Module VTO User’s Manual

V1.0.2

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Important Safeguards and Warnings

Please read the following safeguards and warnings carefully before using the product in order to avoid damages and losses.

Note:

- Do not expose the device to lampblack, steam or dust. Otherwise it may cause fire or electric shock.
- Do not install the device at position exposed to sunlight or in high temperature. Temperature rise in device may cause fire.
- Do not expose the device to humid environment. Otherwise it may cause fire.
- The device must be installed on solid and flat surface in order to guarantee safety under load and earthquake. Otherwise, it may cause device to fall off or turnover.
- Do not place the device on carpet or quilt.
- Do not block air vent of the device or ventilation around the device. Otherwise, temperature in device will rise and may cause fire.
- Do not place any object on the device.
- Do not disassemble the device without professional instruction.

Warning:

- Please use battery properly to avoid fire, explosion and other dangers.
- Please replace used battery with battery of the same type.
- Do not use power line other than the one specified. Please use it properly. Otherwise, it may cause fire or electric shock.

Special Announcement

- This manual is for reference only.
- All the designs and software here are subject to change without prior written notice.
- All trademarks and registered trademarks are the properties of their respective owners.
- If there is any uncertainty or controversy, please refer to the final explanation of us.
- Please visit our website for more information.

1 Product Overview

1.1 List of Models

Module VTO includes five independent modules, module name and function, plus equipping requirement, see Chart 1- 1.

No.	Model	Module Name	Function	Equipping Requirement
1	VTO2000A-C	Camera module	Audio talk and etc.	Mandatory, 1
2	VTO2000A-B	Three button module	Press button to call corresponding resident	Optional, max of 8
3	VTO2000A-K	Keyboard module	Input password to unlock door	Optional, 1
4	VTO2000A-R	Card swiping module	Swipe card to unlock door	Optional, 1
5	VTO2000A-F	Fingerprint module	Press fingerprint to unlock door	Optional, 1

Chart 1- 1

1.2 Structure

1.2.1 Camera Module

1.2.1.1 Front Panel

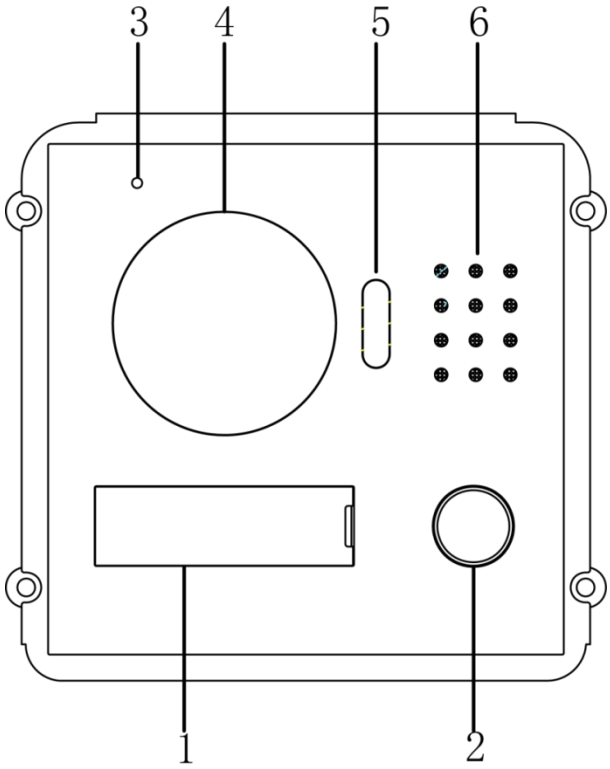


Figure 1- 1

No.	Component Name	Note
1	User List	Show username and etc.
2	Call Button	Call corresponding resident or MGT center
3	MIC	Sound input.
4	Camera	Monitor area outside the door, angle adjustable.
5	Compensation Light	When environmental light is not bright enough, and VTO is monitoring or being called, the compensation light auto turns on.
6	Speaker	Sound output.

1.2.1.2 Rear Panel

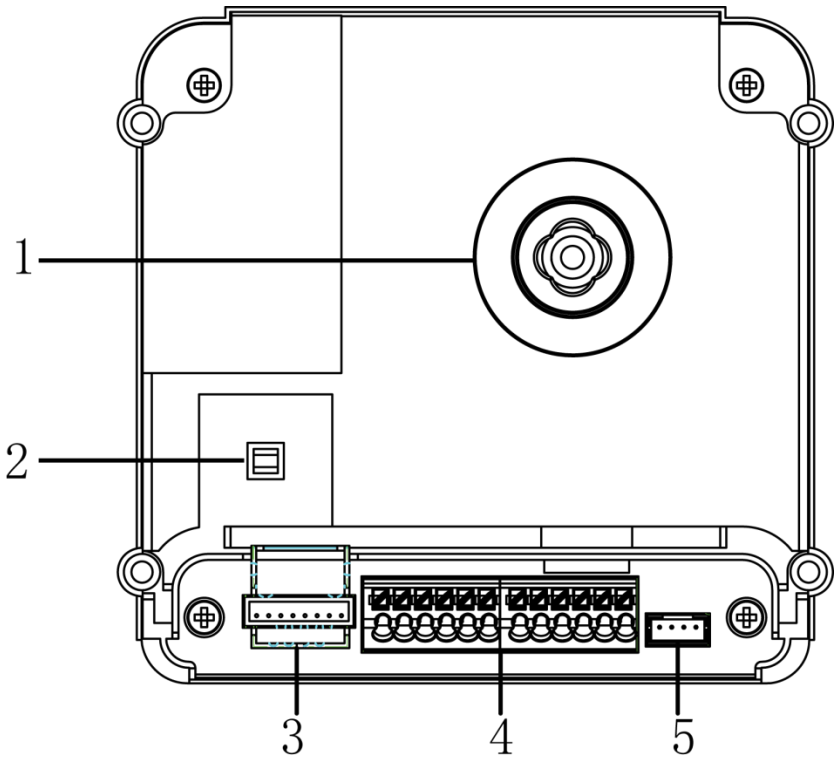


Figure 1- 2

No.	Component Name	Note
1	Camera angle adjustable	Adjust angle of the camera.
2	Vandal-proof	When module VTO is forced to leave wall, it will alarm and report to management center.
3	Network Port	Via convertor, connect cable (RJ45 crystal head)
4	User Port	Connect to lock, door sensor and unlock button and etc.
5	Cascading Port	For other modules.

1.2.2 Three Button Module

1.2.2.1 Front Panel

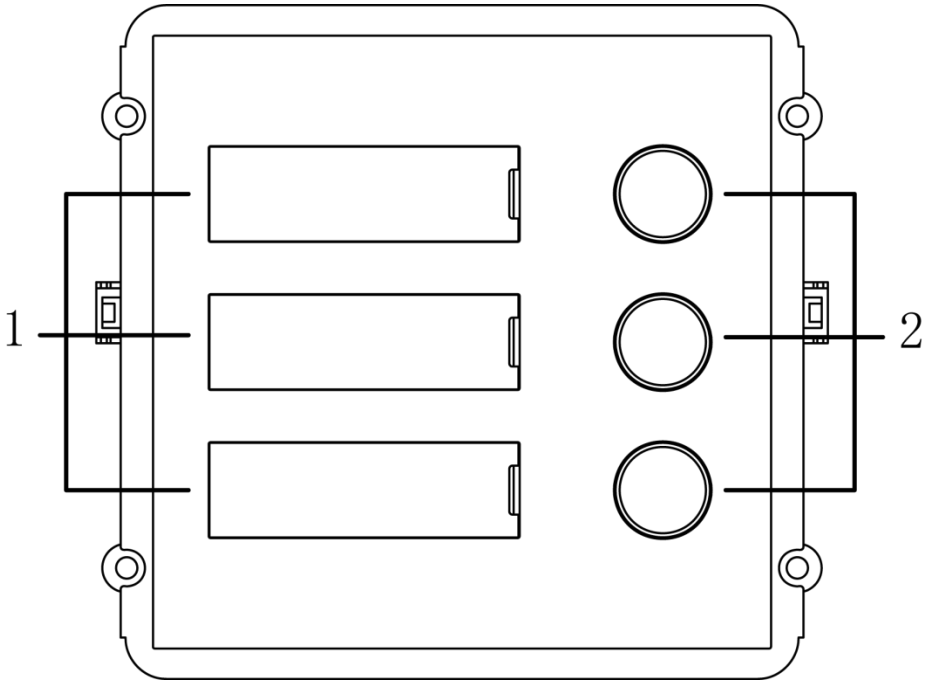


Figure 1- 3

No.	Component Name	Note
1	User List	Display user name and etc.
2	Call Button	Call VTH.

