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BVT12101/S Multimedia Display (Parallel Port)

User Guide

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

Data code PS00021676A00

Legal Information

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Due to continuous updates and improvements of products and technologies, the content of this documentation may not fully match the actual products. In the event of any discrepancies, the actual products shall prevail.

The contents are subject to change without notice due to product upgrade.

Waste Disposal

The storage, use, and disposal of this product (including optional accessories) must comply with local laws and regulations.

Qualified Personnel

The product/system described in this documentation may be operated only by personnel qualified for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel can identify the risks of the product/system and prevent possible dangers.

Proper Use of the Product

Proper transportation, storage, assembly, installation, commissioning, operation, and maintenance are required to ensure the safe operation of the product without any problems. The required ambient conditions must be met. All operations must follow the guidelines provided in this documentation.

Preface

Introduction

The product is a multimedia display (hereinafter referred to as "device") used inside the elevator car, with primary functions designed for passenger convenience. Passengers can operate the elevator through this interface, such as selecting their destination floor, and can also control the door open/close. Additionally, it displays information related to the elevator operation status, including but not limited to the current floor number and the direction of travel. This guide describes the basic information, installation, commissioning, and troubleshooting of the product.

Revision History

Date of revision	Version	Description
March 2026	A00	First issue.

Access to the Guide

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

- Visit *https://www.inovance.com/global*, choose Service&Support > Support > Documentation Download.
- Scan the **QR code** on the product with your smartphone.
- Scan the QR code below to install the application **My Inovance**, where you can search for and download the guide.

Warranty Instructions

If your product becomes defective under normal use conditions, we will offer guaranteed repair services within the warranty period. Charges will be paid beyond the warranty listed in the purchase order.

The warranty does not cover any defect caused by:

- failure to operate the product in accordance with the user guide
- events beyond control, such as fire, flood and abnormal voltage
- function misuse
- out-of-range application

- other events of force majeure, including but not limited to lightning, earthquake and other extreme weather events

The maintenance fee is charged according to the latest Price List of Inovance. If otherwise agreed upon, the agreed terms and conditions shall prevail.

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1 General Safety Rules

1.1 Safety Instructions

Safety Disclaimer

- To ensure the safety of humans and equipment, follow the signs on the product and all the safety instructions in this guide.
- To ensure the safety of humans and equipment, follow the signs on the product and all the safety instructions in this guide.
- The "CAUTION", "WARNING", and "DANGER" are only supplements to the safety instructions.
- Use this product according to the designated environmental requirements. Functional abnormalities or component damages caused by improper usage are 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 severe personal injuries or even death.



Indicates that failure to comply with the notice may result in minor or moderate personal injuries or damage. Keep the guide properly for future reference and deliver it to the end user.

Installation
 • Avoid excessive vibration (Vibration < 0.98 g). • Free from greasy dirt and dust (IP55 models are an exception for dust). • Avoid installing in areas with humidity exceeding 93% or where water droplets are present; however, outdoor locations subject to water splashing can be suitable if the equipment has an IP55 rating. • Avoid installing in areas where corrosive, flammable, or explosive gases are present; however, environments with a certain level of corrosive gases can be suitable if the equipment has an IP55 rating.

Wiring

DANGER

- Ensure that all power sources are disconnected before performing installation and wiring operations; avoid working on live circuits or plugging/unplugging cables to prevent electric shock or circuit damage.
- Connect the wiring for the DC power supply to the dedicated terminals as described in the guide.
- When drilling screw holes and wiring, ensure no metal shavings or wire clippings fall into the product to avoid malfunction, electronic component damage, or fire.
- After completing the wiring, carefully check to ensure the operating voltage and terminal positions are correct to avoid fire or accidents.

CAUTION

- To avoid electric shock, disconnect the power source before connecting the power to this product.
- The rated input power supply for this product is 24 VDC (allowable fluctuation range: 18 VDC to 36 VDC). If the input voltage is outside this range, severe damage to this product may occur. Therefore, please regularly check whether the DC power provided by the switched-mode power supply is stable.
- The protective grounding conductor must use yellow-green copper core cable.
- The grounding terminal must be reliably grounded (The resistance of the grounding cable should be less than or equal to 0.1 Ω). Failure to do so can lead to abnormal operation of the equipment or even damage.
- It is recommended to install the equipment on the conductive metal surface. Ensure that the entire conductive bottom of the equipment has good contact with the installation surface.
- Tighten the grounding screws to the correct tightening torque (9 N·m to 11 N·m) so that the PE conductor will not come loose or too tight.

Operation and Maintenance

CAUTION

- During use, take care to protect the display panel; perform touch operations with your hand instead of tools to avoid damage. Users are responsible for any damage caused by excessive force exerted.
- Lithium batteries, display screens, capacitors, and other components may contain substances harmful to health and the environment. Treat the product as industrial waste.

Battery Use
 • Avoid replacing the battery with an incorrect type. • Do not dispose of the battery in fire or heat sources, do not mechanically crush or cut batteries. • Do not expose the battery to extreme temperatures. • Do not swallow the battery as it poses a chemical burn hazard. • This product contains a button battery. If swallowed accidentally, it can cause severe internal burns within 2 hours and may lead to death.
 • Keep new and used batteries away from children. • If the battery compartment is not securely closed, stop using the product and keep it away from children. • Seek immediate medical attention if you suspect battery ingestion occurs.

Disposal
 • Dispose of the product according to industrial waste regulations; when disposing of batteries, follow local ordinances separately.

1.2 Industrial Information Security

The product provides an interface to connect to the network and transmit data through the network interface. To protect factories, systems, machines, and networks from cyber attacks, a proper industrial information security protection mechanism must be implemented to ensure safe operation of factories, systems, machines, and networks.

The customer is responsible for providing and continuously ensuring a secure connection between the product and the customer network or any other network to prevent unauthorized access to its factories, systems, machines, and networks. The system and device can be connected to the corporate network or Internet only when they are connected securely with appropriate security measures taken (for example, anti-virus software and firewall installation).

Inovance is committed to continuous development and improvement of the products and solutions to improve the level of safety. It is strongly recommended to update the product promptly and always use the latest version.



Tampering with software (such as viruses, Trojans, and Worms) can lead to unsafe drivestate, which can put the device in an unsafe operation state. This may result in death,serious injury, and property damage. Observe the following strictly.

- Always use the latest software version. If the product version is no longersupported or the latest version of the program is not applied, customers are atincreased risk of cyber-attacks.
- Take proper protection measures (including but not limited to deploying antivirussoftware, firewall, WAF, IPS/IDS, situational awareness system, IDverification, and data encryption) to prevent files in the mobile storage devicefrom being damaged by malware and protect products, networks, systems, andinterfaces from unauthorized access, disturbance, intrusion, data disclosure, orinformation theft.
- Check all safety-related interfaces and settings after commissioning.

2 Product Information

2.1 Technical Specifications

Param.	Description
Screen size	12.1 inches
Resolution	1024 px x 768 px
Product view directions	θL-θR-θT-θB
	85-85-85-85
LCD brightness	540 cd/m2
Display area	245 mm (W) x 184 mm (H)
LCD type	LVDS
Power supply voltage	18 VDC to 36 VDC
Rated/Maximum power consumption	10 W/12 W
Rated/Maximum current	420 mA/500 mA
Nominal capacity	• RAM: 2 GB • Available storage space: 3 GB
Operating environment	• Temperature: -20°C to +70°C • Humidity: 10% RH to 90% RH
Storage environment	• Temperature: -30°C to +80°C • Humidity: 10% RH to 90% RH

2.2 Product Dimensions

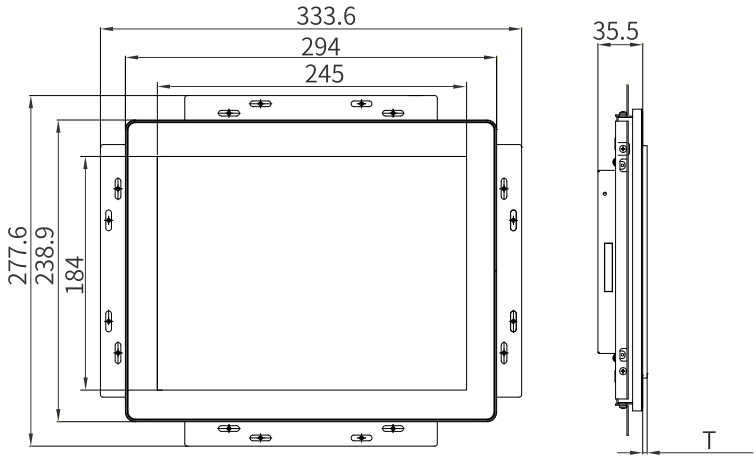


Figure 2-1 Product dimensions (unit: mm)

Table 2–1 T (protrusion thickness)

Type	T (unit: mm)
Embedded mounting	3.5
Embedded mounting (with touchscreen)	3
Surface mounting	0

2.3 Product Interface Introduction

Note

The following product interface image is for reference only. Please see the actual product.



