IP816A-LPC-v2
License Plate Capturing Solution
Highway & Street

Installation Guide

Rev. 1.0

Document part no.: 625041100G

Ordering part no.:
IP816A-LPC-v2 (Highway): 199002900G
IP816A-LPC-v2 (Street): 199002800G

CAUTION:
TO REDUCE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT REMOVE COVER.
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

UNPACKING:
Unpack carefully. Electronic components can be damaged if improperly handled or dropped. If an item appears damaged in shipment, place it properly in its carton and notify the shipper.

IMPORTANT!:

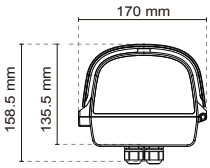
1. Read and follow Instructions: All operating and user instructions should be read and followed before the unit is to be operated.
2. Electrical Connections: Only a qualified electrician is allowed to make electrical connections.

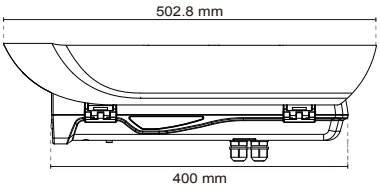
I Specifications

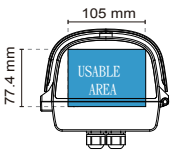
Model Number	LPC enclosure
Power Input	24V AC
Max. Output power budget	48W (Street); 80W (Highway)
Power Consumption	Window heater: 10W; Blower: 2W; Camera: 6 ~ 8W
Environmental Operation Temp.	-20°C ~ +50°C (-4°F ~ +149°F)
Protection Level	IP68, IK10
Mounting Bracket	Fully-cable Management
Construction	Die-cast Aluminum Alloy
Coating	White epoxy powder coating
Dimensions	502.8 (L) x 170 (W) x 400 (H) mm
Net Weight	6,482g (9.24 lb)

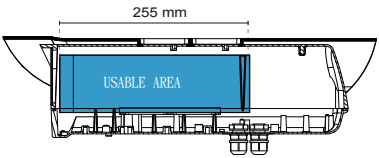
II Mounting Configuration & Dimensions

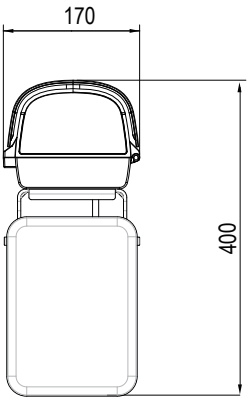
Swivel Positions and Directions

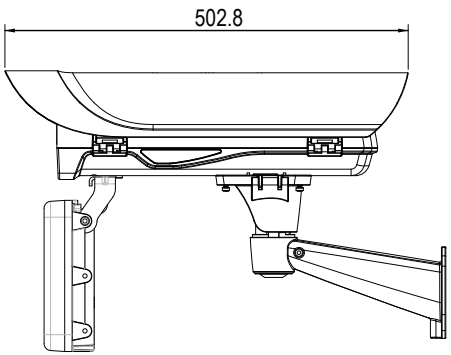




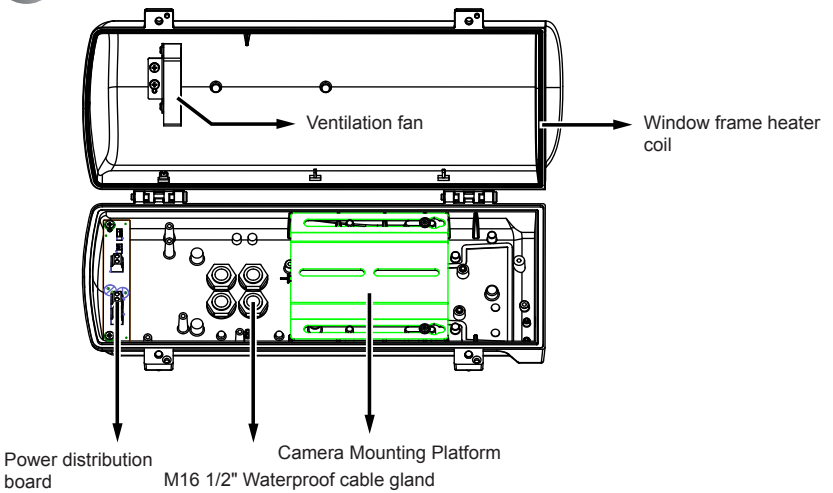








III Component Description



IV Installation Suggestions

If you plan to install this camera enclosure into a tropical, sea coastal, or an environment where salt water or corrosive industrial waste water/moist are present, please seal each stainless steel screws and fittings with a silicon grease compounds. This will help prevent electrolysis to occur and extend the life span of the camera and housing.