1.2.2.2 Rear Panel

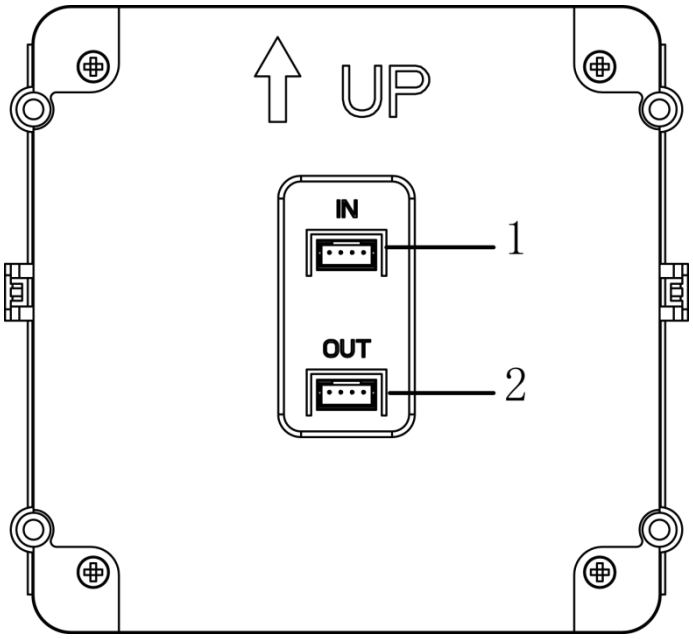


Figure 1- 4

No.	Component Name	Note
1	Cascading Input Port	For other modules.
2	Cascading Output Port	

1.2.3 Keyboard Module

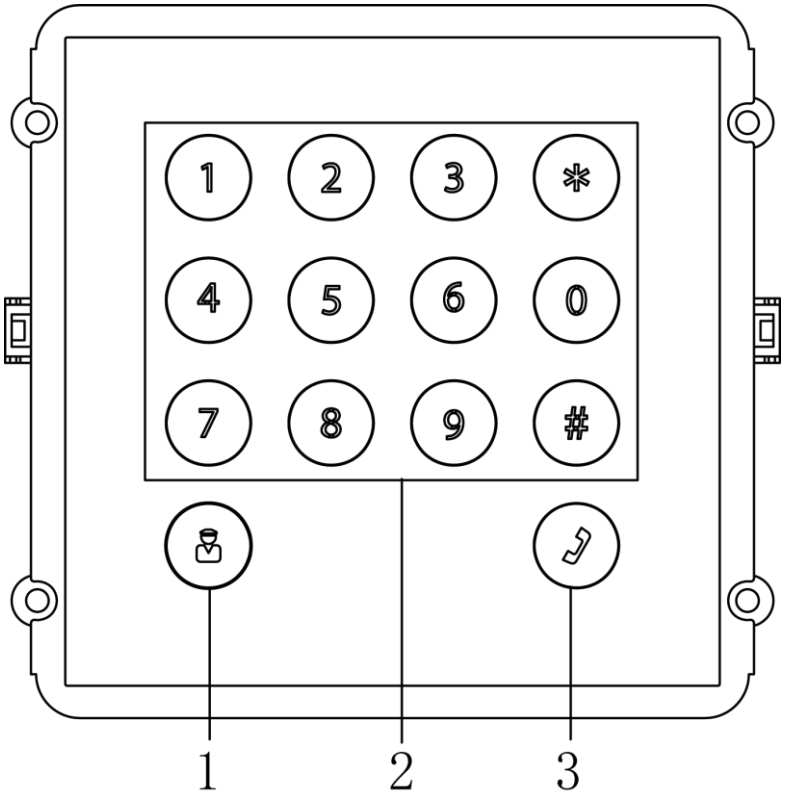


Figure 1- 5

No.	Function
1	Call management center.
2	Number key, input password. Password example: #+password+#.
3	Call.

Note:

Keyboard rear panel and three button rear panel are the same.

1.2.4 Card Swiping Module

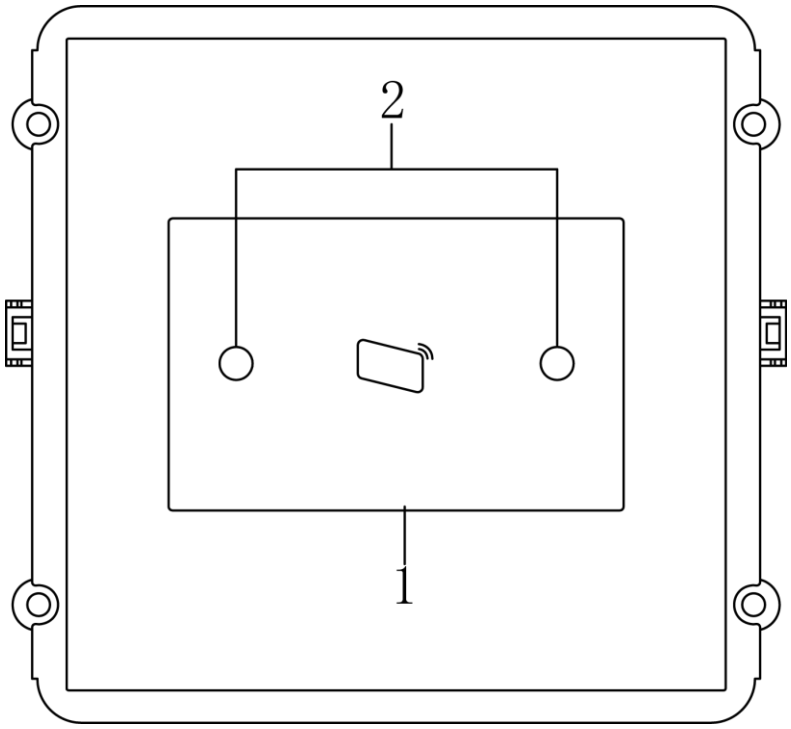


Figure 1- 6

No.	Component Name	Note
1	Swiping Area	Only card swiped within this area is valid.
2	Proximity Sensor	When a body approaches this device at 1m, it will detect this approaching, and backlight of user list or keyboard will turn on automatically. When the body leaves, backlight turns off.

Note:

Card swiping rear panel and three button rear panel are the same.

1.2.5 Fingerprint Module

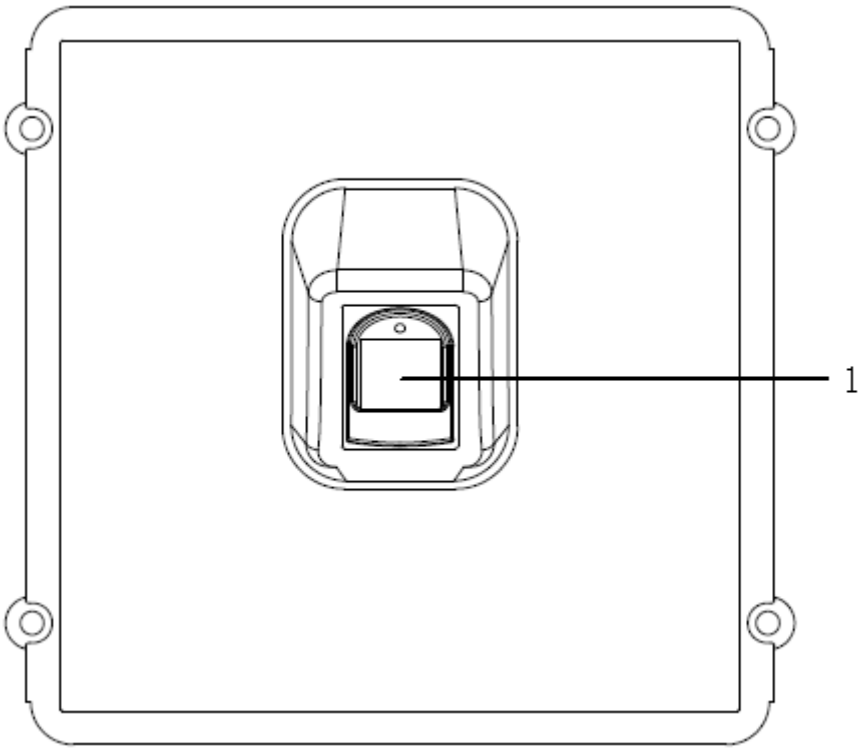


Figure 1- 7 Front Panel

No.	Component Name	Component Note
1	Fingerprint module	Used to record fingerprint of user.

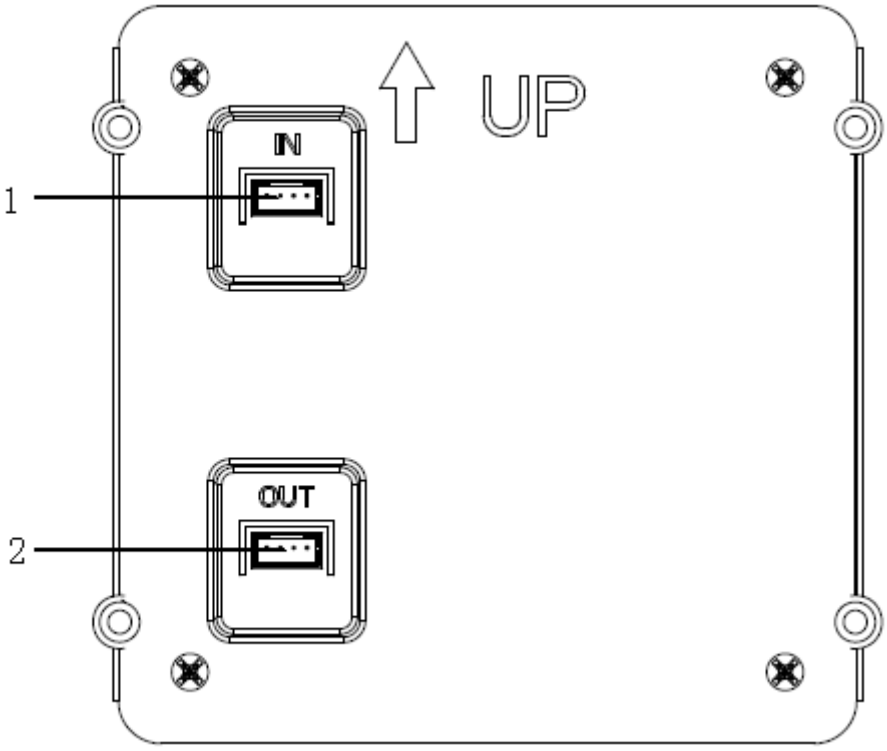


Figure 1- 8 Rear Panel

No.	Component Name	Component Note
1	Cascading input interface	Used to connect other modules.
2	Cascading output interface	

2 Installation

Module VTO installation has two method: direct and embedded in wall. Direct installation make the VTO mount on wall, while the other embed the VTO in a hole dug on wall. This chapter is going to introduce both installation methods and wiring of the device.

2.1 Wiring

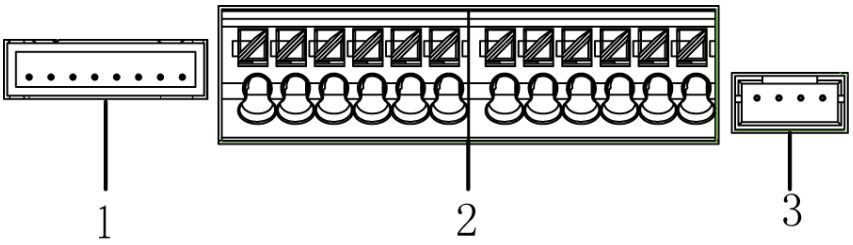


Figure 2- 1

No.	Port Name	Note
1	Network Port	Via convertor, connect cable (RJ45 crystal head)
2	User Port	Power supply, connect lock, door sensor and unlock button.
3	Cascading Port	For other modules.