Figure 2-2 Product interface introduction

No.	Description
1	Logo
2	Current floor
3	Max. load and passenger capacity
4	Public floor keys
5	Date

No.	Description
6	Weather display (Optional) ***Note*** Make sure the device is connected to the internet. Network status display (Optional) Through network functionality, the **"TFT LAN software"**can be used to update the interface, videos, images, software, and parameters. ***Note*** For details, see the TFT Network Solution User Guide, available from your device supplier.
7	Video play
8	Registered floors in the system
9	Face recognition (Optional) Elevator calling through face recognition operates in two main scenarios: • If the user has only one authorized floor: The system automatically calls the elevator upon successful recognition. • If the user has multiple authorized floors: The screen displays the authorized floor buttons upon successful recognition, and the user must select a destination floor to call the elevator. ***Note*** For details, see the TFT Network Solution User Guide, available from your device supplier.

2.4 System Connection

Note

The figure is only for illustration. See the actual product for specifics.

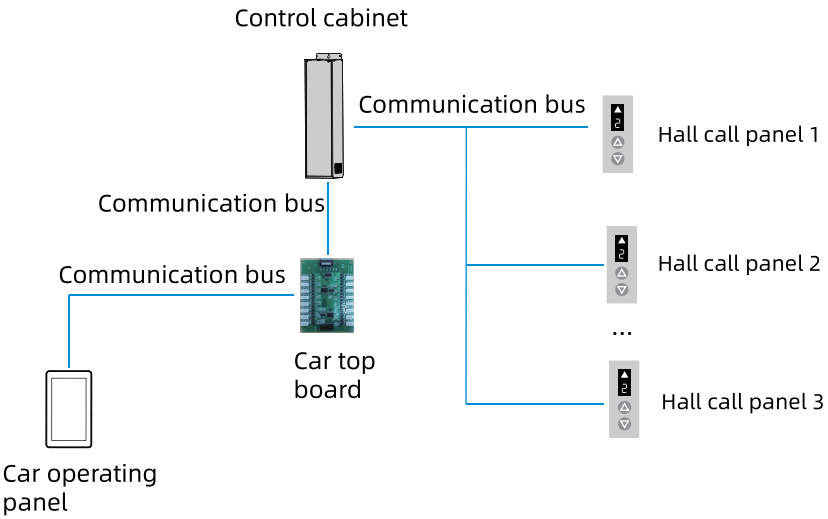


Figure 2-3 System Connection

3 Preparations Before Installation

3.1 Installation Personnel Requirements

- Installation must be performed by only experienced personnel who have been trained with necessary electrical information.
- Read and comply with the safety information provided this manual.

CAUTION

Inovance is not responsible for equipment damage and casualties due to failure to comply with the safety instructions or operation by unqualified personnel.

3.2 Installation Environment Requirements

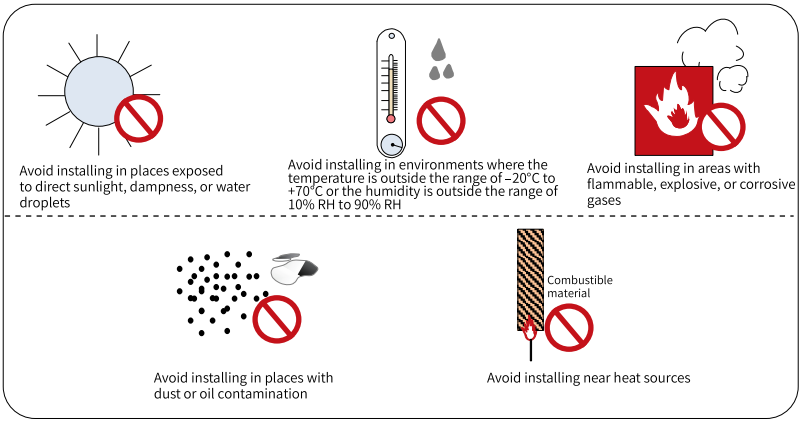


Figure 3-1 Installation environment requirements

3.3 Installation Tools Requirements

Please check the installation tools listed in the following table before installation. Tools not included with the scope of delivery must be provided by the customer.

Table 3–1 Installation tools

Installation method	Tool	Description
Embedded mounting	Glove	Prevents static electricity during mechanical installation.
	M3 x 20 weld screw (8 PCS)	Fix the product to the mounting surface.
	M3 flange nuts (8 PCS)	
	M3 Phillips screwdriver	Tightens the screws.
	5.5 mm open-end wrench or socket wrench	
Surface mounting	Glove	Prevents static electricity during mechanical installation.
	M3 pan-head screws (8 PCS)	Fix the product to the mounting surface.
	M3 x 12 weld screw (8 PCS)	
	M3 flange nuts (8 PCS)	
	M3 Phillips screwdriver	Tightens the screws.
	5.5 mm open-end wrench or socket wrench	
Wall-hung mounting	Glove	Prevents static electricity during mechanical installation.
	M3 countersunk screws (6 PCS)	Fix the product to the mounting surface.
	M3 pan-head screw (1 PC)	
	M3 flange nuts (6 PCS)	
	M3 Phillips screwdriver	Tightens the screws.
	5.5 mm open-end wrench or socket wrench	

4 Unpacking and Handling

Upon unpacking, check:

No.	Item	Description	Tick
1	Whether the product model is consistent with your order.	Check the model and specifications of the device for consistency with the order.	□
2	Whether the product is damaged.	Check whether the product enclosure is damaged during transportation. If there is any part missing or damaged, contact Inovance or your supplier immediately.	□

5 Installation Guidelines

5.1 Port Layout and Description

It is only for illustration. See the actual product for specifics.

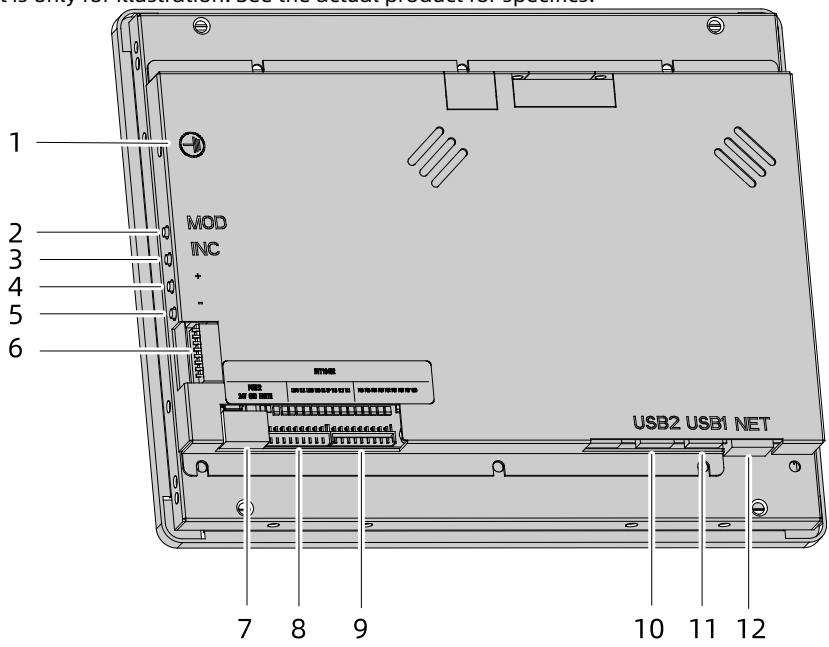


Figure 5-1 Port layout

Table 5–1 Port description

No.	Port	Description
1	Ground	Grounding cable
2	Modbus	• Enters the setup menu interface • Enters the next-level menu • Enters the menu editing mode
3	INC	• Exits the setup menu interface • Returns to the previous-level menu • Exits the menu editing mode
4	+	• Moves up through menu items • Increases the value of a menu item (holding down increases speed)
5	-	• Moves down through menu items • Decreases the value of a menu item (holding down increases speed)

No.	Port	Description
6	DIP switch	For code format selection and polarity switching
7	Power supply	24V, GND, EARTH
8	Function interface	LBFC, LLX, LNOC, LEB, DN, UP, VLS, YL2, YL1
9	Floor interface	FG6, FG5, FG4, FG3, FG2, FG1, FG0, FG7, GND
10	USB2	For device commissioning
11	USB1	For theme update and interface upgrade
12	NET	Network port, supporting 10 Mbps or 100 Mbps Ethernet connection

5.2 Installation Procedure

5.2.1 Embedded Mounting

Note

The images in this chapter are for installation reference only. Please refer to the actual product for appearance.

