

Mullion Mount Access Reader

LXK101-KD

User's Manual

V1.0.0





Foreword

General

This manual introduces the functions and operations of the access reader. Read carefully before using the device, and keep the manual safe for future reference.

Safety Instructions

The following signal words might appear in the manual.

Signal Words	Meaning
 DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
 CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, reductions in performance, or unpredictable results.
 NOTE	Provides additional information as a supplement to the text.

Revision History

Version	Revision Content	Release Time
V1.0.0	First release.	October 2024

Privacy Protection Notice

As the device user or data controller, you might collect the personal data of others such as their face, fingerprints, and license plate number. You need to be in compliance with your local privacy protection laws and regulations to protect the legitimate rights and interests of other people by implementing measures which include but are not limited: Providing clear and visible identification to inform people of the existence of the surveillance area and provide required contact information.

About the Manual

- The manual is for reference only. Slight differences might be found between the manual and the product.
- We are not liable for losses incurred due to operating the product in ways that are not in compliance with the manual.
- The manual will be updated according to the latest laws and regulations of related jurisdictions. For detailed information, see the paper user's manual, use our CD-ROM, scan the QR code or visit our official website. The manual is for reference only. Slight differences might be found between the electronic version and the paper version.
- All designs and software are subject to change without prior written notice. Product updates might result in some differences appearing between the actual product and the manual. Please contact customer service for the latest program and supplementary documentation.

- There might be errors in the print or deviations in the description of the functions, operations and technical data. If there is any doubt or dispute, we reserve the right of final explanation.
- Upgrade the reader software or try other mainstream reader software if the manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and company names in the manual are properties of their respective owners.
- Please visit our website, contact the supplier or customer service if any problems occur while using the device.
- If there is any uncertainty or controversy, we reserve the right of final explanation.

Important Safeguards and Warnings

This section introduces content covering the proper handling of the access reader, hazard prevention, and prevention of property damage. Read carefully before using the Card Reader, and comply with the guidelines when using it.

Transportation Requirement



Transport, use and store the access reader under allowed humidity and temperature conditions.

Storage Requirement



Store the access reader under allowed humidity and temperature conditions.

Installation Requirements



- Do not connect the power adapter to the access reader while the adapter is powered on.
- Strictly comply with the local electric safety code and standards. Make sure the ambient voltage is stable and meets the power supply requirements of the Access Controller.
- Do not connect the access reader to two or more kinds of power supplies, to avoid damage to the access reader.
- Improper use of the battery might result in a fire or explosion.



- Personnel working at heights must take all necessary measures to ensure personal safety including wearing a helmet and safety belts.
- Do not place the access reader in a place exposed to sunlight or near heat sources.
- Keep the access reader away from dampness, dust, and soot.
- Install the access reader on a stable surface to prevent it from falling.
- Install the access reader in a well-ventilated place, and do not block its ventilation.
- Use an adapter or cabinet power supply provided by the manufacturer.
- Use the power cords that are recommended for the region and conform to the rated power specifications.
- The power supply must conform to the requirements of ES1 in IEC 62368-1 standard and be no higher than PS2. Please note that the power supply requirements are subject to the access reader label.
- The access reader is a class I electrical appliance. Make sure that the power supply of the access reader is connected to a power socket with protective earthing.

Operation Requirements



- Check whether the power supply is correct before use.
- Do not unplug the power cord on the side of the access reader while the adapter is powered on.
- Operate the access reader within the rated range of power input and output.
- Use the access reader under allowed humidity and temperature conditions.
- Do not drop or splash liquid onto the access reader, and make sure that there is no object filled with liquid on the access reader to prevent liquid from flowing into it.
- Do not disassemble the access reader without professional instruction.

