Monarch
by INOVANCE

FORWARD, ALWAYS PROGRESSING

NICE3000^{new} Series
Integrated Elevator Controller
Function Guide

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

Data code 19011634 B01

Preface

Thank you for purchasing the NICE3000^{new} integrated elevator controller.

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

It has the following major features:

Advanced Technology

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

Ease of Use

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

Greater Safety and Reliability

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

Riding Comfort

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

Cost-efficiency

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

It covers the functional parameters, including parameter list, parameter description, application, and typical functions and schemes. Read this guide carefully before using the product, and keep it properly for future maintenance reference.

More Documents

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

Revision History

Date	Version	Description
October 2022	B01	Made minor corrections.
June 2022	B00	• Upgraded the product to meet new national standard. • Updated the front and back covers.
July 2021	A00	First release

Document Acquisition

This guide is not delivered along with the product. You can download the PDF version in the following means:

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

Table of Contents

Safety Precautions

Safety Disclaimer

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

Safety Levels and Definitions

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

Safety Instructions

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

Unpacking
 • 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.

CAUTION

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

Storage and Transportation

WARNING

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

CAUTION

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

Installation

DANGER

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

WARNING

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

CAUTION

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

Wiring

DANGER

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

WARNING

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

CAUTION

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

Power-on

DANGER

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

WARNING

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

Operation

DANGER

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

WARNING

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

Maintenance

DANGER

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

WARNING

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

Repair

DANGER

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

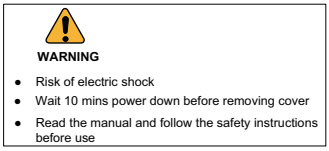
WARNING

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

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

Safety Signs

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

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

1 List of Parameters

The parameters relevant to the NICE3000^{new} integrated controller can be operated in menus of three levels:

- Level I menu: Parameter group
- Level II menu: Parameter
- Level III menu: Parameter value

The following table describes the meaning of each column in the parameter list.

Param.	Name	Range	Default	Unit	Property
Parameter number	Full name of parameters	Valid setting range of parameters	Factory setting of the parameters	Measurement unit of the parameter	Operation property of parameters (whether to allow modification and modification conditions)

"☆": 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.

Note

The system automatically checks and restrains the modification property of all parameters to avoid misoperation.

The LED operating panel connected with the controller allows the running state display, parameter setting, fault information viewing, and so on. The detailed parameters are as follows:

Param.	Name	Range	Default	Unit	Property
Group F0: Basic Parameters					
F0-00	Control mode	0: SVC 1: FVC 2: V/f control	1	-	★
F0-01	Command source selection	0: Operating panel control 1: Distance control	1	-	★
F0-02	Running speed under operating panel control	0.050 to F0-04	0.05	m/s	☆
F0-03	Running speed	0.250 to F0-04	1.6	m/s	★
F0-04	Rated speed	0.250 to 4.000	1.6	m/s	★
F0-05	Rated load	300 to 9999	1000	kg	★

Param.	Name	Range	Default	Unit	Property
F0-06	Maximum frequency	F1-04 to 99.00	50	Hz	★
F0-07	Carrier frequency	0.5 to 16.0	6	kHz	★
Group F1: Motor Parameters					
F1-00	Encoder type selection	0: Sin/Cos encoder 1: UVW encoder 2: ABZ encoder 3: Endat absolute encoder	0	-	★
F1-01	Rated power	0.7 to 75.0	Model dependent	kW	★
F1-02	Rated voltage	0 to 600	Model dependent	V	★
F1-03	Rated current	0.00 to 655.00	Model dependent	A	★
F1-04	Rated frequency	0.00 to F0-06	Model dependent	Hz	★
F1-05	Rated speed	0 to 3000	Model dependent	rpm	★
F1-06	Encoder initial angle (synchronous motor)	0.0 to 359.9	0	°	★
F1-07	Encoder angle at power-off (synchronous motor)	0.0 to 359.9	0	°	★
F1-08	Synchronous motor wiring mode	0 to 15	0	-	★
F1-09	ADC sampling delay time setting	0.0 to 359.9	0	-	★
F1-10	Encoder signal check	0 to 65535	0	-	★
F1-11	Auto-tuning selection	0: No operation 1: With-load auto-tuning 2: No-load auto-tuning 3: Shaft auto-tuning 1 4: Shaft auto-tuning 2 5: Synchronous motor static auto-tuning	0	-	★
F1-12	Pulses per revolution	0 to 10000	2048	PPR	★
F1-13	Encoder disconnection detection time	0 to 10.0	2.1	s	★
F1-14	Asynchronous motor stator resistance	0.000 to 30.000	Model dependent	Ω	★
F1-15	Asynchronous motor rotor resistance	0.000 to 30.000	Model dependent	Ω	★
F1-16	Asynchronous motor leakage inductance	0.00 to 300.00	Model dependent	mH	★
F1-17	Asynchronous motor mutual inductance	0.1 to 3000.0	Model dependent	mH	★

Param.	Name	Range	Default	Unit	Property
F1-18	Asynchronous motor no-load current	0.01 to 300.00	Model dependent	A	★
F1-19	Q-axis inductance (torque)	0.00 to 650.00	3	mH	★
F1-20	D-axis inductance (excitation)	0.00 to 650.00	3	mH	★
F1-21	Back EMF coefficient	0 to 65535	0	-	★
F1-22	Auto-tuning function selection	Bit1 = 1, bit2 = 0: semi-automatic angle-free auto-tuning Bit1 = 1, bit2 = 1: automatic angle-free auto-tuning	0	-	★
F1-25	Motor type	0: Asynchronous motor 1: Synchronous motor	1	-	★
Group F2: Vector Control Parameters					
F2-00	Speed loop proportional gain Kp1	0 to 100	40	-	★
F2-01	Speed loop integral time Ti1	0.01 to 10.00	0.6	s	★
F2-02	Switchover frequency 1	0.00 to F2-05	2	Hz	★
F2-03	Speed loop proportional gain Kp2	0 to 100	35	-	★
F2-04	Speed loop integral time Ti2	0.01 to 10.00	0.8	s	★
F2-05	Switchover frequency 2	F2-02 to F0-06	5	Hz	★
F2-06	Current loop proportional gain Kp	10 to 500	60	-	★
F2-07	Current loop integral gain Ki	10 to 500	30	-	★
F2-08	Torque upper limit	0.0 to 200.0	200	%	★
F2-10	Elevator running direction	0: Direction unchanged 1: Direction reversed	0	-	★
F2-11	Position lock current coefficient	2.0 to 50.0	15	%	★
F2-12	Position lock speed loop Kp	0.00 to 2.00	0.5	-	★
F2-13	Position lock speed loop Ti	0.00 to 2.00	0.6	-	★
F2-16	Torque acceleration time	1 to 500	1	ms	★
F2-17	Torque deceleration time	1 to 3000	350	ms	★
F2-33	Torque amplitude	50% to 150%	110	%	★
Group F3: Running Control Parameters					
F3-00	Startup speed	0.000 to 0.050	0	m/s	★

Param.	Name	Range	Default	Unit	Property
F3-01	Startup speed holding time	0.000 to 5.000	0	s	★
F3-02	Acceleration rate	0.200 to 1.500	0.7	m/s^2	★
F3-03	Acceleration end jerk time 1	0.300 to 4.000	1.5	s	★
F3-04	Acceleration end jerk time 2	0.300 to 4.000	1.5	s	★
F3-05	Deceleration rate	0.200 to 1.500	0.7	m/s^2	★
F3-06	Deceleration start jerk time 1	0.300 to 4.000	1.5	s	★
F3-07	Deceleration start jerk time 2	0.300 to 4.000	1.5	s	★
F3-08	Special deceleration rate	0.200 to 1.500	0.9	m/s^2	★
F3-09	Pre-deceleration distance	0 to 90.0	0	mm	★
F3-10	Re-leveling speed	0.020 to 0.080	0.04	m/s	★
F3-11	Inspection speed	0.100 to 0.630	0.25	m/s	★
F3-12	Position of up slow-down switch 1	0.00 to 300.00	0	m	★
F3-13	Position of down slow-down switch 1	0.00 to 300.00	0	m	★
F3-14	Position of up slow-down switch 2	0.00 to 300.00	0	m	★
F3-15	Position of down slow-down switch 2	0.00 to 300.00	0	m	★
F3-16	Position of up slow-down switch 3	0.00 to 300.00	0	m	★
F3-17	Position of down slow-down switch 3	0.00 to 300.00	0	m	★
F3-18	Zero-speed current output time	0.200 to 1.000	0.2	s	★
F3-19	Holding time of zero-speed torque current upon brake release	0.000 to 2.000	0.6	s	★
F3-20	Zero-speed control time at end	0.000 to 1.000	0.3	s	★
F3-21	Low-speed re-leveling speed	0.080 to F3-11	0.1	m/s	★
F3-22	Acceleration rate at emergency evacuation	0.300 to 1.300	0.3	m/s^2	★
F3-23	Deceleration delay time upon hitting slow-down switch	0.00 to 10.00	0	s	★

Param.	Name	Range	Default	Unit	Property
F3-24	Program function selection	0:Reserved 1: Slip test 2: Manual UCMP test 3 to 5: Reserved 6: Balance coefficient auto-tuning 20: Dynamic braking force test (MRL) 24: Manual ascending car overspeed protection (ACOP) test 25: Manual time limit test 26: Manual test of shorting motor stator braking	0	-	★
F3-25	Elevator speed in the EEO state	0.100 to 0.300	0.25	m/s	★
F3-26	Shaft auto-tuning speed	0.100 to 0.630	0.25	m/s	★
F3-27	E33 overspeed tolerance	0.000 to 0.500	0.050	m/s	★
F3-28	Terminal floor verification speed	0.080 to F0-03	0.500	m/s	★
Group F4: Floor Parameters					
F4-00	Leveling adjustment	0 to 60	30	mm	★
F4-01	Current floor	F6-01 to F6-00	1	-	★
F4-02	High byte of current floor position	0 to 65535	1	PPR	●
F4-03	Low byte of current floor position	0 to 65535	34464	PPR	●
F4-04	Leveling plate length 1	0 to 65535	0	PPR	★
F4-05	Leveling plate length 2	0 to 65535	0	PPR	★
F4-06	High byte of floor height 1	0 to 65535	0	PPR	★
F4-07	Low byte of floor height 1	0 to 65535	0	PPR	★
F4-08	High byte of floor height 2	0 to 65535	0	PPR	★
F4-09	Low byte of floor height 2	0 to 65535	0	PPR	★
F4-10	High byte of floor height 3	0 to 65535	0	PPR	★
F4-11	Low byte of floor height 3	0 to 65535	0	PPR	★
F4-12	High byte of floor height 4	0 to 65535	0	PPR	★
F4-13	Low byte of floor height 4	0 to 65535	0	PPR	★

Param.	Name	Range	Default	Unit	Property
F4-14	High byte of floor height 5	0 to 65535	0	PPR	★
F4-15	Low byte of floor height 5	0 to 65535	0	PPR	★
F4-16	High byte of floor height 6	0 to 65535	0	PPR	★
F4-17	Low byte of floor height 6	0 to 65535	0	PPR	★
F4-18	High byte of floor height 7	0 to 65535	0	PPR	★
F4-19	Low byte of floor height 7	0 to 65535	0	PPR	★
F4-20	High byte of floor height 8	0 to 65535	0	PPR	★
F4-21	Low byte of floor height 8	0 to 65535	0	PPR	★
F4-22	High byte of floor height 9	0 to 65535	0	PPR	★
F4-23	Low byte of floor height 9	0 to 65535	0	PPR	★
F4-24	High byte of floor height 10	0 to 65535	0	PPR	★
F4-25	Low byte of floor height 10	0 to 65535	0	PPR	★
High byte of floor height 2 to low byte of floor height 46					
F4-96	High byte of floor height 46	0 to 65535	0	PPR	★
F4-97	Low byte of floor height 46	0 to 65535	0	PPR	★
F4-98	High byte of floor height 47	0 to 65535	0	PPR	★
F4-99	Low byte of floor height 47	0 to 65535	0	PPR	★
Group F5: Terminal Function Parameters					
F5-00	Attendant/Normal state switchover time	3 to 200	3	s	★

Param.	Name	Range	Default	Unit	Property
F5-01	X1 function selection	00: Inactive 01/33: Up leveling signal NO/NC 02/34: Down leveling signal NO/NC 03/35: Door zone signal NO/NC 04/36: Safety circuit feedback NO/NC 05/37: Door lock circuit 1 feedback NO/NC 06/38: RUN contactor feedback NO/NC 07/39: Brake feedback NO/NC 08/40: Inspection signal NO/NC 09/41: Inspection/EEO up signal NO/NC 10/42: Inspection/EEO down signal NO/NC 11/43: Fire emergency signal NO/NC 12/44: Up limit signal NO/NC 13/45: Down limit signal NO/NC 14/46: Overload NO/NC 15/47: Full-load NO/NC 16/48: Up slow-down 1 signal NO/NC 17/49: Down slow-down 1 signal NO/NC 18/50: Up slow-down 2 signal NO/NC 19/51: Down slow-down 2 signal NO/NC 20/52: Up slow-down 3 signal NO/NC 21/53: Down slow-down 3 signal NO/NC 22/54: Shorting door lock circuit relay feedback NO/NC 23/55: Firefighter operation NO/NC 24/56: Door operator 1 light curtain signal NO/NC 25/57: Door operator 2 light curtain signal NO/NC 26/58: Brake travel switch 1 NO/NC 27/59: Emergency evacuation signal NO/NC 28/60: Elevator lock signal NO/NC	1	-	★
F5-02	X2 function selection		3	-	★
F5-03	X3 function selection		2	-	★
F5-04	X4 function selection		118	-	★
F5-05	X5 function selection		0	-	★
F5-06	X6 function selection		38	-	★
F5-07	X7 function selection		39	-	★
F5-08	X8 function selection		30	-	★
F5-09	X9 function selection		116	-	★
F5-10	X10 function selection		9	-	★
F5-11	X11 function selection		10	-	★
F5-12	X12 function selection		44	-	★
F5-13	X13 function selection		45	-	★
F5-14	X14 function selection		48	-	★
F5-15	X15 function selection		49	-	★
F5-16	X16 function selection		0	-	★
F5-17	X17 function selection		0	-	★
F5-18	X18 function selection		0	-	★
F5-19	X19 function selection		0	-	★
F5-20	X20 function selection		0	-	★
F5-21	X21 function selection		0	-	★

Param.	Name	Range	Default	Unit	Property
F5-22	X22 function selection	29/61: Safety circuit 2 NO/NC 30/62: Synchronous motor self-locking feedback NO/NC 31/63: Door lock circuit 2 feedback NO/NC 65/97: Door operator 1 safety edge NO/NC 66/98: Door operator 2 safety edge NO/NC 67/99: Motor overheat NO/NC 68/100: Earthquake signal NO/NC 69/101: Rear door forbidden signal NO/NC 70/102: Light-load signal NO/NC 71/103: Half-load NO/NC 72/104: Fire emergency floor switchover NO/NC 73/105: Dummy floor input 74/106: Auxiliary brake contactor 1 feedback 75/107: Auxiliary brake contactor 2 feedback 76/108: Door 1 open signal 77/109: Door 2 open signal 78/110: Brake travel switch 2 NO/NC 79/111: External fault input NO/NC 80/112: Terminal floor verification NO/NC 81/113: Door lock 1 shorting NO/NC 82/114: Door lock 2 shorting NO/NC 84/116: EEO signal NO/NC 85/117: Main switch disconnection input NO/NC 86/118: Door lock bypass input NO/NC 87/119: Fire emergency one-key input NO/NC 88/120: Rope gripper feedback input NO/NC Remarks: NC setting = NO setting + 32.	0	-	★
F5-23	X23 function selection		0	-	★
F5-24	X24 function selection		0	-	★
F5-24	X24 function selection		0	-	★
F5-25	CTB input signal type	0 to 65535	1856	-	★

Param.	Name	Range	Default	Unit	Property
F5-26	Y1 function selection	0: Inactive: Output terminal not used. 1: RUN contactor output 2: Main brake contactor output 3: Shorting door lock circuit relay output 4: Fire emergency floor arrival signal feedback 5: Door operator 1 open output 6: Door operator 1 close output 7: Door operator 2 open output 8: Door operator 2 close output 9: Brake and RUN contactors normal 10: Fault state output 11: Running state output 12: Shorting motor stator contactor output 13: Emergency evacuation automatic switchover 14: System healthy 15: Emergency buzzer control 16: High-voltage startup of brake 17: Up signal 18: Light/Fan running	1	-	★
F5-27	Y2 function selection		2	-	★
F5-28	Y3 function selection		12	-	★
F5-29	Y4 function selection		4	-	★
F5-30	Y5 function selection		3	-	★
F5-31	Y6 function selection	19: Medical sterilization control 20: Non-door zone stop output 21: Electromagnetic lock control output 22: Non-service state indication 23: Emergency evacuation completed 25: Rope gripper reset 26: Braking transistor short circuit output 27: Alarm filter output 28 to 32 Reserved 33: Auxiliary brake 1 output 34: Auxiliary brake 2 output	0	-	★
F5-32	Communication state	Communication state monitoring of CANbus and Modbus	-	-	●
F5-33	Program control selection	Bit3: Elevator fire emergency requirements in Hong Kong SAR Bit4: Arrival gong disabled at night Bit6: Door lock disconnection during switchover from the inspection state to the normal state Bit7: Fault code not displayed on the keypad Bit8: Door open command canceled immediately when receiving the door open limit signal Bit9: Torque output holding at stop in the case of abnormal brake feedback	0	-	★

Param.	Name	Range	Default	Unit	Property
F5-34	Terminal state display	Monitoring of I/O terminals on the MCB	-	-	●
F5-35	Terminal state display	Monitoring of I/O terminals on the CTB, CCB, and HCB	-	-	●
F5-36	Load cell input selection	0: MCB digital input 1: CTB digital input 2: CTB analog input 3: MCB analog input	1	-	★
F5-37	X25 function selection	0: Inactive 4: Safety circuit signal 5: Door lock circuit signal 1 (high-voltage input detection point, multiple parameters allowed for this value) 6: Door lock circuit signal 2 (high-voltage input detection point, multiple parameters allowed for this value) 7: Door lock 1 shorting detection 8: Door lock 2 shorting detection	0	-	★
F5-38	X26 function selection		0	-	★
F5-39	X27 function selection		0	-	★
F5-40	X28 function selection		0	-	★
Group F6: Basic Elevator Parameters					
F6-00	Top floor of the elevator	F6-01 to F6-48	9	-	★
F6-01	Bottom floor of the elevator	1 to F6-00	1	-	★
F6-02	Parking floor	F6-01 to F6-00	1	-	★
F6-03	Fire emergency floor	F6-01 to F6-00	1	-	★
F6-04	Elevator lock floor	F6-01 to F6-00	1	-	★
F6-05	Service floor 1	0 to 65535 (floors 1 to 16)	65535	-	★
F6-06	Service floor 2	0 to 65535 (floors 17 to 32)	65535	-	★
F6-07	Number of elevators in group control	1 to 8	1	-	★
F6-08	Elevator No.	1 to 8	1	-	★

Param.	Name	Range	Default	Unit	Property
F6-09	Program selection	Bit0: Dispersed waiting Bit2: Reserved Bit3: CAN2 parallel/group control Bit4: Compatibility mode (group control) Bit6: Clearing the floor number and displaying direction in advance Bit8: Unidirectional hall call (single hall call button) Bit9: Analog disconnection not detected Bit10: E30 judgment at re-leveling cancellation Bit13: Disability calls in parallel/group control Bit14: Time interval detection of safety circuit 2 and door lock circuit 2 (1.5s)	8	-	★
F6-10	Leveling switch delay	10 to 50	14	ms	★
F6-11	Elevator function selection	Bit1: Disabling returning to terminal floor verification Bit2: Canceling automatic ordering of hall call addresses Bit5: Starting current detection of synchronous motor Bit6: Reversing MCB lighting output Bit7: Door open valid in the non-door zone in the inspection state Bit8: Door open once when inspection state switches to normal state at first-time power-on Bit10: Buzzer not tweeting upon re-leveling Bit11: Customized super-short floor function Bit12: Automatic fault reset Bit13: E53 auto reset Bit14: Floor display not reset by up slow-down signal when super-short floor function is enabled Bit15: Floor display not reset by down slow-down signal when super-short floor function is enabled	8448	-	★
F6-12	VIP floor	0 to F6-00	0	-	★
F6-13	Security floor	0 to F6-00	0	-	★
F6-14	Start time of down collective selective 1	00.00 to 23.59	0	HH.MM	☆
F6-15	End time of down collective selective 1	00.00 to 23.59	0	HH.MM	☆
F6-16	Start time of down collective selective 2	00.00 to 23.59	0	HH.MM	☆

Param.	Name	Range	Default	Unit	Property
F6-17	End time of down collective selective 2	00.00 to 23.59	0	HH.MM	☆
F6-18	Start time of time-based floor service 1	00.00 to 23.59	0	HH.MM	☆
F6-19	End time of time-based floor service 1	00.00 to 23.59	0	HH.MM	☆
F6-20	Service floor 1 of time-based floor service 1	0 to 65535	65535	-	☆
F6-21	Service floor 2 of time-based floor service 1	0 to 65535	65535	-	☆
F6-22	Start time of time-based floor service 2	00.00 to 23.59	0	HH.MM	☆
F6-23	End time of time-based floor service 2	00.00 to 23.59	0	HH.MM	☆
F6-24	Service floor 1 of time-based floor service 2	0 to 65535	65535	-	☆
F6-25	Service floor 2 of time-based floor service 2	0 to 65535	65535	-	☆
F6-26	Peak 1 start time for parallel/group control	00.00 to 23.59	0	HH.MM	☆
F6-27	Peak 1 end time for parallel/group control	00.00 to 23.59	0	HH.MM	☆
F6-28	Peak 1 floor for parallel/group control	F6-01 to F6-00	1	-	★
F6-29	Peak 2 start time for parallel/group control	00.00 to 23.59	0	HH.MM	☆
F6-30	Peak 2 end time for parallel/group control	00.00 to 23.59	0	HH.MM	☆
F6-31	Peak 2 floor for parallel/group control	F6-01 to F6-00	1	-	★
F6-35	Service floor 3	0 to 65535 (floors 33 to 48)	65535	-	☆
F6-36	Service floor 3 of time-based floor service 1	0 to 65535	65535	-	☆
F6-37	Service floor 3 of time-based floor service 2	0 to 65535	65535	-	☆
F6-38	Elevator lock start time	00.00 to 23.59	0	HH.MM	☆
F6-39	Elevator lock end time	00.00 to 23.59	0	HH.MM	☆

Param.	Name	Range	Default	Unit	Property
F6-40	Program control selection 1	Bit0: Accessibility function selection Bit1: Software position limit Bit2: JP16 input used as rear door selection (button) Bit3: JP16 input used as rear door open signal Bit4: Open only one door of through-type door under manual control Bit5: Timed elevator lock Bit6: Manually operated door function selection Bit7: Reserved Bit8: Reserved Bit9: Disabling reverse floor number clear Bit10: Display the next arriving floor number Bit11: Responding to car calls first Bit12: Car call auxiliary command terminal used for accessibility function Bit13: Duplicated command used as accessibility and rear door functions (0: rear door function; 1: accessibility function) Bit14: Car call command duplication Bit15: JP20 input used for switchover to rear door (switch)	0	-	★

Param.	Name	Range	Default	Unit	Property
F6-41	Program control selection 2	Bit0: Conditions for deceleration to stop due to slow-down 1 (0: Active for inspection or EEO state, 1: Active for EEO state and inactive for inspection state) Bit1: Reserved Bit2: Decelerate to stop in the inspection state Bit3: Car top inspection in communication mode Bit4: Buzzer tweeting during door open delay Bit5: Reserved Bit6: Door open delay cancellation Bit7: Reserved Bit8: Elevator lock at door open Bit9: Display available at elevator lock Bit10: Elevator lock in the attendant state Bit11: Flashing at arrival (within the time set in F6-47) Bit12: Door re-open during door open delay Bit13: Door re-open upon valid car call of current floor	0	-	★
F6-42	Program control selection 3	Bit0: Reserved Bit1: Canceling door open/close command at a delay after door open/ close limit Bit2: Door lock state not judged at door close output Bit3: Door close output during running Bit4: Returning to terminal floor for verification at first-time power-on Bit5: Clearing calls immediately at elevator lock Bit6: Electromagnetic lock NC output Bit8: Door open/close limit detection cancellation Bit9: Canceling fault subcode scrolling display Bit10: Waiting with door open for energy saving Bit11: Independent switch exiting from parallel control Bit12: UCMP door lock detection enabled Bit13: Door close upon light curtain detecting obstacles Bit14: Door lock shorting detection abnormal and reset	18432	-	★

Param.	Name	Range	Default	Unit	Property
F6-43	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	-	★
F6-44	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: Forced running in the firefighter state Bit11: Exiting the firefighter state upon arrival at fire emergency floor Bit12: Not clearing car calls at reverse door open in the firefighter state Bit13: Reserved Bit14: Door open by holding down the door open button Bit15: Automatic door open at fire emergency floor	16456	-	★

Param.	Name	Range	Default	Unit	Property
F6-45	Emergency evacuation function selection	bit1-bit0: Orientation mode (00: Automatic computation of the direction 01: Load direction determining 10: Landing at nearest floor 11: Defined direction) Bit2: Stopping at the main floor (landing otherwise at the nearest floor) Bit3: Reserved Bit4: Startup compensation (valid or not during emergency evacuation) Bit5: Up direction set for controller drive evacuation Bit6 to bit7: Reserved Bit8: Emergency evacuation running time protection Bit10: Emergency buzzer tweeting Bit12: Speed setting for shorting stator braking mode switchover to controller drive Bit14: Reserved Bit15: Shorting PMSM stator braking function	0	-	★
F6-46	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	-	★
F6-47	Blinking advance time	0.0 to 15.0	1	s	☆
F6-48	Emergency evacuation switching speed	0.010 to 0.630	0.01	m/s	★
F6-49	Emergency evacuation parking floor	0 to F6-00	0	-	★
F6-50	Floor offset in parallel control	0 to 40	0	-	★
F6-51	Quiescent current	0.00 to 655.00	0	A	★

Param.	Name	Range	Default	Unit	Property
F6-52	Program function selection	Bit0: Door close limit signal for door lock monitoring and control Bit1: SCB in communication mode enabled Bit2: CAN communication supported by AFE Bit3: Door lock disconnected twice during switchover from the pit inspection state to the normal state Bit4: Inspection speed limit (0.3 m/s) at terminal floors Bit6: Enabling CTB leveling signal input Bit7: Door operator overheat detection Bit8: Safety edge signal input selection on the CTB Bit9: Canceling light curtain abnormality detection function Bit12: Disabling automatic output of shorting door lock circuit relay upon floor arrival Bit13: Modification of pulse multiplication of asynchronous motor Bit15: Forced pit communication inspection	0	-	★
F6-54	Program function selection 5	Bit0: Door open forbidden for forced door close Bit1: Door close supported for fault occurrence Bit3: Inspection running not allowed for active light curtain signal Bit8: Car top maintenance switch reuse of attendant signal Bit9: Enabling separate brake control Bit10: Car top emergency power supply supported Bit11: Power supply board in communication mode supported	0	-	★

Param.	Name	Range	Default	Unit	Property
F6-55	Function parameter selection	Bit0: Door operator use of MOD serial communication Bit1: Reserved Bit2: Door operator use of CAN serial communication Bit3: Reserved Bit4: Light curtain use of MOD serial communication Bit5: Light curtain use of CAN communication Bit11: Enabling encoder function in communication mode Bit12: Enabling encoder in communication mode manufacturer No. check Bit13: Enabling encoder in communication mode contract No. binding Bit14: Enabling encoder in communication mode contract No. binding delay function	0	-	★
Group F7: Test Function Parameters					
F7-00	Car call floor registered	0 to F6-00	0	-	☆
F7-01	Up hall call floor registered	0 to F6-00	0	-	☆
F7-02	Down hall call floor registered	0 to F6-00	0	-	☆
F7-03	Random running times	0 to 60000	0	-	☆
F7-04	Hall call	0: Hall call allowed 1: Hall call forbidden	0	-	☆
F7-05	Door open	0: Door open allowed 1: Door open forbidden	0	-	☆
F7-06	Overload function	0: Overload forbidden 1: Overload allowed	0	-	☆
F7-07	Limit function	0: Limit function enabled 1: Limit function disabled	0	-	☆
F7-08	Random running interval	0 to 1000	0	s	☆
F7-09	Braking force detection result	0: Meaningless 1: Passed 2: Failed	0	-	●
F7-10	Countdown for braking force detection period	0 to 1440	1440	min	★
F7-13	Balance coefficient	0 to 99.99	0	%	●

Param.	Name	Range	Default	Unit	Property
F7-14	Upper limit reference value of brake torque (double-arm)	0 to 999	0	%	●
F7-15	Upper limit reference value of brake torque (single-arm)	0 to 999	0	%	●
F7-17	Torque setting (single-arm)	0 to 150	30	%	★
F7-25	Distance for car top maintenance	0.000 to 5.000	2.000	m	★
Group F8: Enhanced Function Parameters					
F8-00	Car load ratio during load cell auto-tuning	0 to 100	0	%	★
F8-01	Pre-torque selection	0: Inactive 1: Load cell pre-torque compensation enabled 2: Automatic pre-torque compensation enabled 3: Both load cell pre-torque compensation and automatic pre-torque compensation enabled	2	-	★
F8-02	Pre-torque offset	0.0 to 100.0	50	%	★
F8-03	Drive gain	0.00 to 2.00	0.6	-	★
F8-04	Brake gain	0.00 to 2.00	0.6	-	★
F8-05	Current car load	0 to 255	0	-	●
F8-06	No-load measured by load cell	0 to 255	0	-	★
F8-07	Full-load measured by load cell	0 to 255	0	-	★
F8-08	Anti-nuisance function	0: Anti-nuisance function disabled 1: Load cell judgment 2: Light curtain judgment 4: Light-load judgment	0	-	☆
F8-09	Emergency evacuation speed at power failure	0.020 to F3-11	0.05	m/s	★
F8-10	Emergency evacuation power supply at power failure	0: Motor not running 1: UPS-powered operation 2: 48 V battery power supply	0	-	★
F8-11	Holding time of zero-speed torque current upon brake close	0.200 to 1.500	0.6	s	★
F8-12	Fire emergency floor 2	0 to F6-00	0	-	★

Param.	Name	Range	Default	Unit	Property
F8-14	Hall call communication setting	Bit0: HCB communication baud rate Bit4: Energy-saving control of HCB communication Bit9: Faint light control of HCB buttons	0	-	☆
F8-15	CAN communication setting	Bit8: Touch screen protocol enabled Bit9: Car call restriction protocol enabled Bit10: Door open/close button not controlled by the IC card Bit11: COB and accessory version viewing Bit12: SCB door zone input selection in communication mode 1. Door zone in communication mode	0	-	☆
F8-16	Start address of hall call auxiliary command	F6-00 to F6-47	0	-	☆
F8-17	Hall call address check	0 to 1	0	-	☆
F8-33	Function selection F8-33	Bit0: Reserved Bit1: Enabling disconnection of safety circuit in EEO state Bit2: Disabling pit reset by the MCB input terminal Bit3: Disabling pit reset by the pit inspection terminal	0	-	☆
F8-42	Function selection F8-42	Bit0: Disabling rising edge in EEO state Bit1: CTB DI: X15/X16 multiple function disabled	0	-	☆
Group F9: Time Parameters					
F9-00	Maximum idle time before returning to parking floor	0 to 240	10	min	☆
F9-01	Car energy-saving time	0 to 240	2	min	☆
F9-02	Running time protection	0 to 45	45	s	★
F9-03	Clock: year	2000 to 2100	Current time	YYYY	☆
F9-04	Clock: month	1 to 12	Current time	MM	☆
F9-05	Clock: day	1 to 31	Current time	DD	☆
F9-06	Clock: hour	0 to 23	Current time	HH	☆
F9-07	Clock: minute	0 to 59	Current time	MM	☆
F9-09	Accumulative running time	0 to 65535	0	h	●
F9-11	High byte of running times	0 to 9999	0	-	●
F9-12	Low byte of running times	0 to 9999	0	-	●
F9-13	Maintenance notification period	0 to 99	0	day	★

Param.	Name	Range	Default	Unit	Property
Group FA: Keypad Setting Parameters					
FA-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	-	☆
FA-01	Parameter display in running state	1 to 65535	65535	-	☆
FA-02	Parameter display in the stop state	1 to 65535	65535	-	☆
FA-03	Current encoder angle	0.0 to 3276.8	0	°C	●
FA-05	MCB software version	0 to 65535	0	-	●
FA-06	Drive board software version	0 to 65535	0	-	●
FA-07	Heatsink temperature	0 to 65535	0	°C	●
FA-11	Pre-torque current	0.0 to 999.9	0	%	●
FA-12	Logic information	0 to 65535	0	-	●
FA-13	Curve information	0 to 65535	0	-	●
FA-14	Speed reference	0.000 to 65.535	0	m/s	●
FA-15	Feedback speed	0.000 to 65.535	0	m/s	●
FA-16	Bus voltage	0 to 6553.5	0	V	●
FA-17	Current position	0.0 to 6553.5	0	m	●
FA-18	Output current	0.0 to 6553.5	0	A	●
FA-19	Output frequency	0.00 to 655.35	0	Hz	●
FA-20	Torque current	0.0 to 999.9	0	A	●
FA-21	Output voltage	0 to 6553.5	0	V	●
FA-22	Output torque	0 to 999.9	0	%	●
FA-23	Output power	0.00 to 99.99	0	kW	●
FA-24	Communication interference	0 to 65535	0	-	●
FA-26	Input state 1	0 to 65535	0	-	●
FA-27	Input state 2	0 to 65535	0	-	●
FA-28	Input state 3	0 to 65535	0	-	●
FA-30	Input state 5	0 to 65535	0	-	●
FA-31	Output state 1	0 to 65535	0	-	●
FA-32	Output state 2	0 to 65535	0	-	●
FA-33	Car input state	0 to 65535	0	-	●
FA-34	Car output state	0 to 65535	0	-	●
FA-35	Hall state	0 to 65535	0	-	●
FA-36	System state 1	0 to 65535	0	-	●
FA-37	System state 2	0 to 65535	0	-	●
FA-38	Maximum floor running time interval	0 to 200	0	s	●

Param.	Name	Range	Default	Unit	Property
FA-46	Hall call communication state 1	0 to 65535 (floors 1 to 16)	0	-	●
FA-47	Hall call communication state 2	0 to 65535 (floors 17 to 32)	0	-	●
FA-48	Hall call communication state 3	0 to 65535 (floors 33 to 48)	0	-	●
FA-50	Communication state 1 of HCB connected to expansion board	0 to 65535 (floors 1 to 16)	0	-	●
FA-51	Communication state 2 of HCB connected to expansion board	0 to 65535 (floors 17 to 32)	0	-	●
FA-52	Communication state 3 of HCB connected to expansion board	0 to 65535 (floors 33 to 48)	0	-	●
FA-53	I/O state display	0: Default 1: Machine room expansion board version 2: Car expansion board version	0	-	☆
FA-54	Input state 6	0 to 65535	0	-	●
FA-55	Input state 7	0 to 65535	0	-	●
FA-58	Version display selection	0: Machine-room-less monitoring board version 1: Machine room expansion board version 2: Car expansion board version 3: ARD version 4: AFE master version 5: AFE slave version 6: Forced drive operation box version 7: SCB software version 8: SBC board version 9: Machine-room-less monitoring board (GB/T-2020) 10: Door operator 1 11: Door operator 2 12: Car top emergency power supply 110: Front door COB1 version 111: Front door COB2 version 112: Front door CCB1 version 113: Front door CCB2 version 120: Rear door COB1 version 121: Rear door COB2 version and so on 201: Pit inspection board version	0	-	☆
FA-59	Major software version	0 to 65535	0	-	●

Param.	Name	Range	Default	Unit	Property
FA-60	Temporary software version	0 to 65535	0	-	●
FA-61	Manufacturer software version	0 to 65535	0	-	●
FA-63	Inspection state monitoring	0 to 65535 Bit0: CTB forced inspection sign Bit1: Pit forced inspection sign Bit2: Forced door lock bypass sign Bit3: Shaft auto-tuning not performed Bit4: Reserved Bit13: Forced inspection sign for braking force detection Bit14: Inspection running allowed in emergency evacuation	0	-	●
FA-67	MCU type	0 to 65535 0: ST 1:	0	-	●
Group FB: Door Function Parameters					
FB-00	Number of door operators	1 to 2	1	-	★
FB-01	CTB software version	0 to 655.35	0	-	●
FB-02	Service floor 1 of door operator 1	0 to 65535	65535	-	☆
FB-03	Service floor 2 of door operator 1	0 to 65535	65535	-	☆
FB-04	Service floor 1 of door operator 2	0 to 65535	65535	-	☆
FB-05	Service floor 2 of door operator 2	0 to 65535	65535	-	☆
FB-06	Door open protection time	5 to 99	10	s	☆
FB-07	Arrival gong output delay	0 to 1000	0	ms	☆
FB-08	Door close protection time	5 to 99	15	s	☆
FB-09	Door open/close times	0 to 20	0	-	☆
FB-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	-	☆
FB-11	Door open holding time for hall call	1 to 1000	5	s	☆
Fb-12	Door open holding time for car call	1 to 1000	3	s	☆
FB-13	Door open holding time at main floor	1 to 1000	10	s	☆

Param.	Name	Range	Default	Unit	Property
FB-14	Duration of door open holding delay	10 to 1000	30	s	☆
FB-15	Special door open holding time	10 to 1000	30	s	☆
FB-16	Manually operated door open limit delay	1 to 60	5	s	☆
FB-17	Waiting time for forced door close	5 to 180	120	s	☆
FB-18	Service floor 3 of door operator 1	0 to 65535	65535	-	☆
FB-19	Service floor 3 of door operator 2	0 to 65535	65535	-	☆
FB-20	Manually operated door lock waiting time	0 to 60	0	-	☆
FB-23	Major version of the platform	0 to 655.35	0	-	●
FB-24	UCMP test program version	0 to 65535	1	-	●
FB-27	Door open duration at fault occurrence	0 to 60000	60	s	☆
FB-28	Door open/close protection time at fault occurrence	0 to 60000	60	s	☆
FB-29	Rescue exit time after door close limit	3 to 999	15	s	☆
FB-35	VIP exit delay	0.00 to 600.00	30.00	s	☆
Group FC: Protection Function Parameters					
FC-00	Program control selection	Bit0: Detection of short circuit to ground at power-on Bit1: Reserved Bit2: Decelerating to stop at valid light curtain Bit9: Mode without door open/close limit	0	-	★
FC-01	Function selection	Bit0: Overload protection Bit1: Canceling output phase loss protection Bit4: Light curtain judgment upon door close limit Bit5: Canceling SPI communication detection Bit6: Reserved Bit8: Reserved Bit14: Canceling input phase loss protection	65	-	★
FC-02	Overload protection coefficient	0.50 to 10.00	1	-	★

Param.	Name	Range	Default	Unit	Property
FC-03	Overload pre-warning coefficient	50 to 100	80	%	★
FC-04	Through-type door control selection	0 to 3	0	-	★
FC-11	11th fault	0 to 9999	0	-	●
FC-12	11th fault subcode	0 to 65535	0	-	●
FC-13	Month and day upon 11th fault	0 to 1231	0	MM.DD	●
FC-14	Hour and minute upon 11th fault	0 to 23.59	0	HH.MM	●
FC-15	12th fault	0 to 9999	0	-	●
FC-16	12th fault subcode	0 to 65535	0	-	●
FC-17	Month and day upon 12th fault	0 to 1231	0	MM.DD	●
FC-18	Hour and minute upon 12th fault	0 to 23.59	0	HH.MM	●
FC-19	13th fault	0 to 9999	0	-	●
FC-20	13th fault subcode	0 to 65535	0	-	●
FC-21	Month and day upon 13th fault	0 to 1231	0	MM.DD	●
FC-22	Hour and minute upon 13th fault	0 to 23.59	0	HH.MM	●
FC-23	14th fault	0 to 9999	0	-	●
FC-24	14th fault subcode	0 to 65535	0	-	●
FC-25	Month and day upon 14th fault	0 to 1231	0	MM.DD	●
FC-26	Hour and minute upon 14th fault	0 to 23.59	0	HH.MM	●
FC-27	15th fault	0 to 9999	0	-	●
FC-28	15th fault subcode	0 to 65535	0	-	●
FC-29	Month and day upon 15th fault	0 to 1231	0	MM.DD	●
FC-30	Hour and minute upon 15th fault	0 to 23.59	0	HH.MM	●
FC-31	16th fault	0 to 9999	0	-	●
FC-32	16th fault subcode	0 to 65535	0	-	●
FC-33	Month and day upon 16th fault	0 to 1231	0	MM.DD	●
FC-34	Hour and minute upon 16th fault	0 to 23.59	0	HH.MM	●
…					
FC-207	60th fault	0 to 9999	0	-	●
FC-208	60th fault subcode	0 to 65535	0	-	●
FC-209	Month and day upon 60th fault	0 to 1231	0	MM.DD	●

Param.	Name	Range	Default	Unit	Property
FC-210	Hour and minute upon 60th fault	0 to 23.59	0	HH.MM	●
Group FD: Communication Parameters					
FD-00	Baud rate setting	0: 9600 1: 38400	1	-	★
FD-02	Local address	0 to 127 (0: broadcast address)	1	-	★
FD-03	Response delay	0 to 20	0	ms	★
FD-04	Communication timeout	0 to 60	0	s	★
FD-05	Re-leveling stop delay	0.00 to 2.00	0	s	★
FD-07	HCB-JP1 input	0: Inactive 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 from the hall	1	-	★
FD-08	HCB-JP2 input		2	-	★
FD-09	HCB-JP1 output	0: Inactive 1: Up arrival indicator 2: Down arrival indicator 3: Fault signal 4: Non-door zone stop output 5: Non-service state output 6: Door close button indicator output	1	-	★
FD-10	HCB-JP2 output		2	-	★

Param.	Name	Range	Default	Unit	Property
Fd-11	Expansion board 1: X1 input	0: Reserved 1: Fire emergency signal NO 2: Overload signal NO 3: Full-load signal NO 4: Firefighter operation NO 5: Door operator 1 light curtain input NO 6: Door operator 2 light curtain input NO 7: Brake travel switch 1 feedback input NO 8: UPS active input NO 9: Elevator lock input NO 10: Safety circuit input 2 NO 11: Synchronous motor self-locking feedback input NO 12: Door lock circuit 2 feedback input NO 13: Door operator 1 safety edge input NO 14: Door operator 2 safety edge input NO 15: Motor overheat signal input NO 16: Earthquake signal input NO 17: Rear door forbidden input NO 18: Light-load input NO 19: Half-load input NO 20: Fire emergency floor switchover input NO 21: Dummy floor input NO 22: Door 1 open input NO 23: Door 2 open input NO 24: Brake travel switch 2 feedback input NO 25: External fault input NO 26: Terminal floor signal input NO 27: Door 2 selection input NO 28: Single/double door selection input NO (NC + 32) 29: Door operator over-temperature 1 input NO 30: Door operator over-temperature 2 input NO 31: Light curtain fault 1 input NO 32: Reserved 33 to 63: Input NC (1 to 31) 64: Reserved 65: Light curtain fault 2 input NO	0	-	★
FD-12	Expansion board 1: X2 input		0	-	★
FD-13	Expansion board 1: X3 input		0	-	★
FD-14	Expansion board 1: X4 input		0	-	★
FD-15	Expansion board 1: X5 input		0	-	★
FD-16	Expansion board 1: X6 input		0	-	★
FD-17	Expansion board 1: X7 input		0	-	★
FD-18	Expansion board 1: X8 input		0	-	★
FD-19	Expansion board 1: X9 input		0	-	★
FD-20	Expansion board 1: X10 input		0	-	★
FD-21	Expansion board 2: X1 input		0	-	★
FD-22	Expansion board 2: X2 input		0	-	★
FD-23	Expansion board 2: X3 input		0	-	★
FD-24	Expansion board 2: X4 input		0	-	★
FD-25	Expansion board 2: X5 input		0	-	★
FD-26	Expansion board 2: X6 input		0	-	★
FD-27	Expansion board 2: X7 input		0	-	★
FD-28	Expansion board 2: X8 input		0	-	★
FD-29	Expansion board 2: X9 input		0	-	★
FD-30	Expansion board 2: X10 input		0	-	★

Param.	Name	Range	Default	Unit	Property
FD-31	Expansion board 1: Y1 output	0: Not used yet 1: Door open by door operator 1 2: Door close by door operator 1 3: Door open by door operator 2 4: Door close by door operator 2 5: Brake and RUN contactors normal (no faults E37 and E36) 6: Fault state (output in level 3/4/5 faults) 7: Running monitoring (NICE3000^{new} in running state)	0	-	★
FD-32	Expansion board 1: Y2 output		0	-	★
FD-33	Expansion board 1: Y3 output		0	-	★
FD-34	Expansion board 1: Y4 output		0	-	★
FD-35	Expansion board 1: Y5 output		0	-	★
FD-36	Expansion board 1: Y6 output		0	-	★
FD-37	Expansion board 1: Y7 output		0	-	★
FD-38	Expansion board 1: Y8 output		0	-	★
Fd-39	Expansion board 1: Y9 output		0	-	★
FD-40	Expansion board 1: Y10 output		0	-	★

Param.	Name	Range	Default	Unit	Property
FD-41	Expansion board 2: Y1 output	8: Synchronous motor self-locking output 9: Controller healthy 10: Emergency buzzer output 11: High-voltage startup of brake (continuous output of 4s) 12: UP running signal 13: Lighting/Fan output 14: Medical sterilization output 15: Non-door zone stop 16: Electromagnetic lock output 17: Non-service state output 18: Emergency evacuation completed 19: Fire emergency output during firefighter operation and when returning to fire emergency floor 20: Emergency output at power failure 21: Door lock active 22: Night output signal 23: Alarm filter output 24: Up running 25: Down running 26: Floor binary output (Bit1) 27: Floor binary output (Bit2) 28: Floor binary output (Bit3) 29: Floor binary output (Bit4) 30: Floor binary output (Bit5) 31: Floor binary output (Bit6)	0	-	★
FD-42	Expansion board 2: Y2 output		0	-	★
FD-43	Expansion board 2: Y3 output		0	-	★
FD-44	Expansion board 2: Y4 output		0	-	★
FD-45	Expansion board 2: Y5 output		0	-	★
FD-46	Expansion board 2: Y6 output		0	-	★
Fd-47	Expansion board 2: Y7 output		0	-	★
FD-48	Expansion board 2: Y8 output		0	-	★
FD-49	Expansion board 2: Y9 output		0	-	★
FD-50	Expansion board 2: Y10 output		0	-	★
Group FE: Display Setting Parameters					
FE-00	Collective selective mode	0: Full collective selective 1: Down collective selective 2: Up collective selective	0	-	★

Param.	Name	Range	Default	Unit	Property
FE-01	Floor 1 display	The two high digits indicate the display code of tens position of the floor number, and the two low digits indicate the display code of ones position. The correlation between the code and the display is as follows: 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"	1901	-	☆
FE-02	Floor 2 display		1902	-	☆
FE-03	Floor 3 display		1903	-	☆
FE-04	Floor 4 display		1904	-	☆
FE-05	Floor 5 display		1905	-	☆
FE-06	Floor 6 display		1906	-	☆
FE-07	Floor 7 display		1907	-	☆
FE-08	Floor 8 display		1908	-	☆
FE-09	Floor 9 display		1909	-	☆
FE-10	Floor 10 display		100	-	☆
FE-11	Floor 11 display		101	-	☆
FE-12	Floor 12 display		102	-	☆
FE-13	Floor 13 display		103	-	☆
FE-14	Floor 14 display		104	-	☆
FE-15	Floor 15 display		105	-	☆
Floors 16 to 30 display			...		

