X33 function selection		11	-	×
P06-34	X34 function selection		36	-	×
P06-35	Y1 function selection	0 to 31 0: Inactive 1: RUN contactor output 2: Brake contactor output 3: Shorting door lock circuit contactor output 4: Fire emergency floor arrival signal 5: Door operator 1 open 6: Door operator 1 close 7: Door operator 2 open 8: Door operator 2 close 9: Brake and RUN contactors normal (E36 and E37 indicate that brake and RUN contactors are abnormal) 10: Fault state (output upon level 3,	12	-	×
P06-36	Y2 function selection		1	-	×
P06-37	Y3 function selection		2	-	×
P06-38	Y4 function selection		24	-	×
P06-39	Y5 function selection		28	-	×
P06-40	Y6 function selection		27	-	×
P06-41	Y7 function selection		3	-	×
P06-42	Y8 function selection		4	-	×
P06-43	Y9 function selection		0	-	×
P06-44	Y10 function selection		23	-	×

Parameter	Name	Range	Default	Unit	Property
		level 4 or level 5 fault state） 11: Running state output 12: Synchronous motor shorting motor stator contactor output 13: Emergency evacuation automatic switchover 14: Controller normal 15: Emergency buzzer output 16: High-voltage startup of brake (output kept for 4 s to release the brake) 17: Elevator up signal 18: Lighting/Fan output 19: Medical sterilization output 20: Non-door zone stop 21: Electromagnetic lock control output 22: Non-service state output 23: Emergency evacuation completed output 24: Brake contactor 2 output 25: Rope gripper reset 26: Destination floor arrival output 27: Electric brake release output 28: KAM output 29: Overspeed governor test output 30: Overspeed governor reset output			
P07: CTB terminal parameters					
P07-00	Reserved				
P07-01	CTB input X1	(NC: NO+100) 0: Inactive 1: Light curtain 1 2: Light curtain 2 3: Door open limit 1 4: Door open limit 2 5: Door close limit 1 6: Door close limit 2 7: Full-load input	103	-	×
P07-02	CTB input X2		105	-	×
P07-03	CTB input X3		112	-	×
P07-04	CTB input X4		101	-	×
P07-05	CTB input X5		117	-	×
P07-06	CTB input X6		104	-	×
P07-07	CTB input X7		106	-	×
P07-08	CTB input X8		116	-	×
P07-09	CTB input X9		102	-	×

Parameter	Name	Range	Default	Unit	Property
P07-10	CTB input X10	8: Overload input 9: Light-load input 10: Up leveling 11: Down leveling 12: Front door operator overheat 13: Inspection 14: Inspection up 15: Inspection down 16: Rear door operator overheat 17: Front door safety edge 18: Rear door safety edge 19: Motor overheat protection 20: Up slow-down 1 NO input 21: Down slow-down 1 NO input 22: Up slow-down 2 NO input 23: Down slow-down 2 NO input	118	-	×
P07-11	CTB input X11		119	-	×
P07-12	CTB input X12		113	-	×
P07-13	CTB input X13		14	-	×
P07-14	CTB input X14		15	-	×
P07-15	CTB input X15		120	-	×
P07-16	CTB input X16		121	-	×
P07-17	CTB input X17		122	-	×
P07-18	CTB input X18		123	-	×
P07-19	CTB input X19		10	-	×
P07-20	CTB input X20		11	-	×
P07-21	CTB input X21		108	-	×
P07-22	CTB input X22		9	-	×
P07-23	CTB input X23		0	-	×
P07-24	CTB input X24		0	-	×
P07-25	CTB output Y1	0 to 31 0: Reserved 1: Door 1 open 2: Door 1 close 3: Forced door 1 close 4: Door 2 open 5: Door 2 close 6: Forced door 2 close 7: Up arrival gong 8: Down arrival gong 9: Arrival gong 10: Fault 11: Sound and light alarm 14: Forced output 15: Fan 16: Lighting 17: Running allowed 18: Elevator non-overspeed output (output stopped if the elevator overspeeds) 19: Auto-dial output (output when the elevator remains stopped outside the door zone for over 60 seconds in non-inspection mode)	1	-	×
P07-26	CTB output Y2		2	-	×
P07-27	CTB output Y3		3	-	×
P07-28	CTB output Y4		4	-	×
P07-29	CTB output Y5		5	-	×
P07-30	CTB output Y6		6	-	×
P07-31	CTB output Y7		7	-	×
P07-32	CTB output Y8		8	-	×
P07-33	CTB output Y9		11	-	×
P07-34	CTB output Y10		16	-	×
P07-35	CTB output Y11		15	-	×
P07-36	CTB output Y12		0	-	×
P07-37	CTB output Y13		0	-	×
P07-38	CTB output Y14		0	-	×
P07-39	CTB output Y15		0	-	×
P07-40	CTB output Y16		0	-	×

Parameter	Name	Range	Default	Unit	Property
P08: Door operator parameters					
P08-00	Number of door operators	1 to 2	1	-	×
P08-01	Service floor 1 of door operator 1	0 to 65535	65535	-	○
P08-02	Service floor 2 of door operator 1	0 to 65535	65535	-	○
P08-03	Service floor 3 of door operator 1	0 to 65535	65535	-	○
P08-04	Service floor 1 of door operator 2	0 to 65535	65535	-	○
P08-05	Service floor 2 of door operator 2	0 to 65535	65535	-	○
P08-06	Service floor 3 of door operator 2	0 to 65535	65535	-	○
P08-07	Door open protection time	5 to 99	10	s	○
P08-08	Door close protection time	5 to 99	15	s	○
P08-09	Door open/close times	0 to 20	0	-	○
P08-10	Door state of standby elevator	0: Normal door close at main floor 1: Waiting with door open at main floor 2: Waiting with door open at each floor	0	-	○
P08-11	Door open holding time for hall call	1 to 1000	5	s	○
P08-12	Door open holding time for car call	1 to 1000	3	s	○
P08-13	Door open holding time at main floor	1 to 1000	10	s	○
P08-14	Duration of door open holding delay	10 to 1000	30	s	○
P08-15	Special door open holding time	10 to 1000	30	s	○
P08-16	Manually operated door open limit delay	1 to 60	5	s	○
P08-17	Waiting time for forced door close	5 to 180	120	s	○

