

Quick Guide



Roughneck AI License Plate Recognition Camera Kit

V2008-W0950-LPR

XX324-40-00



Cybersecurity Notification: All network connected devices should use best practices for accessing the device. To that end, these network cameras do not have a default password. A user defined password with minimum password strength requirements must be set to access the device. **See page 16** of this Quick Guide for set-up instructions.

Be sure to check Vicon's website to be see if you have the most up-to-date camera firmware.



[Link to Setup Guide](#)



Vicon Industries Inc. does not warrant that the functions contained in this equipment will meet your requirements or that the operation will be entirely error free or perform precisely as described in the documentation. This system has not been designed to be used in life-critical situations and must not be used for this purpose.

Document Number: 8009-8324-40-00 Product specifications subject to change without notice.

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WARNING

- This camera kit operates at PoE (IEEE 802.3bt).
- Installation and service should be performed only by qualified and experienced technicians and comply with all local codes and rules to maintain your warranty.
- We are NOT liable for any damage arising either directly or indirectly from inappropriate installation which is not depicted within this documentation.
- Do not apply benzene or thinner to the camera, which may cause the surface to melt or lens fog.
- Avoid aligning the lens with extremely bright objects (e.g., light fixtures) for long periods of time.
- Avoid operating or storing the camera in the following locations:
 - Close to sources of powerful radio or TV transmitters
 - Close to fluorescent lamps or objects with reflections
 - Under unstable or flickering light sources

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN		THIS SYMBOL INDICATES THAT DANGEROUS VOLTAGE CONSTITUTING A RISK OF ELECTRIC SHOCK IS PRESENT WITHIN THE UNIT.
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.			THIS SYMBOL INDICATES THAT IMPORTANT OPERATING AND MAINTENANCE INSTRUCTIONS ACCOMPANY THIS UNIT.



WEEE (Waste Electrical and Electronic Equipment). Correct disposal of this product (applicable in the European Union and other European countries with separate collection systems). This product should be disposed of, at the end of its useful life, as per applicable local laws, regulations, and procedures.

Get Started

This quick guide is designed as a reference for installation of the camera kit. For additional information on the camera's features, functions, and detailed explanation of the web interface controls, refer to User's Manual for details. Please read this quick guide thoroughly and save it for future use before attempting to install the camera kit. From this guide you will get:

- Product Overview: The physical parts, features and dimensions of the camera kit.
- Installation and Connection: The instructions on installation and wires connection for the camera kit.

FCC Compliance Statement



Information to the user: This unit has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This unit generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this unit does cause harmful interference to radio or television reception, which can be determined by turning the unit off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the unit and receiver.
- Connect the unit to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the unit.

CE Statement



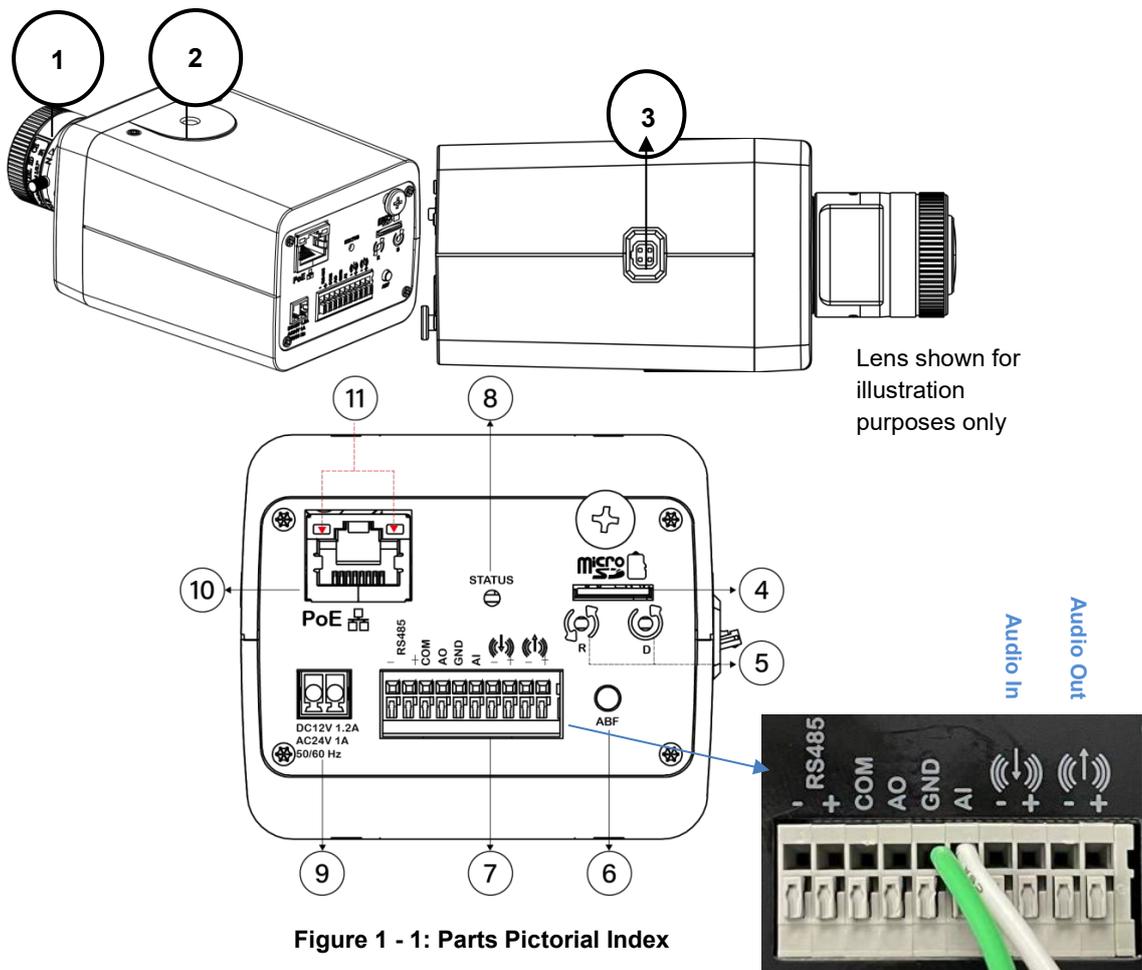
Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The manufacturer declares that the unit supplied with this guide is compliant with the essential protection requirements of EMC directive and General Product Safety Directive GPSD conforming to requirements of standards EN55022 for emission, EN 50130-4 for immunity, EN 300 and EN 328 for WIFI.

