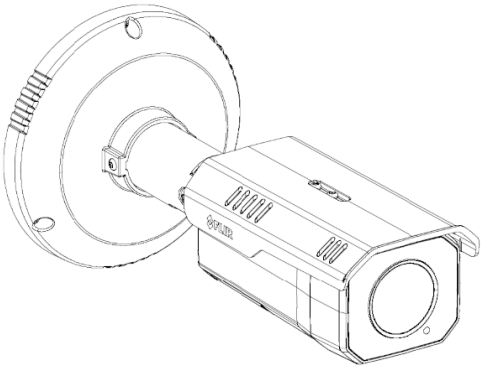
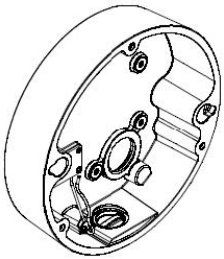
Quasar™ Premium Bullet AI with FLIR Edge AI Video Analytics Camera Quick Install Guide



Camera Body, Assembly, and Sun Shield



Back Box

1 Check Contents

The camera kit includes:

- one rubber multiple-cable gland
- a T10 Torx Security wrench
- a T20 Torx Security wrench
- Mounting template sticker
- Printed installation guide (this document)
- Back Box with hole caps, plugs, and washers attached
- one two-pin connector for the 12V DC / 24V AC terminal block
- two four-pin connectors for the alarm and I/O terminal blocks
- two TP4x20 tapping screws for attaching the CB-650x back box to the mounting surface
- two plastic screw anchors for attaching the CB-650x back box to the mounting surface

If any of these items are missing or damaged, contact your dealer or Teledyne FLIR Support.

2 Select a Location

The camera can be mounted outdoors or indoors.

The camera's operating temperature range is -40°C to 60°C (-40°F to 140°F) with IR off and -40°C to 50°C (-40°F to 122°F) with IR on; cold start -40°C (-40°F); and no more than 95% non-condensing humidity.

Make sure you have the required accessories and tools.

Make sure that the location provides a suitable method for routing cables to and from the camera.

Tip

To support video analytics (VA), mount the camera so that it can accurately detect and classify objects.

Warnings

- Placing a camera in an environment subject to extremely high temperature can result in an explosion or the leakage of flammable liquid or gas.
- Subjecting the camera to extremely low air pressure can result in an explosion or the leakage of flammable liquid or gas.
- The camera must be installed by qualified personnel and the installation should conform to all local codes.
- Except as described in these guides, do not open a Quasar Premium Bullet AI camera or attempt to disassemble it. Attempting to disassemble the camera can cause permanent damage and voids the warranty.
- Electrostatic discharge (ESD) or careless handling can cause damage to the camera. To avoid damaging electrostatic-sensitive components, always handle the camera with care.

Supplying Power to the Camera

The camera can be powered by 12V DC, 24V AC, or PoE+.

Maximum Power Consumption	12V DC	24V AC	PoE+
with IR (without heater)	16.6 W	14.6 W	15 W
without IR (with heater)	17.9 W	15.6 W	16.3 W

For assistance with purchasing a power supply, contact Teledyne FLIR.

3 Connect the Camera

Connector	Connection	
RJ-45 Two LEDs	Attach an Ethernet cable from the network switch to the RJ45 connector for a 10/100/1000 Mbps Ethernet and PoE+ IEEE 802.3at connection. Ethernet is required for streaming video and for configuring the camera. The orange LED indicates the status of a 1000 Mbps connection. The green LED indicates the status of a 10/100Mbps connection. A steady LED indicates an active connection. A flashing LED indicates network activity.	
POWER	DC12V- / AC24V~	If using a 24V AC or 12V DC power supply, connect it to the power terminal block connector according to the pin assignment on the connector label.
	DC12V+ / AC24V~	
AUDIO	AUDIO OUT- / +	Attach wires from external audio devices to the terminal block connector for audio in/out according to the pin assignment on the connector label.
	AUDIO IN- / +	
ALARM	ALARM IN- / +	Attach wires from external devices to the terminal block connector for alarm in/out according to the pin assignment on the connector label.
	ALARM COM / OUT	