Param.	Name	Range	Default	Unit	Property
FE-31	Floor 31 display	15: Display "M" 16: Display "P" 17: Display "R" 18: Display "-" 19: No display 20: Display "12" 21: Display "13" 22: Display "23" 23: Display "C" 24: Display "D" 25: Display "E" 26: Display "F" 27: Display "I" 28: Display "J" 29: Display "K" 30: Display "N" 31: Display "O" 32: Display "Q" 33: Display "S" 34: Display "T" 35: Display "U" 36: Display "V" 37: Display "W" 38: Display "X" 39: Display "Y" 40: Display "Z" 41: Display "15" 42: Display "17" 43: Display "19"	301	-	☆
FE-35	Floor 32 display		302	-	☆
FE-36	Floor 33 display		303	-	☆
FE-37	Floor 34 display		304	-	☆
FE-38	Floor 35 display		305	-	☆
FE-39	Floor 36 display		306	-	☆
FE-40	Floor 37 display		307	-	☆
FE-41	Floor 38 display		308	-	☆
FE-42	Floor 39 display		309	-	☆
FE-43	Floor 40 display		400	-	☆
FE-44	Floor 41 display		401	-	☆
FE-45	Floor 42 display		402	-	☆
FE-46	Floor 43 display		403	-	☆
FE-47	Floor 44 display		404	-	☆
FE-48	Floor 45 display		405	-	☆
FE-49	Floor 46 display		406	-	☆
FE-50	Floor 47 display		407	-	☆
FE-51	Floor 48 display		408	-	☆
FE-52	Most significant bit selection 1	0 to 4099	0	-	☆
FE-53	Most significant bit selection 2		0	-	☆
FE-54	Most significant bit selection 3		0	-	☆
FE-55	Most significant bit selection 4		0	-	☆
FE-56	Most significant bit selection 5		0	-	☆

Param.	Name	Range	Default	Unit	Property
FE-32	Elevator function selection 1	Bit0: Reserved Bit1: Time-based door service Bit2: Re-leveling function Bit3: Advance door opening Bit4: Stuck hall call cancellation Bit5: Night security floor function Bit6: Peak service of down collective selective Bit7: Peak service for parallel/group control Bit8: Time-based floor service Bit9: VIP function Bit10: Reserved Bit11: Car call cancellation Bit12: Hall call cancellation Bit13 to Bit15: Reserved	34816	-	☆
FE-33	Elevator function selection 2	Bit0: Reserved Bit1: Door open holding at open limit Bit2: Door close command not output upon door close limit Bit3: Reserved Bit4: Automatic reset for stuck RUN and brake contactors Bit5: Slow-down switch stuck detection Bit6: Reserved Bit7: Forced door close Bit8: Reserved Bit10 to Bit12: Reserved Reserved Bit13: High-speed protection function Bit14: Reserved Bit15: Through-type door independent control	36	-	☆
Group FF: Factory Parameters					
Group FJ: Factory parameters					
Group FP: User Parameters					
FP-00	User password	0 to 65535	0	-	☆
FP-01	Parameter update	0: Inactive 1: Restoring default parameters 2: Clearing records 3: Clearing shaft parameters	0	-	★
FP-02	Check on user-defined parameters	0: Inactive 1: Active	0	-	★
FP-05	Contract No. 2	0 to 65535	0	-	★
FP-06	Contract No. 1	0 to 65535	5555	-	★
Group Fr: Leveling Adjustment Parameters					

Param.	Name	Range	Default	Unit	Property
Fr-00	Leveling adjustment mode	0: Inactive 1: Leveling adjustment enabled	0	-	★
Fr-01	Leveling adjustment record 1	0 to 60060	30030	mm	★
...	...	0 to 60060	30030	mm	~
Fr-24	Leveling adjustment record 24	0 to 60060	30030	mm	★
Groups E0 to E9: Fault Record Parameters					
E0-00	Latest fault	0 to 9999	0	-	●
E0-01	Latest fault subcode	0 to 65535	0	-	●
E0-02	Month and day upon latest fault	0 to 1231	0	MM.DD	●
E0-03	Hour and minute upon latest fault	0 to 23.59	0	HH.MM	●
E0-04	Logic information upon latest fault	0 to 65535	0	-	●
E0-05	Curve information upon latest fault	0 to 65535	0	-	●
E0-06	Speed reference upon latest fault	0.000 to 4.000	0	m/s	●
E0-07	Feedback speed upon latest fault	0.000 to 4.000	0	m/s	●
E0-08	Bus voltage upon latest fault	0 to 999.9	0	V	●
E0-09	Current position upon latest fault	0.0 to 300.0	0	m	●
E0-10	Output current upon latest fault	0.0 to 999.9	0	A	●
E0-11	Output frequency upon latest fault	0.00 to 99.99	0	Hz	●
E0-12	Torque current upon latest fault	0.0 to 999.9	0	A	●
E0-13	Output voltage upon latest fault	0 to 999.9	0	V	●
E0-14	Output torque upon latest fault	0 to 200.0	0	%	●
E0-15	Output power upon latest fault	0.00 to 99.99	0	kW	●
E0-16	Communication interference upon latest fault See FA-24 description.	0 to 65535	0	-	●
E0-17	Encoder interference upon latest fault	0 to 65535	0	-	●

Param.	Name	Range	Default	Unit	Property
E0-18	Input state 1 upon latest fault See FA-26 description.	0 to 65535	0	-	●
E0-19	Input state 2 upon latest fault See FA-27 description.	0 to 65535	0	-	●
E0-20	Input state 3 upon latest fault See FA-28 description.	0 to 65535	0	-	●
E0-21	Input state 4 upon latest fault See FA-29 description.	0 to 65535	0	-	●
E0-22	Input state 5 upon latest fault See FA-30 description.	0 to 65535	0	-	●
E0-23	Output state 1 upon latest fault See FA-31 description.	0 to 65535	0	-	●
E0-24	Output state 2 upon latest fault See FA-32 description.	0 to 65535	0	-	●
E0-25	Car input state upon latest fault See FA-33 description.	0 to 65535	0	-	●
E0-26	Car output state upon latest fault See FA-34 description.	0 to 65535	0	-	
E0-27	Hall state upon latest fault See FA-35 description.	0 to 65535	0	-	
E0-28	System state 1 upon latest fault See FA-36 description.	0 to 65535	0	-	
E0-29	System state 2 upon latest fault See FA-37 description.	0 to 65535	0	-	
...					
E9-00	10th fault	0 to 9999	0	-	●
E9-01	10th fault subcode	0 to 65535	0	-	●
E9-02	Month and day upon 10th fault	0 to 1231	0	MM.DD	●
E9-03	Hour and minute upon 10th fault	0 to 23.59	0	HH.MM	●
E9-04	Logic information upon 10th fault	0 to 65535	0	-	●

Param.	Name	Range	Default	Unit	Property
E9-05	Curve information upon 10th fault	0 to 65535	0	-	●
E9-06	Speed reference upon 10th fault	0.000 to 4.000	0	m/s	●
E9-07	Feedback speed upon 10th fault	0.000 to 4.000	0	m/s	●
E9-08	Bus voltage upon 10th fault	0 to 999.9	0	V	●
E9-09	Current position upon 10th fault	0.0 to 300.0	0	m	●
E9-10	Output current upon 10th fault	0.0 to 999.9	0	A	●
E9-11	Output frequency upon 10th fault	0.00 to 99.99	0	Hz	●
E9-12	Torque current upon 10th fault	0.0 to 999.9	0	A	●
E9-13	Output voltage upon 10th fault	0 to 999.9	0	V	●
E9-14	Output torque upon 10th fault	0 to 200.0	0	%	●
E9-15	Output power upon 10th fault	0.00 to 99.99	0	kW	●
E9-16	Communication interference upon 10th fault	0 to 65535	0	-	●
E9-17	Encoder interference upon 10th fault	0 to 65535	0	-	●
E9-18	Input state 1 upon 10th fault	0 to 65535	0	-	●
E9-19	Input state 2 upon 10th fault	0 to 65535	0	-	●
E9-20	Input state 3 upon 10th fault	0 to 65535	0	-	●
E9-21	Input state 4 upon 10th fault	0 to 65535	0	-	●
E9-22	Input state 5 upon 10th fault	0 to 65535	0	-	●
E9-23	Output state 1 upon 10th fault	0 to 65535	0	-	●
E9-24	Output state 2 upon 10th fault	0 to 65535	0	-	●
E9-25	Car input state upon 10th fault	0 to 65535	0	-	●
E9-26	Car output state upon 10th fault	0 to 65535	0	-	●

Param.	Name	Range	Default	Unit	Property
E9-27	Hall state upon 10th fault	0 to 65535	0	-	●
E9-28	System state 1 upon 10th fault	0 to 65535	0	-	●
E9-29	System state 2 upon 10th fault	0 to 65535	0	-	●

2 Parameter Description

2.1 Keypad Parameter Description

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

- F-0: Display of floor and running direction
  By default, the F-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 F-0 menu is displayed.

Running direction Current floor

No display for stop state
LED flashes to indicate the running direction in running state
LEDs display the fault code when fault occurs

- F-1: Command input of the running floor
  After you enter the F1 menu by pressing PRG, UP and SET, the LEDs display the bottom floor of the elevator (F6-01). 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 F-0 menu.

- F-2: Fault reset and fault time display
  After you enter the F-2 menu by pressing the PRG, UP and SET key, the LEDs display “0”. You can press the UP key to change the setting to 1 or 2.
  - “1”: If you select this value and press the SET key, the system fault is cleared. Then, the display automatically switches to the F0 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.

- F-3: Time display
  After you enter the F-3 menu by pressing the PRG, UP and SET key, the LEDs display the current system time.

- F-4: Contract number display
  After you enter the F-4 menu by pressing the PRG, UP and SET key, the LEDs display the user's contract number.

- F-5: Running times display
  After you enter the F-5 menu, the LEDs display the elevator running times.
- F-6: Door open/close control
  After you enter the F-6 menu by pressing the PRG, UP and SET key, the LEDs display 1-1, and UP and SET control the door open and close respectively. You can press the PRG key to exit.
- F-7: Floor auto-tuning command input
  After you enter the F-7 menu by pressing the PRG, UP and SET key, the LEDs display 0. You can choose 1 or 2 using UP key. 1 and 2 indicate the shaft auto-tuning command (1: Leveling adjustment parameters in group FR not cleared; 2: Leveling adjustment parameters in group FR cleared). After you select 1 or 2 and press SET, shaft auto-tuning is implemented if the conditions are met. Meanwhile, the display switches over to the F-0 menu. After shaft auto-tuning is complete, F-7 is back to 0 automatically. If shaft auto-tuning conditions are not met, fault code E35 is displayed.
- F-8: Test function
  After you enter the F-8 menu by pressing the PRG, UP and SET key, the LEDs display 0. The setting of F-8 is described as follows:

LED display	Function
1	Maintenance
2	Door open forbidden
3	Overload forbidden
4	Limit switches disabled
6	Slip test
7	Manual UCMP test
8	Manual braking force test
11	Balance coefficient auto-tuning
20	Dynamic braking force test (MRL)
24	Ascending car overspeed protection (ACOP) test
25	Time limit test
26	Shorting motor stator braking test

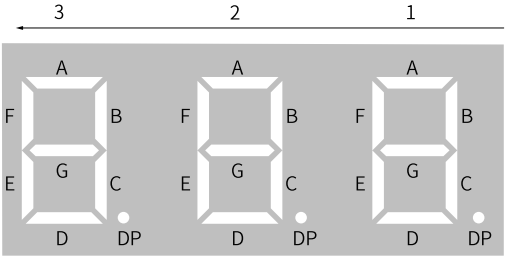
  After the setting of 0 to 30, press SET. The LEDs flash “E88”, indicating the elevator is under test. When you press PRG to exit, F-8 restores to 0 automatically.

- F-9: Reserved
- F-A: Auto-tuning
  After you enter the F-A menu by pressing the PRG, UP and SET key, the LEDs display “0”. The setting range of F-A is 0 to 2:

LED display	Function
1	With-load auto-tuning
2	No-load auto-tuning

After the setting is complete, press the SET key to save it. 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 complete, the LEDs display the current angle for 2s and then switch to the F-0 menu automatically. You can press the PRG key to exit the auto-tuning state.

- F-B: CTB state display
  After you enter the F-B menu by pressing the PRG, UP and SET key, 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

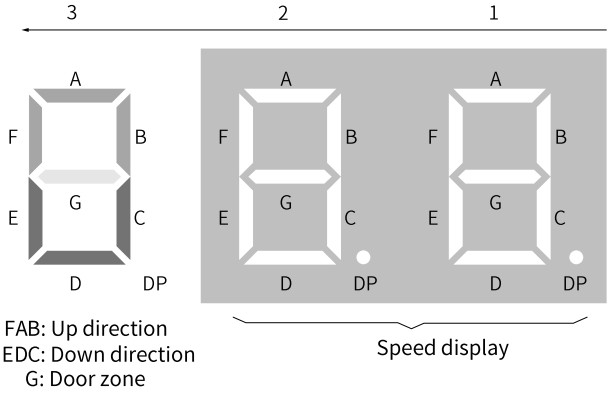
Table 2–1 CTB state display

Segment	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

- F-C: Do not modify the value of F-C randomly. The function of F-C is the same as that of F2-10 (Elevator running direction).
  0: Direction unchanged

1: Direction reversed

- F-d:Emergency and test operation functions
  After you enter the F-d menu by pressing the PRG, UP and SET key, 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 (for PMSM) state.

Note

When the elevator speed is below 1.000 m/s, "x.x 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.

2.2 Operating Panel Parameter Description

2.2.1 Function Parameter Groups

After pressing PRG and then △/▽ on the LED operating panel, you can view the parameter groups. The following table shows the details.

Param.	Name	Param.	Name
F0	Basic Parameters	FA	Keypad Setting Parameters
F1	Motor Parameters	FB	Door Function Parameters
F2	Vector Control Parameters	FC	Protection Function Parameters
F3	Running Control Parameters	FD	Communication Parameters
F4	Floor Parameters	FE	Display Setting Parameters

Param.	Name	Param.	Name
F5	Terminal Function Parameters	FF	Factory Parameters (Reserved)
F6	Basic Elevator Parameters	FP	User Parameters
F7	Intelligent Commissioning Parameters	Fr	Leveling Adjustment Parameters
F8	Enhanced Function Parameters	E0 to E9	Fault Record Parameters
F9	Time Parameters	FJ	Factory Parameters (Reserved)

2.2.2 Group F0: Basic Parameters

Param.	Name	Range	Default	Unit	Property
F0-00	Control mode	0: SVC 1: FVC 2: V/f control	1	-	★

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)	No
1	FVC	It is applicable to normal running under distance control	Yes
2	V/f control	It is applicable to equipment detection (Almost fixed voltage/frequency ratio, simple control, and poor low-frequency torque characteristics)	No

Param.	Name	Range	Default	Unit	Property
F0-01	Command source selection	0: Operating panel control 1: Distance control	1	-	★

F0-01 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 F0-02 (Running speed under operating panel control).
1	Distance control	X input signals judged	Output	Used during normal elevator running	• During inspection, the elevator runs at the speed set in F3-11. • During normal 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.

Param.	Name	Range	Default	Unit	Property
F0-02	Running speed under operating panel control	0.050 to F0-04	0.050	m/s	☆
F0-03	Running speed	0.250 to F0-04	1.600	m/s	★
F0-04	Rated speed	0.250 to 4.000	1.600	m/s	★

F0-02 is used to set the running speed in the operating panel control mode.

F0-03 is used to set the actual maximum running speed of the elevator. The value is not greater than the rated elevator speed (F0-04).

F0-04 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.

Example:

If the elevator with a rated speed of 1 m/s runs at 0.95 m/s, F0-04 shall be set at 1.000 m/s and F0-03 at 0.950 m/s.

Param.	Name	Range	Default	Unit	Property
F0-05	Rated load	300 to 9999	1000	kg	★

Set the rated elevator load properly. It is used in the anti-nuisance function.

Param.	Name	Range	Default	Unit	Property
F0-06	Maximum frequency	F1-04 to 99.00	50.00	Hz	★

It is used to set the maximum output frequency of the system. This value must be greater than the rated motor frequency.

Param.	Name	Range	Default	Unit	Property
F0-07	Carrier frequency	0.5 to 16.0	6.0	kHz	★

It is 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.

Performance	Influence
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

2.2.3 Group F1: Motor Parameters

Param.	Name	Range	Default	Unit	Property
F1-00	Encoder type selection	0: Sin/Cos encoder 1: UVW encoder 2: ABZ encoder 3: Endat absolute encoder	0	-	★

Set F1-00 to a proper value according to the type of encoder used together with the motor.

- When F1-25 is set to 1 (Synchronous motor), set this parameter correctly before auto-tuning. Otherwise, the motor cannot run properly.
- When F1-25 is set to 0 (Asynchronous motor), this parameter is automatically changed to 2 (ABZ encoder). You need not modify it manually.

Param.	Name	Range	Default	Unit	Property
F1-01	Rated power	0.7 to 75.0	Model dependent	kW	★
F1-02	Rated voltage	0 to 600	Model dependent	V	★
F1-03	Rated current	0.00 to 655.00	Model dependent	A	★

Param.	Name	Range	Default	Unit	Property
F1-04	Rated frequency	0.00 to F0-06	Model dependent	Hz	★
F1-05	Rated speed	0 to 3000	Model dependent	rpm	★

Set these parameters according to the motor type and motor nameplate.

Param.	Name	Range	Default	Unit	Property
F1-06	Encoder initial angle (synchronous motor)	0.0 to 359.9	0	°	★
F1-07	Encoder angle at power-off (synchronous motor)	0.0 to 359.9	0	°	★
F1-08	Synchronous motor wiring mode	0 to 15	0	-	★

These parameters are obtained by means of motor auto-tuning.

F1-06 specifies the encoder angle at zero point. After multiple times of auto-tuning, compare the obtained values, and the value deviation of F1-06 shall be within ±5°.

F1-07 specifies the angle of the magnetic pole when the motor is powered off. The value is recorded at power-off and is used for comparison at next power-on.

F1-08 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.

F1-06 and F1-08 can be modified only when F0-01 is set to 0.

Param.	Name	Range	Default	Unit	Property
F1-09	ADC sampling delay time setting	0.0 to 359.9	0	-	★
F1-10	Encoder signal check	0 to 65535	0	-	★

F1-10 is used to set encoder signal check. This parameter is set by the manufacturer, and you need not modify it generally.

Param.	Name	Range	Default	Unit	Property
F1-11	Auto-tuning selection	0: No operation 1: With-load auto-tuning 2: No-load auto-tuning 3: Shaft auto-tuning 1 4: Shaft auto-tuning 2 5: Synchronous motor static auto-tuning	0	-	★

It is used to select the auto-tuning mode. The values are as follows:

- 0: No operation
- 1: With-load auto-tuning: static auto-tuning for asynchronous motor and rotary auto-tuning for synchronous motor
- 2: No-load auto-tuning
- 3: Shaft auto-tuning 1, with parameters in group FR not cleared
- 4: Shaft auto-tuning 2, with parameters in group FR cleared
- 5: Synchronous motor static auto-tuning

Param.	Name	Range	Default	Unit	Property
F1-12	Pulses per revolution	0 to 10000	2048	PPR	★

F1-12 is used to set the pulses per revolution of the encoder (according to the encoder nameplate).

Param.	Name	Range	Default	Unit	Property
F1-13	Encoder disconnection detection time	0 to 10.0	2.1	s	★

It is 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 0.5s, this function is disabled.

Param.	Name	Range	Default	Unit	Property
F1-14	Asynchronous motor stator resistance	0.000 to 30.000	Model dependent	Ω	★
F1-15	Asynchronous motor rotor resistance	0.000 to 30.000	Model dependent	Ω	★

Param.	Name	Range	Default	Unit	Property
F1-16	Asynchronous motor leakage inductance	0.00 to 300.00	Model dependent	mH	★
F1-17	Asynchronous motor mutual inductance	0.1 to 3000.0	Model dependent	mH	★
F1-18	Asynchronous motor no-load current	0.01 to 300.00	Model dependent	A	★

These parameters are obtained through asynchronous motor auto-tuning. After motor auto-tuning is complete, 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 (F1-01) of the asynchronous motor is modified, these parameters automatically restore to the standard default values.

Param.	Name	Range	Default	Unit	Property
F1-19	Q-axis inductance (torque)	0.00 to 650.00	3.00	mH	★
F1-20	D-axis inductance (excitation)	0.00 to 650.00	3.00	mH	★
F1-21	Back EMF coefficient	0 to 65535	0	-	★

F1-19 to F1-21 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.

Param.	Name	Range	Default	Unit	Property
F1-22	Auto-tuning function selection	Bit1 = 1, bit2 = 0: semi-automatic angle-free auto-tuning Bit1 = 1, bit2 = 1: automatic angle-free auto-tuning	0	-	★

Settings of bit1 and bit2 are used to select the angle-free auto-tuning mode of the synchronous motor.

- Bit1 = 1, bit2 = 0: semi-automatic angle-free auto-tuning
  After the controller power fails and then is restored, the system automatically performs the encoder angle auto-tuning only during trial inspection running. After auto-tuning is successful, the system does not perform auto-tuning again before the next power-off.

Note

If a power failure occurs when the auto-tuning is not finished during trial running at inspection speed, Err19 is reported when the elevator enters the normal state after the system is powered on again.

- Bit1 = 1, bit2 = 1: automatic angle-free auto-tuning
  After power-off and power-on again, the system automatically performs encoder angle auto-tuning during the elevator running at inspection/normal speed. After auto-tuning is successful, the system does not perform auto-tuning again before the next power-off.

Param.	Name	Range	Default	Unit	Property
F1-25	Motor type	0: Asynchronous motor 1: Synchronous motor	1	-	★

This parameter is used to select the motor type. The values are as follows:

0: Asynchronous motor

1: Synchronous motor

2.2.4 Group F2: Vector Control Parameters

Param.	Name	Range	Default	Unit	Property
F2-00	Speed loop proportional gain Kp1	0 to 100	40	-	★
F2-01	Speed loop integral time Ti1	0.01 to 10.00	0.60	s	★
F2-02	Switchover frequency 1	0.00 to F2-05	2.00	Hz	★
F2-03	Speed loop proportional gain Kp2	0 to 100	35	-	★
F2-04	Speed loop integral time Ti2	0.01 to 10.00	0.80	s	★
F2-05	Switchover frequency 2	F2-02 to F0-06	5.00	Hz	★

Speed loop proportional gain Kp1 and speed loop integral time Ti1 are PI regulation parameters when the running frequency is lower than the switchover frequency 1.

Speed loop proportional gain Kp2 and speed loop integral time Ti2 are PI regulation parameters when the 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 F2-00, F2-01, F2-03 and F2-04. The following figure shows the details.

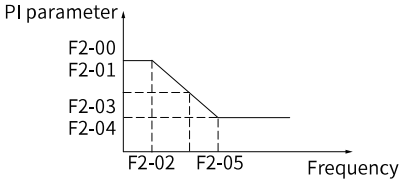


Figure 2-1 PI parameter

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 F2-03 and F2-04 are valid.

Param.	Name	Range	Default	Unit	Property
F2-06	Current loop proportional gain Kp	10 to 500	60	-	★
F2-07	Current loop integral gain Ki	10 to 500	30	-	★

F2-06 and F2-07 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.

Param.	Name	Range	Default	Unit	Property
F2-08	Torque upper limit	0.0 to 200.0	200.0	%	★

It is used to set the motor torque upper limit. The value 100% corresponds to the rated output torque of the AC drive.

Param.	Name	Range	Default	Unit	Property
F2-10	Elevator running direction	0: Direction unchanged 1: Direction reversed	0	-	★

It is used to set the elevator running direction. The values are as follows:

0: Direction unchanged

1: Direction reversed

You can modify F2-10 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 F2-10.

Pay attention to the setting of this parameter when restoring the factory parameters.

Param.	Name	Range	Default	Unit	Property
F2-11	Position lock current coefficient	2.0 to 50.0	15.0	%	★
F2-12	Position lock speed loop Kp	0.00 to 2.00	0.50	-	★
F2-13	Position lock speed loop Ti	0.00 to 2.00	0.60	-	★

It is used for no-load-cell startup pre-torque self-adaption. You can enable the no-load-cell startup function by setting F8-01 (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.

Param.	Name	Range	Default	Unit	Property
F2-16	Torque acceleration time	1 to 500	1	ms	★
F2-17	Torque deceleration time	1 to 3000	350	ms	★

F2-16 and F2-17 are 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 F2-16 to eliminate the sound.
- If some abnormal sound occurs when the current decreases to zero at stop, increase the value of F2-17 to eliminate the sound.

Param.	Name	Range	Default	Unit	Property
F2-33	Torque amplitude	50% to 150%	110	%	★

2.2.5 Group F3: Running Control Parameters

Param.	Name	Range	Default	Unit	Property
F3-00	Startup speed	0.000 to 0.050	0.000	m/s	★
F3-01	Startup speed holding time	0.000 to 5.000	0.000	s	★

F3-00 and F3-01 are used to set the startup speed and startup speed holding time of the system respectively. See *"Figure 2–2 " on page 63* .

The parameters may reduce the terrace feeling at startup due to static friction between the guide rail and the guide shoes.

Param.	Name	Range	Default	Unit	Property
F3-02	Acceleration rate	0.200 to 1.500	0.700	m/s^2	★
F3-03	Acceleration end jerk time 1	0.300 to 4.000	1.500	s	★
F3-04	Acceleration end jerk time 2	0.300 to 4.000	1.500	s	★

F3-02, F3-03, and F3-04 are used to set the running curve during acceleration of the elevator. *"Figure 2–2 " on page 63* and *"Figure 2–3 " on page 64* show the details.

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

- F3-04 is the time for the acceleration rate from the value set in F3-02 to 0 in the speed curve (decreasing acceleration). The larger the value is, the smoother the speed curve is.

Param.	Name	Range	Default	Unit	Property
F3-05	Deceleration rate	0.200 to 1.500	0.700	m/s^2	★
F3-06	Deceleration start jerk time 1	0.300 to 4.000	1.500	s	★
F3-07	Deceleration start jerk time 2	0.300 to 4.000	1.500	s	★

F3-05, F3-06, and F3-07 are used to set the running curve during deceleration of the elevator. *"Figure 2–2 " on page 63* and *"Figure 2–3 " on page 64* show the details.

- F3-05 is the acceleration rate of the elevator speed curve (constant deceleration).
- F3-06 is the time from the value set in F3-05 to 0 in the speed curve (decreasing deceleration). The larger the value is, the smoother the speed curve (deceleration end segment) is.
- F3-07 is the time from 0 to the value set in F3-05 in the speed curve (increasing deceleration). The larger the value is, the smoother the speed curve (deceleration start segment) is.

The following figure shows the settings of the entire running curve.

F3-02 (F3-05) is the acceleration (deceleration) rate of the S-curve in the linear acceleration process.

F3-03 (F3-07) is the time for the acceleration (deceleration) rate to change from 0 to the value set in F3-02 (F3-05) in the start jerk segment. The larger the value is, the smoother the jerk is.

F3-04 (F3-06) is the time for the acceleration (deceleration) rate to decrease from the value set in F3-02 (F3-05) to 0 in the end jerk segment. The larger the value is, the smoother the jerk is.

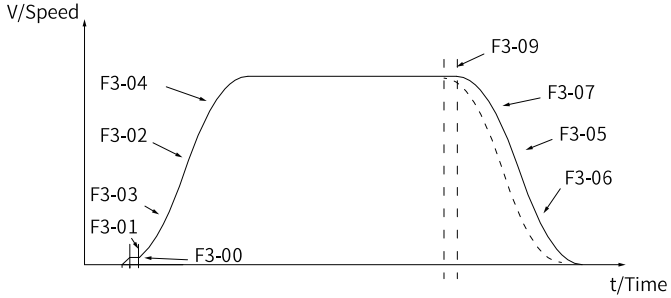


Figure 2-2 Speed curve

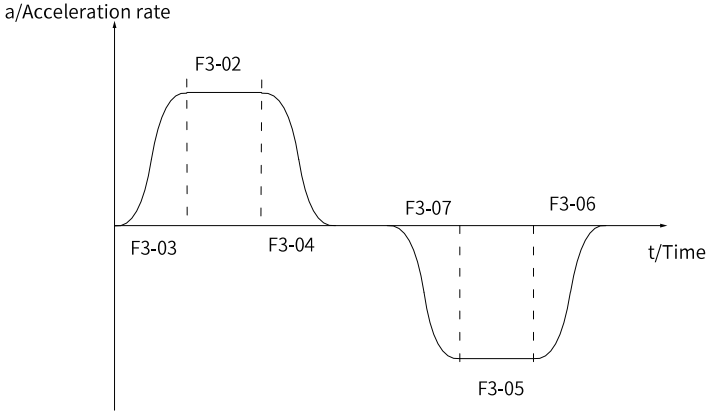


Figure 2-3 Acceleration/Deceleration curve

Param.	Name	Range	Default	Unit	Property
F3-08	Special deceleration rate	0.200 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.

Param.	Name	Range	Default	Unit	Property
F3-09	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 figure 2-1. This function is to eliminate the influence of encoder signal loss or leveling signal delay.

Param.	Name	Range	Default	Unit	Property
F3-10	Re-leveling speed	0.020 to 0.080	0.040	m/s	★

It is used to set the elevator speed during re-leveling.

This parameter is valid when the advance door opening module (MCTC-SCB) is added for the re-leveling function (set in FE-32).

Param.	Name	Range	Default	Unit	Property
F3-11	Inspection speed	0.100 to 0.630	0.250	m/s	★

F3-11 is used to set the elevator speed during inspection.

Param.	Name	Range	Default	Unit	Property
F3-12	Position of up slow-down switch 1	0.00 to 300.00	0.00	m	★
F3-13	Position of down slow-down switch 1	0.00 to 300.00	0.00	m	★
F3-14	Position of up slow-down switch 2	0.00 to 300.00	0.00	m	★
F3-15	Position of down slow-down switch 2	0.00 to 300.00	0.00	m	★
F3-16	Position of up slow-down switch 3	0.00 to 300.00	0.00	m	★
F3-17	Position of down slow-down switch 3	0.00 to 300.00	0.00	m	★

F3-12 to F3-17 specify the positions of all slow-down switches relative to the bottom leveling position, and the positions are automatically recorded during shaft auto-tuning.

The NICE3000^{new} 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 F3-08, preventing the elevator top-hitting or bottom-clashing.

Param.	Name	Range	Default	Unit	Property
F3-18	Zero-speed current output time	0.200 to 1.000	0.200	s	★
F3-19	Holding time of zero-speed torque current upon brake release	0.000 to 2.000	0.600	s	★
F3-20	Zero-speed control time at end	0.000 to 1.000	0.300	s	★

F3-18, F3-19, and F3-20 are used to set the zero-speed current output holding time and the braking action delay.

- F3-18 specifies the time from output of the RUN contactor to output of the brake contactor, during which the controller performs excitation on the motor and outputs zero-speed current with large startup torque.
- F3-19 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.
- F3-20 specifies the zero-speed output time when the running curve ends.

The following figure shows the running timing.

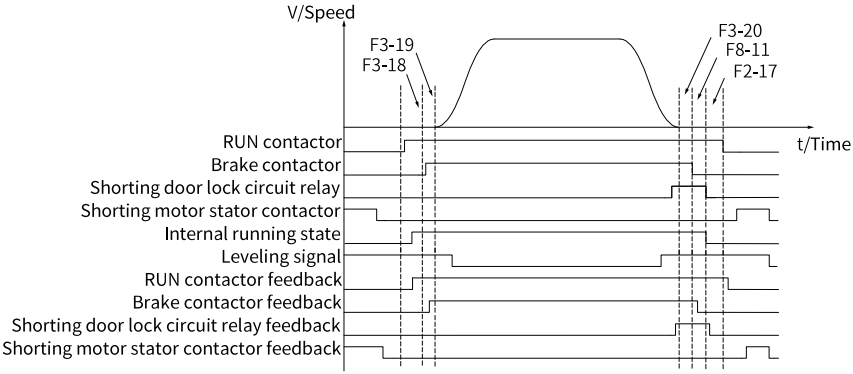


Figure 2-4 Running timing diagram

Note

F8-11 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.

Param.	Name	Range	Default	Unit	Property
F3-21	Low-speed re-leveling speed	0.080 to F3-11	0.100	m/s	★

F3-21 is used to set the elevator speed of returning to the leveling position at normal non-leveling stop.

Param.	Name	Range	Default	Unit	Property
F3-22	Acceleration rate at emergency evacuation	0.300 to 1.300	0.300	m/s^2	★

F3-22 is used to set the acceleration rate at emergency evacuation.

Param.	Name	Range	Default	Unit	Property
F3-23	Deceleration delay time upon hitting slow-down switch	0.00 to 10.00	0	s	★

F3-23 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.

Param.	Name	Range	Default	Unit	Property
F3-24	Program function selection	0: Reserved 1: Slip test 2: Manual UCMP test 3 to 5: Reserved 6: Balance coefficient auto-tuning 20: Dynamic braking force test (MRL) 24: Manual ascending car overspeed protection (ACOP) test 25: Manual time limit test 26: Manual test of shorting motor stator braking	0	-	★

This parameter is used when the motor slip experiment is performed during elevator acceptance. If the slip experiment on site is not successful, set this parameter to 1 to enable the slip experiment function. After the experiment is completed, set F3-24 to 0 to disable the function.

When F3-24 is set to 2, it indicates that the UCMP test is performed.

Param.	Name	Range	Default	Unit	Property
F3-25	Elevator speed in the EEO state	0.100 to 0.300	0.250	m/s	★

F3-25 is used to set the elevator speed in emergency electrical operation state.

Param.	Name	Range	Default	Unit	Property
F3-26	Shaft auto-tuning speed	0.100 to 0.630	0.250	m/s	★

F3-26 is used to set the elevator speed during shaft auto-tuning.

Param.	Name	Range	Default	Unit	Property
F3-27	E33 overspeed tolerance	0.000 to 0.500	0.050	m/s	★

F3-27 sets the tolerance between the feedback speed and the maximum running speed.

Param.	Name	Range	Default	Unit	Property
F3-28	Terminal floor verification speed	0.080 to F0-03	0.500	m/s	★

F3-28 sets the speed of the elevator for terminal floor verification.

2.2.6 Group F4: Floor Parameters

Param.	Name	Range	Default	Unit	Property
F4-00	Leveling adjustment	0 to 60	30	mm	★

F4-00 is used to adjust the leveling accuracy at stop.

If over-leveling occurs on all floors when the elevator stops, decrease F4-00 properly. If under-leveling occurs on all floors when the elevator stops, increase F4-00 properly. The leveling of all floors will change once this parameter is modified. Therefore, if the leveling of a single floor is inaccurate, it is recommended to adjust the position of the leveling plate or adjust the leveling accuracy following the descriptions in group Fr. The NICE3000^{new} has the advanced distance control algorithm and adopts many methods to ensure reliability of direct travel ride. Generally you need not modify this parameter.

Param.	Name	Range	Default	Unit	Property
F4-01	Current floor	F6-01 to F6-00	1	-	★

F4-01 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.

Param.	Name	Range	Default	Unit	Property
F4-02	High byte of current floor position	0 to 65535	1	PPR	●
F4-03	Low byte of current floor position	0 to 65535	34464	PPR	●

F4-02 and F4-03 indicate the absolute pulses of the current car position relative to the leveling of the bottom floor.

The position data of the NICE3000^{new} 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 byte of the floor position, and the low 16 bits indicate the low byte of the floor position.