This product meets regulations required to be NDAA, GSA schedule and TAA approved.

1 Product Overview

1.1 Camera Physical Characteristics

The V2008-W0950-LPR camera kit is supplied with a box camera, iCS lens and camera housing with wall mount and IR illuminator. A micro SD card is also included. An optional pole mount adapter is available, model V-HSG-PM.



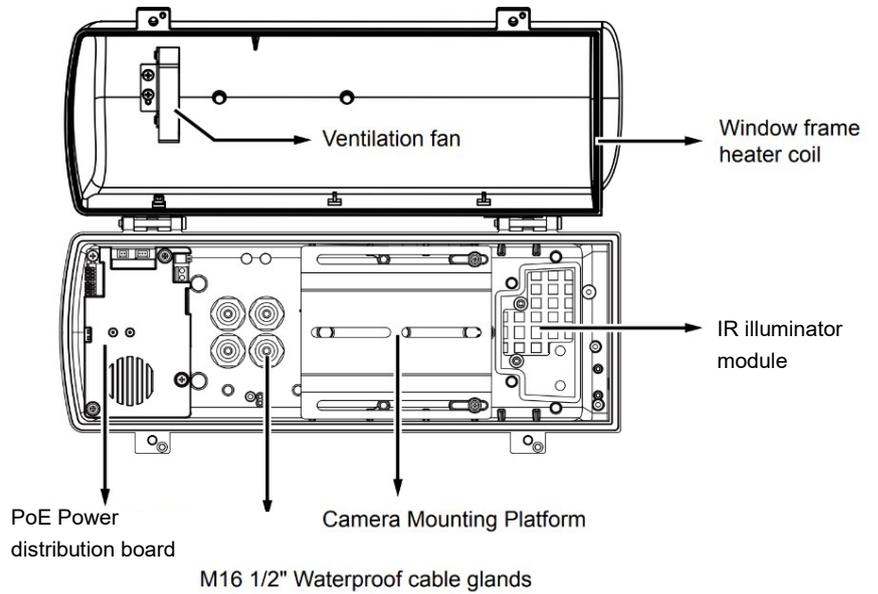
No	Name	Description	
1	Lens	Lens (supplied) is attachable to the camera's lens mounting ring.	
2	Mount Screw Hole	Both top and bottom of the camera housing have one mount screw hole (1/4"-20) for mounting the camera. Use mounting screw provided to mount camera on to camera mounting plate of camera housing.	
3	DC (Auto) Iris Control Port	When mounting the lens, connect the DC iris control line with the port.	
4	Micro SD Card Slot	Insert a micro SD card (supplied) into the slot for recording and file storage.	
5	Reset Button	Press the button for 1 second to reboot the camera.	
	Default Button	Press the button for 6 seconds to restore camera's settings to factory default settings.	
6	ABF	Press the button for approximately 1 second to get the right focus automatically and immediately.	
7	DI/DO Port	<p>DI/DO (Digital Input/Output) ports are equipped for external devices, e.g., smoke detector, siren, microphone.</p> <ul style="list-style-type: none"> • RS-485: Via "-" and "+" ports under "RS485"; connect to external RS-485-based device that can be used to perform pan/tilt action. • Alarm Out: Via "COM" and "AO" ports; connect to external device to be triggered through alarm output signals. • Alarm In: Via "GND" and "AI" ports; connect to external device that can trigger alarm input signals. • Audio In: Via "+" and "🔊" ports; connect to external device such as microphone that receives sound for camera. • Audio Out: Via "+" and "🔊" ports; connect to device such as speaker to transmit sound. 	
8	Status LED	Solid Red	Indicates boot up is running. After 2 ~ 3 seconds: <ul style="list-style-type: none"> - Solid Red to Flashing Green if boot up is normal. - Remains Solid Red if an error occurs. - Turns off 3 minutes after a successful boot.
		Flashing Amber	Indicates firmware upgrade is running.
9	12 VDC or 24 VAC Port	Not used. Camera is powered by PoE from the housing.	
10	RJ-45 Ethernet/PoE Port	Connect an Ethernet cable terminated with RJ-45 connector to the PoE RJ-45 port for both power supply and network connectivity purposes simultaneously.	
11	LED Indicators	Solid Green	Indicates a live connection is established.
		Flashing Orange	Indicates data is being transmitted/received between camera and the network.

Table 1 - 1: Parts Pictorial Index Description

1.2 Housing Physical Characteristics

The V2008-W0950-LPR camera kit includes a box camera, an iCS lens and a camera housing with wall mount and IR illuminator.