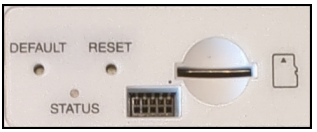
Warnings

- The power cord to the 12V DC or 24V AC power supply unit must be connected to a socket outlet with an earthing connector.
- The PoE unit and all interconnected equipment must be installed indoors within the same building, including all PoE-powered network connections, as described by Environment A of the IEEE 802.3at standard.
- All electrical work must be performed by a qualified service person in accordance with local regulatory requirements.

Bottom panel interfaces

To access the camera's default button, reset button, and microSD card slot, remove the access cover by loosening four screws.

Bottom of the Camera



Bottom Panel Interfaces

Interface	Description
DEFAULT (D)	To reset the camera to its factory defaults, press the button for at least 10 seconds.
RESET (R)	To reboot the camera, press the button for between 3-10 seconds.
STATUS	LED that indicates: • **Green—**Normal. Three minutes after a successful boot, turns off. • **Amber (flashing)—**Firmware upgrade in progress. • **Red—**Solid for first 2-3 seconds of booting up. If LED remains red, an error has occurred. Try again to boot up the camera.
Console	For Support only.
microSD card slot	For video clip and snapshot recording and file storage, insert a microSDXC card in the card slot (maximum 2 TB SD Bus Mode UHS I). When the camera is powered on, do not remove the microSD card.

4 Configure for Networking

To discover the camera on the network, Teledyne FLIR recommends using the FLIR Discovery Network Assistant (DNA) tool, which does not require a license to use, and is a free download from the product's web page on the Teledyne FLIR website. After downloading the DNA ZIP file, extract it.

You can configure the camera using the DNA tool, the camera's web page, or a supported VMS.

	DNA tool	Camera's web page
Discover camera IP address	•	
Configure IP address, mask, and gateway	•	•
Change user credentials	•	•
Configure DNS settings, MTU, and Ethernet speed		•
Change video format	•	•

	DNA tool	Camera's web page
Configure more than one camera at the same time	•	

For information about using the DNA tool to configure one or more cameras, see the *DNA User Guide*. While the software is open, click the Help icon .

For information about using the camera's web page to configure the camera, see the camera's installation and user guide. For information about using a supported VMS to configure the camera, see the VMS documentation.

By default, DHCP is enabled on the camera and a DHCP server on the network assigns the camera an IP address. If the camera cannot connect to a DHCP server, the camera's default IP address is 192.168.0.250. For example, if the camera is managed by FLIR Horizon or Meridian VMS and the VMS is configured as a DHCP server, the VMS automatically assigns the camera an IP address.

If the camera is managed by FLIR Latitude VMS or is on a network with static IP addressing, you can manually specify the camera's IP address using the DNA tool or the camera's web page.

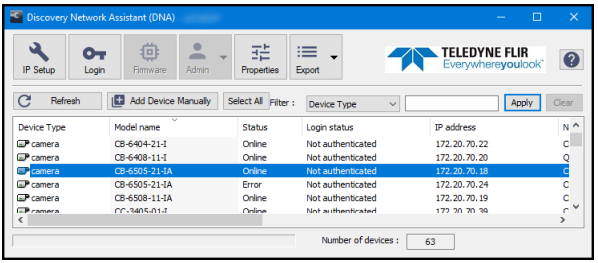
To manually specify the camera's IP address using the DNA tool:

a. Make sure the camera and the PC are on the same LAN segment.

b. Run the DNA tool (DNA.exe) by double-clicking .

The Discover List appears, showing compatible devices on the LAN segment and their current IP addresses.

