TELEDYNE | Teledyne FLIR
Security Solutions

Quasar™ Premium Mini-Dome Camera

Installation and User Guide

CM-640x-11-I

For additional information visit www.flir.com or write to:

Teledyne FLIR LLC
6769 Hollister Avenue
Goleta, CA 93117
USA

Support: https://support.flir.com/

Important Instructions and Notices to the User:

This device complies with 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.

Modification of this device without the express authorization of Teledyne FLIR LLC may void the user's authority under FCC rules to operate this device.

Proper Disposal of Electrical and Electronic Equipment (EEE)

The European Union (EU) has enacted Waste Electrical and Electronic Equipment Directive 2012/19/EU (WEEE), which aims to prevent EEE waste from arising; to encourage reuse, recycling, and recovery of EEE waste; and to promote environmental responsibility.

In accordance with these regulations, all EEE products labeled with the "crossed out wheeled bin" either on the product itself or in the product literature must not be disposed of in regular rubbish bins, mixed with regular household or other commercial waste, or by other regular municipal waste collection means. Instead, and in order to prevent possible harm to the environment or human health, all EEE products (including any cables that came with the product) should be responsibly discarded or recycled.

To identify a responsible disposal method nearby, please contact the local waste collection or recycling service, the original place of purchase or product supplier, or the responsible government authority in the area. Business users should contact their supplier or refer to their purchase contract.

Document History

Revision	Date	Comment
100	December 2020	Initial FLIR release
110	December 2021	Teledyne FLIR acquisition; updated password policy
120	December 2022	New camera web page design

Product Registration and Warranty Information

Register your Product with Teledyne FLIR 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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1 Document Scope and Purpose

This document provides installation, operation, and configuration instructions for Quasar Premium Mini-Dome Cameras (CM-640x-11-I).

Note
This document is intended for use by technical users who have a basic understanding of CCTV camera/video equipment and LAN/WAN network connections.

Remarque
Ce document est destiné aux utilisateurs techniciens qui possèdent des connaissances de base des équipements vidéo/caméras de télésurveillance et des connexions aux réseaux LAN/WAN.

Warning
Installation must follow safety, standards, and electrical codes as well as the laws that apply where the units are being installed.

Avertissement
L'installation doit respecter les consignes de sécurité, les normes et les codes électriques, ainsi que la législation en vigueur sur le lieu d'implantation des unités.

Disclaimer

Users of Teledyne FLIR products accept full responsibility for ensuring the suitability and considering the role of the product detection capabilities and their limitation as they apply to their unique site requirements.

Teledyne FLIR LLC and its agents make no guarantees or warranties to the suitability for the users' intended use. Teledyne FLIR LLC accepts no responsibility for improper use or incomplete security and safety measures.

Failure in part or in whole of the installer, owner, or user in any way to follow the prescribed procedures or to heed WARNINGS and CAUTIONS shall absolve Teledyne FLIR and its agents from any resulting liability.

Specifications and information in this guide are subject to change without notice.

Avis de non-responsabilité

Il incombe aux utilisateurs des produits Teledyne FLIR de vérifier que ces produits sont adaptés et d'étudier le rôle des capacités et limites de détection du produit appliqués aux exigences uniques de leur site.

Teledyne FLIR LLC et ses agents ne garantissent d'aucune façon que les produits sont adaptés à l'usage auquel l'utilisateur les destine. Teledyne FLIR LLC ne pourra être tenu pour responsable en cas de mauvaise utilisation ou de mise en place de mesures de sécurité insuffisantes.

Le non respect de tout ou partie des procédures recommandées ou des messages d'AVERTISSEMENT ou d'ATTENTION de la part de l'installateur, du propriétaire ou de l'utilisateur dégagera Teledyne FLIR LLC et ses agents de toute responsabilité en résultant.

Les spécifications et informations contenues dans ce guide sont sujettes à modification sans préavis.

General Cautions and Warnings

This section contains information that indicates a procedure or condition where there are potential hazards.

SAVE ALL SAFETY AND OPERATING INSTRUCTIONS FOR FUTURE USE.

Although the unit is designed and manufactured in compliance with all applicable safety standards, certain hazards are present during the installation of this equipment.

To help ensure safety and to help reduce risk of injury or damage, observe the following:

Précautions et avertissements d'ordre général

Cette section contient des informations indiquant qu'une procédure ou condition présente des risques potentiels.

CONSERVEZ TOUTES LES INSTRUCTIONS DE SÉCURITÉ ET D'UTILISATION POUR POUVOIR VOUS Y RÉFÉRER ULTÉRIEUREMENT.

Bien que l'unité soit conçue et fabriquée conformément à toutes les normes de sécurité en vigueur, l'installation de cet équipement présente certains risques.

Afin de garantir la sécurité et de réduire les risques de blessure ou de dommages, veuillez respecter les consignes suivantes:

Caution

- The unit's cover is an essential part of the product. Do not open or remove it.
- Never operate the unit without the cover in place. Operating the unit without the cover poses a risk of fire and shock hazards.
- Do not disassemble the unit or remove screws. There are no user serviceable parts inside the unit.
- Only qualified trained personnel should service and repair this equipment.
- Observe local codes and laws and ensure that installation and operation are in accordance with fire, security and safety standards.

Attention

- *Le cache de l'unité est une partie essentielle du produit. Ne les ouvrez et ne les retirez pas.*
- *N'utilisez jamais l'unité sans que le cache soit en place. L'utilisation de l'unité sans cache présente un risque d'incendie et de choc électrique.*
- *Ne démontez pas l'unité et ne retirez pas ses vis. Aucune pièce se trouvant à l'intérieur de l'unité ne nécessite un entretien par l'utilisateur.*
- *Seul un technicien formé et qualifié est autorisé à entretenir et à réparer cet équipement.*
- *Respectez les codes et réglementations locaux, et assurez-vous que l'installation et l'utilisation sont conformes aux normes contre l'incendie et de sécurité.*

A **Warning** is a precautionary message that indicates a procedure or condition where there are potential hazards of personal injury or death.

***Avertissement** est un message préventif indiquant qu'une procédure ou condition présente un risque potentiel de blessure ou de mort.*

A **Caution** is a precautionary message that indicates a procedure or condition where there are potential hazards of permanent damage to the equipment and or loss of data.

***Attention** est un message préventif indiquant qu'une procédure ou condition présente un risque potentiel de dommages permanents pour l'équipement et/ou de perte de données.*

A **Note** is useful information to prevent problems, help with successful installation, or to provide additional understanding of the products and installation.

Une **Remarque** *est une information utile permettant d'éviter certains problèmes, d'effectuer une installation correcte ou de mieux comprendre les produits et l'installation.*

A **Tip** is information and best practices that are useful or provide some benefit for installation and use of Teledyne FLIR products.

Un ***Conseil*** *correspond à une information et aux bonnes pratiques utiles ou apportant un avantage supplémentaire pour l'installation et l'utilisation des produits Teledyne FLIR.*

2 Camera Overview

Quasar Premium Mini-Dome Cameras (CM-640x-11-I) provide 4K UHD (CM-6408) or 5MP (CM-6405) real-time video, up to 25 / 30 frames per second (fps). They feature Shutter (True) Wide Dynamic Range up to 130db; line-level audio in/out; digital I/O; infrared (IR) illumination; motion detection; and tampering detection.

The camera supports up to four simultaneous video streams using H.265, H.264, or MJPEG compression, providing an ideal solution when differing levels of image quality are required. The camera can increase frame rate and level of detail when events are triggered. In addition, FLIR's adaptive streaming algorithms provide the highest image quality with the lowest bandwidth and storage requirements.

When the camera is connected to an IP network, it functions as a server, providing services such as camera control, video streaming, and network communications.

If help is needed during the installation process, contact the local Teledyne FLIR service representative or call the Support number that appears on the product's page at https://www.flir.com/support/. All installers and integrators are encouraged to take advantage of the training offered by Teledyne FLIR; visit https://www.flir.com/support-center/training/ for more information.

For safety, and to achieve the highest levels of performance from the camera system, always follow the warnings and cautions in this manual when handling and operating the camera.

Related Documentation

- *Quasar Premium Mini-Dome Cameras (CM-640x-11-I) Quick Install Guide*
- *FLIR Security Edge Devices Accessory Guide*
- *DNA User Guide (see Accessing Product Information from the Teledyne FLIR Website)*

2.1 Features

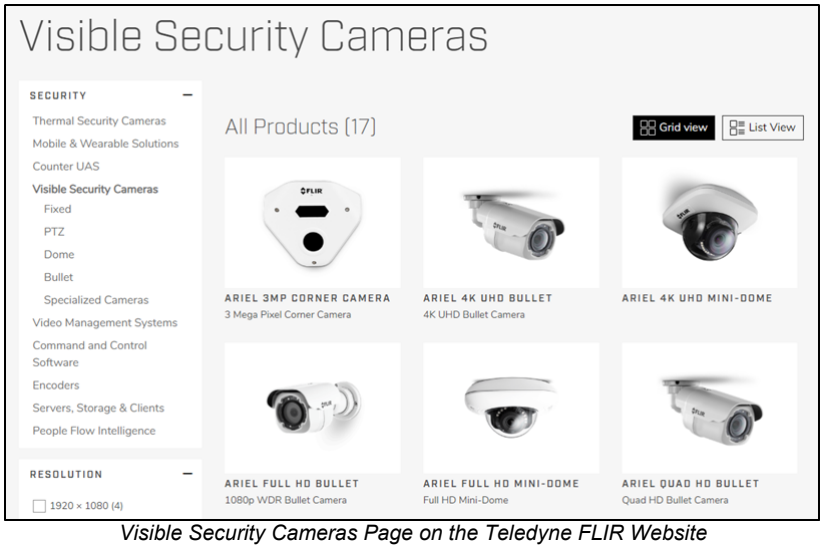
- CM-6408-11-I model features a 1 / 1.8" progressive CMOS sensor and up to 4K (3840 x 2160) resolution at 25 / 30fpsPowered by IEEE 802.3af, class 0 PoE; 24VAC; or 12VDC
- CM-6405-11-I model features a 1 / 2.7" progressive sensor and up to 5MP (2560 x 1920) resolution at 25 / 30fps
- Shutter (True) WDR
- Configurable white balance
- Backlight compensation
- True day / night (ICR)
- Infrared LED illuminator
- 3DNR image noise reduction
- Built-in web server supports the latest version of Google Chrome® and other popular web browsers
- up to 20 users
- Powered by IEEE 802.3af, class 0 PoE; 24VAC; or 12VDC
- IP66 enclosure with IK10 vandal-proof protection
- 802.1X and SSL / TLS security protocols
- H.265, H.264, and MJPEG compression
- HTTP streaming MJPEG
- UPnP support
- Onboard event-driven alarms for:
  - Motion Detection
  - Tampering Detection
- microSD card slot supports cards up to 1 TB
- ONVIF© Profile S / G / T
- Up to five privacy zones
- Alarm in / out
- SNMP v1 / v2 / v3 and SNMP traps
- Audio line-in / line-out

2.2 Accessing Product Information from the Teledyne FLIR Website

Up-to-date resources for the camera, including the camera's specifications, the Teledyne FLIR Discovery Network Assistant (DNA) software tool, and this guide, are available from the camera's product details and support pages on the Teledyne FLIR website.

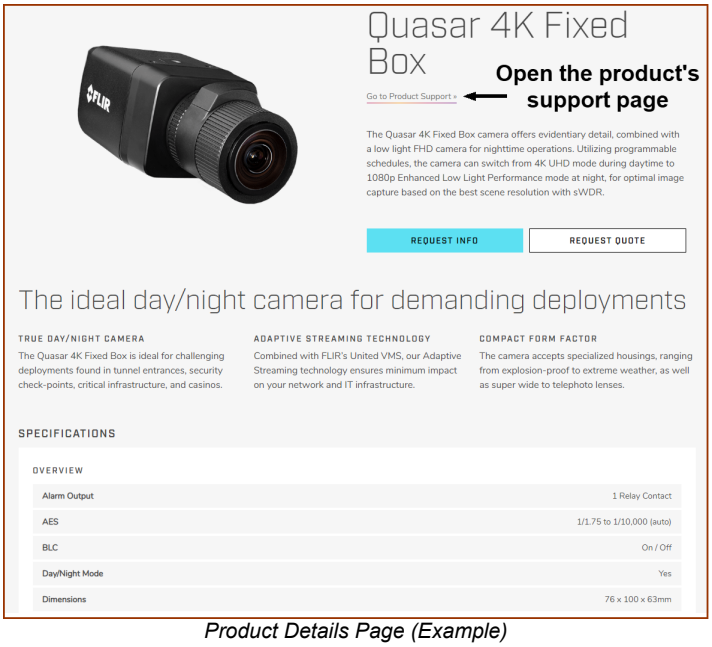
To access product information from the Teledyne FLIR website:

1. Open https://www.flir.com/browse/security/ and navigate to Products > Security > Visible Security Cameras.



Visible Security Cameras Page on the Teledyne FLIR Website

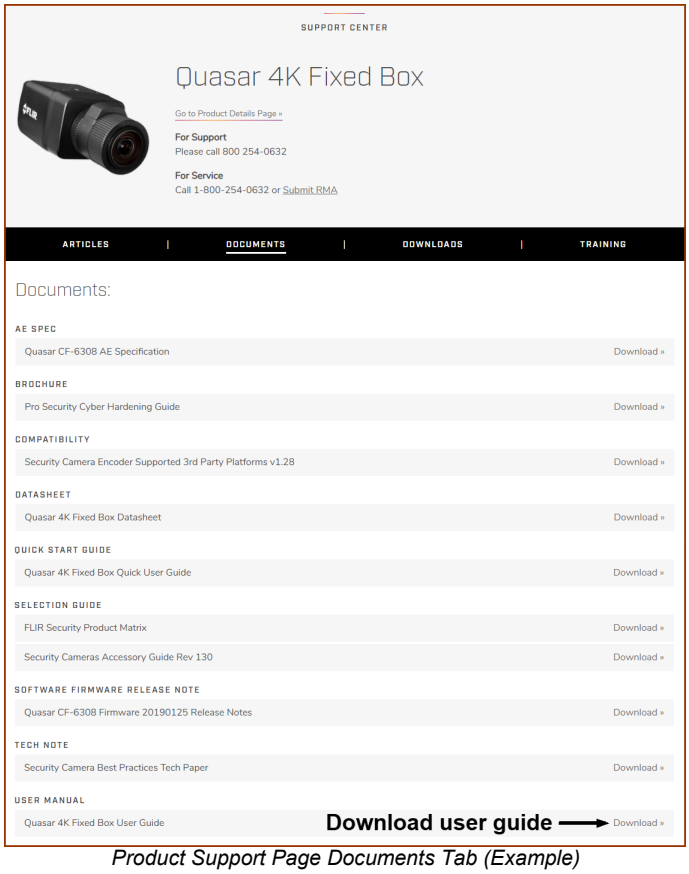
2. Find and click the camera. The camera's product details page appears.



Product Details Page (Example)

To see the camera's specifications and related content, scroll down.

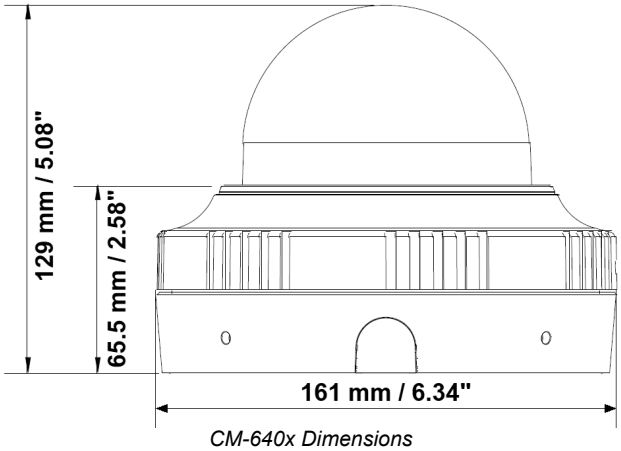
3. Click **Go to Product Support**. The camera's support page appears.
4. Download product documentation from the Documents tab.



Product Support Page Documents Tab (Example)

5. Download the DNA tool from the Downloads tab.

2.3 Camera Dimensions



CM-640x Dimensions

3 Installation

⚠ Caution

- Except as described in this manual, do not open the camera for any reason. Damage to the camera can occur as the result of careless handling or electrostatic discharge (ESD). Always handle the camera with care to avoid damage to electrostatic-sensitive components.
- Prior to making any connections, ensure the power supply or circuit breaker is switched off.
- Operating the camera outside of the specified input voltage range or the specified operating temperature range can cause permanent damage.

Before installing the camera, thoroughly read the instructions in this chapter.