---

1. Cut out a square area on the car wall panel and install weld screws according to the hole positions.

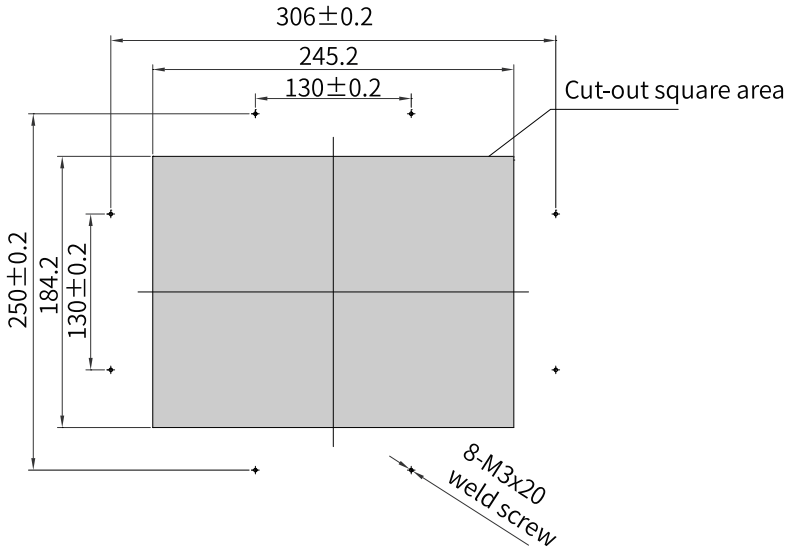


Figure 5-2 Hole dimensions (unit: mm)

2. Secure the mounting bracket to the car wall panel with M3 flange nuts and fix the display to the wall panel.

Note

- Install at least two brackets.
- Pay attention to the thickness of the car wall panel and the protrusion thickness. For the through-hole mounted non-touchscreen display, the protrusion thickness is 3.5 mm; for the through-hole mounted touchscreen display, the protrusion thickness is 3 mm.

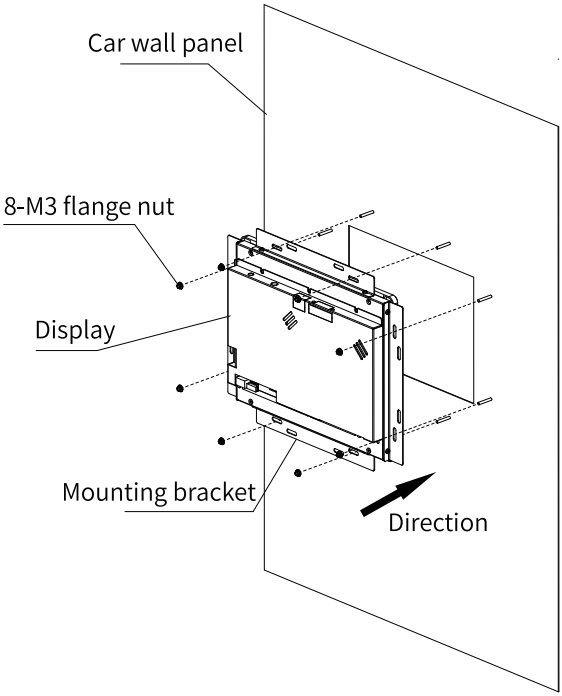


Figure 5-3 Mounting bracket

3. Check the installation effect.

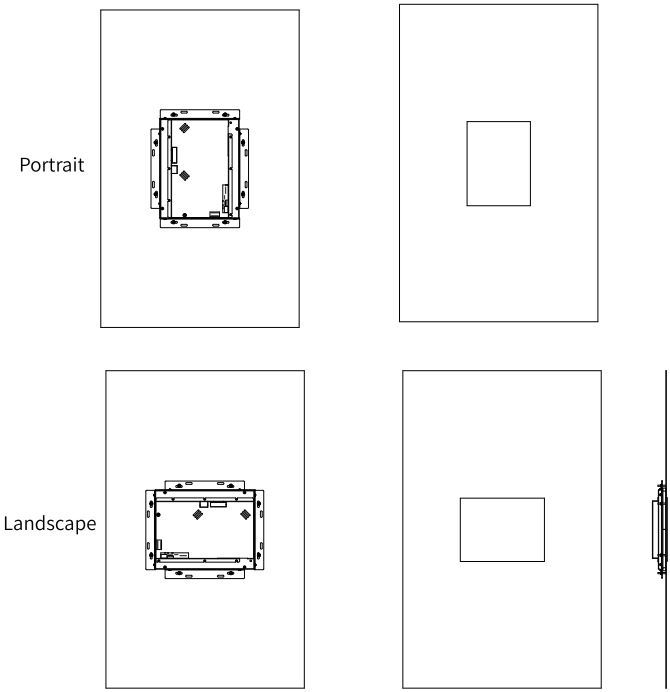


Figure 5-4 Checking the installation effect

CAUTION

The display has a grounding sign and must be grounded properly.

5.2.2 Surface Mounting

Note

The images in this chapter are for installation reference only. Please refer to the actual product for appearance.

1. Cut out a square area on the car wall panel and install weld screws according to the hole positions.

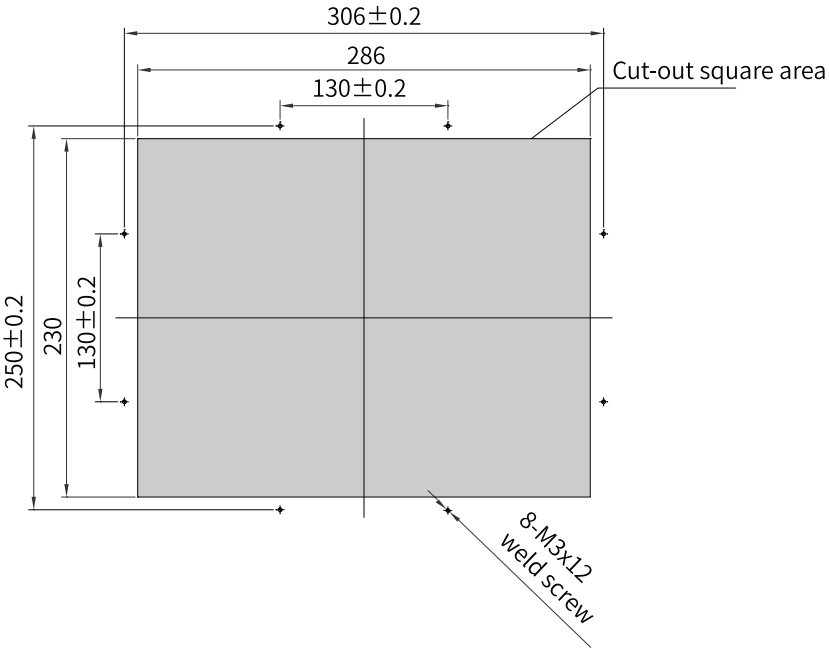


Figure 5-5 Hole dimensions (unit: mm)