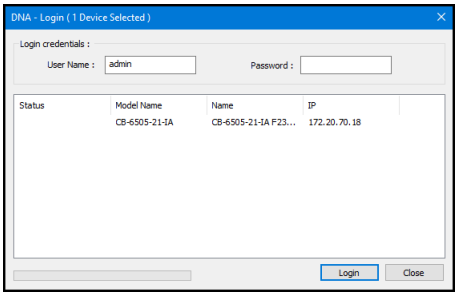
c. In the DNA Discover List, verify that the camera's status is Online.



If this is the first time you are configuring the camera or if it is the first time after resetting the camera to its factory defaults, DNA automatically logs in to the camera with user name *admin and* its default password (*admin*).

If the *admin* user's password is not the default password, you need to authenticate the camera.

1. In the DNA Discover List, select the camera and then click **Login**  .
2. In the **DNA - Login** window, type *admin* or the name of any user assigned the admin role; and the password. If necessary, contact the person who configured the camera's users.

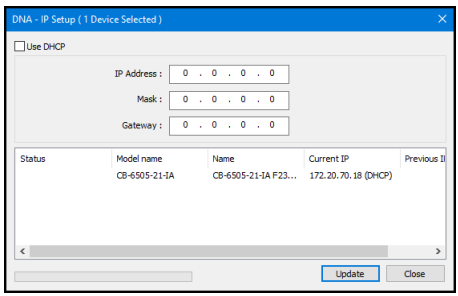


3. Click **Login**, wait for ✔ Ok status to appear, and then click **Close**.

d. Verify that the camera's Login status is Authenticated.

e. Change the camera's IP address.

1. Make sure the camera is selected in the Discover List, and then click **IP Setup**  .
2. In the **DNA - IP Setup** window, clear *Use DHCP* and specify the camera's *IP address*. You can also specify the *Mask* (default: 255.255.255.0) and *Gateway*. Then, click **Update**, wait for ✔ Ok status to appear, and then click **Close**.



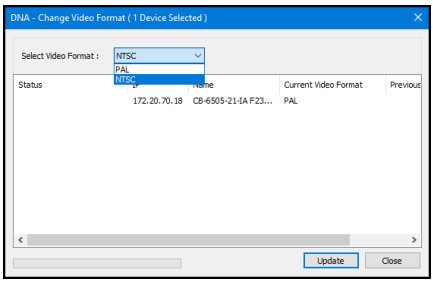
5 Change Video Format (Optional)

By default, NTSC is the camera's video format. You can change the camera's video format to PAL using the DNA tool.

a. In the DNA Discover List, right-click the camera and select **Change Video Format**.

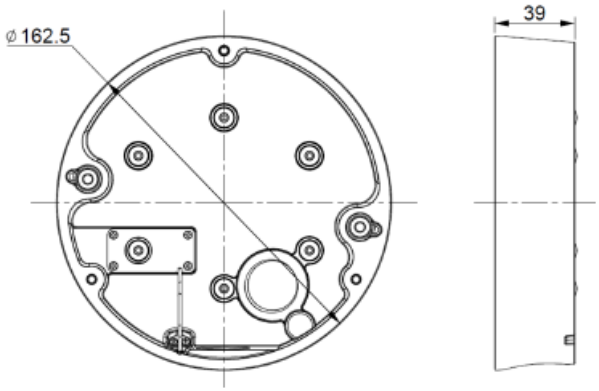
b. In the **Change Video Format** window, select PAL.

c. Click **Update**, wait for ✔ Ok status to appear, and then click **Close**.



6 Install the Back Box

Dimensions (in mm)



The CB-650x Back Box provides a 3/4" side conduit hole for routing cables into the camera.

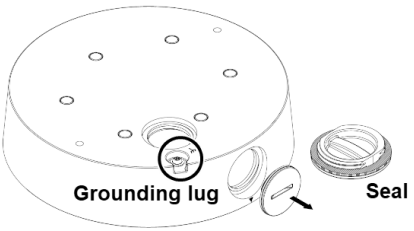
You can attach the CB-650x Back Box to a secure, flush, and vibration-free surface or to a standard single gang or double gang electrical box. You can route cables into the back box in two ways:

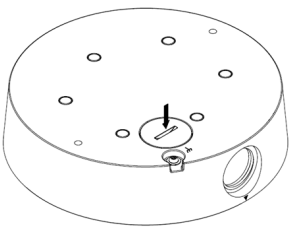
- Through the 3/4" side cable entry hole using a compression gland (not included).
- Through the 3/4" rear cable entry hole using the multiple-cable rubber gland and seal included in this kit.