2.1.1 Electric Control Lock

When VTO connects to electric control lock, it means that the positive end of electric control lock connects to NO of VTO (user port 10) while its negative end connects to COM of VTO (user port 12).

When VTO connects to unlock button, one end of unlock button connects to UNLOCK BUTTON of VTO (user port 7) while the other end connects to GND of VTO (user port 9). See Figure 2- 2.

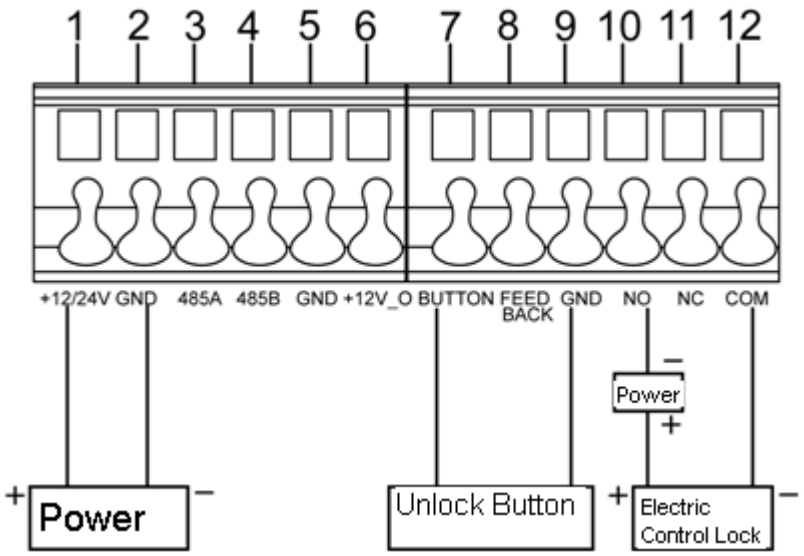


Figure 2- 2

2.1.2 Electromagnetic Lock

When VTO connects to electromagnetic lock, it means that the positive end of electromagnetic lock connects to NC of VTO (user port 11) while its negative end connects to COM of VTO (user port 12).

When VTO connects to door sensor in electromagnetic lock, one end of door sensor connects to FEEDBACK of VTO (user port 8) while the other end connects to GND of VTO (user port 9). See Figure 2- 3.

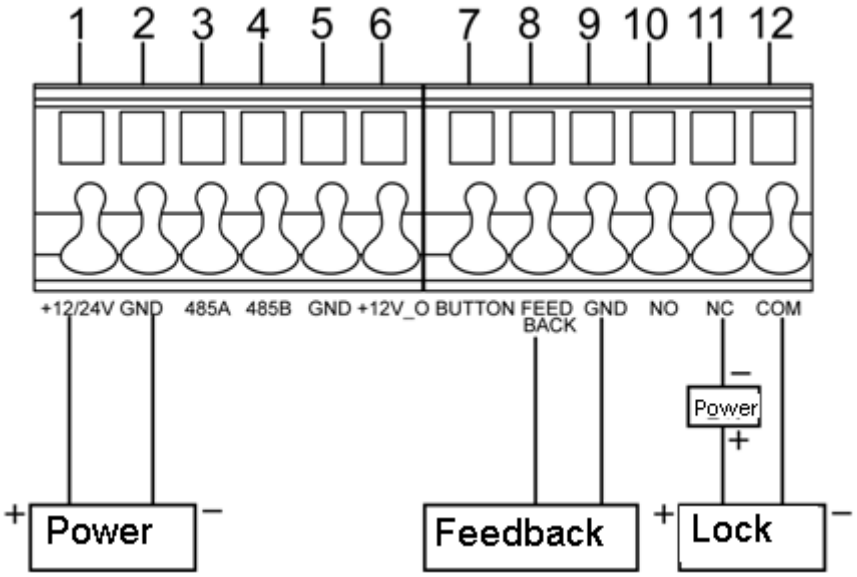


Figure 2- 3

2.2 Direct Installation

2.2.1 Screw

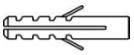
Component Name	Illustration	Quantity
M4×40 inner hex flower sunk head flat tail machine screw		4
M3×6 cross recessed countersunk flat tail machine screw		4 in each module
ST3×18 cross recessed countersunk head tail tapping screws		6
White expansion tube ∅6×30mm		6

Chart 2- 1

2.2.2 Installation Step

Step 1. Install case on wall. Fix with screw (ST3×18 cross recessed countersunk head tail tapping screws), and the case is fastened

Step 2. Align the device on front panel with hole position. Fix with screw (M3×6 cross recessed countersunk flat tail machine screw), and the module is fastened on front panel.

Step 3. Fix front panel on case according to hole position, fix with (M4×40 inner hex flower sunk head flat tail machine screw), and front panel is fastened on the case.

Step 4. Smear glass cement at connection of case and wall to make the connection sealed.

Step 5. Write room no. on provided name card or name of resident. Insert name card cover.

Note:

- **Name card and name card cover are included in accessories by default.**
- **Module VTO has two packages of 2 modules and 3 modules. The figure takes 3 modules as an example.**
- **You may power up device only after all modules are well connected, otherwise module connected after power up will not operate.**

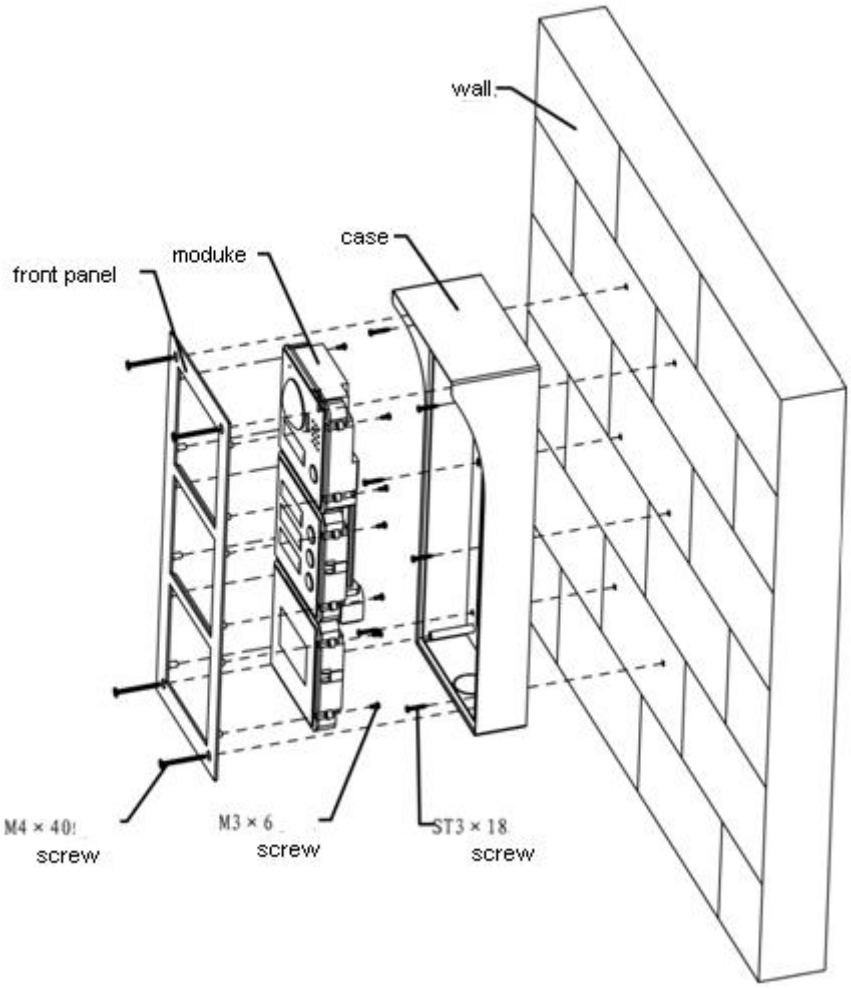

wall
case
moduke
front panel
M4 × 40
screw
M3 × 6
screw
ST3 × 18
screw

Figure 2- 4

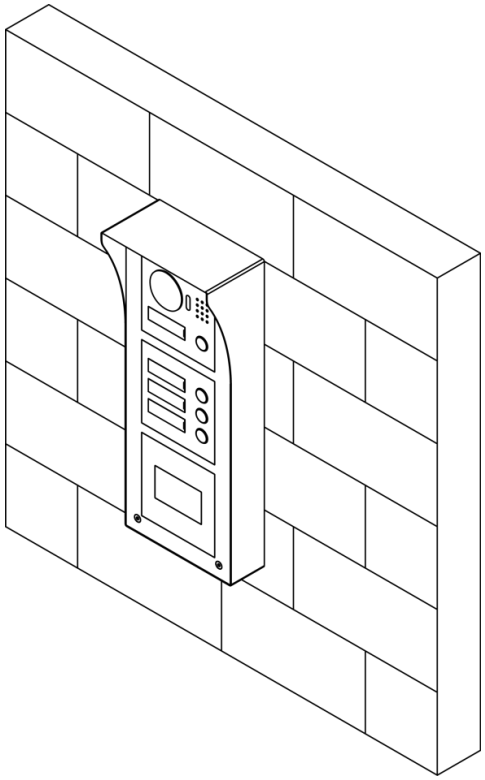


Figure 2- 5

2.3 Embedded in Wall

2.3.1 Screw

Component Name	Illustration	Quantity
M4×40 inner hex flower sunk head flat tail machine screw		4
M3×6 cross recessed countersunk flat tail machine screw		4 in each module

2.3.2 Installation Step

Step 1. Dig a hole on wall. Module VTO has speicifications of single module, 2 modules and 3 modules. A single module dimensions are 115*115*57(mm); 2 module dimensions are 237*125*50(mm), 3 module dimensions are 349*125*50(mm).

Step 2. Embed case into wall until border of the case lean against the wall.

Step 3. Align the device on front panel with hole position. Fix with screw (M3×6 cross recessed countersunk flat tail machine screw), and the module is fastened on front

panel.