2. Secure the mounting bracket to the wall panel with M3 flange nuts, but do not tighten it yet.

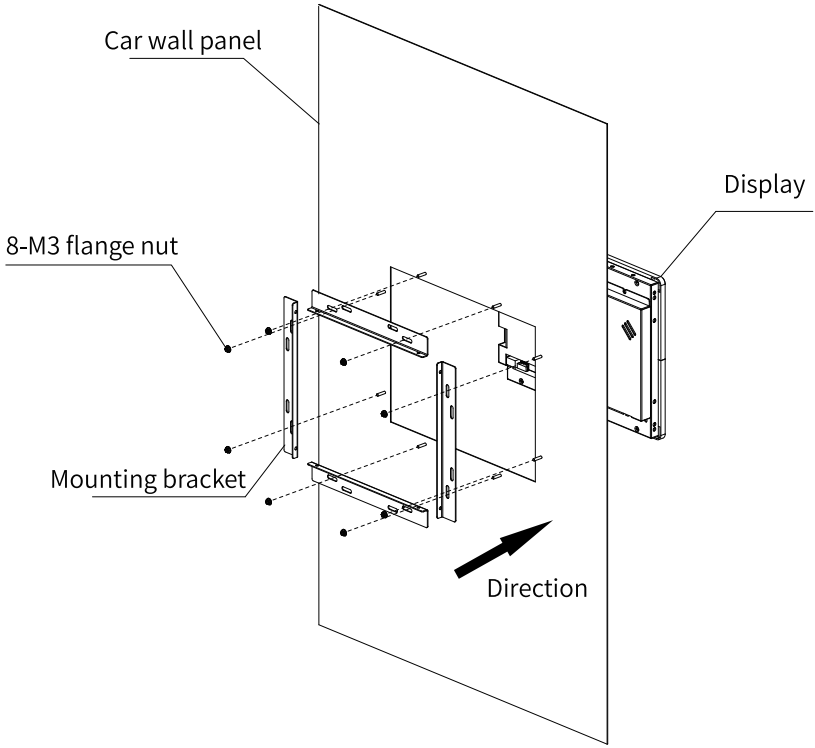


Figure 5-6 Mounting bracket

3. Use the M3 pan-head screws to secure the mounting bracket and the display. Then tighten the M3 flange nuts.

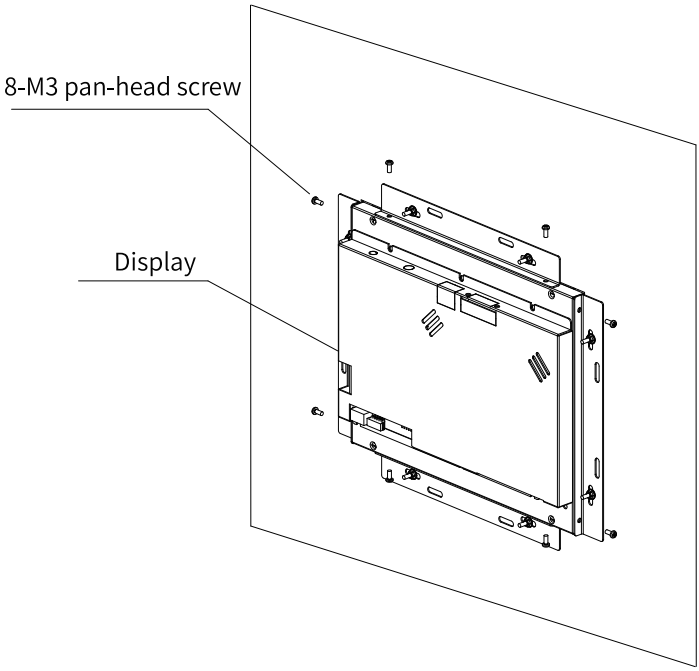


Figure 5-7 Securing the display

4. Check the installation effect.

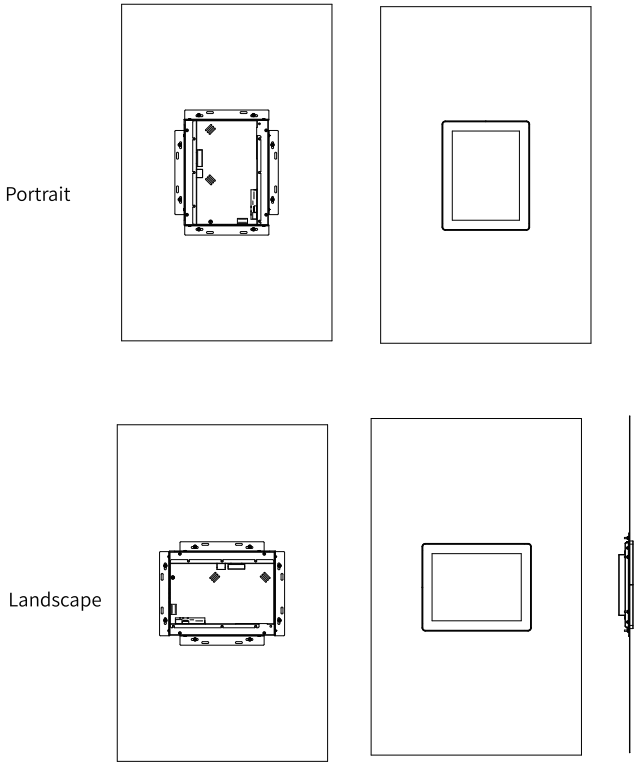


Figure 5-8 Checking the installation effect

CAUTION

The display has a grounding sign and must be grounded properly.

5.2.3 Wall-hung Mounting

Note

The images in this chapter are for installation reference only. Please refer to the actual product for appearance.

1. Make holes and cut out the square area, as is shown in the following figure.

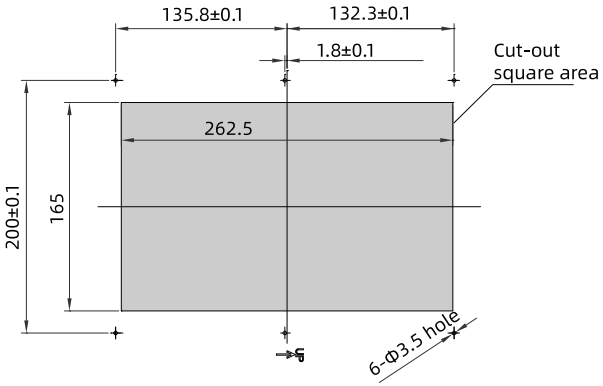


Figure 5-9 Hole dimensions (unit: mm)

2. Fasten the mounting bracket to the car wall panel with M3 countersunk screws.

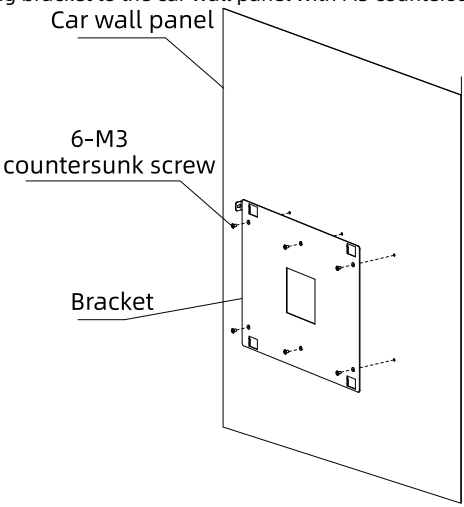


Figure 5-10 Mounting bracket

3. Use the M3 pan-head screws to secure the mounting bracket and the display.

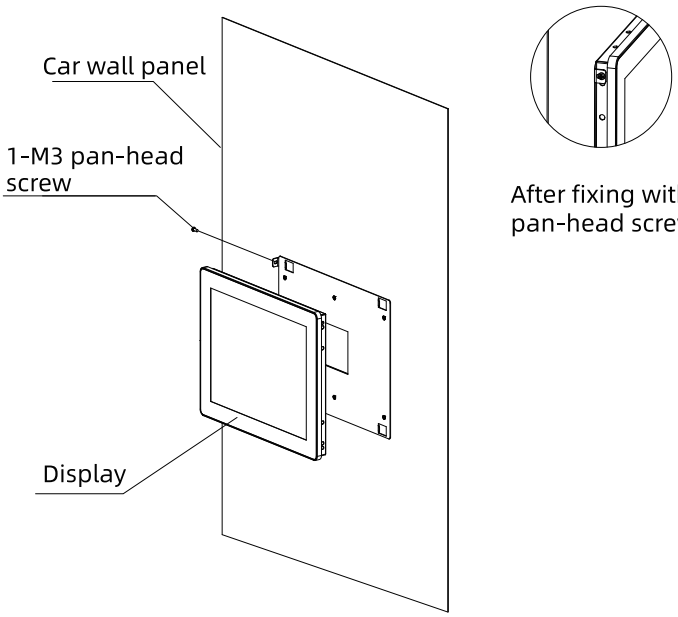


Figure 5-11 Securing the display

4. After the cable of the display passes through the opening of the car wall panel, connect the cable to the MCB and protocol board inside the cover, and then install the cover.