The camera is shipped with a cap and rubber seal attached to the side cable entry hole. If you are routing cables through the side cable entry hole:

a. Use a coin to remove the cap and seal from the side cable entry hole.

b. Attach the cap and seal to the rear cable entry hole.





Make sure the cap is fully tightened.

Caution

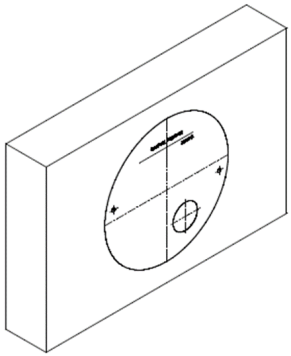
Anchor a ground strap to the grounding lug on the back box and connect it to the nearest earth-grounding point. Failure to properly ground the camera can permanently damage it.

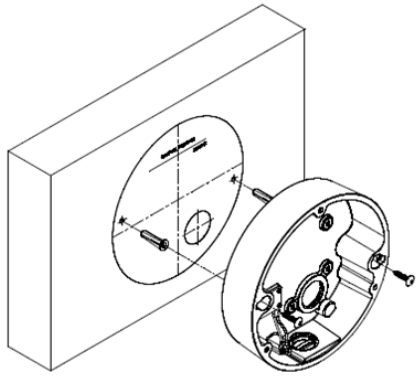
To help make sure the camera pans and tilts through its entire range; that is, to make sure the camera's mechanical stoppers do not interfere with aiming the camera, Teledyne FLIR recommends:

- **Wall mounting—**Attach the back box with the text facing up.
- **Ceiling mounting—**Attach the back box with the text facing away from the scene.

To attach the back box directly to a surface:

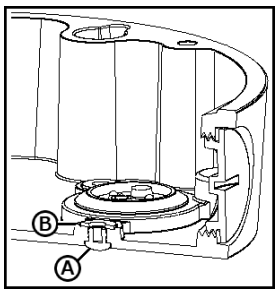
a. Using the mounting template sticker included in the kit, mark the surface and drill two anchor holes.
b. (Optional) If necessary, drill a hole for routing cables.
c. Hammer two plastic screw anchors into the drilled holes.
d. Insert the anchors and then attach the back box to the surface using two TP4x20mm tapping screws.

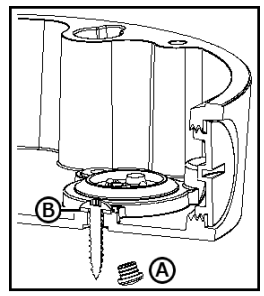




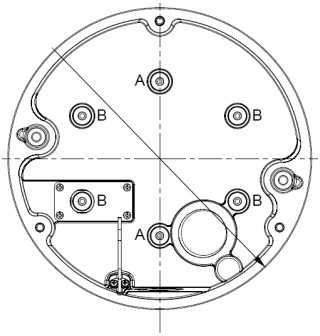
To attach the back box to a standard electrical box:

The back box is shipped with rubber seals and plugs attached to the electrical box mounting screw holes. For the holes you are not using, leave the seals and plugs in place. For the holes you are using, remove the rubber plug labeled A and leave the rubber seal labeled B in place to prevent water from entering the camera.





For example, if you are attaching the bracket to a single gang electrical box, remove the rubber plugs from the holes marked A on the back box. Leave the seals in place.



A: SINGLE GANG
B: DOUBLE GANG

Using truss head screws (not included), attach the back box to the electrical box.