Parameter	Name	Range	Default	Unit	Property
P08-18	Manually operated door lock waiting time	0 to 60	0	-	○
P08-19	Arrival gong output delay	0 to 1000	0	ms	○
P08-20	Through-type door control selection	0: Simultaneous control for door open/close 1: Independent control for door open/close for hall calls, and simultaneous control for car calls 2: Independent control for door open/close for hall calls, and manual control for car calls 3: Independent control for hall calls and car calls	0	-	×
P09: Hall call parameters					
P09-00	HCB-JP1 input	0 to 63	1	-	×
P09-01	HCB-JP2 input	0: Reserved 1: Elevator lock signal 2: Fire emergency signal 3: Current floor forbidden 4: VIP signal 5: Security signal 6: Door close button input 7: Fire emergency floor 2 signal input	2	-	×
P09-02	HCB-JP1 output	0 to 15	1	-	×
P09-03	HCB-JP2 output	0: Reserved 1: Up arrival indicator 2: Down arrival indicator 3: Fault signal 4: Non-door zone stop 5: Non-service state output 6: Door close button output	2	-	×
P09-04	Start address of hall call auxiliary command	0 to 40	0	-	×
P09-05	Hall call protocol selection	0 to 65535	0	-	○
P09-06	Hall call parameter setting	0 to 65535	0	-	○
P09-07	Hall call address	0 to 65535	0	-	○

Parameter	Name	Range	Default	Unit	Property
	verification				
P10: Load cell parameters					
P10-00	Load cell input selection	0: Inactive 1: Car call digital input 2: Car call analog input 3: MCB analog input 4: MCB digital input	1	-	×
P10-01	Car load ratio during load cell auto-tuning	0 to 100	0	%	×
P10-02	Current car load	0 to 255	0	-	*
P10-03	No-load measured by load cell	0 to 255	0	-	×
P10-04	Full-load measured by load cell	0 to 255	100	-	×
P10-05	Anti-nuisance function	Bit0: Nuisance judged by load cell Bit1: Nuisance judged by light curtain Bit2: Nuisance judged by light-load signal	0	-	○
P11: Basic elevator parameters					
P11-00	Leveling adjustment	0 to 60	30	mm	×
P11-01	Current floor	P11-07 to P11-06	1	-	×
P11-02	High bits of current floor position	0 to 65535	0	-	×
P11-03	Low bits of current floor position	0 to 65535	0	-	×
P11-04	Leveling plate length 1	0 to 65535	0	-	×
P11-05	Leveling plate length 2	0 to 65535	0	-	×
P11-06	Top floor of elevator	P11-07 to 48	9	-	×
P11-07	Bottom floor of elevator	1 to P11-06	1	-	×
P11-08	Parking floor	P11-07 to P11-06	1	-	×
P11-09	Fire emergency floor	P11-07 to P11-06	1	-	×
P11-10	Fire emergency floor 2	0 to P11-06	0	-	×
P11-11	Elevator lock floor	P11-07 to P11-06	1	-	×
P11-12	VIP floor	0 to P11-06	0	-	×
P11-13	Emergency evacuation parking floor	0 to P11-06	0	-	×
P11-14	Security floor	0 to P11-06	0	-	×
P11-15	Service floor 1	0 to 65535	65535	-	×

Parameter	Name	Range	Default	Unit	Property
		(Floors 1 to 16) 0: No respond 1: Respond			
P11-16	Service floor 2	0 to 65535 (Floors 17 to 32) 0: No respond 1: Respond	65535	-	×
P11-17	Service floor 3	0 to 65535 (Floors 33 to 40) 0: No respond 1: Respond	65535	-	○
P11-18	Number of elevators in group control	1 to 8	1	-	×
P11-19	Elevator No.	1 to 8	1	-	×
P11-20	Floor offset in parallel control	0 to 40	0	-	×
P11-21	Program selection	0 to 65535	0	-	×
P11-22	Leveling switch delay	10 to 50	14	ms	×
P11-23	Collective selective mode	0: Full collective selective 1: Down collective selective 2: Up collective selective	0	-	×
P11-24	Start time of down collective selective 1	00.00 to 23.59	00.00	HH.MM	×
P11-25	End time of down collective selective 1	00.00 to 23.59	00.00	HH.MM	×
P11-26	Start time of down collective selective 2	00.00 to 23.59	00.00	HH.MM	×
P11-27	End time of down collective selective 2	00.00 to 23.59	00.00	HH.MM	×
P11-28	Start time of time-based floor service 1	00.00 to 23.59	00.00	HH.MM	×
P11-29	End time of time-based floor service 1	00.00 to 23.59	00.00	HH.MM	×
P11-30	Service floor 1 of time-based floor service 1	0 to 65535	65535	-	×
P11-31	Service floor 2 of time-based floor service 1	0 to 65535	65535	-	×
P11-32	Service floor 3 of time-based floor service 1	0 to 65535	65535	-	×

Parameter	Name	Range	Default	Unit	Property
P11-33	Start time of time-based floor service 2	00.00 to 23.59	00.00	HH.MM	×
P11-34	End time of time-based floor service 2	00.00 to 23.59	00.00	HH.MM	×
P11-35	Service floor 1 of time-based floor service 2	0 to 65535	65535	-	×
P11-36	Service floor 2 of time-based floor service 2	0 to 65535	65535	-	×
P11-37	Service floor 3 of time-based floor service 2	0 to 65535	65535	-	×
P11-38	Peak 1 start time for parallel/group control	00.00 to 23.59	00.00	HH.MM	×
P11-39	Peak 1 end time for parallel/group control	00.00 to 23.59	00.00	HH.MM	×
P11-40	Peak 1 floor for parallel/group control	P11-07 to P11-06	1	-	×
P11-41	Peak 2 start time for parallel/group control	00.00 to 23.59	00.00	HH.MM	×
P11-42	Peak 2 end time for parallel/group control	00.00 to 23.59	00.00	HH.MM	×
P11-43	Peak 2 floor for parallel/group control	P11-07 to P11-06	1	-	×
P11-44	Reserved	0 to 65535	0	-	×
P11-45	Reserved	0 to 65535	0	-	×
P11-46	Reserved	0 to 65535	0	-	×
P11-47	Elevator lock start time	00.00 to 23.59	00.00	HH.MM	×
P11-48	Elevator lock end time	00.00 to 23.59	00.00	HH.MM	×
P11-49	Program control selection 1	0 to 65535	0	-	×
P11-50	Program control selection 2	0 to 65535	0	-	×
P11-51	Program control selection 3	0 to 65535	0	-	×
P11-52	Attendant function selection	0 to 65535	128	-	×
P11-53	Fire emergency function	0 to 65535	16456	-	×