Step 4. Fix front panel on case according to hole position, fix with (M4×40 inner hex flower sunk head flat tail machine screw), and front panel is fastened on the case.

Step 5. Smear glass cement at connection of case and wall to make the connection sealed.

Step 6. Write room no. on provided name card or name of resident. Insert name card cover.

Note:

- **Name card and name card cover are included in accessories by default.**
- **Module VTO has two packages of 2 modules and 3 modules. The figure takes 3 modules as an example.**
- **You may power up device only after all modules are well connected, otherwise module connected after power up will not operate.**

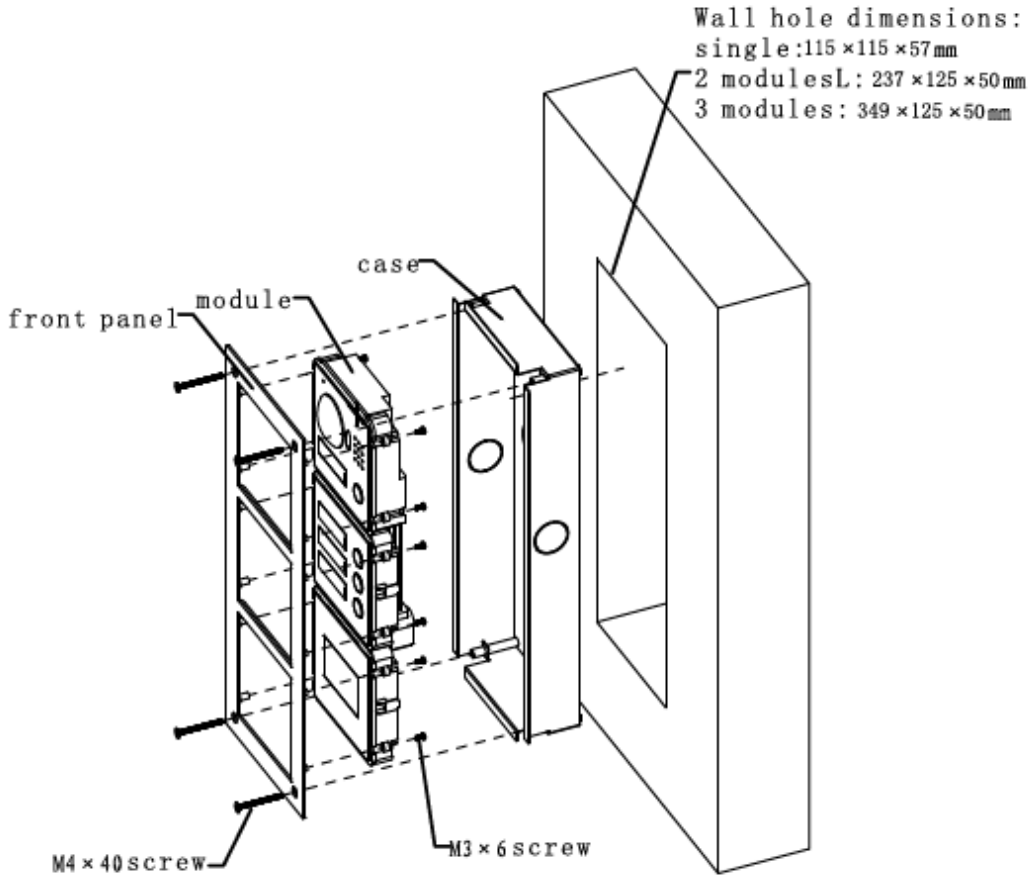


Figure 2- 6

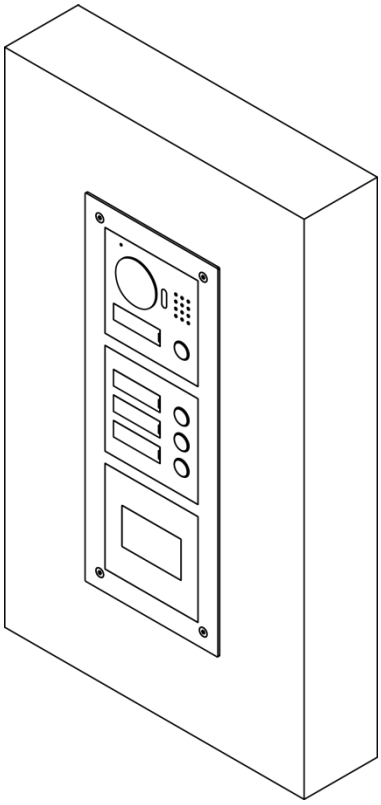


Figure 2- 7

3 Debugging

Warning:

- **Before debugging, the staff shall be familiar with device's installation, wiring and usage.**
- **Beore debugging, check wiring for short or open circuit.**
- **When staff find each circuit is normal, plug the device to power.**
- **After debugging, clear the site.**

3.1 VTO Local Info

VTO local info includes VTO IP address, system time, building no. And VTO no.

3.1.1 IP Address

VTO default IP address is 192.168.1.110. Before using VTO, you must modify the IP address to be planned IP address.

Step 1. Connect the VTO to power. After being connected to power, the indicator in name card area lights up, about 60s later system will enter working status.

Step 2. Make sure your PC and the VTO are well connected, and set PC IP address to be in the same segment with the VTO

Step 3. On PC, ping IP address of the VTO to check network.
If connection is well, continue to step 4. If connection is not working, please check cabling, IP address setup, power supply and etc.

Step 4. Login VTO WEB page to modify IP address.
1) In Internet Explorer, input IP address of the VTO, and press Enter.
2) Input Username and Password. Click Login, See Figure 3- 1.
Note:
Default username is admin. Default password is admin. Please change password after first login.

Figure 3- 1

3) Select System Config>Network Config>TCP/IP, set VTO IP, Subnet Mask and Default Gateway. See Figure 3- 2.

After IP address is modified, WEB page will reboot as it will go to the new IP address automatically.

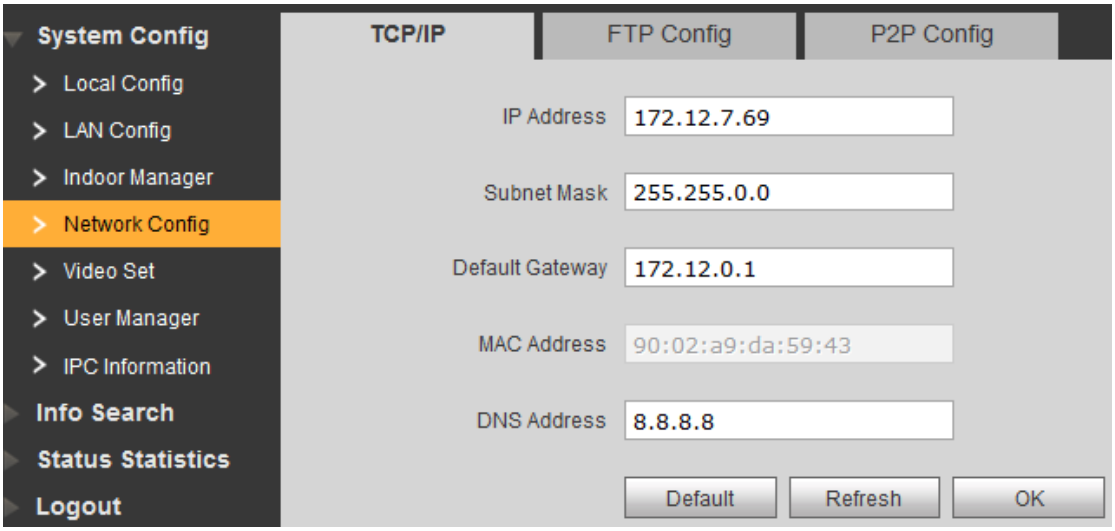


Figure 3- 2

3.1.2 System Time

After login WEB, select Systm Config>Local Config>System Time.

Here you can set date format, time format, and input system date and time. You can also click on Sync PC to synchronize system time with PC time.

3.1.3 VTO No. Info

Select System Config>LAN Config, set buildig no., building unit no. And etc. See Figure 3-3 Click OK when you are done.

You shall reboot the device to make configuration effective.

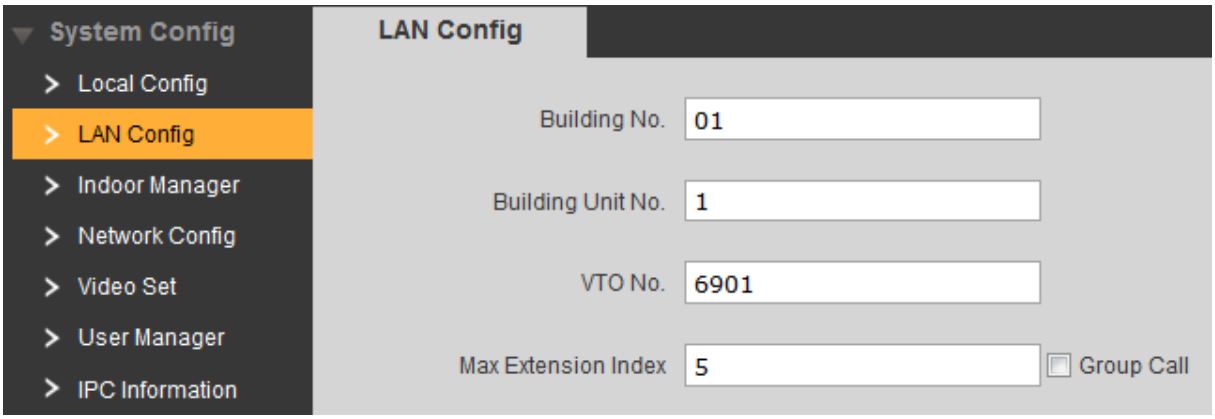


Figure 3- 3

Parameter	Note
Building No.	If the VTO connects to VTMS or SmartPSS platform, these must match config on VTMS or SmartPSS client.
Building Unit No.	
VTO No.	
Max Extension Index	Support extension quantity.
Group Call	After check, the VTO can call all VTHS in the same room.