7 Route the Cables

To route cables through the side conduit hole:

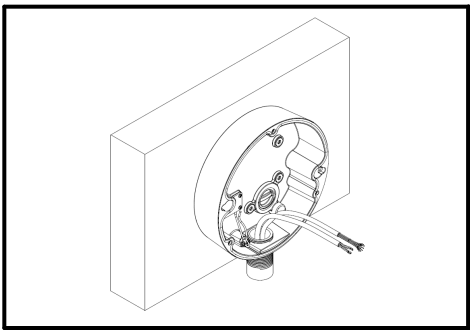
a. Attach a 3/4" PF thread or NPT thread compression gland (not included) to the side conduit hole.

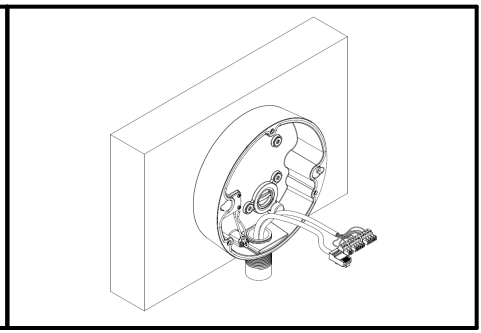
PF thread	NPT thread
 For waterproofing, use a rubber seal.	 For improved waterproofing, use thread seal tape.

b. Make sure the seal is securely seated on the inside and outside of the cable entry hole. To seal any gaps, apply silicone sealant.

c. Route unterminated cables into the back box.

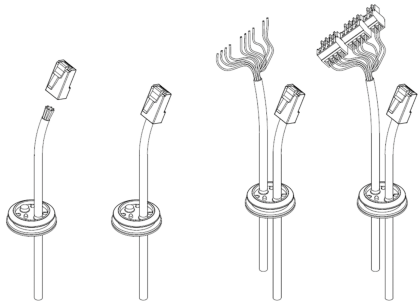
d. Terminate the cables. For the Ethernet cable, use an RJ45 connector and an RJ45 crimping tool. For other cables, use the connectors included in the camera kit. For more information, see the camera's documentation.



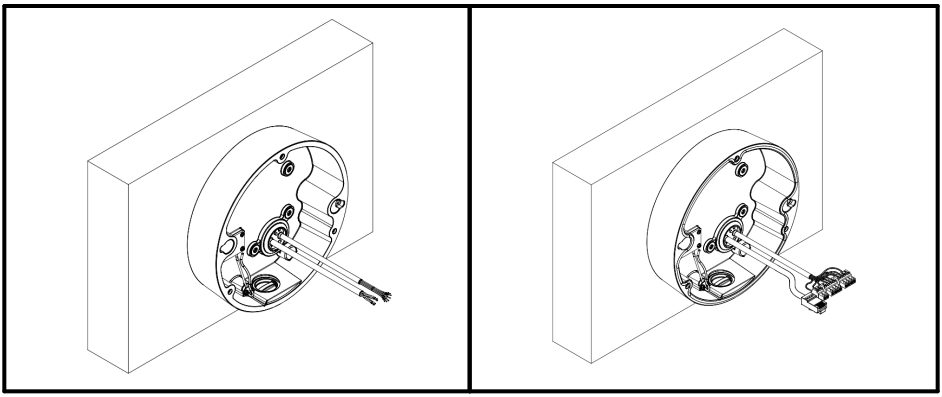


To route cables through the rear cable entry hole:

a. Route an unterminated Ethernet cable through a hole in the cable gland included in the CB-650x kit.
b. (Optional) Route an unterminated power, alarm, and audio cable through the other hole in the gland.
c. Terminate the cables. For the Ethernet cable, use an RJ45 connector and an RJ45 crimping tool. For other cables, use the cables included in the camera kit. For more information, see the camera's documentation.