Parameter	Name	Range	Default	Unit	Property
	selection				
P11-54	Emergency evacuation function selection	0 to 65535	16384	-	×
P11-55	VIP function selection	0 to 65535	0	-	×
P11-56	Blinking advance time	0.0 to 15.0	1.0	s	○
P11-57	CAN communication setting	0 to 65535	0	-	○
P11-58	Soft limit position setting	0 to 65535	0	-	○
P11-59	High bits of current pulse	0 to 65535	0	-	*
P11-60	Low bits of current pulse	0 to 65535	0	-	*
P12: Enhanced parameters (reserved)					
P13: Keypad setting parameters					
P13-00	Keypad display selection	0: Reverse display of physical floor 1: Forward display of physical floor 2: Reverse display of hall call floor 3: Forward display of hall call floor	3	-	×
P13-01	Parameter display in the running state	Bit0: Running speed Bit1: Rated speed Bit2: Bus voltage Bit3: Output voltage Bit4: Output current Bit5: Output frequency Bit6: High bits of input terminals Bit7: Low bits of input terminals Bit8: Output terminals Bit9: Current floor Bit10: Current position Bit11: Car load Bit12: CTB input state Bit13: CTB output state Bit14: System state Bit15: Pre-torque current	65535	-	×
P13-02	Parameter display in the stop state	Bit0: Rated speed Bit1: Bus voltage Bit2: Low bits of input terminals Bit3: High bits of input terminals Bit4: Output terminals Bit5: Current floor Bit6: Current position	65535	-	×

Parameter	Name	Range	Default	Unit	Property
		Bit7: Car load Bit8: Slow-down distance at rated speed Bit9: CTB input state Bit10: CTB output state Bit11: System state			
P14: PC protection parameters (reserved)					
P15: Communication parameters					
P15-00	Baud rate setting	0: 9600 1: 38400	1	-	×
P15-01	Reserved				
P15-02	Local address	0 to 127 (0: broadcast address)	1	-	×
P15-03	Response delay	0 to 20	0	ms	×
P15-04	Communication timeout	0 to 60.0 0: Inactive	0.0	s	×
P15-05	Re-leveling stop delay	0.00 to 2.00	0.00	s	×
P15-06	Reserved				
P15-07	Host controller setting	0 to 65535	0	-	○
P15-08	Local log setting	0 to 65535	0	-	×
P16: Time parameters					
P16-00	Maximum idle time before returning to parking floor	0 to 240	10	min	×
P16-01	Fan/Lighting turn-off time	0 to 240	2	min	×
P16-02	Motor running time limit	0 to 45 (Below 3 s: Inactive)	45	s	×
P16-03	Clock: year	2020 to 2100	2011	YYYY	×
P16-04	Clock: month	1 to 12	1	MM	×
P16-05	Clock: day	1 to 31	1	DD	×
P16-06	Clock: hour	0 to 23	0	HH	×
P16-07	Clock: minute	0 to 59	0	MM	×
P16-08	Reserved				
P16-09	Reserved				
P16-10	Attendant/Normal state switchover time	3 to 200	3	s	×
P16-11	Maintenance notification	0 to 99	0	day	×

Parameter	Name	Range	Default	Unit	Property
	period				
P16-12	Motor running protection time	0 to 99	45	-	○
P17: Test function parameters					
P17-00	Car call floor registered	0 to P11-06	0	-	○
P17-01	Up hall call floor registered	0 to P11-06	0	-	○
P17-02	Down hall call floor registered	0 to P11-06	0	-	○
P17-03	Random running times	0 to 60000	0	-	○
P17-04	Hall call	0: Hall call allowed 1: Hall call forbidden	0	-	○
P17-05	Door open	0: Door open allowed 1: Door open forbidden	0	-	○
P17-06	Overload function	0: Overload forbidden 1: Overload allowed	0	-	○
P17-07	Limit function	0: Limit switch enabled 1: Limit switch disabled	0	-	○
P17-08	Random running interval	0 to 1000	0	s	○
P17-09	Test function	0 to 65535	0	-	○
P17-10	Output time for overspeed governor test	0 to 100	0	s	○
P17-11	Tested floor 1	0 to P11-06	0	-	○
P17-12	Tested floor 2	0 to P11-06	0	-	○
P17-13	Tested floor 3	0 to P11-06	0	-	○
P17-14	Overspeed test threshold	0.000 to 4.000 m/s	0	m/s	○
P18: Maintenance parameters					
P18-00	Set running time	0 to 60000	0	-	×
P18-01	Set running days	0 to 999	999	-	×
P18-02	Maintenance days setting	0 to 99	0	-	○
P18-03	Maintenance days check	0 to 99	0	-	*
P18-04	Remote password	0 to 65535	0	-	○
P18-05	Maintenance status check	0 to 1	0	-	*
P19: Floor height parameters					
P19-00	High bits of floor height 1	0 to 65535	0	-	×
P19-01	Low bits of floor height 1	0 to 65535	0	-	×

Parameter	Name	Range	Default	Unit	Property
P19-02	High bits of floor height 2	0 to 65535	0	-	×
P19-03	Low bits of floor height 2	0 to 65535	0	-	×
P19-04	High bits of floor height 3	0 to 65535	0	-	×
P19-05	Low bits of floor height 3	0 to 65535	0	-	×
P19-06	High bits of floor height 4	0 to 65535	0	-	×
P19-07	Low bits of floor height 4	0 to 65535	0	-	×
P19-08	High bits of floor height 5	0 to 65535	0	-	×
P19-09	Low bits of floor height 5	0 to 65535	0	-	×
P19-10	High bits of floor height 6	0 to 65535	0	-	×
P19-11	Low bits of floor height 6	0 to 65535	0	-	×
P19-12	High bits of floor height 7	0 to 65535	0	-	×
P19-13	Low bits of floor height 7	0 to 65535	0	-	×
P19-14	High bits of floor height 8	0 to 65535	0	-	×
P19-15	Low bits of floor height 8	0 to 65535	0	-	×
P19-16	High bits of floor height 9	0 to 65535	0	-	×
P19-17	Low bits of floor height 9	0 to 65535	0	-	×
P19-18	High bits of floor height 10	0 to 65535	0	-	×
P19-19	Low bits of floor height 10	0 to 65535	0	-	×
...					
P19-80	High bits of floor height 41	0 to 65535	0	-	×
P19-81	Low bits of floor height 41	0 to 65535	0	-	×
P19-82	High bits of floor height 42	0 to 65535	0	-	×
P19-83	Low bits of floor height 42	0 to 65535	0	-	×
P19-84	High bits of floor height 43	0 to 65535	0	-	×
P19-85	Low bits of floor height 43	0 to 65535	0	-	×
P19-86	High bits of floor height 44	0 to 65535	0	-	×
P19-87	Low bits of floor height 44	0 to 65535	0	-	×
P19-88	High bits of floor height 45	0 to 65535	0	-	×
P19-89	Low bits of floor height 45	0 to 65535	0	-	×