3.1.4 VTO Module Info

Select System Config>Local Config, system shows Local Config interface.

Select type as “Modularize Villa”, click OK. See Figure 3-4.

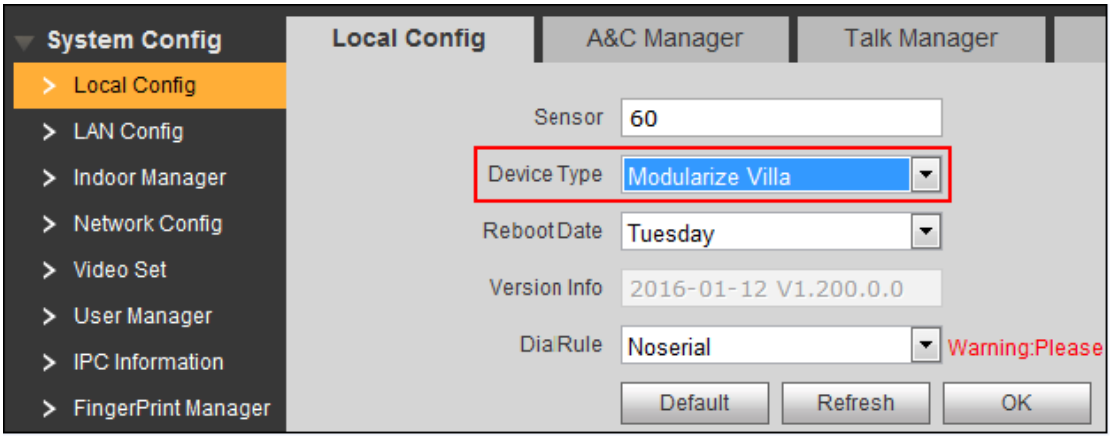


Figure 3- 4

Select System Config>Local Config>Facade Layout, select icon according to the actual

module, click Save. See Figure 3- 5.
Exit WEB and login again.

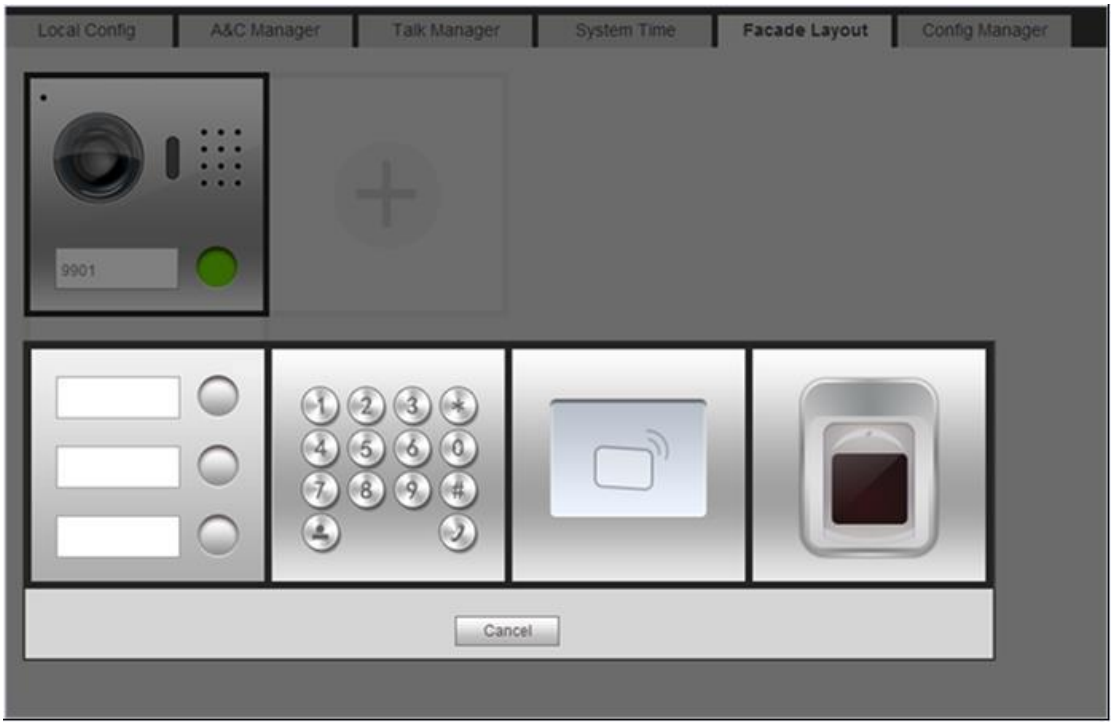


Figure 3- 5

3.2 VTH Info

Step 1. Add VTH. Select System Config>Indoor Manager, set VTH info in Add box, click OK. See Figure 3- 6.

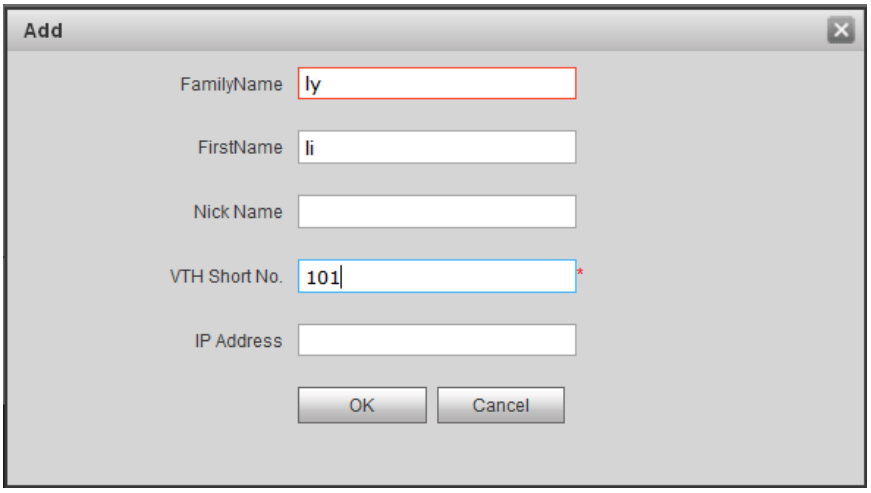


Figure 3- 6

Note:

- Parameters with * are mandatory to set.
- You may batch create VTH, please refer to Ch 4.2.1.

Step 2. Set corresponding room no. Of three buttons module.

1) Select System Config>Local Config>Facade Layout. Select module according to actual VTO layour. See Figure 3- 7.

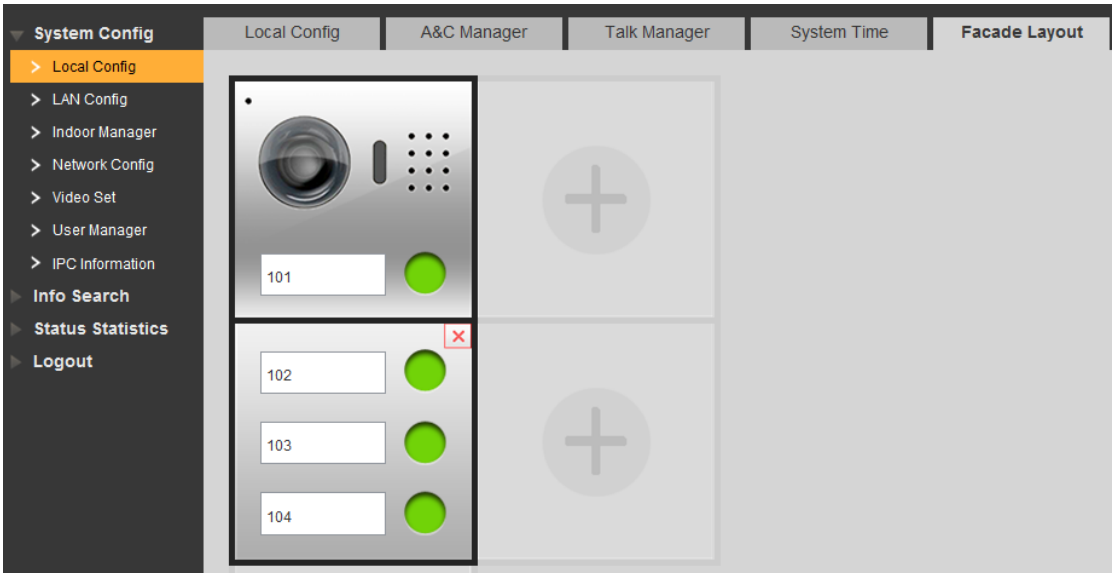


Figure 3- 7

2) Click camera or three button module room no. Box, select room no., click OK. See Figure 3- 8.

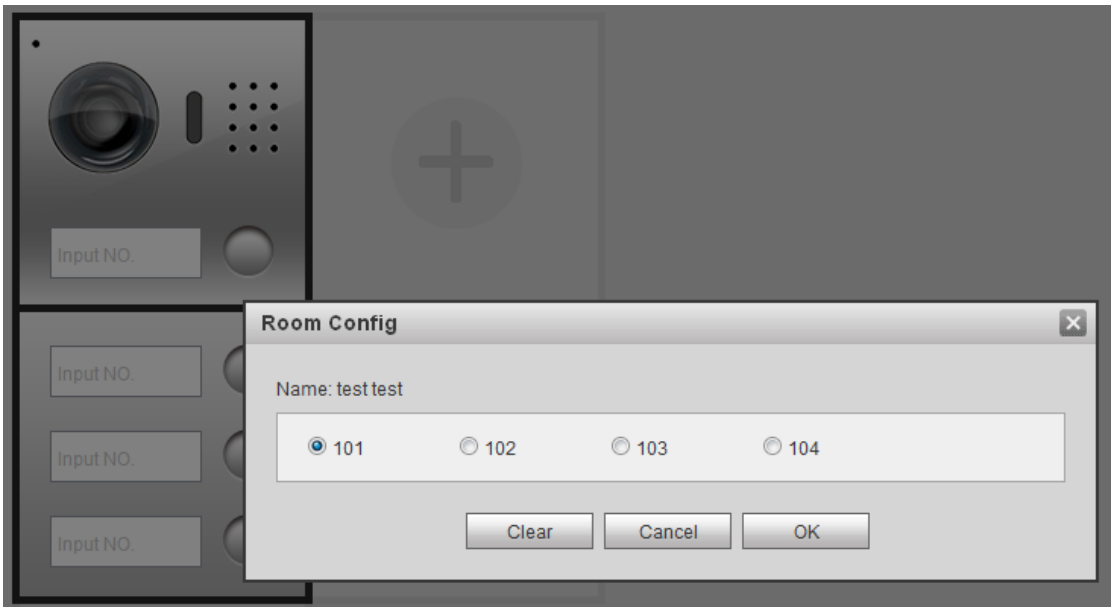


Figure 3- 8

3.3 MGT CENTER

LAN config set connection of the VTO and MGT center.