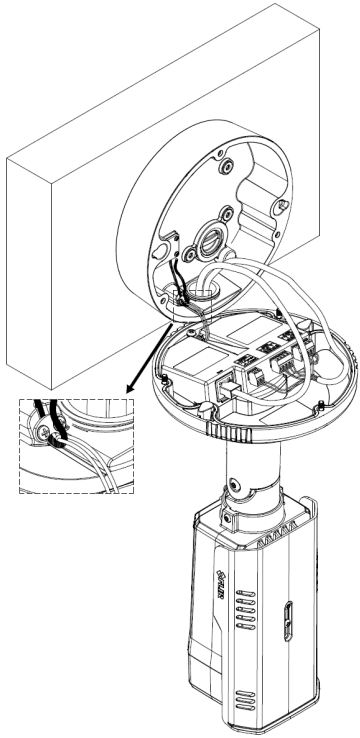
d. Attach the gland to the cable entry hole. Make sure that the side of the gland with the smaller diameter is inside the back box.



8 Connect and Mount the Camera

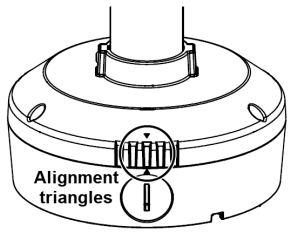
Make sure to attach the safety wire on the camera assembly to the clip on the back box.

The example at right shows the CB-650x Back Box attached to a wall, with an Ethernet cable and a power, alarm, and audio cable routed through the side cable entry hole and connected to the camera. The safety wire and clip is enlarged.



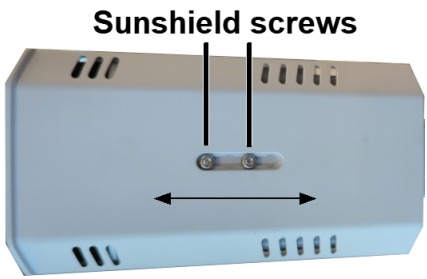
When attaching the camera assembly to the back box, align the triangle on the exterior of the camera assembly with the triangle on the back box. This makes sure the guide pins inside the camera assembly are aligned with the guide holes on the back box.

According to the camera's documentation, continue with installation and initial configuration.



Adjusting the sun shield

Quasar Premium Bullet AI Cameras are designed to operate in rugged environments. The sun shield is coated to prevent damage from sunlight or rain. To adjust the sun shield, use the T20 Torx Security wrench to loosen the two screws on the shield hood, and move the shield forward or backward. Then, securely tighten the two screws.



Caution	To avoid damaging the camera housing, do not adjust the sun shield beyond its limits.
Tip	Adjust the sun shield to avoid issues with shadows. Take into account the lens coverage.

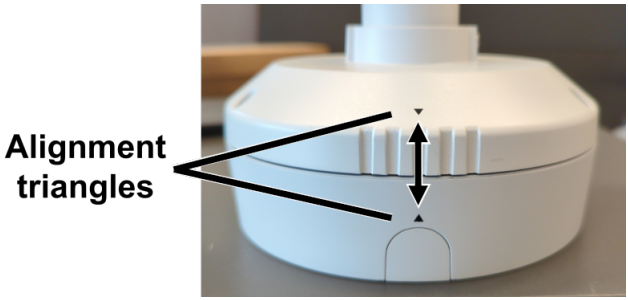
9 Assemble the Camera

To prevent damaging the camera's internal components while moving it from the bench or lab to its mounting location, assemble the camera by re-attaching the back box to the mounting bracket, and attaching the camera assembly to the back box.

To attach the camera assembly to the back box:

a. Align the triangle on the exterior of the camera assembly with the triangle on the back box.

   This makes sure the guide pins inside the camera assembly are aligned with the guide holes on the back box.



b. Using the T20 Security Torx screwdriver, tighten the three set screws that secure the camera assembly to the back box.

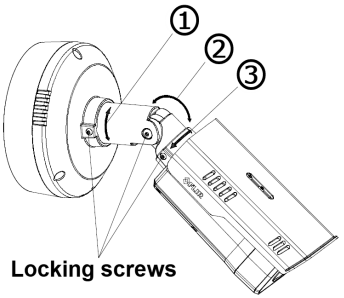
10 Install Mounting Hardware (Optional)

Using the hardware included in the camera kit, you can mount the camera onto a standard electrical box; directly to a secure, flush, and vibration-free surface; or to appropriate mounting hardware. For information about other mounting options, including the list of Teledyne FLIR mounting accessories that support the camera, see the camera's installation and user guide.