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1 Introduction

1.1 Features

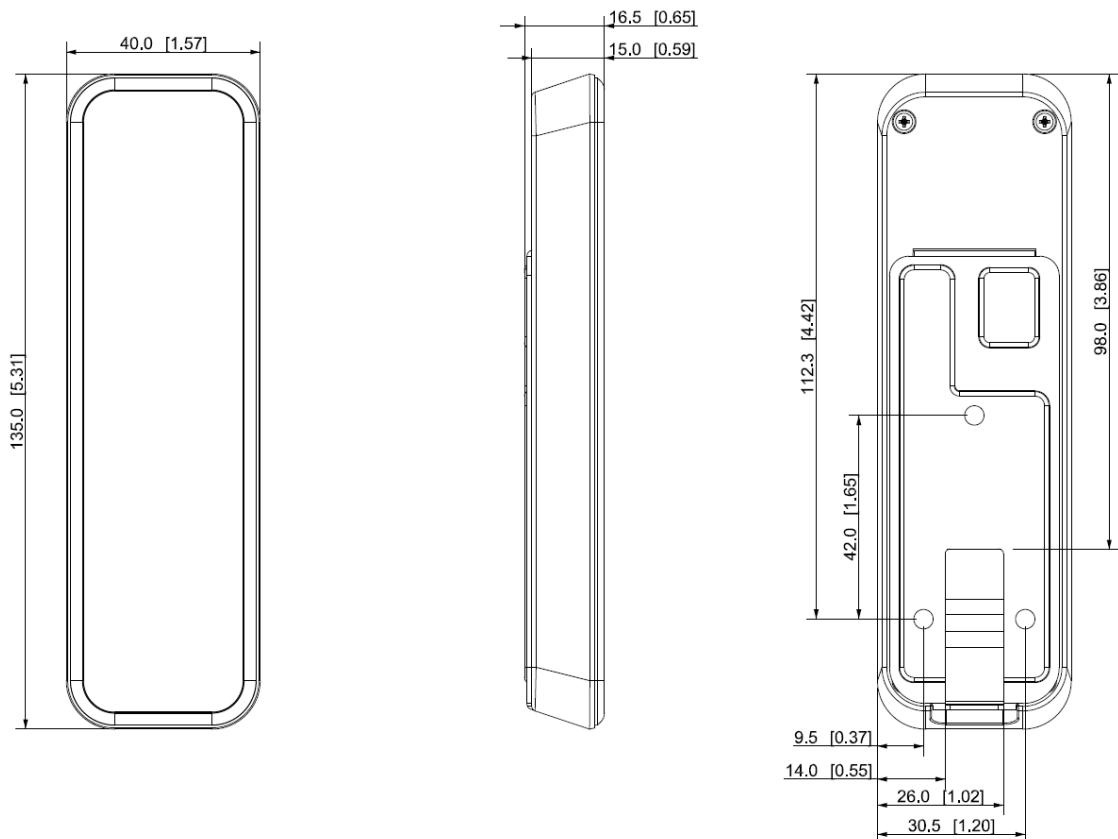
- PC material, tempered glass panel and IP66, suitable for indoor and outdoor use.
- Contactless card reading for IC cards (Mifare cards).
- Unlock through card swiping and Bluetooth.
- Communicates through the RS-485 port, wiegand port, and Bluetooth.
- Prompts using the buzzer and indicator light.
- Supports the anti-tampering alarm.
- The built-in watchdog program can detect and control the abnormal operation status of the equipment and perform recovery processing to ensure the long-term operation of the equipment.
- All the connection ports have overcurrent and overvoltage protection.
- Works with the PRO-X mobile client and select models of access controller.



Functions might vary according to different models.

1.2 Appearance

Figure 1-1 Dimensions of the slim model (mm [inch])



2 Ports Overview



Use RS-485 or Wiegand to connect the access reader.

Table 2-1 Cable connection description

Color	Port	Description
Red	RD+	Power (12 VDC)
Black	RD-	GND
Blue	CASE	Tamper alarm signal
White	D1	Wiegand transmission signal (effective only when using Wiegand protocol)
Green	D0	
Brown	LED	Wiegand responsive signal (effective only when using Wiegand protocol)
Yellow	RS-485_B	
Purple	RS-485_A	

Table 2-2 Cable specification and length

Type	Impedance Requirements	Length Requirements
RS-485 access reader	Each wire must be within 10 Ω .	100 m (328.08 ft)
Wiegand access reader	Each wire must be within 2 Ω .	80 m (262.47 ft)

3 Installation

Procedure

Step 1 Drill 4 holes and one cable outlet on the wall.