This chapter includes information about:

- Supplied Components
- Site Preparation - General
- Indoor Mounting
- Outdoor Mounting
- Pre-Installation Checklist
- Supplying Power to the Camera

To install the camera, Teledyne FLIR recommends connecting the camera on a bench or in a lab and configuring it for networking before mounting and aiming it:

1. Remove Dome Cover and Separate Base from Mounting Bracket
2. Connect the Camera
3. Configure for Networking
4. Change Video Format (Optional)
5. Re-attach Dome Cover
6. Fit Mounting Hardware (Optional)
7. Remove Dome Cover and Separate Base from Mounting Bracket
8. Install Mounting Bracket
9. Route Cables and Connect the Camera
10. Mount and Aim the Camera
11. Additional Configuration Steps
12. Attach the Camera to a Supported VMS

However, circumstances can dictate adjusting the sequence of the steps. For example, you can mount the camera before configuring it for networking, or connect the camera before mounting it.

3.1 Supplied Components

The Quasar Premium Mini-Dome camera kit includes these items:

Items Included in Kit (images not to scale)

3.2 Site Preparation - General

There are several requirements that should be properly addressed prior to installation at the site.

The following specifications are requirements for proper installation and operation of the unit:

- **Ambient Environment Conditions:** Avoid positioning the unit near heaters or heating system outputs. Avoid exposure to direct sunlight. Use proper maintenance to ensure that the unit is free from dust, dirt, smoke, particles, chemicals, smoke, water or water condensation, and exposure to EMI.
- **Accessibility:** The location used should allow easy access to unit connections and cables.
- **Safety:** Cables and electrical cords should be routed in a manner that prevents safety hazards, such as from tripping, wire fraying, overheating, etc. Ensure that nothing rests on the unit's cables or power cords.
- **Ample Air Circulation:** Leave enough space around the unit to allow free air circulation.
- **Cabling Considerations:** Units should be placed in locations that are optimal for the type of video cabling used between the unit and the cameras and external devices. Using a cable longer than the manufacturer's specifications for optimal video signal may result in degradation of color and video parameters.
- **Physical Security:** The unit provides threat detection for physical security systems. In order to ensure that the unit cannot be disabled or tampered with, the system should be installed with security measures regarding physical access by trusted and un-trusted parties.
- **Network Security:** The unit transmits over IP to security personnel for video surveillance. Proper network security measures should be in place to assure networks remain operating and free from malicious interference. Install the unit on the backbone of a trusted network.
- **Electrostatic Safeguards:** The unit and other equipment connected to it (relay outputs, alarm inputs, racks, carpeting, etc.) shall be properly grounded to prevent electrostatic discharge.

Warning

Before drilling into surfaces for camera mounting, verify that electrical or other utility service lines are not present. Serious injury or death may result from failure to heed this warning.

The physical installation of the unit is the first phase of making the unit operational in a security plan. The goal is to physically place the unit, connect it to other devices in the system, and to establish network connectivity. When finished with the physical installation, complete the second phase of installation, which is the setup and configuration of the unit.

3.3 Indoor Mounting

When installing the camera indoors:

- There must be a fuse or circuit breaker at the starting point of the electrical wiring infrastructure.
- The camera must be protected from hostile external elements such as: a corrosive environment, metallic dust, extreme temperatures, soot, over spray, and so on.
- Do not place the camera on or near radiators and heat sources.
- All electrical work must be performed in accordance with local regulatory requirements.

3.4 Outdoor Mounting

When installing the camera outdoors, consider the following:

- For outside wiring installation, always use weatherproof equipment, such as boxes, receptacles, connectors, and so on.
- For electrical wiring, use the properly rated sheathed cables for conditions to which the cable will be exposed; for example, moisture, heat, UV, physical requirements, and so on.
- Plan ahead to determine where to install infrastructure weatherproof equipment. Whenever possible, ground components to an outdoor ground.
- Use best security practices to design and maintain secured camera access, communications infrastructure, tamper-proof outdoor boxes, and so on.
- All electrical work must be performed in accordance with local regulatory requirements.

3.5 Pre-Installation Checklist

Before installing the unit, make sure that:

- Instructions in the Document Scope and Purpose section are followed.
- All related equipment is powered off during the installation.
- Use best security practices to design and maintain secured camera access, communications infrastructure, tamper-proof outdoor boxes, and so on.

Caution

To avoid damage from overheating or unit failure, assure that there is sufficient temperature regulation to support the unit's requirements (cooling/heating). Operating temperature should be kept in the following ranges, with no more than 90% non-condensing humidity:

- Without heater: -30° C to 60° C (-22° F to 140° F)
- With heater: -55° C to 60° C (-67° F to 140° F)
- Cold start with heater: -40° C to 60° C (-40° F to 140° F)

Attention

Afin d'éviter tout dommage dû à une surchauffe ou toute panne de l'unité, assurez-vous que la régulation de température est suffisante pour répondre aux exigences de l'unité (refroidissement/chauffage). La temperature de fonctionnement doit etre maintenue dans la fourchette de temperature suivante, avec un maximum de 90% d'humidite non condensee:

- *Avec chauffage et éclairage LED 100%: -55°C à 50°C (-67°F à 122°F)*
- *Avec chauffage et éclairage LED 25%: -55°C à 55°C (-67°F à 131°F)*
- *Avec chauffage et éclairage LED 0%: -55°C à 60°C (-67°F à 140°F)*

3.6 Supplying Power to the Camera

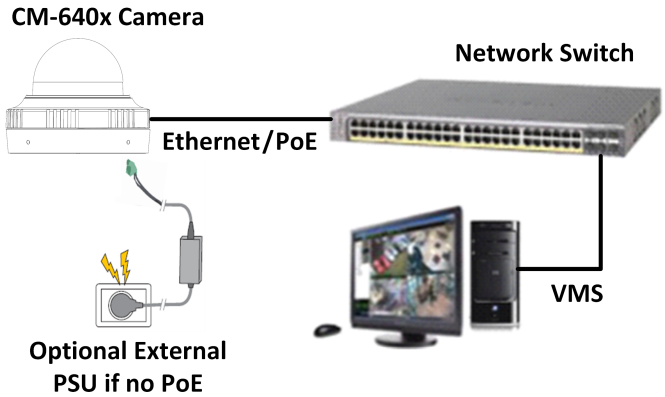
Warning
All electrical work must be performed by a qualified service person in accordance with local regulatory requirements.

Avertissement
Toutes les interventions électriques doivent être effectuées par un technicien qualifié conformément aux reglementations locales.

The camera can be powered by:

- A UL-listed L.P.S. (Limited Power Supply) unit, rated to a maximum temperature of 60° C:
  - 12VDC, 1.21A minimum
  - 24VAC, 50/60Hz, 1.2A minimum
- PoE (Power over Ethernet): 48VDC, 0.27A minimum

Maximum Power Consumption with Heater and IR	
CM-6405-11-I	12.5 W
CM-6408-11-I	11.5 W



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

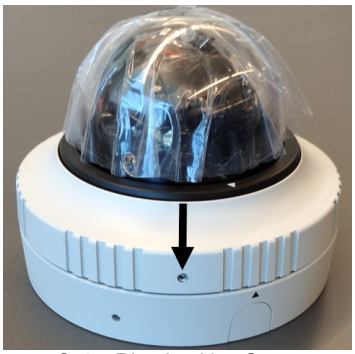
3.7 Remove Dome Cover and Separate Base from Mounting Bracket

Tip

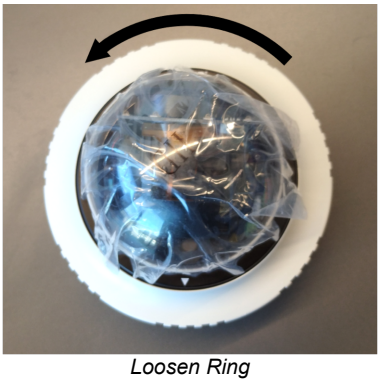
When unpacking the camera, do not remove the plastic sheet protecting the dome.

To remove the dome cover:

1. Using the Torx wrench, loosen the screw on the camera's outer circular ring that secures the dome cover to the camera base.
2. While firmly holding the base, rotate the ring counterclockwise to loosen it.
3. Carefully pull the ring and cover away from the base.



Outer Ring Locking Screw



Loosen Ring

To separate the camera base from the mounting bracket:

1. Using a screwdriver, loosen the two twist-lock screws securing the camera and its base to the mounting bracket.
2. Gently pull the camera and its base away from the mounting bracket.

Separate Base from Bracket

Change the number of LEDs (optional)

The camera has a total of eight IR LED illuminators. On the 3D lens assembly, there is a switch that enables four (left when switch faces up) or all eight (right; default). With the dome cover removed, you can change the switch setting.

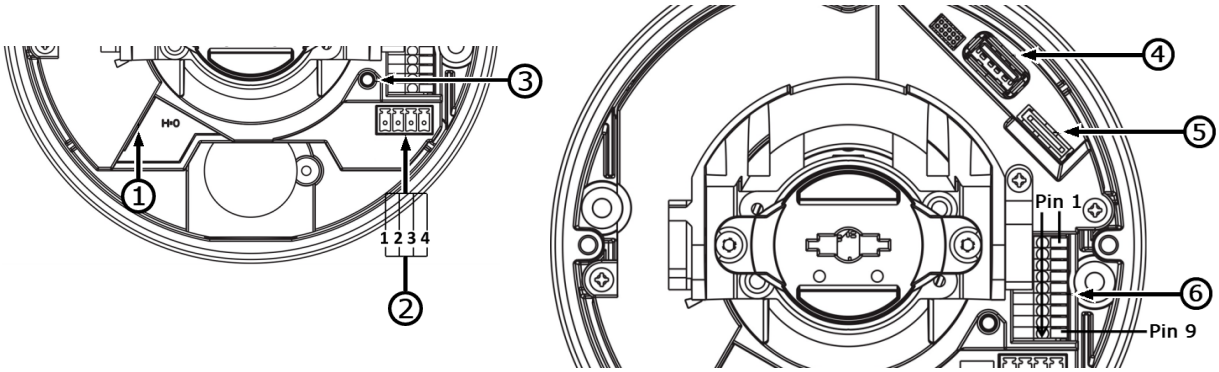
Switch in 8 LED Position

3.8 Connect the Camera

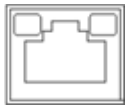
Teledyne FLIR recommends connecting the camera on a bench or in a lab and configuring it for networking before mounting and aiming it.

Warning

This product contains a battery that is soldered to the PCB. There is a risk of explosion if the battery is replaced by an incorrect type. **Do not replace the battery.** The battery should be disposed of in accordance with the battery manufacturer's instructions.



Connectors

Connector			Connection				
1	RJ-45 Two LEDs		Attach a Cat 6 cable from the network switch to the RJ-45 connector for a 10/100/1000 Mbps Ethernet and IEEE 802.3af class 0 PoE connection. Ethernet is required for streaming video and for configuring the camera. The green link LED indicates a good network connection. The orange activity LED flashes to indicate network activity.				
2	Four-pin power terminal block		1	24VAC -	3	12VDC -	If using a 24VAC or 12VDC power supply, connect the wires to the power terminal block connector according to the pin assignment shown.
			2	24VAC +	4	12VDC +	
3	Default Button		To restore the camera to its factory defaults, use a proper tool to press the default button for at least 20 seconds.				
4	USB		Connects to Wi-Fi dongle (future release support)				
5	microSD Card Slot		For video clip and snapshot recording and file storage, insert a microSD / SDHC / SDXC card (maximum 1 TB) in the card slot. When the camera is powered on, do not remove the microSD card.				
6	Nine-pin I/O terminal block		1	Audio In L	6	Alarm Out +	Attach wires from external devices to the terminal block connector for alarm and audio in/out according to the pin assignment shown.
			2	Audio In R	7	Alarm Out -	
			3	GND	8	Alarm In +	
			4	Audio Out L	9	Alarm In -	
			5	Audio Out R			

Warning

Do not connect an external power supply to the nine-pin audio/alarm I/O terminal block connector.

Warning

- The power cord to the 12VDC or 24VAC power supply unit must be connected to a socket outlet with an earthing connector.

Warning

- 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 802.3af standard.
- All electrical work must be performed by a qualified service person in accordance with local regulatory requirements.

Avertissement

- *Le cordon du bloc d'alimentation 12V ou 24V doit être connecté à une prise de courant avec un connecteur de mise à la terre.*
- *L'unité PoE et tous les équipements interconnectés doivent être installés à l'intérieur du même bâtiment, y compris toutes les connexions réseau alimentées par PoE, comme décrit par l'environnement A de la norme IEEE 802.3af.*
- *Toutes les interventions électriques doivent être effectuées par un technicien qualifié conformément aux reglementations locales.*

Tip

To make it easier to mount and install the camera, while the camera is on the bench or in the lab, you can connect Ethernet and other cable patch cords to the camera's connectors and route them through the grommets on the base and through the mounting bracket. Then, you'll be able to mount and install the camera without separating the camera base from the mounting bracket a second time.

3.9 Configure for Networking

You can configure the camera using the FLIR Discovery Network Assistant (DNA) software tool, the camera's web page, or a supported VMS.

Task	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	•	•
Configure more than one camera at the same time	•	

Note

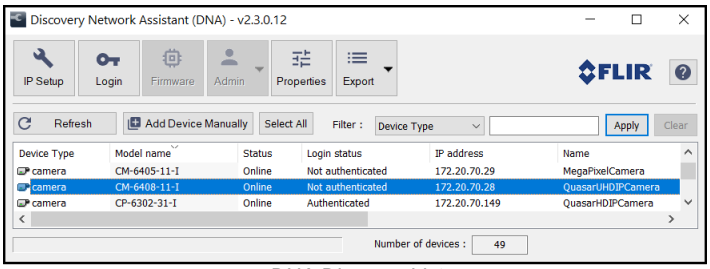
- Teledyne FLIR recommends using the DNA tool to discover the camera on the network. It does not require a license to use and is a free download from the product's web page on the Teledyne FLIR website. For more information about using the DNA tool, including how to configure more than one camera at the same time, see the *DNA User Guide*. While the software is open, click the Help icon .
- For more information about using a supported VMS to configure one or more cameras at the same time, 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.

- 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:

1. Make sure the camera and the PC are on the same LAN segment.
2. Run the DNA tool (DNA.exe) by double-clicking . The Discover List appears, showing compatible devices on the VLAN and their current IP addresses.



DNA Discover List

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

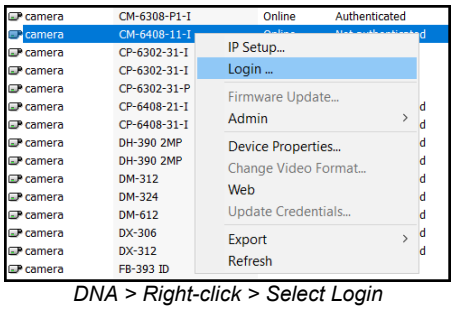
If this is the first time you are configuring the camera or if it is the first time after resetting the camera to its factory defaults, DNA automatically logs in to the camera with user name *admin* and its default password (*admin*).

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

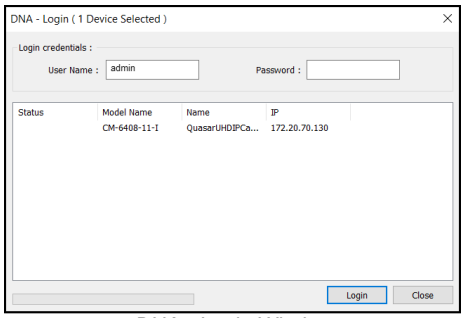
a. In the DNA Discover List, right-click the camera and select **Login**.

b. In the **DNA - Login** window, type *admin* or another name for a user assigned Admin privileges and the password. If you do not know this information, contact the person who configured the camera's users and passwords.

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



DNA > Right-click > Select Login



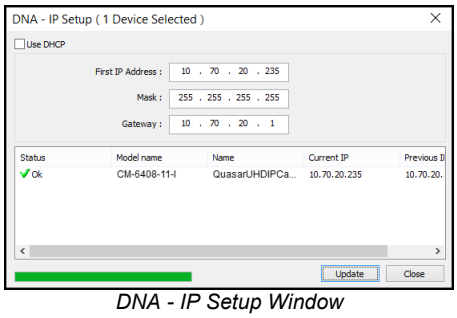
DNA - Login Window

In the DNA Discover List, verify that the camera's status is *Authenticated*.

3. Change the camera's IP address.

Right-click the camera and select **IP Setup**.

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**.



DNA - IP Setup Window

To manually specify the camera's IP address using the camera's web page:

1. Access the camera's web page with a user assigned Admin or Expert privileges; for example, the default *admin* user.
2. On the View Settings Home Page, click **System Setting**, and make sure the Network Page appears.
4. Click **Static** IP addressing and then manually specify the camera's *Hostname*, *IP address*, *Netmask*, and *Gateway*.

   You can also specify the *DNS Mode*, *Name Servers*, *MTU* (maximum transmission unit), and *Ethernet Speed*.
5. Click **Save**. Applying any changes on the Network page requires rebooting the camera.

Using DNA to Configure the Camera

DNA is a user-friendly utility that easily discovers and configures FLIR Security edge devices on a network. It does not require a license to use and is a free download from the product's web page on the Teledyne FLIR website (see Accessing Product Information from the Teledyne FLIR Website).

DNA provides a central location for listing all the supported FLIR Security camera models accessible over the network. Once listed, each camera can be right-clicked to access and change the network settings. If the network settings are changed for some reason, a new search will relist the units. The units can then be configured via the camera's web page.