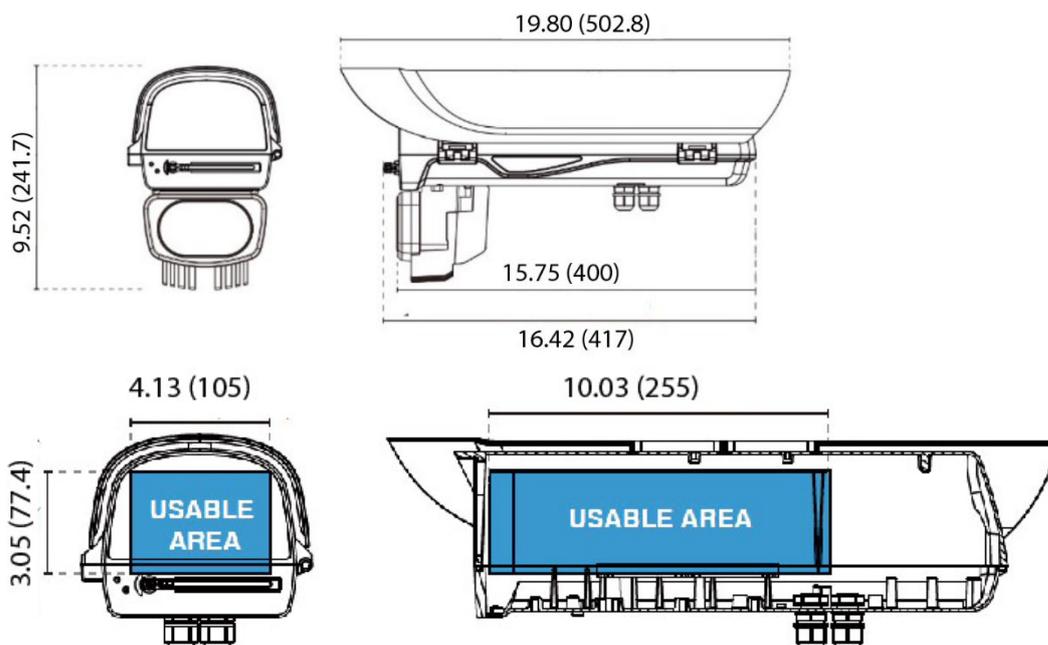
Housing Components:



Dimensions in. (mm):

Housing Power Consumption:

Blower	95°F/35°C On, 77°F/25°C Off (2 W)
Window Heater	68°F/20°C On, 86°F/30°C Off (10 W)



2 Installation and Mounting

2.1 Package Contents

Check if all items listed below are included in the packing box:

1. Box Camera * 1
2. Terminal Block * 1
3. Micro SD Card * 1
4. iCS Lens * 1
5. Camera Housing * 1; includes an accessory pack with all necessary hardware for installation, including the CAT5 cable to connect for PoE power, a wall mount bracket and an IR illuminator module

2.2 Installation

The following tools might help you complete the installation:

- Drill
- Screwdrivers
- Wire cutters

2.2.1 Checking Appearance

When unpacking, check to see if there is any visible damage to the appearance of the camera and its accessories. Check that everything is properly included in accordance with the list in **Package Contents**.

2.2.2 LPR Guidelines

When used to capture license plates, in order to obtain the maximum recognition rate, the LPR camera must be installed properly to capture license plate images that meet the required quality. There are three (3) aspects that must be taken into account when installing the LPR camera: minimum size of the plate, scene lighting and camera angle. This section will outline how the camera must be installed and what the most common mistakes are.

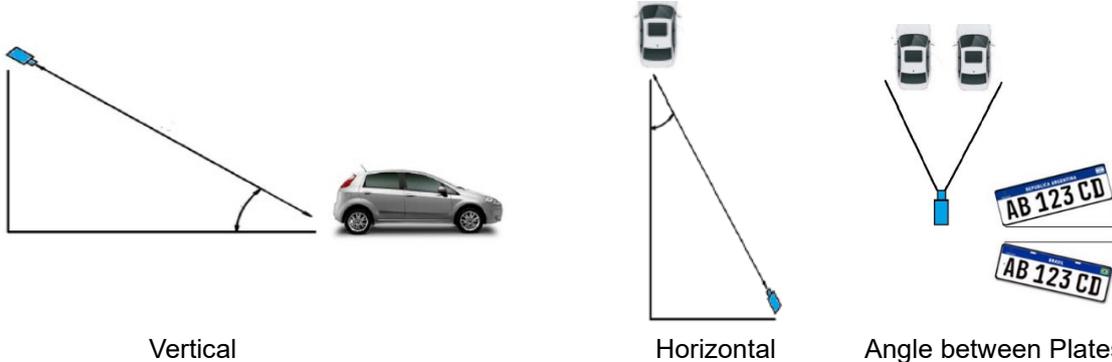
- **Installation Requirements**

- License Plate Size: On the image, the characters on the license plate should have an average height between 20 and 70 pixels, with 25 pixels being a good reference value. While the software will recognize letters of 10 pixels in height, there are certain characters in some countries that would be difficult to discern at this size; the camera sensitivity also affects the ability to read characters of this size. This should be taken into account when setting up the detection range.



● **Camera Position**

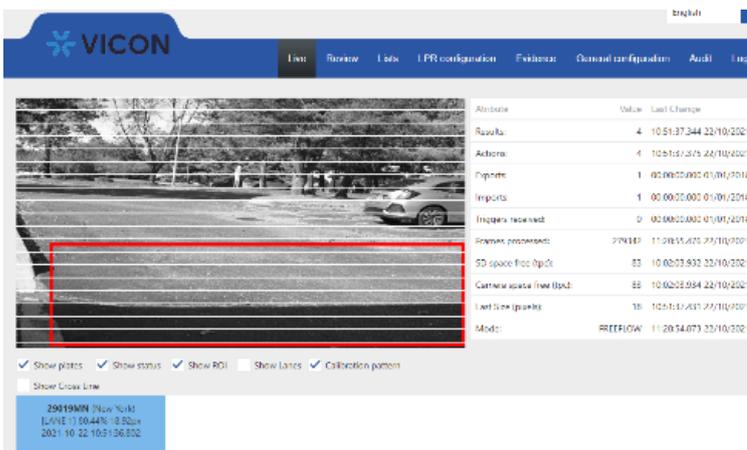
- The recommended vertical angle is about 20°. The maximum recommended value is 35°. The recommended horizontal angle is about 20°. The maximum recommended value is 35°. In a two-lane situation, the angle between the plates and the X axis of the scene must be less than 25°.



- The suggested installation distance is 16 – 100 ft (5 – 30.48 m) for the 9-50 mm lens supplied with the V2008-W0950-LPR. When using a customer-supplied lens, the distance is based on the focal length of the lens and should be calculated for a 720p image with a horizontal Pixels per Foot (PPF)=80.



Refer to the Vicon LPR Camera Setup and Integration Guide for details on setting up the proper field-of-view (FOV). On the Live screen on the camera interface, the Calibration pattern can be enabled; calibration lines are shown at 20 pixels. Verify that license plates are at or above 20 pixels for optimal reading. Adjust FOV from the main camera page.