For surface-mounted wiring, cable outlet is not required.

Step 2 Put 3 expansion tubes into the holes.

Step 3 Wire the access reader, and pass the wires through the slot of the bracket.

Step 4 Use three M3 screws to mount the bracket on the wall.

Step 5 Attach the access reader to the bracket from top down.

Step 6 Screw in one M2 screw on the bottom of the access reader.

Figure 3-1 In-wall wiring

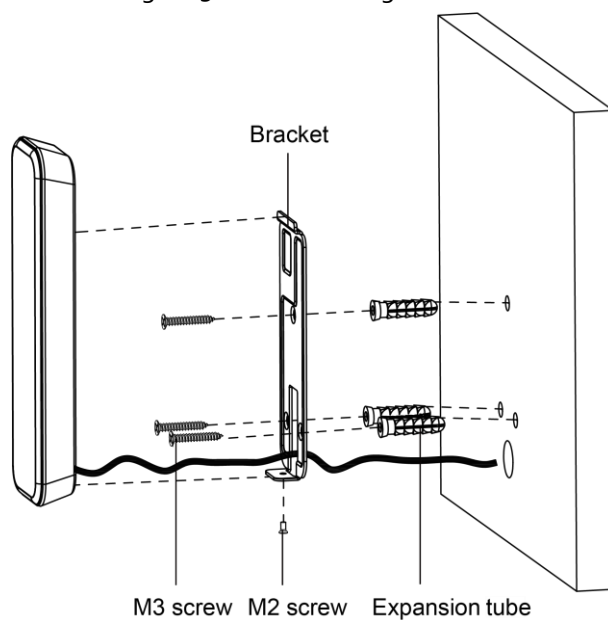
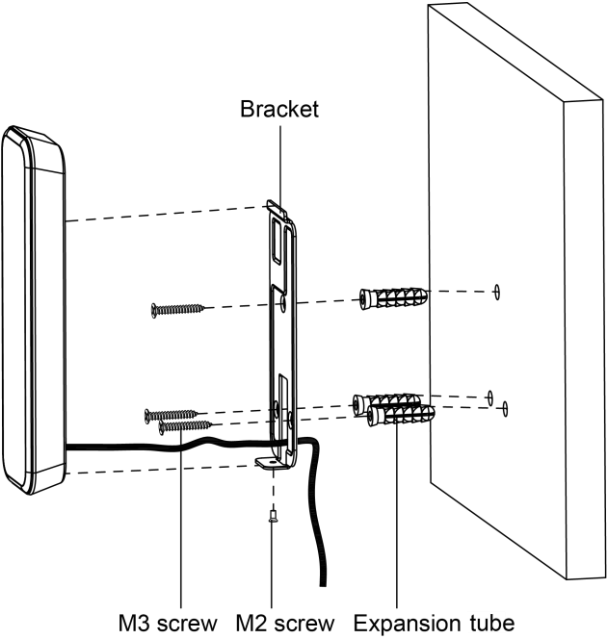


Figure 3-2 Surface mounted wiring



4 Sound and Light Prompt

Table 4-1 Sound and light prompt description

Situation	Sound and Light Prompt
Power on.	Buzz once. The indicator is solid blue.
Removing the Device.	Long buzz for 15 seconds.
Pressing buttons.	Short buzz once.
Alarm triggered by the controller.	Long buzz for 15 seconds.
RS-485 communication and swiping an authorized card.	Buzz once. The indicator flashes green once, and then turns to solid blue as standby mode.
RS-485 communication and swiping an unauthorized card.	Buzz 4 times. The indicator flashes red once, and then turns to solid blue as standby mode.
Abnormal 485 communication and swiping an authorized/unauthorized card.	Buzz 3 times. The indicator flashes red once, and then turns to solid blue as standby mode.
Wiegand communication and swiping an authorized card.	Buzz once. The indicator flashes green once, and then turns to solid blue as standby mode.
Wiegand communication and swiping an unauthorized card.	Buzz 3 times. The indicator flashes red once, and then turns to solid blue as standby mode.
Software updating or waiting for update in BOOT.	The indicator flashes blue until update is complete.