IMPORTANT:

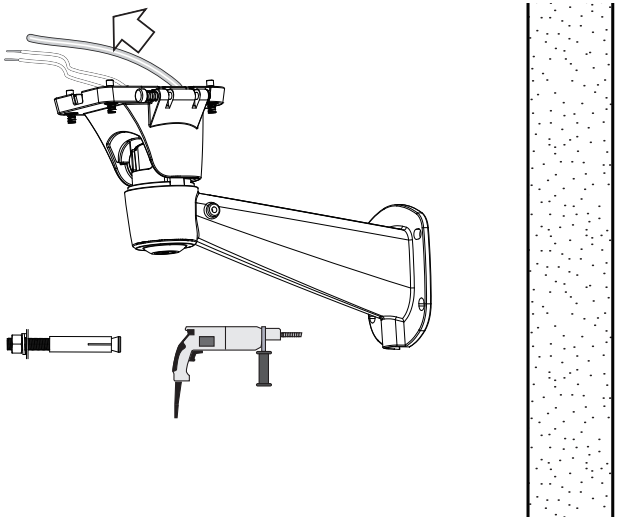
1. Disconnect devices: A readily accessible disconnect device in the building installation wiring should be incorporated.
2. Electrical Connection: Only a qualified electrician is allowed to make electrical connections.

WARNING:

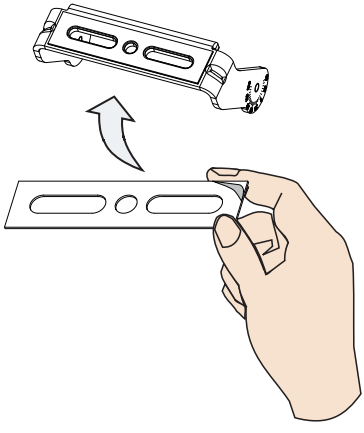
- Please avoid eye exposure or apply appropriate protection, such as wearing a pair of Infrared protection glasses, when working with the product. Always use camera live view to oberve IR lighting effects.

V Installation

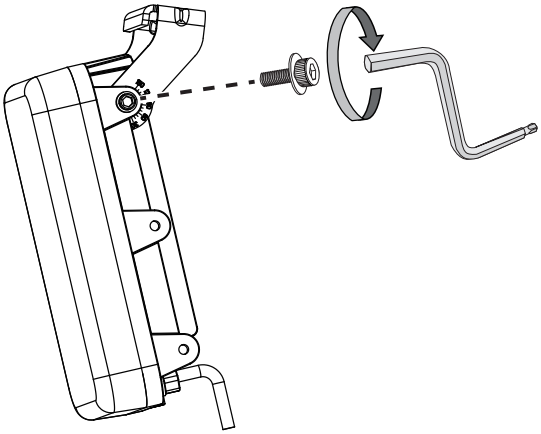
1. Install the wall-mount bracket to a preferred location at your installation site. Drill mounting holes and a cable routing hole (if preferred) on a wall. Install the bracket. Prepare and route the wiring, Ethernet and 24V power source.



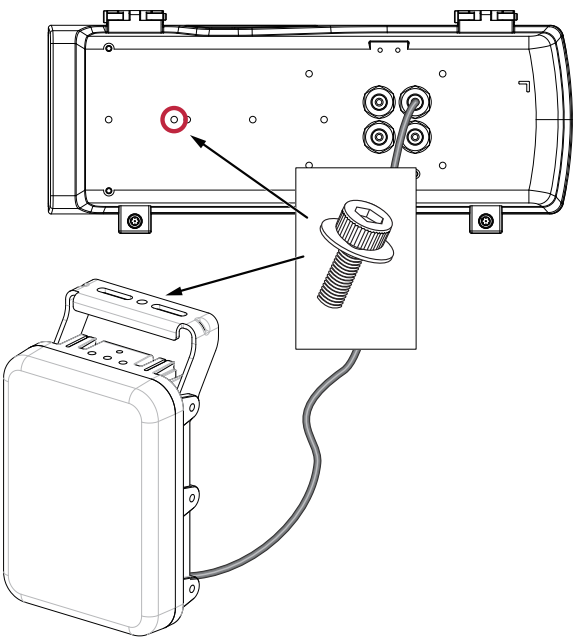
2. Install the IR illuminator to the bottom of the housing. Attach the included grip stricker to the U bracket.