Param.	Name	Range	Default	Unit	Property
F4-04	Leveling plate length 1	0 to 65535	0	PPR	★
F4-05	Leveling plate length 2	0 to 65535	0	PPR	★

F4-04 indicates the pulses corresponding to the leveling plate length.

F4-05 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.

Param.	Name	Range	Default	Unit	Property
F4-06	High byte of floor height 1	0 to 65535	0	PPR	★
F4-07	Low byte of floor height 1	0 to 65535	0	PPR	★
High byte of floor height 2 to low byte of floor height 46					
F4-98	High byte of floor height 47	0 to 65535	0	PPR	★
F4-99	Low byte of floor height 47	0 to 65535	0	PPR	★

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 byte of the floor height, and the low 16 bits indicate the low byte of the floor height. Normally, the floor height i of each floor corresponds to almost the same number of pulses.

2.2.7 Group F5: Terminal Function Parameters

Param.	Name	Range	Default	Unit	Property
F5-00	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 F5-00 is reached. After this running is complete, the elevator automatically returns to the attendant state (bit2 of F6-43 must be set properly). When F5-00 is smaller than 5, the attendant/normal state switchover is disabled.

Param.	Name	Range	Default	Unit	Property
F5-01	X1 function selection	0 to 127	1	-	★
F5-02	X2 function selection		3	-	★
F5-03	X3 function selection		2	-	★
. . .			. . .		
F5-23	X23 function selection		00	-	★
F5-24	X24 function selection		00	-	★

Parameters F5-01 to F5-24 are used to set the digital signal input X1 to X24. Select the correct input parameters according to the function of input signals.

The NICE3000^{new} 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.

Note

The parameter values that can be set repeatedly include:

- 04/36: Safety circuit feedback NO/NC
- 05/37: Door lock circuit feedback NO/NC
- 06/38: RUN contactor feedback signal NO/NC
- 07/39: Brake feedback NO/NC
- 26/58: Brake travel switch 1 NO/NC

The NO setting of each function is as follows (NC value = NO value + 32).

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 NICE3000^{new} 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 1 feedback

29: Safety circuit 2 feedback

31: Door lock circuit 2 feedback

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 feedback signal

07: Brake feedback input signal

26: Brake travel switch 1 NO input signal

78: Brake travel switch 2 NO input signal

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

09: Up signal in inspection/EEO state

10: Down signal in inspection/EEO state

84: EEO (emergency electrical operation)

- When 08/40 (inspection signal) is allocated to input terminal X, the inspection switch signal is transmitted to the system in the DI form. When 08/40 is not allocated to input terminal X, the inspection switch signal is transmitted to the system through CAN communication (MCTC-CTW-A is required on the car top).
- 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 F3-26 in the EEO state and at the speed set in F3-11 in the inspection state.
- The inspection signal overrides the EEO signal. When both signals are active, the elevator runs in the inspection state.

11: Fire emergency signal

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

13: Down limit signal

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 signal

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 F7-06 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 signal

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 signal

17: Down slow-down 1 signal

18: Up slow-down 2 signal

19: Down slow-down 2 signal

20: Up slow-down 3 signal

21: Down slow-down 3 signal

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 NICE3000^{new} system automatically records the positions of the switches in group F3 during shaft auto-tuning.

22: Shorting door lock circuit relay feedback

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 signal

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

25: Door operator 2 light curtain

They are used to detect the light curtain signals of door 1 and door 2 (if the elevator has two doors).

27: Emergency evacuation signal at power failure

If the signal is active, it indicates that the elevator is running for emergency evacuation at power failure.

28: Elevator lock signal

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 FD-07 and FD-08).

30: Synchronous motor self-locking feedback

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.

65: Door operator 1 safety edge feedback signal

66: Door operator 2 safety edge feedback signal

They are used to detect the safety edge signal state of door 1 and door 2 (if the elevator has two doors).

67: Motor overheat input signal

It is used for the motor thermal protection switch signal input. If this signal remains active for more than 2s, the controller stops output and reports E39 to protect the motor. When this signal becomes inactive, E39 is reset automatically and the system restores the normal operation.

68: Earthquake signal

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.

69: Rear door forbidden signal

If there are two doors, this signal is used to prohibit the use of the rear door.

70: Light-load signal

This signal is used for nuisance judgment when the anti-nuisance function is enabled. If F8-08 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.

71: Half-load signal

It is mainly used for judgment of the emergency running direction at power failure.

72: Fire emergency floor switchover signal

The NICE3000^{new} 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.

73: 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 F9-02 and FA-38.

74: Auxiliary brake contactor 1 feedback

This signal is used to set auxiliary brake contactor 1 feedback when two brake contactors are mandated under the new China National Standards.

75: Auxiliary brake contactor 2 feedback

This signal is used to set auxiliary brake contactor 2 feedback when two brake contactors are mandated under the new China National Standards.

76: Door 1 open input

77: Door 2 open input

79: External fault input

External fault input is used to notify the controller of stop when other modules in the control cabinet such as the external braking unit are faulty.

80: Terminal floor verification signal

The terminal floor signal is used with slow-down 1 to determine the terminal floor position when some terminal floors are short.

81: Door lock 1 shorting

Door lock 1 shorting detection is used to detect any door lock 1 short circuit faults.

82: Door lock 2 shorting

Door lock 2 shorting detection is used to detect any door lock 2 short circuit faults.

86: Door lock bypass

It is the signal input in the event of the bypassed door lock. After the signal becomes active, the system enters the inspection state.

87: Fire emergency one-key input

After the fire emergency one-key input signal is active, the system first returns to the fire emergency floor and then enters the firefighter state.

88: Rope gripper feedback signal input

Function "88" (rope gripper feedback signal input) is added to the MCB.

- 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.
- Fault E68 reset: Reset E68 by pressing the RES/STOP key on the LCD operator, setting F-2 to 1 through the MCB keypad, or making the rope gripper feedback signal remain active for 1s or above. If the roper gripper feedback signal is inactive after the fault reset, the elevator continues to report E68.

Param.	Name	Range	Default	Unit	Property
F5-25	CTB input signal type	0 to 65535	1856	-	★

For example, you can set the CTB input signals of an elevator as follows.

Bit	Param.	Default	Bit	Param.	Default
Bit0	Door 1 light curtain	0	Bit8	Light-load signal (digital)	1
Bit1	Door 2 light curtain	0	Bit9	Up leveling signal	1
Bit2	Door 1 open limit	0	Bit10	Down leveling signal	1
Bit3	Door 2 open limit	0	Bit11	Door operator overheat detection	0
Bit4	Door 1 close limit	0	Bit12	Door 1 safety edge	0
Bit5	Door 2 close limit	0	Bit13	Door 2 safety edge	0
Bit6	Full-load signal (digital)	1	Bit14	Reserved	-
Bit7	Overload signal (digital)	0	Bit15	Reserved	-
0: NC input 1: NO input					

Param.	Name	Range	Default	Unit	Property
F5-26	Y1 function selection	0 to 31	1	-	★
F5-27	Y2 function selection		2	-	★
F5-28	Y3 function selection		12	-	★
F5-29	Y4 function selection		4	-	★
F5-30	Y5 function selection		3	-	★
F5-31	Y6 function selection		0	-	★

These parameters are used to set relay output terminals Y1 to Y6.

00: Inactive: Output terminal not used.

01: RUN contactor output

02: Main brake contactor output

03: Shorting door lock circuit relay output

The system relays control the opening and closing of the circuit contacts.

04: Fire emergency floor arrival signal feedback

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.

05: Door operator 1 open output

06: Door operator 1 close output

07: Door operator 2 open output

08: Door operator 2 close output

The terminal parameters are used for the opening and closing of door 1 or 2.

09: Brake and RUN contactors normal

When the brake and RUN contactors operate properly (E36 or E37 does not occur), 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: Shorting motor stator contactor output

When the shorting motor stator contactor is applied in 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: System healthy

The terminal has output when the system operates properly.

15: Emergency buzzer control

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 4s to release the brake, and then the voltage is reduced to keep the brake release state.

17: Up signal output

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.

20: Non-door zone stop output

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 indication

It is output when the elevator is in the non-service state and cannot respond to hall calls.

23: Emergency evacuation completed

The output is used to notify that ARD emergency evacuation is completed.

25: Rope gripper reset

Conditions of the rope gripper reset output (either of the following is acceptable):

1. The system does not report E65 (UCMP fault) or E41 (safety circuit fault) 5s after the first-time power-on.
2. The system reports E68 rather than E65. In the inspection state, the safety circuit is disconnected (E41 is reported) and then reconnected.

Requirements for the rope gripper reset output:

1. Check that the rope gripper reset output signal and the feedback signal are active.
   a.Reset E67 if the rope gripper feedback signal remains active for 1s or above. When the rope gripper reset output signal becomes inactive, the elevator restores the normal running.

   b.If the rope gripper feedback signal is still inactive after 22s (the rope gripper action time), the system continues to report Err67. When the rope gripper reset output signal becomes inactive, the elevator cannot be made to run.

2. The elevator cannot perform door open/close or running operations when the rope gripper reset output signal is active.
   Set F6-52 bit14 to 1 to enable this function (disabled by default).

26: Braking transistor short circuit output

It has output when the braking transistor is short-circuited.

27: Alarm filter output

In the non-inspection state, the alarm filter outputs when the system is operating or the door open limit is reached.

33: Auxiliary brake 1 output

Set this function for brake contactor 1 output control when separate brake control is mandated under the new China National Standards.

34: Auxiliary brake 2 output

Set this function for brake contactor 2 output control when separate brake control is mandated under the new China National Standards.

Param.	Name	Range	Default	Unit	Property
F5-32	Communication state	Communication state monitoring of CANbus and Modbus	-	-	●

F5-32 is used to monitor the communication state of the car top CANbus and the hall call Modbus.

After users enter the F5-32 interface, the state of LEDs indicates the current communication state of hall calls. For the convenience of description, the LEDs are numbered 5, 4, 3, 2, and 1 respectively from left to right. The definition of each segment of the LEDs is shown in the following part.

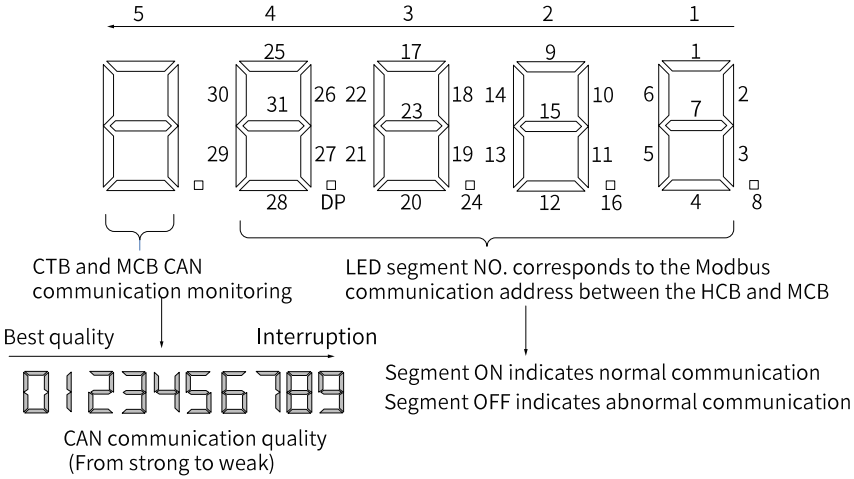


Figure 2-5 F5-32 Communication state monitoring

Example: Communication state displayed by the LEDs

If the LEDs are as follows, it indicates that Modbus communication of addresses 1, 5, 6, 7, 12, 15, 16, 18, 19, 21, 22, 23, 25, 26, and 27 is abnormal, and that of other addresses is normal. CAN communication state displayed by the LEDs is 3, indicating a little interference.

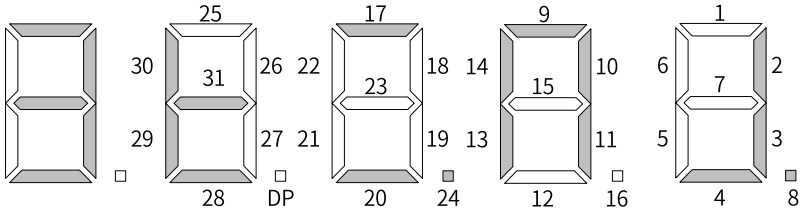


Figure 2-6 Example of LEDs display indicating the communication state

Param.	Name	Range	Default	Unit	Property
F5-33	Program control selection	0 to 65535	0	-	★

F5-33 is used to select the elevator functions.

The parameter is used to set the functions required by a user. Each function is controlled using one binary bit.

If a bit is set to 1, the function indicated by this bit is enabled; if this bit is set to 0, the function is disabled.

The functions defined by the binary bits of F5-33 are described in the following table.

F5-33 Program control selection			
Bit	Definition	Description	Default
Bit3	Elevator fire emergency requirements in Hong Kong SAR	If it is enabled, the fire emergency functions in F6-44 applying to Hong Kong SAR become enabled automatically.	0
Bit4	Arrival gong disabled at night	The arrival gong is disabled from 22 :00 p.m. to 7: 00 a.m.	0
Bit6	Door lock disconnection during switchover from the inspection state to the normal state	The door lock is disconnected once when the inspection state is switched to the normal running state.	0
Bit7	Fault code not displayed on the keypad	The keypad does not flash the fault code.	0

F5-33 Program control selection			
Bit	Definition	Description	Default
Bit8	Door open command canceled immediately when receiving the door open limit signal	The system immediately cancels the door open command after receiving the door open limit signal.	0
Bit9	Torque output holding at stop in the case of abnormal brake feedback	When the brake switch feedback is abnormal, the elevator arrives at the door-zone position and stops. The door keeps closed, and the system holds torque output as long as possible. After the system is overloaded, there is no torque output, and the elevator may slip in this case. Be cautious of using this function.	0

Param.	Name	Range	Default	Unit	Property
F5-34	Terminal state display	Monitoring of I/O terminals on the MCB	-	-	●
F5-35	Terminal state display	Monitoring of I/O terminals on the CTB, CCB, and HCB	-	-	●

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 F5-34 and F5-35 are respectively numbered as 5, 4, 3, 2, and 1 from left to right. The segments are defined as follows.

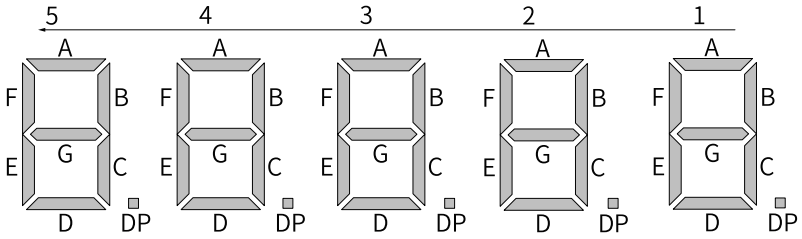


Figure 2-7 Terminal state monitoring

F5-34 Terminal state display					
Segment	1	2	3	4	5
A	-	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 relay 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	-
G	RUN contactor output feedback	Overload signal	Shorting door lock circuit relay output feedback	Synchronous motor self-locking feedback	-
DP	Brake output feedback 1	Full-load signal	Firefighter operation signal	Door lock circuit feedback 2	-

F5-35 Terminal state display					
Segment	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

F5-35 Terminal state display					
Segment	1	2	3	4	5
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	-
DP	Overload signal	Firefighter operation signal	Down arrival gong	Energy-saving sign	-

Param.	Name	Range	Default	Unit	Property
F5-36	Load cell input selection	0 to 3	1	-	★

It is used to set the channel of setting the elevator load cell signal. When a load cell device is used, set this parameter correctly first. The values are as follows:

0: MCB digital input

1: CTB digital input

2: CTB analog input

3: MCB analog input

Param.	Name	Range	Default	Unit	Property
F5-37	X25 function selection	0: Inactive 4: Safety circuit signal 5: Door lock circuit signal 1 6: Door lock circuit signal 2 7: Door lock 1 shorting detection 8: Door lock 2 shorting detection	0	-	★
F5-38	X26 function selection		0	-	★
F5-39	X27 function selection		0	-	★
F5-40	X28 function selection		0	-	★

F5-37 to F5-40 are used to set heavy-current detection input terminals X25 to X28. The possible values to be set:

0: Inactive

4: Safety circuit signal

5: Door lock circuit signal 1

6: Door lock circuit signal 2

7: Door lock 1 shorting detection

8: Door lock 2 shorting detection

2.2.8 Group F6: Basic Elevator Parameters

Param.	Name	Range	Default	Unit	Property
F6-00	Top floor of the elevator	F6-01 to F6-48	9	-	★
F6-01	Bottom floor of the elevator	1 to F6-00	1	-	★

The parameters are to set the top floor and bottom floor of the elevator, determined by the number of leveling plates installed.

Param.	Name	Range	Default	Unit	Property
F6-02	Parking floor	F6-01 to F6-00	1	-	★

When the idle time of the elevator exceeds the value set in F9-00, the elevator returns to the parking floor set in F6-02 automatically.

Param.	Name	Range	Default	Unit	Property
F6-03	Fire emergency floor	F6-01 to F6-00	1	-	★

When the elevator enters the state of returning to fire emergency floor, the elevator will return to the set floor.

Param.	Name	Range	Default	Unit	Property
F6-04	Elevator lock floor	F6-01 to F6-00	1	-	★

After entering the elevator lock state, the elevator returns to the floor set in F6-04.

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.

Param.	Name	Range	Default	Unit	Property
F6-05	Service floor 1	0 to 65535 (floors 1 to 16)	65535	-	★
F6-06	Service floor 2	0 to 65535 (floors 17 to 32)	65535	-	★
F6-35	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.

F6-05 corresponds to floors 1 to 16, F6-06 floors 17 to 32 and F6-35 floors 33 to 48.

The following part takes F6-05 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.

Set the value of these bits one by one. Convert the binary values to decimal values and then set the sum for display on the operating panel, as shown in the following figure.

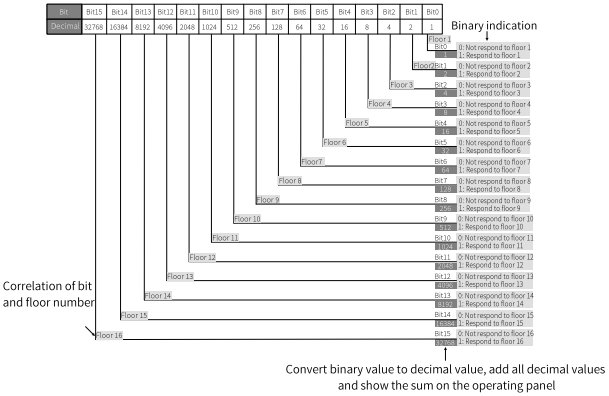
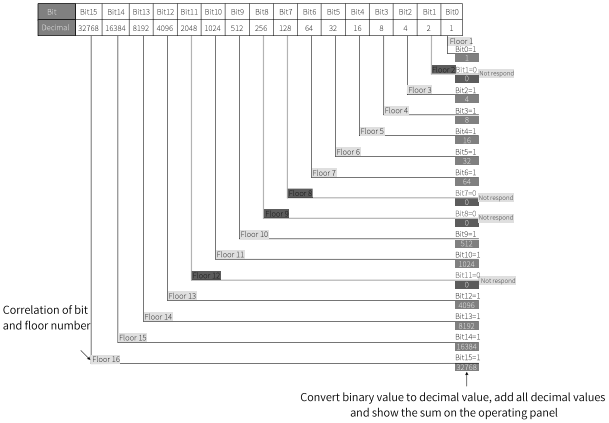


Figure 2-8 Converting binary value of F6-05 to decimal value

For a 16-floor elevator, if it does not respond to the calls at floors 2, 8, 9, and 12, set bit1, bit7, bit8, and bit11 to 0 and other bits to 1, as shown in the following figure.



Converting binary value to decimal value:

1 + 4 + 8 + 16 + 32 + 64 + 512 + 1024 + 4096 + 8192 + 16384 + 32768 = 63101

Then, enter "63101" for F6-05 on the operating panel.

The setting method for F6-06 and F6-35 is the same as that for F6-05.

Param.	Name	Range	Default	Unit	Property
F6-07	Number of elevators in group control	1 to 8	1	-	★
F6-08	Elevator No.	1 to 8	1	-	★
F6-09	Program selection	Bit0: Dispersed waiting Bit2: Reserved Bit3: CAN2 parallel/group control Bit4: Compatibility mode (group control) Bit6: Clearing the floor number and displaying direction in advance Bit8: Unidirectional hall call (single hall call button) Bit9: Analog disconnection not detected Bit10: E30 judgment at re-leveling cancellation Bit13: Disability calls in parallel/group control Bit14: Time interval detection of safety circuit 2 and door lock circuit 2 (1.5s)	0	-	★

F6-07 and F6-08 are used to set the number of elevators and elevator No. in parallel/group control mode.

Bit0 to Bit4 of F6-09 are used to set the parallel/group control mode.

Param.	Name	Range	Default	Unit	Property
F6-10	Leveling switch delay	10 to 50	14	ms	★

F6-10 indicates the delay time from the moment the leveling switch acts to the moment the leveling signal becomes active. You need not modify it.

Param.	Name	Range	Default	Unit	Property
F6-11	Elevator function selection	0 to 65535	8448	-	★

F6-11 is used to select the elevator functions. If a bit is set to 1, the function indicated by this bit is enabled; if this bit is set to 0, the function is disabled.

The functions defined by the binary bits of F6-11 are described in the following table.

F6-11 Elevator function selection			
Bit	Definition	Description	Default
Bit1	Disabling returning to terminal floor verification	The function of returning to terminal floor for verification due to large deviation of the car position is disabled.	0
Bit2	Canceling automatic ordering of hall call addresses	If the display of a floor in group FE is set to 1, the following floors to be displayed are automatically arranged in the ascending order. This bit is used to cancel this function.	0
Bit5	Starting current detection of synchronous motor	The controller performs output current detection when the synchronous motor is started up. If the current is abnormal, the output will be locked and the running will be forbidden.	0
Bit6	Reversing MCB lighting output	The MCB lighting output logic is reversed.	0
Bit7	Door open valid in the non-door zone in the inspection state	In the inspection state, you can open/close the door by pressing the door open/close button in the non-door zone.	0
Bit8	Door open once when inspection state switches to normal state at first-time power-on	The elevator door opens and closes once after the system turns from inspection state to normal running at first-time power-on.	1
Bit10	Buzzer not tweeting upon re-leveling	The buzzer inside the car does not tweet upon re-leveling.	0
Bit11	Customized super-short floor function	The system cannot perform shaft auto-tuning if the floor height is less than 500 mm. After this function is enabled, shaft auto-tuning can be performed normally.	0
Bit12	Automatic fault reset	The system automatically resets the faults once every hour.	0
Bit13	E53 auto reset	When E53-101 is reported, the controller resets the fault automatically on the conditions of valid door open limit and door lock disconnection. A maximum of three times of auto reset is allowed.	1

F6-11 Elevator function selection			
Bit	Definition	Description	Default
Bit14	Floor display not reset by up slow-down signal when super-short floor function is enabled	If this function is enabled, the up slow-down 1 signal does not reset floor display. The down slow-down 1 signal still resets floor display. This is valid only when the customized super-short floor function is enabled.	0
Bit15	Floor display not reset by down slow-down signal when super-short floor function is enabled	If this function is enabled, the down slow-down 1 signal does not reset floor display. The up slow-down 1 signal still resets floor display. This is valid only when the customized super-short floor function is enabled.	0

Param.	Name	Range	Default	Unit	Property
F6-12	VIP floor	0 to F6-00	0	-	★

F6-12 is used to set the VIP floor.

Param.	Name	Range	Default	Unit	Property
F6-13	Security floor	0 to F6-00	0	-	★

F6-13 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 FD-07 or FD-08 to 5. When the security signal is active, the elevator enters the security state.
- The night security floor function is enabled (FE-32 bit5 = 1) and the elevator enters the security state from 22: 00 to 6:00 .

Param.	Name	Range	Default	Unit	Property
F6-14	Start time of down collective selective 1	00.00 to 23.59	00.00	HH.MM	☆
F6-15	End time of down collective selective 1	00.00 to 23.59	00.00	HH.MM	☆

Param.	Name	Range	Default	Unit	Property
F6-16	Start time of down collective selective 2	00.00 to 23.59	00.00	HH.MM	☆
F6-17	End time of down collective selective 2	00.00 to 23.59	00.00	HH.MM	☆

F6-14 to F6-17 define the time periods of down collective selective 1 and down collective selective 2, during which the elevator responds to only downward calls.

Note

To enable the peak service of down collective selective control, set FE-32 bit6 to 1.

Param.	Name	Range	Default	Unit	Property
F6-18	Start time of time-based floor service 1	00.00 to 23.59	00.00	HH.MM	☆
F6-19	End time of time-based floor service 1	00.00 to 23.59	00.00	HH.MM	☆
F6-20	Service floor 1 of time-based floor service 1	0 to 65535	65535	-	☆
F6-21	Service floor 2 of time-based floor service 1	0 to 65535	65535	-	☆
F6-36	Service floor 3 of time-based floor service 1	0 to 65535	65535	-	☆
F6-22	Start time of time-based floor service 2	00.00 to 23.59	00.00	HH.MM	☆
F6-23	End time of time-based floor service 2	00.00 to 23.59	00.00	HH.MM	☆
F6-24	Service floor 1 of time-based floor service 2	0 to 65535	65535	-	☆
F6-25	Service floor 2 of time-based floor service 2	0 to 65535	65535	-	☆
F6-37	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 F6-18 and F6-19), the elevator responds to the service floors 1, 2 and 3 (set by F6-20, F6-21 and F6-36) regardless of the service floors set by F6-05, F6-06 and F6-35. The setting of time-based service floors is the same as that of service floors in F6-05.

Note

- To enable the time-based floor service, set FE-32 bit8 to 1. Then, you can set the time range and service of floors.
- To enable the time-based door service, set FE-32 bit0 to 1. Then, you can set the time range and service of doors.

Param.	Name	Range	Default	Unit	Property
F6-26	Peak 1 start time for parallel/group control	00.00 to 23.59	00.00	HH.MM	☆
F6-27	Peak 1 end time for parallel/group control	00.00 to 23.59	00.00	HH.MM	☆
F6-28	Peak 1 floor for parallel/group control	F6-01 to F6-00	1	-	★
F6-29	Peak 2 start time for parallel/group control	00.00 to 23.59	00.00	HH.MM	☆
F6-30	Peak 2 end time for parallel/group control	00.00 to 23.59	00.00	HH.MM	☆
F6-31	Peak 2 floor for parallel/group control	F6-01 to F6-00	1	-	★

F6-26 to F6-28 are used to set peak service time period 1 and corresponding service floors.

F6-29 to F6-31 are used to set peak service time period 2 and corresponding service floors.

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.

Note

To enable the peak service for parallel/group control, set bit7 of FE-32 to 1. To disable this function, set bit7 of FE-32 to 0.

Param.	Name	Range	Default	Unit	Property
F6-38	Elevator lock start time	00.00 to 23.59	00.00	HH.MM	☆
F6-39	Elevator lock end time	00.00 to 23.59	00.00	HH.MM	☆

F6-38 and F6-39 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.

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

- Set F6-40 bit5 to 1 to enable the timed elevator lock function. F6-38 and F6-39 set the elevator lock time period when the system will automatically lock the elevator.
- Set FD-0 to 1 to activate the hall elevator lock key switch.

Param.	Name	Range	Default	Unit	Property
F6-40	Program control selection 1	0 to 65535	0	-	★
F6-41	Program control selection 2	0 to 65535	0	-	★
F6-42	Program control selection 3	0 to 65535	0	-	★

These parameters are used for program control selection. Each bit defines a function. If a bit is set to 1, the function indicated by this bit is enabled; if this bit is set to 0, the function is disabled.

The functions defined by the binary bits of these parameters are described in the following table.

F6-40 Program control selection 1			
Bit	Definition	Description	Default
Bit0	Accessibility function selection	Enable or disable the accessibility function	0
Bit1	Soft limit function	When the up slow-down and down leveling signals are active (up leveling inactive), the system assumes that the up limit is performed When the down slow-down and up leveling signals are active (down leveling inactive), the system assumes that the down limit is performed	0
Bit2	JP16 input used as rear door selection (button)	JP16 is used for the input of the rear door selection. This function is enabled if FC-04 is set to 2. When JP16 has input, the elevator opens only the rear door. When IP16 has no input, the elevator opens only the front door	0
Bit3	JP16 input used as rear door open signal	JP16 is used as the input of the rear door open signal.	0
Bit4	Open only one door of through-type door under manual control	This function is enabled only in the through-type door control modes 3 and 4. In this case, only one door opens each time while the other door must stay in the door close limit state Notes: In group FD, the extended input includes "Single/Double door selection". If this input is active in the through-type door control mode 3, both doors open if there is a car call.	0
Bit5	Timed elevator lock	F6-38 and F6-39 are valid only when this function is enabled.	0
Bit6	Manually operated door	This function is for on-site elevator use	0
Bit7	Reserved	-	-
Bit8	Reserved	-	-
Bit9	Disabling reverse floor number clear	The system clears all the current car calls by default every time the elevator changes the direction. When this function is enabled, clearing reverse floor numbers is disabled.	0
Bit10	Display the next arriving floor number	The next floor to be arrived at is displayed during elevator running.	0
Bit11	Responding to car calls first	The system responds to hall calls only after executing all car calls.	0

F6-40 Program control selection 1			
Bit	Definition	Description	Default
Bit12	Car call auxiliary command terminal used for accessibility function	It sets the CTB auxiliary command terminal (CN8) as input of calls from the disabled 0: Consistent with CN7 for the single door, and rear door for double doors 1: CN8 calls are the disability calls	0
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	0
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.	0
Bit15	JP20 input used for switchover to rear door (switch)	JP20 is used for input of switchover between the front door and the rear door	0

F6-41 Program control selection 2			
Bit	Definition	Description	Default
Bit0	Reserved	Conditions for deceleration to stop due to slow-down 1 (0: Active for inspection or EEO state, 1: Active for EEO state and inactive for inspection state)	-
Bit1	Reserved	-	-
Bit2	Decelerate to stop in the inspection state	During inspection, the system decelerates to stop if the terminal floor slow-down switch 1 acts.	0
Bit3	Car top inspection in communication mode	It forcibly enables car top inspection in communication mode and the active inspection signal allows for operation.	0
Bit4	Buzzer tweeting during door open delay	The buzzer will tweet when the door open delay time set in FB-14 is reached.	0
Bit5	Reserved	-	-
Bit6	Door open delay cancellation	Door open delay is canceled when the door open delay button is pressed again.	0
Bit7	Reserved	-	-

F6-41 Program control selection 2			
Bit	Definition	Description	Default
Bit8	Elevator lock at door open	In the elevator lock state, the elevator keeps the door open at the elevator lock floor.	0
Bit9	Display available at elevator lock	In the elevator lock state, hall calls are displayed normally.	0
Bit10	Elevator lock in the attendant state	The elevator can be locked properly in the attendant state.	0
Bit11	Flashing at arrival	The car display blinks when the elevator arrives at the floor. The blinking advance time is set through F6-47.	0
Bit12	Door re-open during door open delay	The door re-opens if the door open delay input is active during door close.	0
Bit13	Door re-open upon valid car call of current floor	The door re-opens if the car call of the current floor is valid during door close.	0

F6-42 Program control selection 3			
Bit	Definition	Description	Default
Bit0	Reserved	-	-
Bit1	Canceling door open/ close command at delay after door open/close limit	The door open/close command is canceled at the delay of 1s after door open/close limit.	0
Bit2	Door lock state not judged at door close output	In normal conditions, the system determines that the door is completely closed only when the door close limit signal is active and the door lock is applied. If this function is enabled, the system does not judge the door lock state.	0
Bit3	Door close output during running	There is continuous door close output as the elevator runs.	0
Bit4	Returning to terminal floor for verification at first-time power-on	The elevator runs to the bottom floor for verification at power-on for the first time.	0
Bit5	Clearing calls immediately at elevator lock	0: After the elevator lock signal becomes active, the elevator clears hall calls and responds to the current car call, and then enters elevator lock state. 1: After the elevator lock signal becomes active, the elevator clears all calls and enters elevator lock state.	0

F6-42 Program control selection 3			
Bit	Definition	Description	Default
Bit6	Electromagnetic lock NC output	After the NC output is selected, the lock signal is not output during door open and is output during door close.	0
Bit7	E50 detection cancellation	When bit7 is set to 1, fault E50 is not detected.	0
Bit8	Door open/close limit detection cancellation	When this function is enabled, the fault detection of the door open/close limit signal is canceled.	0
Bit9	Canceling fault subcode scrolling display	When this function is enabled, the keypad will not have a scrolling display of the fault subcode.	0
Bit10	Waiting with door open for energy saving	In the case of waiting with the door open, the system closes the lighting and fan as specified by the time set in F9-01 in door open limit state.	0
Bit11	Independent switch exiting from parallel control	When this function is enabled, individual elevators will be separated from parallel control and be in normal running mode. When this function is disabled, the elevators will be separated from parallel control and enter the VIP running mode .	1
Bit12	UCMP door lock detection enabled	-	0
Bit13	Door close upon light curtain detecting obstacles	If the light curtain is blocked as the door closes, the door will be reopened and closed quickly upon reaching the close limit.	0
Bit14	Door lock shorting detection abnormal and reset	Fault E53-105/106 auto reset enabled	1

Param.	Name	Range	Default	Unit	Property
F6-43	Attendant function selection	0 to 65535	128	-	★

F6-43 is used to select the attendant-related elevator functions. Each bit defines a function. If a bit is set to 1, the function indicated by this bit is enabled; if this bit is set to 0, the function is disabled. You can view and set this function code using the bits.

The functions defined by the binary bits of F6-43 are described in the following table.

F6-43 Attendant function selection			
Bit	Definition	Description	Default
Bit0	Calls canceled after entering the attendant state	All calls are canceled after the elevator enters attendant state for the first time.	0
Bit1	Not responding to hall calls	The car has blinking display inside if there is a hall call, but the system does not respond to it automatically.	0
Bit2	Attendant/Normal state switchover	If this function is enabled, the setting of F5-00 is valid.	0
Bit3	Door close at jog	The elevator door closes after the attendant presses the door close button manually.	0
Bit4	Automatic door close	It is the same as the normal state. After the door open holding time is reached, the door closes automatically.	0
Bit5	Buzzer tweeting at intervals in the attendant state	When there is a registered hall call, the buzzer tweets 2.5s at intervals.	0
Bit6	Continuous buzzer tweeting in the attendant state	When there is a registered hall call, the buzzer tweets continuously until there is a car registration of the hall call floor.	0
Bit7	Car call button blinking to prompt	When the hall call input is active, the car call button for the corresponding floor blinks to give a prompt.	1

Param.	Name	Range	Default	Unit	Property
F6-44	Fire emergency function selection	0 to 65535	16456	-	★

F6-44 is used to select the fire emergency functions. Each bit defines a function. If a bit is set to 1, the function indicated by this bit is enabled; if this bit is set to 0, the function is disabled.

The functions defined by the binary bits of F6-44 are described in the following table.

F6-44 Fire emergency function selection			
Bit	Definition	Description	Default
Bit0 to Bit2	Reserved	-	-
Bit3	Arrival gong output in inspection or fire emergency state	The arrival gong is output in the inspection or fire emergency state.	1

F6-44 Fire emergency function selection			
Bit	Definition	Description	Default
Bit4	Multiple car calls registered in the fire emergency state	Multiple car calls can be registered in the fire emergency state. If this function is disabled, only one car call can be registered.	0
Bit5	Retentive at power failure in the fire emergency state	In the fire emergency state, the current system and car state will be recorded at power failure and resumed after the system is powered on again.	0
Bit6	Door close by holding down the door close button	In the fire emergency state, the door close process can be completed only by holding down the door close button until the door close limit is reached. Otherwise, it will be automatically switched over to door open.	1
Bit7	Reserved	-	-
Bit8	Door close at car call registration	The car call button can help close the door.	0
Bit9	Display floor number upon hall call in the fire emergency state	Hall call floors are displayed in the fire emergency state.	0
Bit10	Forced running in the firefighter state	JP22 is used for forced running in the firefighter state. When the JP22 input switch and the door close button are enabled simultaneously in the firefighter running state, the buzzer tweets and the system outputs the door close signal. If the door lock is not enabled within 10s, the system outputs the shorting door lock circuit contactor signal, and the elevator starts running (used together with SCB board).	0
Bit11	Exiting the firefighter state upon arrival at fire emergency floor	The system can exit the firefighter state only after the elevator arrives at the fire emergency floor.	0
Bit12	Not clearing car calls at reverse door open in the firefighter state	In the firefighter running state, the car calls that have been registered are not cleared at reverse door open.	0
Bit13	Reserved	-	-

F6-44 Fire emergency function selection			
Bit	Definition	Description	Default
Bit14	Door open by holding down the door open button	In the fire emergency state, the door open process can be completed only by holding down the door open button until the door open limit is reached. Otherwise, it will be automatically switched over to door close.	1
Bit15	Automatic door open at fire emergency floor	The door opens automatically after the elevator arrives at the fire emergency floor.	0

Param.	Name	Range	Default	Unit	Property
F6-45	Emergency evacuation function selection	0 to 65535	0	-	★

F6-45 is used to select the emergency evacuation elevator functions. Each bit defines a function. If a bit is set to 1, the function indicated by this bit is enabled; if this bit is set to 0, the function is disabled.

If F6-45 bit2 is set to 1, the elevator stops at the emergency evacuation parking floor set in F6-49.

If F6-45 bit2 is set to 0, the elevator stops at the nearest landing floor.

The functions defined by the binary bits of F6-45 are described in the following table.

<table>
<tr><th colspan="11">F6-45 Fire emergency function selection</th></tr>
<tr><th>Bit</th><th>Definition</th><th colspan="8">Description</th><th>Default</th></tr>
<tr><td>Bit0</td><td rowspan="2">Orientation mode</td><td>0</td><td rowspan="2">Automatic computation of the direction (The elevator runs in heavy-load direction. It is for no-load-cell mode selection)</td><td>0</td><td rowspan="2">Nearest landing floor direction</td><td>1</td><td rowspan="2">Load direction determining (The elevator runs in heavy-load direction. It is for load-cell mode selection)</td><td>1</td><td rowspan="2">Defined load direction</td><td>0</td></tr>
<tr><td>Bit1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
<tr><td>Bit2</td><td>Stop at the main floor</td><td colspan="8">During evacuation running, the elevator arrives at the evacuation parking floor set in F6-49 (It must be a service floor of a non-zero value). Otherwise, the elevator stops at the nearest floor.</td><td>0</td></tr>
</table>

F6-45 Fire emergency function selection			
Bit	Definition	Description	Default
Bit3	Door open upon one leveling signal	During evacuation running, the elevator arrives at the destination floor. When a leveling signal is active, the elevator decelerates to stop.	0
Bit4	Startup compensation	No-load-cell startup is still valid in emergency evacuation running.	0
Bit5	Defined direction rescue	Up direction set for controller drive evacuation	0
Bit6 to Bit7	Reserved	-	-
Bit8	Emergency evacuation running time protection	If the elevator does not arrive at the required floor 50s after emergency evacuation running, E33 is reported. And the shorting stator braking mode cannot be switched over to the controller drive within the set time limit.	0
Bit9	Reserved	-	0
Bit10	Buzzer prompt	The buzzer has output at intervals during emergency evacuation running.	0
Bit11	Reserved	-	0
Bit12	Shorting stator braking mode switched to controller drive	If the speed is still lower than the value set in F6-48 after the elevator is in shorting stator braking mode for 10s, the mode is switched over to controller drive.	0
Bit14	Emergency evacuation exit mode	0: The system exits emergency evacuation when receiving the door open limit signal from the elevator that arrives at the destination floor.	0
		1: The system exits emergency evacuation when receiving the door close limit signal from the elevator that arrives at the destination floor.	0

F6-45 Fire emergency function selection			
Bit	Definition	Description	Default
Bit15	Shorting PMSM stator braking function	Enable the function to make it act: When this function is enabled, the setting of related parameters becomes effective.	0

F6-46 is used to select the elevator VIP function.

Each bit defines a function. If a bit is set to 1, the function indicated by this bit is enabled; if this bit is set to 0, the function is disabled.

Param.	Name	Range	Default	Unit	Property
F6-46	VIP function selection	0 to 65535	0	-	★

The functions defined by the binary bits of F6-46 are described in the following table.

F6-46 VIP function selection			
Bit	Definition	Description	Default
Bit0	VIP enabled by hall call at VIP floor	The elevator enters VIP state when there is an active hall call at the VIP floor.	0
Bit1	VIP enabled by terminal	The elevator enters VIP state when the terminal for VIP hall call becomes active.	0
Bit2 to Bit7	Reserved	-	-
Bit8	Number of VIP car calls limited	If this function is enabled, only one car call can be selected simultaneously in the VIP state.	0

Param.	Name	Range	Default	Unit	Property
F6-47	Blinking advance time	0.0 to 15.0	1.0	s	☆

Param.	Name	Range	Default	Unit	Property
F6-48	Emergency evacuation switching speed	0.010 to 0.630	0.010	m/s	★

F6-48 is used to set the switching speed for the switchover of the shorting stator braking mode to controller drive.

Param.	Name	Range	Default	Unit	Property
F6-49	Emergency evacuation parking floor	0 to F6-00	0	s	★

If F6-45 bit2 is set to 1, the elevator stops at the emergency evacuation parking floor set in F6-49.

Param.	Name	Range	Default	Unit	Property
F6-50	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.

Param.	Name	Range	Default	Unit	Property
F6-51	Quiescent current	0.00 to 655.00	0	A	★

F6-51 is used to set the quiescent current during the certification of static elements.

Param.	Name	Range	Default	Unit	Property
F6-52	Program function selection	0 to 65535	0	-	★

F6-52 is used for program function selection. Each bit defines a function. If a bit is set to 1, the function indicated by this bit is enabled; if this bit is set to 0, the function is disabled.