5 Unlocking the Door

Unlock the door through IC card or Bluetooth card.

5.1 Unlocking through IC Card

Unlock the door by swiping the IC card.

5.2 Unlocking through Bluetooth

Unlock the door through Bluetooth cards. The access reader must work with the access controller to realize Bluetooth unlock. For details, see the user's manual of access controller.

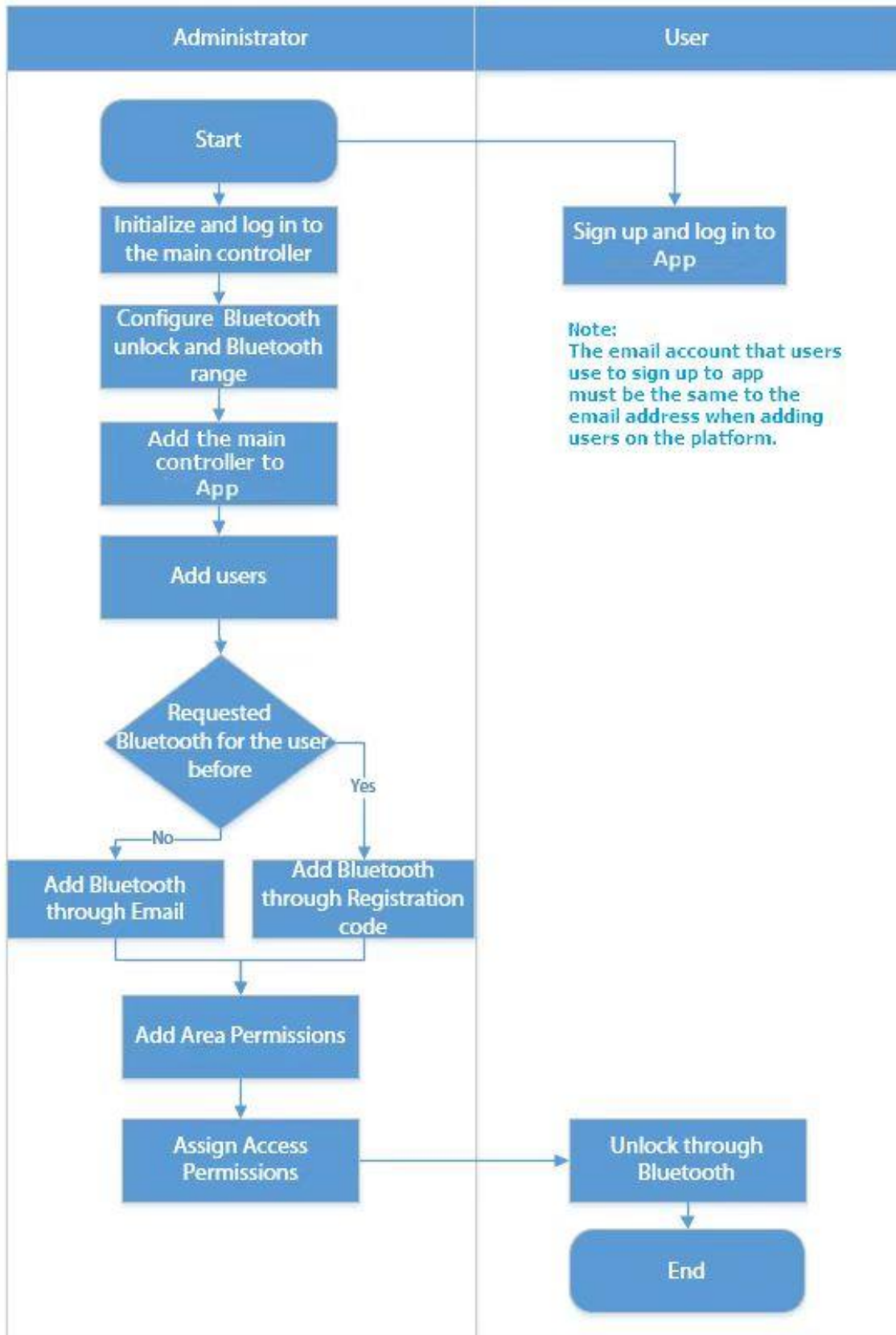
Prerequisites

General users like company employees have signed up to PRO-X with their email.