The camera must be made accessible for setting network addresses.

To configure the camera via a LAN, you must attach the camera via the network switch or router to the same network segment or VLAN as the computer that manages the unit. If the PC is on a different subnet than the camera, you will not be able to access the camera via a web browser.

If there is a DHCP server on the network, Teledyne FLIR recommends using the DNA tool to discover the camera and change its IP address.

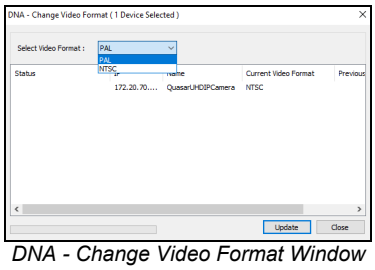
If FLIR's Latitude VMS is being used, configure the unit with a static IP address rather than with DHCP. This ensures that the IP address will not automatically change in the future and interfere with configurations and communication.

For more information about using the DNA tool, see the DNA User Guide. While the software is open, click the Help icon .

3.10 Change Video Format (Optional)

By default, Shutter WDR 30 FPS NTSC is the camera's video format. To change the format, you can use the DNA tool or the camera web page. You cannot use DNA to switch the camera between a linear video format and a shutter video format; to do so, use the camera's web page.

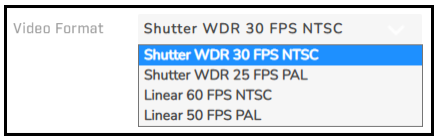
To change the camera's video format using the DNA tool:



DNA - Change Video Format Window

1. In the DNA Discover List, right-click the camera and select **Change Video Format**.
2. In the **Change Video Format** window, select PAL. If Shutter WDR 30 FPS NTSC is the camera's current video format, this changes the camera's video format to Shutter WDR 25 FPS PAL. Likewise, if Linear 60 FPS NTSC is the camera's current video format, this changes the camera's video format to Linear 50 FPS PAL.
3. Click **Update**, wait for ✔ Ok status to appear, and then click **Close**.

To change the camera's video format using the camera's web page:



On the Firmware & Info Page, for Video Format, select another format.

To apply a video format change, the camera needs to reboot.

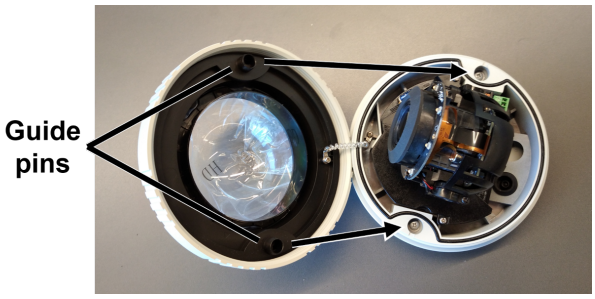
3.11 Re-attach Dome Cover

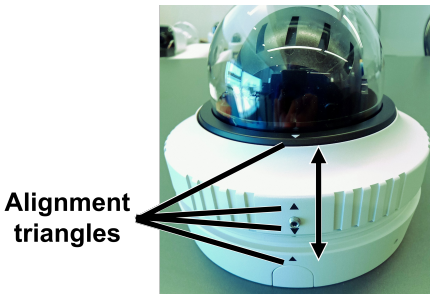
To prevent damaging the camera's internal components while moving it from the bench or lab to its mounting location, re-attach the dome cover to the base and then remove it again at the mounting location.

Before doing so, you can re-attach the camera base to the mounting bracket. Use a screwdriver to tighten the two twist-lock screws securing the camera and its base to the mounting bracket. If you do not re-attach the camera base to the mounting bracket, remember to bring the screwdriver to the mounting location.

To re-attach the dome cover:

1. Using the two guide pins on the dome cover and the triangles on the cover and on the base, carefully align and position the dome cover onto the base.





2. Make sure the outer ring sits flat on the base. Then, securely tighten the outer ring.
3. Lock the ring. Using the Torx wrench, tighten the screw on the outer ring that secures the outer ring to the base.

3.12 Install Mounting Hardware (Optional)

Using the hardware included in the camera kit, you can mount the camera onto a standard electrical box or onto a suitable surface. For information about other mounting options, including the list of Teledyne FLIR mounting accessories that support the camera, see Accessories.

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.

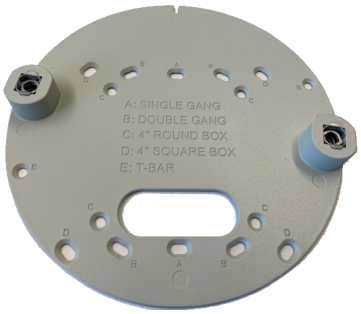
3.13 Remove Dome Cover and Separate Base from Mounting Bracket

Repeat the steps described in Remove Dome Cover and Separate Base from Mounting Bracket, if necessary.

3.14 Install Mounting Bracket

You can install the mounting bracket on standard electrical boxes or directly on a secure, flush, and vibration-free surface.

To install the mounting bracket on a standard electrical box:



Attach the bracket to the box using:

- The holes in the mounting bracket, according to the types of boxes engraved on the bracket
- The corresponding holes in the box
- Suitable bolts, washers, and nuts (not included in the camera kit)

To install the mounting bracket directly on a surface:

1. Choose four widely spaced mounting holes on the bracket for optimum flat surface mounting.
2. Using the bracket as a template to mark the surface, drill four anchor holes.
3. (Optional) If necessary, also drill a hole wide enough through which to route the cables.
4. Hammer the four plastic screw anchors into the drilled holes.
5. Insert the anchors and then attach the bracket to the surface using the four M4 25mm self-tapping screws included in the camera kit.

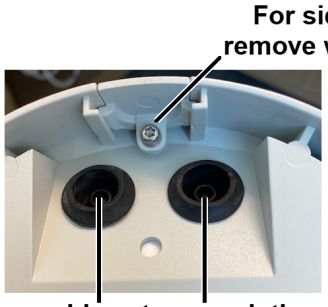
   When tightening the screws, the holes in the mounting plate allow for making small adjustments to the bracket's position.

3.15 Route Cables and Connect the Camera

Cables can enter the camera either through the rear of the camera via the mounting bracket or through a conduit hole on the side of the camera. If the cables enter through the rear, make sure that the location provides a suitable method for routing the cables.

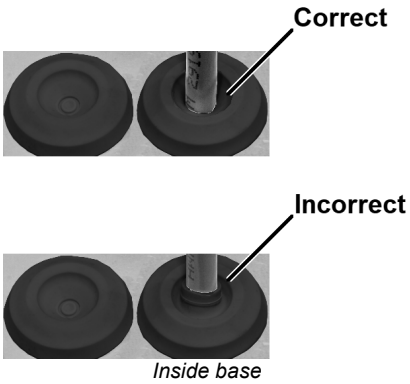
To route cables through the side of the camera:

1. Use the Torx wrench to loosen the screw securing the side conduit hole cover and remove the hole cover.
2. Route cables through the hole.



To route cables through the rear of the camera:

1. For each cable, use the Torx wrench to punch a hole in the center of the rubber glands in the camera's base, from the underside.
2. Route cables through the hole in the mounting bracket and through the holes in the grommet.
3. Push the cables back through the seal so that the seal extends out of the base.



Inside base

Connect the camera according to the information in Connect the Camera.

Note

Connect the camera to a 24VAC or PoE power source as the main power supply, and then connect 12VDC as the secondary power supply. If the main power source fails, the camera switches power input seamlessly to 12VDC until the main power source is restored.

3.16 Mount and Aim the Camera

1. Make sure that the camera is facing the required field of view.
2. Carefully re-attach the camera base to the mounting bracket. Use a screwdriver to tighten the two twist-lock screws securing the camera and its base to the mounting bracket.
3. Aim the camera, which has three axes to adjust the field of view:

   - *Pan adjustment* – Rotate the lens base until satisfied with the field of view. Do not rotate it beyond its mechanical limit, 356°.
   - *Tilt adjustment* – Loosen the screw locking the camera in its tilt angle. Tilt the camera lens until satisfied with the field of view. Do not tilt it beyond its mechanical limit, ±80°. Then, tighten the screw.
   - *Lens rotation* – Rotate the 3D assembly in the lens until satisfied with the field of view. Do not rotate the assembly beyond its mechanical limit, ±98°.

Caution

Note the mechanical limits for each axis:

- Pan adjustment range : 356°
- Tilt adjustment range : ±80°
- Lens rotation range: ±98° – Rotating the 3D assembly in the lens beyond its mechanical limit can twist, disconnect, or break the camera's internal cables.

At the camera's widest view (zoom = 1x) and at certain tilt / rotation angles, a small part of the camera can appear in the far upper-left corner of the field of view.

Tilt angle	Lens rotation angle range
20°	30°~45°
10°	10°~45°

Repeat the steps described in Re-attach Dome Cover.

3.17 Additional Configuration Steps

Depending on installation and use, additional configuration steps can include:

- adjusting the camera's zoom and focus; and
- formatting the SD card.

Completing camera setup can also consist of configuring or modifying the default video stream settings on the Video Page; exposure, white balance, WDR, and other picture settings on the Visible Page; security, advanced networking, alarms, and other system settings.

Many of these 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.

To perform these configuration steps, you need to access the camera's web page, which supports the latest version of Google Chrome® and other popular web browsers.

3.18 Attach the Camera to a Supported VMS

After you have mounted the camera and discovered or defined its IP address, use VMS Discovery/Attach procedures to attach the camera to a supported VMS.

4 Operation

This chapter includes information about how to access the camera and how to operate it using the camera's web page.

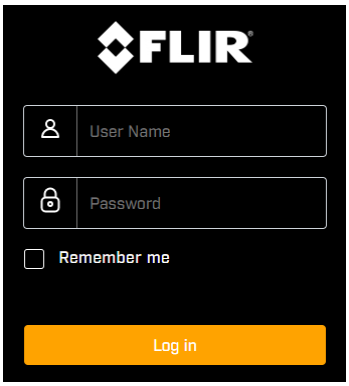
4.1 Accessing the Camera's Web Page

To operate the camera, you need to access it and log in its web page. The camera's web page supports the latest version of Google Chrome and other popular web browsers.

To log in to the camera's web page:

1. Do one of the following:
   - In the Teledyne FLIR Discovery Network Assistant (DNA) tool, double-click the camera in the Discover List.

     The DNA tool does not require a license to use and is a free download from the product's web page on the Teledyne FLIR website. Download the DNA tool; unzip the file; and then double-click  to run the tool (DNA.exe). The Discover List appears, showing compatible devices on the VLAN.
   - 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.
2. On the login screen, enter a user name and the password. Passwords are case-sensitive. If you do not know a user name or password, 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:

   a. Log in with user name *admin* and the default password, *admin*.

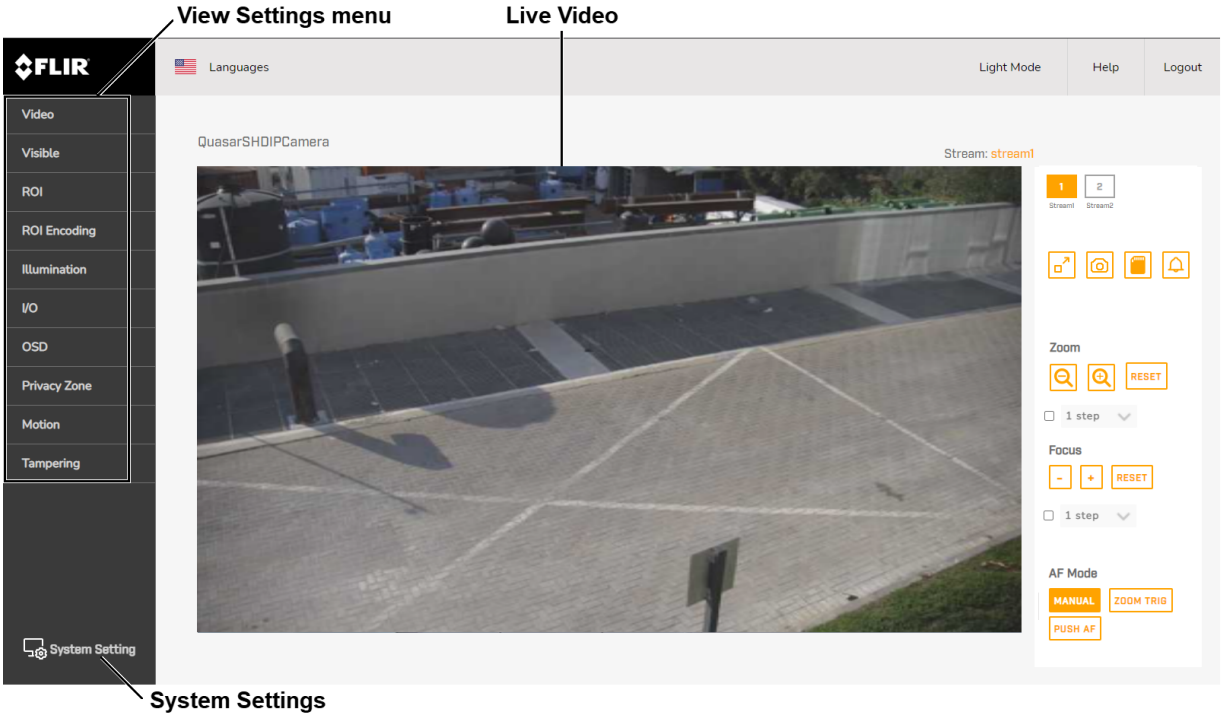
   b. Specify a new password for *admin*:

   - 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.

4.2 View Settings Home Page

On the View Settings page, a navigation menu, live video images, and camera controls appear. Camera configuration and the privilege level assigned to the account accessing the camera determines whether and which camera controls are available.



CM-6405-11-1 Camera Web Page - Light Mode - Two Streams Enabled

Above the live video, the following appear:

- **Languages—**The language for the camera's web page: English (default), Czech, Simplified Chinese, Traditional Chinese, French, German, Hungarian, Italian, Japanese, Polish, Portuguese, Russian, and Spanish.
- **Theme—**Dark Mode (default) or Light Mode; affects all users.
- **Help—**Opens https://support.flir.com/ in a new browser window.
- **Logout—**Logs out of the camera's web page.
- **Camera Name—**As specified on the Firmware & Info Page.
- **Stream—**Video stream providing current live video images.

Note

The live video on the camera's web page is not one of the camera's configurable video streams. Changes to video stream settings might not affect the live video.

To the left of the live video, the View Settings menu appears:

- **Video—**Opens the Video settings page.
- **Visible—**Opens the Visible settings page.
- **ROI—**Opens the ROI settings page.
- **ROI Encoding—**Opens the ROI Encoding settings page.
- **Illumination—**Opens the Illumination settings page.
- **I/O—**Opens the I/O settings page.

- **OSD**—Opens the OSD (on-screen display) settings page.
- **Privacy Zone**—Opens the Privacy Zone settings page.
- **Motion**—Opens the Motion settings page.
- **Tampering**—Opens the Tampering settings page.

Below the View Settings menu, accounts assigned the Admin or Expert privilege level can click **System Setting** to access system settings pages and configure the camera. For more information, see Configuration.

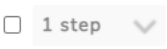
To the right of the live video, up to four enabled stream buttons appear. To see live video images from one of the enabled streams, click one of the buttons.

Camera Controls

When no settings page is open, the following can appear to the right of the live video:

	**Full Screen Button**	Maximizes live video in the computer display. To exit full-screen video, use the browser control. For example, on Google Chrome, you can press **ESC** or **F11**.
	**Snapshot Button**	Takes a snapshot of the live video. At least one video stream must be encoded in MJPEG.
	**SD Card Recording Button**	Initiates SD card video recording.
	**Manual Trigger Button**	Triggers a camera alarm.

Zoom & Focus

		Manual zoom / focus out / in buttons.
	**Zoom**	Resets zoom at the lens' widest setting.
	Focus	Resets focus at the lens' closest setting and then calibrates it according to the scene.
		Select to specify the zoom / focus increments each time you click the manual buttons (1 / 2 / 4 / 8 / 16 / 32 / 64 / 128 steps). 1 (default) provides the most precise manual adjustment and 128 provides the least precise.

AF Mode

	Camera is in manual focus mode.
	Adjusting the camera's zoom triggers auto-focus.
	Triggers a one-time auto focus.

4.3 Making Changes to Settings

The camera's configuration files store the following sets of settings:

- **Factory default settings**—The settings when you first connect the camera to power, and when resetting the camera to its factory default settings (see Firmware & Info Page). A partial factory reset restores all factory default settings except the settings on the Network Page.

- **Saved settings—**The settings you save as you operate and configure the camera. When the camera reboots, it restores these settings. Changes made to any setting since saving changes are lost.

Tip

Whenever possible, Teledyne FLIR recommends testing new settings before saving them because saving changes overwrites the previously saved settings.