2.2.3 Installing the Lens

1. Attach the supplied iCS lens onto the camera's lens mounting ring. Screw the lens onto the lens mount. Be careful to prevent dust from entering the space between the lens and the imager. If necessary, use clean, compressed air to remove any foreign matter (refer to the instructions for the lens as needed).

Note: Power off unit when installing lens.

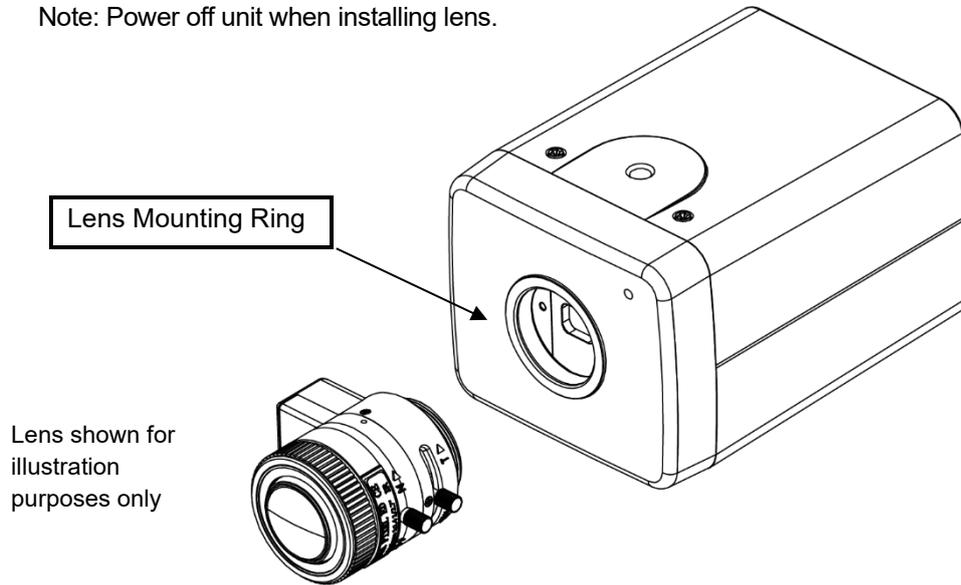


Figure 2 - 1: Installing the Lens

Note Make sure the lens does not touch the camera imager when installed.

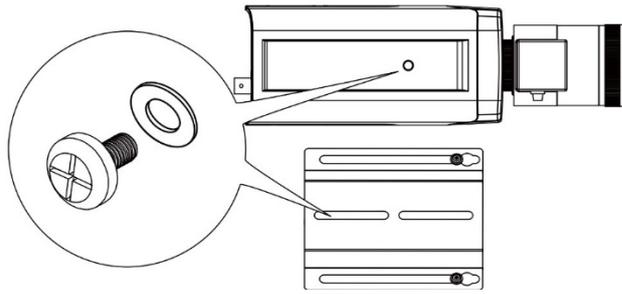
2.2.4 Install the SD Card

Insert the supplied SD card into the slot on the rear of the camera. Refer to Figure 1-2. The SD card then has to be recognized and formatted in the camera's GUI, Event Setting, SD Card tab. Refer to the LPR Camera Setup Guide for details.

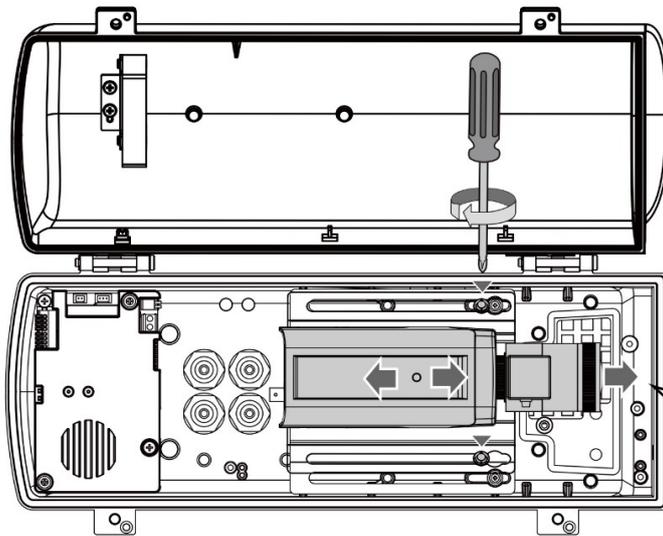
2.2.5 Mounting the Camera in the Housing

Installation Recommendation: If the camera housing is to be installed in a tropical, sea coastal, or an environment where salt water or corrosive industrial waste-water/moisture are present, be sure to seal each stainless steel screw and fitting with a silicon grease compound. This helps prevent electrolysis and extend the life span of the camera and housing. If the camera is installed in an inverted position, use the camera software to reconfigure the camera orientation for normal operation.

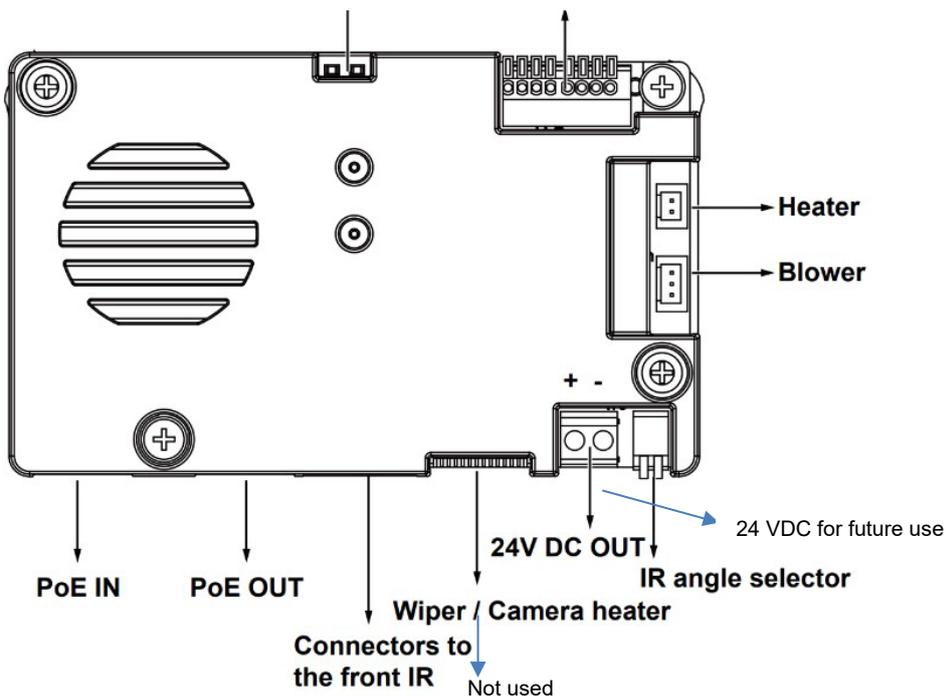
1. Open the camera housing using the Allen key provided.
2. Install the lens onto the camera, if not already done so.
3. Remove the mounting plate from the housing. Secure the mounting plate to the camera using the 1/4-20 mounting hole on the camera with the screw provided (camera positioned so that Vicon reads correctly).