Background Information

Refer to the flowchart of configuring Bluetooth unlock. Administrator and general user needs to do different operations as below. General users like company employees only need to sign up and log in to PRO-X with their email, and then they can unlock through Bluetooth cards that are issued to them.

Figure 5-1 Flowchart of configuring Bluetooth unlock



Administrator needs to perform Step1 to Step6, and general users need to perform Step7.

Procedure

Step 1 Initialize and log in to the main access controller.

Step 2 Go to **Access Rules > Door Parameters**, select a door from the list, turn on the Bluetooth card function, and then configure the Bluetooth range.

Figure 5-2 Unlock settings

Unlock Settings	
Unlock Mode	Combination Unlock
Combination Method	<input checked="" type="radio"/> Or <input type="radio"/> And
Unlock Method (Multi-select)	<input checked="" type="checkbox"/> Card <input checked="" type="checkbox"/> Password <input checked="" type="checkbox"/> Bluetooth Card <input checked="" type="checkbox"/> Fingerprint
Bluetooth Mode	<input type="radio"/> Short-range <input checked="" type="radio"/> Mid-range <input type="radio"/> Long-range
Door Unlock Duration	10.0 s (0.2-600)
Unlock Timeout	60 s (1-9999)

The Bluetooth card must be a certain distance away from the access control device to exchange data and unlock the door. Following are the ranges that are most suitable for it.

- Short-range: The Bluetooth unlock range is less than 0.66 ft (0.2 m).
- Mid-range: The Bluetooth unlock range is less than 6.56 ft (2 m).
- Long-range: The Bluetooth unlock range is less than 32.81 ft (10 m).



The Bluetooth unlock range might differ depending on models of your phone and the environment.

Step 3 Download PRO-X and sign up with email account, and then scan the QR code with PRO-X to add the access controller to it.

1. Log in to the access controller, and then go to **System Settings > Network Settings > Cloud Service**.
2. Enable cloud service.
3. Scan the QR code to add the access controller to PRO-X.

Figure 5-3 Add access controller to PRO-X

Enable ☒

After enabling the function and connecting Internet, we will collect device information such as IP address, MAC address, name and serial number. The collected information is only used for remote access of the device. If you do not agree to enable the function, please cancel the selection of check box.

Status Offline

SN 24[redacted]74

[QR Code]

Apply Refresh

Step 4 Go to **User Management > Add** to add users to the main controller.



The email address you entered when adding users to the main controller must be the same to the email account that users use to sign up to PRO-X.

Figure 5-4 Basic information on the user

Add

General Authentication

* User ID ⓘ * User Name

* Group Default Company * User Type General

Valid from 10-09-2024 12:00:00 AM Valid to 12-31-2037 11:59:59 PM

Email

* Use limit Unlimited

Add Add More Cancel

Step 5 On the **Authentication** tab, click **Bluetooth Card**.

3 methods are available to add Bluetooth cards.

- Request through email one by one: Click **Request through Email**.
A Bluetooth card is generated automatically. You can generate up to 5 cards for each user.
- Request through email in batches.
 1. On the **User Management** page, click **Batch Issue Cards**.



Batch issue cards only supports requesting through Email.

- ◇ Issue Bluetooth cards to all the users on the list: Click **Issue Cards to All Users**.
 - ◇ Issue Bluetooth cards to selected users: Select users, and then click **Issue Cards to Selected Users**.
2. Click **Bluetooth Card**.
 3. Click **Request through Email**.



- ◇ Users who do not have an email or already have 5 Bluetooth cards will be displayed on the non-requestable list.
- ◇ Export users that lack emails: Click **Export Users that Lack Emails**, enter the emails in the correct format, and then click **Import**. They will be moved to the requestable list.

Figure 5-5 Batch issue cards

Batch Issue Cards

Card

Bluetooth Card

Bluetooth cards can only be generated in batches through emails.