Select System Config>LAN Config, set MGT center IP address, MGT Port No. And etc. See Figure 3- 9.

After configuration is complete, you shall reboot the VTO to make configuration effective.

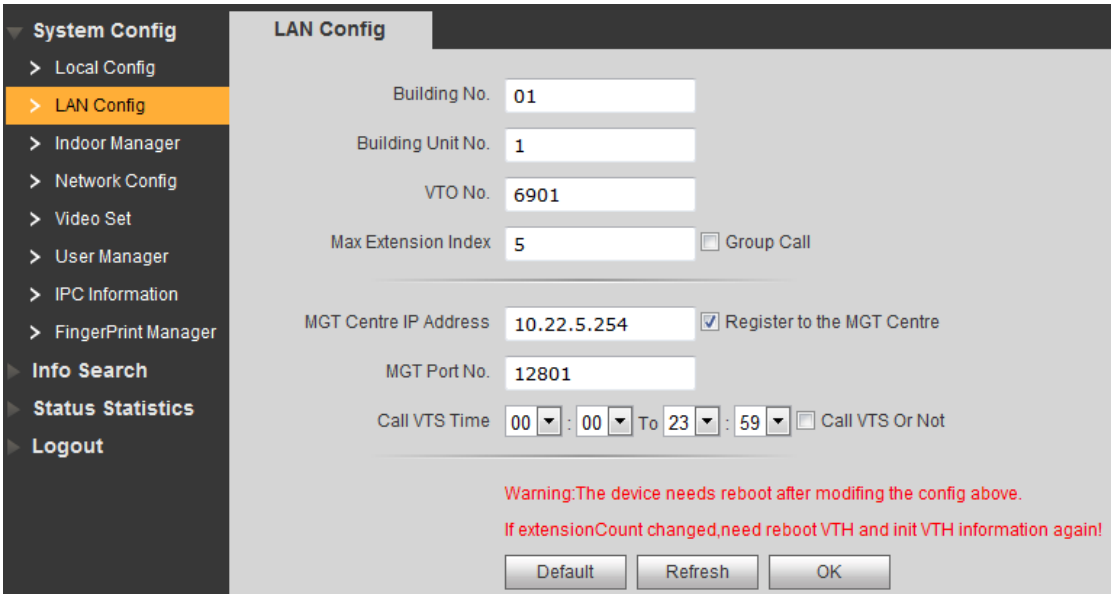


Figure 3- 9

Parameter	Note
MGT Center IP Address	After configuration is complete, register to MGT center.
Register to the MGT Center	
MGT Port No.	
Call VTS Time	If module VTO chooses keyboard module, then user can call MGT center directly by pressing on keyboard without config.
Call VTS or Not	If module VTO does not choose keyboard module, check “Call VTS or Not”, during configured time to call MGT center,press “Call MGT enter” button on camera module.

3.4 FTP Info

After setting FTP, you can store data info on FTP server.

Select System Config>Network Config>FTP, input IP address, port, username and password of the FTP server, and click OK.

3.5 Function Test

3.5.1 Call Function

- Call VTH
  Support VTO to call corresponding VTH, and perform a bidirectional talk. VTH can monitor, unlock, snapshot, record the VTO.
- Group Call VTH
  When you select group call in Ch 3.1.3., you can call all the VTHs under the same room no.
- Call MGT Center
  - ✧ If Module VTO chooses keyboard module, press on keyboard to call MGT center.
  - ✧ If module VTO does not choose keyboard module, and when you check call MGT center or not in Ch 3.3., you can press call button in camera module witth the period set to call MGT center.

3.5.2 Monitoring Function

MGT center and VTH can both monitor VTO.
A VTO supports up to 5-CH of video streams for monitoring, 1-CH for management platform and 4-CH for VTH.

3.5.3 Unlock Function

It supports seven modes to unlock.

- Management center unlock

When management center is being called, monitoring, or calling status, it can remotely unlock VTO. Hang upor count down ends, return to standby.

- VTH unlock

When VTH is being called, monitoring, or calling status, it can remotely unlock VTO. Hang upor count down ends, return to standby.

- Button unlock

It support to unlock by pressing button on VTO.

- Card swiping module unlock(for VTO with card swiping module only)

Swipe IC card to unlock.

- Password unlock(for VTO with keyboard module only)

Input password to unlock of VTO.

- Duress password unlock (for VTO with keyboard module only)

When you encounter duress, input duress password, and VTO send alarm info to MGT center secretly, at the same time VTO unlocks. Please refer to Ch 4.2.1.

- Fingerprint unlock (supported by VTO with fingerprint module only)

Via recorded fingerprint unlock door of VTO.

Note:
Unlock and lock hold time interval can be configured in the unit VTO WEB interface. The default interval for unlocking 15s, lock hold time 2s.

3.5.4 Card Management (For VTO with card swiping module only)

It can issue up to 10,000 cards. It supports two issuing modes:

- WEB issue

In VTO WEB interface, go to System Config>Local Config>A&C Manager, click issue, and swipe card one by one at a time on swiping module.
When card is successfully issued, in indoor manager page, click card in for corresponding room no, to show card info. See Figure 3- 10.

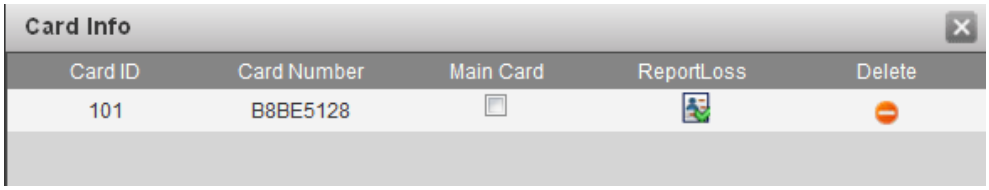


Figure 3- 10

Report loss:Set card to lost status.
Delete: Delete the card.

- Platform issue

It support issue card on platform, please refer to user's manual for the palrform.

3.5.5 Fingerprint Management (supported by VTO with fingerprint module only)

In VTO WEB interface, select System Config>Fingerprint, click Collect, enter username and room no. Follow audio instructions to record fingerprint.
When you have successfully recorded fingerprint, click Delete to delete a single fringerprint, click Delete All to delete all fingerprints in the device.
In VTO Fingerprint Info interface, user can add up to 3000 fingerprints. Each fingerprint includes username, room no., see Figure 3- 11.

Click to modify username and room no.

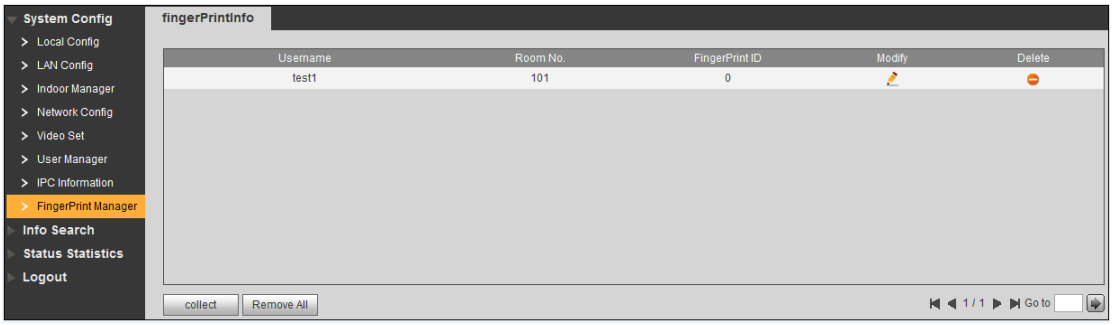


Figure 3- 11

3.5.6 Info Upload

It supports call info, unlock info and snapshot upload.

- Upload call indo

In VTO WEB page, select System Config>Local Config>Talk Manager, to enable uploading of Talk record.

In WEB page, Info Search>Call History page or management center, you can view call record, up to 1024 items.

- Upload unlock Info

In VTO WEB page, select System Config>Local Config>A&C Manager, to enable uploading of Unlock record.

In WEB page, Info Search>Unlock Record page or management center, you can view call record, up to 1000 items.

- Upload snapshot

✧ In VTO WEB page, select System Config>Local Config>Talk Manager, enable auto snapshot.

When a user calls, answers or hangs up, it will auto take 1 snapshot and upload it to FTP.

✧ In WEB page, System Config>Local Config>A&C Manager, enable auto snapshot.

When a user swipes card or enters password, it will auto take 2 snapshots and upload them to FTP.

3.5.7 Leave Message

When VTO calls VTH, no one answers, user can leave a message (voice/video) according to the voice prompts. Data are stored on SD card or FTP. User can read/view the message on VTH SD card.

Note:

Leaving message funcition can only be enabled when VTH setup of message time is not zero.

- Leave a message stored on SD card

  VTH supports SD card, and has inserted SD card, so user can leave message on VTH SD cad.

  Step 1. In VTO WEB page, select System Config>Local Config>Talk, enable message uploading.

  Step 2. Select System Config>Local Config, set storage position to SD card.

  When setup is complete, VTO calls VTH, and no one answers. When ring tone ends, is asks if you want to leave a message. Press call button on camera module to begin. And the message will be stored on SD card.
- Leave a message stored on FTP

  VTH does not support SD card, and has connected to FTP server, so user can leave message on the FTP.

  Step 1. In VTO WEB page, select System Config>Local Config>Talk, enable message uploading.

  Step 2. Select System Config>Local Config>, set storage position to FTP.

  Step 3. Refer to Ch 3.4. to set FTP.