- Place the mounting plate assembly back in the housing, positioning it as far back as possible. Adjust the camera's position so that the barrel of the lens module just clears the front of the plate. Secure the camera plate, using the screws and washers, to the bottom of the housing.



- Install the RJ-45 cable (supplied) from the distribution board PoE Out into the camera RJ-45 connector.



Terminal Block Pinouts

RS485+	For future use
RS485-	For future use
DO+	For future use
DO-	For future use
DO1	IR illuminator
DI1	For future use

Note that the DO1 is used for the IR Illuminator; this means the tamper switch connection is not available.

6. Connect the DO1 line to the camera's terminal block for if the IR illuminator.
7. Adjust zoom and focus and use the camera's web interface to fine tune the camera for the best image.

2.2.6 Installing and Configuring the IR Illuminator

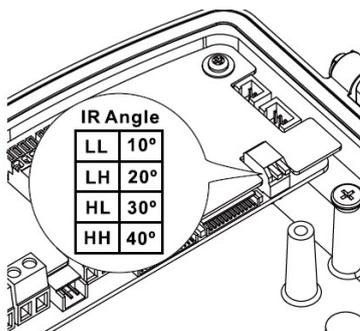
It is important to set the onboard DIP switch in the housing to configure the beam angle for effective illumination range prior to installation of the housing in its location.

Notes: The IR illuminator is used as a Digital Output; when used, the tamper switch cannot be used.

Avoid eye exposure or use appropriate protection, such as wearing infrared protection glasses, when working with the IR illuminator.

Always use camera Live view to observe IR lighting effects.

1. There is a DIP switch on the distribution board in the housing that sets the beam angle for the IR illuminator.
2. Connect the DO1 signal and GND from the distribution board to the camera's AI (Alarm In) and GND terminal block connector with customer supplied wires. The day/night mode DO1 connection enables the synchronization of the IR light and the automated day/night switching mechanism on the camera.
3. Set this switch as in the graphic below as needed.



DIP Switch :

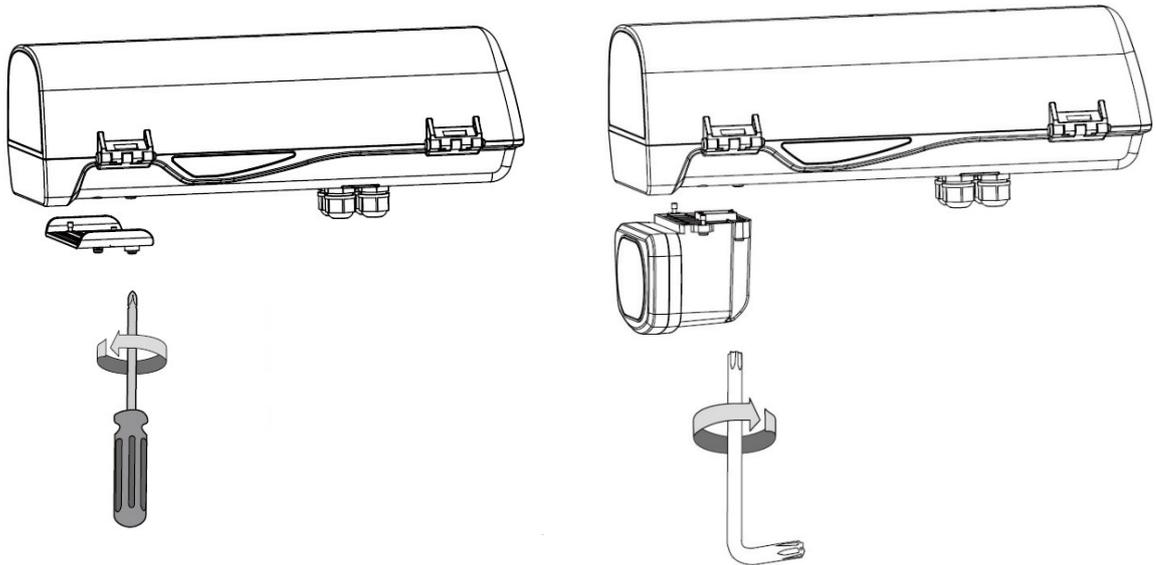


IR Illuminator				
No. of LEDs	2P			
Beam Angle	10°	20°	30°	40°
Distance {ft (m)}	459 (140)	361 (110)	262 (80)	164 (50)

Note: It is recommended that when the lens is set at 9 mm, the beam angle be set at 40°; for 50 mm, set to 10°. The default setting is 10° (LL).