Issue Cards

Requestable (992)

Non-Requestable (0)

Export Users that Lack Emails

Import

User ID	User Name	Email	Bluetooth Card No.	Status	Settings
6	6	1 [REDACTED]@ [REDACTED].C...	0		⊖
7	7	1 [REDACTED]5@ [REDACTED].C...	0		⊖
8	8	1 [REDACTED]5@ [REDACTED].C...	0		⊖
9	9	1 [REDACTED]7@ [REDACTED].C...	0		⊖
10	10	1 [REDACTED]3@ [REDACTED].C...	0		⊖
11	11	1 [REDACTED]9@ [REDACTED].C...	0		⊖

User ID

1

User Name

[REDACTED]123 [REDACTED]

User Type

General

Email

[REDACTED]@ [REDACTED].com

Group

BBB

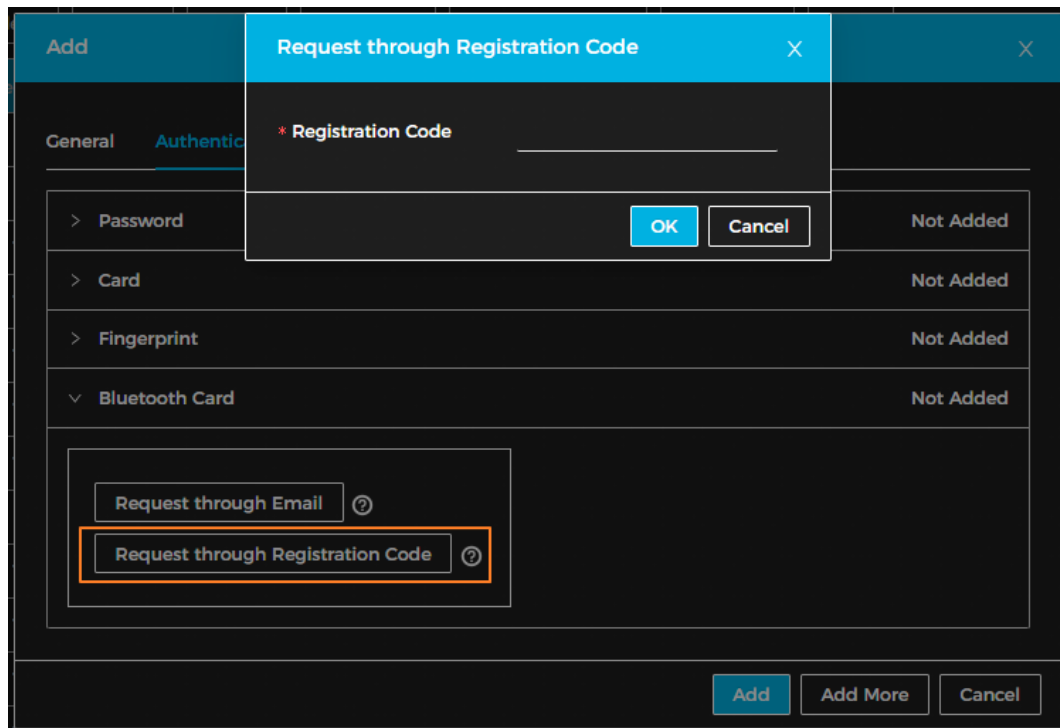
Effective Time

2024-06-29 00:00:00-2037-12-31 23:59:59

Request through Email

- If you have requested Bluetooth cards for the user before, you can add the Bluetooth cards through registration code. using registration codes.
 1. On PRO-X, tap **Registration Code** of a Bluetooth card.
The registration code is automatically generated by PRO-X.
 2. Copy the registration code.
 3. On the **Bluetooth Card** tab, click **Request through Registration Code**, paste the registration code, and then click **OK**.