View Settings

On View Settings pages, when an account assigned the Admin or Expert privilege level makes a change to a setting, the camera does one of the following:

- immediately applies the change, but does not save it
- immediately applies and saves the change
- does not apply the change until you save it

On most View Settings pages, **Reset** and **Save** are available and when you make a change, they become enabled. To restore the previously saved settings for the current page, click **Reset**. Regardless of whether the camera has already applied changes, to save all changes made to settings on the current page since the last time the page's settings were saved, click **Save**. This can include changes made earlier that were not saved.

If the camera immediately applies and saves changes, a **Save** button does not appear and clicking **Reset** restores the previously saved settings for the current page. For example, on the Visible Page.

System Setting

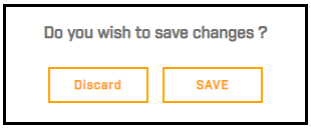
When Administrators make a change to most system settings, the **Discard Changes** link and the **Save** button become enabled. On some System Setting pages, the camera immediately applies the changes, but does not save them. On others, the camera does not apply changes until you save them.

Regardless of whether the camera has already applied changes, to save changes, click **Save**. To discard changes and restore previously saved settings or the factory default settings, click **Discard Changes**.

Changes to some system settings require the camera to reboot and a confirmation message appears.

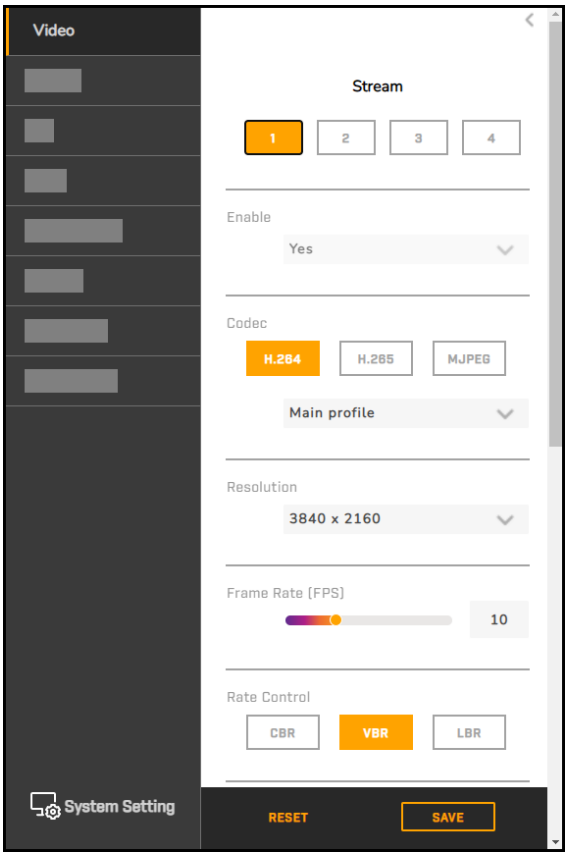
Tip

If you try to navigate away from a System Setting page before saving changes, a confirmation message appears. You can discard the changes or save them.



4.4 Video Page

On the Video page, accounts assigned the Admin or Expert privilege level can configure the camera's four video streams for optimum quality and bandwidth.



Stream

Select one of the camera's four video streams, which you can enable or disable. For each enabled stream, you can specify:

- **Codec—**H.265, H.264 (default), or MJPEG, based on required image quality and storage space.

> **Note**
>
> For the camera to be able to send images by FTP or email, MJPEG must be selected as the Codec for one of the streams.

- **Resolution** and **Frame Rate—**For information about the camera's supported video resolutions and maximum frame rates, see CM-6405 Video Resolutions or CM-6408 Video Resolutions .

The other available stream settings depend on the codec selected.

H.265 and H.264 settings

- **Profile—**Each profile targets specific classes of applications.

High Profile	The primary profile for HD broadcast applications, providing the best trade-off between storage space required and video latency. High Profile can require 10-30% less storage space compared to Main Profile. However, depending on the stream structure, it can have higher video latency.
Main Profile (default)	The default setting. For SD broadcast applications, provides improved picture quality at reduced bandwidth and storage space required over Baseline Profile.

- **Rate Control**

CBR (Constant Bit Rate)	The camera constantly streams video at the specified bit rate, regardless of video content. CBR is not optimal for storage or quality; it does not stream enough data for complex video (which can result in poor video quality), and consumes too much storage space for simple video. Choosing a higher bit rate results in better quality, but requires more storage space.
VBR (Variable Bit Rate)	Varies the amount of data per time segment, up to the specified bit rate. VBR enables a higher bit rate (and therefore requires more storage space) for more complex video or audio, while a lower bit rate and less storage space is allocated to less complex media. VBR files can take longer to encode and be more problematic for streaming when the maximum bit rate is not set high enough for high instantaneous bit rates. Specify: • **Encoding Priority—**Adjusts the quality of the picture along a single axis, between 1 (low bit rate) and 10 (high picture quality). The default setting is 7.
LBR (Low Bit Rate)	Used primarily for speech at rates below 4kbps, the camera does not encode the entire audible frequency range. LBR consumes less storage space than CBR or VBR. Specify: • **Compression—**Hi (default), Mid, or Low. Low produces the highest image quality and requires the most storage space. High produces the lowest image quality and requires the least storage space. • **Dynamic GOV—**Enabled or Disabled (default). When enabled, specify: ○ **Max. GOV—**Between the I-frame Interval value and 4094. The default is 255.

- **Bit Rate (Kbps)—**The higher the bit rate, the better the image quality. Set the maximum bit rate high enough to allow for a high instantaneous bit rate for more complex video. A higher bit rate consumes more storage space. Specify between 64 and 20480 bps. The default is 8000.
- **I-frame Interval—**The number of P-frames the camera streams between I-frames; I-frames are full frames of video and P-frames contain the changes in the image since the last I-frame. Reducing the I-Frame Interval requires more stream bandwidth, because the camera streams more full frames, and improves video quality. Increasing the I-Frame Interval requires less bandwidth, but can degrade video quality. Specify a value between 1-4094. The default is 50 (PAL) or 60 (NTSC); that is, by default, the camera streams one I-Frame every second.

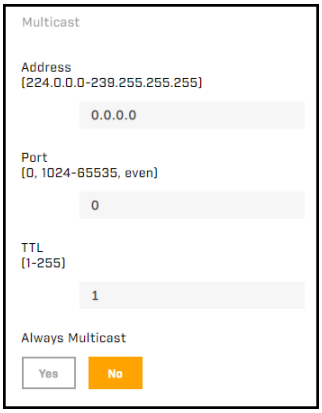
MJPEG setting

- **Q Factor—**Higher values imply higher bit rates and higher video quality, between 1 and 70. The default is 35.

Multicast

For each video stream, specify:

- **Address (224.0.1.1-239.255.255.254)—**A valid multicast address.
- **Port (0, 1024-65535, even)—**The port the camera uses for multicast video streaming.
- **TTL (1-255)—**Time to live, the maximum number of network hops before routers discard the camera's data packets. Each time one router forwards the datagram to another router, it subtracts 1 (one) from the packet's TTL. If the TTL of a packet reaches zero (0), a router discards the packet. Teledyne FLIR recommends setting TTL at 64.
- **Always Multicast—**Yes or No.



4.4.1 CM-6405 Video Resolutions

When the camera's video format is set to an NTSC format, the D1 resolution is 720x480. When the camera's video format is set to a PAL format, the D1 resolution is 720x576.

Linear Mode

On a CM-6405 camera, when the video format is Linear 60 FPS NTSC or Linear 25 FPS PAL, the following resolutions are available:

<table>
<tr><th>Stream 1</th><th>Stream 2</th><th>Stream 3</th><th>Stream 4</th></tr>
<tr><td rowspan="18">2688x1944 (25/30 fps)</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
<tr><td>2688x1944 (25/30 fps)</td><td>OFF</td><td>OFF</td></tr>
<tr><td rowspan="9">1080P (25/30 fps)</td><td>OFF</td><td>OFF</td></tr>
<tr><td rowspan="3">1080P (25/30 fps)</td><td>OFF</td></tr>
<tr><td>720P (25/30 fps)</td></tr>
<tr><td>D1 (25/30 fps)</td></tr>
<tr><td rowspan="3">720P (25/30 fps)</td><td>OFF</td></tr>
<tr><td>720P (25/30 fps)</td></tr>
<tr><td>D1 (25/30 fps)</td></tr>
<tr><td rowspan="2">D1 (25/30 fps)</td><td>OFF</td></tr>
<tr><td>D1 (25/30 fps)</td></tr>
<tr><td rowspan="6">720P (25/30 fps)</td><td>OFF</td><td>OFF</td></tr>
<tr><td rowspan="3">720P (25/30 fps)</td><td>OFF</td></tr>
<tr><td>720P (25/30 fps)</td></tr>
<tr><td>D1 (25/30 fps)</td></tr>
<tr><td rowspan="2">D1 (25/30 fps)</td><td>OFF</td></tr>
<tr><td>D1 (25/30 fps)</td></tr>
<tr><td rowspan="3">D1 (25/30 fps)</td><td>OFF</td><td>OFF</td></tr>
<tr><td rowspan="2">D1 (25/30 fps)</td><td>OFF</td></tr>
<tr><td>D1 (25/30 fps)</td></tr>
</table>

Stream 1	Stream 2	Stream 3	Stream 4
1080P (50 fps)	OFF	OFF	OFF
	1080P (50 fps)	OFF	OFF
		1080P (25/30 fps)	OFF
		720P (50 fps)	OFF
			D1 (25/30 fps)
		720P (25/30 fps)	720P (25/30 fps)
		D1 (50 fps)	OFF
			D1 (50 fps)
	720P (50 fps)	OFF	OFF
		720P (50 fps)	OFF
			720P (50 fps)
			D1 (50 fps)
		D1 (50 fps)	OFF
			D1 (50 fps)
	D1 (50 fps)	OFF	OFF
		D1 (50 fps)	OFF
			D1 (50 fps)
1080P (25/30 fps)	1080P (25/30 fps)	1080P (25/30 fps)	1080P (25/30 fps)
			720P (25/30 fps)
			D1 (25/30 fps)
		720P (25/30 fps)	720P (25/30 fps)
720P (50 fps)	OFF	OFF	OFF
	720P (50 fps)	OFF	OFF
		720P (50 fps)	OFF
			720P (50 fps)
			D1 (50 fps)
		D1 (50 fps)	OFF
			D1 (50 fps)
	D1 (50 fps)	OFF	OFF
		D1 (50 fps)	OFF
			D1 (50 fps)

Shutter Mode

On a CM-6405 camera, when the video format is Shutter WDR 30 FPS NTSC (default) or Shutter WDR 25 FPS PAL, the following resolutions are available:

Stream 1	Stream 2	Stream 3	Stream 4
2688x1944 (25/30 fps)	OFF	OFF	OFF
	2688x1944 (25/30 fps)	OFF	OFF
	1080P (25/30 fps)	OFF	OFF
		1080P (25/30 fps)	OFF
			720P (25/30 fps)
			D1 (25/30 fps)
		720P (25/30 fps)	OFF
			720P (25/30 fps)
			D1 (25/30 fps)
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)
	720P (25/30 fps)	OFF	OFF
		720P (25/30 fps)	OFF
			720P (25/30 fps)
			D1 (25/30 fps)
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)
	D1 (25/30 fps)	OFF	OFF
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)

Stream 1	Stream 2	Stream 3	Stream 4
1080P (25/30 fps)	OFF	OFF	OFF
	1080P (25/30 fps)	OFF	OFF
		1080P (25/30 fps)	OFF
			1080P (25/30 fps)
			720P (25/30 fps)
			D1 (25/30 fps)
		720P (25/30 fps)	OFF
			720P (25/30 fps)
			D1 (25/30 fps)
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)
	720P (25/30 fps)	OFF	OFF
		720P (25/30 fps)	OFF
			720P (25/30 fps)
			D1 (25/30 fps)
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)
	D1 (25/30 fps)	OFF	OFF
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)
720P (25/30 fps)	OFF	OFF	OFF
	720P (25/30 fps)	OFF	OFF
		720P (25/30 fps)	OFF
			720P (25/30 fps)
			D1 (25/30 fps)
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)
	D1 (25/30 fps)	OFF	OFF
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)

4.4.2 CM-6408 Video Resolutions

When the camera's video format is set to an NTSC format, the D1 resolution is 720x480. When the camera's video format is set to a PAL format, the D1 resolution is 720x576.

Linear Mode

On a CM-6408 camera, when the video format is Linear 60 FPS NTSC or Linear 25 FPS PAL, the following resolutions are available:

Stream 1	Stream 2	Stream 3	Stream 4
3840x2160 (25/30 fps)	OFF	OFF	OFF
	1080P (25/30 fps)	OFF	OFF
	720P (25/30 fps)	OFF	OFF
		720P (25/30 fps)	OFF
			D1 (25/30 fps)
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)
	D1 (25/30 fps)	OFF	OFF
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)
1080P (50/60 fps)	OFF	OFF	OFF
	1080P (50/60 fps)	OFF	OFF
		1080P (25/30 fps)	OFF
		720P (50/60 fps)	OFF
			D1 (25/30 fps)
		D1 (50/60 fps)	OFF
			D1 (50/60 fps)
	720P (50/60 fps)	OFF	OFF
		720P (50/60 fps)	OFF
			720P (50/60 fps)
			D1 (50/60 fps)
		D1 (50/60 fps)	OFF
			D1 (50/60 fps)
	D1 (50/60 fps)	OFF	OFF
		D1 (50/60 fps)	OFF
			D1 (50/60 fps)

Stream 1	Stream 2	Stream 3	Stream 4
720P (50/60 fps)	OFF	OFF	OFF
	720P (50/60 fps)	OFF	OFF
		720P (50/60 fps)	OFF
			720P (50/60 fps)
			D1 (50/60 fps)
		D1 (50/60 fps)	OFF
			D1 (50/60 fps)
	D1 (50/60 fps)	OFF	OFF
		D1 (50/60 fps)	OFF
			D1 (50/60 fps)

Shutter Mode

On a CM-6408 camera, when the video format is Shutter WDR 30 FPS NTSC (default) or Shutter WDR 25 FPS PAL, the following resolutions are available:

Stream 1	Stream 2	Stream 3	Stream 4
3840x2160 (25/30 fps)	OFF	OFF	OFF
	1080P (25/30 fps)	OFF	OFF
	720P (25/30 fps)	OFF	OFF
		720P (25/30 fps)	OFF
			D1 (25/30 fps)
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)
	D1 (25/30 fps)	OFF	OFF
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)

Stream 1	Stream 2	Stream 3	Stream 4
1080P (25 fps)	OFF	OFF	OFF
	1080P (25/30 fps)	OFF	OFF
		1080P (25/30 fps)	OFF
			1080P (25/30 fps)
			720P (25/30 fps)
			D1 (25/30 fps)
		720P (25/30 fps)	OFF
			720P (25/30 fps)
			D1 (25/30 fps)
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)
	720P (25/30 fps)	OFF	OFF
		720P (25/30 fps)	OFF
			720P (25/30 fps)
			D1 (25/30 fps)
		D1 (25 fps)	OFF
			D1 (25/30 fps)
	D1 (25/30 fps)	OFF	OFF
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)
720P (25/30 fps)	OFF	OFF	OFF
	720P (25/30 fps)	OFF	OFF
		720P (25/30 fps)	OFF
			720P (25/30 fps)
			D1 (25/30 fps)
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)
	D1 (25/30 fps)	OFF	OFF
		D1 (25/30 fps)	OFF
			D1 (25/30 fps)

4.4.3 Viewing Live Video Using a Media Player

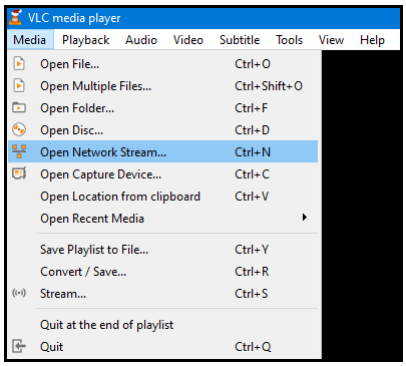
You can monitor any of the camera's enabled video streams with a media player that supports streaming; for example, VLC (download from http://www.videolan.org/vlc/index.html).

To view a video stream using VLC:

1. Open VLC.

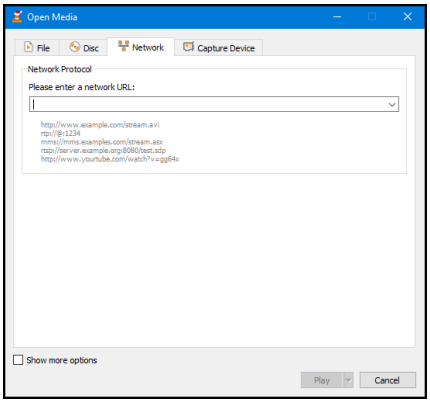
1. In the navigation menu, click **Media** and then select **Open Network Stream**.

   The Open Media screen appears.