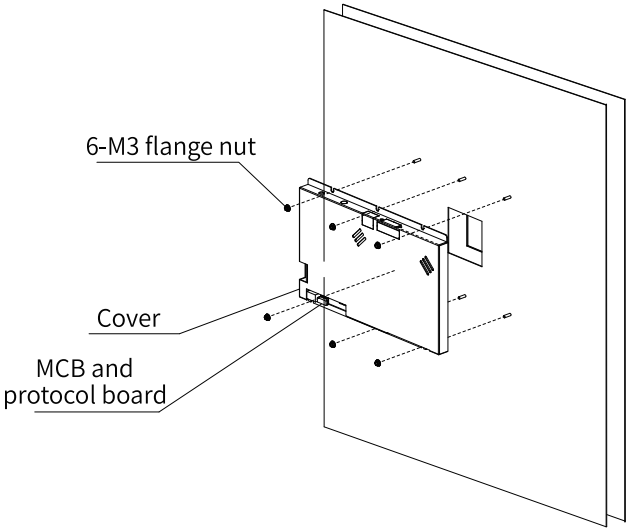


Figure 5-12 Installing the cover

5. Check the installation effect.

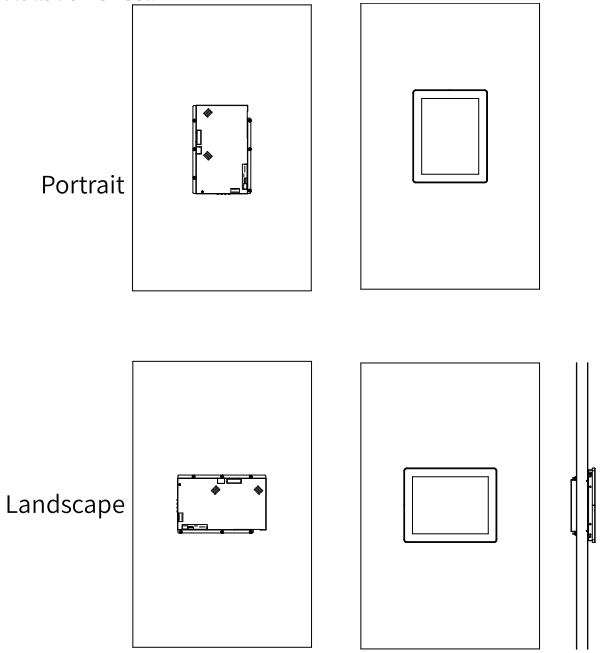


Figure 5-13 Checking the installation effect



The display has a grounding sign and must be grounded properly.

6 Commissioning and Operation

This chapter introduces basic commissioning procedure for the device. By following the instructions, you can perform basic commissioning to ensure that its basic functions can be used normally.

6.1 Inspection Before Commissioning

The operator is responsible for performing checks including but not limited to those listed in the following table in accordance with the recognized technical rules in the country of installation and with applicable regional guidelines. Tick after each check of the item.

No.	Item	Tick
1	Ensure that the power input terminals are securely connected with no loose or poor connections.	□
2	Before powering on the device, ensure that the power port wiring sequence is correct and that the voltage meets the standard 24 VDC (allowable range: 18 VDC to 36 VDC). If the measured value exceeds this range, disconnect the power supply immediately	□

6.2 Function Commissioning

The device is available in the touchscreen and non-touchscreen types. The touchscreen type allows for menu settings through the touchscreen, whereas the non-touchscreen type requires menu settings to be made using the physical keys on the back of the device.

Table 6–1 Keys description (non-touchscreen display)

Key	Description
Modbus	• Enters the setup menu interface • Enters the next-level menu • Enters the menu editing mode
INC	• Exits the setup menu interface • Returns to the previous-level menu • Exits the menu editing mode
+	• Moves up through menu items • Increases the value of a menu item (holding down increases speed)
-	• Moves down through menu items • Decreases the value of a menu item (holding down increases speed)

Table 6–2 Keys description (touchscreen display)

Key	Description
Enters the setup menu interface	On the standby screen, long press of the logo in the top-left corner causes the icon  to appear. After the icon changes to , double-click the icon to enter the menu interface.
Previous/Next	Scroll up or down to flip through pages
	Returns to the previous-level menu
	Enters the next-level menu

Table 6–3 Function Commissioning

<table>
<tr><th colspan="2">Function</th><th rowspan="2">Description</th></tr>
<tr><th>Level I menu</th><th>Level II menu</th></tr>
<tr><td rowspan="3">Floor setup</td><td>Bottom floor</td><td>Sets the lowest floor in auto demo mode, ranging from 1 (default value) to 56.</td></tr>
<tr><td>Top floor</td><td>Sets the highest floor in auto demo mode, ranging from 1 to 56 (default value).</td></tr>
<tr><td>Floor address</td><td>
<table>
<tr><th>Type</th><th>Param. setting</th><th>Device address</th><th>Description</th></tr>
<tr><td rowspan="2">Car display</td><td>0 or 60</td><td>D0</td><td>In the same elevator, only one display should be set to D0.</td></tr>
<tr><td>61, 62, 63</td><td>D2, D3, D4</td><td>61 corresponds to D2, 62 to D3, and 63 to D4.</td></tr>
<tr><td>Touchscreen hall call</td><td>65 to 120</td><td>65 to 120</td><td>Corresponds to physical floors 1 to 56. For example, 65 corresponds to physical floor 1 and 120 corresponds to physical floor 56.</td></tr>
<tr><td rowspan="2">Car touchscreen</td><td>124</td><td>D0</td><td>In the same elevator, only one display should be set to D0.</td></tr>
<tr><td>125, 126, 127</td><td>D1, D2, D3</td><td>125 corresponds to D1, 126 to D2, and 127 to D3.</td></tr>
</table>
</td></tr>
<tr><td rowspan="4">Display setup</td><td>Display brightness</td><td>Sets the normal operating brightness of the screen, ranging from 10 to 100.</td></tr>
<tr><td>Standby brightness</td><td>Sets the sleep brightness of the screen, ranging from 0 (default value of 10) to 100.
When the device does not receive the elevator operation signal within the sleep time, it automatically enters the sleep mode. The brightness will drop to this value.
If the elevator control cabinet supports energy-saving mode, after the elevator enters this mode, the device will also automatically enter the sleep state.</td></tr>
<tr><td>Sleep time</td><td>Sets the time (in minutes) after which the device will automatically enter the sleep mode, ranging from 0 to 120 minutes, with a default value of 1 minute.
If set to 0, it indicates that the sleep mode will never be applied.</td></tr>
<tr><td>Welcome message</td><td>Switch for displaying the welcome message, which is enabled by default.</td></tr>
<tr><td></td><td>Logo</td><td>Switch for displaying the logo, which is enabled by default.</td></tr>
</table>