The functions defined by the binary bits of these parameters are described in the following table.

F6-52 Program function selection			
Bit	Definition	Description	Default
Bit1	SCB in communication mode enabled	It is used to bring SCB communication into play.	0
Bit2	CAN communication supported by AFE	It is used to enable the AFE communication function.	0
Bit3	External shaft reset device	To enable the function, set F6-52 bit3 to 1, and the pit interface board is used for inspection. Disconnect the door lock twice to exit the inspection state and get the elevator back to the normal state.	0
Bit4	Inspection speed limit at terminal floors	This function allows the elevator to stop first and then run at a speed not exceeding 0.3 m/s when the elevator is within 2 m away from the terminal floor.	0
Bit6	Enabling CTB leveling signal input	It is used to enable the transmission of up leveling and down leveling signals via CTB CAN communication.	0
Bit7	Door operator overheat detection	It is used to enable the door operator overheat detection function.	0
Bit8	CTB safety edge input	This function is enabled by setting F6-52 bit8 to 1. It is used for the safety edge input selection on the CTB.	0
Bit9	Light curtain fault handling	Disable the light curtain fault handling function The light curtain action remains undetected in 5 consecutive car call operations and will be considered abnormal. Forced door close will be output accompanied by buzzer prompt. After the light curtain acts, it returns to normal. Disable the function by setting F6-52 bit9 to 1.	0
Bit12	Shorting door lock circuit relay output upon arrival	Disable automatic shorting door lock circuit relay output upon floor arrival by setting F6-52 bit12 to 1.	0
Bit13	Pulse multiplication setting	It is for setting pulse multiplication of the asynchronous motor when E35 is reported during shaft auto-tuning.	0
Bit15	Forced inspection of interrupted communication	After enabling the function, the elevator is forced into inspection state for interrupted communication on CTB (only keep running for emergency electrical operation)	0

Param.	Name	Range	Default	Unit	Property
F6-54	Program function selection 5	Bit0: Door open forbidden for forced door close Bit1: Door close supported for fault occurrence Bit3: Inspection running not allowed for active light curtain signal Bit8: Car top maintenance switch reuse of attendant signal Bit9: Enabling separate brake control Bit10: Car top emergency power supply supported Bit11: Power supply board in communication mode supported	0	-	★
F6-55	Function parameter selection	Bit0: Door operator use of MOD serial communication Bit1: Reserved Bit2: Door operator use of CAN serial communication Bit3: Reserved Bit4: Light curtain use of MOD serial communication Bit5: Light curtain use of CAN communication Bit11: Enabling encoder function in communication mode Bit12: Enabling encoder in communication mode manufacturer No. check Bit13: Enabling encoder in communication mode contract No. binding Bit14: Enabling encoder in communication mode contract No. binding delay function	0	-	★

2.2.9 Group F7: 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.

Param.	Name	Range	Default	Unit	Property
F7-00	Car call floor registered	0 to F6-00	0	-	☆
F7-01	Up hall call floor registered	0 to F6-00	0	-	☆
F7-02	Down hall call floor registered	0 to F6-00	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.

Param.	Name	Range	Default	Unit	Property
F7-03	Random running times	0 to 60000	0	-	☆

F7-03 is used to set the random running times of the system.

The NICE3000^{new} has the random automatic running function. If the setting of F7-03 is greater than 60000, the system keeps implementing random automatic running until you set F7-03 to 0. You can set the random running interval in F7-08.

Param.	Name	Range	Default	Unit	Property
F7-04	Hall call	0: Hall call allowed 1: Hall call forbidden	0	-	☆

F7-04 is used to forbid or allow the hall calls. The possible values to be set:

0: Hall call allowed

1: Hall call forbidden

Param.	Name	Range	Default	Unit	Property
F7-05	Door open	0: Door open allowed 1: Door open forbidden	0	-	☆

F7-05 is used to forbid or allow door open. The possible values to be set:

0: Door open allowed

1: Door open forbidden

Note

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.

Param.	Name	Range	Default	Unit	Property
F7-06	Overload function	0: Overload forbidden 1: Overload allowed	0	-	☆

F7-06 is used to set the overload function. The possible values to be set:

0: Overload forbidden

1: Overload allowed

Note

The overload function is enabled only for test purpose. Once the test is complete, disable overload running immediately.

Param.	Name	Range	Default	Unit	Property
F7-07	Limit function	0: Limit function enabled 1: Limit function disabled	0	-	☆

F7-07 is used to set limit switches. The possible values to be set:

0: Limit switch enabled

1: Limit switch disabled

Note

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

Param.	Name	Range	Default	Unit	Property
F7-08	Random running interval	0 to 1000	0	s	☆

F7-08 is used to set the random running interval.

Param.	Name	Range	Default	Unit	Property
F7-09	Braking force detection result	0: Meaningless 1: Passed 2: Failed	0	-	●
F7-10	Countdown for braking force detection period	0 to 1440	1440	min	★

F7-09 indicates braking force test results performed by the system. The possible values to be set:

0: Braking force detection has not been performed yet.

1: Braking force detection has passed the test.

2: Braking force detection has failed and E66 is reported. The brake must be inspected after any fault and the fault can be reset only after the braking force detection succeeds.

F7-10 is the countdown for the braking force detection period.

The default is 1440 minutes (24 hours). The braking force detection is automatically triggered if the system receives no call within 12 hours (the stop time exceeds the energy-saving time). When it is less than ten minutes to 24 hours, the system clears car calls without any response to hall calls, the doors automatically close, and the buzzer tweets. After 30s of tweeting, the system forcibly performs braking force detection once.

Param.	Name	Range	Default	Unit	Property
F7-13	Balance coefficient result	0 to 99.99	0	%	●
F7-14	Upper limit reference value of brake torque (double-arm)	0 to 999	0	%	●

F7-13 shows the result of system balance coefficient.

Param.	Name	Range	Default	Unit	Property
F7-15	Upper limit reference value of brake torque (single-arm)	0 to 999	0	%	●
F7-17	Braking force setting (single-arm)	0 to 150	30	%	★

Param.	Name	Range	Default	Unit	Property
F7-25	Distance for car top maintenance	0.000 to 5.000	2.000	m	★

F7-25 is the automatic downward running distance of the car top when the system enters the maintenance state.

2.2.10Group F8: Enhanced Function Parameters

Param.	Name	Range	Default	Unit	Property
F8-00	Car load ratio during load cell auto-tuning	0 to 100	0	%	★

To perform load cell auto-tuning, do as follows:

1. Ensure that F8-01 is set to 0 and F5-36 (Load cell input selection) is set to 2 (CTB 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 F8-00 to 0 and press ENTER.
3. Put N% load in the car. Then set F8-00 to N and press ENTER to confirm. For example, if you put 500 kg load in the elevator with rated load of 1000 kg, set F8-00 to 50.

After the load-cell auto-tuning is completed, the corresponding no-load and full-load data will be recorded in F8-06 and F8-07. You can also manually input the data as needed.

Param.	Name	Range	Default	Unit	Property
F8-01	Pre-torque selection	0 to 3	2	-	★
F8-02	Pre-torque offset	0.0 to 100.0	50.0	%	★

F8-01 is used to set the pre-torque compensation mode at the startup of the elevator. The possible values to be set:

0: Pre-torque disabled and load cell auto-tuning allowed.

1: Load cell pre-torque compensation. With a load cell, the system implements the pre-torque compensation.

2: Automatic pre-torque compensation. The system automatically adjusts the pre-torque compensation at startup without a load cell.

3: Both load cell pre-torque compensation and automatic pre-torque compensation enabled. When automatically adjusting the pre-torque compensation, the system makes a correction together with the load cell to achieve better startup results.

When pre-torque compensation is used with the load cell, the system outputs the torque matching the load in advance to ensure the riding comfort at startup. The output torque is limited by the torque upper limit (F2-08). When the load torque exceeds the set torque upper limit, the system outputs the torque upper limit.

F8-02 is used to set the pre-torque offset.

It is actually the balance coefficient of the elevator, indicating the percentage of the car load out of the rated load when the counterweight and the car weight are balanced.

Param.	Name	Range	Default	Unit	Property
F8-03	Drive gain	0.00 to 2.00	0.60	-	★
F8-04	Brake gain	0.00 to 2.00	0.60	-	★

These two parameters are used to set the pre-torque gain when the motor is in the driving and braking states respectively.

Param.	Name	Range	Default	Unit	Property
F8-05	Current car load	0 to 255	0	-	●

F8-05 is a read-only parameter and reflects the load condition in the car. The value is sampled by the NICE3000^{new} by using a load cell to judge overload or full-load, or calculate the torque current for load cell pre-torque compensation.

Param.	Name	Range	Default	Unit	Property
F8-06	No-load measured by load cell	0 to 255	0	-	★
F8-07	Full-load measured by load cell	0 to 255	0	-	★

Param.	Name	Range	Default	Unit	Property
F8-08	Anti-nuisance function	0: Anti-nuisance function disabled 1: Load cell judgment 2: Light curtain judgment 4: Light-load judgment	0	-	☆

F8-06 and F8-07 respectively records the car no-load and full-load conditions in the car. They are AD sampling values.

The conditions to judge nuisance are set. The possible values to be set:

0: Anti-nuisance function disabled

1: 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.

2: 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.

4: 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 case, car calls need to be registered again.

Param.	Name	Range	Default	Unit	Property
F8-09	Emergency evacuation speed at power failure	0.020 to F3-11	0.050	m/s	★
F8-10	Emergency evacuation power supply at power failure	0 to 2	1	-	★

F8-09 is used to set the elevator speed for emergency evacuation operation at power failure.

F8-10 is used to set the emergency evacuation power supply mode at power failure.

The possible values to be set:

0: Motor not running

1: ARD/UPS-powered operation

Param.	Name	Range	Default	Unit	Property
F8-11	Holding time of zero-speed torque current upon brake close	0.200 to 1.500	0.600	s	★

This parameter is used to set the time during which the system retains the zero-speed torque current output.

Param.	Name	Range	Default	Unit	Property
F8-12	Fire emergency floor 2	0 to F6-00	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.

Param.	Name	Range	Default	Unit	Property
F8-14	Hall call communication setting	Bit0: HCB communication baud rate Bit4: Energy-saving control of HCB communication Bit9: Faint light control of HCB buttons	0	-	☆
F8-15	CAN communication setting	Bit4: Touch screen protocol enabled Bit9: Car call restriction protocol enabled Bit10: Door open/close button not controlled by the IC card Bit11: COB and software version viewing (See FA-58) Bit12: SCB door zone input selection in communication mode 1. Door zone in communication mode	0	-	☆
F8-16	Start address of hall call auxiliary command	F6-00 to F6-47	0	-	★
F8-17	Hall call address check	0 to 1	0	-	★

F8-14 bit0 = 0: The communication baud rate between the MCB and HCB is 9600 bps.

F8-14 bit0 = 1: The communication baud rate between the MCB and HCB is 38400 bps. Note that only the NICE3000^{new} product supports 38400 bps, and the NICE3000 supports only 9600 bps.

The system automatically determines the communication baud rate, and generally, you need not set this parameter.

F8-16 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 + F8-16.

If F8-17 is set to be active, the HCB no longer displays the current floor information of the car but displays the set address of itself, making it convenient for inspection of wrong floor address setting. This function is valid only when the communication baud rate is 38400 bps.

Param.	Name	Range	Default	Unit	Property
F8-33	Function selection F8-33	Bit0: Reserved Bit1: Enabling disconnection of safety circuit in EEO state Bit2: Disabling pit reset by the MCB input terminal Bit3: Disabling pit reset by the pit inspection terminal	0	-	☆
F8-42	Function selection F8-42	Bit0: Disabling rising edge in EEO state Bit1: Disabling car top X15/X16 multiple functions	0	-	☆

2.2.11Group F9: Time Parameters

Param.	Name	Range	Default	Unit	Property
F9-00	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.

Param.	Name	Range	Default	Unit	Property
F9-01	Car energy-saving 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.

Param.	Name	Range	Default	Unit	Property
F9-02	Running time protection	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 3s, it becomes invalid.

Param.	Name	Range	Default	Unit	Property
F9-03	Clock: year	2000 to 2100	Current time	YYYY	☆
F9-04	Clock: month	01 to 12	Current time	MM	☆
F9-05	Clock: day	1 to 31	Current time	DD	☆
F9-06	Clock: hour	0 to 23	Current time	HH	☆
F9-07	Clock: minute	0 to 59	Current time	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 failure. You need to set the current system time correctly so that functions related to the time can be implemented.

Param.	Name	Range	Default	Unit	Property
F9-09	Accumulative running time	0 to 65535	0	h	●
F9-11	High byte of running times	0 to 9999	0	-	●
F9-12	Low byte of running times	0 to 9999	0	-	●

These parameters are used to view the actual running time and running times of the elevator.

Running times of the elevator = F9-11 x 10000 + F9-12.

Param.	Name	Range	Default	Unit	Property
F9-13	Maintenance notification period	0 to 99	0	day	☆

It is the forced maintenance notification function.

When this parameter is set to a non-zero value, this function is enabled, and the system starts to count the days. If there is no power-off operation during the counting and the counted days reaches the value of this parameter, the elevator enters the parking state and the system reports Err08, notifying that the elevator must be maintained and cannot run. The maintenance personnel need to power off and maintain the elevator, after which the system restores F9-13 to 0 and starts counting again. If this parameter is set to 0, this function is disabled.

2.2.12 Group FA: Keypad Setting Parameters

Param.	Name	Range	Default	Unit	Property
FA-00	Keypad display selection	0 to 3	3	-	☆

The NICE3000^{new} 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

Param.	Name	Range	Default	Unit	Property
FA-01	Parameter display in running state	1 to 65535	1 to 65535	-	☆

FA-01 is used to set the running parameters displayed on the operating panel when the elevator is running.

FA-01 includes 5 binary bits. A total of 5 parameters 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.

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

Binary bit	Parameter	Default
Bit0	Running speed	1
Bit1	Bus voltage	1
Bit2	Output voltage	1
Bit3	Output current	1
Bit4	Output frequency	1

The method of viewing FA-01 is as follows.

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

Param.	Name	Range	Default	Unit	Property
FA-02	Parameter display in the stop state	1 to 65535	1 to 65535	-	☆

FA-02 is used to set the state parameters displayed on the operating panel when the elevator is in the stop state.

A total of 16 parameters corresponding to the 16 binary bits of FA-02 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

Binary bit	Parameter	Default	Binary bit	Parameter	Default
Bit2	Low bit of input terminals	1	Bit10	CTB output state	1
Bit3	High bit of input terminals	1	Bit11	System state	1
Bit4	Output terminals	1	Bit12	Reserved	1
Bit5	Current floor	1	Bit13	Reserved	1
Bit6	Current position	1	Bit14	Reserved	1
Bit7	Car load	1	Bit15	Reserved	1

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

The running and stop parameters of the NICE3000^{new} 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 (F0-03).

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.

Param.	Name	Range	Default	Unit	Property
FA-03	Current encoder angle	0.0 to 3276.8	0.0	°	●

FA-03 displays the real-time encoder angle. This parameter cannot be modified.

Param.	Name	Range	Default	Unit	Property
FA-05	MCB software version	0 to 65535	0	-	●
FA-06	Drive board software version	0 to 65535	0	-	●

FA-05 and FA-06 are used to view the software version of the MCB and drive board respectively.

The following part describes the example of viewing NICE3000^{new} controller version information.

MCB version: V20.17-F15.00-L02.01

When you view FA-05, the LED operating panel displays the customer No. "F15.00" for 3s first and the major and minor version information "20.17".

Press 

, and the LED operating panel displays the customized and temporary version information "L02.01".

When you view FA-06, the LED operating panel displays "32.126" if the drive board version is V32.126-L01.06.

Press 

, and it displays the minor version “L01.06”.

The method of viewing FA-06 is similar to that of FA-05.

Param.	Name	Range	Default	Unit	Property
FA-07	Heatsink temperature	0 to 65535	0	℃	●

FA-07 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 over-temperature reaches a certain level, the system reports the module overheat fault and stops running.

Param.	Name	Range	Default	Unit	Property
FA-11	Pre-torque current	0.0 to 999.9	0	%	●

FA-11 displays the percentage of pre-torque current out of the rated current (with positive/negative display, motor driving or regenerative state).

Param.	Name	Range	Default	Unit	Property
FA-12	Logic information	0 to 65535	0	-	●

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.

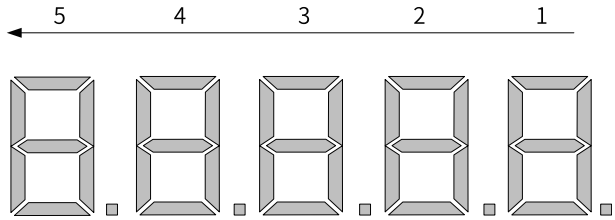


Figure 2-9 LED display

5		4		3	2	1	
Elevator state				Reserved	Reserved	Car state	
0	Inspection state	8	Elevator lock	Reserved	Reserved	0	Waiting state
1	Shaft auto-tuning	9	Idle elevator parking			1	Door open state
2	Micro-leveling	10	Low-speed re-leveling			2	Door open limit
3	Returning to fire emergency floor	11	Emergency evacuation operation			3	Door close state
4	Firefighter operation	12	Motor auto-tuning			4	Door close limit
5	Fault state	13	Keypad control			5	Operation state
6	Attendant operation	14	Main floor verification			-	-
7	Automatic	15	VIP state			-	-

Param.	Name	Range	Default	Unit	Property
FA-13	Curve information	0 to 65535	0	-	●

FA-13 displays the system running curve information. As shown in the following table, LEDs 1 and 2 indicate the timing information and LEDs 4 and 5 curve information.

5	4	3	2	1
Curve information		No display	Timing information	
0	Standby state	-	0	Stop state
1	Startup speed segment		1	Shorting door lock circuit relay output
02, 03	Acceleration start segment		2	Output of shorting motor stator and RUN contactors
4	Linear acceleration segment		3	Zero-speed torque current holding
05, 06, 07	Acceleration end segment		4	Brake contactor output
8	Steady-speed running segment		5	Curve running
09, 10, 11	Deceleration start segment		6	Stop zero-speed
12	Linear deceleration segment		7	Brake contactor OFF
13, 14	Deceleration end segment		8	Stop timing
15	Curve stop		-	-

Param.	Name	Range	Default	Unit	Property
FA-14	Speed reference	0.000 to 65.535	0	m/s	●
FA-15	Feedback speed	0.000 to 65.535	0	m/s	●
FA-16	Bus voltage	0 to 6553.5	0	V	●
FA-17	Current position	0.00 to 6553.5	0	m	●
FA-18	Output current	0 to 6553.5	0	A	●
FA-19	Output frequency	0.00 to 655.35	0	Hz	●
FA-20	Torque current	0 to 999.9	0	A	●
FA-21	Output voltage	0 to 6553.5	0	V	●
FA-22	Output torque	0 to 999.9	0	%	●
FA-23	Output power	0.00 to 99.99	0	kW	●

FA-14 to FA-23 display the current performance state of the system (the output torque and output power support positive/negative display).

Param.	Name	Range	Default	Unit	Property
FA-24	Communication interference	0 to 65535	0	-	●

FA-24 displays the current quality of different system communication types, as described in the following table.

5		4		3		2		1	
Inverter SPI communication quality		Rectifier SPI communication quality		CAN2 communication quality		MOD communication command		CAN1 communication quality	
0	High	0	High	0	High	0	High	0	High
↓	↑	↓	↑	↓	↑	↓	↑	↓	↑
9	Interrupted completely	9	Interrupted completely	9	Interrupted completely	9	Interrupted completely	9	Interrupted completely

0 to 9 indicates the communication quality, where a larger value indicates stronger interference and lower communication quality.

Param.	Name	Range	Default	Unit	Property
FA-26	Input state 1	0 to 65535	0	–	●
FA-27	Input state 2	0 to 65535	0	–	●
FA-28	Input state 3	0 to 65535	0	–	●
FA-29	Input state 4	0 to 65535	0	–	●
FA-30	Input state 5	0 to 65535	0	–	●
FA-31	Output state 1	0 to 65535	0	–	●
FA-32	Output state 2	0 to 65535	0	–	●

FA-26 to FA-32 display the system input and output states.

- Description of FA-26 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.

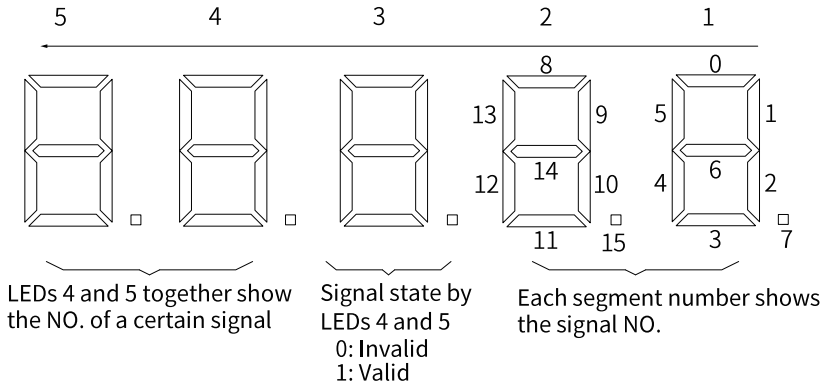


Figure 2-10 FA-26 input state 1 display

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

The system input and output states are displayed:

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.

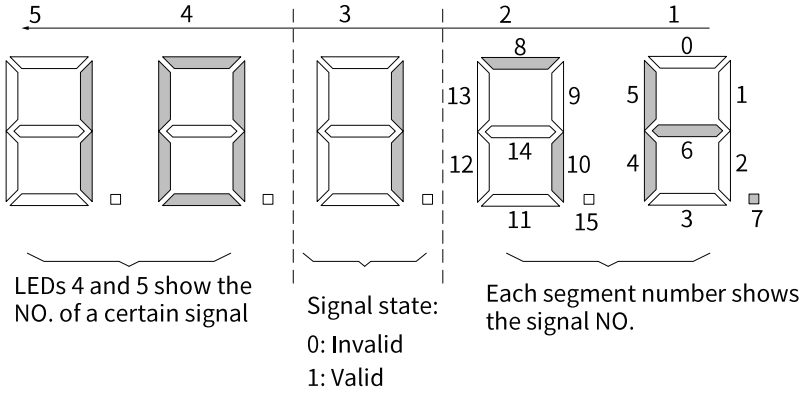


Figure 2-11 Example of FA-26 input state

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

- Description of FA-27 input state 2 display

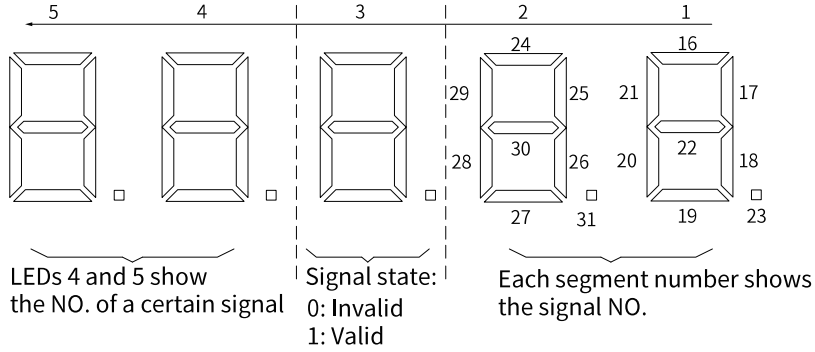


Figure 2-12 FA-27 input state 2 display

No.	Definition	No.	Definition
16	Up slow-down 1 signal	24	Door operator 1 light curtain
17	Down slow-down 1 signal	25	Door operator 2 light curtain
18	Up slow-down 2 signal	26	Brake travel switch 1 feedback
19	Down slow-down 2 signal	27	Emergency evacuation 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 relay output feedback	30	Shorting motor stator contactor feedback input
23	Firefighter operation signal	31	Door lock circuit 2 feedback

- Description of FA-28 input state 3 display

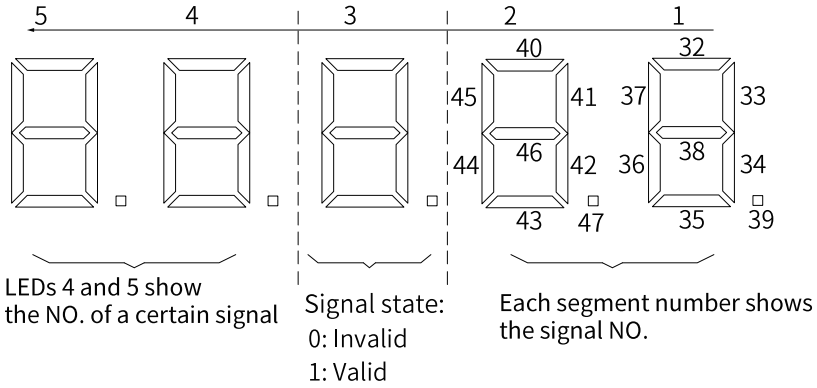


Figure 2-13 FA-28 input state 3 display

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

- Description of FA-29 input state 4 display

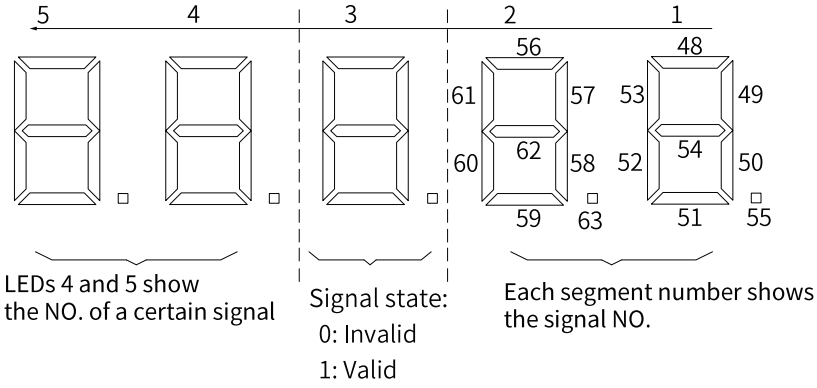


Figure 2-14 FA-29 input state 4 display

No.	Definition	No.	Definition
48	Terminal floor signal	56	Reserved
49	Door lock shorting signal	57	Reserved
50	Reserved	58	Reserved
51	Reserved	59	Reserved
52	Reserved	60	Reserved
53	Reserved	61	Reserved
54	Reserved	62	Reserved
55	Reserved	63	Reserved

- Description of FA-30 input state 5 display

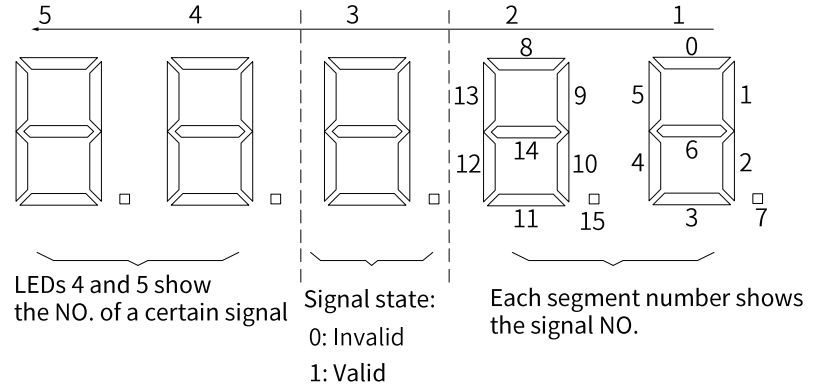


Figure 2-15 FA-30 input state 5 display

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

- Description of FA-31 output state 1 display

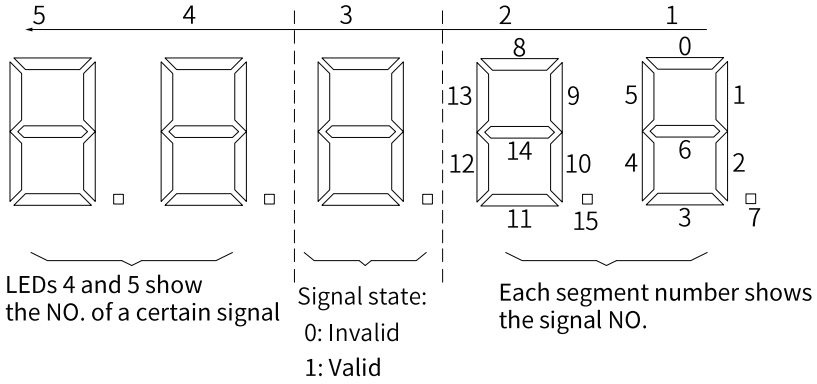


Figure 2-16 FA-31 output state 1 display

No.	Definition	No.	Definition
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 above level 3
3	Shorting door lock circuit relay output	11	Operation state
4	Fire emergency floor arrival signal feedback	12	Shorting motor stator contactor output
5	Door open by door operator 1	13	Emergency evacuation output at power failure
6	Door close by door operator 1	14	System healthy
7	Door open by door operator 2	15	Emergency buzzer output

- Description of FA-32 output state 2 display

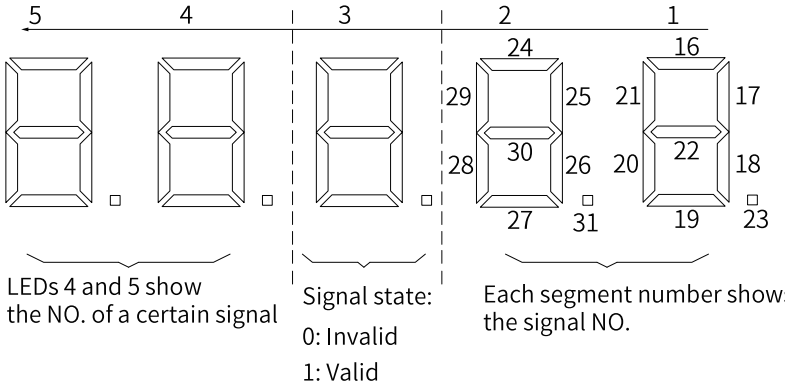


Figure 2-17 FA-32 output state 2 display

No.	Definition	No.	Definition
16	High-voltage startup of brake	24	Reserved
17	UP running signal	25	Reserved
18	Lighting/Fan output	26	Reserved
19	Medical sterilization output	27	Reserved
20	Non-door zone stop	28	Reserved
21	Electromagnetic lock output	29	Reserved
22	Non-service state	30	Reserved
23	Emergency evacuation completed	31	Reserved

Param.	Name	Range	Default	Unit	Property
FA-33	Car input state	0 to 65535	0	–	●
FA-34	Car output state	0 to 65535	0	–	●

FA-33 and FA-34 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.

- Description of FA-33 car input display

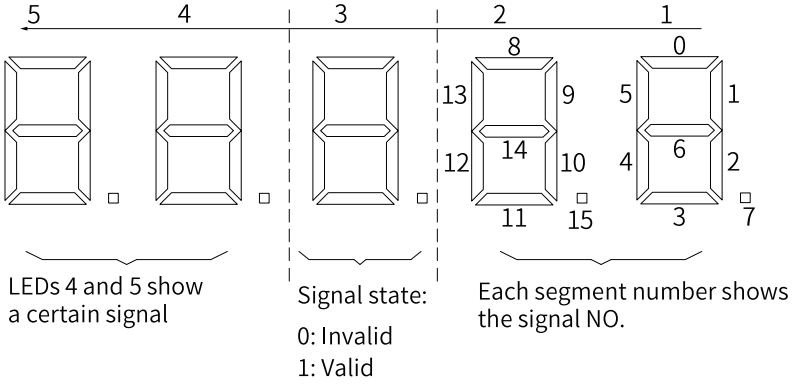


Figure 2-18 FA-33 car input state display

No.	Definition	No.	Definition
0	Reserved	8	Overload input
1	Door 1 light curtain	9	Light-load input
2	Door 2 light curtain	10	Up leveling signal in communication mode
3	Door 1 open limit	11	Down leveling signal in communication mode
4	Door 2 open limit	12	Reserved
5	Door 1 close limit	13	Inspection signal
6	Door 2 close limit	14	Up signal input
7	Full-load input	15	Down signal input

- Description of FA-34 car output display

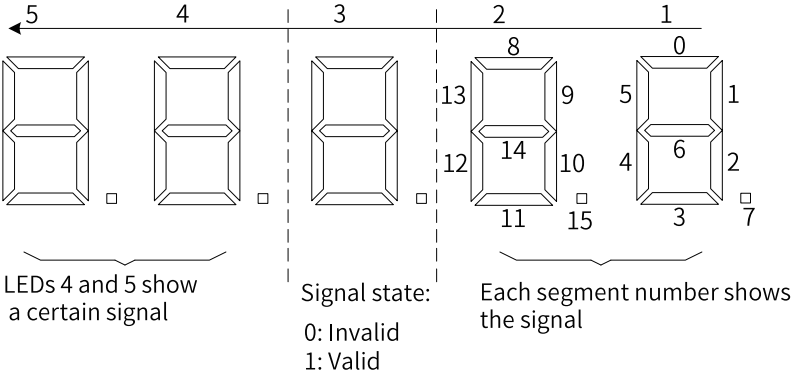


Figure 2-19 FA-34 car output state display

No.	Definition	No.	Definition
0	Reserved	8	Down arrival gong
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 gong	15	Reserved

Param.	Name	Range	Default	Unit	Property
FA-35	Hall state	0 to 65535	0	–	●
FA-36	System state 1	0 to 65535	0	–	●
FA-37	System state 2	0 to 65535	0	–	●

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.

- Description of FA-35 hall state display

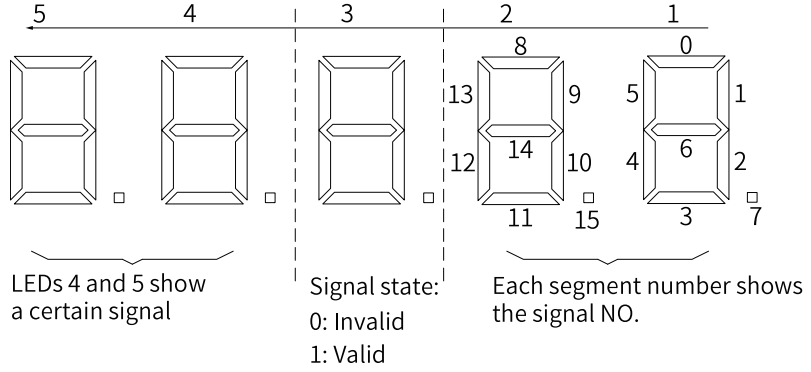


Figure 2-20 FA-35 hall state display

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	Security signal	13	Reserved

No.	Definition	No.	Definition
6	Door close button input	14	Reserved
7	Reserved	15	Reserved

- Description of FA-36 system state 1 display

Table 2–2 FA-36 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
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

- Description of FA-37 system state 2 display

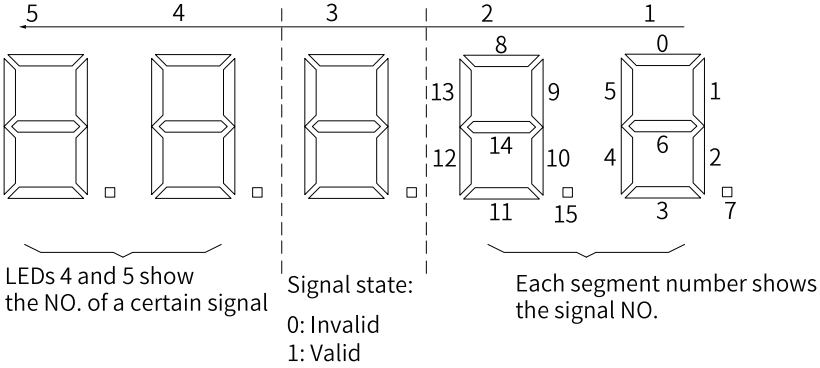


Figure 2-21 FA-37 system state 2 display

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

Param.	Name	Range	Default	Unit	Property
FA-38	Maximum floor running time interval	0 to 200	0	s	●

FA-38 indicates the time required for the elevator to run from the bottom floor to the top floor at normal speed. The smaller value of "FA-38 + 10s" and F9-02 (Running time protection) 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.

Param.	Name	Range	Default	Unit	Property
FA-46	Hall call communication state 1	0 to 65535	0	-	●
FA-47	Hall call communication state 2	0 to 65535	0	-	●
FA-48	Hall call communication state 3	0 to 65535	0	-	●
FA-50	Communication state 1 of HCB connected to expansion board	0 to 65535	0	-	●
FA-51	Communication state 2 of HCB connected to expansion board	0 to 65535	0	-	●
FA-52	Communication state 3 of HCB connected to expansion board	0 to 65535	0	-	●

These parameters display the communication state between HCBs of all floors and the MCB.

Parameters FA-46 to FA-48 display the communication state between the MCB Modbus interface and the HCB.

FA-50, FA-51 and FA-52 display the communication state between the machine room expansion board and the HCB (including the rear door of the through-type door).

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.

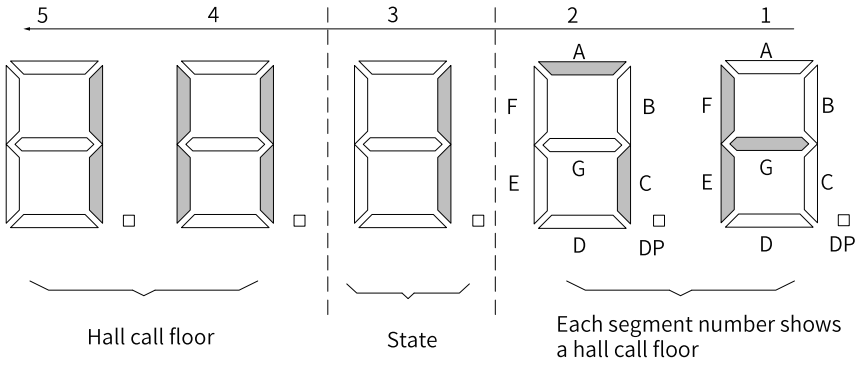


Figure 2-22 Hall call communication state

As shown in the preceding 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.

Param.	Name	Range	Default	Unit	Property
FA-53	I/O state display	0: Default 1: Machine room expansion board version 2: Car expansion board version	0	-	☆
FA-54	Input state 6	0 to 65535	0	-	●
FA-55	Input state 7	0 to 65535	0	-	●

FA-54 and FA-55 combined are used to display the signals of input state 6 and input state 7.

Example: System I/O state display.

Set FA-53 to 0, FA-54 displays functional information of terminals 128 to 143, and FA-55 displays functional information of terminals 144 to 159.

Set FA-53 to 1, FA-54 displays functional information of terminals 192 to 207, and FA-55 displays functional information of terminals 208 to 223.

Param.	Name	Range	Default	Unit	Property
FA-58	Version display selection	0: Machine-room-less monitoring board version 1: Machine room expansion board version 2: Car expansion board version 3: ARD version 4: AFE master version 5: AFE slave version 6: Forced drive operation box version 7: SCB software version 8: SBC board version 9: Machine-room-less monitoring board (GB/T-2020) 10: Door operator 1 11: Door operator 2 12: Car top emergency power supply 110: Front door COB1 version 111: Front door COB2 version 112: Front door CCB1 version 113: Front door CCB2 version 120: Rear door COB1 version 121: Rear door COB2 version and so on 201: Pit inspection board version	0	-	☆
FA-59	Major software version	0 to 65535	0	-	●
FA-60	Temporary software version	0 to 65535	0	-	●
FA-61	Manufacturer software version	0 to 65535	0	-	●

FA-58 and FA-59 can be combined to display the expansion board software version.

Example: Viewing the software version of machine room expansion board.

Set FA-58 to 1 and view FA-59 to obtain the machine room expansion board software version. See “FA-05” on FA-59 software version viewing method.

If you need to view COB and accessory versions, you need first to enable F8-15 bit11 for system version and then view the corresponding versions according to the above table.

Param.	Name	Range	Default	Unit	Property
FA-63	Inspection state monitoring	0 to 65535 Bit0: CTB forced inspection sign Bit1: Pit forced inspection sign Bit2: Forced door lock bypass sign Bit3: Shaft auto-tuning not performed Bit4: Reserved Bit13: Forced inspection sign for braking force detection Bit14: Inspection running allowed in emergency evacuation	0	-	●
FA-67	MCU type	0 to 65535 0: ST 1:	0	-	●

2.2.13Group FB: Door Function Parameters

Param.	Name	Range	Default	Unit	Property
FB-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.

Param.	Name	Range	Default	Unit	Property
FB-01	CTB software version	0 to 655.35	0	-	●

When the controller is connected to the CTB, this parameter displays the CTB software version. See “FA-05” on FB-01 software version viewing method.

Param.	Name	Range	Default	Unit	Property
FB-02	Service floor 1 of door operator 1	0 to 65535	65535	-	☆
FB-03	Service floor 2 of door operator 1	0 to 65535	65535	-	☆
FB-18	Service floor 3 of door operator 1	0 to 65535	65535	-	☆
FB-04	Service floor 1 of door operator 2	0 to 65535	65535	-	☆
FB-05	Service floor 2 of door operator 2	0 to 65535	65535	-	☆
FB-19	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 F6-05.

Param.	Name	Range	Default	Unit	Property
FB-06	Door open protection time	5 to 99	10	s	☆
FB-07	Arrival gong output delay	0 to 1000	0	ms	☆
FB-08	Door close protection time	5 to 99	15	s	☆

FB-06 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 FB-06. When the door open/close times reach the value set in FB-09, the system reports fault E48.

FB-07 is used to set the arrival gong output delay.

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.

FB-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 FB-08. When the door open/close times reach the value set in FB-09, the system reports door close fault E49.

Param.	Name	Range	Default	Unit	Property
FB-09	Door open/close times	0 to 20	0	-	☆
FB-10	Door state of standby elevator	0 to 2	0	-	☆

FB-09 is used to set the door re-open/re-close times allowed when door open/close is abnormal.