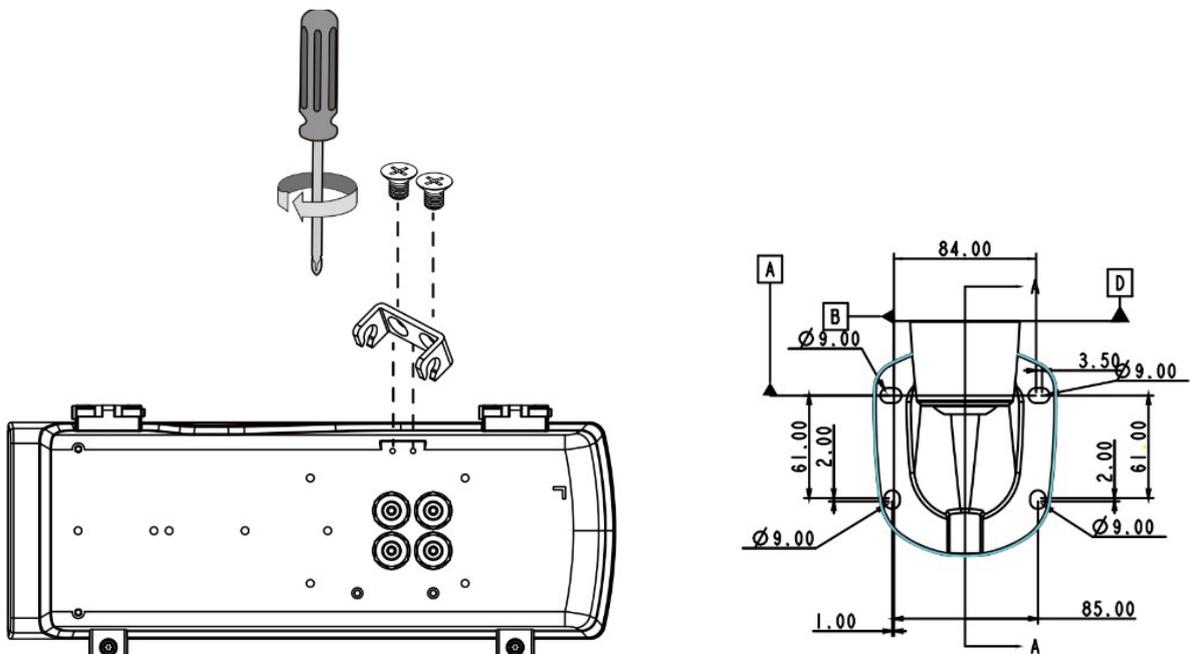
To install the IR illuminator onto the housing, follow the steps below.

1. Power off the camera housing/camera before installing the IR illuminator. The camera housing/camera will be damaged if the IR illuminator is installed when the camera housing is powered.
2. Remove the metal cover from underneath the housing. Install the IR unit by fastening the 4 T30 anti-tamper captive screws; this will make all necessary connections between the IR unit and the housing. Note that the rubber gasket should be in place when installing the unit.



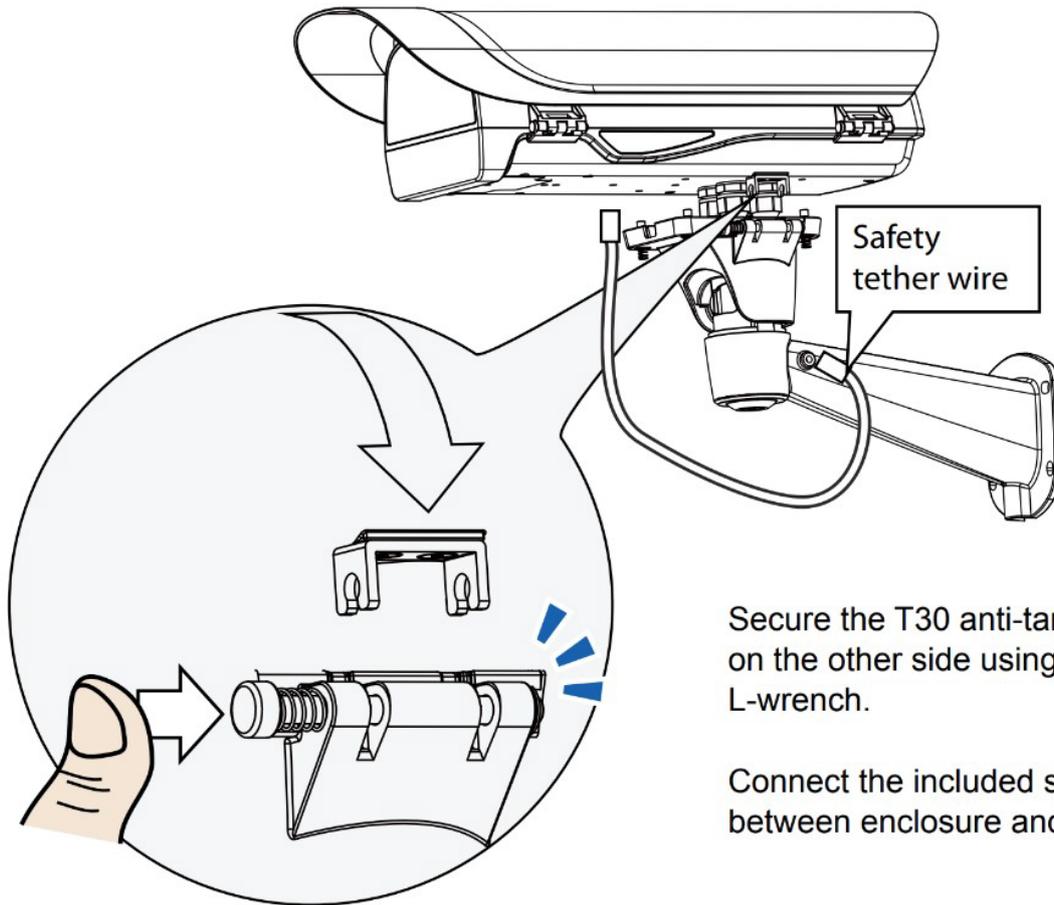
2.2.7 Installing the Wall Mount Bracket

1. To install the wall mount, secure the connection bracket to the bottom of the housing with two screws (supplied). Mounting hole dimensions below for planning the location of the bracket.