Function		Description
Level I menu	Level II menu	
Multimedia setup	Play video/music	Switch for setting background music, which is enabled by default.
	Multimedia volume	Sets the volume level, ranging from 0 to 100.
	Video rotation	The played video can be rotated by 0°, 90°, 180°, or 270°.
Time setup	Date (Year)	Sets the year, ranging from 0 to 37.
	Date (Month)	Sets the month, ranging from 1 to 12.
	Date (Day)	Sets the day, ranging from 1 to 31.
	Time (Hour)	Sets the hour, ranging from 0 to 23.
	Time (Minute)	Sets the minute, ranging from 0 to 59.
	Week	Enables/Disables the display of the day of the week.
	Time	Enables/Disables the display of the time.
	Date	Enables/Disables the display of the day of the date.
	Display mode	• YYYY/MM/DD: Displays the date in the Year/Month/Day format. • MM/DD/YYYY: Displays the date in the Month/Day/Year format. • DD/MM/YYYY: Displays the date in the Day/Month/Year format.
System Settings	Language	Sets the language , supporting switching between Chinese and English, with Chinese as the default.
	Display direction	Sets the display orientation, supporting switching between landscape and portrait modes.
	Theme	Sets the display theme, supporting switching among three themes, with Theme 1 as the default.
	Background image	Switches the background image; by default, there are 5 built-in background images.
	Operation mode	Sets the operating mode, supporting auto demo mode and normal mode, with normal mode as the default.
	Arrow scrolling speed	Sets the arrow scrolling frame animation speed, supporting five options: stationary, slow, medium, fast, and fastest, with medium speed as the default.
	Load	Sets the elevator load limit, ranging from 0 kg to 9999 kg, with a default value of 900, meaning 900 kg. When the load is set to 0, both the load and passengers are not displayed.
	Passengers	Sets the elevator person limit, ranging from 0 to 99. When the limit is set to 0, both the load and passengers are not displayed.
	Screen inversion	Rotate the screen by 180°.
	Reboot	Restarts the device.

<table>
<tr><th colspan="2">Function</th><th rowspan="2">Description</th></tr>
<tr><th>Level I menu</th><th>Level II menu</th></tr>
<tr><td rowspan="7">Network parameter setting</td><td>Main or secondary screens</td><td>• Device ID: Sets the device ID, ranging from 0 to 255. The device ID for the main and secondary screens must be consistent.
• Main or secondary: Sets this display to be main or secondary. Network cable connection is needed for the two displays (configuration not required if there is only one screen in the car).</td></tr>
<tr><td>LAN server IP</td><td>Configure the LAN server IP based on the actual on-site network environment. Example: 192.168.168.166.</td></tr>
<tr><td>Static IP</td><td>When enabled, manually configure the local IP address, subnet mask, and gateway IP.</td></tr>
<tr><td>Local IP</td><td rowspan="3">Sets the device's IP address, subnet mask, and gateway.
The main and secondary screen IPs must be in the same network segment as the server IP and cannot be identical. Example:
<table><tr><th>Main screen</th><th>Secondary screen</th></tr><tr><td>IP1: 192
IP2: 168
IP3: 168
IP4: 214</td><td>IP1: 192
IP2: 168
IP3: 168
IP4: XXX</td></tr></table></td></tr>
<tr><td>Netmask</td></tr>
<tr><td>Gateway IP</td></tr>
<tr><td rowspan="6">Status code</td><td>201</td><td>Current running duration of MCU for the time period.</td></tr>
<tr><td>202</td><td>MCU watchdog reset times (retentive at power failure).</td></tr>
<tr><td>301</td><td>Current running duration of MPU for the time period.</td></tr>
<tr><td>302</td><td>MPU reset times (retentive at power failure).</td></tr>
<tr><td>303</td><td>Timeout time of the last MPU reset, in ms.</td></tr>
<tr><td>304</td><td>Current packet loss rate in communication with the MPU.</td></tr>
</table>

6.3 Parallel Port Communication and Switch Settings

The parallel port is mainly used in applications where car and hall calls are communicated through parallel signals. Through the DIP switches on the adapter board, the system can be configured to support common cathode/common anode inputs, and support binary code, Gray code, BCD code, and decimal code.

IO Port Definitions

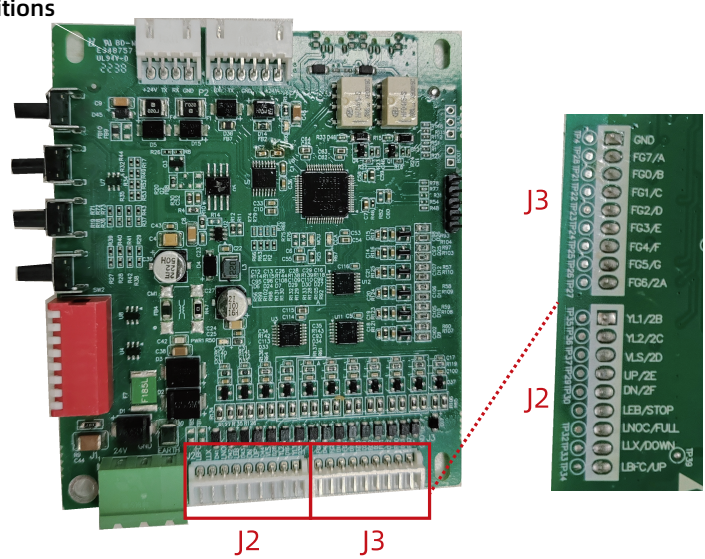


Figure 6-1 Port and silkscreen

Note

- Function priority: Inspection signal priority higher than full-load signal.
- For details on the truth table, see *" Appendix" on page 44*.

Table 6–4 Port description

Port	Silkscreen	Description
J2	LBFC/UP	Up arrow
	LLX/DOWN	Down arrow
	LEB/STOP	Inspection
	LNOC/FULL	FullLoad
	DN/2F	-
	UP/2E	-
	VLS/2D	-
	YL2/2C	-
	YL1/2B	-
J3	FG6/2A	Floor 8
	FG5/G	Floor 7
	FG4/F	Floor 6
	FG3/E	Floor 5
	FG2/D	Floor 4
	FG1/C	Floor 3
	FG0/B	Floor 2
	FG7/A	Floor 1
	GND	Ground

Code Format Selection

Select the code format using DIP switches SW2-1, SW2-2, and SW2-3.

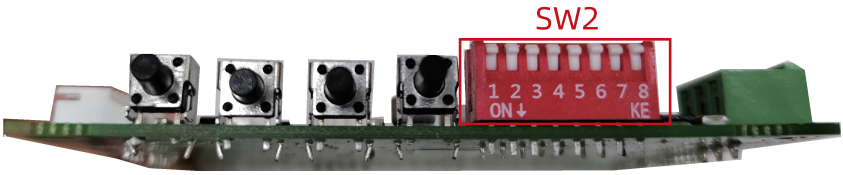


Figure 6-2 DIP switch SW2

Table 6–5 DIP switch settings

Code format	DIP switch status	Physical floor range supported
Binary code	SW2-1: ON	1 to 63
	SW2-2: OFF	
	SW2-3: OFF	
Gray code	SW2-1: OFF	1 to 63
	SW2-2: ON	
	SW2-3: OFF	
BCD code	SW2-1: ON	1 to 63
	SW2-2: ON	
	SW2-3: OFF	

Code format	DIP switch status	Physical floor range supported
Decimal code	SW2-1: OFF	1 to 8
	SW2-2: OFF	
	SW2-3: ON	

Polarity Switching

Switch the polarity (common cathode/common anode) using DIP switches SW2-7 and SW2-8.

Table 6-6 Polarity switching description

Signal	DIP switch	Switch status	Output polarity	Active level
Floor	SW2-7	OFF	Common cathode	High level
		ON	Common anode	Low level
Function and arrow	SW2-8	OFF	Common cathode	High level
		ON	Common anode	Low level

6.4 Floor Mapping

The recommended size of the USB drive is smaller than 32 GB and the format is FAT32.

Note

Some low-cost USB drives use processing chips of unknown brands, which may lead to upgrade failures. It is recommended to use USB drives from well-known brands, such as Kingstone and SanDisk.

---

1. Prepare the USB drive in advance and insert the USB drive into the computer.
2. Create **"bstupdate"→"MCU"** on the USB drive.
3. Create a new TXT file in the **"MCU"** folder and rename it to **"100_set.bin"**.
4. Remove the USB drive from the computer and insert it into the device's USB port. The floor mapping file will be automatically copied to the USB drive.

Note

Do not cut off the power during the copying process.

---

5. After the copy is complete, remove the USB drive.

6. Insert the USB drive back into the computer, open the mapping file **"Setfile.txt"**, and configure the floor mapping rules as required.