FB-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

2: Waiting with door open at each floor

Param.	Name	Range	Default	Unit	Property
FB-11	Door open holding time for hall call	1 to 1000	5	s	☆
FB-12	Door open holding time for car call	1 to 1000	3	s	☆
FB-13	Door open holding time at main floor	1 to 1000	10	s	☆
FB-14	Duration of door open holding delay	10 to 1000	30	s	☆

FB-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.

FB-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.

FB-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.

FB-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.

Param.	Name	Range	Default	Unit	Property
FB-15	Special door open holding time	10 to 1000	30	s	☆
FB-16	Manually operated door open limit delay	1 to 60	5	s	☆
FB-17	Waiting time for forced door close	5 to 180	120	s	☆

FB-15 is used to set the door open holding time when there is a disability call.

FB-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.

FB-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.

Param.	Name	Range	Default	Unit	Property
FB-20	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.

Param.	Name	Range	Default	Unit	Property
FB-23	Major version of the platform	0 to 655.35	0	-	●

FB-23 is the software version of the elevator development platform.

Param.	Name	Range	Default	Unit	Property
FB-24	UCMP test program version	0 to 65535	1	-	●

FB-24 is the program version of the UCMP test program module.

Param.	Name	Range	Default	Unit	Property
FB-27	Door open duration at fault occurrence	0 to 60000	60	s	☆
FB-28	Door open/close protection time at fault occurrence	0 to 60000	60	s	☆
FB-29	Rescue exit time after door close limit	3 to 999	15	s	☆
FB-35	VIP exit delay	0.00 to 600.00	30.00	s	☆

2.2.14Group FC: Protection Function Parameters

Param.	Name	Range	Default	Unit	Property
FC-00	Program control selection	0 to 65535	0	-	★

These parameters are used for program control selection:

“1” indicates that the function is enabled.

“0” indicates that the function is disabled.

The functions defined by the bits are described in the following table.

FC-00 Program control selection			
Bit	Definition	Description	Default
Bit0	Detection of short circuit to ground at power-on	Whether the motor is short-circuited to ground is detected at power-on. If the motor is short-circuited to ground, the controller blocks the output immediately, and reports the fault.	1
Bit1	Reserved	-	0

FC-00 Program control selection			
Bit	Definition	Description	Default
Bit2	Decelerating to stop at valid light curtain	During normal-speed running, the elevator decelerates to stop immediately after the light curtain acts, and then runs to the registered destination floor after the light curtain restores to former state. This function is mainly used for manually operated door.	0
Bit9	Mode without door open/close limit	In this mode, the system automatically judges the door open/close limit without door open/close limit signal. It determines that the door open limit is reached 3s after the door open signal output and the door close limit is reached 3s after the door close signal output.	0

Param.	Name	Range	Default	Unit	Property
FC-01	Function selection	0 to 65535	65	-	★

These parameters are used for program control selection:

“1” indicates that the function is enabled.

“0” indicates that the function is disabled.

The functions defined by the bits are described in the following table.

FC-01 Function selection			
Bit	Definition	Description	Default
Bit0	Overload protection	0: The motor overload detection function is enabled 1: The motor overload detection function is disabled	1
Bit1	Canceling output phase loss protection	It cancels fault protection at output phase loss.	0
Bit4	Light curtain judgment upon door close limit	At door close limit, the door re-opens if the light curtain is valid.	0
Bit5	Canceling SPI communication detection	It cancels wire-breaking detection on SPI communication between the MCB and the drive board.	0
Bit6	Reserved	-	0
Bit8	Reserved	-	0
Bit14	Canceling input phase loss protection	It cancels protection at input phase loss.	0

Param.	Name	Range	Default	Unit	Property
FC-02	Overload protection coefficient	0.50 to 10.00	1.00	-	★
FC-03	Overload pre-warning coefficient	50 to 100	80	%	★

The FC-02 reference quantity is motor overload current. After detecting that the output current reaches the value (FC-02 x Rated motor current) and the duration lasts the time specified in the inverse time lag curve, the controller outputs fault E11 indicating motor overload.

The FC-03 reference quantity is motor overload current. After detecting that the output current exceeds the value (FC-03 x Rated motor current) and the duration lasts the time specified in the inverse time lag curve, the controller outputs a pre-warning signal.

Param.	Name	Range	Default	Unit	Property
FC-04	Through-type door control selection	0 to 3	0	-	★

FC-04 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

Param.	Name	Range	Default	Unit	Property
FC-11	11th fault	0 to 9999	0	-	●
FC-12	11th fault subcode	0 to 65535	0	-	●
FC-13	Month and day upon 11th fault	0 to 1231	0	MM.DD	●
FC-14	Hour and minute upon 11th fault	0 to 23.59	0	HH.MM	●
FC-15	12th fault	0 to 9999	0	-	●
FC-16	12th fault subcode	0 to 65535	0	-	●
FC-17	Month and day upon 12th fault	0 to 1231	0	MM.DD	●

Param.	Name	Range	Default	Unit	Property
FC-18	Hour and minute upon 12th fault	0 to 23.59	0	HH.MM	●
.....					
FC-207	60th fault	0 to 9999	0	-	●
FC-208	60th fault subcode	0 to 65535	0	-	●
FC-209	Month and day upon 60th fault	0 to 1231	0	MM.DD	●
FC-210	Hour and minute upon 60th fault	0 to 23.59	0	HH.MM	●

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 group E9 (fault information) will be moved to FC-11 to FC-14.

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.

2.2.15Group FD: Communication Parameters

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

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

- FD-00 specifies the baud rate for serial communication.
- FD-02 specifies the address of the controller. The setting of these two parameters must be consistent with the setting of the serial port parameters.
- FD-03 specifies the delay for the controller to send data by means of the serial port.

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

Param.	Name	Range	Default	Unit	Property
FD-05	Re-leveling stop delay	0.00 to 2.00	0.00	s	★

FD-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.

Param.	Name	Range	Default	Unit	Property
FD-07	HCB-JP1 input	0: Inactive 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 from the hall	1	-	★
FD-08	HCB-JP2 input		2	-	★

FD-07 and FD-08 are the input parameters of pins 2 and 3 of JP1 and JP2 on the HCB. The settings are effective for all HCBs.

Param.	Name	Range	Default	Unit	Property
FD-09	HCB-JP1 output	0: Inactive 1: Up arrival indicator 2: Down arrival indicator 3: Fault output 4: Non-door zone stop output 5: Non-service state output 6: Door close button indicator output	1	-	★
FD-10	HCB-JP2 output		2	-	★

FD-09 and FD-10 are the output parameters of pins 1 and 4 of JP1 and JP2 on the HCB. The settings are effective for all HCBs.

Param.	Name	Range	Default	Unit	Property
FD-11	Expansion board 1: X1 input	0: Reserved 1: Fire emergency signal NO 2: Overload signal NO 3: Full-load signal NO 4: Firefighter operation NO 5: Door operator 1 light curtain input NO 6: Door operator 2 light curtain input NO 7: Brake travel switch 1 feedback input NO 8: UPS active input NO 9: Elevator lock input NO 10: Safety circuit input 2 NO 11: Synchronous motor self-locking feedback input NO 12: Door lock circuit 2 feedback input NO 13: Door operator 1 safety edge input NO 14: Door operator 2 safety edge input NO 15: Motor overheat signal input NO 16: Earthquake signal input NO 17: Rear door forbidden input NO 18: Light-load input NO 19: Half-load input NO 20: Fire emergency floor switchover signal input NO 21: Dummy floor input NO 22: Door 1 open input NO 23: Door 2 open input NO 24: Brake travel switch 2 feedback input NO 25: External fault input NO 26: Terminal floor signal input NO 27: Door 2 selection input NO 28: Single/double door selection input NO (NC + 32) 29: Door operator over-temperature 1 input NO 30: Door operator over-temperature 2 input NO 31: Light curtain fault 1 input NO 32: Reserved 33 to 63: Input NC (1 to 31) 64: Reserved 65: Light curtain fault 2 input NO	0	-	★
FD-12	Expansion board 1: X2 input		0	-	★
FD-13	Expansion board 1: X3 input		0	-	★
FD-14	Expansion board 1: X4 input		0	-	★
FD-15	Expansion board 1: X5 input		0	-	★
FD-16	Expansion board 1: X6 input		0	-	★
FD-17	Expansion board 1: X7 input		0	-	★
FD-18	Expansion board 1: X8 input		0	-	★
FD-19	Expansion board 1: X9 input		0	-	★
FD-20	Expansion board 1: X10 input		0	-	★
FD-21	Expansion board 2: X1 input		0	-	★
FD-22	Expansion board 2: X2 input		0	-	★
FD-23	Expansion board 2: X3 input		0	-	★
FD-24	Expansion board 2: X4 input		0	-	★
FD-25	Expansion board 2: X5 input		0	-	★
FD-26	Expansion board 2: X6 input		0	-	★
FD-27	Expansion board 2: X7 input		0	-	★
FD-28	Expansion board 2: X8 input		0	-	★
FD-29	Expansion board 2: X9 input		0	-	★
FD-30	Expansion board 2: X10 input		0	-	★

These parameters are used to set the functions of input terminal X on the expansion card. The NICE3000^{new} system supports up to two expansion cards that are used to expand the input terminal functions in the control cabinet or on the car.

Param.	Name	Range	Default	Unit	Property
FD-31	Expansion board 1: Y1 output	0: Not used yet 1: Door open by door operator 1 2: Door close by door operator 1 3: Door open by door operator 2 4: Door close by door operator 2 5: Brake and RUN contactors normal (no faults E37 and E36) 6: Fault state (output in level 3/4/5 faults) 7: Running monitoring (NICE3000^{new} in running state) 8: Synchronous motor self-locking output 9: Controller healthy 10: Emergency buzzer output 11: High-voltage startup of brake (continuous output of 4s) 12: UP running signal 13: Lighting/Fan output 14: Medical sterilization output 15: Non-door zone stop 16: Electromagnetic lock output 17: Non-service state output 18: Emergency evacuation completed 19: Fire emergency output during firefighter operation and when returning to fire emergency floor 20: Emergency output at power failure 21: Door lock active 22: Night output signal 23: Alarm filter output 24: Up running 25: Down running 26: Floor binary output (Bit1) 27: Floor binary output (Bit2) 28: Floor binary output (Bit3) 29: Floor binary output (Bit4) 30: Floor binary output (Bit5) 31: Floor binary output (Bit6)	0	-	★
FD-32	Expansion board 1: Y2 output		0	-	★
FD-33	Expansion board 1: Y3 output		0	-	★
FD-34	Expansion board 1: Y4 output		0	-	★
FD-35	Expansion board 1: Y5 output		0	-	★
FD-36	Expansion board 1: Y6 output		0	-	★
FD-37	Expansion board 1: Y7 output		0	-	★
FD-38	Expansion board 1: Y8 output		0	-	★
FD-39	Expansion board 1: Y9 output		0	-	★
FD-40	Expansion board 1: Y10 output		0	-	★
FD-41	Expansion board 2: Y1 output		0	-	★
FD-42	Expansion board 2: Y2 output		0	-	★
FD-43	Expansion board 2: Y3 output		0	-	★
FD-44	Expansion board 2: Y4 output		0	-	★
FD-45	Expansion board 2: Y5 output		0	-	★
FD-46	Expansion board 2: Y6 output		0	-	★
FD-47	Expansion board 2: Y7 output		0	-	★
FD-48	Expansion board 2: Y8 output		0	-	★
FD-49	Expansion board 2: Y9 output		0	-	★
FD-50	Expansion board 2: Y10 output		0	-	★

These parameters are used to set the functions of 10 relay outputs on MCTC-KZ-G1. The system supports up to two I/O expansion cards with up to 20 output terminals.

2.2.16Group FE: Display Setting Parameters

Param.	Name	Range	Default	Unit	Property
FE-00	Collective selective mode	0 to 2	0	-	★

FE-00 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.

Param.	Name	Range		Default	Unit	Property
FE-01	Floor 1 display	00: Display "0" 01: Display "1" 02: Display "2" 03: Display "3" 04: Display "4" 05: Display "5" 06: Display "6" 07: Display "7" 08: Display "8" 09: Display "9" 10: Display "A"	22: Display "23" 23: Display "C" 24: Display "D" 25: Display "E" 26: Display "F" 27: Display "I" 28: Display "J" 29: Display "K" 30: Display "N" 31: Display "O" 32: Display "Q"	1901	-	☆
FE-02	Floor 2 display			1902	-	☆
FE-03	Floor 3 display			1903	-	☆
FE-04	Floor 4 display			1904	-	☆
FE-05	Floor 5 display			1905	-	☆
FE-06	Floor 6 display	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"	33: Display "S" 34: Display "T" 35: Display "U" 36: Display "V" 37: Display "W" 38: Display "X" 39: Display "Y" 40: Display "Z" 41: Display "15" 42: Display "17" 43: Display "19"	1906	-	☆
FE-07	Floor 7 display			1907	-	☆
FE-08	Floor 8 display			1908	-	☆
FE-09	Floor 9 display			1909	-	☆
FE-10	Floor 10 display			0100	-	☆
Floor 11 to floor 30 display				...		
FE-31	Floor 31 display			0301	-	☆

Param.	Name	Range		Default	Unit	Property
FE-35	Floor 32 display	00: Display "0" 01: Display "1" 02: Display "2" 03: Display "3" 04: Display "4" 05: Display "5" 06: Display "6" 07: Display "7" 08: Display "8" 09: Display "9"	22: Display "23" 23: Display "C" 24: Display "D" 25: Display "E" 26: Display "F" 27: Display "I" 28: Display "J" 29: Display "K" 30: Display "N" 31: Display "O"	0302	-	☆
FE-36	Floor 33 display			0303	-	☆
FE-37	Floor 34 display			0304	-	☆
FE-38	Floor 35 display			0305	-	☆
FE-39	Floor 36 display			0306	-	☆
FE-40	Floor 37 display	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"	32: Display "Q" 33: Display "S" 34: Display "T" 35: Display "U" 36: Display "V" 37: Display "W" 38: Display "X" 39: Display "Y" 40: Display "Z" 41: Display "15" 42: Display "17" 43: Display "19"	0307	-	☆
FE-41	Floor 38 display			0308	-	☆
FE-42	Floor 39 display			0309	-	☆
FE-43	Floor 40 display			0400	-	☆
Floor 41 to floor 46 display				. . .		
FE-50	Floor 47 display			0407	-	☆
FE-51	Floor 48 display			0408	-	☆

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 position of the floor number, and the two low bits indicate the display code of ones position.

Param.	Name	Range	Default	Unit	Property
FE-52	Most significant bit selection 1	0 to 5699	0	-	☆
FE-53	Most significant bit selection 2		0	-	☆
FE-54	Most significant bit selection 3		0	-	☆
FE-55	Most significant bit selection 4		0	-	☆
FE-56	Most significant bit selection 5		0	-	☆

FE-52 to FE-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 most significant bit selection.

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 FE-18 to 0710 first (it displays "7A"). Then, set FE-65 to 1801, indicating that the highest digit display of floor 18 is "1".

Set F8-14 bit0 to 1. The system gets re-powered after power-off.

Param.	Name	Range	Default	Unit	Property
FE-32	Elevator function selection 1	0 to 65535	34816	-	☆

The parameter is used to set the functions required by a user.

Each function is controlled using one binary bit.

“1” indicates that the function is enabled.

“0” indicates that the function is disabled.

The functions defined by the binary bits of FE-32 are described in the following table.

FE-32 Elevator function selection 1			
Bit	Definition	Description	Default
Bit0	Reserved	-	0
Bit1	Time-based door service	To enable the time-based door service, see *"4.5 Time-based Floor Service" on page 212*.	0
Bit2	Re-leveling function	The elevator performs re-leveling at a low speed with door open. An external shorting door lock circuit relay needs to be used together.	0
Bit3	Advance door opening	When the elevator speed is smaller than a certain value and the door zone signal is active during normal operation, the system shorts the door lock circuit contactor and outputs the door open signal for advance door opening. This improves the elevator use efficiency.	0
Bit4	Stuck hall call cancellation	The system automatically identifies the state of the hall call buttons. If the state is abnormal, the system cancels the stuck hall call.	0

FE-32 Elevator function selection 1			
Bit	Definition	Description	Default
Bit5	Night security floor function	From 22:00 to 06:00, the elevator goes to the security floor, stops, and opens the doors, before moving to the destination floor every time.	0
Bit6	Peak service of down collective selective	Enable the peak service for down collective selective mode.	0
Bit7	Peak service for parallel/ group control	Enable the peak service for parallel/ group control mode.	0
Bit8	Time-based service floor function	Enable the time-based floor service function. See Chapter 3 for details.	0
Bit9	VIP function	Enable the VIP function.	0
Bit10	Reserved	-	0
Bit11	Car call cancellation	A call can be deleted by pressing the button twice.	1
Bit12	Hall call cancellation		0
Bit13 ~ Bit15	Reserved	-	0

Param.	Name	Range	Default	Unit	Property
FE-33	Elevator function selection 2	0 to 65535	36	-	☆

The parameter is used to set the functions required by a user.

Each function is controlled using one binary bit.

“1” indicates that the function is enabled.

“0” indicates that the function is disabled.

The functions defined by the binary bits of FE-33 are described in the following table.

FE-33 Elevator function selection 2			
Bit	Definition	Description	Default
Bit0	Reserved	-	0
Bit1	Door open holding at open limit	The system still outputs the door open command upon door open limit.	0
Bit2	Door close command not output upon door close limit	The system stops outputting the door close command upon door close limit.	1
Bit3	Reserved	-	0

FE-33 Elevator function selection 2			
Bit	Definition	Description	Default
Bit4	Automatic reset for stuck RUN and brake contactors	If the feedback of the RUN and brake contactors is abnormal, faults E36 and E37 are reported, and you need to manually reset them. With this function, the system resets them automatically after the faults disappear. A maximum of three auto reset times are supported.	0
Bit5	Slow-down switch stuck detection	The system detects the state of slow-down switches. Once detecting that it is stuck, the system instructs the elevator to slow down immediately and reports a fault.	1
Bit6	Reserved	-	0
Bit7	Forced door close	If the door still does not close within the time set in FB-17 in automatic state, the system outputs the forced door close signal. The light curtain becomes invalid and the buzzer tweets.	0
Bit8	Reserved	-	-
Bit10 to Bit12	Reserved	-	-
Bit13	High-speed protection function	A maximum allowable speed is set when the car is in the slow-down switch position. When the elevator exceeds the speed, the system outputs a protection signal.	0
Bit14	Reserved	-	0

2.2.17Group FP: User Parameters

Param.	Name	Range	Default	Unit	Property
FP-00	User password	0 to 65535	0	-	☆

FP-00 sets 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 FP-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 Inovance to replace the control board.

Param.	Name	Range	Default	Unit	Property
FP-01	Parameter update	0: Not available 1: Restoring default parameters 2: Clearing records 3: Clearing shaft data	0	-	★

FP-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 F1. Use this function with caution.

2: Clearing fault records Fault records are cleared. FC-11 to FC210 and parameters in groups E0 to E9 are set to 0.

3: Clearing shaft data: Floor pulse data in the shaft is cleared. Shaft pulses of F3-12 to F3-17 and group F4 are set to 0. The leveling adjustment parameters in group Fr are set to 30030. Shaft auto-tuning must be performed again after clearing.

Param.	Name	Range	Default	Unit	Property
FP-02	Check on user-defined parameters	0: Inactive 1: Active	0	-	★

FP-02 is used to view the parameters that are different from the default setting. When it is set to 1, you can view the parameters that are different from the default setting.

Param.	Name	Range	Default	Unit	Property
FP-05	Contract No. 2	0 to 65535	0	-	★
FP-06	Contract No. 1	0 to 65535	5555	-	★

FP-05 and FP-06 are used to set manufacturer contract No. Contract No. is used in the HCB or door operator software requiring contract No. check. If the contract No. check fails, the system cannot work properly.

2.2.18Group Fr: Leveling Adjustment Parameters

Param.	Name	Range	Default	Unit	Property
Fr-00	Leveling adjustment mode	0: Inactive 1: Leveling adjustment enabled	0	-	★

Fr-00 is used to set whether to enable the leveling adjustment function.

Param.	Name	Range	Default	Unit	Property
Fr-01	Leveling adjustment record 1	00000 to 60060	30030	mm	★
Fr-02	Leveling adjustment record 2		30030	mm	★
…	…		30030	mm	★
Fr-24	Leveling adjustment record 24		30030	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.

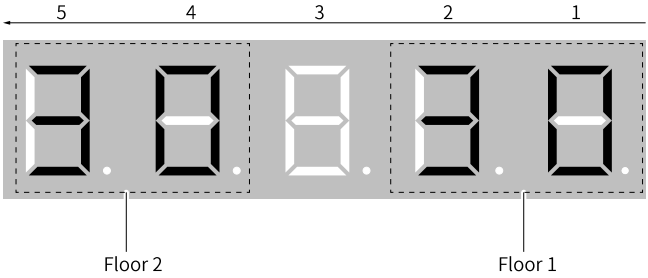


Figure 2-23 Viewing the leveling adjustment record

As shown in the preceding 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 Fr-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 complete, set Fr-00 to 0 to disable the leveling adjustment function.

3 Parameter Application

3.1 Motor Auto-tuning Parameter Setting

Param.	Name	Description
F1-25	Motor type	0: Asynchronous motor 1: Synchronous motor
F1-00	Encoder type selection	0: Sin/Cos encoder 1: UVW encoder 2: ABZ encoder 3: Endat absolute encoder
F1-12	Pulses per revolution	0 to 10000
F1-01 to F1-05	Rated motor power/voltage/ current/ frequency/speed	These parameters are model dependent, and you need to manually input them according to the nameplate.
F0-01	Command source selection	0: Operating panel control 1: Distance control
F1-11	Auto-tuning selection	0: No operation 1: With-load auto-tuning 2: No-load auto-tuning 3: Shaft auto-tuning 1 4: Shaft auto-tuning 2 5: Synchronous motor static auto-tuning
F1-22	Auto-tuning function selection	F1-22 = 2: semi-automatic angle-free auto-tuning Perform auto-tuning at first-time running after power-off and power-on again in the inspection or EEO state. F1-22 = 6: automatic angle-free auto-tuning Perform auto-tuning at first-time running after power-off and power-on again (without differentiating elevator states).

3.1.1 Synchronous Motor Auto-tuning

1. Synchronous motor with-load auto-tuning (motor connected with the car supported)

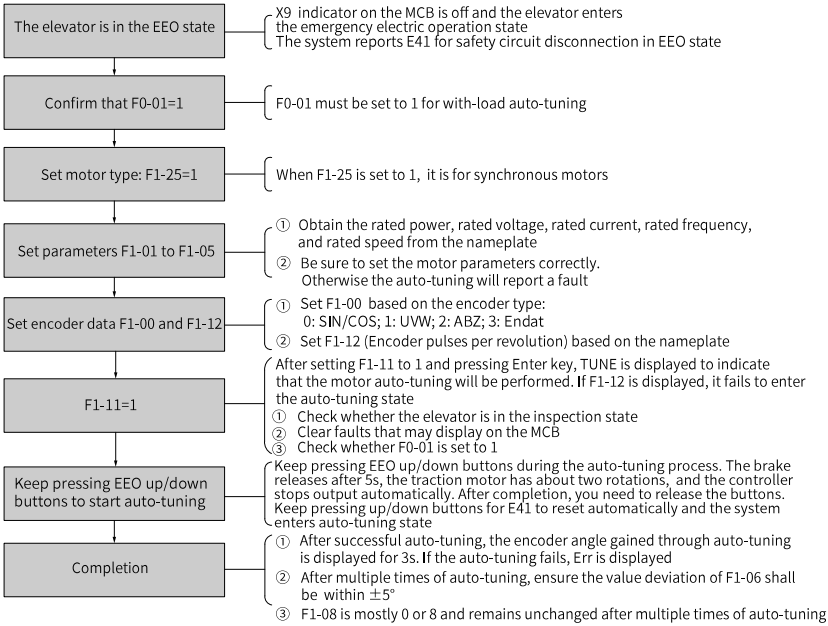


Figure 3-1 Synchronous motor with-load auto-tuning

2. Synchronous motor static auto-tuning (motor connected with the car supported, brake not released and motor not rotating)

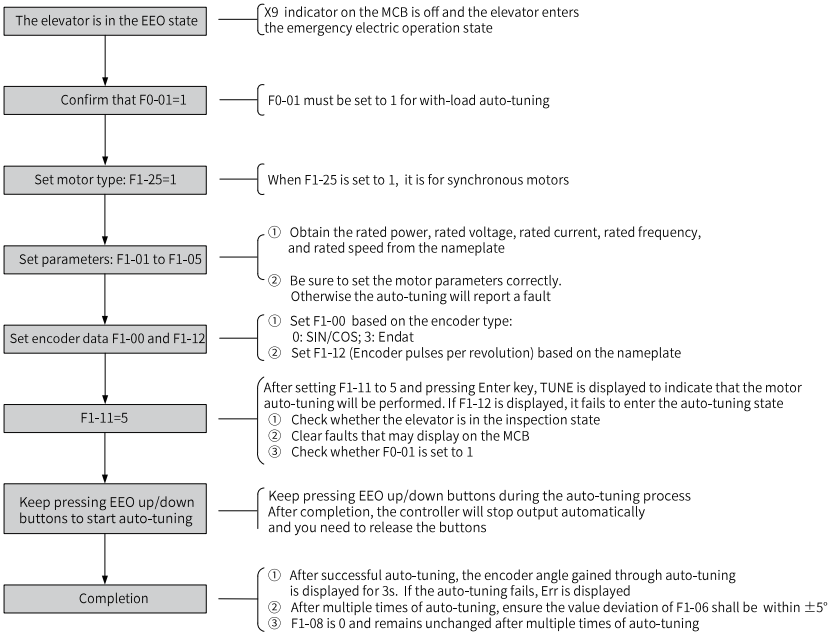


Figure 3-2 Synchronous motor static auto-tuning

Note

- Static auto-tuning only supports the sin-cos encoder and absolute encoder of the synchronous motor. Also, ensure that the output power line phase sequence of the integrated controller is consistent with that of the encoder.
- Set F1-08 to 0 during auto-tuning. If the actual phase sequence of the encoder is 8, you need to set F1-24 bit6 to 1 and set F1-08 to 0.
- In no-load auto-tuning, you must manually release the brake. The system does not output brake control.
- If the fault E20 is reported after brake release, set F8-01 to 0 and then perform auto-tuning and restore its value after the auto-tuning process. If the safety circuit is disconnected in EEO state, the system reports E41. The fault is reset automatically after you hold down the up and down running buttons and then the system enters the auto-tuning state.

3. Synchronous motor semi-automatic angle-free auto-tuning

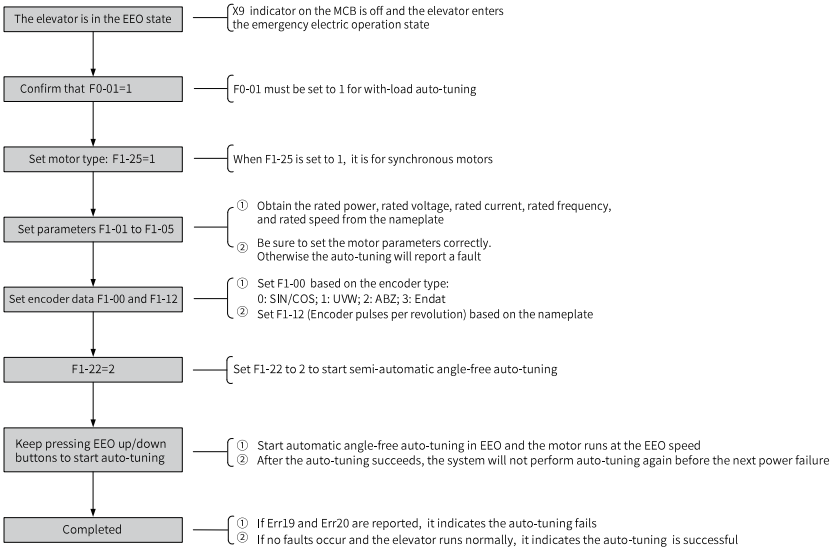


Figure 3-3 Synchronous motor semi-automatic angle-free auto-tuning

4. Synchronous motor automatic angle-free auto-tuning

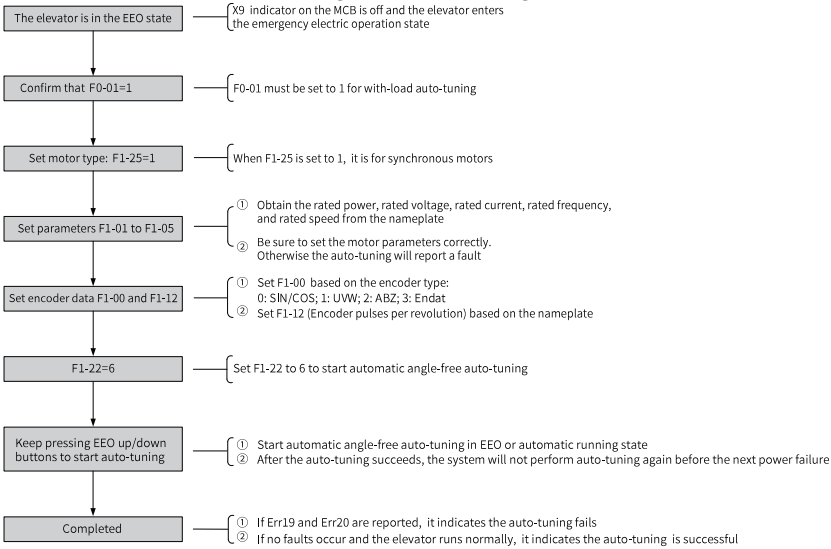


Figure 3-4 Synchronous motor automatic angle-free auto-tuning

5. Synchronous motor no-load auto-tuning (motor disconnected from the car)

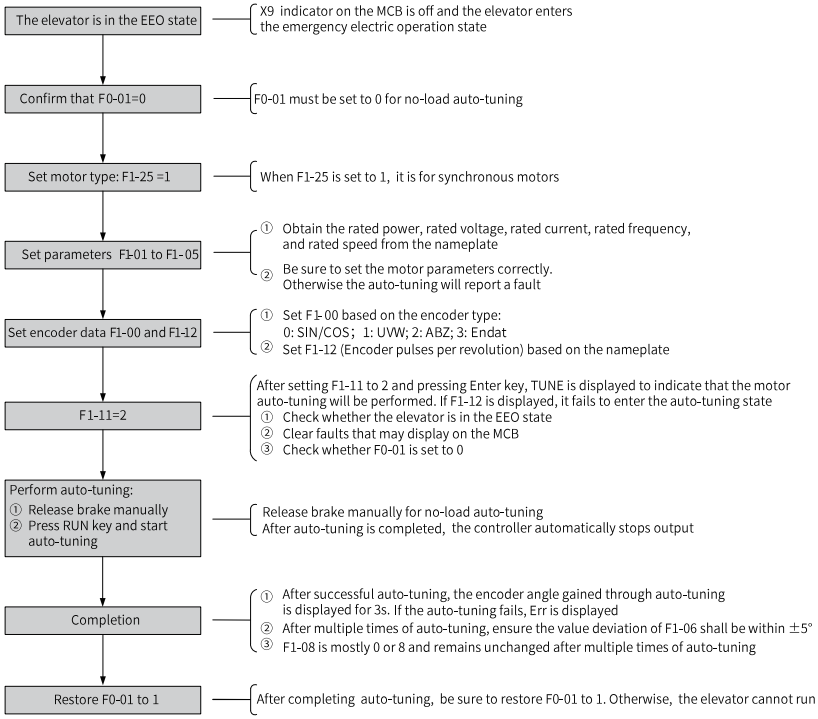


Figure 3-5 Synchronous motor no-load auto-tuning

Caution

Synchronous motor auto-tuning:

- Synchronous motor auto-tuning obtains motor initial pole angle, encoder initial angle, motor wiring mode, and inductances in d-q axis.
- Perform three or more times of auto-tuning. Compare the obtained values of F1-06 (Encoder initial angle), and ensure a difference of within ±5°.
- With the change of the encoder, encoder cable connection or motor wiring sequence as well as rated motor current, frequency and speed, perform motor auto-tuning again.
- You can modify F1-06 manually. The modification takes effect immediately. Therefore, after replacing the MCB, you can directly run the controller by manually setting F1-06 to the previous value, without performing motor auto-tuning.

3.1.2 Asynchronous Motor Auto-tuning

1. Asynchronous motor with-load auto-tuning (motor connected with the car supported)

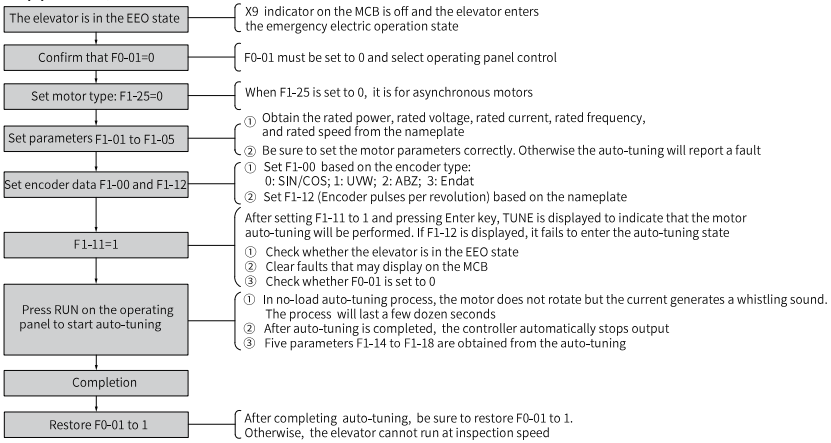


Figure 3-6 Asynchronous motor with-load auto-tuning

2. Asynchronous motor no-load auto-tuning (motor disconnected from the car)

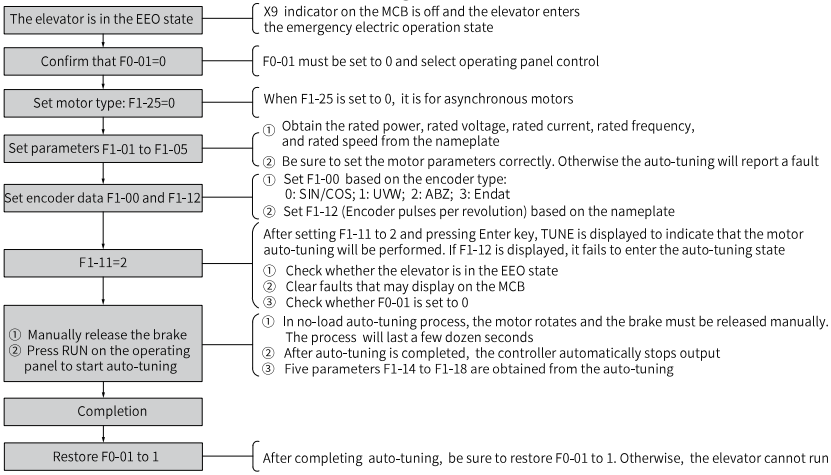


Figure 3-7 Asynchronous motor no-load auto-tuning

3.2 Vector Control Parameter Setting

3.2.1 Speed Loop PI Setting

Table 3–1 Speed Loop PI Setting

Param.	Name	Range	Default	Unit	Property
F2-00	Speed loop proportional gain Kp1	0 to 100	40	-	★
F2-01	Speed loop integral time Ti1	0.01 to 10.00	0.60	s	★
F2-02	Switchover frequency 1	0.00 to F2-05	2.00	Hz	★
F2-03	Speed loop proportional gain Kp2	0 to 100	35	-	★
F2-04	Speed loop integral time Ti2	0.01 to 10.00	0.80	s	★
F2-05	Switchover frequency 2	F2-02 to F0-06	5.00	Hz	★

Speed loop proportional gain Kp1 and speed loop integral time Ti1 are PI regulation parameters when the running frequency is lower than the switchover frequency 1.

Speed loop proportional gain Kp2 and speed loop integral time Ti2 are PI regulation parameters when the 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 F2-00, F2-01, F2-03 and F2-04. The following figure shows the details.

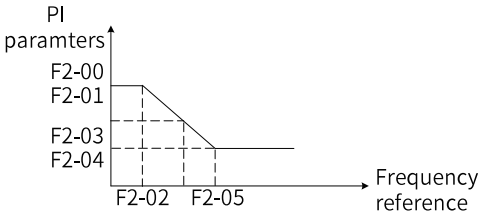


Figure 3-8 PI parameter

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 F2-03 and F2-04 are valid.

3.2.2 Current Loop PI Setting

Table 3–2 Current loop PI setting

Param.	Name	Range	Default	Unit	Property
F2-06	Current loop proportional gain Kp	10 to 500	60	-	★
F2-07	Current loop integral gain Ki	10 to 500	30	-	★

Current loop proportional gain Kp1 and current loop integral gain Ki1 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.

3.2.3 Position Lock PI Setting

Table 3–3 Position lock PI setting

Param.	Name	Range	Default	Unit	Property
F2-11	Position lock current coefficient	2.0 to 50.0	15.0	%	★
F2-12	Position lock speed loop Kp	0.00 to 2.00	0.50	-	★
F2-13	Position lock speed loop Ti	0.00 to 2.00	0.60	-	★

It is used for no-load-cell startup pre-torque self-adaption. You can enable the no-load-cell startup function by setting F8-01 to 2.

Decrease these parameters properly in the case of car lurch at startup, and increase them properly in the case of rollback at startup.

3.3 Running Control Parameter Setting

3.3.1 Running Speed Curve Setting

Table 3–4 Running Speed Curve Setting

Param.	Name	Range	Default	Unit	Property
F3-00	Startup speed	0.000 to 0.050	0.000	m/s	★
F3-01	Startup speed holding time	0.000 to 5.000	0.000	s	★
F3-02	Acceleration rate	0.200 to 1.500	0.700	m/s^2	★
F3-03	Acceleration end jerk time 1	0.300 to 4.000	1.500	s	★
F3-04	Acceleration end jerk time 2	0.300 to 4.000	1.500	s	★
F3-05	Deceleration rate	0.200 to 1.500	0.700	m/s^2	★
F3-06	Deceleration start jerk time 1	0.300 to 4.000	1.500	s	★
F3-07	Deceleration start jerk time 2	0.300 to 4.000	1.500	s	★
F3-09	Pre-deceleration distance	0 to 90.0	0.0	mm	★

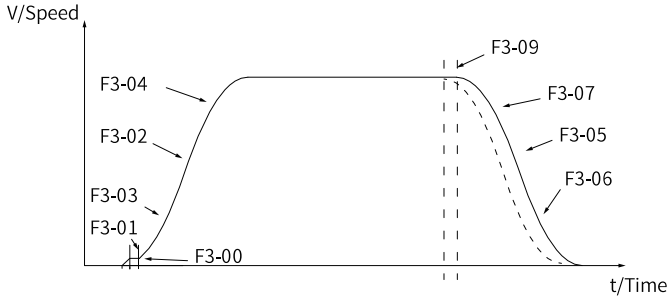


Figure 3-9 Speed curve

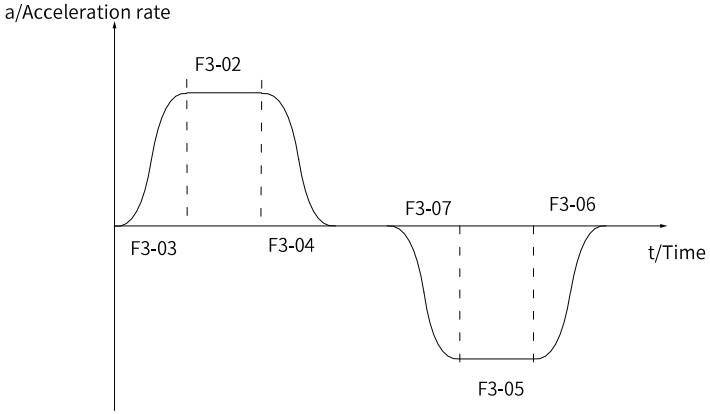


Figure 3-10 Acceleration/Deceleration curve

- F3-00 and F3-01 are used to set the acceleration time and holding time of the startup speed. The parameters may reduce the terrace feeling at startup due to static friction between the guide rail and the guide shoes.
- F3-02, F3-03, and F3-04 are used to set the running curve during acceleration of the elevator:
  - F3-02 is the acceleration rate of the elevator speed curve (constant acceleration).
  - F3-03 is the time for the acceleration rate from 0 to the value set in F3-02 in the speed curve (increasing acceleration). The larger the value is, the smoother the speed curve is.
  - F3-04 is the time for the acceleration rate from the value set in F3-02 to 0 in the speed curve (increasing deceleration). The larger the value is, the smoother the speed curve is.
- F3-05, F3-06, and F3-07 are used to set the running curve during deceleration of the elevator:

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

- It is used to set the pre-deceleration distance of the elevator. This function is to eliminate the influence of encoder signal loss or leveling signal delay.

3.3.2 Car Start/Stop Timing Parameter Setting

Table 3–5 Car start/stop timing parameter setting

Param.	Name	Range	Default	Unit	Property
F3-18	Zero-speed current output time	0.200 to 1.000	0.200	s	★
F3-19	Holding time of zero-speed torque current upon brake release	0.000 to 2.000	0.600	s	★
F3-20	Zero-speed control time at end	0.000 to 1.000	0.300	s	★
F8-11	Holding time of zero-speed torque current upon brake close	0.200 to 1.500	0.600	s	★

The zero-speed current output holding time and the braking action delay time are set.

- F3-18: It specifies the time from output of the RUN contactor to output of the brake contactor, during which the controller performs excitation on the motor and outputs zero-speed current with large startup torque.
- F3-19: F3-19 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.
- F8-11: It 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.
- F3-20: It specifies the zero-speed output time when the running curve ends.