If you are using mounting hardware not included in the camera kit, install it according to the installation instructions for the hardware. If necessary, adapt the instructions in this guide to those instructions.

11 Aim the Camera

While supporting the camera with your hand, use the T20 Torx Security wrench to loosen the locking screws for adjusting the camera's pan, tilt, and rotation.



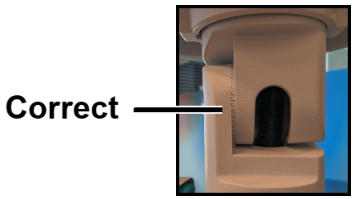
Aiming the Camera (Wall Mounting)

1. Retaining ring for pan adjustment (range 355°)
2. Bracket for tilt adjustment (range 90°)
3. Retaining ring for spin rotation (range 355°)

Adjust the pan position to make sure the camera tilts towards the scene and can be rotated to face upright towards the scene. For ceiling mounting, the proper pan position is 180° degrees from the proper pan position for wall mounting; to rotate the camera to face upright towards the scene, it needs to be tilting the opposite direction. An improper pan position prevents the camera from tilting towards the scene and a mechanical stopper prevents the camera body from being rotated so that it is upright facing the scene.

Make sure that toothed surfaces are properly aligned and meet evenly.

Then, use the T20 Torx Security wrench to securely tighten each locking screw.



12 Configure the Analytics

Before creating analytics regions, check the camera's video analytics calibration.

a. Log in to the camera's web page. For information about how to access the camera and log in to the camera's web page, see Complete Camera Setup.

b. On the camera's View Settings page, click Georeference.

c. On the Georeference page, specify the camera's installation height, tilt angle, and roll angle.

d. Click **Save**.

e. Click **Video Analytics**. Then, on the Video Analytics page, expand the Overlay Settings, and enable the overlay.

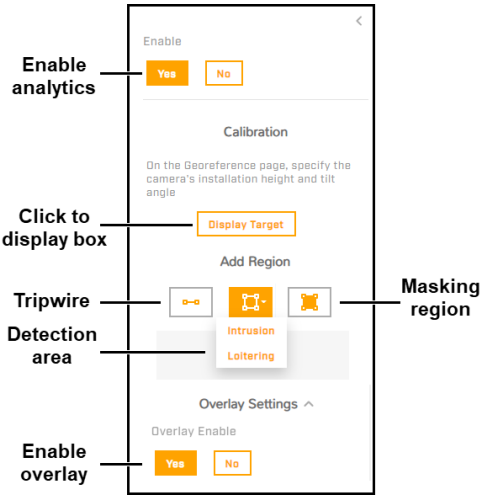
f. Make sure analytics are enabled.

g. Make sure that a person about 1.8m (5" 11') tall is in the camera's field of view.

h. Click **Display Target**.

A box simulating a 1.8m (5" 11') person appears in the live video. Make sure the height of the box corresponds to the size of the person standing in the camera's field of view.

If it does not, on the Georeference page, verify the camera's installation height, tilt angle, and roll angle.



To create an analytics region:

a. Under Add Region, click the appropriate icon.

b. Specify each point of the region by clicking and releasing on the live video image. Do not click and drag. Also, do not draw one region line or border over another. For each region, the maximum number of points is 16.

To finish creating the region, double-click the last point. To cancel creating a region, press **Esc**.

c. For tripwires and detection areas, you can specify direction, human or vehicle classification, or loitering time.

d. After drawing at least two tripwires or detection areas, you can establish dependency between them.

	Direction	Classification	Loitering time
Tripwire	•	•	
Intrusion		•	
Loitering		•	•
Masking	N/A		

e. When you have finished configuring the regions, click **Save**.