Figure 5-7 Request through registration code



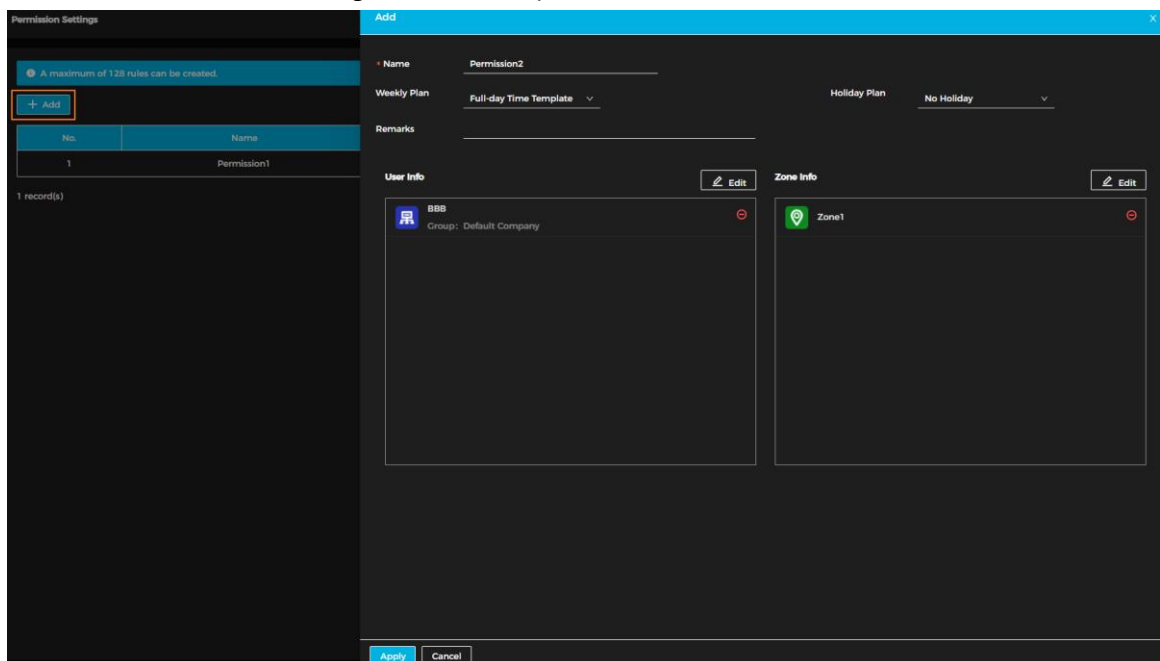
4. Click **OK**.

The Bluetooth card is added.

Step 6 Add permission rules.

Go to **Access Rules > Permission Settings**, click **Add** to add a permission rule. You can associate users with the zone so that users will be assigned with defined access permissions.

Figure 5-8 Create permission rules



Step 7 After users sign up and log in to PRO-X with the email address, they need to open PRO-X to unlock the door through Bluetooth cards. For details, see the user's manual of PRO-X.

- Auto unlock: The door automatically unlocks when you are in the defined Bluetooth range, which allow the Bluetooth card transmit signals to the access reader.



In the auto unlock mode, the Bluetooth card will frequently unlock the door if you are still in the Bluetooth range, and finally a failure might occur. Please turn off Bluetooth on the phone and turn it on again.

- Shake to unlock: The door unlocks when you shake your phone to allow the Bluetooth card transmits signals to the access reader.

Result

- Successfully unlock: The green indicator flashes and the buzzer sounds once.
- Failed to unlock: The red indicator flashes and the buzzer sounds 4 times.

6 Updating the System

Update the system of the access reader through the Access Controller.

6.1 Updating through the Access Controller

Prerequisites

Connect the access reader to the 2-door web access controller through RS-485.

Background Information



- Use the correct update file. Make sure that you get the correct update file from technical support.
- Do not disconnect the power supply or network, and do not restart or shut down the access controller during the update.

Procedure

Step 1 Log in to the access controller, and then go to **System Settings > System Update**.

Step 2 In **File Update**, click **Browse**, and then upload the update file.



The update file should be a .bin file.

Step 3 Click **Update**.

After the system of the access reader is successfully updated, both the access controller and the access reader will restart.



6.2 Updating through X Portal

Prerequisites

- The access reader was added to the access controller through RS-485 wires.
- The access controller and access reader are powered on.