3. Secure the U bracket to the IR illuminator using the included wrench and hex screws.

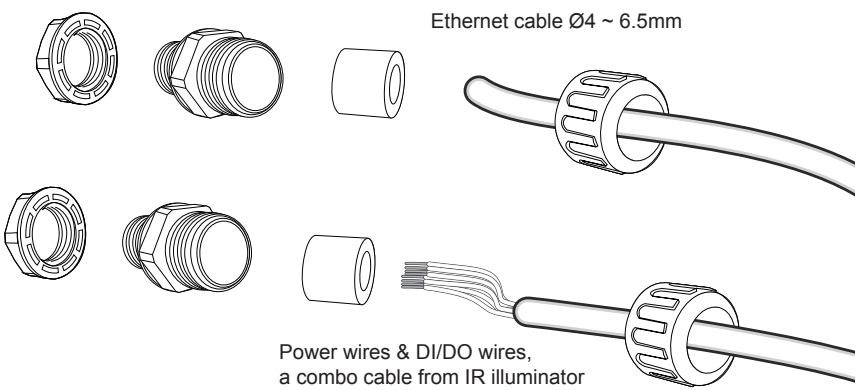


4. Flip the housing over and place it on a clean, stable surface. Secure the IR illuminator to the bottom of the housing using the included wrench and a hex socket screw.

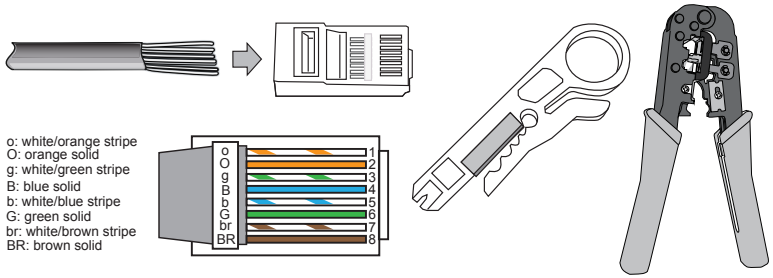


5. You can turn the IR illuminator so that its flat side is parallel with the housing, and that you can turn the assembly over and work on the inside of the housing.

6. Prepare power wires, a ground wire, and a CAT5e Ethernet cable. Pass them through the M16 waterproof connectors under the housing.

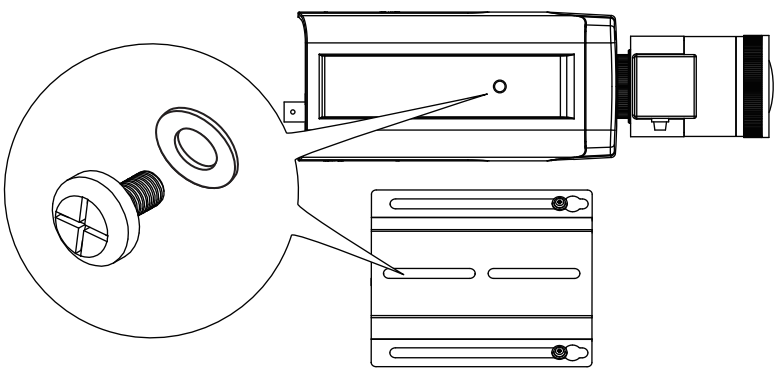


You may need to remove the RJ45 connector, and use a crimping tool to connect the Ethernet wires to an RJ45 connector inside the enclosure. Use an Ethernet cable of the width of 4 ~ 6.5mm.



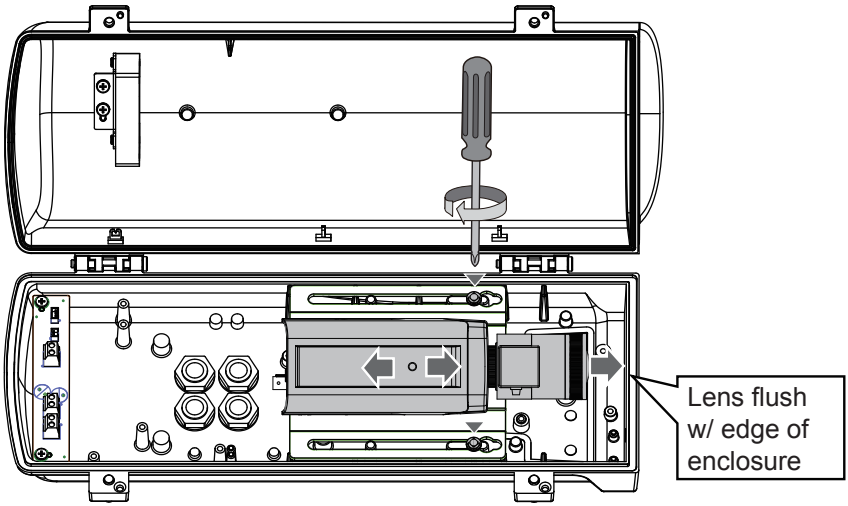
7. When done, tighten up and install the waterproof connectors.