Parameter	Name	Range	Default	Unit	Property
P19-90	High bits of floor height 46	0 to 65535	0	-	×
P19-91	Low bits of floor height 46	0 to 65535	0	-	×
P19-92	High bits of floor height 47	0 to 65535	0	-	×
P19-93	Low bits of floor height 47	0 to 65535	0	-	×
P19-94	High bits of floor height 48	0 to 65535	0	-	×
P19-95	Low bits of floor height 48	0 to 65535	0	-	×
P20: Leveling adjustment parameters					
P20-00	Leveling adjustment mode	0 to 1	0	-	
P20-01	Leveling adjustment record 1	0 to 60060	30030	-	
P20-02	Leveling adjustment record 2	0 to 60060	30030	-	
P20-03	Leveling adjustment record 3	0 to 60060	30030	-	
P20-04	Leveling adjustment record 4	0 to 60060	30030	-	
P20-05	Leveling adjustment record 5	0 to 60060	30030	-	
P20-06	Leveling adjustment record 6	0 to 60060	30030	-	
P20-07	Leveling adjustment record 7	0 to 60060	30030	-	
P20-08	Leveling adjustment record 8	0 to 60060	30030	-	
P20-09	Leveling adjustment record 9	0 to 60060	30030	-	
P20-10	Leveling adjustment record 10	0 to 60060	30030	-	
P20-11	Leveling adjustment record 11	0 to 60060	30030	-	
P20-12	Leveling adjustment record 12	0 to 60060	30030	-	

Parameter	Name	Range	Default	Unit	Property
P20-13	Leveling adjustment record 13	0 to 60060	30030	-	
P20-14	Leveling adjustment record 14	0 to 60060	30030	-	
P20-15	Leveling adjustment record 15	0 to 60060	30030	-	
P20-16	Leveling adjustment record 16	0 to 60060	30030	-	
P20-17	Leveling adjustment record 17	0 to 60060	30030	-	
P20-18	Leveling adjustment record 18	0 to 60060	30030	-	
P20-19	Leveling adjustment record 19	0 to 60060	30030	-	
P20-20	Leveling adjustment record 20	0 to 60060	30030	-	
P20-21	Leveling adjustment record 21	0 to 60060	0	-	
P20-22	Leveling adjustment record 22	0 to 60060	0	-	
P20-23	Leveling adjustment record 23	0 to 60060	0	-	
P20-24	Leveling adjustment record 24	0 to 60060	0	-	
P20-25	Reserved		-	-	-
P20-26	Reserved		-	-	-
P21: Floor display parameters					
P21-00	Reserved	0 to 9999 The two high bits indicate the display code of tens place of the floor number, and the two low bits indicate the display code of ones place. 00: Display "0" 01: Display "1" 02: Display "2" 03: Display "3" 04: Display "4" 05: Display "5"	-	-	*
P21-01	Floor 1 display		1901	-	○
P21-02	Floor 2 display		1902	-	○
P21-03	Floor 3 display		1903	-	○
P21-04	Floor 4 display		1904	-	○
P21-05	Floor 5 display		1905	-	○
P21-06	Floor 6 display		1906	-	○
P21-07	Floor 7 display		1907	-	○
P21-08	Floor 8 display		1908	-	○
P21-09	Floor 9 display		1909	-	○
P21-10	Floor 10 display		100	-	○
P21-11	Floor 11 display		101	-	○

Parameter	Name	Range	Default	Unit	Property
P21-12	Floor 12 display	06: Display "6" 07: Display "7" 08: Display "8" 09: Display "9" 10: Display "A" 11: Display "B" 12: Display "G" 13: Display "H" 14: Display "L" 15: Display "M" 16: Display "P" 17: Display "R" 18: Display "-" 19: No display 20: Display "12" 21: Display "13" 22: Display "23" >22: No display	102	-	○
P21-13	Floor 13 display		103	-	○
P21-14	Floor 14 display		104	-	○
P21-15	Floor 15 display		105	-	○
P21-16	Floor 16 display		106	-	○
P21-17	Floor 17 display		107	-	○
P21-18	Floor 18 display		108	-	○
P21-19	Floor 19 display		109	-	○
P21-20	Floor 20 display		200	-	○
P21-21	Floor 21 display		201	-	○
P21-22	Floor 22 display		202	-	○
P21-23	Floor 23 display		203	-	○
P21-24	Floor 24 display		204	-	○
P21-25	Floor 25 display		205	-	○
P21-26	Floor 26 display		206	-	○
P21-27	Floor 27 display		207	-	○
P21-28	Floor 28 display		208	-	○
P21-29	Floor 29 display		209	-	○
P21-30	Floor 30 display		300	-	○
P21-31	Floor 31 display (Dual hall call display for through-type door)		301	-	○
P21-32	Floor 32 display		302	-	○
P21-33	Floor 33 display		303	-	○
P21-34	Floor 34 display		304	-	○
P21-35	Floor 35 display		305	-	○
P21-36	Floor 36 display		306	-	○
P21-37	Floor 37 display		307	-	○
P21-38	Floor 38 display		308	-	○
P21-39	Floor 39 display		309	-	○
P21-40	Floor 40 display		400	-	○
P21-41	Floor 41 display		401	-	○
P21-42	Floor 42 display		402	-	○
P21-43	Floor 43 display		403	-	○
P21-44	Floor 44 display		404	-	○
P21-45	Floor 45 display		405	-	○
P21-46	Floor 46 display		406	-	○
P21-47	Floor 47 display		407	-	○