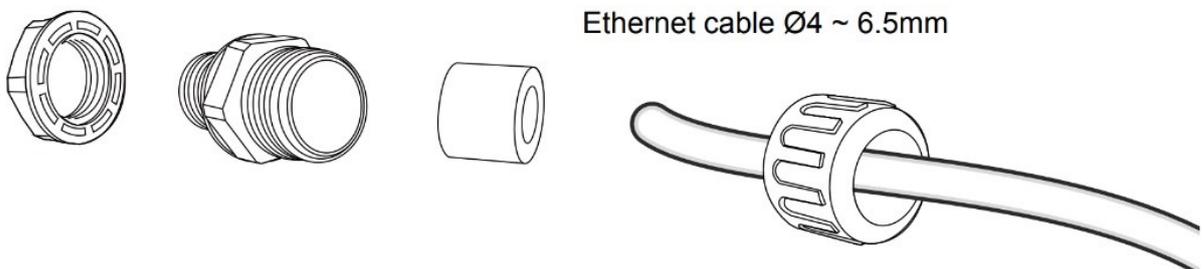
2. Install the housing to the wall mount bracket by pressing the spring bolt and latching the connection bracket onto the grooves in the spring bolt.

Note: To release the wall mount to allow it to swivel to desired position, use the Allen wrench to loosen the screw at the top of the mount.



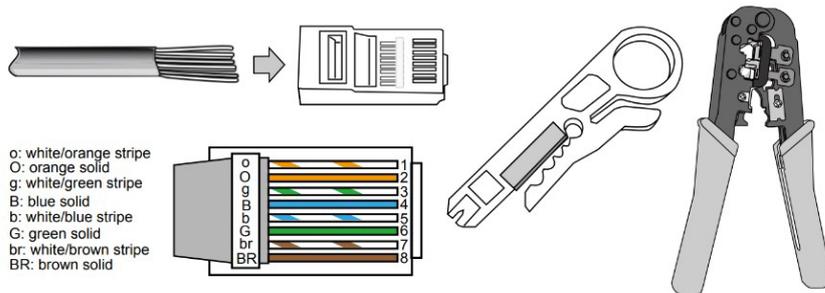
The housing/wall mount can be installed at the selected location; be sure the location can support the combined weight of the housing and camera. Note that an optional pole mount adapter is available, model V-HSG-PM.

1. Drill mounting holes and a cable access hole if necessary. Route necessary cables to the installation site if not already done.
2. Lift the entire housing/wall mount assembly up to the installation location and secure with appropriate hardware.
3. Prepare a CAT5e Ethernet cable of necessary length for the installation; pass it through one of the M16 waterproof cable glands and its waterproof components.



Note that some cables are connected when shipped; there is no need to connect heater, blower and the front IR power wires.

- It may be necessary to remove the RJ-45 connector and use a crimp tool to connect the Ethernet wires to the RJ-45 connector inside the enclosure. Use an Ethernet cable of 4 ~ 6.5 mm diameter.



- Connect this cable to the PoE In connector on the distribution board.
- When complete, tighten and install the waterproof cable glands.
- Connect the RJ-45 to the PoE In connector on the distribution board.
- When finished, close the top cover and fasten the cover screws.

2.2.8 Setting the Day Night Switch Control Mode and Lens Type

- From the camera GUI Advanced Configuration tree, select Image page; select Exposure. From the Day Night Switch Control Mode dropdown, select Alarm 1.

Exposure White Balance Basic Setting

Basic Setting

Exposure Mode	Auto
True WDR	<input type="checkbox"/>
Digital WDR	Off
Max Shutter time	1/60
Min Shutter time	1/10000
ICS Iris Control	Auto
EV	0
BLC	Off
Max Gain	48 (0~48)

Day Night Setting

Day Night Switch Control

Mode: Alarm 1

Lens Type

No Iris
 DC Iris
 P Iris
 ICS Iris

Please select...

- CBC EG6Z0915TCS MPWIR I CS MOUNT P
- CBC EG3Z3915TCS MPWIR I CS Mount P

Auto Color
 B/W
 Alarm 1

HLC Setting

HLC	Off
HLC Level	50 (0~100)

2. It is also necessary to select the lens type for the lens to function correctly according to its iris type. If the lens type does not match, the video will show a black screen.
3. Go to the Image page, Exposure, Lens Type.
4. Select the lens type corresponding to the lens that was mounted to the camera. For the the supplied V2008-W0950-LPR, select ICS lens. From the dropdown, select CBC EG6Z0915TCS_MPWIR_I_CS Mount_P.

Day Night Setting

Day Night Switch Control

Mode

Lens Type

No Iris

DC Iris

P Iris

ICS Iris

HLC Setting

HLC

HLC Level 50 (0~100)

3 Connection

3.1 Network

The camera, which is equipped with Ethernet RJ-45 network interface, can deliver live view image in real time via both Internet and Intranet environments. Review the topology drawings shown below.

3.2 System Requirements

The table below lists the minimum requirement to implement and operate the camera. It is recommended not to use any hardware/software component below these requirements for proper performance.

Table 3 - 1: System Requirements

System Hardware	
CPU	i5-2430M CPU@ 2.40GHZ
RAM	6 GB or above
Display	NVIDIA GeForce 6 Series or ATI Mobility Radeon 9500
System Software	
Operating System	Windows 7 SP1, Windows 8, Windows 10
Browser	Mozilla Firefox, Chrome, Safari, Microsoft Edge
Unit	
Power Supply	12 VDC/24 VAC/PoE (IEEE 802.3af Class 3)
Networking	
Wired*	10/100BASE-T Ethernet (RJ-45 connector)

*A switch is required for surveillance on multiple cameras.

Note All the installation and operations should comply with your local electrical codes.

Caution When powering via PoE, this camera is to be connected only to PoE networks without routing to heterogeneous devices. A heterogeneous network is a network connecting computers and other devices where the operating systems and protocols have significant differences

3.3 Connecting Process

3.3.1 Accessing the Camera

The camera can be accessed directly from its web page or using Vicon's [PRONTO Device Manager](#), which can be found on Vicon's website. Note that when accessing the camera for the first time, a message will display to reset the password.