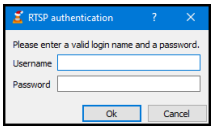
2. On the Network tab, specify the network URL for the camera's video stream. The network URL syntax is: rtsp:///(camera IP address):(camera RTSP port)/(stream). Using the camera's default IP address (192.168.0.250) and default RTSP port (554), the default network URLs are:

- **Stream 1—**rtsp://192.168.0.250:554/stream1
- **Stream 2—**rtsp://192.168.0.250:554/stream2
- **Stream 3**—rtsp://192.168.0.250:554/stream3
- **Stream 4**—rtsp://192.168.0.250:554/stream4

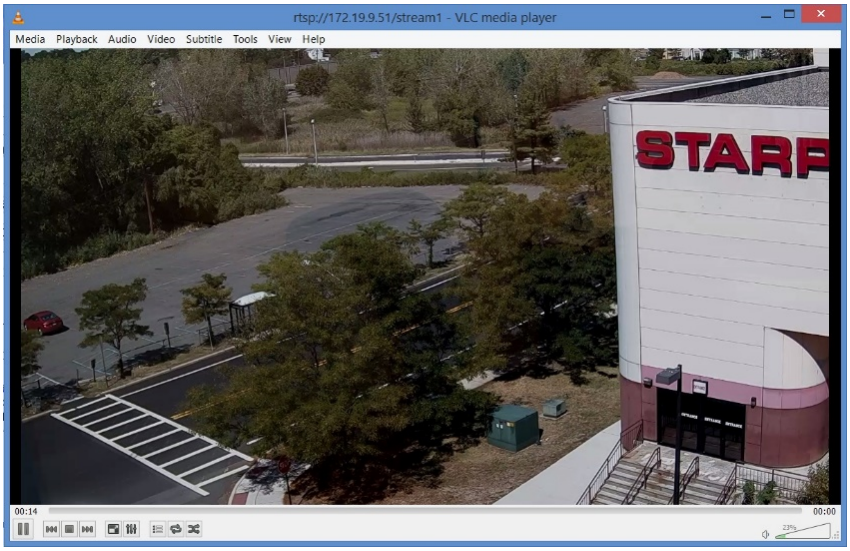


4. Click **Play**.

If RTSP authentication has been enabled in the Services section of the Cyber page, provide the user name and password for any of the camera's configured users.



The video stream appears in the media player. If available, audio is also streamed.



4.5 Visible Page

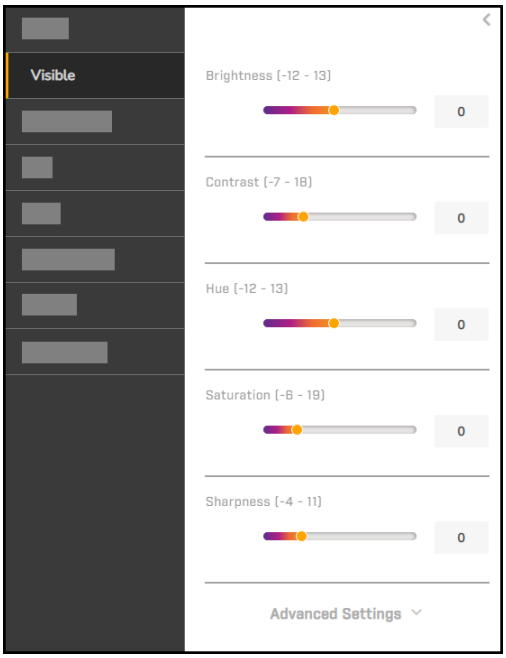
Accounts assigned the Admin or Expert privilege level can access and change the settings on the Visible page.

You can adjust:

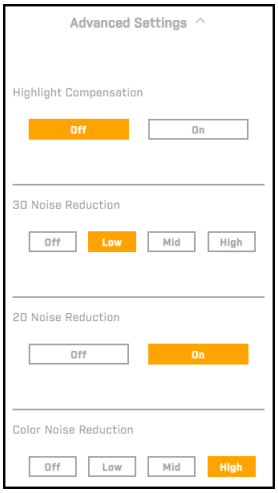
Setting	Range
Brightness	Between -12 and +13
Contrast	Between -7 and +18

Setting	Range
Hue	Between -12 and +13
Saturation	Between -6 and +19
Sharpness	Between -4 and +11

Zero (0) is the default for these settings.



Advanced Settings



The availability of some advanced settings depend on the current video format specified on the Firmware & Info Page and on the camera model:

Video Format	Low Light Performance	Night Mode Priority	BLC
Linear	-	-	•
Shutter	•	•	-

Model	Exposure Modes		Max Gain
CM-6405	P-Iris Priority Mode (default)		•
	Manual Mode		-
CM-6408	Auto Iris Mode P-Iris Priority Mode Iris Priority Mode	Auto Shutter Mode (default) Shutter Priority Mode Manual Mode	•

- **Highlight Compensation (HLC)—**Detects areas of the image overexposed by bright light sources such as headlights or spotlights and reduces image exposure only in these areas to enhance overall image quality. The default is Off.

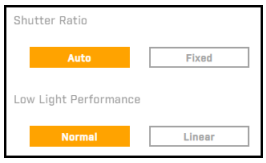
Noise Reduction Settings

You can use the camera's noise reduction settings to reduce or eliminate artifacts that can limit the ability to positively identify an object. There are two types of noise: luminance and color (chroma) noise.

3DNR (three-dimensional noise reduction) and 2DNR (two-dimensional noise reduction) reduce luminance noise, which is composed of dots of various brightness levels (black, white and gray) luminance noise contains dots of varying brightness levels (black, white, and gray).

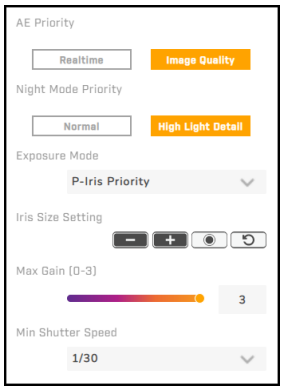
Teledyne FLIR recommends against completely eliminating luminance noise; doing so can result in unnatural images. We recommend adjusting ColorNR before configuring 3DNR and 2DNR.

Setting	Description	Valid Values	Default
3D Noise Reduction	Provides superior noise reduction and is recommended for use in in extra low-light conditions. It is especially useful for reducing blur with moving objects. The 3DNR function reduces image noise/snow in low-light conditions by comparing adjacent frames. A higher level of 3DNR generates relatively enhanced noise reduction, although it creates more motion blur than 2DNR on moving objects.	Off Low Mid High	Low
2D Noise Reduction	Analyzes individual frames pixel by pixel and frame by frame to eliminate environmental noise and deliver optimized image quality, especially in low-light conditions. 2DNR tends to produce superior results for moving objects when applied to areas in the field of view where movement is present. However, it is less precise than 3DNR.	On Off	On
Color Noise Reduction	Controls noise that appears as red, green, and blue dots visible at edges between light and dark areas. Color High maximizes the blending of the color noise with the image, effectively removing the dots. Color Low minimizes the blending.	Off Low Mid High	High



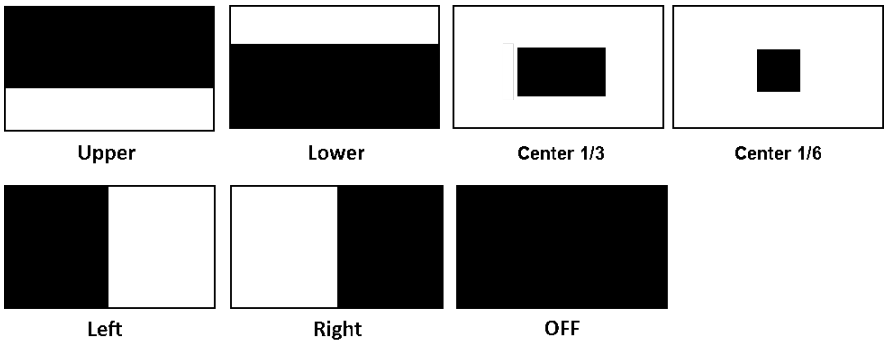
- **Shutter Ratio—**For scenes in which the amount of light changes dynamically, set to Auto (default). The camera automatically adjusts the ratio of the longest exposure to the shortest exposure. For scenes in which the amount of light remains constant, you can set it to Fixed. The camera does not automatically adjust the ratio.
- **Low Light Performance**—For well-lit scenes, set to Normal (default). For dimly-lit scenes, set to Linear. When increasing gain to compensate for low light level, image noise increases. When set to Linear, the camera reduces that image noise.

Exposure Settings



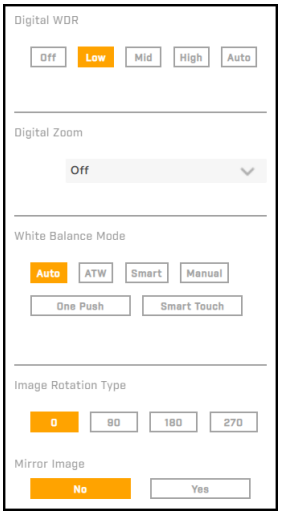
- **AE Priority—**By default (Image Quality), the camera simultaneously adjusts gain and shutter speed to achieve the highest possible image quality; therefore, the camera cannot guarantee real-time frame rates. When set to Realtime, maintaining real-time streaming is the camera's highest priority. It increases gain to its maximum level before adjusting shutter speed.
- **Night Mode Priority—**When set to High Light Detail, in Night Mode, the camera detects well-lit objects in the scene, and decreases overall exposure to increase detail visibility for those objects. At the same time, darker areas of the scene appear even darker. By default (Normal), the camera does not decrease exposure to increase detail visibility for well-lit objects.
- **Max Gain—**When not 0 (zero; no gain), determines the maximum allowed increase in image sensor sensitivity. Increasing gain brightens the image, and adds details. It also increases the level of noise in the image. Select between 0-3; the default is 3. Available in P-Iris Priority exposure mode.

- **Exposure Mode—**The amount of time the camera shutter is open (shutter speed) and other exposure settings determine the amount of light the image sensor receives; that is, its exposure. The camera can use a programmed algorithm to automatically select an exposure level or you can manually configure exposure settings. Available settings depend on the selected exposure mode.
- **Backlight Compensation** (BLC)—When a bright light source puts the region of interest (ROI) in shadow or silhouette, enabling BLC can improve the image. By default, BLC is disabled and the camera's auto exposure algorithm considers the entire image. With BLC enabled, the algorithm considers only the selected ROI.



- **Digital WDR** (dWDR)—Digitially enhances the details in each frame to improve image quality and the amount of detail in high contrast scenes. That is, scenes consisting of areas with different lighting conditions; some areas are bright and others are dark. Without dWDR, either the bright areas would be too bright (overexposed) or the darker areas would be completely dark (underexposed). dWDR can produce more detail in both the dark and the bright areas of the image. You can increase the dWDR setting as the level of scene contrast increases. Select Off, Low (default), Mid, High, or Auto.

  The camera also supports Shutter WDR (see the Video Format setting on the Firmware & Info Page). Digital WDR is available with all of the camera's video formats.



- **Digital Zoom**—Select Off (default) or between 2x-10x.
- **White Balance Mode—**The camera needs a reference color temperature of the ambient light source to calculate all other colors. The unit for measuring this ratio is in Kelvin (°K) degrees. The table shows the color temperature of some light sources for reference.

Light Source	Color Temperature in K°
Cloudy sky	6,000 to 8,000
Noon sun and clear sky	6,500
Household lighting	2,500 to 3,000
75-watt bulb	2,820
Candle flame	1,200 to 1,500

  - **Auto—**If the light source color temperature changes, the camera automatically adjusts the white balance. Suitable for light source color temperatures ranging from approximately 2,700K to 7,800K.
  - **ATW (Auto Tracking White Balance)—**If the light source color temperature changes, the camera automatically adjusts the white balance. Suitable for light source color temperatures ranging from approximately 2,500K to 10,000K.

- **Smart—**Suitable for environments with a single background color that is strongly saturated; for example, in a forest.
- **Manual—**Specify the Rgain and Bgain to define the red and blue luminance, respectively. Might not be ideal for every lighting environment. Specify 0-249.
- **One Push—**When you click , the camera adjusts and fixes the white balance according to the scene at that moment. Works best with minimal scene changes and continuous lighting. Suitable for light sources at any color temperature.

> **Note**
>
> The camera's white balance is fixed and does not change as the scene or the light source varies. You might have to re-adjust the white balance by clicking the button again when needed.

- **Smart Touch—**Camera uses the specified portion of the scene as the white balance reference. Move and resize the reference area by clicking and dragging the area or its borders. Make sure that the background color of the selected area is white. Then, click . Suitable for environments in which the brightness level does not change.

Default reference area

Image Orientation

- **Image Rotation Type—**Select 0, 90, 180, or 270 (degrees clockwise), where 0 (zero) does not rotate the image.
- **Mirror Image—**Yes flips the image along its vertical axis.

Mirror Image Disabled

Mirror Image Enabled

4.5.1 Auto Iris Mode

In Auto Iris mode, based on the amount of light in the scene, speed of moving objects, and noise, specify the minimum shutter speed, the camera's slowest shutter speed. Reducing the shutter speed - that is, keeping the shutter open longer - can cause moving objects to be blurred. To achieve a consistent exposure level, the camera adjusts the iris size and other exposure settings. The video format determines the valid values, as shown, in fractions of a second.

Min Shutter Speed - Auto Iris Mode					
PAL			NTSC		
1/25	1/6	1/1.5	1/30	1/8	1/2
1/12	1/3	-	1/15	1/4	1

4.5.2 P-Iris Priority Mode

In P-iris Priority mode, adjust the iris size, which then remains fixed, and the minimum shutter speed. To achieve a consistent exposure level, the camera adjusts the other exposure settings. However, if the amount of light entering the camera lens drops below the exposure level required, the camera automatically fully opens the iris.

The settings and valid values available depend on the camera model.

- **Iris Size Setting—**Manually adjust the iris size.

   closes the iris.

   stops the iris.

   opens the iris.

   resets the iris.

  Increasing the iris size increases the amount of light reaching the camera sensor when the shutter is open and therefore, the faster the minimum shutter speed should be.

- **Min Shutter Speed—**Based on the amount of light in the scene, speed of moving objects, and noise, specify the slowest shutter speed. Reducing the shutter speed - that is, keeping the shutter open longer - can cause moving objects to be blurred. The video format determines the valid values, as shown, in fractions of a second:

Min Shutter Speed - P-Iris Priority Mode								
CM-6408-11-I			CM-6405-11-I					
PAL	NTSC		PAL			NTSC		
1/25	1/30	1	1/425	1/100	1/6	1/500	1/100	1/8
1/12	1/15	-	1/300	1/75	1/3	1/350	1/90	1/4
1/6	1/8	-	1/215	1/50	1/1.5	1/250	1/60	1/2
1/3	1/4	-	1/150	1/25	-	1/180	1/30	1
1/1.5	1/2	-	1/120	1/12	-	1/120	1/15	-

4.5.3 Iris Priority Mode

In Iris Priority mode, specify a fixed iris size and the minimum shutter speed. To achieve a consistent exposure level, the camera adjusts the other exposure settings.

- **Iris Size (0-10)—**Specify the fixed iris size, where 10 is fully open. Increasing the iris size increases the amount of light reaching the camera sensor when the shutter is open and therefore, the faster the minimum shutter speed should be.

- **Min Shutter Speed—**Based on the amount of light in the scene, speed of moving objects, and noise, specify the slowest shutter speed. Reducing the shutter speed - that is, keeping the shutter open longer - can cause moving objects to be blurred. The video format determines the valid values, as shown, in fractions of a second:

Min Shutter Speed - Iris Priority Mode					
PAL			NTSC		
1/25	1/6	1/1.5	1/30	1/8	1/2
1/12	1/3	-	1/15	1/4	1

4.5.4 Auto Shutter Mode

In Auto Shutter mode, the camera fully opens the iris. Based on the amount of light in the scene, speed of moving objects, and noise, specify the slowest shutter speed. Reducing the shutter speed - that is,

keeping the shutter open longer - can cause moving objects to be blurred. To achieve a consistent exposure level, the camera adjusts other exposure settings, including the automatic gain control (AGC), and prioritizes the fully open iris.

Teledyne FLIR recommends Auto Shutter mode for indoor environments involving mixed lighting sources, where the main source is fluorescent lighting combined with natural light that enters the scene through windows and other exposed areas.

The video format determines the valid values, as shown, in fractions of a second:

Min Shutter Speed - Auto Shutter Mode									
PAL					NTSC				
1/425	1/150	1/75	1/12	1/1.5	1/500	1/180	1/90	1/15	1/2
1/300	1/120	1/50	1/6	-	1/350	1/120	1/60	1/8	1
1/215	1/100	1/25	1/3	-	1/250	1/100	1/30	1/4	-

4.5.5 Shutter Priority Mode

In Shutter Priority mode, based on the amount of light in the scene, speed of moving objects, and noise, specify the fixed shutter speed. Reducing the shutter speed - that is, keeping the shutter open longer - can cause moving objects to be blurred. To achieve a consistent exposure level, the camera adjusts other exposure settings.

The video format determines the valid values, as shown, in fractions of a second.