Procedure

Step 1 Install and open the X Portal, and then select **Device upgrade**.

Step 2 Click  of an access controller, and then click .

Step 3 Click **Upgrade**.

The indicator of the access reader flashes blue until update is complete, and then the access reader automatically restarts.

Appendix 1 Security Recommendation

Account Management

1. Use complex passwords

Please refer to the following suggestions to set passwords:

- The length should not be less than 8 characters;
- Include at least two types of characters: upper and lower case letters, numbers and symbols;
- Do not contain the account name or the account name in reverse order;
- Do not use continuous characters, such as 123, abc, etc.;
- Do not use repeating characters, such as 111, aaa, etc.

2. Change passwords periodically

It is recommended to periodically change the device password to reduce the risk of being guessed or cracked.

3. Allocate accounts and permissions appropriately

Appropriately add users based on service and management requirements and assign minimum permission sets to users.

4. Enable account lockout function

The account lockout function is enabled by default. You are advised to keep it enabled to protect account security. After multiple failed password attempts, the corresponding account and source IP address will be locked.

5. Set and update password reset information in a timely manner

The device supports password reset function. To reduce the risk of this function being used by threat actors, if there is any change in the information, please modify it in time. When setting security questions, it is recommended not to use easily guessed answers.

Service Configuration

1. Enable HTTPS

It is recommended that you enable HTTPS to access web services through secure channels.

2. Encrypted transmission of audio and video

If your audio and video data contents are very important or sensitive, it is recommended to use encrypted transmission function in order to reduce the risk of your audio and video data being eavesdropped during transmission.

3. Turn off non-essential services and use safe mode

If not needed, it is recommended to turn off some services such as SSH, SNMP, SMTP, UPnP, AP hotspot etc., to reduce the attack surfaces.

If necessary, it is highly recommended to choose safe modes, including but not limited to the following services:

- SNMP: Choose SNMP v3, and set up strong encryption and authentication passwords.
- SMTP: Choose TLS to access mailbox server.
- FTP: Choose SFTP, and set up complex passwords.
- AP hotspot: Choose WPA2-PSK encryption mode, and set up complex passwords.

4. Change HTTP and other default service ports

It is recommended that you change the default port of HTTP and other services to any port between 1024 and 65535 to reduce the risk of being guessed by threat actors.

Network Configuration

1. **Enable Allow list**

It is recommended that you turn on the allow list function, and only allow IP in the allow list to access the device. Therefore, please be sure to add your computer IP address and supporting device IP address to the allow list.

2. **MAC address binding**

It is recommended that you bind the IP address of the gateway to the MAC address on the device to reduce the risk of ARP spoofing.

3. **Build a secure network environment**

In order to better ensure the security of devices and reduce potential cyber risks, the following are recommended:

- Disable the port mapping function of the router to avoid direct access to the intranet devices from external network;
- According to the actual network needs, partition the network: if there is no communication demand between the two subnets, it is recommended to use VLAN, gateway and other methods to partition the network to achieve network isolation;
- Establish 802.1x access authentication system to reduce the risk of illegal terminal access to the private network.

Security Auditing

1. **Check online users**

It is recommended to check online users regularly to identify illegal users.

2. **Check device log**

By viewing logs, you can learn about the IP addresses that attempt to log in to the device and key operations of the logged users.

3. **Configure network log**

Due to the limited storage capacity of devices, the stored log is limited. If you need to save the log for a long time, it is recommended to enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

Software Security

1. **Update firmware in time**

According to the industry standard operating specifications, the firmware of devices needs to be updated to the latest version in time in order to ensure that the device has the latest functions and security. If the device is connected to the public network, it is recommended to enable the online upgrade automatic detection function, so as to obtain the firmware update information released by the manufacturer in a timely manner.

2. **Update client software in time**

It is recommended to download and use the latest client software.

Physical Protection

It is recommended that you carry out physical protection for devices (especially storage devices), such

as placing the device in a dedicated machine room and cabinet, and having access control and key management in place to prevent unauthorized personnel from damaging hardware and other peripheral equipment (e.g. USB flash disk, serial port).