The following figure shows the running timing.

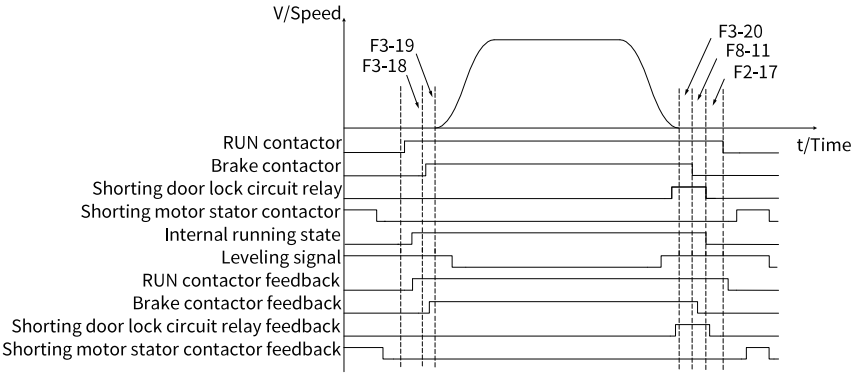


Figure 3-11 Running timing diagram

3.4 Communication State Parameter Display Description

3.4.1 MCB Communication State Display

Param.	Name	Range	Default	Unit	Property
F5-32	Communication state	Communication state monitoring of CANbus and Modbus	-	-	●

F5-32 is used to monitor the communication state of the car top CANbus and the hall call Modbus.

After users enter the F5-32 interface, the state of LEDs indicates the current communication state of hall calls. For the convenience of description, the LEDs are numbered 5, 4, 3, 2, and 1 respectively from left to right. The definition of each segment of the LEDs is as follows.

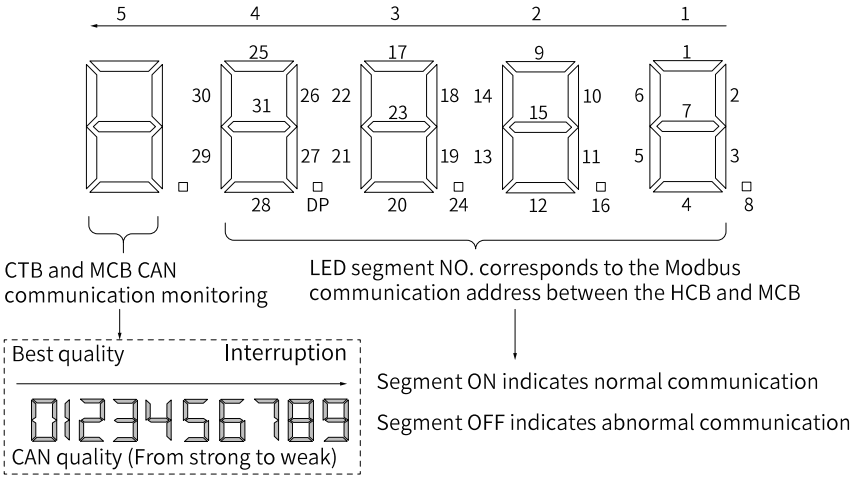


Figure 3-12 F5-32 communication state monitoring

Example: If the LEDs are as follows, it indicates that Modbus communication of addresses 1, 5, 6, 7, 12, 15, 16, 18, 19, 21, 22, 23, 25, 26, and 27 is abnormal, and that of other addresses is normal. CAN communication state displayed by the LEDs is 3, indicating a little interference.

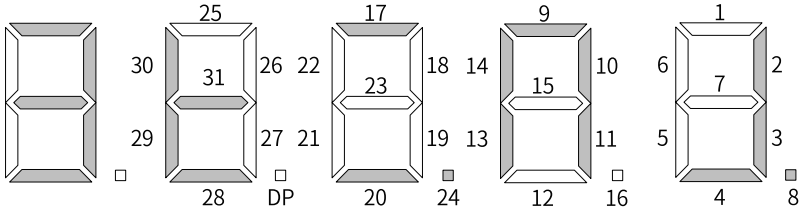


Figure 3-13 Example of LEDs display indicating the communication state

3.4.2 Hall Call Communication State Display

Param.	Name	Range	Default	Unit	Property
FA-46	Hall call communication state 1	0 to 65535	0	-	●
FA-47	Hall call communication state 2	0 to 65535	0	-	●

Param.	Name	Range	Default	Unit	Property
FA-48	Hall call communication state 3	0 to 65535	0	-	●
FA-50	Communication state 1 of HCB connected to expansion board	0 to 65535	0	-	●
FA-51	Communication state 2 of HCB connected to expansion board	0 to 65535	0	-	●
FA-52	Communication state 3 of HCB connected to expansion board	0 to 65535	0	-	●

These parameters display the communication state between HCBs of all floors and the MCB.

FA-46, FA-47 and FA-48 display the communication state between the MCB Modbus interface and the HCB.

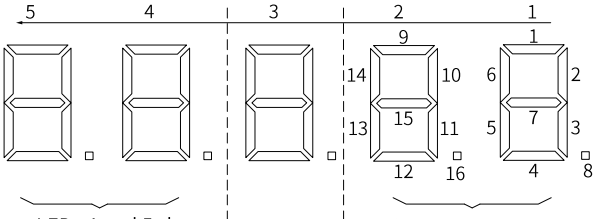
FA-50, FA-51 and FA-52 display the communication state between the machine room expansion board and the HCB (including the rear door of the through-type door).

As shown in the following figure, five LEDs are numbered 1, 2, 3, 4, and 5 from right to left. There are two methods for checking the hall call communication state:

Method 1: Check through LEDs 5, 4 and 3. LEDs 5 and 4 indicate the floor address, and LED 3 indicates that the hall call communication of this address is normal (display 1) or disconnected (display 0).

Method 2: LEDs 2 and 1 indicate the communication state. The 16 segments indicate the communication state of 16 floor addresses. If an LED is ON, communication is normal. If this LED is OFF, communication is disconnected.

- FA-46/FA-50 corresponds to hall call/rear door hall call communication state of floors 1 to 16, as shown in the following figure.

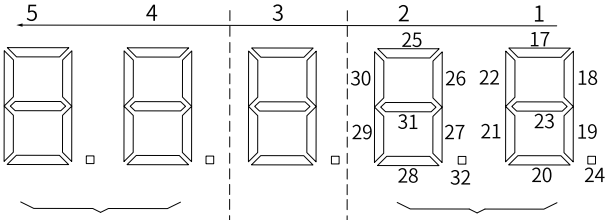


LEDs 4 and 5 show a certain address

Address state
0: Invalid
1: Valid

Each segment number corresponds to the hall call communication address
Segment ON indicates normal communication
Segment OFF indicates abnormal communication

- FA-47/FA-51 corresponds to hall call/rear door hall call communication state of floors 17 to 32, as shown in the following figure.

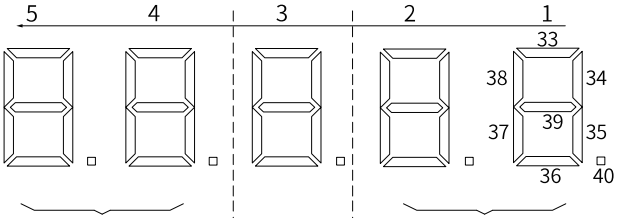


LEDs 4 and 5 show a certain address

Address state
0: Invalid
1: Valid

Each segment number corresponds to the hall call communication address
Segment ON indicates normal communication
Segment OFF indicates abnormal communication

- FA-48/FA-52 corresponds to hall call/rear door hall call communication state of floors 33 to 40, as shown in the following figure.



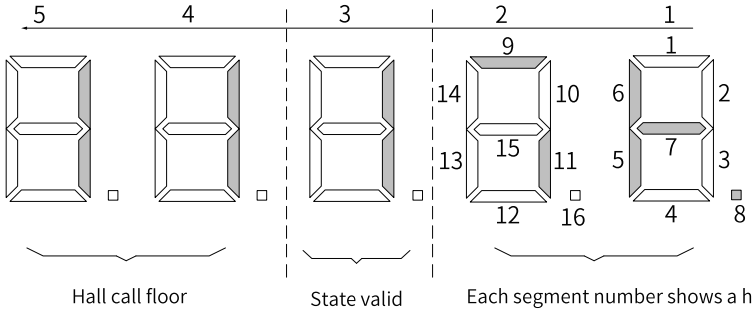
LEDs 4 and 5 show a certain address

Address state
0: Invalid
1: Valid

Each segment number corresponds to the hall call communication address
Segment ON indicates normal communication
Segment OFF indicates abnormal communication

Example:

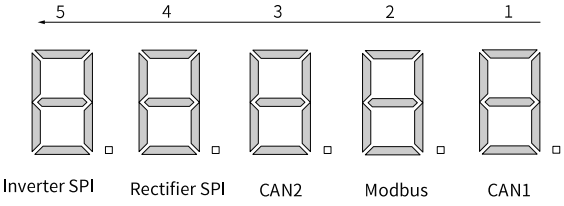
As shown in the following figure, it can be seen from LEDs 3 to 5 that the hall call communication state at floor 11 is normal. You can view the states of other floors by changing LEDs 4 and 5 by pressing the up and down keys. It can be seen from LEDs 1 and 2 that the hall call communication states at floors 5, 6, 7, 8, 9, and 11 are normal.



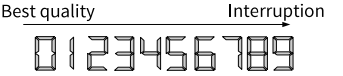
3.4.3 Communication Interference Display

Param.	Name	Range	Default	Unit	Property
FA-24	Communication interference	0 to 65535	0	-	●

FA-24 displays the current quality of different system communication types, as described in the following table.



Each LED segment shows a number, indicating the current communication quality:



Communication quality (From strong to weak)

3.5 Terminal State Display

3.5.1 MCB Input/Output State

Param.	Name	Range	Default	Unit	Property
FA-26	Input state 1	0 to 65535	0	-	●
FA-27	Input state 2	0 to 65535	0	-	●
FA-28	Input state 3	0 to 65535	0	-	●
FA-29	Input state 4	0 to 65535	0	-	●
FA-30	Input state 5	0 to 65535	0	-	●
FA-31	Output state 1	0 to 65535	0	-	●
FA-32	Output state 2	0 to 65535	0	-	●

FA-26 to FA-32 display the system input and output states.

Description of FA-26 input state 1 display

As shown in *"Figure 3–14 " on page 168* , 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.

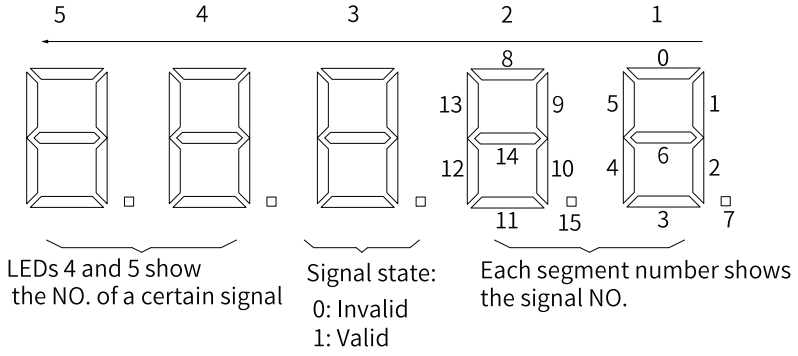


Figure 3-14 FA-26 input state 1 display

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

No.	Definition	No.	Definition
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: Input state display

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.

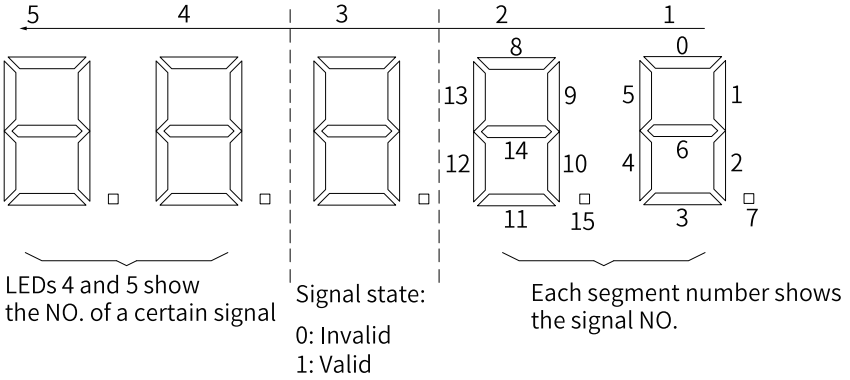


Figure 3-15 Example of FA-26 input state

Description of FA-27 input state 2 display

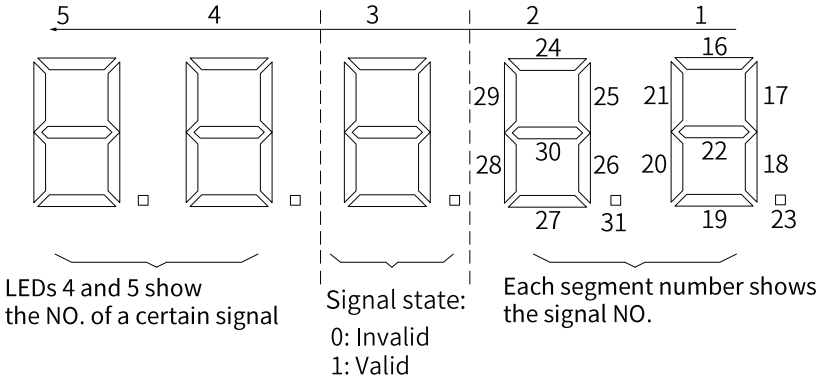


Figure 3-16 FA-27 input state 2 display

No.	Definition	No.	Definition
16	Up slow-down 1 signal	24	Door operator 1 light curtain
17	Down slow-down 1 signal	25	Door operator 2 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 relay output feedback	30	Shorting motor stator contactor feedback input
23	Firefighter operation signal	31	Door lock circuit 2 feedback

Description of FA-28 input state 3 display

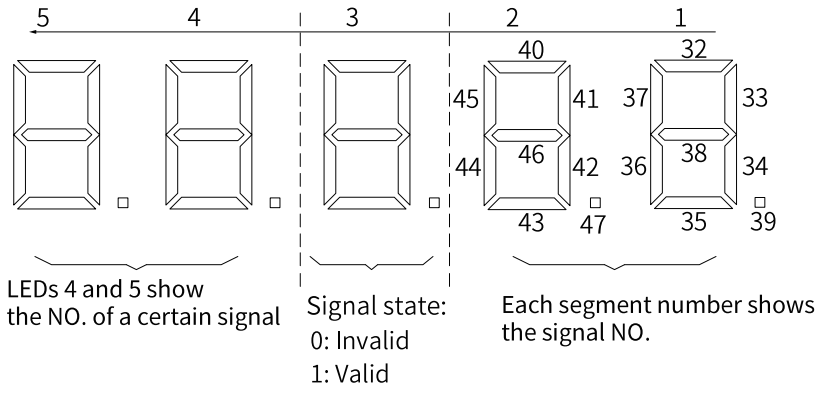


Figure 3-17 FA-28 input state 3 display

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

Description of FA-29 input state 4 display

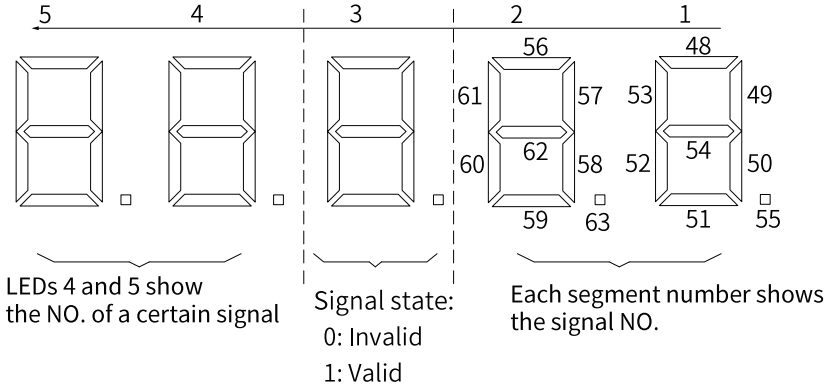


Figure 3-18 FA-29 input state 4 display

No.	Definition	No.	Definition
48	Terminal floor signal	56	Reserved
49	Door lock shorting signal	57	Reserved
50	Reserved	58	Reserved
51	Reserved	59	Reserved
52	Reserved	60	Reserved
53	Reserved	61	Reserved
54	Reserved	62	Reserved
55	Reserved	63	Reserved

Description of FA-30 input state 5 display

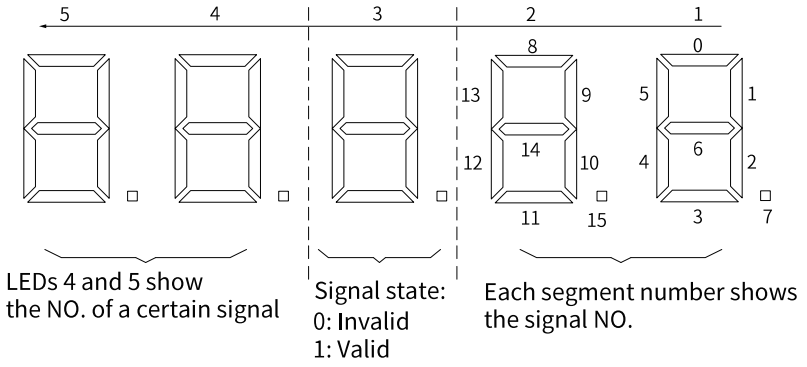


Figure 3-19 FA-30 input state 5 display

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

Description of FA-31 output state 1 display

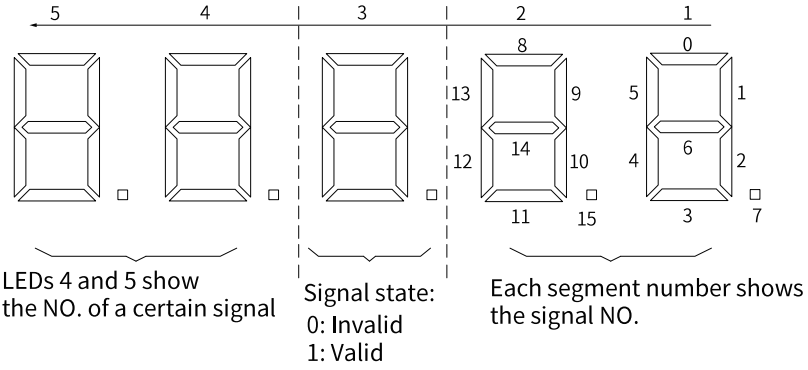


Figure 3-20 FA-31 Output state 1 display

No.	Definition	No.	Definition
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 above level 3
3	Shorting door lock circuit relay output	11	Operation state
4	Fire emergency floor arrival signal feedback	12	Shorting motor stator contactor output
5	Door open by door operator 1	13	Emergency evacuation output at power failure
6	Door close by door operator 1	14	System healthy
7	Door open by door operator 2	15	Emergency buzzer output

Description of FA-32 output state 2 display

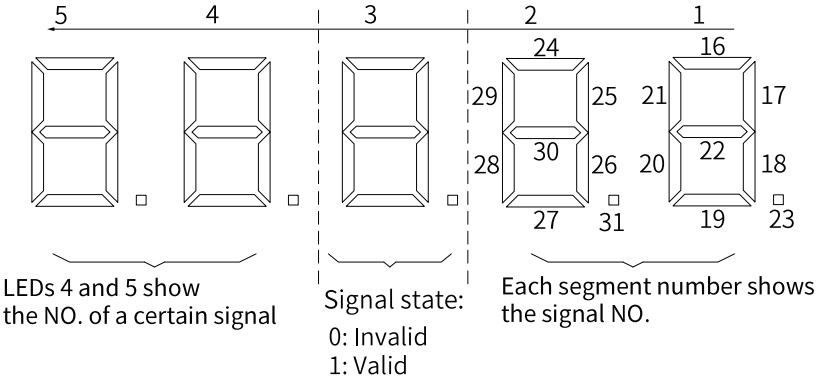


Figure 3-21 FA-32 Output state 2 display

No.	Definition	No.	Definition
16	High-voltage startup of brake	24	Reserved
17	UP running signal	25	Rope gripper reset
18	Lighting/Fan output	26	Braking transistor short circuit 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 state	30	Reserved
23	Emergency evacuation completed	31	Reserved

3.5.2 Car Input/Output State

Param.	Name	Range	Default	Unit	Property
FA-33	Car input state	0 to 65535	0	–	●
FA-34	Car output state	0 to 65535	0	–	●

FA-33 and FA-34 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.

Description of FA-33 car input display

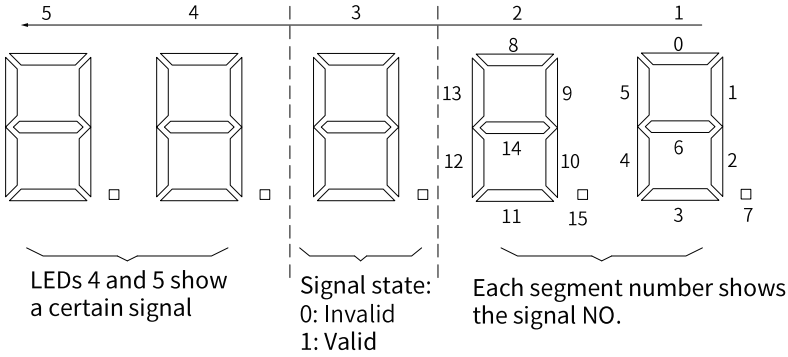


Figure 3-22 FA-33 car input state display

No.	Definition	No.	Definition
0	Reserved	8	Overload input
1	Door 1 light curtain	9	Light-load input
2	Door 2 light curtain	10	Up leveling signal in communication mode
3	Door 1 open limit	11	Down leveling signal in communication mode
4	Door 2 open limit	12	Reserved
5	Door 1 close limit	13	Inspection signal
6	Door 2 close limit	14	Up signal input
7	Full-load input	15	Down signal input

Description of FA-34 car output display

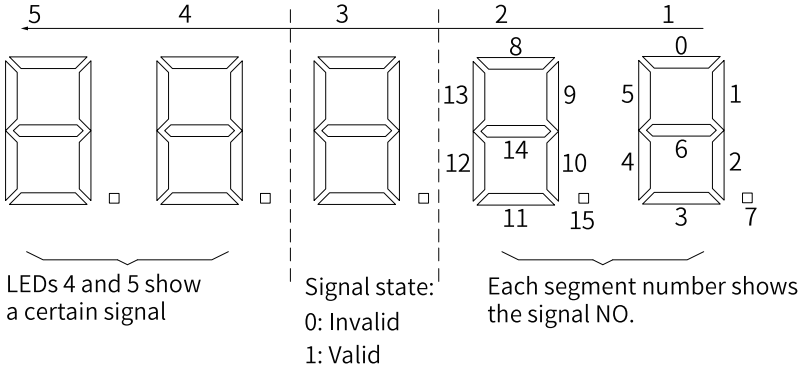


Figure 3-23 FA-34 car output state display

No.	Definition	No.	Definition
0	Reserved	8	Down arrival gong
1	Door 1 open	9	Reserved
2	Door 1 close	10	Reserved
3	Forced door close 1	11	Sound and light alarm output
4	Door 2 open	12	Reserved
5	Door 2 close	13	Reserved
6	Forced door close 2	14	Reserved
7	Up arrival gong	15	Reserved

3.5.3 Hall State

Description of FA-35 hall state display

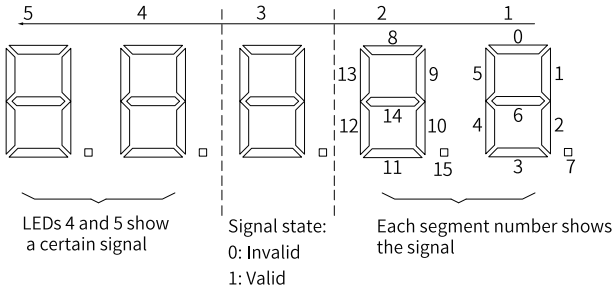


Figure 3-24 FA-35 hall state display

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	Security signal	13	Reserved
6	Door close button input	14	Reserved
7	Reserved	15	Reserved

3.5.4 System State

Description of FA-36 system state 1 display

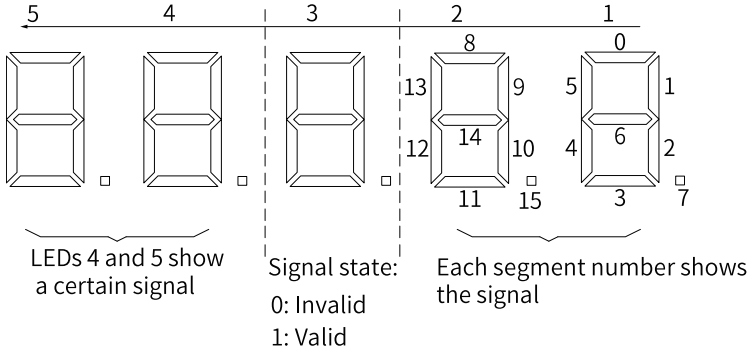


Figure 3-25 FA-36 system state 1 display

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
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

Description of FA-37 system state 2 display

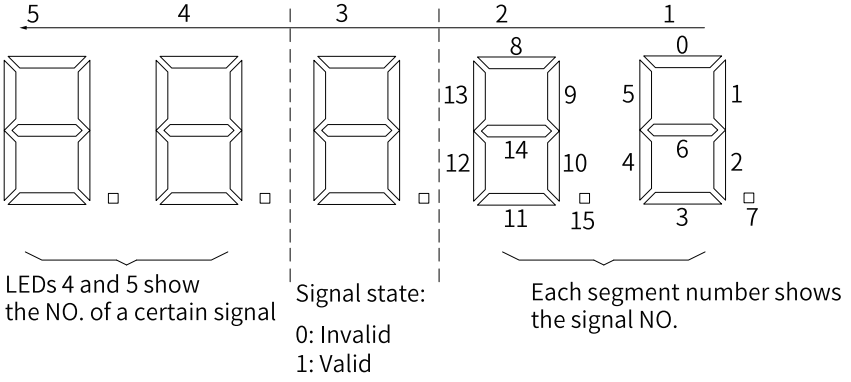


Figure 3-26 FA-37 system state 2 display

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

3.6 Terminal state monitoring

Param.	Name	Range	Default	Unit	Property
F5-34	Terminal state display	Monitoring of I/O terminals on the MCB	-	-	●
F5-35	Terminal state display	Monitoring of I/O terminals on the CTB, CCB, and HCB	-	-	●

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 F5-34 and F5-35 are respectively numbered as 5, 4, 3, 2, and 1 from left to right. The segments are defined as follows.

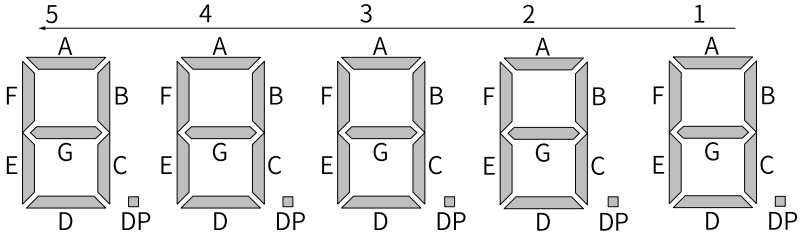


Figure 3-27 Terminal state monitoring

F5-34 Terminal state display					
Segment	1	2	3	4	5
A	-	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 relay 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	-
G	RUN contactor output feedback	Overload signal	Shorting door lock circuit relay output feedback	Synchronous motor self-locking feedback	-
DP	Brake output feedback 1	Full-load signal	Firefighter operation signal	Door lock circuit feedback 2	-

F5-35 Terminal state display					
Segment	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	-
DP	Overload signal	Firefighter operation signal	Down arrival gong	Energy-saving sign	-

3.7 Service Floor Parameter Setting

Param.	Name	Range	Default	Unit	Property
F6-05	Service floor 1	0 to 65535 (floors 1 to 16)	65535	-	★
F6-06	Service floor 2	0 to 65535 (floors 17 to 32)	65535	-	★
F6-35	Service floor 3	0 to 65535 (floors 33 to 40)	65535	-	★

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

F6-05 corresponds to floors 1 to 16, F6-06 floors 17 to 32 and F6-35 floors 33 to 48.

The following part takes F6-05 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.

Set the value of these bits one by one. Convert the binary values to decimal values and then set the sum for display on the operating panel, as shown in the following figure.

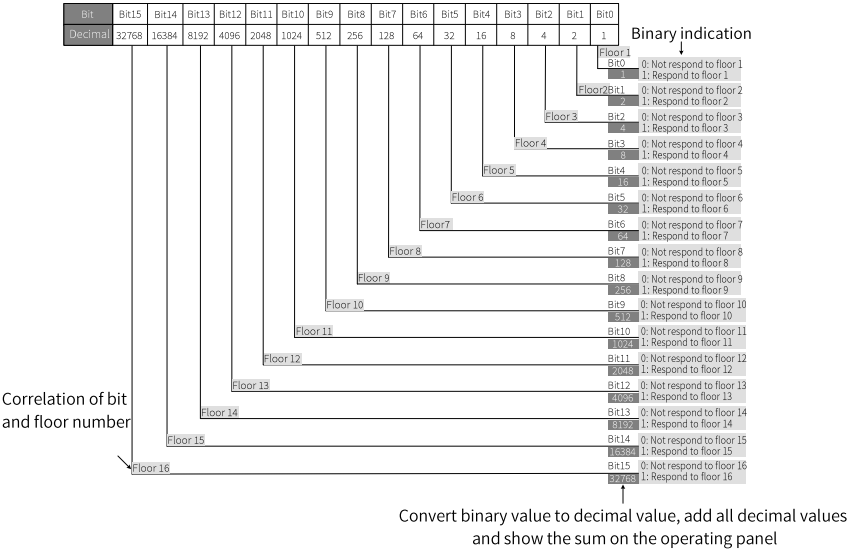
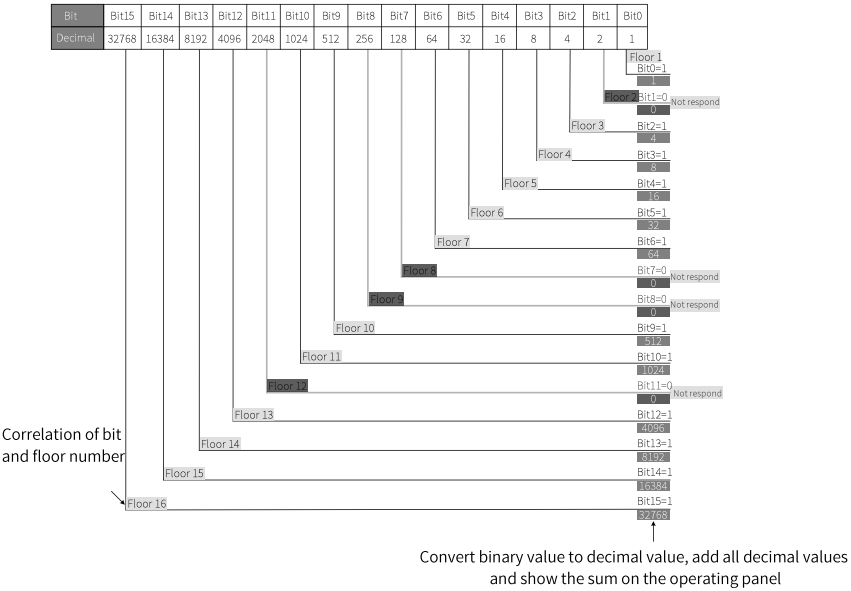


Figure 3-28 Converting binary value of F6-05 to decimal value

Example:

For a 16-floor elevator, if it does not respond to the calls at floors 2, 8, 9, and 12, set bit1, bit7, bit8, and bit11 to 0 and other bits to 1, as shown in the following figure.



Converting binary value to decimal value:

1 + 4 + 8 + 16 + 32 + 64 + 512 + 1024 + 4096 + 8192 + 16384 + 32768 = 63101

Then, enter 63101 on the operating panel.

The setting method for F6-06 and F6-35 is the same as that for F6-05.

3.8 Program Control Selection Parameter Setting

Param.	Name	Range	Default	Unit	Property
F6-40	Program control selection 1	0 to 65535	0	-	★
F6-41	Program control selection 2	0 to 65535	0	-	★
F6-42	Program control selection 3	0 to 65535	0	-	★

These parameters are used for program control selection. Each bit defines a function.

If a bit is set to 1, the function indicated by this bit is enabled; if this bit is set to 0, the function is disabled.

The functions defined by the binary bits of these parameters are described in the following table.

F6-40 Program control selection 1			
Bit	Definition	Description	Default
Bit0	Accessibility function selection	Enable the accessibility function.	0
Bit1	Soft limit function	When the up slow-down and down leveling are active and the up leveling is inactive, the system assumes that the up limit is performed. When the down slow-down and up leveling are active and the down leveling is inactive, the system assumes that the down limit is performed.	0
Bit2	JP16 input used as rear door selection (button)	JP16 is used for the input of the rear door selection. This function is enabled if FC-04 is set to 2. When JP16 has input, the elevator opens only the rear door. When IP16 has no input, the elevator opens only the front door.	0
Bit3	JP16 input used as rear door open signal	JP16 is used as the input of the rear door open signal.	0
Bit4	Open only one door of through-type door under manual control	This function is enabled only in the through-type door control modes 3 and 4. In this case, only one door opens each time while the other door must stay in the door close limit state Notes: In group FD, the extended input includes "Single/Double door selection". If this input is active in the through-type door control mode 3, both doors open if there is a car call.	0
Bit5	Timed elevator lock	F6-38 and F6-39 are valid only when this function is enabled.	0
Bit6	Manually operated door	This function is for on-site elevator use	0
Bit7	Reserved	-	-
Bit8	Reserved	-	-
Bit9	Disabling reverse floor number clear	The system clears all the current car calls by default every time the elevator changes the direction. When this function is enabled, clearing reverse floor numbers is disabled.	0
Bit10	Display the next arriving floor number	The next floor to be arrived at is displayed during elevator running.	0
Bit11	Responding to car calls first	The system responds to hall calls only after executing all car calls.	0

F6-40 Program control selection 1			
Bit	Definition	Description	Default
Bit12	Car call auxiliary command terminal used for accessibility function	It sets the CTB auxiliary command terminal (CN8) as input of calls from the disabled 0: Consistent with CN7 for the single door, and rear door for double doors 1: CN8 calls are the disability calls	0
Bit13	Duplicated commands used as accessibility function and rear door function	It is valid only when the function of bit14 is enabled: 0: Rear door 1: Accessibility function	0
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.	0
Bit15	JP20 input used for switchover to rear door (switch)	JP20 is used for input of switchover between the front door and the rear door	0

F6-41 Program control selection 2			
Bit	Definition	Description	Default
Bit0	Reserved	-	-
Bit1	Reserved	-	-
Bit2	Decelerate to stop in the inspection state	During inspection, the system decelerates to stop if the terminal floor slow-down switch 1 acts.	0
Bit3	Car top inspection in communication mode	It forcibly enables car top inspection in communication mode and the active inspection signal allows for operation.	-
Bit4	Buzzer tweeting during door open delay	The buzzer will tweet when the door open delay time set in FB-14 is reached.	0
Bit5	Reserved	-	-
Bit6	Door open delay cancellation	Door open delay is canceled when the door open delay button is pressed again.	0
Bit7	Reserved	-	-
Bit8	Elevator lock at door open	In the elevator lock state, the elevator keeps the door open at the elevator lock floor.	0

F6-41 Program control selection 2			
Bit	Definition	Description	Default
Bit9	Display available at elevator lock	In the elevator lock state, hall calls are displayed normally.	0
Bit10	Elevator lock in the attendant state	The elevator can be locked properly in the attendant state.	0
Bit11	Flashing at arrival	The car display blinks when the elevator arrives at the floor. The blinking advance time is set through F6-47.	0
Bit12	Door re-open during door open delay	The door re-opens if the door open delay input is active during door close.	0
Bit13	Door re-open upon valid car call of current floor	The door re-opens if the car call of the current floor is valid during door close.	0

F6-42 Program control selection 3			
Bit	Definition	Description	Default
Bit0	Reserved	-	-
Bit1	Canceling door open/ close command at delay after door open/close limit	The door open/close command is canceled at the delay of 1s after door open/close limit.	0
Bit2	Door lock state not judged at door close output	In normal conditions, the system determines that the door is completely closed only when the door close limit signal is active and the door lock is applied. If this function is enabled, the system does not judge the door lock state.	0
Bit3	Door close output during running	There is continuous door close output as the elevator runs.	0
Bit4	Returning to terminal floor for verification at first-time power-on	The elevator runs to the bottom floor for verification at power-on for the first time.	0
Bit5	Clearing calls immediately at elevator lock	0: After the elevator lock signal becomes active, the elevator clears hall calls and responds to the current car call, and then enters elevator lock state. 1: After the elevator lock signal becomes active, the elevator clears all calls and enters elevator lock state.	0
Bit6	Electromagnetic lock NC output	After the NC output is selected, the lock signal is not output during door open and is output during door close.	0

F6-42 Program control selection 3			
Bit	Definition	Description	Default
Bit7	E50 detection cancellation	When bit7 is set to 1, fault E50 is not detected.	0
Bit8	Door open/close limit detection cancellation	When this function is enabled, the fault detection of the door open/close limit signal is canceled.	0
Bit9	Canceling fault subcode scrolling display	When this function is enabled, the keypad will not have a scrolling display of the fault subcode.	0
Bit10	Waiting with door open for energy saving	In the case of waiting with the door open, the system closes the lighting and fan as specified by the time set in F9-01 in door open limit state	0
Bit11	Independent switch exiting from parallel control	When this function is enabled, individual elevators will be separated from parallel control and be in normal running mode. When this function is disabled, the elevators will be separated from parallel control and enter the VIP running mode	1

3.9 Load Cell Auto-tuning Parameter Setting

Param.	Name	Range	Default	Unit	Property
F8-00	Car load ratio during load cell auto-tuning	0 to 100	0	%	★
F8-01	Pre-torque selection	0 to 3	2	—	★
F8-02	Pre-torque offset	0.0 to 100.0	50	%	★
F8-05	Current car load	0 to 255	0	—	●
F8-06	No-load measured by load cell	0 to 255	0	—	★
F8-07	Full-load measured by load cell	0 to 255	100	—	★

To perform load cell auto-tuning, do as follows:

1. Ensure that F8-01 is set to 0 and F5-36 (Load cell input selection) is set to 2 (CTB 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 F8-00 to 0 and press ENTER.
3. Put N% load in the car. Then set F8-00 to N and press ENTER. For example, if you put 500 kg load in the elevator with rated load of 1000 kg, set F8-00 to 50.

After the load-cell auto-tuning is completed, the corresponding no-load and full-load data will be recorded in F8-06 and F8-07. You can also manually input the data as needed.

F8-01 is used to set the pre-torque compensation mode at the startup of the elevator. The possible values to be set:

0: Pre-torque disabled and load cell auto-tuning allowed.

1: Load cell pre-torque compensation. With a load cell, the system implements the pre-torque compensation.

2: Automatic pre-torque compensation. The system automatically adjusts the pre-torque compensation at startup without a load cell.

3: Both load cell pre-torque compensation and automatic pre-torque compensation enabled. When automatically adjusting the pre-torque compensation, the system makes a correction together with the load cell to achieve better startup results.

When pre-torque compensation is used with the load cell, the system outputs the torque matching the load in advance to ensure the riding comfort at startup. The output torque is limited by the torque upper limit (F2-08). When the load torque exceeds the set torque upper limit, the system outputs the torque upper limit.

F8-02 is used to set the pre-torque offset.

It is actually the balance coefficient of the elevator, indicating the percentage of the car load out of the rated load when the counterweight and the car weight are balanced.

F8-05 is a read-only parameter and reflects the load condition in the car. The value is sampled by the NICE3000^{new} by using a load cell to judge overload or full-load, or calculate the torque current for load cell pre-torque compensation.

F8-06 and F8-07 set the no-load and full-load conditions in the car. They are AD sampling values.

3.10 Riding Comfort Adjustment

The riding comfort is an important factor indicating the elevator's overall performance. Improper installation and model selection of elevator parts may cause discomfort. You can improve the riding comfort by adjusting the controller output and elevator's mechanical structure.

3.10.1Riding Comfort Adjustment at Startup/Stop

Adjustment to abnormal motor startup

Param.	Name	Range	Default
F2-00	Speed loop proportional gain Kp1	0 to 100	40
F2-01	Speed loop integral time Ti1	0.01 to 10.00	0.60s
F2-03	Speed loop proportional gain Kp2	0 to 100	35
F2-04	Speed loop integral time Ti2	0.01 to 10.00	0.80s

F2-00/F2-01/F2-03/F2-04 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. However, too large proportional gain or too small integral time may lead to motor jitter due to oscillation.
- Decreasing the proportional gain or increasing the integral time will slow the dynamic response of the motor. However, too small proportional gain or too large integral time may cause motor speed tracking abnormality, resulting in fault E33 or leveling issues at stop.

The default setting is proper for most large-power motors, and you need not modify these parameters. These parameters need to be adjusted only for small-power motors (such as P ⩽ 5.5 kW) because they may have oscillation.

Adjustment method:

- Decrease the proportional gain first (between 10 and 40) to ensure that the system does not oscillate,
- and then reduce the integral time (between 0.1 and 0.8) to ensure that the system has quick response but small overshoot.