8. Assemble the camera components, e.g., the CS ring and lens module. Secure the mounting plate to the bottom of the camera (the label side) using the included screw.

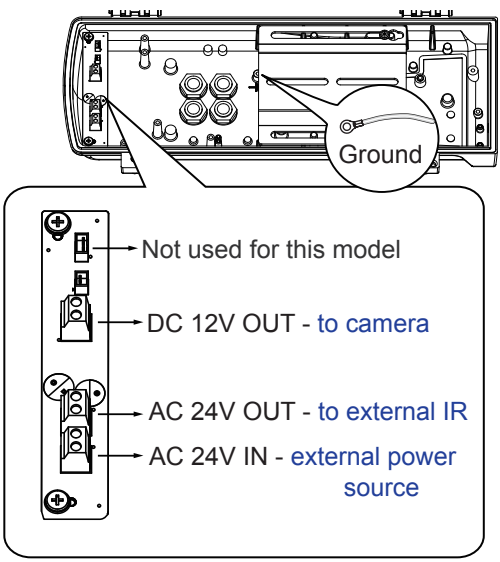


There is a plastic mount pad in the package. You do not need the mounting pad using the VIVOTEK camera.

9. Adjust the camera's position so that the lens module can flush align with the tempered glass. Secure the camera using the screws and washers to the bottom of the housing.



10. Connect 24V power source to the power input terminal. Connect power wires from the DC 12V output to the camera. Connect the 24V power output to drive the external IRs.



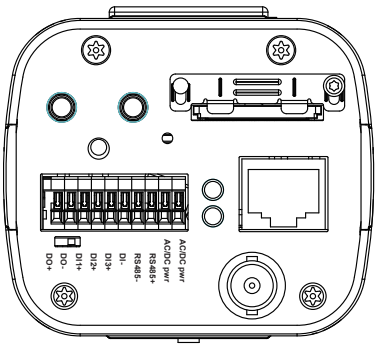
You should prepare a power adaptor of the sufficient capacity for supplying 24V input. Below are the requirements:

	Total consumption	Power adaptor
LPC Highway	80W	7A
LPC Street	48W	5A

11. Connect the Ethernet cable to the camera's RJ45 socket.

12. Also pass the combo cable of the IR illuminator through a waterproof connector.

13. Connect the day/night signal lines from the IR unit to the DI/DO connectors on the camera's terminal block.

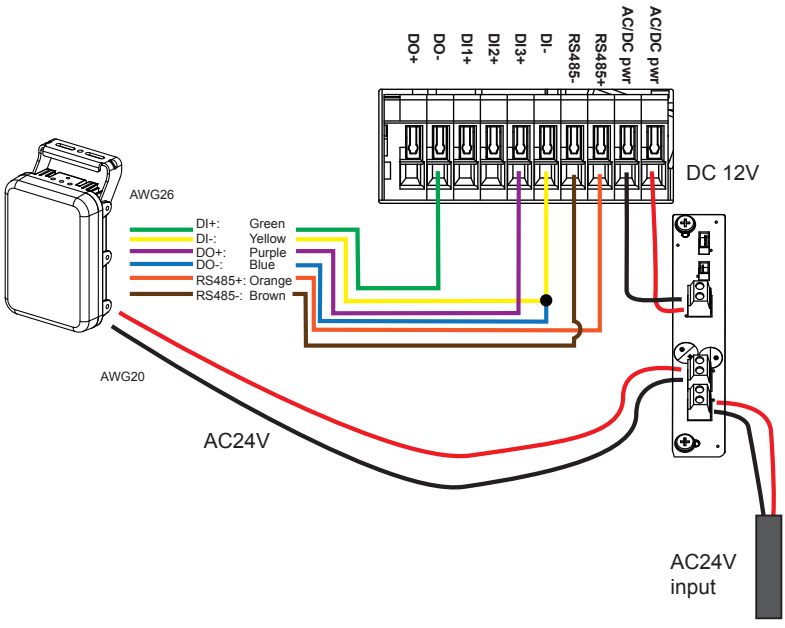


The day/night mode DI connection enables the synchronization of IR light and the automated day/night switching mechanism on the camera.