Parameter	Name	Range	Default	Unit	Property
P21-48	Floor 48 display		408	-	○
P21-49	Highest digit selection 1		0	-	○
P21-50	Highest digit selection 2		0	-	○
P21-51	Highest digit selection 3		0	-	○
P21-52	Highest digit selection 4		0	-	○
P21-53	Highest digit selection 5		0	-	○
P22: Magnetic scale parameters					
P22-00	Magnetic scale function enable	0 to 65535	0	-	×
P22-01	Magnetic scale model selection	0 to 65535	0	-	×
P22-02	Magnetic scale function selection	0 to 65535	0	-	×
P22-03	Floor position setting	0 to 999	0	-	×
P22-04	Magnetic scale learning	0 to 999	0	-	○
P22-05	Micro-adjustment of current floor position	0 to 99	50	mm	×
P22-06	Door zone length	100 to 400	200	-	×
P22-07	Magnetic scale limit distance setting	0 to 400	30	-	×
P22-08	High bits of 1st floor absolute position	0 to 65535	0	-	×
P22-09	Low bits of 1st floor absolute position	0 to 65535	0	mm	×
P22-10	Speed deviation threshold between encoder and magnetic scale	0.000 to 4.000	0.000	m/s	×
P22-11	High bits of pulses per decimeter	0 to 65535	0	-	×
P22-12	Low bits of pulses per decimeter	0 to 65535	0	-	×
P40: Commissioning parameters					
P40-00	Control data 1 address	0 to 65535	0	-	○
P40-01	Control data 1 value	0 to 65535	0	-	*
P40-02	Control data 2 address	0 to 65535	0	-	○
P40-03	Control data 2 value	0 to 65535	0	-	*
P40-04	Control data 3 address	0 to 65535	0	-	○
P40-05	Control data 3 value	0 to 65535	0	-	*

Parameter	Name	Range	Default	Unit	Property
P40-06	Control data 4 address	0 to 65535	0	-	○
P40-07	Control data 4 value	0 to 65535	0	-	*
P40-08	Control data setting 1	0 to 65535	0	-	○
P40-09	Control data setting 2	0 to 65535	0	-	○
P40-10	Control data setting 3	0 to 65535	0	-	○
P40-11	Control data setting 4	0 to 65535	0	-	○

B.2.3 State parameters

D00: Configuration information			
Parameter	Name	Range	Unit
D00-00	Rate power of AC drive	0.1 to 999.9	kW
D00-01	Rated voltage of AC drive	0 to 999	V
D00-02	Rated current of AC drive	0.1 to 999.9	A
D00-03	MCB software version	0.00 to 9.99	-
D00-04	Drive board software version	0.00 to 9.99	-
D00-05	CTB software version	0.00 to 9.99	-
D00-06	MCB customized software version	0.00 to 9.99	-
D00-07	Drive board customized software version	0.00 to 9.99	-
D00-08	CTB customized software version	0.00 to 9.99	-
D00-09	MCB manufacturer software version	0.00 to 9.99	-
D00-10	Drive board manufacturer software version	0.00 to 9.99	-
D00-11	CTB manufacturer software version	0.00 to 9.99	-
D00-12	Functional specification version	0.00 to 9.99	-
D00-13	MCB software temporary version	0.00 to 99.99	-
D00-14	Drive board software second version	0.00 to 9.99	-
D00-15	Product model	0 to 9999	-
D00-16	CTB model	0 to 100	-
D01: Running state			
D01-00	Speed reference	0.000 to 4.000	m/s
D01-01	Feedback speed	0.000 to 4.000	m/s
D01-02	Bus voltage	0 to 999.9	V
D01-03	Current position	0.0 to 300.0	m
D01-04	Output current	0.0 to 999.9	A
D01-05	Output frequency	0.00 to 99.99	Hz
D01-06	Torque current	0.0 to 999.9 (with positive/negative display)	A

D01-07	Output voltage	0.0 to 999.9	V
D01-08	Output torque	0.0 to 200.0 (with positive/negative display)	%
D01-09	Output power	0.00 to 99.99 (with positive/negative display)	KW
D01-10	Heatsink temperature	0 to 100	℃
D01-11	Reserved		
D01-12	Reserved		
D01-13	Pre-torque current	0.0 to 200.0 (with positive/negative display)	%
D01-14	Logic information	Thousands place and ten thousands place: Elevator state Ones place to hundreds place: Car state	-
D01-15	Curve information	Hundreds place to ten thousands place: Curve information Ones place and tens place: Timing information	-
D01-16	System state 2	Bit0: Up direction display Bit1: Down direction display Bit2: 1=Running; 0=Stop Bit3: System full-load Bit4: System overload Bit5: System half-load Bit6: System light-load	-
D01-17	Input state 6	0 to 65535	-
D01-18	Input state 7	0 to 65535	-
D01-19	Output state 3	0 to 65535	-
D01-20	Output state 4	0 to 65535	-
D01-21	Accumulated running time	0 to 65535	h
D01-22	High bits of running times	0 to 9999 Note: 1 means the actual running times is 10000	-
D01-23	Low bits of running times	0 to 9999	-
D01-24	Current encoder angle	0.0 to 359.9	-
D01-25	Maximum floor running time interval	0 to 200	s
D01-26	Zero servo rollback distance	0 to 65535	-
D01-27	Quiescent current	0.00 to 655.00	-
D01-28 to D01-31	Reserved	0 to 65535	-
D01-32	Braking force detection result	0: Meaningless	-

		1: Passed 2: Failed	
D01-33	Shorting motor stator test result	0: Meaningless 1: Passed 2: Failed	-
D01-34	System power-on time	0 to 65535	h
D01-35	TD2 temperature	0 to 999	℃
D01-36	Rescue state	0 to 65535	-
D02: MCB state			
D02-00	Input state 1	0 to 65535	-
D02-01	Input state 2	0 to 65535	-
D02-02	Input state 3	0 to 65535	-
D02-03	Input state 4	0 to 65535	-
D02-04	Input state 5	0 to 65535	-
D02-05	Output state 1	0 to 65535	-
D02-06	Output state 2	0 to 65535	-
D02-07	Terminal state display 1	0 to 65535	-
D02-08	Terminal state display 2	0 to 65535	-
D03: CTB state			
D03-00	Car input state	0 to 65535	-
D03-01	Car output state	0 to 65535	-
D03-02	Hall state	0 to 65535	-
D03-03	System state 1	0 to 65535	-
D04: Communication state			
D04-00	Hall call communication state 1	0 to 65535	-
D04-01	Hall call communication state 2	0 to 65535	-
D04-02	Hall call communication state 3	0 to 65535	-
D04-03	Communication interference	0 to 65535	-
D04-04	Encoder interference	0 to 65535	-
D04-05	Reserved	0 to 65535	-
D04-06	Version display selection	0 to 65535	-
D04-07	Reserved	0 to 65535	-
D04-08	Log cache quantity	0 to 65535	-
D04-09	Magnetic scale communication status	0 to 65535	-
D04-10	Magnetic scale operation status	0 to 65535	-
D04-11	High bits of magnetic scale current position	0 to 65535	-
D04-12	Low bits of magnetic scale current position	0 to 65535	-
D04-13	Magnetic scale current speed	0.100 to 4.000	m/s