  When setup is complete, VTO calls VTH, and no one answers. When ring tone ends, is asks if you want to leave a message. Press call button on camera module to begin. And the message will be stored on FTP.

3.5.8 Backup and Restore

- Default
  - ✧ In VTO WEB page, click System Config, you can click any Default button within System Config to restore defaulting settings.
  - ✧ In VTO WEB page, select System Config>Local Config>Config Manager, click Default button to restore all default info.
- Backup and Recover

  Back up VTO information, thus when data are lost or damaged, user can recover system from backup.
  - ✧ Backup

    In VTO WEB page select System Config>Local Config>Config Manager, check VTH info, click backup.
  - ✧ Recover

    In VTO WEB page select System Config>Local Config>Config Manager, check VTH info, click recover.

    The device will reboot to recover.
- Input/Export Config

  Export config includes local config, lan config, network config, video config and etc. in file ended with “*.backup” saved locally.

  Inport config locally or on the VTO by importing “*.backup” file to recover info.
  - ✧ Import

In VTO WEB page, select System Config>Local Config>Config Manager, click import to select import file, and click OK.

- ✧ Export
  In VTO WEB page, select System Config>Local Config>Config Manager, click export to select storage path, and click OK.

3.5.9 Vandal-proof

When VTO is forced o leave the wall, it will alarm, and report to MGT center.

3.5.10 Enviroment Light Compensation

VTO in dark environment or at night, adopts camera light sensing technology. I will automatically compensate light to guarantes camera video is clearly visible.

4 Web Config

This chapter introduces module VTO WEB interface and its parameters, and hot to configure them.

4.1 Login

In Internet explorer, enter the IP address of VTO, and enter username and password, click Login.

4.2 System Config

4.2.1 Local Config

4.2.1.1 Local Config

In Local Config interface, you can view VTO model, version info and etc.

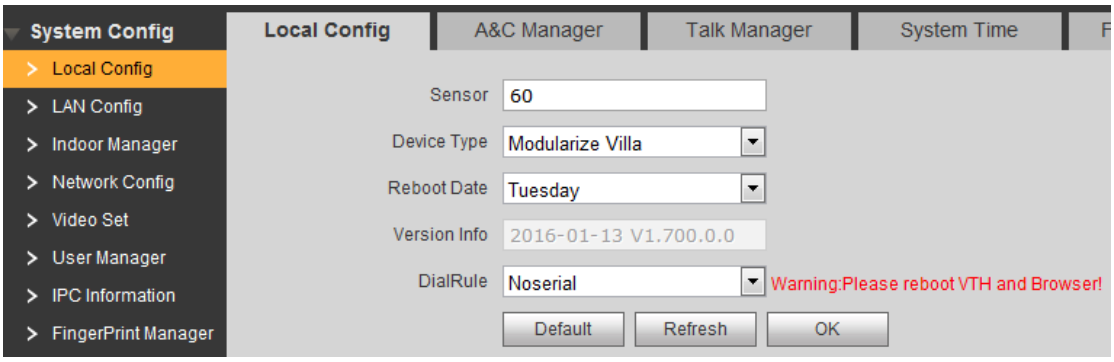


Figure 4- 1

Parameter	Note
Sensitivity of fill light to open	Set compensation light threshold.
Device type	Display device type, for villa station and modularize villa.
Reboot date	Auto reboot VTO at set time and day.
Version	Display software version.
Dial rule	N/A
Default	Only restore parameter in Local Config page to default settings.

4.2.1.2 A&C Manager

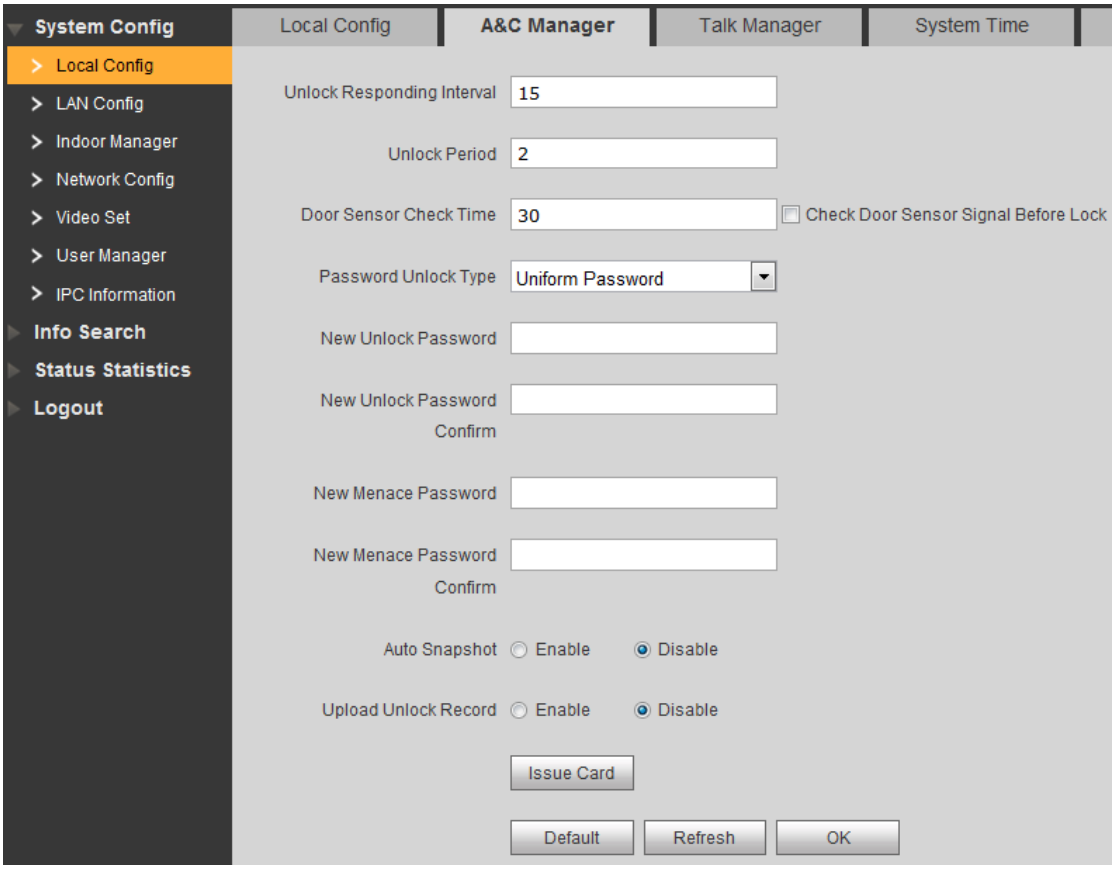


Figure 4- 2

Parameter	Note
Unlock Responding Interval	The interval between current unlock and next one, unit is second.
Unlock Period	Period door remains unlocked, unit is second.
Door Sensor Check Time	When only use door sensor, check"Check Door Sensor Signal Before Lock", Set "Door Sensor Check Time" to enable it. When door remains unlocked over set door sensor check time, it alarms.
Check Door Sensor Signal Before Lock	
Password Unlock Type	Select password unlock type to be Uniform Password or others. And set new unlock password.
New Unlock Password	
New Unlock Password Confirm	
New Menace Password	When user is forced to unlock door by someone, user shall input menace password to unlock, and the device will send alarm info to the management platform.
New Menace Password Confirm	
Auto Snapshot	Enable：auto snapshot 2 pictures when a user swipes

	card or unlocks via password, and upload to FTP.
Upload Unlock Record	Enable: upload unlock info to MGT center.
Issue Card	① Click Issue Card button；②Place IC card close to card swiping area；③Enter corresponding room no. of the card, click OK；④Confirm；⑤Go to Indoor Manager to view card info. Support max of 10,000 cards.
Default	Only restore current A&C Manager page to default settings.

4.2.1.3 Talk Manager

Auto snapshot: When a user calls, answers or hands up, it auto snapshot 1 picture, and upload to FTP.
Leave message: Send message (message/video) to FTP or SD card.
Call record upload: Upload call record to MGT center.
Please refer to Ch 3.5.6 and Ch 3.5.7.

4.2.1.4 System Time

Here you can set date format, time format, and input system date and time. You can also click on Sync PC to synchronize system time with PC time.

4.2.1.5 Facade Layout

According to actual layout, select module, and set button on camera module or three button module to call corresponding room no.

4.2.1.6 Config Manager

Config manager to restore default settings, export config and import config, backup and backup recover.
Please refer to Ch 3.5.8.

4.2.2 LAN Config

Set Local VTO no., connect MGT center and etc. Please refer to Ch 3.1.3. and Ch 3.3.

4.2.3 Indoor Manager

Indoor Manager page allows user to add VTH, modify VTH and delete VTH. Please refer to Ch 3.2.

4.2.4 Network Config

4.2.4.1 Network Config

Here you can set VTO IP address, Subnet Mask and Default Gateway.
After you have modified IP address, Web page will reboot and go to the new IP address web page. Please refer to Ch 3.1.1.

4.2.4.2 FTP

For FTP server, please refer to Ch 3.4.

4.2.4.3 P2P

It is used to connect mobile phone, and please select server 2. When connected, status shows “online”. Use mobile phone APP to scan QR code, and you can view video of VTO. Note: Device must be connected via WAN. This function is not available when three buttons and keyboard module exist. See Figure 4- 3.