Tips

- By default, alarm rules triggered by the camera's video analytics are defined and disabled. Enable or modify these alarms, or define additional alarms, on the Alarm page in System Settings.
- For more information about the camera's video analytics and alarms, see the camera's installation and user guide.

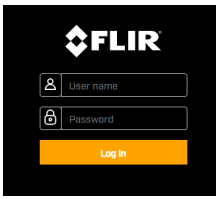
13 Complete Camera Setup

Depending on installation and use, completing camera setup can consist of formatting the microSD card; configuring or modifying the default video stream and visible picture settings; network security settings; and alarm settings.

Many configuration steps can be performed before or after mounting the camera. However, some of them can or should only be performed after mounting the camera. For example, configure the camera's video analytics after mounting the camera. For more information about configuring the camera, see the camera's installation and user guide.

To complete camera setup, you need to access the camera's web page with the default *admin* user or with another user assigned the admin or expert role. The camera web page supports the latest version of Google Chrome® and other popular web browsers.

To access the camera's web page:

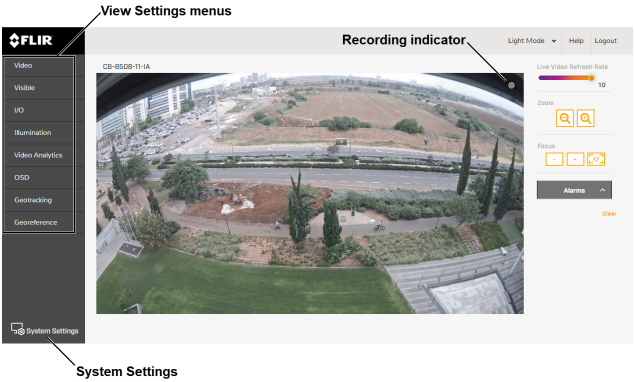


a. Do one of the following:
   - In the Teledyne FLIR Discovery Network Assistant (DNA) tool, double-click the camera in the Discover List.
   - Type the camera's IP address in a browser's address bar (when the PC and the camera are on the same network). If you do not know the camera's IP address, you can use the DNA tool to discover it.

b. On the login screen, enter a user name and password. If necessary, contact the person who configured the camera's users and passwords.

   When logging in to the camera for the first time or for the first time after resetting the camera to its factory defaults:
   1. Log in with user name *admin* and the default password, *admin*.
   2. Specify a new password for *admin*:
      - must be 8-64 characters
      - can include the following special characters: @#~!$&<>+_-.,*?
      - cannot include four-digit sequences (for example, 1234)
      - cannot include four repeating characters (for example, aaaa)
   3. Log back in using the new password.

   The camera's View Settings home page opens.



View Settings - Light Mode

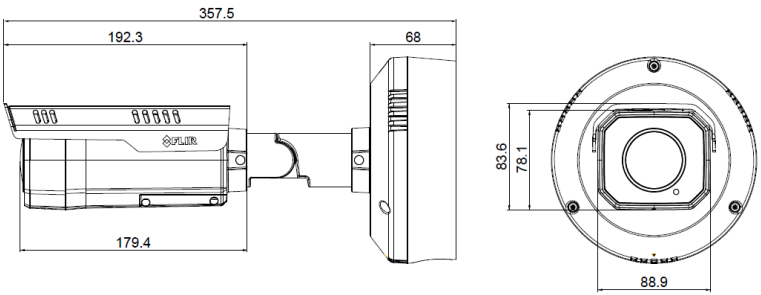
To format the microSD card:

a. Click **System Settings**. Then, open the SD Card page.
b. For File System, select *vfat* (default) or *ext4* (recommended).
c. Click **Format**.

14 Attach the Camera to a Supported VMS

After mounting the camera and discovering or defining its IP address, use VMS Discovery/Attach procedures to attach the camera to a supported VMS.

Camera Dimensions (in mm)



Register the Product

Register the product at https://customer.flir.com.
For warranty information, see https://www.flir.com/support-center/warranty/security/flir-security-product-warranties/.

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