D04-14	Magnetic scale communication error count	0 to 65535	-
D04-15	Magnetic scale fault register value	0 to 65535	-
D04-16	Inspection box communication status	0 to 10	-
D04-17	Inspection box input status	0 to 65535	-
D04-18	Inspection box software version	0 to 99.99	-
D04-19	ARD communication status	0 to 10	-
D04-20	ARD status	0 to 65535	-
D04-21	ARD fault code	0 to 99	-
D04-22	ARD battery voltage	0.0 to 99.9	-
D04-23	ARD software version	0.00 to 99.99	-

B.2.4 Fault parameters

E00: Fault record parameters				
E00-00	1st fault	0 to 9999	0	-
E00-01	1st fault subcode	0 to 65535	0	-
E00-02	Month and day upon 1st fault	0 to 1231	0	-
E00-03	Hour and minute upon 1st fault	0 to 23.59	0	-
E00-04	2nd fault	0 to 9999	0	-
E00-05	2nd fault subcode	0 to 65535	0	-
E00-06	Month and day upon 2nd fault	0 to 1231	0	-
E00-07	Hour and minute upon 2nd fault	0 to 23.59	0	-
E00-08	3rd fault	0 to 9999	0	-
E00-09	3rd fault subcode	0 to 65535	0	-
E00-10	Month and day upon 3rd fault	0 to 1231	0	-
E00-11	Hour and minute upon 3rd fault	0 to 23.59	0	-
...				
E00-96	25th fault	0 to 9999	0	-
E00-97	25th fault subcode	0 to 65535	0	-
E00-98	Month and day upon 25th fault	0 to 1231	0	-
E00-99	Hour and minute upon 25th fault	0 to 23.59	0	-
E01: Latest fault record				
E01-00	1st fault	0 to 9999	0	-
E01-01	1st fault subcode	0 to 65535	0	-
E01-02	Month and day upon 1st fault	0 to 1231	0	-
E01-03	Hour and minute upon 1st fault	0 to 23.59	0	-
E01-04	Logic information upon 1st fault	0 to 65535	0	-
E01-05	Curve information upon 1st fault	0 to 65535	0	-
E01-06	Speed reference upon 1st fault	0.000 to 4.000	0	m/s
E01-07	Feedback speed upon 1st fault	0.000 to 4.000	0	m/s

E01-08	Bus voltage upon 1st fault	0 to 999.9	0	V
E01-09	Current position upon 1st fault	0.0 to 300.0	0	m
E01-10	Output current upon 1st fault	0.0 to 999.9	0	A
E01-11	Output frequency upon 1st fault	0.00 to 99.99	0	Hz
E01-12	Torque current upon 1st fault	0.0 to 999.9	0	A
E01-13	Output voltage upon 1st fault	0 to 999.9	0	V
E01-14	Output torque upon 1st fault	0 to 200.0	0	%
E01-15	Output power upon 1st fault	0.00 to 99.99	0	KW
E01-16	Communication interference upon 1st fault	0 to 65535	0	-
E01-17	Encoder interference upon 1st fault	0 to 65535	0	-
E01-18	Input state 1 upon 1st fault	0 to 65535	0	-
E01-19	Input state 2 upon 1st fault	0 to 65535	0	-
E02: 2nd fault record				
E02-00	2nd fault	0 to 9999	0	-
E02-01	2nd fault subcode	0 to 65535	0	-
E02-02	Month and day upon 2nd fault	0 to 1231	0	-
E02-03	Hour and minute upon 2nd fault	0 to 23.59	0	-
E02-04	Logic information upon 2nd fault	0 to 65535	0	-
E02-05	Curve information upon 2nd fault	0 to 65535	0	-
E02-06	Speed reference upon 2nd fault	0.000 to 4.000	0	m/s
E02-07	Feedback speed upon 2nd fault	0.000 to 4.000	0	m/s
E02-08	Bus voltage upon 2nd fault	0 to 999.9	0	V
E02-09	Current position upon 2nd fault	0.0 to 300.0	0	m
E02-10	Output current upon 2nd fault	0.0 to 999.9	0	A
E02-11	Output frequency upon 2nd fault	0.00 to 99.99	0	Hz
E02-12	Torque current upon 2nd fault	0.0 to 999.9	0	A
E02-13	Output voltage upon 2nd fault	0 to 999.9	0	V
E02-14	Output torque upon 2nd fault	0 to 200.0	0	%
E02-15	Output power upon 2nd fault	0.00 to 99.99	0	KW
E02-16	Communication interference upon 2nd fault	0 to 65535	0	-
E02-17	Encoder interference upon 2nd fault	0 to 65535	0	-
E02-18	Input state 1 upon 2nd fault	0 to 65535	0	-
E02-19	Input state 2 upon 2nd fault	0 to 65535	0	-
E03: 3rd fault record				
E03-00	3rd fault	0 to 9999	0	-
E03-01	3rd fault subcode	0 to 65535	0	-
E03-02	Month and day upon 3rd fault	0 to 1231	0	-
E03-03	Hour and minute upon 3rd fault	0 to 23.59	0	-