Fixed Shutter Speed - Shutter Priority Mode					
PAL			NTSC		
1/425	1/150	1/75	1/500	1/180	1/90
1/300	1/120	1/50	1/350	1/120	1/60
1/215	1/100	1/25	1/250	1/100	1/30

4.5.6 Manual Mode

Teledyne FLIR recommends Manual mode for scenes with fixed light levels and fixed lighting contrast such as indoor scenes; when requiring a consistent, precise exposure level; and the camera is not providing the desired exposure using other modes.

- **Shutter Speed—**Based on the amount of light in the scene, speed of moving objects, and noise, specify the fixed shutter speed. Reducing the shutter speed - that is, keeping the shutter open longer - can cause moving objects to be blurred. The video format determines the valid values, as shown, in fractions of a second.

Shutter Speed - Manual Mode							
PAL				NTSC			
1/32000	1/600	1/120	1/12	1/32000	1/725	1/120	1/15
1/10000	1/425	1/100	1/6	1/10000	1/500	1/100	1/8
1/3500	1/300	1/75	1/3	1/3000	1/350	1/90	1/4
1/2500	1/215	1/50	1/1.5	1/2000	1/250	1/60	1/2
1/1250	1/150	1/25	-	1/1000	1/180	1/30	1

- **Iris Size (0-10)**

  Increasing the iris size increases the amount of light reaching the camera sensor when the shutter is open and therefore, the faster the minimum shutter speed should be.

  CM-6405—Manually adjust the iris size:

   closes the iris.

   stops the iris.

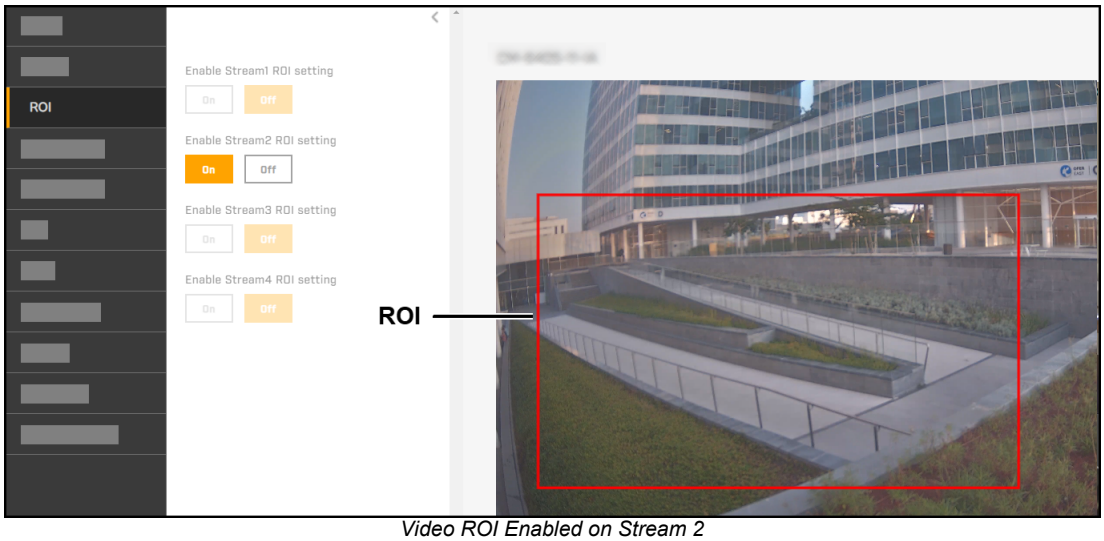
   opens the iris.

   resets the iris.

  CM-6408—Specify the fixed iris size, where 10 is fully open. The default is 6.
- **Gain—**When not Off (no gain), increases the image sensor sensitivity. Increasing gain brightens the image, and adds details. It also increases the level of noise in the image. Select Off or between 1-9.

4.6 ROI Page

On the ROI page, accounts assigned the Admin or Expert privilege level can enable and define video stream regions of interest (ROI). The camera streams the defined ROI.



Video ROI Enabled on Stream 2

Stream 2

You can enable and define an ROI for an enabled video stream:

- when at least two video streams are enabled
- when the resolution for each stream is different
- when the stream's resolution is not the highest among the enabled streams
- when the stream's resolution is 1080p or lower

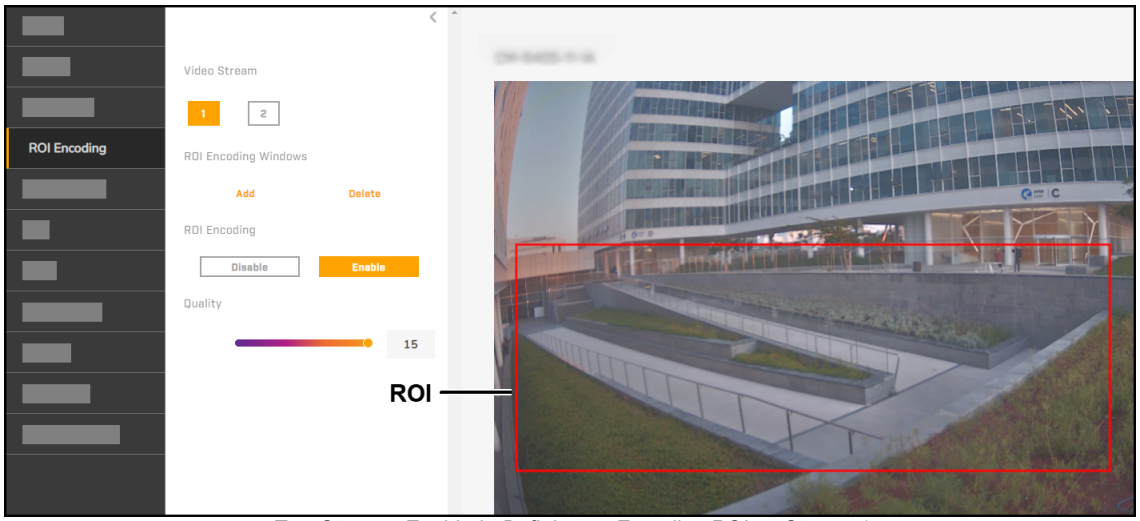
If two streams are set to the same resolution, ROI is available on one of the streams. If four streams are enabled, ROI is not available on the stream with the lowest resolution.

To move an ROI, click inside the red ROI box, drag, and then release the mouse. To change the size of an ROI, click a border or a corner of the ROI, drag, and then release the mouse.

To apply changes, click **Save**.

4.7 ROI Encoding Page

On the ROI Encoding page, accounts assigned the Admin or Expert privilege level can enable and define up to three encoding regions of interest (ROIs) for each enabled H.264 or H.265 video stream. ROI encoding is not available with MJPEG encoding. Within an encoding ROI, the camera increases the bit rate, providing higher quality. Outside the encoding ROI, the camera decreases the bit rate.



Two Streams Enabled - Defining an Encoding ROI on Stream 1

Tip

You can combine encoding ROIs with stream ROI settings. If an ROI has been defined for a video stream, the stream ROI appears on the ROI Encoding page and you can define up to three encoding ROIs within the stream ROI. The total area of the three encoding ROIs cannot exceed half the area of the stream ROI.

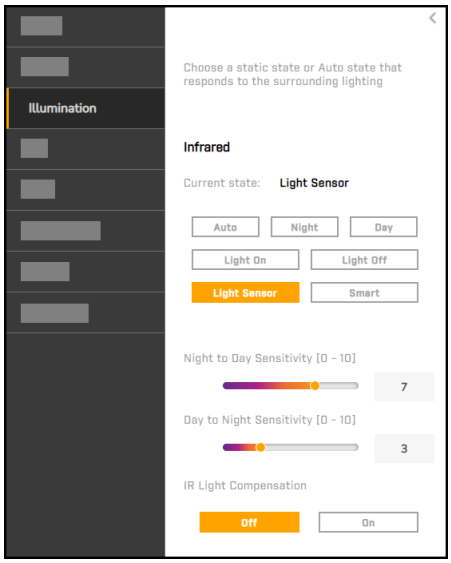
To enable and define an encoding ROI:

1. Select one of the enabled video streams.
2. Click **Add**. A red ROI box appears in the live video.
3. Define the ROI. To move the ROI, click inside the ROI, drag, and then release the mouse. To change the size of the ROI, click a border or a corner of the ROI, drag, and then release the mouse.
4. Specify the encoding ROI quality between -15 and 15. The default is 15.
5. Click **Save**.

4.8 Illumination Page

On the Illumination page, accounts assigned the Admin or Expert privilege level can enable and configure settings that control the camera's:

- IR Cut (IRC) filter, which improves the camera's color video quality by filtering out IR light
- IR LED illuminator, which enhances the camera's monochrome (black and white) video in low-light conditions and at night



Select one of the following infrared (IR) modes:

IR Mode	Video	IRC filter	IR LED	Use
Auto	The ambient light level detected by the camera's image sensor determines when the camera switches: • video between color and monochrome • the IRC filter on and off		Disabled	When the ambient light level changes throughout the day and IR illumination is not desired
Night	Monochrome	Disabled	Disabled	When the ambient light level is permanently low and IR illumination is not desired
Day	Color	Enabled	Disabled	Daytime outdoors when the IRC filter is desired and IR illumination is not desired
Light On	Monochrome	Enabled	Enabled	When the ambient light level is permanently low and IR LED illumination is desired
Light Off	Color	Disabled	Disabled	When the ambient light level consistently provides high-quality color video and IR LED illumination is not desired
Light Sensor (default)	The ambient light level detected by the camera's light and image sensors determines when the camera switches: • video between color and monochrome • the IRC filter on and off • the IR LED on and off			Most situations
Smart	Improves monochrome video stability and prevents the camera from switching back and forth between monochrome and color video. When the image sensor detects that the main light source is IR illumination - that is, when the camera is providing monochrome video in night mode - it keeps the IRC filter enabled.			

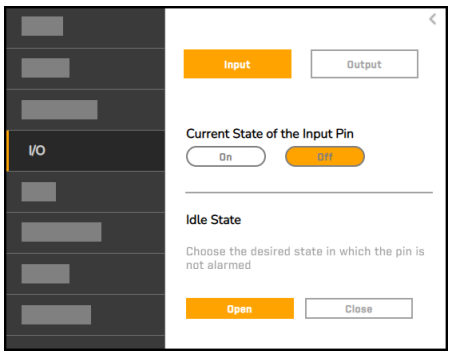
Night to Day / Day to Night Sensitivity—Thresholds at which the video switches from monochrome to color (Night to Day Sensitivity) and vice versa (Day to Night Sensitivity). Select 1-9, where 1 switches the video at a lower light level (darker) and 9 switches the video at a higher light level (brighter). The default Night to Day Sensitivity setting is 7 and the default Day to Night Sensitivity setting is 3.

Note

During day-night transitions, video can appear off-color. Within a few seconds, as the level of light decreases or increases, and depending on the time of day, accurate color reproduction should return.

IR Light Compensation—When the camera's IR illuminator is on, prevents objects close to the camera in the center of the field of view from being too bright. Off by default.

4.9 I/O Page



On the I/O (input / output) page, accounts assigned the Admin or Expert privilege level can see the current state of the input and output pins, and can configure their idle state.

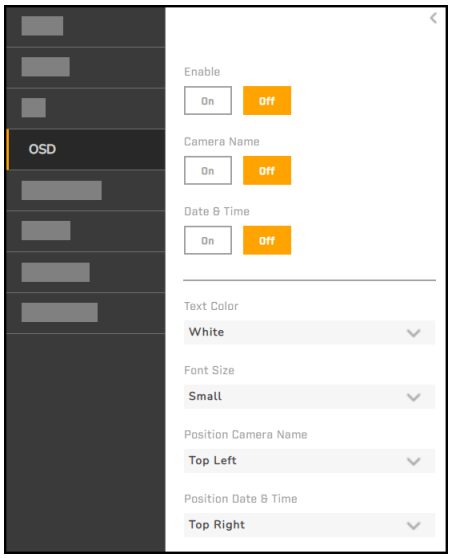
Select **Input** or **Output**.

Idle State—Select whether the state of the input / output pin is normally open (default) or normally closed.

By default, a change in the state of the input pin triggers a change in the state of the output pin; that is, on the Alarm Page, a default Alarm In alarm is configured and enabled.

You can configure any alarm to change the state of the output pin.

4.10 OSD Page



On the OSD (on-screen display) page, accounts assigned the Admin or Expert privilege level can:

- Enable or disable OSD for all video straems
- Enable or disable the camera name appearing in the OSD
- Enable or disable the date & time appearing in the OSD

You can also specify:

- **Text Color**—black, white (default), yellow, red, green, blue, cyan, or magenta
- **Font Size**—small (default), medium, or large
- **Position Camera Name**—top (default) or bottom; left (default), center, or right
- **Position Date & Time**—top (default) or bottom; left, center, or right (default)

4.11 Privacy Zone Page

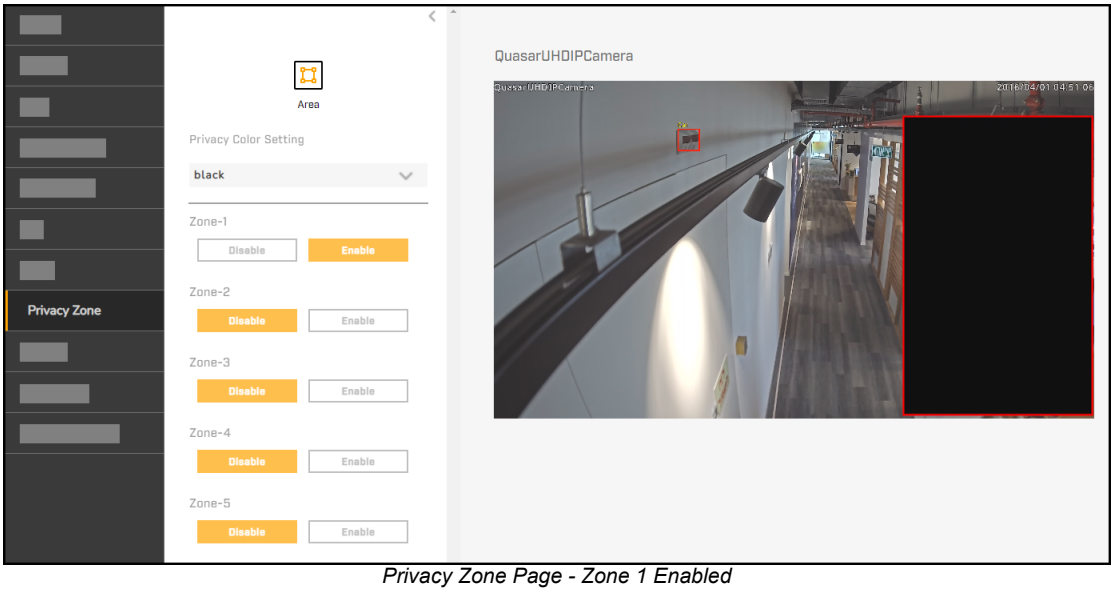
On the Privacy Zone page, accounts assigned the Admin or Expert privilege level can enable and configure up to five privacy zones. Privacy zones conceal sensitive portions of the scene to avoid intrusive monitoring.

When you enable a zone, the borders of the zone area appear in the live video. Red borders indicate the zone you are currently editing.

To change the size of the zone, click a side or corner and drag it.

To move the zone, click inside the zone and drag it.

Enabled zones appear in the live video.

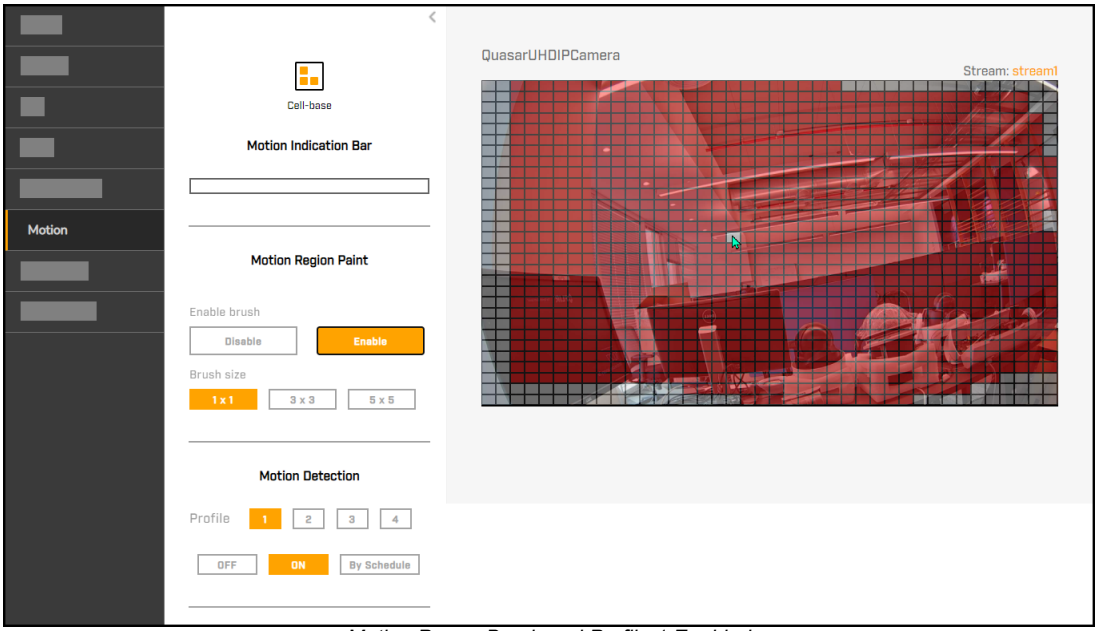


Privacy Zone Page - Zone 1 Enabled

- **Privacy Color Setting—**Select the color that fills the zones: black (default), white, yellow, red, green, blue, cyan, or magenta.