Adjustment to elevator startup for riding comfort

1. Adjustment for no-load-cell startup

Param.	Name	Range	Default	Description
F8-01	Pre-torque selection	0: Pre-torque disabled 1: Load cell pre-torque compensation 2: Automatic pre-torque compensation 3: Both load cell pre-torque compensation and automatic pre-torque compensation enabled	2	Set this parameter to 2 when the no-load-cell startup function is enabled.
F2-11	Position lock current coefficient	2.0% to 50.0%	15.0%	Position lock adjustment parameters (F2-11, F2-12 and F2-13 are valid only when F8-01 is set to 2 or 3.)
F2-12	Position lock speed loop Kp	0.00 to 2.00	0.50	
F2-13	Position lock speed loop Ti	0.00 to 2.00	0.60	

Adjustment description:

When no-load-cell pre-torque compensation is enabled, no analog load cell is required. The controller quickly compensates the torque based on the slight movement of the encoder at startup.

The default setting of F2-11, F2-12 and F2-13 is proper for most large-power motors, and you need not modify these parameters. For the small-power motor (P ⩽ 5.5 kW), the motor may have oscillation or noise at with-load startup, and passengers in the car may have a strong feeling of car lurch.

Adjustment method:

- Decrease the value of F2-11 (between 5 and 15) to eliminate motor oscillation.
- Decrease the values of F2-12 and F2-13 (between 0.1 and 0.8) to reduce the motor noise and improve riding comfort at startup.

2. Adjustment for load cell startup

Param.	Name	Range	Default	Description
F8-01	Pre-torque selection	0: Pre-torque disabled 1: Load cell pre-torque compensation 2: function is enabled. 3: Both load cell pre-torque compensation and automatic pre-torque compensation enabled	2	Set this parameter to 1 when a load cell is used
F8-02	Pre-torque offset	0.0% to 100.0%	50.0%	Load cell pre-torque compensation regulation parameters
F8-03	Drive gain	0.00 to 2.00	0.60	
F8-04	Brake gain	0.00 to 2.00	0.60	

Adjustment description:

When an analog load cell is used, the controller identifies the motor state (braking or driving) according to the load cell signal and then automatically computes the required torque compensation. In this case, F8-03 and F8-04 are used to adjust the elevator's startup.

Adjustment method:

- In the driving state, increase F8-03 properly if there is rollback at elevator startup, and decrease F8-03 if there is car lurch.
- In the braking state, increase F8-04 properly if there is jerk in command direction at elevator startup, and decrease F8-04 if there is car lurch.

Additional information:

F8-02 (Pre-torque offset) is actually the elevator balance coefficient, namely, the percentage of the car load out of the rated load when the car and counterweight are balanced. This parameter must be set correctly. F8-03 (Drive gain) and F8-04 (Brake gain) indicate the current pre-torque coefficient when the motor is in the driving and braking states respectively. A higher gain requires a larger startup pro-torque compensation.

The motor running states can be classified into driving state and braking state:

Motor drive state: full-load up, no-load down.

Motor braking state: full-load down, no-load up.

3. Riding comfort adjustment at startup when the load cell and automatic pre-torque compensations are both enabled

Param.	Name	Range	Default	Description
F8-01	Pre-torque selection	0: Pre-torque disabled 1: when a load cell is used 2: function is enabled. 3: Both load cell pre-torque compensation and automatic pre-torque compensation enabled	2	When a load cell is used and the inconsistency of startup effects at different loads is caused by improper load cell linearity, set F8-01 to 3 .
F8-02	Pre-torque offset	0.0% to 100.0%	50.0%	Load cell pre-torque compensation regulation parameters
F8-03	Drive gain	0.00 to 2.00	0.60	
F8-04	Brake gain	0.00 to 2.00	0.60	
F2-11	Position lock current coefficient	2.0% to 50.0%	15.0%	Automatic pre-torque compensation regulation parameters
F2-12	Position lock speed loop Kp	0.00 to 2.00	0.50	
F2-13	Position lock speed loop Ti	0.00 to 2.00	0.60	

Adjustment description:

When the load cell and automatic pre-torque compensations 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”.

Handling of rollback at elevator startup and stop

Param.	Name	Range	Default
F3-19	Holding time of zero-speed torque current upon brake release	0.000 to 2.000	0.600s
F8-11	Holding time of zero-speed torque current upon brake close	0.200 to 1.500	0.600s

F3-19 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 this parameter properly.

F8-11 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 stop, increase this parameter properly.

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 F2-16 or F2-17 properly.

Param.	Name	Range	Default
F2-16	Torque acceleration time	1 to 500	1
F2-17	Torque deceleration time	1 to 3000	350

Adjustment of large mechanical static friction

Param.	Name	Range	Default
F3-00	Startup speed	0.000 to 0.050	0.000 m/s
F3-01	Holding time	0.000 to 5.000	0.000s

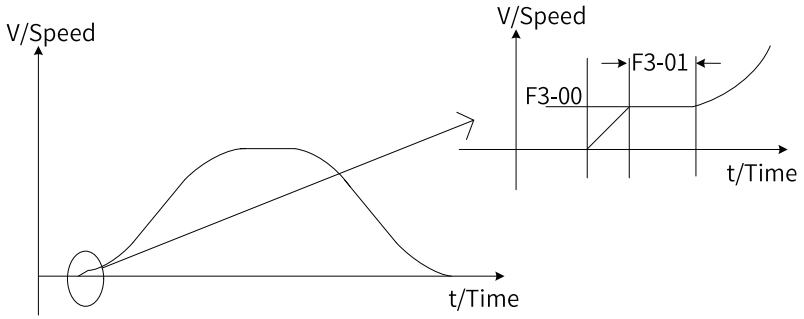


Figure 3-29 Startup timing diagram for countering static friction

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 F3-00 and F3-01 to counter static friction for riding comfort.

3.10.2Running Curve Adjustment for Riding Comfort

Param.	Name	Range	Default
F3-02	Acceleration rate	0.200 to 1.500	0.700
F3-03	Acceleration end jerk time 1	0.300 to 4.000	1.500
F3-04	Acceleration end jerk time 2	0.300 to 4.000	1.500
F3-05	Deceleration rate	0.200 to 1.500	0.700
F3-06	Deceleration start jerk time 1	0.300 to 4.000	1.500
F3-07	Deceleration start jerk time 2	0.300 to 4.000	1.500

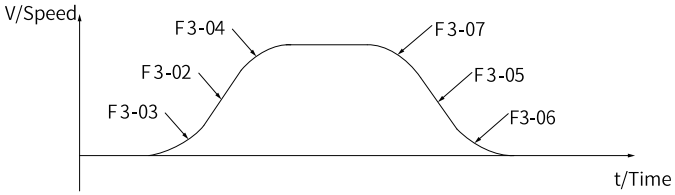


Figure 3-30 Running curve

F3-02, F3-03, and F3-04 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 F3-02 and increase F3-03 and F3-04 to make the acceleration curve smoother. If the acceleration is found too slow, increase F3-02 and decrease F3-03 and F3-04.

Similarly, adjust F3-05, F3-06 and F3-07 properly to make the deceleration process more acceptable.

3.10.3Mechanical 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.

No.	Mechanical factor	Description
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 affect the riding comfort.
7	Vibration resonance	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).

3.11 Leveling Accuracy Adjustment

3.11.1Description of Leveling Components

- 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.
- For the 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.
- For the optoelectronic switch: The NO-type photoelectric switches are recommended to improve signal sensing stability.

3.11.2Leveling Accuracy Adjustment Description

- All-floor adjustment

Param.	Name	Range	Default
F4-00	Leveling adjustment	0 to 60	30

F4-00 is used to adjust the car landing position at all floors. The landing position at all floors will change after F4-00 is modified.

Simple principle: Increase F4-00 if under-leveling occurs at every floor, and decrease F4-00 if over-leveling occurs at every floor.

- Single-floor adjustment
  Adjust the car landing position at each floor separately by setting group Fr parameters.

  Leveling adjustment parameters in group Fr:

Param.	Name	Range	Default	Unit
Fr-00	Leveling adjustment mode	0 to 1	0	-
Fr-01	Leveling adjustment record 1	00000 to 60060	30030	mm
Fr-02	Leveling adjustment record 2		30030	mm
~	~		~	~
Fr-28	Leveling adjustment record 28		30030	mm

- Leveling adjustment method

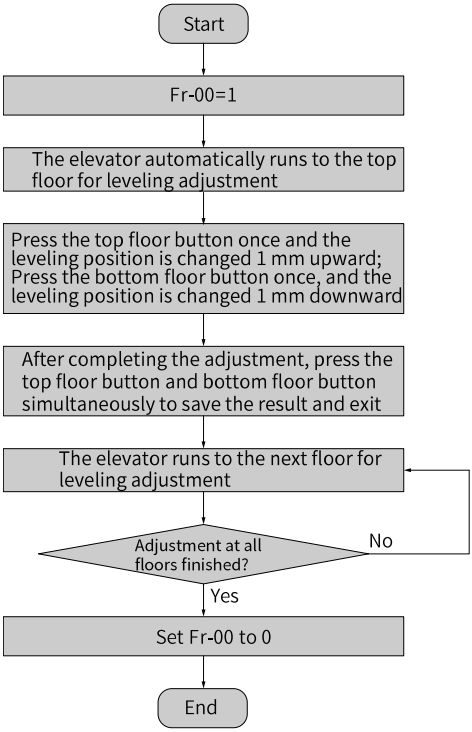


Figure 3-31 Single-floor leveling accuracy adjustment

- Ensure that shaft auto-tuning has been completed successfully, and the elevator runs properly at normal speed.
- After Fr-00 (Leveling adjustment function) is set to 1, the elevator does not respond to hall calls any more. It automatically runs to the 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.

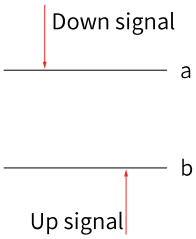
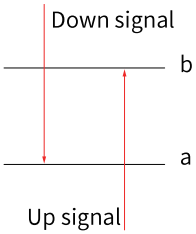
3.11.3Leveling Adjustment Guide

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 Fr parameters.

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 F4-00 and group Fr parameters.

The specific adjustment methods are as follows:

1. Adjust the overall leveling error of all floors by setting F4-00. 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	(F4-00) + H
Over-leveling		H = (b – a)/2	(F4-00) – H

2. Adjust the leveling accuracy of all the floors with leveling error by setting parameters in group Fr.
3. Additional information:
   - Prevent over-adjustment in group Fr 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 *"Figure 3-32 " on page 197*). If B ⩾ A for a certain floor, you need to adjust the leveling

plate position of this floor first to ensure that B ⩽ 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 Fr.

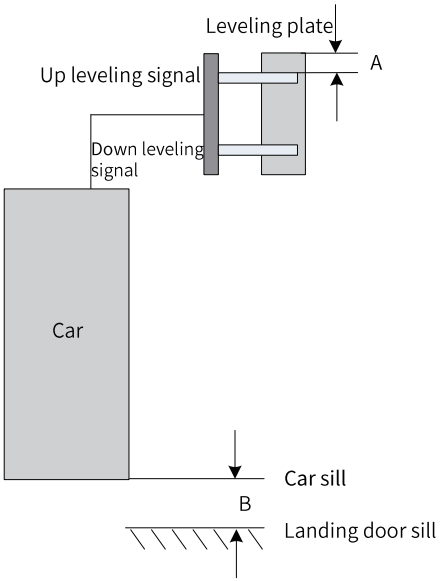


Figure 3-32 Leveling distance

- If the elevator stop position or leveling is not consistent for different travels or loads, it may be caused by improper speed loop parameters (group F2 parameters). To solve the problem, adjust the speed loop proportional gain or reduce the speed loop integral time properly.

4 Typical Functions and Schemes

4.1 Attendant Function

Function

- The elevator responds to hall calls.
- 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.
- 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.
- 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.

Note

The system offers the function by default. Certain actions can be modified by parameter setting.

Wiring

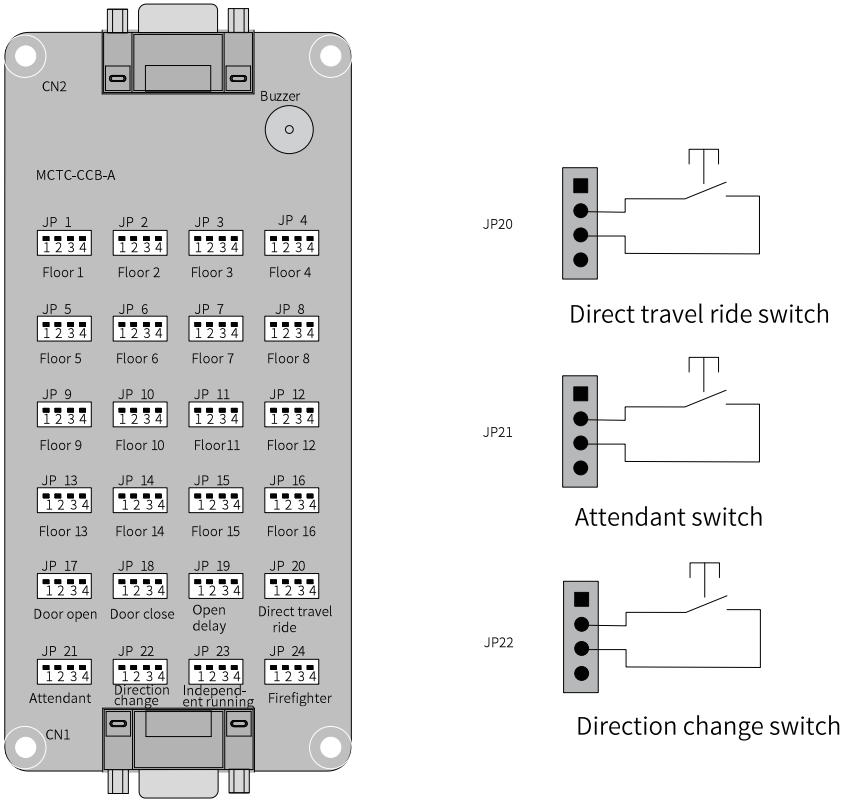


Figure 4-1 Wiring of attendant mode

- 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.
- When pins 2 and 3 of JP22 on the CCB operate, the elevator in the attendant state changes its running direction once.

Related Parameters

Param.	Name	Range	Default
F5-00	Attendant/Normal state switchover time	3 to 200	3
F6-41	Program control selection 2	Bit10: Elevator lock in the attendant state	0
F6-43	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 F5-00 is reached. After this running is complete, the elevator automatically returns to the attendant state (bit2 of F6-43 must be set properly). When F5-00 is smaller than 5, the attendant/normal state switchover is disabled.

4.2 Fire Emergency Function

Function

Returning to fire emergency floor:

- The elevator clears car calls and hall calls automatically.
- The elevator stops at the nearest floor without opening the door, and then directly runs to the fire emergency floor.
- The elevator keeps the door open after arriving at the fire emergency floor.
- If the elevator is under parallel/group control, it will exit automatically after entering the fire emergency running state.

Firefighter operation:

- The elevator responds only to car halls, and only one call can be registered.
- The elevator does not open/close the door automatically. You need to press (jog) the button for door open/close control.
- The light curtain signal input is inactive, and safety edge signal input is active.

Note

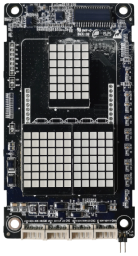
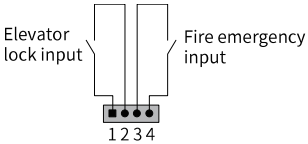
The system offers the function by default. Certain actions can be modified by parameter setting.

Wiring

State of returning to fire emergency floor

Method 1: Input the fire emergency signal through the HCB

Table 4–1 Fire emergency signal input through the HCB

HCB	Terminal	Definition	Terminal wiring
MCTC-HCB-R600  MCTC-HCB-D630 	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

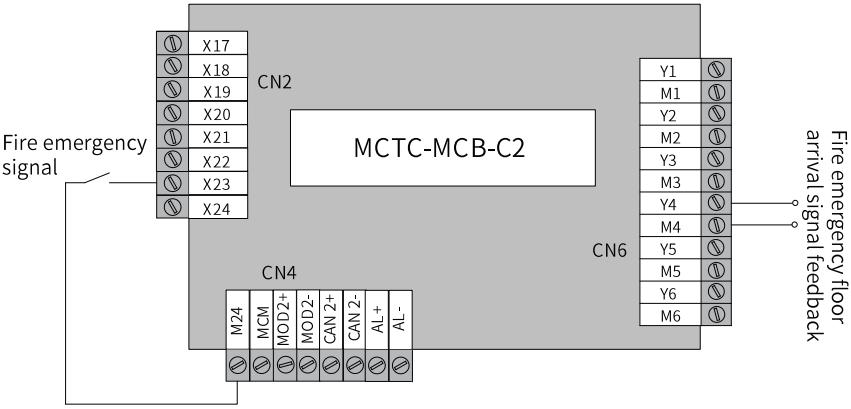


Figure 4-2 Wiring diagram of fire emergency signal input through the MCB

Param.	Name	Range
F5-23	X23 input function setting	11: Fire emergency signal NO 43: Fire emergency signal NC
F5-29	Y4 output function setting	Fire emergency floor arrival signal feedback

Firefighter operation state

Method 1: Enter the firefighter operation state through the CCB.

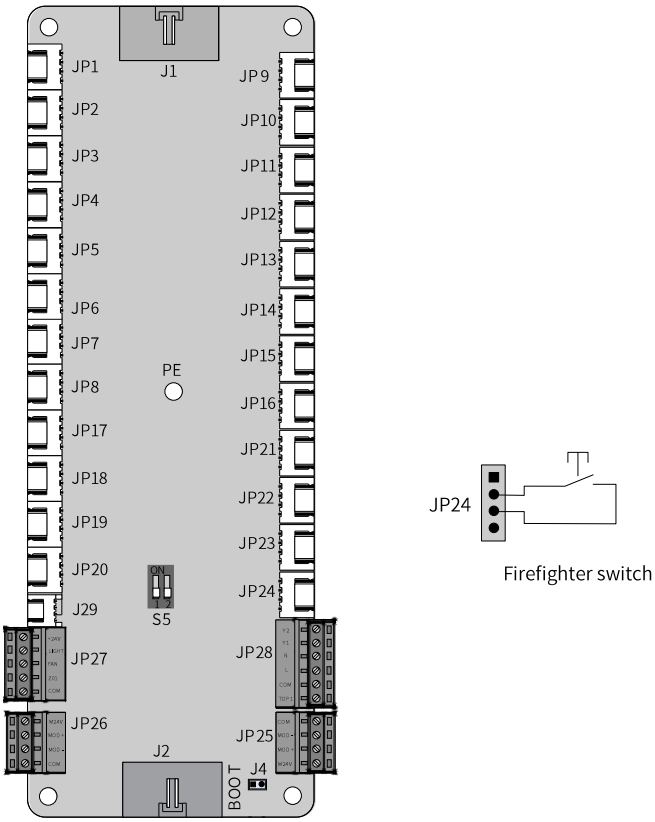


Figure 4-3 Wiring of firefighter operation signal input through the CCB

Method 2: Enter the firefighter operation state through the MCB.

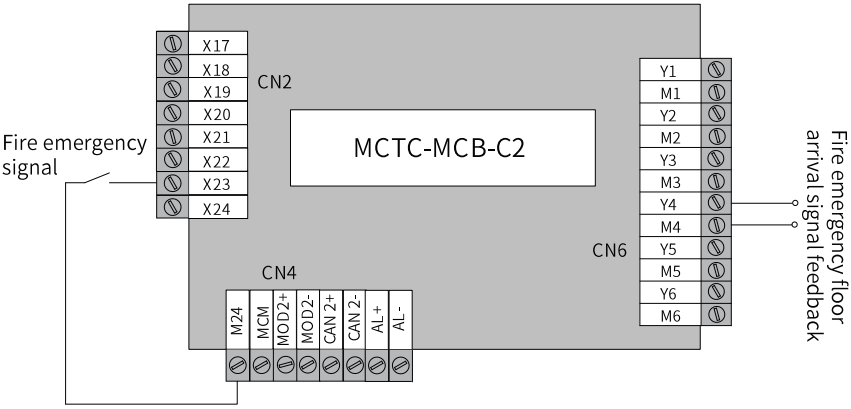


Figure 4-4 Wiring of firefighter operation signal input through the MCB

Param.	Name	Range
F5-24	X24 input function setting	23: Firefighter operation signal NO 55: Firefighter operation signal NC
		87 (NO signal) or 119 (NC signal): After returning to fire emergency floor, it directly enters the firefighter operation state.

Related Parameters

Param.	Name	Range	Default
F6-44	Fire emergency function selection	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: Forced running in the firefighter state Bit11: Exiting the firefighter state upon arrival at fire emergency floor Bit12: Not clearing car calls at reverse door open in the firefighter state Bit14: Door open by holding down the door open button Bit15: Automatic door open at fire emergency floor	16456
F5-a	Xa input	11/43: Fire emergency signal NO/NC	0
F5-b	Xb input	23/55: Firefighter operation NO/NC	0
F5-c	Xc input	40/72: Fire emergency floor switchover signal NO/NC	0
F5-29	Y4 output	4: Fire emergency floor arrival signal feedback	0
F6-03	Fire emergency floor	F6-01 to F6-00	0
F8-12	Fire emergency floor 2	0 to F6-00	0

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 (input through Xa and Xb).

The elevator controller supports the switchover of fire emergency floor. The switchover signal must be input through terminal X on the MCB (such as Xc).

Output setting

The fire emergency floor arrival signal is output through output terminal Y on the MCB (such as Y4).

4.3 Elevator Lock Function

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.

Note

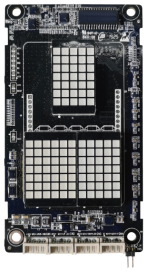
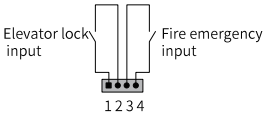
The system offers the function by default. Certain actions can be modified by parameter setting.

Wiring

The elevator lock signal input and corresponding parameter settings

Method 1: Input the elevator lock signal through the HCB.

Table 4–2 Elevator lock signal input through the HCB

HCB	Terminal	Definition	Terminal wiring
MCTC-HCB-R600  MCTC-HCB-D630 	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.

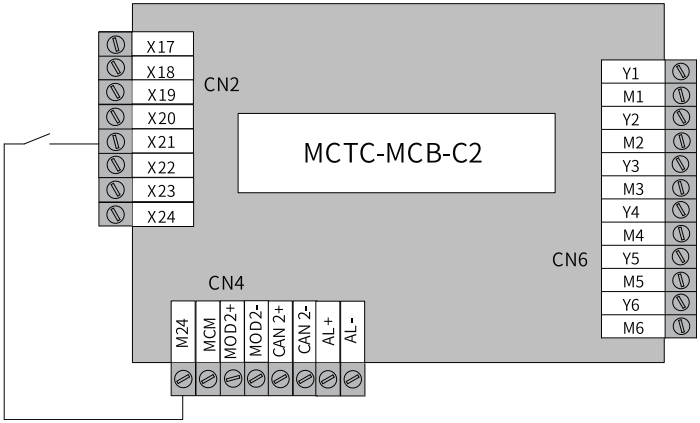


Figure 4-5 Wiring of elevator lock signal input through the MCB

Param.	Name	Range
F5-21	X21 input function setting	28: Elevator lock signal NO 60: Elevator lock signal NC

Related Parameters

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 (Xd as the input terminal is taken as an example).

Param.	Name	Range	Default
F6-04	Elevator lock floor	F6-01 to F6-00	1
F6-38	Elevator lock start time	00.00 to 23.59	0
F6-39	Elevator lock end time	00.00 to 23.59	0
F6-40	Program control selection 1	Bit5: Timed elevator lock	0
F6-41	Program control selection 2	Bit8: Elevator lock at door open Bit9: Display available at elevator lock Bit10: Elevator lock in the attendant state	0
F6-42	Program control selection 3	Bit5: Clearing calls immediately at elevator lock	0

4.4 Full-load/Overload Function

Function

Overload:

- The buzzer tweets.
- The door cannot close, even if you press the door close button.
- The car display board displays overload state with OL or OVERLOAD.
- The full-load indication or FL is displayed at the hall.

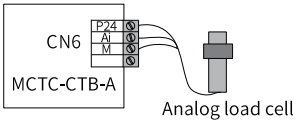
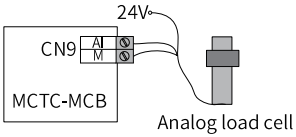
Full-load:

- The full-load indication or FL is displayed at the hall.
- Elevator car calls operate normally.
- 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.

Wiring

Wiring and parameter setting of analog full-load/overload switches

Type	Wiring diagram	Parameter setting
Analog signals connected to the CTB	Terminals P24 and M are connected to positive and negative wires of the power cable. Terminal Ai is connected to the signal cable of the analog load cell 	F5-36 = 2
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. 	F5-36 = 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 flowchart.

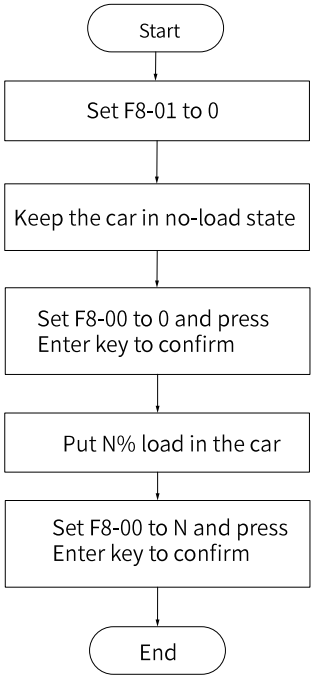


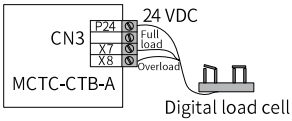
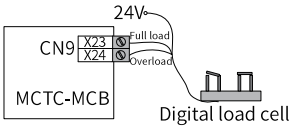
Figure 4-6 Analog full-load/overload auto-tuning flowchart

F8-06 and F8-07 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 F8-05. When the current car load reaches 110% of the rated load, the system reports an overload fault.

Note

F8-05, F8-06 and F8-07 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 	F5-36 = 1
Digital signal connected to the MCB	This figure uses X23 and X24 as full-load signal and overload signal inputs 	F5-36 = 0

Related Parameters

The parameters involved in the full-load/overload auto-tuning of the analog load cell are described in the following table.

Param.	Name	Range	Description
F8-00	Car load ratio during load cell auto-tuning	0 to 100	Sets the car load ratio properly during analog load cell auto-tuning.
F8-01	Pre-torque selection	0: Inactive 1: Load cell pre-torque compensation enabled 2: Automatic pre-torque compensation enabled 3: Both load cell pre-torque compensation and automatic pre-torque compensation enabled	Set this parameter to 0 before starting analog load cell auto-tuning.
F8-05	Current car load	0 to 1023	Displays the current load condition in the car.
F8-06	No-load measured by load cell	0 to 1023	Records the no-load auto-tuning data.
F8-07	Full-load measured by load cell	0 to 1023	Records the full-load auto-tuning data.

Parameter settings of digital full-load/overload switches:

Type	Param.	Name	Range	Setting
Setting of input type	F5-36	Load cell input selection	0: MCB digital input 1: CTB digital input	0
MCB input	F5-e	Xe function selection	0 to 127	14/46: Overload signal NO/NC
	F5-f	Xf function selection	0 to 127	15/47: Overload signal NO/NC
	F5-g	Xg function selection	0 to 127	38/60: Light-load signal NO/NC
CTB input	F5-25 bit6	Full-load signal NO/NC	0 to 511	Bit6 = 1 (Default: NO)
	F5-25 bit7	Overload signal NO/NC	0 to 511	Bit7 = 0 (Default: NC)

Monitoring of overload/full-load signal:

You can view F5-35 to check whether the overload/full-load signal of the system is active. Segment G indicates the full-load signal state, and DP indicates the overload signal state.

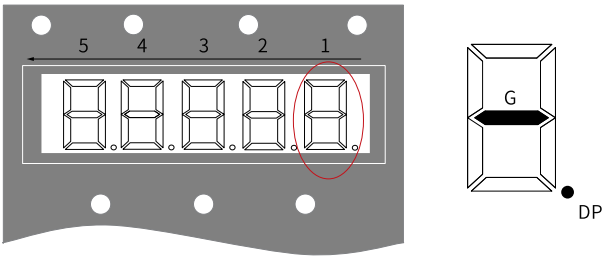


Figure 4-7 Monitoring of full-load/overload signal in F5-35

4.5 Time-based Floor Service

Function

Time-based door service: The elevator only responds to car/hall calls of specified service floors during certain periods.

Related Parameters

F6-18 to F6-25 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 F6-05, F6-06 and F6-35. And:

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.

For example, in the period of time-based floor service 1 (set by F6-18 and F6-19), the elevator responds only to the service floors set by F6-20, F6-21, and F6-36.

The setting of time-based service floors is the same as that of service floors in F6-05.

Param.	Name	Range	Default
FE-32	Elevator function selection 1	Bit8: Time-based service floor function	0
F6-18	Start time of time-based floor service 1	00.00 to 23.59	00.00
F6-19	End time of time-based floor service 1	00.00 to 23.59	00.00
F6-20	Service floor 1 of time-based floor service 1	0 to 65535	65535
F6-21	Service floor 2 of time-based floor service 1	0 to 65535	65535
F6-36	Service floor 3 of time-based floor service 1	0 to 65535	65535
F6-22	Start time of time-based floor service 2	00.00 to 23.59	00.00
F6-23	End time of time-based floor service 2	00.00 to 23.59	00.00
F6-24	Service floor 1 of time-based floor service 2	0 to 65535	65535
F6-25	Service floor 2 of time-based floor service 2	0 to 65535	65535
F6-27	Service floor 3 of time-based floor service 2	0 to 65535	65535

4.6 Time-based Door Service

To enable the time-based door service, set Bit8 of FE-32 to 0 and Bit0 to 1.

The service floors of time-based floor service 1 (set by F6-20, F6-21, and F6-36) are set for front door, and those of time-based floor service 2 (set by F6-24, F6-25, and F6-37) rear door.

Param.	Name	Range	Default
FE-32	Elevator function selection 1	Bit8: Time-based service floor function	0
F6-18	Start time of time-based floor service 1	00.00 to 23.59	00.00
F6-19	End time of time-based floor service 1	00.00 to 23.59	00.00
F6-20	Service door 1 of time-based floor service 1	0 to 65535	65535

Param.	Name	Range	Default
F6-21	Service door 2 of time-based floor service 1	0 to 65535	65535
F6-36	Service door 3 of time-based floor service 1	0 to 65535	65535
F6-22	Start time of time-based floor service 2	00.00 to 23.59	00.00
F6-23	End time of time-based floor service 2	00.00 to 23.59	00.00
F6-24	Service door 1 of time-based floor service 2	0 to 65535	65535
F6-25	Service door 2 of time-based floor service 2	0 to 65535	65535
F6-27	Service door 3 of time-based floor service 2	0 to 65535	65535

4.7 Test function

Function

The running test parameters are set to facilitate elevator commissioning and maintenance. The tests include:

- Car/Hall call test
- Random running test
- 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.

Related Parameters

Group F7 test parameters set on MCB:

Param.	Name	Range	Default
F7-00	Car call floor registered	0 to F6-00	0
F7-01	Up hall call floor registered	0 to F6-00	0
F7-02	Down hall call floor registered	0 to F6-00	0
F7-03	Random running times	0 to 60000	0
F7-04	Hall call	0: Hall call allowed 1: Hall call forbidden	0
F7-05	Door open	0: Door open allowed 1: Door open forbidden	0

Param.	Name	Range	Default
F7-06	Overload function	0: Overload forbidden 1: Overload allowed	0
F7-07	Limit function	0: Limit function enabled 1: Limit function disabled	0

Parameter settings:

- F7-00 = 6: The car call registered is floor 6.
- F7-01 = 3: The up call registered is floor 3.
- F7-02 = 5, The down call registered is floor 5.

After the test references are set, the parameter settings remain effective until the parameters are changed to 0 or a power failure occurs.

Set F-8 on the keypad, and E88 is displayed.

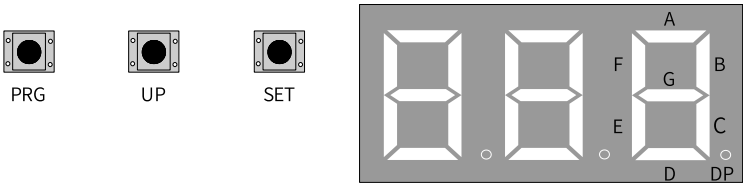


Figure 4-8 Layout of the keypad

F-1: Command input of the running floor

After you enter the F-1 menu by pressing PRG, UP and SET, the LEDs display the bottom floor of the elevator (F6-01). 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 F-0 menu.

F-8: Test function

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

LED display	Function
1	Maintenance
2	Door open forbidden
3	Overload forbidden
4	Limit switches disabled
6	Slip test
7	Manual UCMP test
8	Manual braking force test
11	Balance coefficient auto-tuning
20	Dynamic braking force test (MRL)
24	Ascending car overspeed protection (ACOP) test

LED display	Function
25	Time limit test
26	Shorting motor stator braking test

After the setting of 0 to 30, press SET. The LEDs flash “E88”, indicating the elevator is under test. When you press PRG to exit, F-8 restores to 0 automatically.

Maintenance procedures: The system is in the normal and parking states.

- Set F-8 to 1 to enter the maintenance mode.
  - The system displays T88, clears hall call registration, and responds to all car calls.
  - The system closes the door and prohibits door open/close after reaching door close limit.
  - The system prohibits hall calls and the remote call commands.
  - Long press UP on the keypad to register the top car call and SET to register the bottom car call (rising edge for over 2s).
  - As the elevator runs to the top floor, the current floor and T01 are displayed in the car. As the elevator runs to the bottom floor, the current floor and T02 are displayed alternately. At stop, the display flashes E88.
- The system exits the maintenance mode when the normal state is switched to the EEO or inspection state.

4.8 Anti-Nuisance Function

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:

- 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.
- 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.
- 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.

Related Parameters

Param.	Name	Range	Default
F0-05	Rated load	300 to 9999	1000
F8-08	Anti-nuisance function	0: Anti-nuisance function disabled 1: Load cell judgment 2: Light curtain judgment 4: Light-load judgment	0

F0-05 sets the rated elevator load to be used in the anti-nuisance function.

The light-load signal is mainly used for the nuisance judging. Set F8-08 to 4 to select the nuisance judging using the light-load switch. Below 30% of the rated elevator load is considered as light-load.

4.9 Accessibility Function

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.

- If there is a call at this floor from the disability operation box, the door open holding time is prolonged.
- If there is a door open command from the disability operation box, the door open holding time is prolonged.
- If there is a call registered using the hall call box for the disabled, the door open holding time is prolonged.

Wiring

Disability operating panel inside the car:

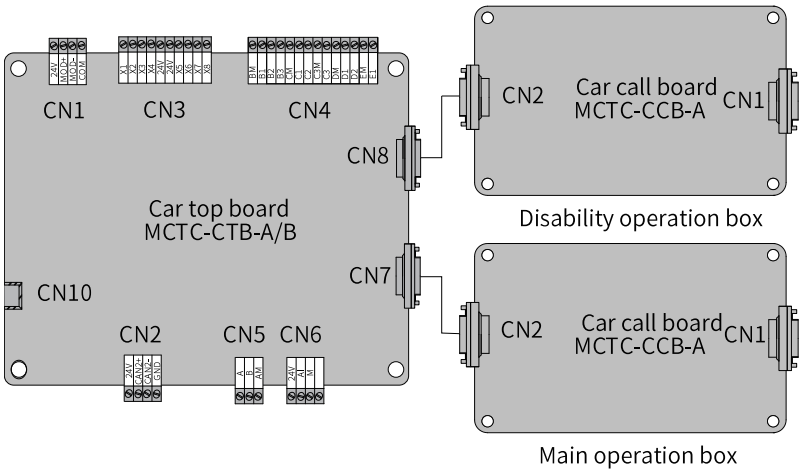


Figure 4-9 Wiring diagram 1 of disability operating panel

CN8 as the interface for the disability operation box (F6-40 bit12 enabled)

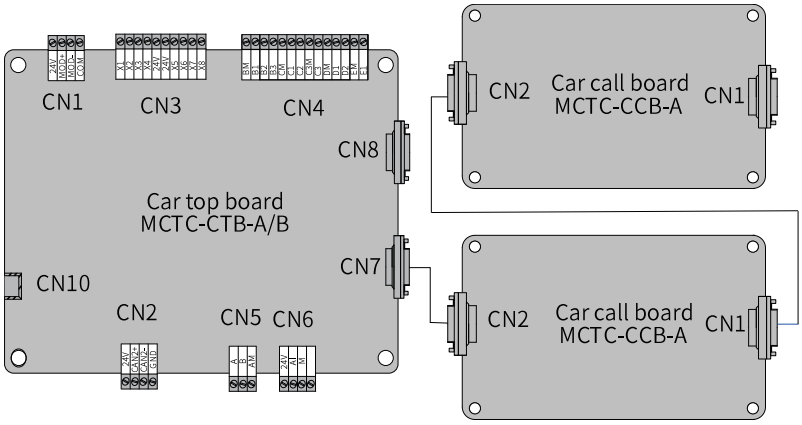


Figure 4-10 Wiring diagram 2 of disability operating panel

The second CCB in cascade connection as the interface for the disability operating panel (F6-40 bit13 and bit14 enabled).

Disability function enabled by HCB-B:

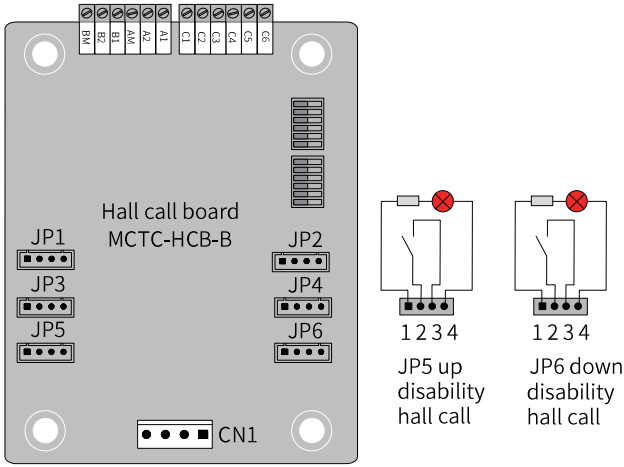


Figure 4-11 Wiring of accessibility function enabled by MCTC-HCB-B

Related Parameters

Param.	Name	Range	Default
F6-40	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: rear door function; 1: accessibility function) Bit14: Car call command duplication	0
FB-19	Special door open holding time	10 to 1000	30

FB-15 Special door open holding time: Set the door open holding time when there is a disability call.

The following table describes the setting of F6-40.

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).

Bit	Definition	Description
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.

4.10 VIP Running Function

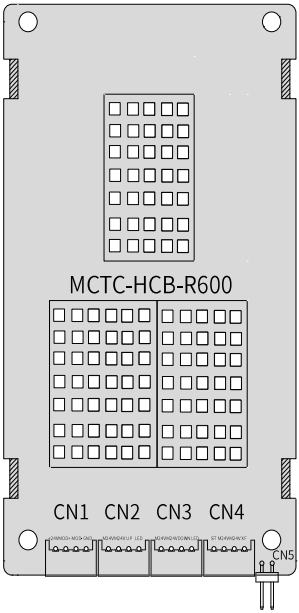
Function

After the VIP function is enabled, the elevator directly runs to the VIP floor as a priority service.

- The elevator responds only to car calls. Registered hall calls are cleared automatically.
- 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.
- The VIP running times is set in F6-46 bit8.
- 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 30s after each stop if the door open/close button is not pressed; 2. No car call is registered within 30s after the elevator has entered the VIP state.

Wiring

VIP enabled by HCB terminal:



Input of JP1 and JP2 on the HCB

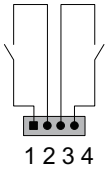


Figure 4-12 Wiring of VIP enabled by HCB

Related Parameters

Param.	Name	Range	Default
F6-12	VIP floor	0 to F6-00	8
F6-59	Program function selection 5	Bit9: VIP function	Bit9 = 1
F6-46	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)

Param.	Name	Range	Setting	Note
F6-00	Top floor	F6-01 to F6-47	20	The parameters are to set the top floor and bottom floor of the elevator, determined by the number of leveling plates installed.
F6-01	Bottom floor	1 to F6-00	1	
F6-12	VIP floor	0 to F6-00	8	Set floor 8 as the VIP floor
FE-32	Elevator function selection 1	Bit9: VIP function	Bit9 = 1	Enable the VIP function
F6-46	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. Methods of enabling VIP

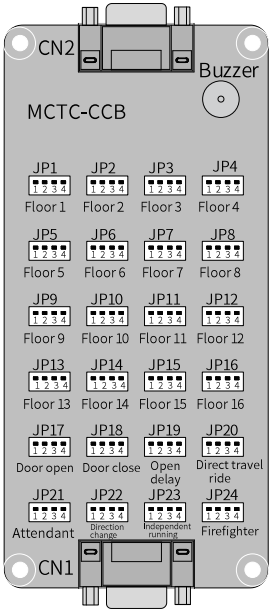
- VIP enabled by hall call at VIP floor: The elevator enters the VIP state only when there is a hall call (input by the up/down hall call button) at the VIP floor. The parameters that need to be set are shown below.

Param.	Name	Range	Setting	Note
F6-46	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.

- VIP enabled by terminal: Make the elevator enter the VIP state through the terminal for VIP hall call at any floor. After the VIP becomes active in this mode, the elevator directly runs to the VIP floor and automatically opens the doors for passengers. The parameters that need to be set are shown below.

Param.	Name	Range	Setting	Note
FD-07	HCB: JP1 input selection	Elevator lock signal NO 2: Fire emergency signal NO 3: Current floor forbidden NO 4: VIP signal NO 5: Security signal NO 6: Door close button input NO	FD-07 = 4	The parameters are used to set the input functions of JP1 and JP2 on the HCB. The settings are effective for all HCBs. You can use either JP1 or JP2 for VIP input.
FD-08	HCB: JP2 input selection		FD-08 = 4	
F6-46	VIP function selection	Bit1: VIP enabled by hall call	Bit1 = 1	After any terminal for VIP hall call becomes active, the elevator enters the VIP state.