E03-04	Logic information upon 3rd fault	0 to 65535	0	-
E03-05	Curve information upon 3rd fault	0 to 65535	0	-
E03-06	Speed reference upon 3rd fault	0.000 to 4.000	0	m/s
E03-07	Feedback speed upon 3rd fault	0.000 to 4.000	0	m/s
E03-08	Bus voltage upon 3rd fault	0 to 999.9	0	V
E03-09	Current position upon 3rd fault	0.0 to 300.0	0	m
E03-10	Output current upon 3rd fault	0.0 to 999.9	0	A
E03-11	Output frequency upon 3rd fault	0.00 to 99.99	0	Hz
E03-12	Torque current upon 3rd fault	0.0 to 999.9	0	A
E03-13	Output voltage upon 3rd fault	0 to 999.9	0	V
E03-14	Output torque upon 3rd fault	0 to 200.0	0	%
E03-15	Output power upon 3rd fault	0.00 to 99.99	0	KW
E03-16	Communication interference upon 3rd fault	0 to 65535	0	-
E03-17	Encoder interference upon 3rd fault	0 to 65535	0	-
E03-18	Input state 1 upon 3rd fault	0 to 65535	0	-
E03-19	Input state 2 upon 3rd fault	0 to 65535	0	-
E04: 4th fault record				
E04-00	4th fault	0 to 9999	0	-
E04-01	4th fault subcode	0 to 65535	0	-
E04-02	Month and day upon 4th fault	0 to 1231	0	-
E04-03	Hour and minute upon 4th fault	0 to 23.59	0	-
E04-04	Logic information upon 4th fault	0 to 65535	0	-
E04-05	Curve information upon 4th fault	0 to 65535	0	-
E04-06	Speed reference upon 4th fault	0.000 to 4.000	0	m/s
E04-07	Feedback speed upon 4th fault	0.000 to 4.000	0	m/s
E04-08	Bus voltage upon 4th fault	0 to 999.9	0	V
E04-09	Current position upon 4th fault	0.0 to 300.0	0	m
E04-10	Output current upon 4th fault	0.0 to 999.9	0	A
E04-11	Output frequency upon 4th fault	0.00 to 99.99	0	Hz
E04-12	Torque current upon 4th fault	0.0 to 999.9	0	A
E04-13	Output voltage upon 4th fault	0 to 999.9	0	V
E04-14	Output torque upon 4th fault	0 to 200.0	0	%
E04-15	Output power upon 4th fault	0.00 to 99.99	0	KW
E04-16	Communication interference upon 4th fault	0 to 65535	0	-
E04-17	Encoder interference upon 4th fault	0 to 65535	0	-
E04-18	Input state 1 upon 4th fault	0 to 65535	0	-
E04-19	Input state 2 upon 4th fault	0 to 65535	0	-
E05: 5th fault record				

E05-00	5th fault	0 to 9999	0	-
E05-01	5th fault subcode	0 to 65535	0	-
E05-02	Month and day upon 5th fault	0 to 1231	0	-
E05-03	Hour and minute upon 5th fault	0 to 23.59	0	-
E05-04	Logic information upon 5th fault	0 to 65535	0	-
E05-05	Curve information upon 5th fault	0 to 65535	0	-
E05-06	Speed reference upon 5th fault	0.000 to 4.000	0	m/s
E05-07	Feedback speed upon 5th fault	0.000 to 4.000	0	m/s
E05-08	Bus voltage upon 5th fault	0 to 999.9	0	V
E05-09	Current position upon 5th fault	0.0 to 300.0	0	m
E05-10	Output current upon 5th fault	0.0 to 999.9	0	A
E05-11	Output frequency upon 5th fault	0.00 to 99.99	0	Hz
E05-12	Torque current upon 5th fault	0.0 to 999.9	0	A
E05-13	Output voltage upon 5th fault	0 to 999.9	0	V
E05-14	Output torque upon 5th fault	0 to 200.0	0	%
E05-15	Output power upon 5th fault	0.00 to 99.99	0	KW
E05-16	Communication interference upon 5th fault	0 to 65535	0	-
E05-17	Encoder interference upon 5th fault	0 to 65535	0	-
E05-18	Input state 1 upon 5th fault	0 to 65535	0	-
E05-19	Input state 2 upon 5th fault	0 to 65535	0	-
E06: 6th fault record				
E06-00	6th fault	0 to 9999	0	-
E06-01	6th fault subcode	0 to 65535	0	-
E06-02	Month and day upon 6th fault	0 to 1231	0	-
E06-03	Hour and minute upon 6th fault	0 to 23.59	0	-
E06-04	Logic information upon 6th fault	0 to 65535	0	-
E06-05	Curve information upon 6th fault	0 to 65535	0	-
E06-06	Speed reference upon 6th fault	0.000 to 4.000	0	m/s
E06-07	Feedback speed upon 6th fault	0.000 to 4.000	0	m/s
E06-08	Bus voltage upon 6th fault	0 to 999.9	0	V
E06-09	Current position upon 6th fault	0.0 to 300.0	0	m
E06-10	Output current upon 6th fault	0.0 to 999.9	0	A
E06-11	Output frequency upon 6th fault	0.00 to 99.99	0	Hz
E06-12	Torque current upon 6th fault	0.0 to 999.9	0	A
E06-13	Output voltage upon 6th fault	0 to 999.9	0	V
E06-14	Output torque upon 6th fault	0 to 200.0	0	%
E06-15	Output power upon 6th fault	0.00 to 99.99	0	KW
E06-16	Communication interference upon 6th fault	0 to 65535	0	-

E06-17	Encoder interference upon 6th fault	0 to 65535	0	-
E06-18	Input state 1 upon 6th fault	0 to 65535	0	-
E06-19	Input state 2 upon 6th fault	0 to 65535	0	-
E07: 7th fault record				
E07-00	7th fault	0 to 9999	0	-
E07-01	7th fault subcode	0 to 65535	0	-
E07-02	Month and day upon 7th fault	0 to 1231	0	-
E07-03	Hour and minute upon 7th fault	0 to 23.59	0	-
E07-04	Logic information upon 7th fault	0 to 65535	0	-
E07-05	Curve information upon 7th fault	0 to 65535	0	-
E07-06	Speed reference upon 7th fault	0.000 to 4.000	0	m/s
E07-07	Feedback speed upon 7th fault	0.000 to 4.000	0	m/s
E07-08	Bus voltage upon 7th fault	0 to 999.9	0	V
E07-09	Current position upon 7th fault	0.0 to 300.0	0	m
E07-10	Output current upon 7th fault	0.0 to 999.9	0	A
E07-11	Output frequency upon 7th fault	0.00 to 99.99	0	Hz
E07-12	Torque current upon 7th fault	0.0 to 999.9	0	A
E07-13	Output voltage upon 7th fault	0 to 999.9	0	V
E07-14	Output torque upon 7th fault	0 to 200.0	0	%
E07-15	Output power upon 7th fault	0.00 to 99.99	0	KW
E07-16	Communication interference upon 7th fault	0 to 65535	0	-
E07-17	Encoder interference upon 7th fault	0 to 65535	0	-
E07-18	Input state 1 upon 7th fault	0 to 65535	0	-
E07-19	Input state 2 upon 7th fault	0 to 65535	0	-
E08: 8th fault record				
E08-00	8th fault	0 to 9999	0	-
E08-01	8th fault subcode	0 to 65535	0	-
E08-02	Month and day upon 8th fault	0 to 1231	0	-
E08-03	Hour and minute upon 8th fault	0 to 23.59	0	-
E08-04	Logic information upon 8th fault	0 to 65535	0	-
E08-05	Curve information upon 8th fault	0 to 65535	0	-
E08-06	Speed reference upon 8th fault	0.000 to 4.000	0	m/s
E08-07	Feedback speed upon 8th fault	0.000 to 4.000	0	m/s
E08-08	Bus voltage upon 8th fault	0 to 999.9	0	V
E08-09	Current position upon 8th fault	0.0 to 300.0	0	m
E08-10	Output current upon 8th fault	0.0 to 999.9	0	A
E08-11	Output frequency upon 8th fault	0.00 to 99.99	0	Hz
E08-12	Torque current upon 8th fault	0.0 to 999.9	0	A
E08-13	Output voltage upon 8th fault	0 to 999.9	0	V