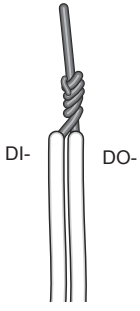
Cable Pinouts (IR Illuminator)

Name	Color	Gauge	Description
V+	Red	(20AWG)	Power input 12~24V DC±10% 24V AC±10% (50~60Hz), (14.5VDC current controlled)
V-	Black	(20AWG)	
DI+	Green	(26AWG)	LED ON/OFF control * Dry contact Logic level 1(Open) = LED off Logic level 0(Close to GND) = LED on * Wet contact Logic level 1: 4V~40 V = LED off Logic level 0: 0.8V MAX = LED on
DI-	Yellow	(26AWG)	Ground
DO+	Purple	(26AWG)	Light sensor status output 1. Open = Day 2. Short = Night (20 lux for IR ON)
DO-	Blue	(26AWG)	Ground
RS485+	Orange	(26AWG)	RS485 interface control
RS485-	Brown	(26AWG)	

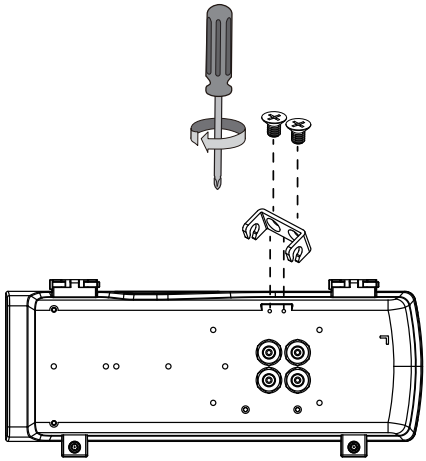
A sample connection diagram consisting of CaMate's IR illuminators and the IP816A camera is shown below. Please refer to your camera's documentation if your camera comes with different pinouts.



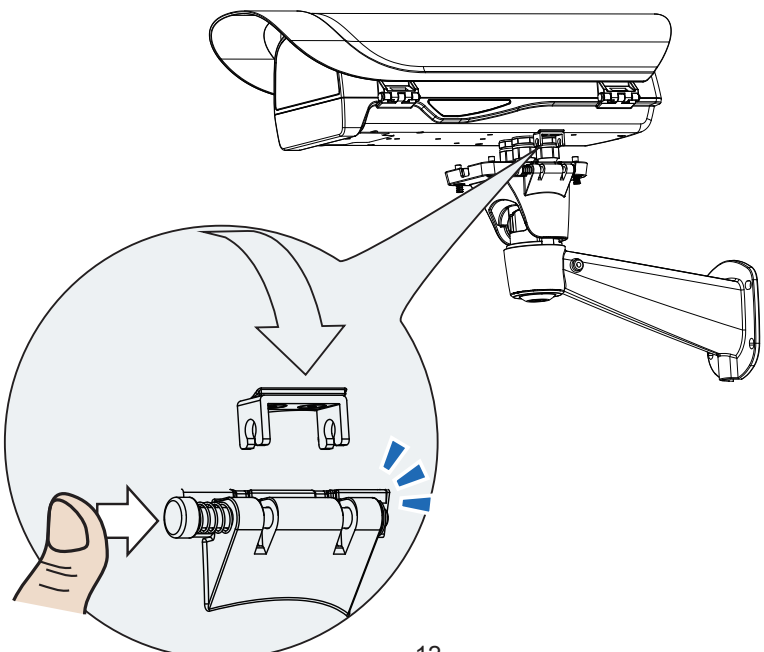
14. You can connect the ground wires together and connect them to the DI- ground pin on the terminal. Use a small flat blade screwdriver to press the lever on the terminal block.



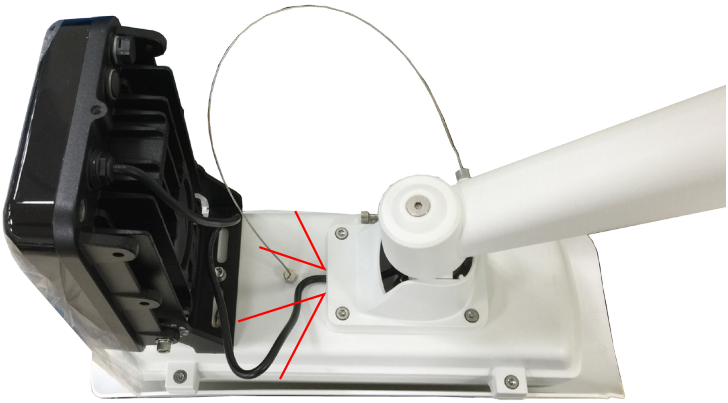
15. Secure the intersection bracket to the bottom of the housing by driving two screws.