Note

- The format of floor mapping entry is **"FLOORMAP: Physical floor": "Floor mapping name, voice announcement file number, 0",**. All characters must be in English. Note that there is an English comma **","** at the end.

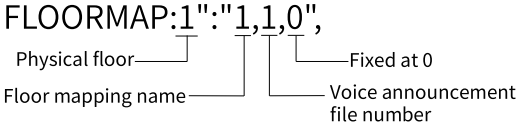


Figure 6-3 Floor mapping format (example)

- The range of physical floors is 1 to 56. The floor mapping name consists of numbers (0 to 9) or letters (A to Z), up to 3 characters long. The voice announcement file number ranges from 1 to 128.

```
{
"FLOORMAP:1":"1,1,0",
"FLOORMAP:2":"2,2,0",
"FLOORMAP:3":"3,3,0",
"FLOORMAP:4":"4,4,0",
"FLOORMAP:5":"5,5,0",
"FLOORMAP:6":"6,6,0",
"FLOORMAP:7":"7,7,0",
"FLOORMAP:8":"8,8,0",
"FLOORMAP:9":"9,9,0",
"FLOORMAP:10":"10,10,0",
```

Figure 6-4 Floor mapping file

7. Place the modified mapping file into the **"bstupdate"→"MCU"** folder in the USB drive's root directory. Then, remove the USB drive from the computer and insert it into the device's USB port.
8. When the device displays **"Update MCU successfully"**, the update is complete, and you may remove the USB drive.
9. Manually restart the device and check the floor mapping results.

7 Image or Video Change

The recommended size of the USB drive is smaller than 32 GB and the format is FAT32.

Note

Some low-cost USB drives use processing chips of unknown brands, which may lead to upgrade failures. It is recommended to use USB drives from well-known brands, such as Kingstone and SanDisk.

1. Prepare the USB drive in advance and insert the USB drive into the computer.
2. Create **"bstupdate>video"** on the USB drive.
3. Prepare new image or video according to the requirements.

Note

- The video format can be mp4 or avi, and the image format can be png.
- The video or image file names must consist of English characters or Arabic numerals, with the name length of less than 16 characters.
- The video display resolution is under 1080p, with a maximum frame rate of 30 fps, video coding formats are MPEG-4 or H.264, and it is recommended that the video size be under 500 MB. Image resolution should be less than 1024x768.

4. Open the **"video"** folder and place the new image or video inside the folder.
5. In the **"video"** folder, create a new TXT file and rename and change its format to **"86_set.bin"**.
6. Eject the USB drive from the computer and insert it into the device's USB port. Wait for the update process to complete, then remove the USB drive
7. Manually restart the device and check the display effect.

Note

- If the image is displayed in the wrong orientation, check whether the image needs to be rotated.
- If the image fails to be displayed, check whether the image filename and format are correct.
- If the video cannot be played, check for correct file name and format.

8 Interface Upgrade

The recommended size of the USB drive is smaller than 32 GB and the format is FAT32.

Note

Some low-cost USB drives use processing chips of unknown brands, which may lead to upgrade failures. It is recommended to use USB drives from well-known brands, such as Kingstone and SanDisk.

1. Prepare the USB drive in advance and insert the USB drive into the computer.
2. Create a folder named **"bstupdate"** on a USB flash drive. Copy the new **"TGUS_TF"** interface resource files into **"bstupdate"**.
3. Remove the USB drive from the computer, then insert it into the device's USB port. The device will display the upgrade process. After the device upgrade is complete, you can remove the USB drive.

Note

If **"errfile= *** FAIL"** is displayed (where * represents a specific file), the upgrade has failed. Please power cycle the device and try upgrading again.

4. Manually restart the device and check the display effect.

Note

If a display error occurs, check whether the name and path of the new interface file is correct, and ensure it is consistent with the old interface file being replaced.

9 Maintenance

9.1 Daily Maintenance Items

- Do not expose this product to rain or place it near water. If water stains appear on the surface, which can cause touch distortion, wipe it dry with a dry cloth or paper towel before resuming normal use.
- Do not install the product in unstable positions, such as on wobbling mounting brackets or on inclined surfaces.
- Do not drop the product or subject it to shocks.
- The touch surface of this product requires regular cleaning to ensure it remains clean and tidy.
- Do not hit the surface with force.
- Do not pry or force the edges of the frame open.

9.2 Daily Inspection and Cleaning Items

The operator is responsible for performing checks including but not limited to those listed in the following table in accordance with the recognized technical rules in the country of installation and with applicable regional guidelines. Tick after each check of the item.

Table 9–1 Daily inspection items

No.	Item	Tick
1	Ensure that the installation environment does not change.	☐
2	The device has normal operation and display.	☐
3	The wiring does not come loose.	☐
4	The screws on the external frame are secure.	☐

Table 9–2 Daily Cleaning Items

No.	Item	Tick
1	Clean dust and moist off the device surface periodically.	☐

10 Common Fault Troubleshooting

Table 10–1 Common fault troubleshooting

Name	Cause	Diagnosis	Troubleshooting
During installation and commissioning, floors and arrows are not displayed.	The wiring is incorrect or the cable is connected improperly.	Check whether all connection lines match the defined pinout of the device; inspect COB board and CTB wiring for any abnormalities.	Check whether the communication lines are incorrectly wired (reversed or incorrect sequence). • If so, reconnect the lines correctly. • If problems persist, connect the device to another normally operating elevator control cabinet and check whether the fault is displayed. If the display is normal, check the original control cabinet to ensure that it can operate properly.
	Mismatch between the device and control cabinet code format and/or polarity.	Check whether the code format and polarity settings of DIP switch SW2 on the device match those of the control cabinet.	Check the code format and polarity settings. If incorrect, adjust the device DIP switches to match the control cabinet.
Incorrect floor display during elevator operation.	Mismatch in floor mapping between the device and the control cabinet.	Export the **Setfile.txt** file from the device and check whether the floor mapping in the file matches the control cabinet settings.	If the mapping in **Setfile.txt** is incorrect, modify the file accordingly.
Time display is inaccurate.	Time has not been calibrated.	Go to the display setting menu and check the **"Time setting"** in the menu, where you can set the year, month, day, hour, minute, and display mode separately.	
	The battery level is low.	Check whether the time differs greatly from the previous setting. If yes, recalibrate the time. If the issue persists after three power cycles, it indicates that the battery level is low and replacement is required.	Contact the device supplier to purchase the CR1220 button battery for replacement.
The display freezes after the multimedia video is updated.	The newly imported multimedia video format or specification do not meet the requirements.	Check the video against the specified requirements.	Modify the video format or specification, delete incorrect video, and re-import.

Name	Cause	Diagnosis	Troubleshooting
The displayed orientation is incorrect after the multimedia video is updated.	The newly imported video orientation is incorrect.	After importing a video, the displayed orientation of the video may be rotated by 90°, 180°, or other angles.	Go to the settings menu and choose from 0°, 90°, 180°, or 270° for **"Media setting-Video rotation"** until it displays correctly.
Interface flipped 180°.	The default settings of the display are incorrect.	When the device is installed on an operating panel for commissioning, the interface is flipped 180°.	Go to the settings menu, select the option of **"Screen inversion"**, and confirm. The display will restart automatically to apply the interface adjustment.