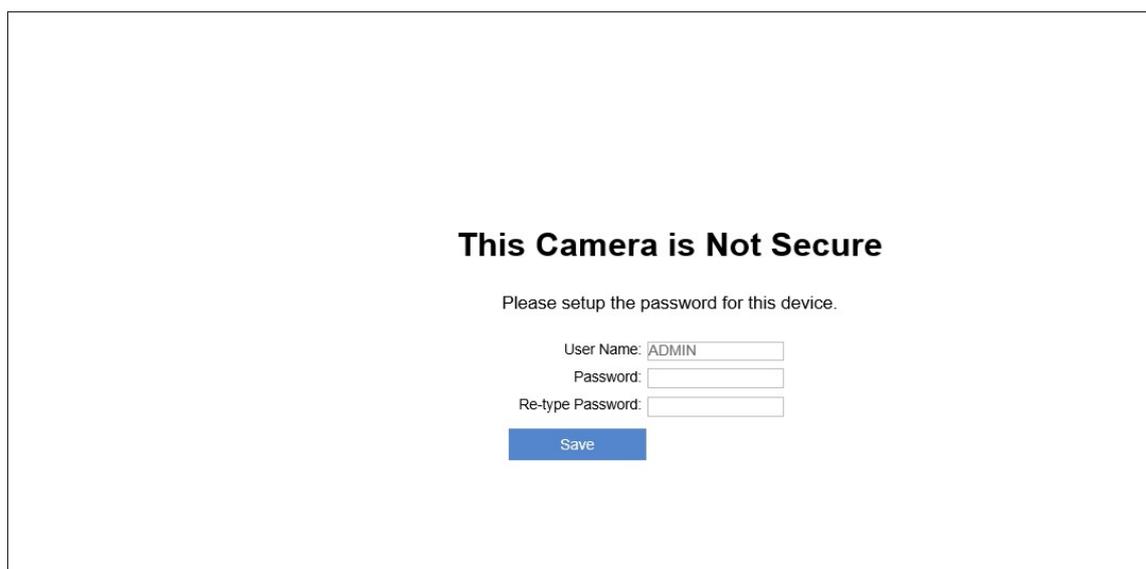
Since this is a network-based camera, an IP address must be assigned. The camera's default IP address is obtained automatically through a DHCP server in your network; be sure to enable DHCP in "Network Settings." If DHCP is not available, the camera will use APIPA (link-local address); IPv4 link-local addresses are assigned from address block 169.254.0.0/16 (169.254.0.0 through 169.254.255.255).

3.3.2 Connecting from a Computer

Connecting from a computer

1. Make sure the camera and your computer are in the same subnet.
2. Check whether the network is available between the camera and the computer by executing ping the default IP address. To do this, simply start a command prompt (Windows: from the "Start Menu", select "Program". Then select "Accessories" and choose "Command Prompt"), and type Ping and then type in your IP address. If the message "Reply from..." appears, it means the connection is available.
3. Start a browser, e.g., Internet Explorer, and enter IP address. A login window as shown below should pop up. In the window, enter the default user name: **ADMIN**; it is required to change the password when you login for the first time for added security, which requires at least 8 characters including 1 uppercase letter, 1 special character, alphanumeric characters to log in.

Further administration on the unit can be found in "**User Manual.**"



The screenshot shows a web browser window with a white background. At the top center, the text "This Camera is Not Secure" is displayed in a bold, black font. Below this, a smaller line of text reads "Please setup the password for this device." There are three input fields: "User Name:" with "ADMIN" entered, "Password:", and "Re-type Password:". A blue "Save" button is positioned below the input fields.

Figure 3 - 1: Login Window

3.4 PRONTO Device Manager

PRONTO is Vicon's device manager (Discovery tool) that can be used to discover all Vicon cameras on a system. The complete [User Manual](#) can be found on Vicon's website.

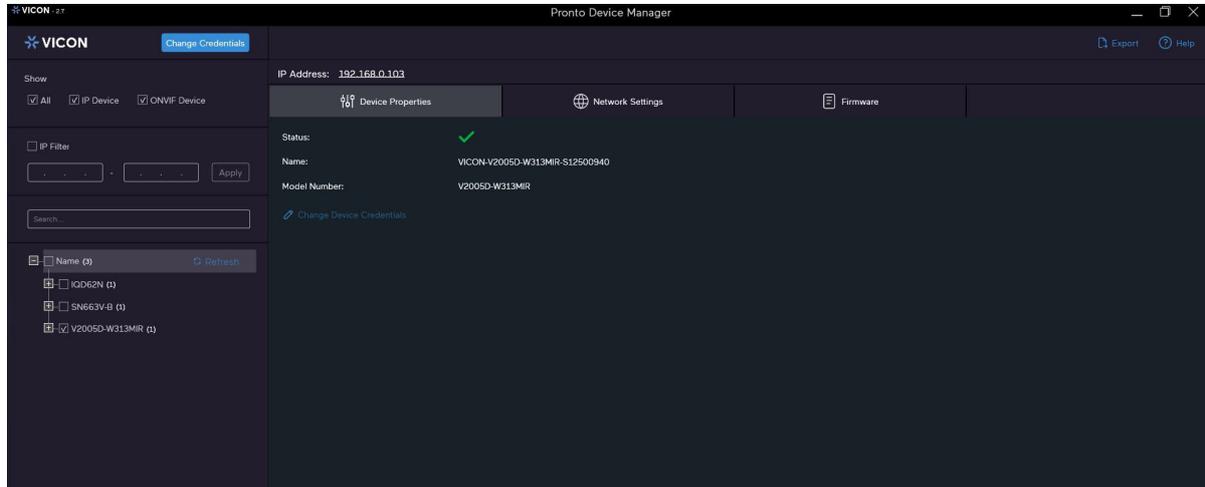


Figure 3 - 2: PRONTO Interface

- Upon startup of the PRONTO Device Manager, the tool's auto-discovery function generates a list of the discovered cameras on the network in a resource list.
- There are a variety of filtering options, including filter by All Devices/IP Device/ONVIF Device; IP range or text.



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For office locations, visit the website: vicon-security.com