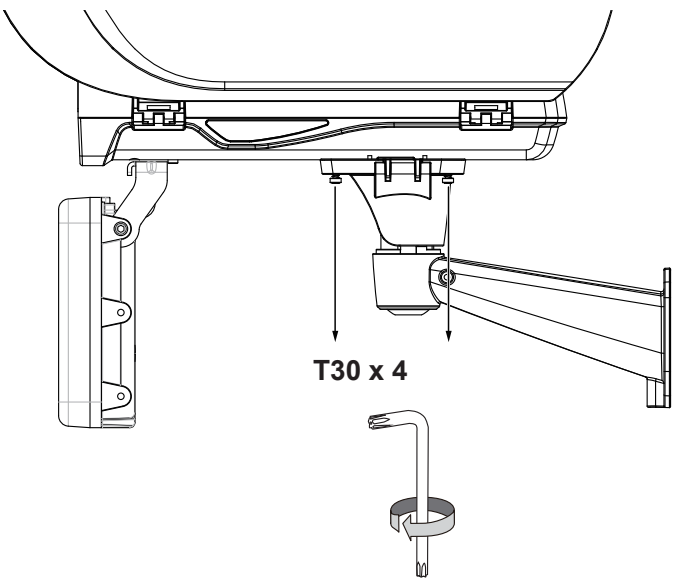
16. Install the housing to the wall-mount bracket by aiming and pressing the spring mortise, and hook the bracket onto the groove in the spring mortise.



When mounting the housing, please carefully place the cable within the cutout on the bracket. There is a cutout for routing the cable.



17. Secure the housing to the bracket by fasteninng 4 T30 screws.

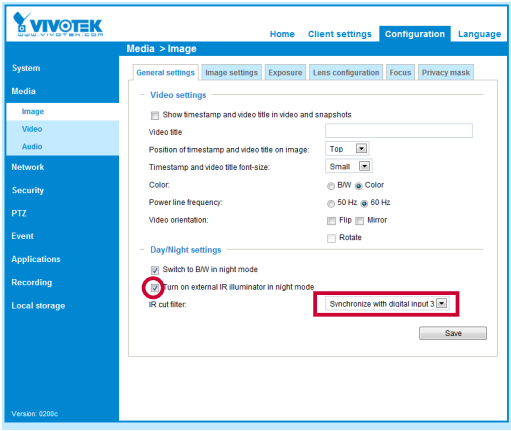


18. Adjust zoom and focus and open a web console with the camera to tune for the best image. When zoom and focus is done, Close the top cover and fasten the hex screws from below.

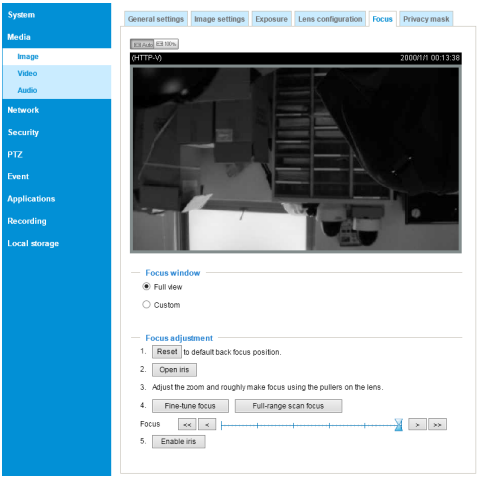
19. Firmware configurable options:

Make sure that the external IR is turned on in the night mode, and that the IR cut filter option is synchronized with the digital input you connected (default is DI3).

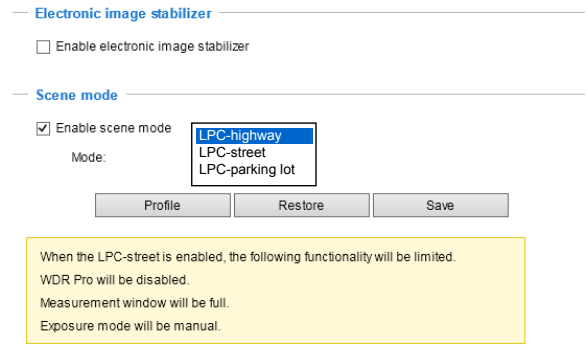
When the "Turn on external IR illuminator in night mode" is selected, a digital output signal will be triggered to turn on the IR illuminators.



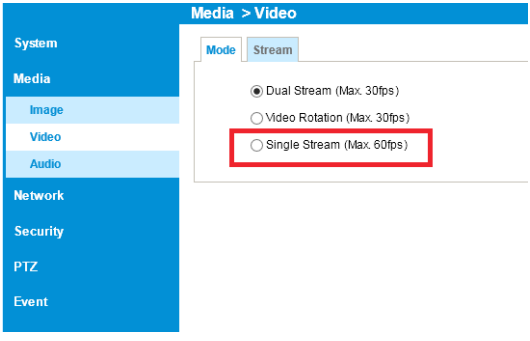
Use the Media > Focus function to tune for a best image focus on your target area.