- Enter VIP state in the car (independent operation function)



The CCB JP23 is for independent operation.

Param.	Name	Range	Setting	Note
F6-42	Program control selection 3	Bit11: Independent switch exiting from parallel control	0, 1	• When it is set to 1, the single elevator will exit from parallel control and the elevator is in normal mode. • When it is set to 0, the single elevator will exit from parallel control and the elevator is in VIP mode.

4.11 UCMP Function

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.

Note

- The system offers the function by default. Certain actions can be modified by parameter setting.
- Advance door opening module (such as MCTC-SCB) is required for the UCMP function.

Table 4–3 Selection of the detection component

Item	Synchronous motor		Asynchronous motor
Model	Without auxiliary brake	With auxiliary brake	
	MCTC-SCB-A4/A5/A1①	MCTC-SCB-D/D4/D5②	

Note

- ① CE certified for use overseas;
- ② Only MCTC-SCB-D/D4/D5 for the through-type door.

Wiring

- Wiring of UCMP without auxiliary brake

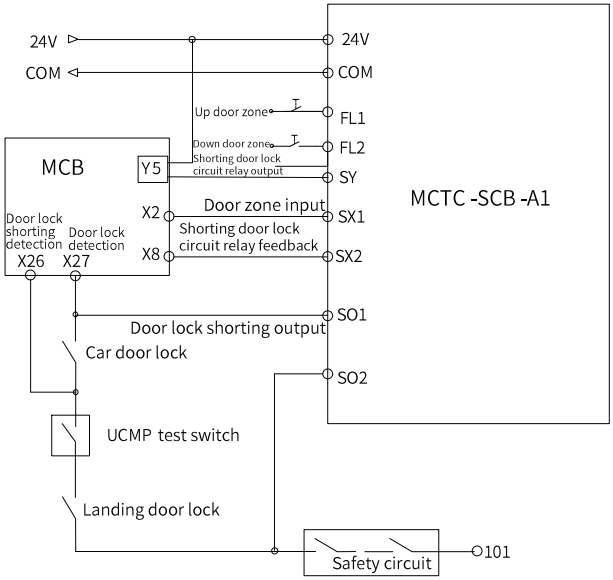


Figure 4-13 UCMP without auxiliary brake (single door)

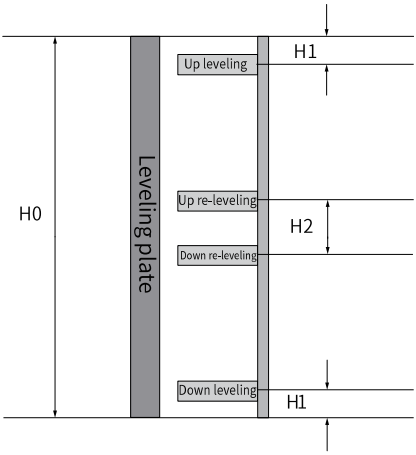


Figure 4-14 Recommended installation of Monarch UCMP switch

Requirements for UCMP switch installation:

- H1 ⩽ 20 mm; H2 = 60 mm.
- H0 (300 mm is recommended) is less than or equal to the length of the door vane.

- 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.
- Door zone switches of NO type must be used.

- Wiring of UCMP with auxiliary brake

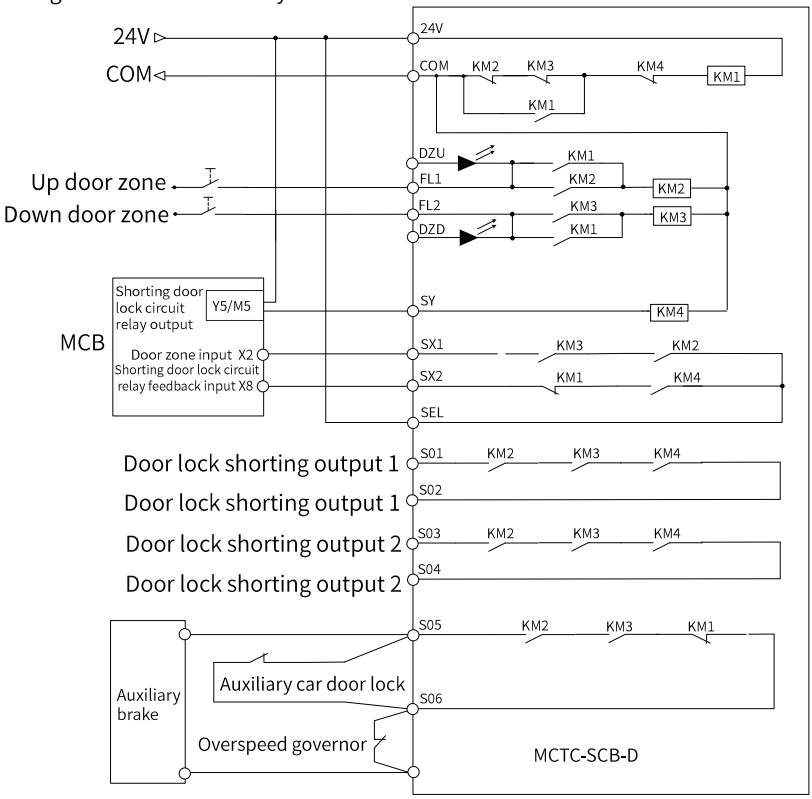


Figure 4-15 Wiring of UCMP with auxiliary brake (single door)

Model	Terminal	Application
MCTC-SCB-A4	Flat cable terminal	Synchronous motor, single door
MCTC-SCB-D4	Flat cable terminal	Synchronous motor, single door Through-type door, asynchronous motor
MCTC-SCB-A5	Screw terminal	Synchronous motor, single door
MCTC-SCB-D5	Screw terminal	Synchronous motor, single door Through-type door, asynchronous motor

- SCB in communication mode wiring

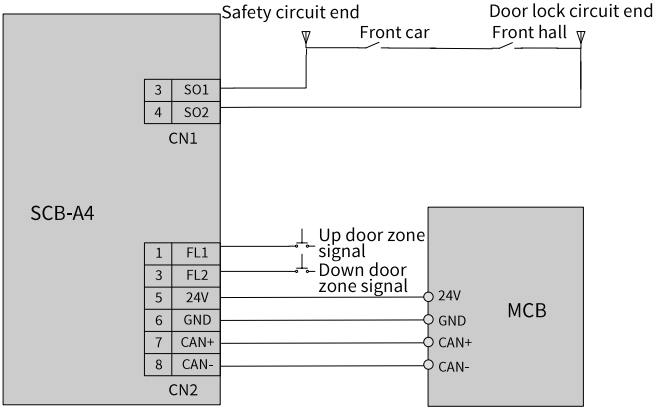


Figure 4-16 MCTC-SCB-A4 wiring

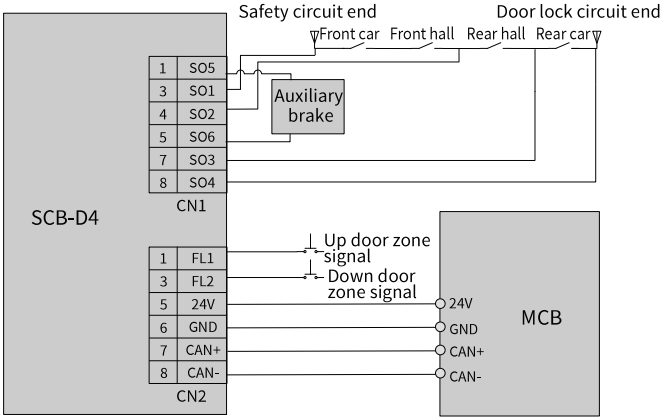


Figure 4-17 MCTC-SCB-D4 wiring

Related Parameters

Param.	Name	Range
F-8	Test function	7: Enter the UCMP test using the keypad
F3-24	Program function selection	0: Reserved 1: Slip experiment function enabled 2: Manual UCMP test
F5-01	X1 function selection	01/33: Up leveling signal NO/NC (MCTC-SCB-A1)
		01: Up leveling signal NO (MCTC-SCB-D)
F5-03	X3 function selection	02/34: Down leveling signal NO/NC (MCTC-SCB-A1)
		02: Down leveling signal NO (MCTC-SCB-D)
F5-02	X2 function selection	03: Door zone signal NO

Param.	Name	Range
F5-08	X8 function selection	22: Shorting door lock circuit relay feedback NO
F5-30	Y5 function selection	03: Shorting door lock circuit relay output

Test method:

1. The elevator is in inspection state with door lock closed and in the door zone.
2. Set F-8 to 7 or F3-24 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 relay 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.

Note

- It is invalid to set F-8 to 7 and F3-24 to 2 if the elevator is not in inspection state or door zone or has inactive door lock.
- After F-8 is set to 7 or F3-24 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 F3-08.
- 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.

4.12 Braking Force Detection

Function

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.

Note

The system offers the function by default. Certain actions can be modified by parameter setting.

Related Parameters

Param.	Function	Range	Default	Note
F2-32	Torque output duration	1s to 10s	5	When it is set to 0, the system uses the default value 5
F2-33	Torque amplitude	1% to 150% of the rated motor torque	110	When it is set to 0, 80% of the rated motor torque is used by default
F2-34	Number of pulses for abnormality detection	1 to 100 encoder feedback pulses	0	When it is set to 0, 30 encoder feedback pulses are used by default
F2-35	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
F-8	Test selection	8: Manual test of braking force	0	Use the keypad to start the braking force test
F7-09	Braking force detection result	0 to 2	0	-
F7-10	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 F-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. F7-09 indicates the test result. If F7-09 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 preformed with qualified results.

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 (F7-10) 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 F7-10 is 10 minutes or below, the buzzer tweets for 30s. You can disable the buzzer by setting F8-19 bit13. 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.

Single-arm Test

- Use relays Y2 and Y2A for left and right brake arm control.

Param.	Function	Range	Default	Note
F6-54 bit9	Single-arm braking force detection	0 to 1	0	Set to 1 to enable the detection
F5-27	MCB Y2 output function setting	33	2	Left brake output
F5-45	MCB Y2A output function setting	34	0	Right brake output
F5-07	X7 input function setting	74 for NO and 106 NC	106	Left brake contactor feedback
F5-05	X5 input function setting	75 for NO and 107 NC	107	Right brake contactor feedback
F2-32	Torque output duration	1s to 10s	5	When it is set to 0, the system uses the default value 5
F7-17	Single-arm torque amplitude	1% to 150% of the rated motor torque	30	When it is set to 0, 30% of the rated motor torque is used by default

Param.	Function	Range	Default	Note
F2-34	Number of pulses for abnormality detection	1 to 100 encoder feedback pulses	0	When it is set to 0, 30 encoder feedback pulses are used by default
F2-35	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
F-8	Test selection	8: Manual test of braking force	0	Use the keypad to start the braking force test
F7-09	Braking force detection result	0 to 2	0	-
F7-10	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 F-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 the left brake control output first.
6. The system starts testing according to the output torque related to the braking force.
7. After the left brake test, it has right brake control output.
8. E88 disappears on the MCB and the test is completed. F7-09 indicates the test result. If F7-09 is 2, E66 is reported immediately for test failure, then the elevator stops running, and the fault cannot be reset.

Automatic Test

After the test condition 1 is met for braking force detection, the system automatically enters the test state. The steps are the same with the manual test.

Fault E66 cannot be reset through power failure and can be automatically reset only when a new braking force test is preformed with qualified results.

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 (F7-10) 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 F7-10 is 10 minutes or below, the buzzer tweets for 30s. You can disable the buzzer by setting F8-19 bit13. 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.

- Use PCB-D1 brake power supply board in communication mode
  Control the left and right brake output independently through the power supply board.

Param.	Function	Range	Default	Note
F6-54 bit11	Brake power supply board in communication mode	0 to 1	Bit9 = 0	Enable the brake power supply board in communication mode function
F6-54 bit9	Single-arm braking force detection	0 to 1	0	Set to 1 to enable the detection
F5-27	Y2 output setting	2	2	Only set one brake output
F5-07	X7 input function setting	74 for NO and 106 NC	106	Left brake contactor feedback
F5-05	X5 input function setting	75 for NO and 107 NC	107	Right brake contactor feedback
F2-32	Torque output duration	1s to 10s	5	When it is set to 0, the system uses the default value 5
F7-17	Single-arm torque amplitude	1% to 150% of the rated motor torque	30	When it is set to 0, 30% of the rated motor torque is used by default
F2-34	Number of pulses for abnormality detection	1 to 100 encoder feedback pulses	0	When it is set to 0, 30 encoder feedback pulses are used by default
F2-35	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

Param.	Function	Range	Default	Note
F-8	Test selection	8: Manual test of braking force	0	Use the keypad to start the braking force test
F7-09	Braking force detection result	0 to 2	0	-
F7-10	Countdown time for braking force detection	0 to 1440	1440	The countdown time is automatically restored to 1440 after the test finishes

4.13 Shorting PMSM Stator Scheme

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.

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

Scheme 1

Wiring

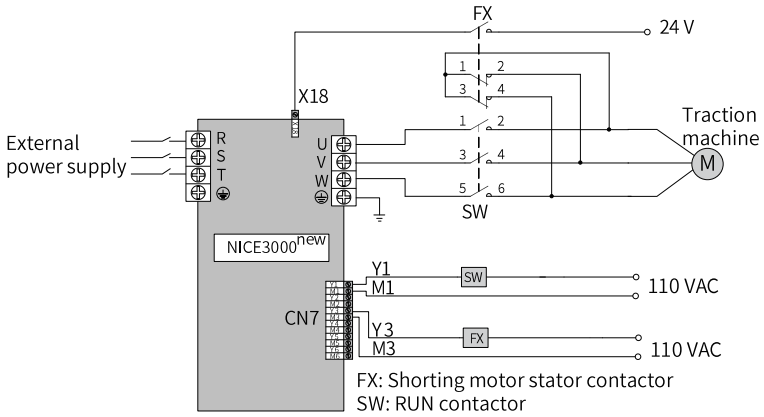


Figure 4-18 Wiring of the independent shorting motor stator contactor

Related Parameters

The parameter setting in shorting PMSM stator mode is described in the following table.

Param.	Name	Setting	Description
F5-18	X18 function selection	30	Allocate X18 with output of shorting PMSM stator feedback signal
F5-28	Y3 function selection	12	Allocate Y3 with output of shorting PMSM stator contactor control
FE-33	Elevator function selection	-	NC output contactor: bit8 = 0 NO output contactor: bit8 = 1

Scheme 2

Wiring

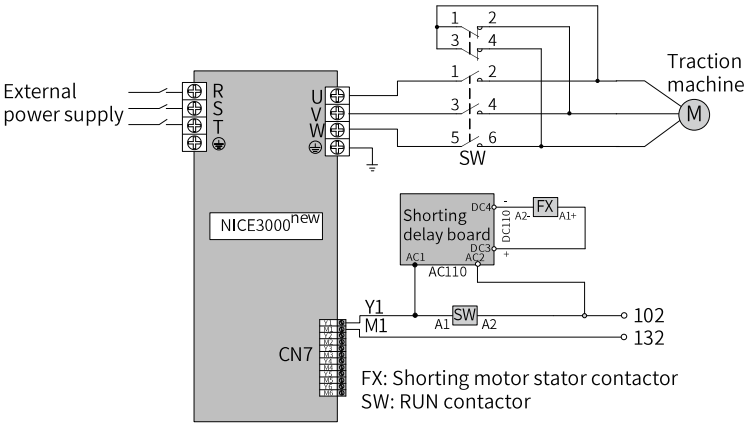


Figure 4-19 Wiring of shorting delay board

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 2s. That is how shorting delay works.

4.14 Automatic Emergency Evacuation at Power Failure

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.

Overview

Working principle:

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.

There are mainly two standby power supply systems in the industry:

Standby power supply	Description
Emergency evacuation by 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.

UPS (220 V)

Related Parameters

Parameter setting:

Param.	Setting	Description	Note
F8-10	1: UPS-powered operation	Emergency evacuation mode selection	-
F5-20 (X20)	59	Emergency evacuation signal	Assume that X20 is used as the NC input of emergency evacuation signal
F5-31 (Y6)	13	Emergency evacuation output at power failure	Y6 must be used for emergency evacuation output

The UPS capacity recommended for the controller power rating is listed in the following table.

UPS power (kW)	Controller power (kW)
1 kVA (0.7 to 0.8)	P ⩽ 5.5
2 kVA (1.4 to 1.6)	5.5 < P ⩽ 11
3 kVA (2.1 to 2.4)	15 ⩽ P ⩽ 22

4.15 Elevator Emergency Evacuation

Wiring

The following figure shows wiring of the ARD for elevator emergency evacuation.

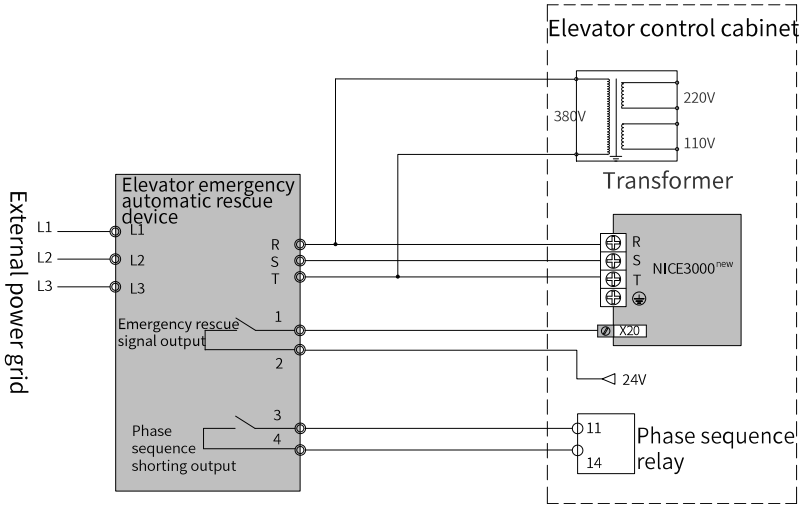


Figure 4-20 Wiring of three-phase (380 V) elevator ARD

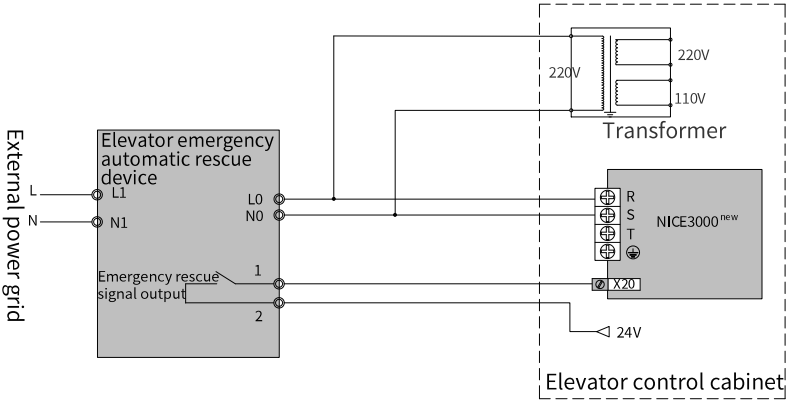


Figure 4-21 Wiring of single-phase (220 V) elevator ARD

Related Parameters

Parameter setting:

Param.	Setting	Description	Note
F8-10	1: UPS-powered operation	Emergency evacuation mode selection	-
F5-20 (X20)	27	Emergency evacuation signal (NO)	Assume that X20 is used as the NO input of emergency evacuation signal

Note

- 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.

Other parameters related to emergency evacuation:

Param.	Range	Description
F3-22	0.300 m/s^2 to 1.300 m/s^2	Acceleration rate at emergency evacuation
F6-48	0.010 m/s to 0.630 m/s	Emergency evacuation switching speed

Param.	Range	Description
F6-49	0 to F6-00	Emergency evacuation parking floor
F8-09	0.020 to F3-11	Emergency evacuation speed at power failure

4.16 Parallel Connection and Group Control

Background

The integrated controller provides parallel control of two elevators and group control of three to eight elevators, thereby improving running efficiency and saving energy.

Overview

The NICE3000^{new} provides the function of elevator parallel and group control:

- Parallel Control: Parallel control of two elevators implemented by directly using the CAN2 communication port
- Group Control: Group control of elevators together with the group control board MCTC-GCB-A

Parallel Control

The parallel control is for controlling two elevators, and group control board is needed for controlling three or more elevators.

Up to 48 floors are supported on the standard parallel control software. Also, it supports parallel and independent control of through-type door elevators.

Parallel control (CAN2 port connection of CN4)

Wiring (Twisted pair is recommended for CAN2 communication and proper MCM connection must be ensured)

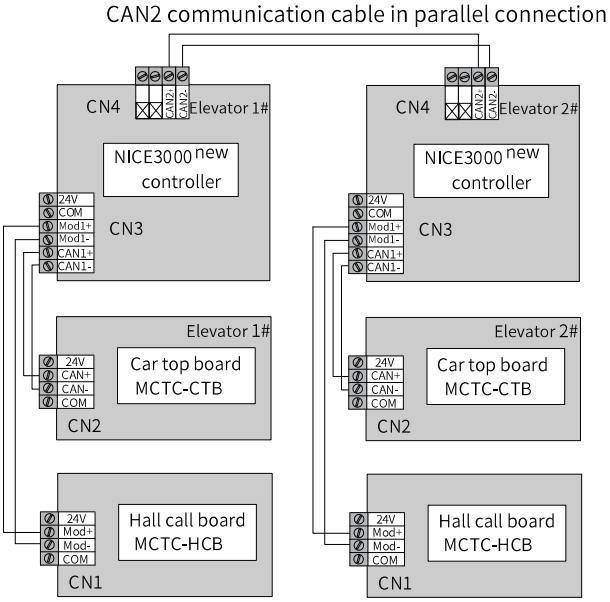


Figure 4-22 Wiring diagram of parallel control (CN4)

Before using the elevators, set the floor offset floor offset in parallel control (F6-50 ≠ 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 (F6-00) and bottom floor (F6-01) of each elevator based on actual physical floors.

Related Parameters

Param.	Description	Range	Setting in parallel connection	Note
F6-07	Number of elevators in group control	1 to 8	2	-
F6-08	Elevator No.	1 to 8	Master elevator: 1 Slave elevator: 2	-
F6-09	Program selection	-	bit3 = 1: CAN2 parallel/group control	Set bit3 to 1 when the CAN2 communication port of terminal CN4 is used for parallel control

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.

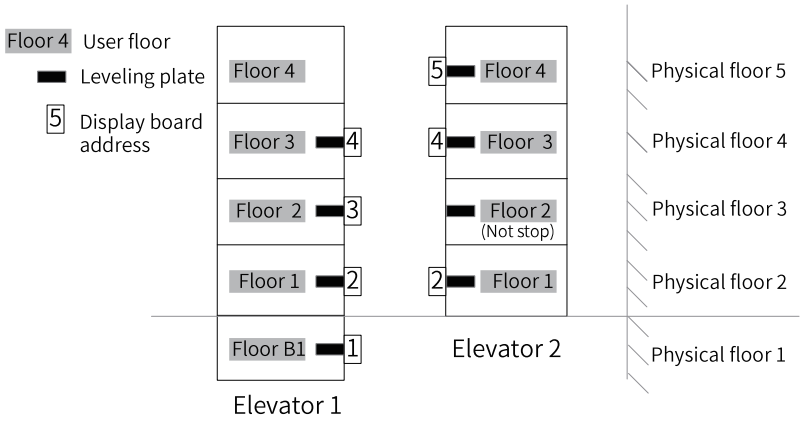


Figure 4-23 Floor layout of two elevators in parallel control

Corresponding parameter settings are shown in the following table.

Table 4–4 Floor address setting for elevators in parallel control

	Elevator 1	Elevator 2
Number of elevators in group control (F6-07)	2	2
Elevator No. (F6-08)	1	2

		Elevator 1		Elevator 2	
User floor	Physical floor	HCB address	HCB display	HCB address	HCB display
B1	1	1	FE-01 = 1101	1	FE-01 = 1901
1	2	2	FE-02 = 1901	Non-stop floor, no hall call, but leveling plate required	-
2	3	3	FE-03 = 1902	3	FE-03 = 1903
3	4	4	FE-04 = 1903	4	FE-04 = 1904
4	5	No hall call	No hall call	-	-
Bottom floor of the elevator (F6-01)		1		1	
Top floor of the elevator (F6-00)		4		4	
Service floors (F6-05)		65535		65533 (not stop at physical floor 2)	
Floor offset (F6-50)		0		1	

After commissioning is completed, the floor offset function can be set with F6-50 (the value being the lowest floor difference of elevators) on the elevator with the much larger lowest floor value.

After the setting of F6-50, there is no need to reset the hall calls or car calls.

Group Control

A GCB (MCTC-GCB-A) is additionally required to implement group control of more than two elevators.

One GCB supports group control of up to four elevators.

If group control involves more than four elevators, two GCBs are required. This situation is not introduced here. Contact Inovance for customization if required.

Wiring

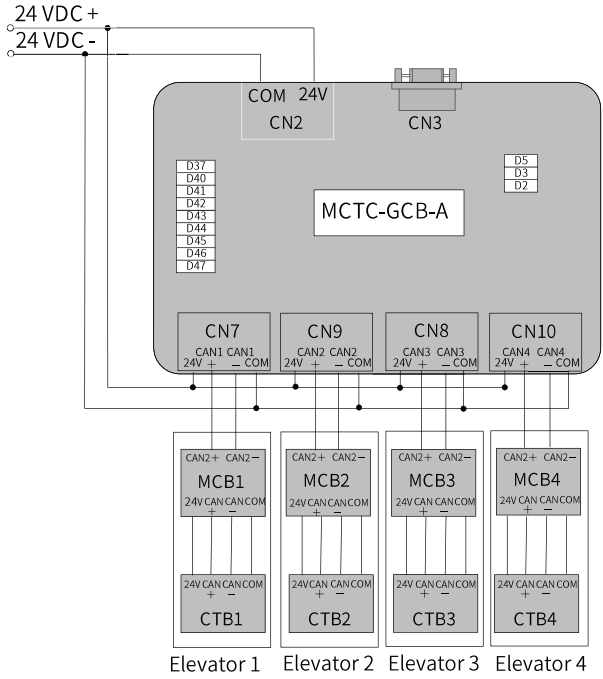


Figure 4-24 Wiring of group control

Related Parameters

Param.	Description	Range	Setting in group control	Note
F6-07	Number of elevators in group control	1 to 8	1 to 8	Actual number of elevators in group control
F6-08	Elevator No.	1 to 8	1 to 8	1: Elevator 1; 2: Elevator 2 3: Elevator 3; 4: Elevator 4
F6-60	Program selection	-	Bit1 = 0: Group control board MCTC-GCB-A	Selection is based on the GCB model.
		-	Bit4 = 1: Parallel connection with NICE3000 for group control	Set bit4 to 1 when the NICE3000 is involved in group control

HCB address setting: No setting is required. The CTB (MCTC-CTB-A) address is not differentiated in group control mode.

4.17 Through-type Door

Background

The through-type door solution is applied when separate control on two doors of an elevator is required.

Overview

The NICE3000^{new} supports four through-type door control modes: mode 1, mode 2, mode 3, and mode 4.

Table 4–5 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 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

These through-type door control modes can be implemented by using two methods.

- Scheme 1: Only for NICE3000 ^{new} application.
- Scheme 2: For NICE3000^{new} and NICE3000 applications

Through-type Door Control Scheme (Recommended)

These door control modes in the preceding table can be implemented through the following schemes. Take 20-floor through-type door as an example.

Wiring

CCB wiring:

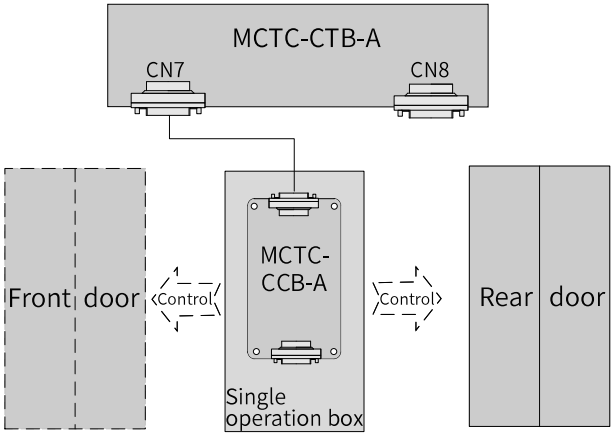


Figure 4-25 Wiring of the car CCB for single operation box

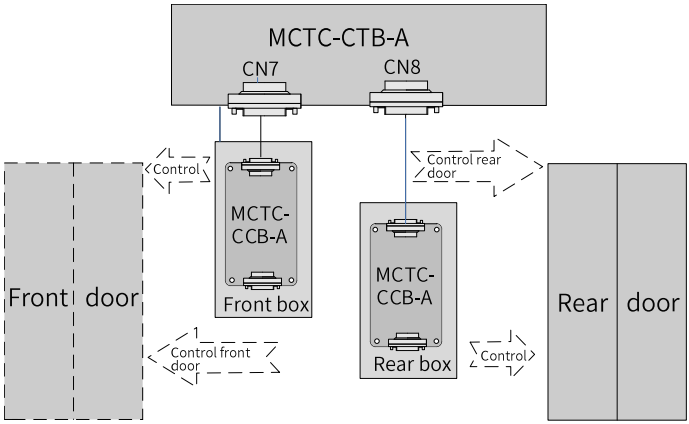


Figure 4-26 Wiring of the car CCB for dual operation boxes

Hall call setting:

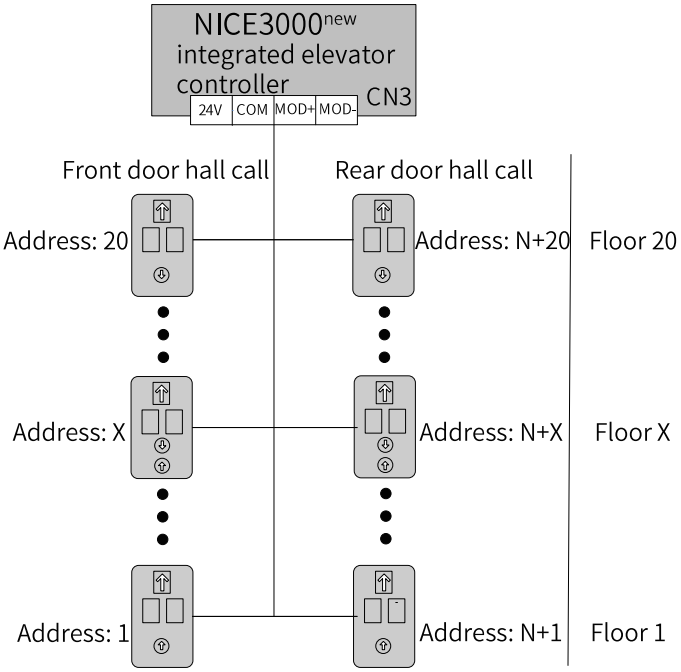


Figure 4-27 Hall call setting 1

HCB addresses of the front door: 1 to 20, HCB addresses of the rear door: N to N+20, F8-16 = N (N > F6-00).

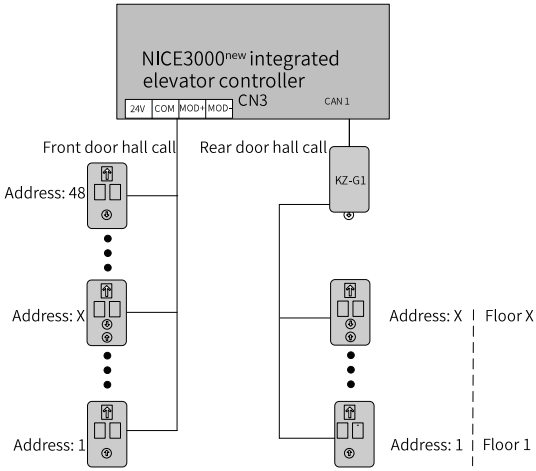
Related Parameters

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	FC-04 = 0	FB-00 = 2 F8-16 = N (N > F6-00)	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	FC-04 = 1	Same as mode 1	20		
Mode 3	Independent control for door open/close for hall calls, and manual control for car calls	FC-04 = 2 F6-40 bit4 = 1	Same as mode 1	20		
Mode 4	Independent control for hall calls and car calls	FC-04 = 3	Same as mode 1	20		

Notes: In mode 3, the car door open is controlled as follows.
Control by button:
Connect the button to JP16 on the CCB, and set F6-40 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.
Control by switch:
Connect the switch to JP20 on the CCB, and set F6-40 bit15 to 1. When JP20 is ON, only the front door opens. When JP20 is OFF, only the rear door opens.

This scheme can support doors with 48 addresses.

When there are more than 48 doors for through-type use, an MCTC-KZ-G1 expansion board must be equipped. And rear door hall calls need a separate Modbus line connected to the Modbus terminal of the KZ-G1 expansion board and its HCB addresses need to be set starting from 1.



4.18 Application Scheme of Emergency Operation and Dynamic Test Device of MRL Elevator

Background

China National Standards require the following functions of the emergency and test operating panel:

- A control device for dynamic test that can be accessible and operated safely and conveniently from outside the shaft under any conditions
- A display device or a window for direct observation of the drive motor to obtain car running direction, car arrival at the unlocking zone and car speed

That is, you can, directly or through the display device, observe car movement direction, speed and whether the car is located in the unlocking zone. The device has permanent lighting fittings and stop mechanism or main switch.

Overview

Software implementation scheme

The MCB LEDs are used to monitor car direction, speed and door zone position.

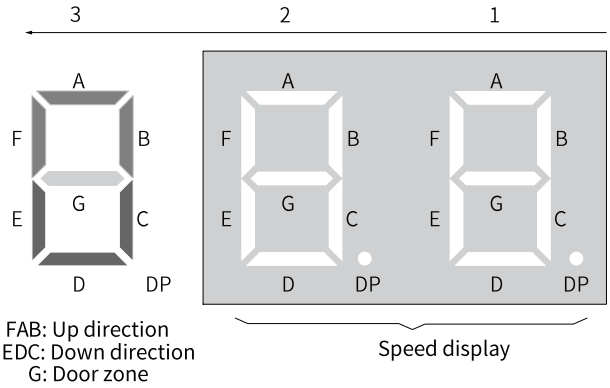
- Emergency and test operating panel trigger
  Operate the keypad to enter the F-D interface;

  or emergency state;

  or pulse change in stop state;

  or 12 V input in case of 24 power failure (MCB hardware F01 or later version).

- Description of emergency and test operating panel



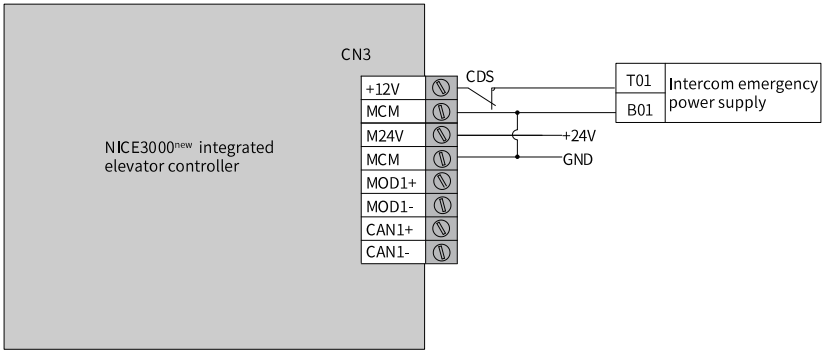
Note

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. The decimal places are different.

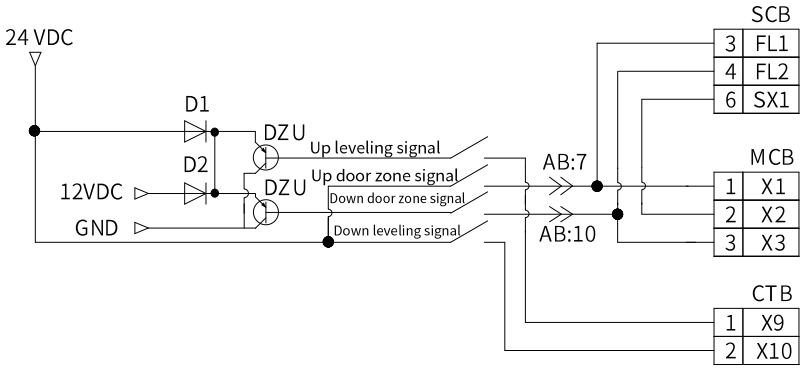
Electrical implementation scheme

In case of power failure, this function can be implemented by using the 12 V power supply of the intercom system or electric brake release device to supply power to the MCB.

- As 12 V input in case of power failure, 12 V and MCM terminals are added on the MCB CN3 to supply power to the PG card encoder so as to provide direction and speed feedback during emergency evacuation by shorting stator braking.
- CDS (MRL control cabinet door switch) is added. When the cabinet door is open, the switch contact is ON and 12 V is supplied to terminal CN3.
- The switch above helps prevent insufficient voltage of emergency power supply due to long-term 12 V input to the system in case of power failure.
- 12 V and 24 V require common ground connection.



- 12 V input is added on the up and down leveling optoelectronic signal and power supply side. The 12 V power supply comes from the intercom emergency lighting. The action of the optoelectronic switch is driven by the emergency light upon power failure.
- The leveling optoelectronic switch must have a wide voltage range of 10 to 30 V (Weton SGD31 optoelectronic switches can be a choice).
- A 1N4007 diode with 1 A rated current, 1000 V reverse breakdown voltage must be used for mutual separation on the optoelectronic power supply side.



4.19 Multiple Operation Boxes

Dual Operation Boxes

Function

There are several dual operation box uses: single-door main and auxiliary operation boxes; main operation box and operation box for the disabled and front and rear door operation boxes.

In these cases, the main operation box is usually connected to CN7, and the auxiliary box (for the disabled or rear door) is connected to CN8.

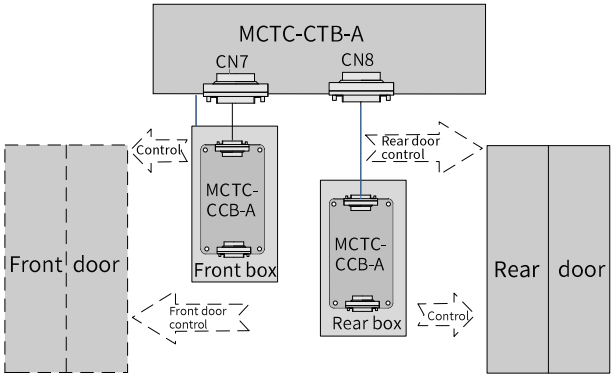


Figure 4-28 Dual operation boxes

Note

For the cases mentioned above, the standard software can support 48 doors.

Related Parameters

If the auxiliary operation box is for the single-door use or for rear door car call, no additional parameters need to be set.

If it is for the disabled, F6-40 needs to be set and bit12 is set to 1 for commands from the disabled:

Param.	Name	Description
Bit12	Car call auxiliary command terminal used for accessibility function	It sets the CTB auxiliary command terminal (CN8) as input of calls from the disabled. 0: Consistent with CN7 for the single door, and rear door for double doors 1: CN8 is for the single-door disability calls

Three/Four Operation Boxes

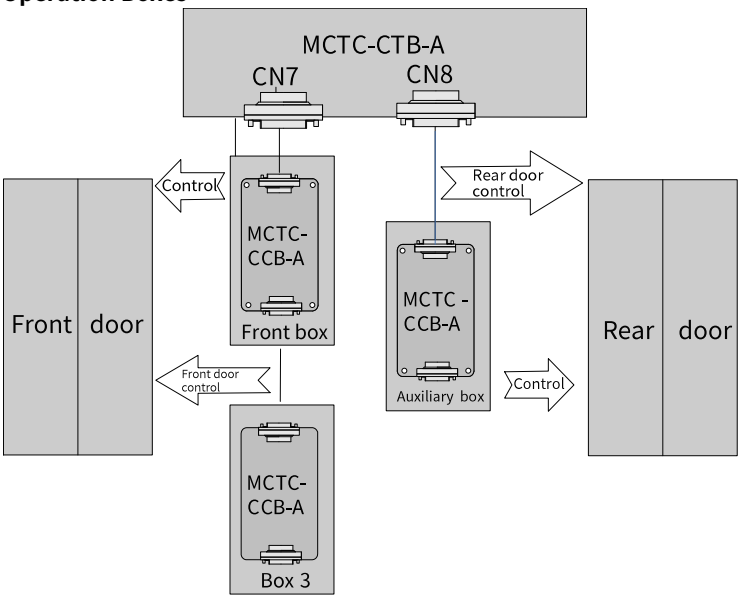


Figure 4-29 Three/Four operation boxes

Related Parameters

Set F6-40 bit14 to 1. Use the command board in cascade connection of the front or rear door to enter the floor of the disability call. The maximum number of floors supported is 16.

If it is over 16, consult the manufacturer for customization.

Param.	Name	Description
Bit14	Car call command duplication	Car call command duplication: • Function disabled: CN7 is used for front door calls or ordinary calls, and CN8 is used for rear door calls or disability calls. • 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.

4.20 Balance Coefficient Auto-tuning

Conditions

The system is in the normal, elevator lock or parking mode and there is no fault above level 3.

Parameter Setting

Set F-8 to 11 or F3-24 to 6 using the keypad. Ensure that the rated load F0-05 is set correctly.

Process

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

Result

- If the result falls within the normal range, balance coefficient F7-13and braking torque upper limit F7-14 are saved and the keypad has a scrolling display of Pxx.xx Txxx for 8s.
- If the result is not within the normal range, the result is not saved.
- Display the result Pxx.xx Txxx (P represents the balance coefficient, T represents the recommended value of braking force test).

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