4.12 Motion Page

On the Motion page, accounts assigned the Admin or Expert privilege level can enable and configure up to four motion detection profiles. On the Alarm page, Administrators can select one of the four profiles as a trigger. For more information, see Modifying or Defining an Alarm Trigger.



Motion Page - Brush and Profile 1 Enabled

By default, motion detection is disabled. When enabled, motion in the detected region that reaches or exceeds the specified sensitivity threshold triggers alarms. If the camera is connected to FLIR UVMS, Teledyne FLIR recommends using AdminCenter to configure motion detection.

Detected motion appears in the 10-step Motion Indication Bar; each step represents a sensitivity level. When motion exceeds the specified sensitivity threshold, the bar turns from green to red.

Motion Region Paint

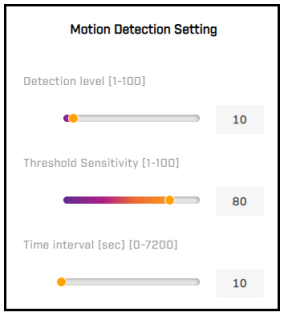
To draw the motion detection region:

1. Enable the brush.
2. Select the brush size to draw the region (1x1, 3x3, or 5x5).
3. To draw and erase cells, click and drag or click and release on the cell grid overlay. Each mouse click on the cell grid toggles between drawing and erasing.

Motion Detection

Select one of the four profiles and then specify:

- **Off—**Motion detection alarms are permanently disabled (default).
- **On—**Motion detection alarms are permanently enabled.
- **By Schedule—**Motion detection is enabled and disabled according to the selected schedule(s). Select up to 10 schedules. You can configure schedules on the Schedule Page.



Motion Detection Setting

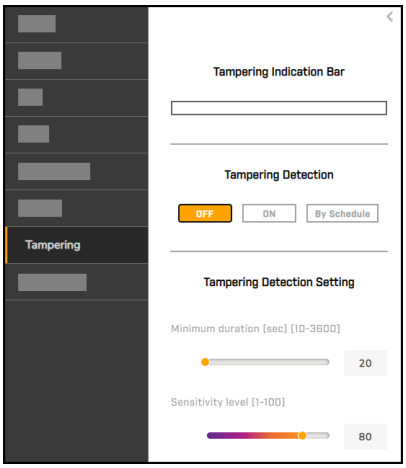
- **Detection level (1-100)—**Specify the sensitivity for each sampled pixel. Lowering the value increases detection sensitivity and vice versa. The default is 10.
- **Threshold Sensitivity (1-100)—**Specify the camera's overall motion detection threshold sensitivity. The default is 80; if 20% or more of the sample pixels are detected as being different, the camera detects motion. Increasing the value increases detection threshold sensitivity, and higher levels appear in the Motion Indication Bar.
- **Time interval (sec) (0-7200)—**Specify the minimum amount of time, in seconds, between motion detection alarms. The default is 10.

4.13 Tampering Page

On the Tampering page, accounts assigned the Admin or Expert privilege level can enable and configure the camera's tampering detection feature. On the Alarm page, accounts assigned the Admin or Expert privilege level can select Tampering as a trigger. For more information, see Modifying or Defining an Alarm Trigger.

When enabled, tampering with the camera that reaches or exceeds the specified sensitivity threshold triggers alarms. By default, tampering detection is disabled.

Detected tampering appears in the 10-step Tampering Indication Bar; each step represents a sensitivity level. When tampering exceeds the specified sensitivity threshold, the bar turns from green to red.



Tampering Detection

- **Off—**Tampering detection is permanently disabled (default).
- **On—**Tampering detection is permanently enabled.
- **By Schedule—**Tampering detection is enabled and disabled according to the selected schedule(s). Select up to 10 schedules. You can configure schedules on the Schedule Page.

Tampering Detection Setting

- **Minimum duration (sec) (10-3600)—**Amount of time, in seconds, tampering must occur before the camera triggers an alarm. The default is 20.
- **Sensitivity level (1-100)—**Amount of tampering - that is, moving the camera - that triggers an alarm. Increasing the value increases detection sensitivity, and higher levels appear in the Motion Indication Bar. The default is 80.

5 Configuration

Accounts assigned the Admin or Expert privilege level can click **System Setting** on the View Settings page to access the following configuration pages:

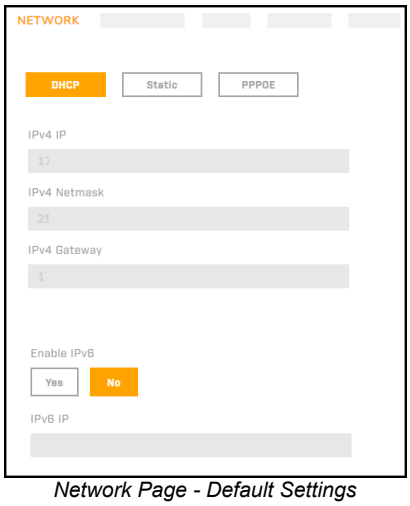
- Network Page
- Date & Time Page
- Users Page
- SD Card Page
- Alarm Page
- Schedule Page
- Audio Page
- Recording Page
- Email Page
- FTP Page
- HTTP Page
- Cyber Page
- Firmware & Info Page

For information about making, apply, and saving changes on System Setting pages, see Making Changes to Settings.

5.1 Network Page

When you click **System Setting**, by default, the Network page appears.

If you do not know how to configure these settings, contact your network administrator.
Specify the camera's IP addressing mode:



Network Page - Default Settings

- **DHCP—**Dynamic Host Configuration Protocol server on the network assigns the camera its IPv4 IP address, and determines the IPv4 Netmask and Gateway. The information appears in these fields, which you cannot modify. When the IP addressing mode is set to DHCP and a DHCP server is not available on the network, the camera's default IP address is 192.168.0.250.
- **Static (default)—**Specify:
  - **IPv4 IP**—Camera's IPv4 address.

> **Caution**
>
> After changing the camera's IPv4 address, the PC you are using to access the camera's web page might no longer be on the same network as the camera and can no longer access the camera's web page. To access the camera web page again, change the PC's IPv4 address to be on the same network as the camera.

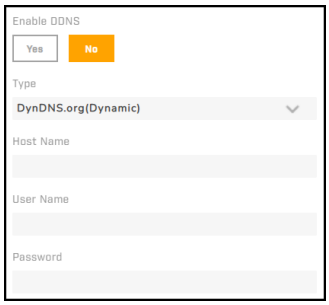
  - **IPv4 Netmask**—Determines whether devices are on the same subnet. The default value is 255.255.255.0.
  - **IPv4 Gateway—**IP address of the server that passes data between devices on different subnets. An invalid gateway setting causes communication between the camera and devices on other subnets to fail.
  - **Primary DNS—**IP address of the domain name server that translates host names into IP addresses.
  - **Secondary DNS—**IP address of the domain name server that backs up the primary DNS.

- **PPPoE—**Camera connects to the network using Point-to-Point Protocol over Ethernet and is assigned an IP address. Specify the User Name and Password for the PPPoE account. Then, click **Save**. If the PPPoE connection is successful, the camera's assigned IPv4 address appears.

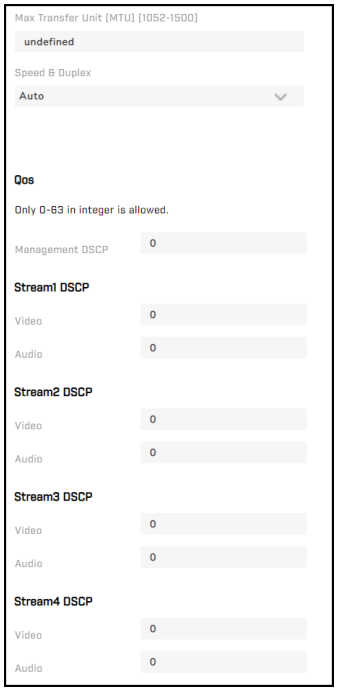
Tips

- You can also use the DNA tool to specify the IP addressing mode as DHCP or Static for one or more of the same camera model. For more information, see Configure for Networking.
- For future reference, record the camera's MAC address, which is found on the camera label.

- **Enable IPv6—**When IPv6 is enabled and the IP addressing mode is Static, specify the camera's IPv6 address. By default, IPv6 is disabled.
- **Enable DDNS—**The Dynamic Domain Name System (DDNS) allows a host name to be constantly synchronized with a dynamic IP address. and access to devices using dynamic IP addressing by using a static domain name. By default, DDNS is disabled. When enabled, specify:
  - **Type—**DDNS host provider. DynDNS.org (Dynamic) is the default.
  - **Host Name—**Registered domain name.
  - **User Name—**User name required by the DDNS provider for authentication.
  - **Password—**Password required by the DDNS provider for authentication.



- **Maximum Transmission Unit (MTU) (1052-1500)—**Largest amount of data the camera can transmit in one physical frame on the network. For Ethernet, the MTU is 1500 bytes (default). For PPPoE, the MTU is 1492.
- **Speed & Duplex—**Select:
  - **100 Mbps Full Duplex—**Camera supports 100 Mbps Ethernet and can simultaneously transmit and receive data.
  - **100 Mbps Half Duplex—**Camera supports 100 Mbps Ethernet, but cannot transmit and receive data at the same time.
  - **Auto—**Camera supports and automatically detects 10 / 100 / 1000 Mbps Ethernet.



QoS

QoS (quality of service) provides differentiated service levels for different types of traffic packets and guarantees delivery of priority services during periods of network congestion. Adapting the Differentiated Services (DiffServ) model, traffic flows are classified and marked with DSCP (DiffServ Code Point) values, and as a result receive the corresponding forwarding treatment from DiffServ-capable routers.

Specify values (0 to 63) for:

- **Management DSCP—**Class of service for camera management via HTTP.

And for each of the camera's four streams:

- **Video DSCP—**Class of service for the stream's video.
- **Audio DSCP—**Class of service for the stream's audio.

By default, DSCP disabled; that is, the value for each service class is 0 (zero).

Note

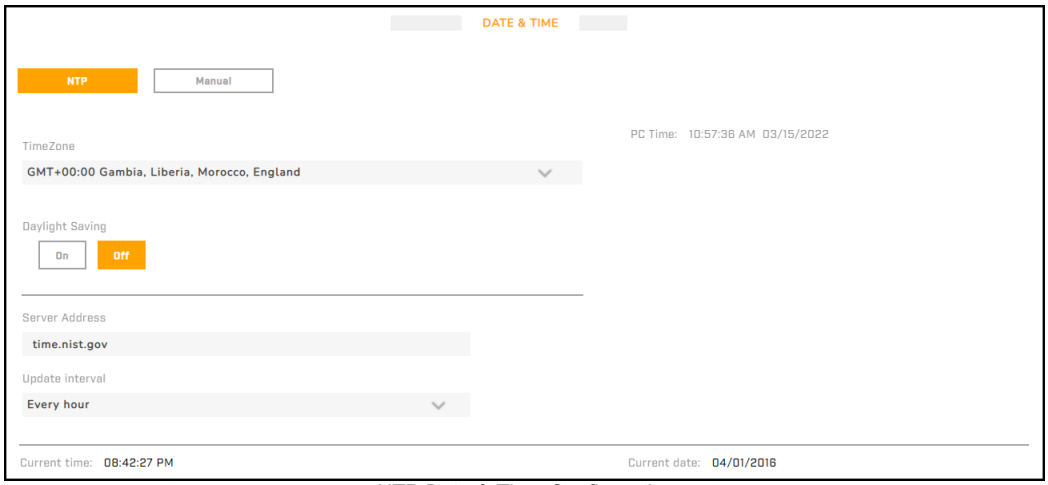
Before assigning DSCP values, make sure the switches / routers on the network support QoS.

5.2 Date & Time Page

On the Date & Time page, accounts assigned the Admin or Expert privilege level can select **NTP** (default) or **Manual**.

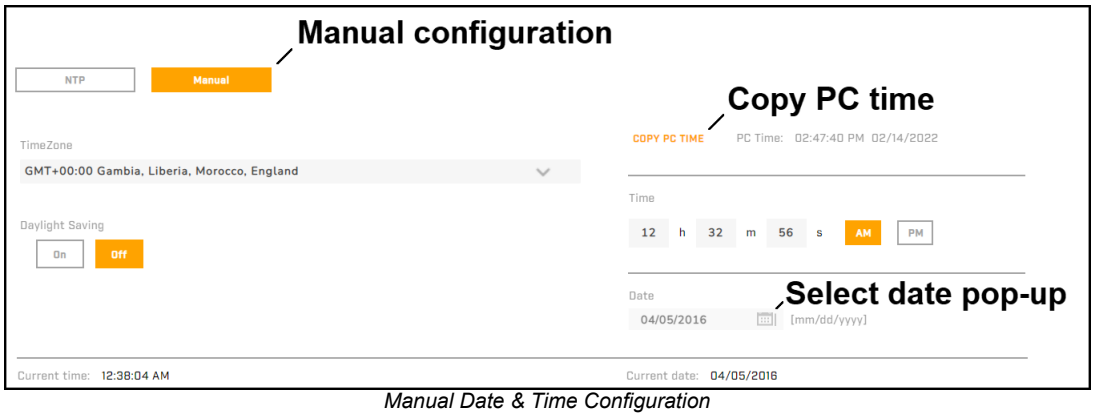
NTP—Camera synchronizes its date and time with an NTP server. Specify:

- **Server Address—**IP address of the NTP server or URL of an NTP service (default: time.nist.gov)
- **Update Interval—**every hour (default), every day, or every week



NTP Date & Time Configuration

Manual—Manually configure the camera's date and time. Click **Copy PC Time** or manually specify the hour, minute, second, AM or PM, and date.

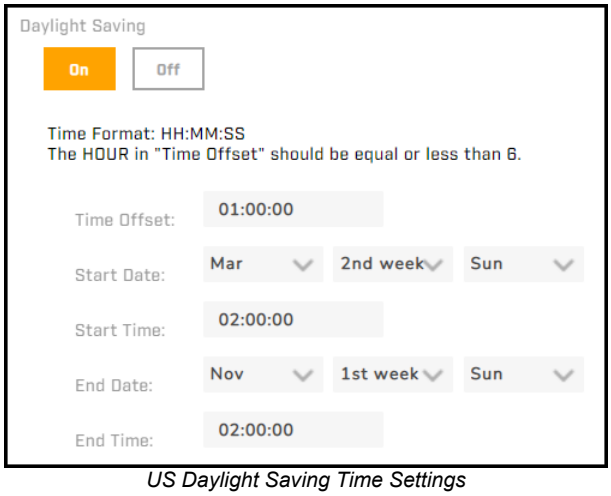


Manual Date & Time Configuration

In either NTP or manual configuration, specify:

- **Time Zone**
- **Daylight Saving—**By default, the camera time does not change according to daylight saving time (Off). If you enable Daylight Saving (On), specify:

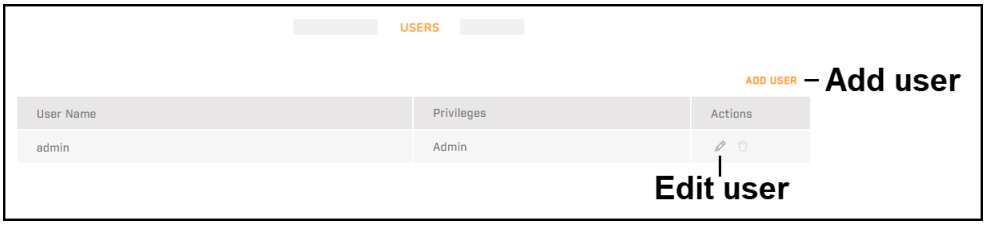
- **Time Offset—**Number of hours, minutes, and seconds between daylight saving time and standard time. The time offset format is hh:mm:ss. 1:00:00, or one hour, is the default.
- **Start Date, Start Time, End Date, and End Time—**Select the date and time specified by law. For example, in most places in the US, specify 2 AM on the second Sunday in March and 2 AM on the first Sunday in November, respectively:



US Daylight Saving Time Settings

5.3 Users Page

On the Users page, accounts assigned Admin privileges can add and remove users, and can change or set passwords.