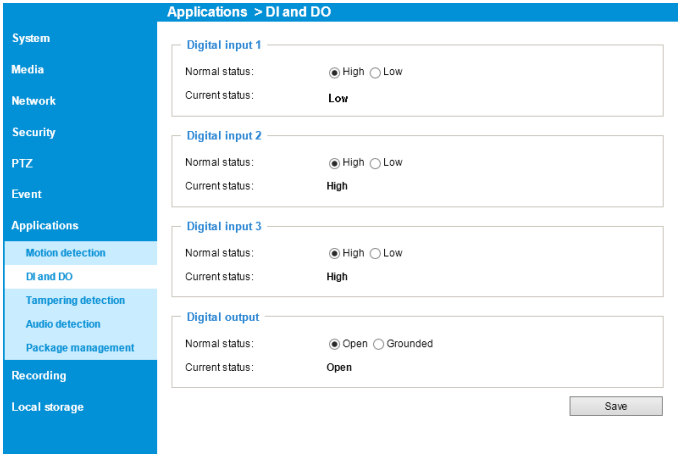
In the Configuration > Media > Image settings page, select an application scenario, LPC Highway, street, or parking lot mode. The related parameters, such as shutter time, will be automatically changed for the scenario.



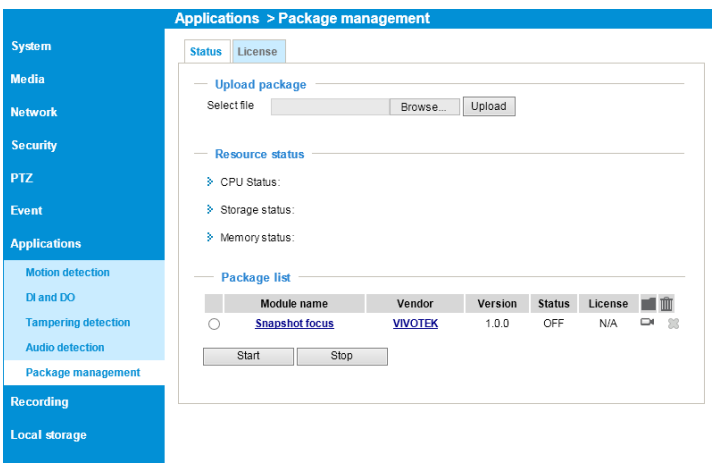
If preferred, e.g., shooting fast moving vehicles, select the 60fps frame rate.



In the night mode, check if the input signals are correctly detected. You may simulate the night mode by blocking the IR unit's light sensor. Change the triggering parameters if necessary.



If your target area is a stretched out field of view, such as shooting a part of a highway, finding the best focus can be a problem. You can use the Snapshot Focus utility to make sure you acquire clear images of the license plates of passing vehicles.



Operation Procedure:

1. Press the Snapshot Recording button, e.g., when a car is passing the field of view. A short, 2.5 seconds of video recording will be available (including 1 second of pre-recording and another second of post-recording).

2. The recording takes place on Stream 1 with a focusing result calculated from the full of the current field of view.

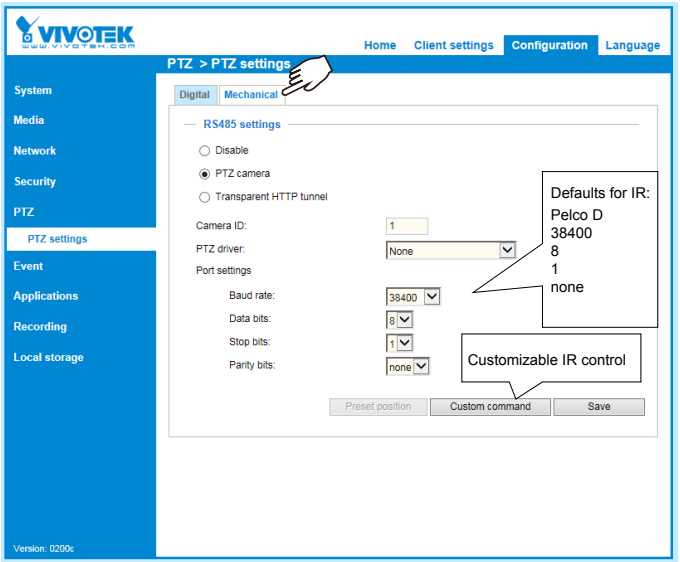
3. The Snapshot Focus comes with an embedded Quick time player. Users can review the current focusing results on a viewing window. Users can also use **the left arrow key** on their keyboard to go through the recording in a frame-by-frame manner (after the video is played once).