11 Appendix

11.1 Binary (63 Floors)

Table 11–1 Binary truth table

Display/ Interface	1A	1B	1C	1D	1E	1F	1G
1	1	0	0	0	0	0	0
2	0	1	0	0	0	0	0
3	1	1	0	0	0	0	0
4	0	0	1	0	0	0	0
5	1	0	1	0	0	0	0
6	0	1	1	0	0	0	0
7	1	1	1	0	0	0	0
8	0	0	0	1	0	0	0
9	1	0	0	1	0	0	0
10	0	1	0	1	0	0	0
11	1	1	0	1	0	0	0
12	0	0	1	1	0	0	0
13	1	0	1	1	0	0	0
14	0	1	1	1	0	0	0
15	1	1	1	1	0	0	0
16	0	0	0	0	1	0	0
17	1	0	0	0	1	0	0
18	0	1	0	0	1	0	0
19	1	1	0	0	1	0	0
20	0	0	1	0	1	0	0
21	1	0	1	0	1	0	0
22	0	1	1	0	1	0	0
23	1	1	1	0	1	0	0
24	0	0	0	1	1	0	0
25	1	0	0	1	1	0	0
26	0	1	0	1	1	0	0
27	1	1	0	1	1	0	0
28	0	0	1	1	1	0	0
29	1	0	1	1	1	0	0
30	0	1	1	1	1	0	0
31	1	1	1	1	1	0	0
32	0	0	0	0	0	1	0
33	1	0	0	0	0	1	0
34	0	1	0	0	0	1	0
35	1	1	0	0	0	1	0
36	0	0	1	0	0	1	0
37	1	0	1	0	0	1	0

Display/ Interface	1A	1B	1C	1D	1E	1F	1G
38	0	1	1	0	0	1	0
39	1	1	1	0	0	1	0
40	0	0	0	1	0	1	0
41	1	0	0	1	0	1	0
42	0	1	0	1	0	1	0
43	1	1	0	1	0	1	0
44	0	0	1	1	0	1	0
45	1	0	1	1	0	1	0
46	0	1	1	1	0	1	0
47	1	1	1	1	0	1	0
48	0	0	0	0	1	1	0
49	1	0	0	0	1	1	0
50	0	1	0	0	1	1	0
51	1	1	0	0	1	1	0
52	0	0	1	0	1	1	0
53	1	0	1	0	1	1	0
54	0	1	1	0	1	1	0
55	1	1	1	0	1	1	0
56	0	0	0	1	1	1	0
57	1	0	0	1	1	1	0
58	0	1	0	1	1	1	0
59	1	1	0	1	1	1	0
60	0	0	1	1	1	1	0
61	1	0	1	1	1	1	0
62	0	1	1	1	1	1	0
63	1	1	1	1	1	1	0

11.2 Decimal (8 Floors)

Table 11–2 Decimal truth table

Display/ Interface	1A	1B	1C	1D	1E	1F	1G	2A
1	1	0	0	0	0	0	0	0
2	0	1	0	0	0	0	0	0
3	0	0	1	0	0	0	0	0
4	0	0	0	1	0	0	0	0
5	0	0	0	0	1	0	0	0
6	0	0	0	0	0	1	0	0

Display/ Interface	1A	1B	1C	1D	1E	1F	1G	2A
7	0	0	0	0	0	0	1	0
8	0	0	0	0	0	0	0	1

11.3 Gray Code (63 Floors)

Table 11–3 Gray code truth table

Display/ Interface	1A	1B	1C	1D	1E	1F	1G
1	1	0	0	0	0	0	0
2	1	1	0	0	0	0	0
3	0	1	0	0	0	0	0
4	0	1	1	0	0	0	0
5	1	1	1	0	0	0	0
6	1	0	1	0	0	0	0
7	0	0	1	0	0	0	0
8	0	0	1	1	0	0	0
9	1	0	1	1	0	0	0
10	1	1	1	1	0	0	0
11	0	1	1	1	0	0	0
12	0	1	0	1	0	0	0
13	1	1	0	1	0	0	0
14	1	0	0	1	0	0	0
15	0	0	0	1	0	0	0
16	0	0	0	1	1	0	0
17	1	0	0	1	1	0	0
18	1	1	0	1	1	0	0
19	0	1	0	1	1	0	0
20	0	1	1	1	1	0	0
21	1	1	1	1	1	0	0
22	1	0	1	1	1	0	0
23	0	0	1	1	1	0	0
24	0	0	1	0	1	0	0
25	1	0	1	0	1	0	0
26	1	1	1	0	1	0	0
27	0	1	1	0	1	0	0
28	0	1	0	0	1	0	0
29	1	1	0	0	1	0	0
30	1	0	0	0	1	0	0
31	0	0	0	0	1	0	0

Display/ Interface	1A	1B	1C	1D	1E	1F	1G
32	0	0	0	0	1	1	0
33	1	0	0	0	1	1	0
34	1	1	0	0	1	1	0
35	0	1	0	0	1	1	0
36	0	1	1	0	1	1	0
37	1	1	1	0	1	1	0
38	1	0	1	0	1	1	0
39	0	0	1	0	1	1	0
40	0	0	1	1	1	1	0
41	1	0	1	1	1	1	0
42	1	1	1	1	1	1	0
43	0	1	1	1	1	1	0
44	0	1	0	1	1	1	0
45	1	1	0	1	1	1	0
46	1	0	0	1	1	1	0
47	0	0	0	1	1	1	0
48	0	0	0	1	0	1	0
49	1	0	0	1	0	1	0
50	1	1	0	1	0	1	0
51	0	1	0	1	0	1	0
52	0	1	1	1	0	1	0
53	1	1	1	1	0	1	0
54	1	0	1	1	0	1	0
55	0	0	1	1	0	1	0
56	0	0	1	0	0	1	0
57	1	0	1	0	0	1	0
58	1	1	1	0	0	1	0
59	0	1	1	0	0	1	0
60	0	1	0	0	0	1	0
61	1	1	0	0	0	1	0
62	1	0	0	0	0	1	0
63	0	0	0	0	0	1	0

11.4 BCD Code (63 Floors)

Table 11–4 BCD code truth table

Display/ Interface	1A	1B	1C	1D	1E	1F	1G
1	1	0	0	0	0	0	0
2	0	1	0	0	0	0	0
3	1	1	0	0	0	0	0
4	0	0	1	0	0	0	0

Display/ Interface	1A	1B	1C	1D	1E	1F	1G
5	1	0	1	0	0	0	0
6	0	1	1	0	0	0	0
7	1	1	1	0	0	0	0
8	0	0	0	1	0	0	0
9	1	0	0	1	0	0	0
10	0	0	0	0	1	0	0
11	1	0	0	0	1	0	0
12	0	1	0	0	1	0	0
13	1	1	0	0	1	0	0
14	0	0	1	0	1	0	0
15	1	0	1	0	1	0	0
16	0	1	1	0	1	0	0
17	1	1	1	0	1	0	0
18	0	0	0	1	1	0	0
19	1	0	0	1	1	0	0
20	0	0	0	0	0	1	0
21	1	0	0	0	0	1	0
22	0	1	0	0	0	1	0
23	1	1	0	0	0	1	0
24	0	0	1	0	0	1	0
25	1	0	1	0	0	1	0
26	0	1	1	0	0	1	0
27	1	1	1	0	0	1	0
28	0	0	0	1	0	1	0
29	1	0	0	1	0	1	0
30	0	0	0	0	1	1	0
31	1	0	0	0	1	1	0
32	0	1	0	0	1	1	0
33	1	1	0	0	1	1	0
34	0	0	1	0	1	1	0
35	1	0	1	0	1	1	0
36	0	1	1	0	1	1	0
37	1	1	1	0	1	1	0
38	0	0	0	1	1	1	0
39	1	0	0	1	1	1	0
40	0	0	0	0	0	0	1
41	1	0	0	0	0	0	1
42	0	1	0	0	0	0	1
43	1	1	0	0	0	0	1
44	0	0	1	0	0	0	1
45	1	0	1	0	0	0	1
46	0	1	1	0	0	0	1
47	1	1	1	0	0	0	1
48	0	0	0	1	0	0	1

Display/ Interface	1A	1B	1C	1D	1E	1F	1G
49	1	0	0	1	0	0	1
50	0	0	0	0	1	0	1
51	1	0	0	0	1	0	1
52	0	1	0	0	1	0	1
53	1	1	0	0	1	0	1
54	0	0	1	0	1	0	1
55	1	0	1	0	1	0	1
56	0	1	1	0	1	0	1
57	1	1	1	0	1	0	1
58	0	0	0	1	1	0	1
59	1	0	0	1	1	0	1
60	0	0	0	0	0	1	1
61	1	0	0	0	0	1	1
62	0	1	0	0	0	1	1
63	1	1	0	0	0	1	1

12 Service and Support

Should you encounter a safety accident during the use or operation of the product, or face challenges in operating and maintaining the equipment, which remain unresolved after the relevant documentation is consulted, we provide multiple channels to ensure prompt resolution:

- Channel #1: Contact service@inovance.com.
- Channel #2: Visit https://www.inovance.com/global to access document downloads, after-sales support, spare parts ordering, repair applications, and authenticity verification services.
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