E08-14	Output torque upon 8th fault	0 to 200.0	0	%
E08-15	Output power upon 8th fault	0.00 to 99.99	0	KW
E08-16	Communication interference upon 8th fault	0 to 65535	0	-
E08-17	Encoder interference upon 8th fault	0 to 65535	0	-
E08-18	Input state 1 upon 8th fault	0 to 65535	0	-
E08-19	Input state 2 upon 8th fault	0 to 65535	0	-
E09: 9th fault record				
E09-00	9th fault	0 to 9999	0	-
E09-01	9th fault subcode	0 to 65535	0	-
E09-02	Month and day upon 9th fault	0 to 1231	0	-
E09-03	Hour and minute upon 9th fault	0 to 23.59	0	-
E09-04	Logic information upon 9th fault	0 to 65535	0	-
E09-05	Curve information upon 9th fault	0 to 65535	0	-
E09-06	Speed reference upon 9th fault	0.000 to 4.000	0	m/s
E09-07	Feedback speed upon 9th fault	0.000 to 4.000	0	m/s
E09-08	Bus voltage upon 9th fault	0 to 999.9	0	V
E09-09	Current position upon 9th fault	0.0 to 300.0	0	m
E09-10	Output current upon 9th fault	0.0 to 999.9	0	A
E09-11	Output frequency upon 9th fault	0.00 to 99.99	0	Hz
E09-12	Torque current upon 9th fault	0.0 to 999.9	0	A
E09-13	Output voltage upon 9th fault	0 to 999.9	0	V
E09-14	Output torque upon 9th fault	0 to 200.0	0	%
E09-15	Output power upon 9th fault	0.00 to 99.99	0	KW
E09-16	Communication interference upon 9th fault	0 to 65535	0	-
E09-17	Encoder interference upon 9th fault	0 to 65535	0	-
E09-18	Input state 1 upon 9th fault	0 to 65535	0	-
E09-19	Input state 2 upon 9th fault	0 to 65535	0	-
E10: 10th fault record				
E10-00	10th fault	0 to 9999	0	-
E10-01	10th fault subcode	0 to 65535	0	-
E10-02	Month and day upon 10th fault	0 to 1231	0	-
E10-03	Hour and minute upon 10th fault	0 to 23.59	0	-
E10-04	Logic information upon 10th fault	0 to 65535	0	-
E10-05	Curve information upon 10th fault	0 to 65535	0	-
E10-06	Speed reference upon 10th fault	0.000 to 4.000	0	m/s
E10-07	Feedback speed upon 10th fault	0.000 to 4.000	0	m/s
E10-08	Bus voltage upon 10th fault	0 to 999.9	0	V
E10-09	Current position upon 10th fault	0.0 to 300.0	0	m

E10-10	Output current upon 10th fault	0.0 to 999.9	0	A
E10-11	Output frequency upon 10th fault	0.00 to 99.99	0	Hz
E10-12	Torque current upon 10th fault	0.0 to 999.9	0	A
E10-13	Output voltage upon 10th fault	0 to 999.9	0	V
E10-14	Output torque upon 10th fault	0 to 200.0	0	%
E10-15	Output power upon 10th fault	0.00 to 99.99	0	KW
E10-16	Communication interference upon 10th fault	0 to 65535	0	-
E10-17	Encoder interference upon 10th fault	0 to 65535	0	-
E10-18	Input state 1 upon 10th fault	0 to 65535	0	-
E10-19	Input state 2 upon 10th fault	0 to 65535	0	-

Appendix C Warranty and Service

Shenzhen Megmeet Electrical Co., Ltd. manufactures motor drive products strictly according to the ISO9001:2008 standard. In case of any product abnormalities, please contact the distributor or the headquarters. Our company will provide full technical support for you.

1. Warranty period

The product is warranted for 18 months from the purchase date, however, the warranty date shall not exceed 24 months after the manufacturing date on the nameplate.

2. Warranty scope

During the warranty period, any product abnormalities incurred due to our company can be freely repaired or replaced by our company. In case of the following situations, maintenance fees will also be charged even if the product is still in the warranty period.

(1) The damages are caused by fire, flood, strong lightning strike, etc.

(2) The damages are caused by users' unauthorized modifications.

(3) The product is damaged due to drop or in transmission after the purchase.

(4) The product is damaged because the standard requirements are not obeyed in actual use.

(5) The product is damaged because the user does not follow the instructions of the user manual.

3. After-sales service

(1) If there are specific requirements for drive installation and trial operation, or the working status of the drive is not satisfactory (such as unsatisfactory performance and function), please contact the distributor or Shenzhen Megmeet Electrical Co., Ltd.

(2) In case of any abnormality, contact the distributor or Shenzhen Megmeet Electrical Co., Ltd. immediately for help.

(3) During the warranty period, our company will repair any drive abnormality incurred due to the product manufacturing and design free of charge.

(4) If the product is out of the warranty period, our company can provide paid repairing service according to the customers' needs.

(5) The service charge is calculated by actual costs. If there is an agreement, the agreement shall prevail.

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