   In this way, an installer can immediately examine whether the focus is optimal when a fast going car is captured by video. If not, he can tune the focus again and review the imaging result until satisfied.

4. Users can also download the short recording clip to a PC. Note that if the Snapshot Focus page is refreshed or the web session is closed, the recording will be erased.

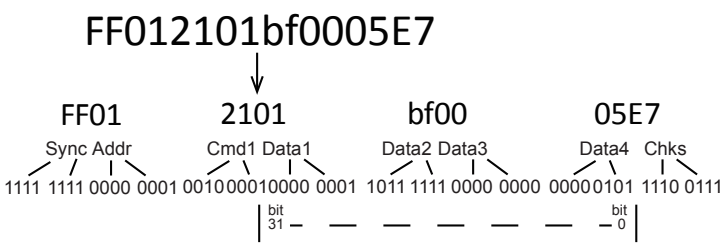
   Note that you can use the arrow buttons on the sides of the Focus tuning bar to find the best focus.

The parameters of IR illuminator can be controlled via the RS485 connection. You can enable the connection in **Configuration** > **PTZ** > **Mechanical** window. Select the defaults for the IR illuminator: Pelco D, baud rate - 38400, Data bits - 8, Stop bit - 1, Parity - none.



You can create custom buttons on a web console, such as IR brightness (Lux), threshold, dimming, etc.

The IR control commands come in an 8 byte format. A sample command is shown below:

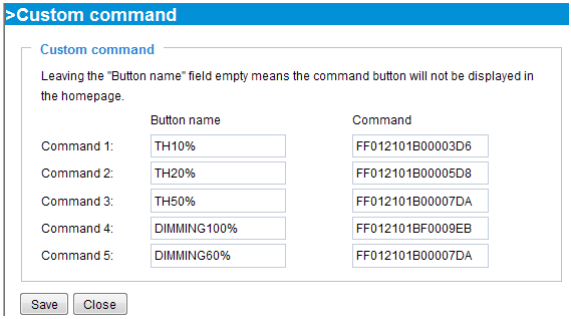


The format uses Hexadecimal 0-9, A-F. Each 8-bit byte contains two 4-bit hexadecimal characters. Two hexadecimal characters contained in each 8-bit field of message.

Below is the table of configurable data bit (Data1 ~ Data4) values:

bit 31 ~ 24	Device ID: 01 (default) ~ 127
bit 23 ~ 21	Baud rate (0)1200, (1)2400, (2)4800, (3)9600, (4)19200, (5)38400 (default), (6)57600, (7)115200 bps
bit 20 ~ 16	Brightness: (0) ~ (31), brightness from 0 ~ 100% (default), increment unit is 2.5%
bit 15 ~ 13	LED control mode: (0) DI, (1) Direct, (2) Timer, (3) Light sensor, (4) DI pulse, (5) LPR, (6) LED dimming by light sensor (default).
bit 12	LED status: (0) Off ready only (default), (1) On
bit 11 ~ 10	Fade in/out: (0) Off, (1) Fast, (2) Slow.
bit 9	DI activation polarity: (0) Low (default), (1) High,
bit 8	DO activation polarity: (0) Low (default), (1) High.
bit 7 ~ 6	Reserved
bit 5 ~ 4	DO mode: (0) Light sensor state (default), (1) LED state, (2) Diagnostic
bit 3 ~ 1	Light sensor day/night threshold: (0) 1 Lux, (1) 5 Lux, (2) 10 Lux, (3) 20 Lux, (4) 50 Lux, (5) 100 Lux, (6) Infinite.
bit 0	LED indicator control: (0) Off, (1) On (default)

You can create custom command buttons by entering the Button name and the command itself:



Below are some of the command samples:

Threshold 10%	Brightness 100%	FF012101bf0005E7
	Brightness 90%	FF012101bc0005E4
	Brightness 80%	FF012101b80005E0
	Brightness 70%	FF012101b40005DC
	Brightness 60%	FF012101b00005D8
Threshold 20%	Brightness 100%	FF012101bf0007E9
	Brightness 90%	FF012101bc0007E6
	Brightness 80%	FF012101b80007E2
	Brightness 70%	FF012101b40007DE
	Brightness 60%	FF012101b00007DA
Threshold 50%	Brightness 100%	FF012101bf0009EB
	Brightness 90%	FF012101bc0009E8
	Brightness 80%	FF012101b80009E4

Brightness 70%	FF012101b40009E0
Brightness 60%	FF012101b00009DC

The customized buttons will appear on the main page for easy access to IR control.