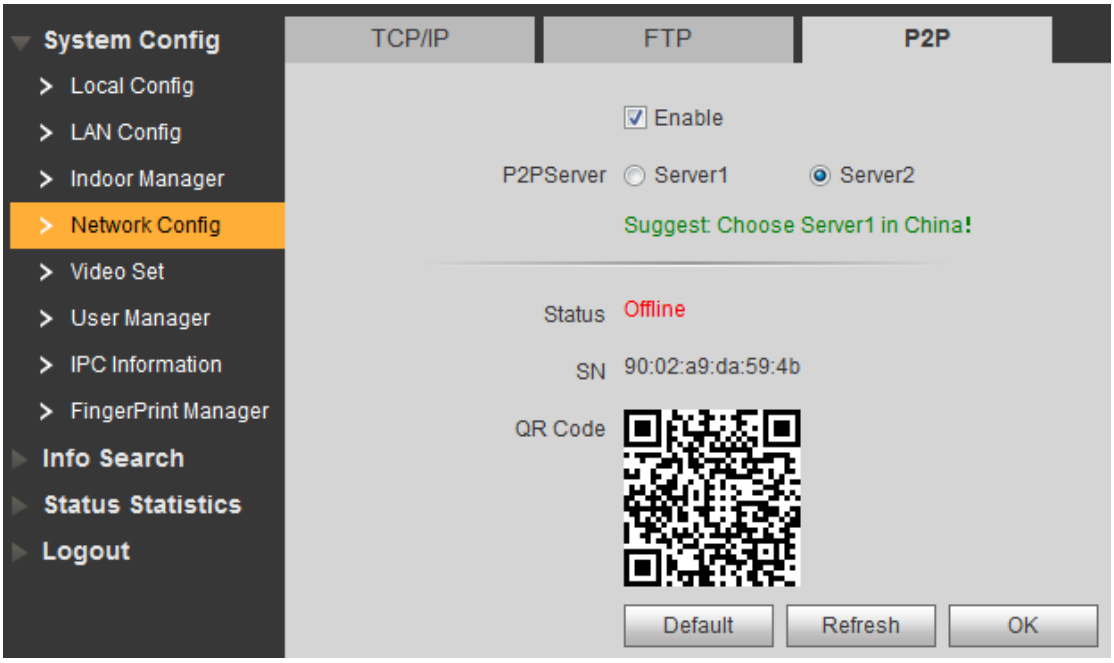


Figure 4- 3

4.2.5 Video Set

You can set video effect and volume in Video Set and Audio Set interface. See Figure 4-4.

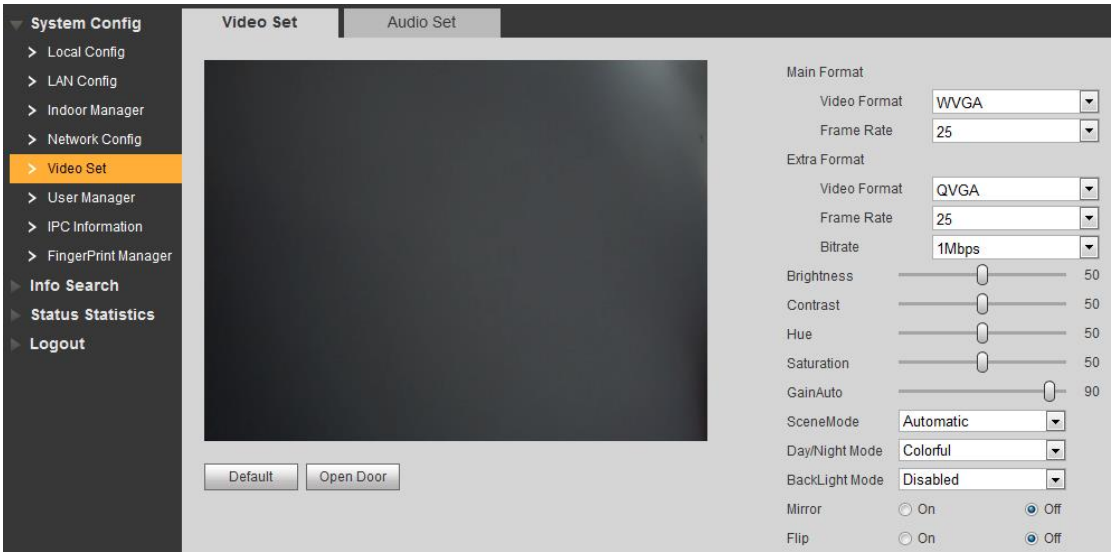


Figure 4- 4

Parameter	Note
Video Format	Set camera capture video format, including: WVGA, D1.
Frame Rate	Set frame rate to 3, 25 and 30.
Bitrate	May select among 256Kbps, 1Mbps, 2Mbps, 3Mbps
Brightness	Adjust monitoring video.
Contrast	
Hue	
Saturation	
Gain	Gain limit of video basic parameter.
Scene Mode	Select mode: automatic, sunny, night and etc.
Day/Night Mode	Color mode.
Back Light Mode	Back light for special environment.
Mirror	Make image displayed in mirror.
Flip	Display image in flip.

Default	Reset video effect and volume to default.
Unlock	Unlock via web.

4.2.6 User Manager

Only when you login as admin, you can add, modify, delete and view user info in User Manage interface.

- Add User

In User Manage interface, click on Add User. Fill in user info.

- Modify User

In User Manage interface, click on , system pops up Modify User interface. Check Change Password, and change password and remark.

- Delete User

In User Manage interface, click on to delete user.

4.2.7 IPC Information

In VTO IPC Information page, user can add up to 24 IPCs, and sync with VTH, so use is not necessary to add these IPCs again on VTH.

Click in IPC page, system pops up a modification box, user modify info here.

4.3 Info Search

4.3.1 Call History

Here you can view call history of VTO in Call History interface. It can save up to 1024 items.

4.3.2 Alarm Record

You can search VTO alarm record on Alarm Record interface with storage up to 1024 items.

4.3.3 Unlock History

Record unlocking records, including unlock time, unlock method (card/password/VTH/button), unit VTO info and note. It support up to 1000 records.
If user swipe card to unlock, card no. Info will be recorded in note. If VTH remotely unlock door, the VTH info will be recorded in note.

4.4 Status Statistics

4.4.1 VTH Status

Here you can view connection status of VTH.

- Status

Offline: VTO and VTH are not connected, you cannot call, monitor, talk or etc.
Online: VTO and VTH are connected, you can call, monitor, talk and etc.

- Monitor

Unmon: VTH is not monitoring.
Onmom: VTH is monitoring.

4.5 Logout

Here you can reboot device or logout.
Click on logout to log out the system and it returns to login page.

5 FAQ

1. Q: I pressed Call button, and the indicator turned on, but the VTO did not start a call?
   A: Please check your operation process.
2. Q: How to end a call when I am calling?
   A: Please press button on VTO and there will be sound from the device.
3. Q: The device could not boot up and there was no sound or light.
   A: Please check if power supply is well plugged.
4. Q: My call did not go though.
   A: It is network connection error; please check the cables of the device and its extension.
5. Q: The volume is too low.
   A: Adjust call volume of VTO and VTH.
6. Q: The device cannot boot up.
   A: Check VTO and VTO power supply.
7. Q: The VTH has no video or video quality is poor.
   A: VTO WEB page switch video format to MVGA, avoiding placing the VTO in poor illumination environment or under direct sunlight.
8. Q: The VTO cannot unlock.
   A: Check wiring of VTO access control module, check electric control lock (if wiring is incorrect, the voltage output must be zero or too low).
9. Q: I have other problems not included above.
   A: Please contact technical staffs for assistance.

Appendix 1 Technical Specifications

Model		VTO2000A-C
System	Main Process	Embedded micro controller
	OS	Embedded Linux os
Video	Video Compression Standard	H.264
	Input/Sensor	Megapixel CMOS HD camera
	Night Vision	Support
Audio	Input	Omnidirectional Mic
	Output	Built-in speaker
	Talk	Support bidirectional talk
Operation Mode	Input	Single key input
	Door Lock Status Check	Support (optional)
Structure and Installation	Material	Stainless steal
	Installation	Direct, embedded
Protection	Protection Level	IK07
	Waterproof	IP54
	Vandal-proof	Support
Network	Ethernet	10M/100Mbps self-adaptive
	Network Protocol	TCP/IP
	Waterproof	IP54
	Vandal-proof	Support
General	Power	DC 12V～24V±10%
	Consumption	Standby≤1W; working≤10W
	Working Temperature	-40℃～+60℃
	Relative Humidity	10%～95%RH
	Dimension (L×W×H)	110.7mm×118.1mm×42.3mm (lends cover included)
	Weight	0.36kg

Model	VTO2000A-B	VTO2000A-K	VTO2000A-R	VTO2000A-F
OS Input	3 keys	14 keys	Card reader, proximity sensor	Capacitance-type sensor

General	Consumption	Standby ≤0.1W ; working ≤0.45W	Standby≤0.1W ; working≤0.45W	Standby≤0.3W ; working≤0.3W	Standby≤0.4W ; working≤0.4W
	Working Temperature	- 40℃ ～ +60℃	- 40℃ ～ +60℃	- 40℃ ～ +60℃	- 40℃ ～ +60℃
	Relative Humidity	10%～ 95%RH	10%～ 95%RH	10%～ 95%RH	10%～ 95%RH
	Dimension (L×W×H)	110mm×120 mm×24.9mm	110mm×120 mm×29mm	110mm×120 mm×24.9mm	110mm×120 mm×32mm
	Weight	0.27kg	0.32kg	0.27kg	0.3kg

Appendix 2 Accessory Specifications

Appendix 2.1 Cable Specification

The wiring length between VTO and VTH is L_N, so reasonable specification of wiring is:

Cable Specification	$0<L_N\leq 50m$	$50<L_N\leq 100m$
UTP Cat5e/Cat6: 10 ohm/100m	Optional	Optional
UTP Cat5e/Cat6: 18.8 ohm/100m	Optional	Not optional

Note:
Please do not let L_N be over 100m.

Appendix 2.2 Power Extension Line Specification

The wiring length between VTO and adaptor is L_C, so reasonable specification of extnsion line is:

Extension Line Specification	$0<L_C\leq 30m$	$30<L_C\leq 100m$
20AWG	Optional	Not optional
18AWG	Optional	Optional
17AWG	Optional	Optional

Note:
Before plugging extension line to power, make sure its positive and negative end are correctly wired.

Appendix 2.3 Embedded Box

VTO Model	Embedded Box Dimensions
Module VTO single module	115*115*57
Module VTO two modules	237*125*50
Module VTO three modules	349*125*50

Note:

- **This manual is for reference only. Slight difference may be found in user interface.**
- **All the designs and software here are subject to change without prior written notice.**
- **All trademarks and registered trademarks are the properties of their respective owners.**
- **If there is any uncertainty or controversy, please refer to the final explanation of us.**
- **Please visit our website or contact your local service engineer for more information.**