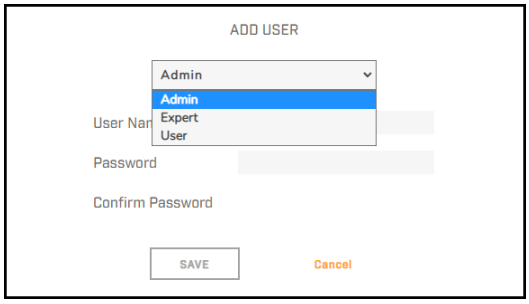


To prevent unauthorized access to the camera:

- Make sure the default password for the admin user has been changed.
- Add users for each required login account, up to a maximum of 20 users.

To add a new user:

1. Click **Add User**. The Add User screen appears.



2. Assign one of the following privileges, according to the level of access the user requires:

Privilege	Access
User	Can: • View live video • View the Help page • Log out
Expert	Cannot manage users: • Cannot add/edit/delete users • Cannot change passwords Can access and use all other View Settings and System Settings pages, menus, controls, and settings
Admin, including the default *admin* user	Can access and use all of the camera's web pages, including adding/editing/deleting users (but cannot delete the default admin user), and setting all passwords
All roles can access the camera's video streams, which require authentication. You can use the name and password for any of the camera's users.	

3. Specify a user name and password, and then confirm the password, according to the following requirements:

   - User names and passwords are case-sensitive.
   - User names are limited to 29 characters and can only include alphanumeric characters A-Z, a-z, 0-9.
   - Use strong passwords consisting of 8-64 characters. Passwords can include special characters @#~!$&<>+_-.,*?. Passwords cannot contain four-digit sequences (for example, 1234). They also cannot contain four repeating characters (for example, aaaa).

Managing Existing Users

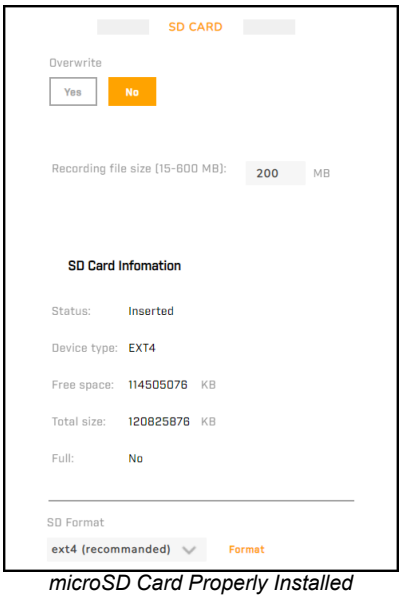
To change the password for a user, click the edit icon for the user, change the password, and then confirm the change. To delete a user, click the trash icon for the user, and then confirm deleting the user. The admin user cannot be deleted.

5.4 SD Card Page

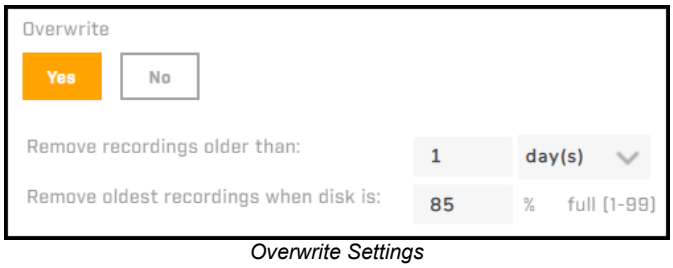
With a microSD card properly installed, the camera can locally record video clips and snapshots, up to 1 TB. For information about how to install a microSD card (not included in the camera kit), see Connect the Camera.

On the SD Card page, accounts assigned the Admin or Expert privilege level can format the microSD card, configure its settings, and view its properties.

Overwrite—By default, Overwrite is disabled. When a microSD card is properly installed, the camera automatically enables Overwrite. When enabled, specify the amount of time the camera retains recorded files, in days or weeks, and when the camera begins removing the oldest recorded files, in percentage the disk is full (1-99%).



microSD Card Properly Installed



Overwrite Settings

Recording file size (15-600 MB)—Maximum file size. The default is 200 MB.

SD Card Information

When a microSD card is properly installed:

- Inserted appears as the Status.
- Capacity information appears, in KB.

SD Format

Before using a properly installed microSD card for the first time or when the card has been previously used on a different camera, format it.

When a microSD card is properly installed, you can select the format: vfat (default) or ext4 (recommended). Then, click **Format**. The camera formats the card.

5.5 Alarm Page

On the Alarm page, accounts assigned the Admin or Expert privilege level can add and define alarms for the following triggers:

- each motion detection profile
- network failure
- tampering detection
- a predefined periodic interval
- audio input
- manual alarm trigger

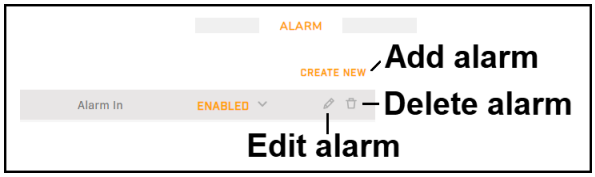
For most triggers, you can specify whether it is enabled all the time or according to one of the schedules defined on the Schedule Page.

Depending on the alarm trigger, you can specify one or more of the following actions:

- change the alarm output pin state
- toggle the IR Cut (IRC) filter
- send message by FTP
- send notification email
- upload snapshot image(s) by FTP
- upload snapshot image(s) by email
- record image(s) to microSD card
- send HTTP notification

- record video clip to microSD card or to a NAS (network attached storage) server

By default, an Alarm In alarm is defined and enabled. A change in the alarm input state triggers a change in the camera's alarm output state.



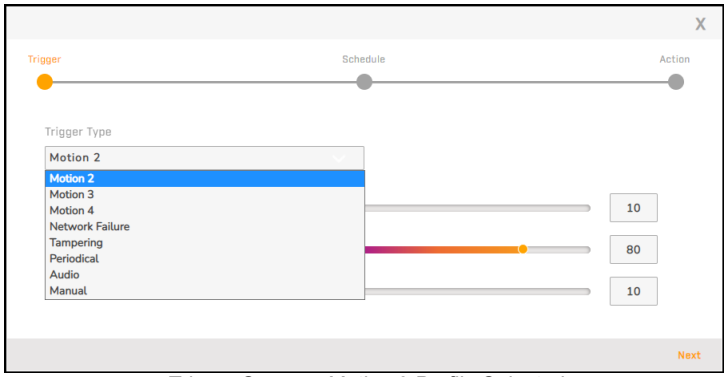
To add an alarm, click **Create New**. The alarm Trigger screen appears. Continue with Modifying or Defining an Alarm Trigger.

To modify an existing alarm, click the edit icon for the alarm. The alarm Trigger screen appears. Continue with Modifying or Defining an Alarm Trigger.

To delete an alarm, click the trash icon for the alarm, and then confirm deleting the alarm.

5.5.1 Modifying or Defining an Alarm Trigger

On the Trigger screen, accounts assigned the Admin or Expert privilege level can select a trigger and configure its alarm settings.



Trigger Screen - Motion 2 Profile Selected

Trigger Type—Select:

- **A Motion Detection Profile (Motion 1 / 2 / 3 / 4)—**Specify:
  - **Detection level (1-100)—**Sensitivity for each sampled pixel. Lowering the value increases detection sensitivity and vice versa. The default is 10.
  - **Sensitivity level (1-100)—**Camera's overall motion detection sensitivity. The default is 80; if 20% or more of the sample pixels are detected as being different, the camera detects motion. Increasing the value increases detection sensitivity.
  - **Time interval (sec) (0-7200)—**Minimum amount of time, in seconds, between motion detection alarms. The default is 10.
- **Network Failure—**Camera periodically pings another IP device on the network to confirm network connectivity. For example, the camera can ping the NAS server specified on the Recording Page. If the camera detects that it cannot connect to the server, you can configure the alarm to trigger local recording on a properly installed microSD card, as a backup until network connectivity is restored. Specify the Ping IP address and the Time interval (min) (1-99) between pings.

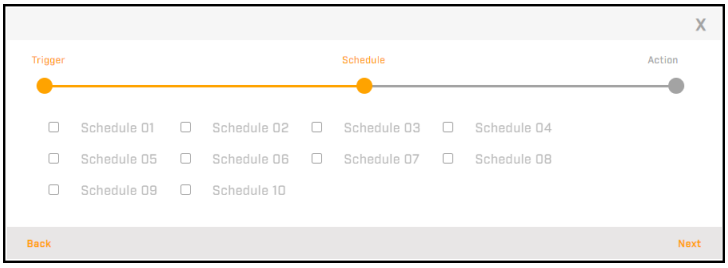
- **Tampering—**Specify**:**
  - **Minimum duration (sec) (10-3600)—**Amount of time, in seconds, tampering must occur before the camera triggers an alarm. The default is 20.
  - **Sensitivity level (1-100)—**Amount of tampering - that is, moving the camera - that triggers an alarm. Increasing the value increases detection sensitivity. The default is 80.
- **Periodical—**Camera triggers an alarm at the specified Minimum interval (sec) (60-3600). The default is 60; that is, the camera triggers an alarm every minute.
- **Audio—**Camera triggers an alarm when audio input reaches or exceeds the specified Detection Level (1-100). The appropriate setting depends on a number of factors, including the equipment connected to the audio input, how that equipment is configured, and the overall noise level of the scene whose audio being monitored. For example, if the camera's audio input is connected to an external microphone that is monitoring a relatively quiet scene, it might be appropriate to lower the Detection Level. On the other hand, if the microphone is monitoring a noisy scene, it might be appropriate to increase the Detection Level.

  You can also specify the Time interval (sec) (0-7200), the minimum amount of time between each audio detected event, in seconds. The default is 10.
- **Manual—**Camera triggers an alarm when a user clicks the manual trigger button on the View Settings page.
- **A Video Analytics Profile (Video Analytics 1 / 2)—**Camera triggers an alarm according to the settings for the rule selected for the profile on the Video Analytics page.

Click **Next**. If the alarm Schedule screen appears, continue with Specifying an Alarm Schedule. If the alarm Action screen appears. Continue with Modifying or Defining Alarm Actions.

5.5.2 Specifying an Alarm Schedule

On the Schedule screen, accounts assigned the Admin or Expert privilege level can specify one or more schedules for an alarm.



You can configure up to 10 schedules on the Schedule Page.

Click **Next**. The alarm Action screen appears. Continue with Modifying or Defining Alarm Actions.

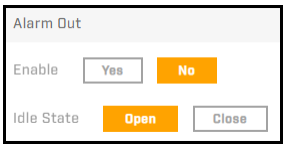
5.5.3 Modifying or Defining Alarm Actions

On the Action screen, accounts assigned the Admin or Expert privilege level can:

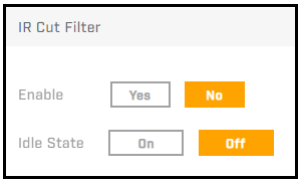
- Enable and configure the actions for an alarm.
- Enable the alarm schedule.

You can individually enable and configure the following alarm actions. Not all actions are available for all alarm triggers.

- **Alarm Out—**Changes the alarm output state. Specify whether the alarm output pin's idle state is open or closed.

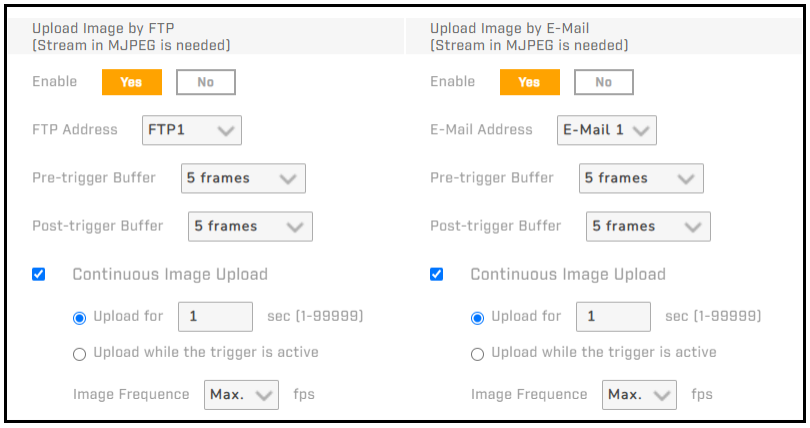


- **IR Cut Filter—**Changes the state of the IR cut filter. If this action is enabled for any alarm, the IR mode cannot be Auto. Specify whether the IR cut filter idle state is on or off.

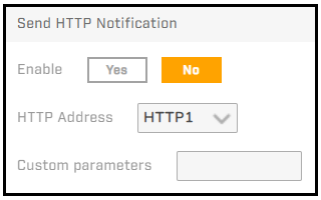


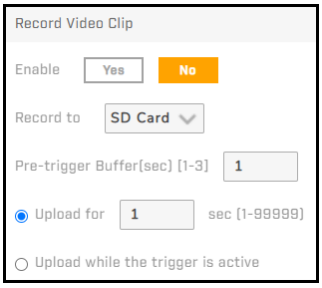
- **Send Message by FTP / E-mail—**Sends a message by FTP / email, according to the settings on the FTP Page / Email Page.

- **Upload Image by FTP / E-mail—**Uploads images to an FTP server or by email, according to the settings on the FTP / Email page. At least one video stream must be encoded in MJPEG. You can configure the video stream settings on the Visible Page. Specify:
  - **FTP / E-mail Address—**Select one of the FTP / email addresses defined on the FTP / Email page.
  - **Pre- / Post-trigger Buffer—**Select the number of frames before / after the trigger (1-20 frames). The default is five frames.
  - **Continuous Image Upload—**When enabled, select whether the camera uploads images for a specified period of time (1-99,999 seconds), or while the trigger is active. Specify the Image Frequency, or frame rate (1-15, Max fps).



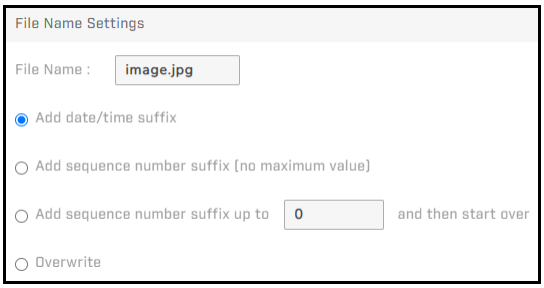
- **Send HTTP Notification—**Sends an HTTP notification, according to the settings on the HTTP Page. Select one of the HTTP addresses defined on the HTTP page.





- **Record Video Clip—**Records a video clip to a local microSD or to a NAS, according to the settings on the SD Card or Recording page. Make sure that a microSD card is properly installed, formatted, and active; or that the NAS is properly configured. Specify:
  - **Pre- / Post-trigger Buffer—**Number of seconds before / after the trigger (1-3 seconds). The default is one second.
  - Whether the camera records images for a specified period of time (1-99,999 seconds), or while the trigger is active.

File Name Settings



File Name—Enter the generic name for image files the camera stores or uploads. *image.jpg* is the default.

Select one of the following suffixes the camera adds to the file names to identify individual images:

- **Add date / time suffix (default)**

  File name format: imageYYMMDD_HHNNSS_XX.jpg

  Y: year, M: month, D: day

  H: hour, N: minutes, S: seconds

  XX: sequence number

- **Add sequence number suffix (no maximum value)**

  File name format: imageXX.jpg

  XX: sequence number

- **Add sequence number suffix up to <specify maximum sequence number> and then start over**

  The file names end at the specified maximum number. For example, if image.jpg is the specified File Name and 10 is the specified maximum sequence number, file names start at *image00.jpg*, end at *image10.jpg*, and then start over again.

  File name format: imageXX.jpg

  XX: sequence number

- **Overwrite—**New images replace old images. The file name is static; the camera does not add any suffixes.

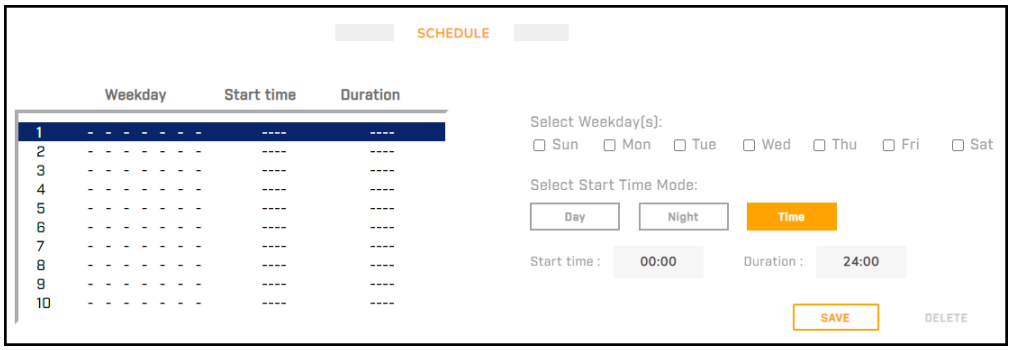
Click **Done**. The alarm appears in the list of alarms.

5.6 Schedule Page

On the Alarm page, accounts assigned the Admin or Expert privilege level can define up to 10 schedules that can be assigned to alarms. For example, you can define a schedule that starts when a facility closes for the night or for the weekend and ends when it opens, and then apply that schedule to a motion detection alarm.

Note

The schedules and settings on the Schedule page do not apply to live video recording. Accounts assigned the Admin or Expert privilege level can configure live video recording settings on the Recording Page.



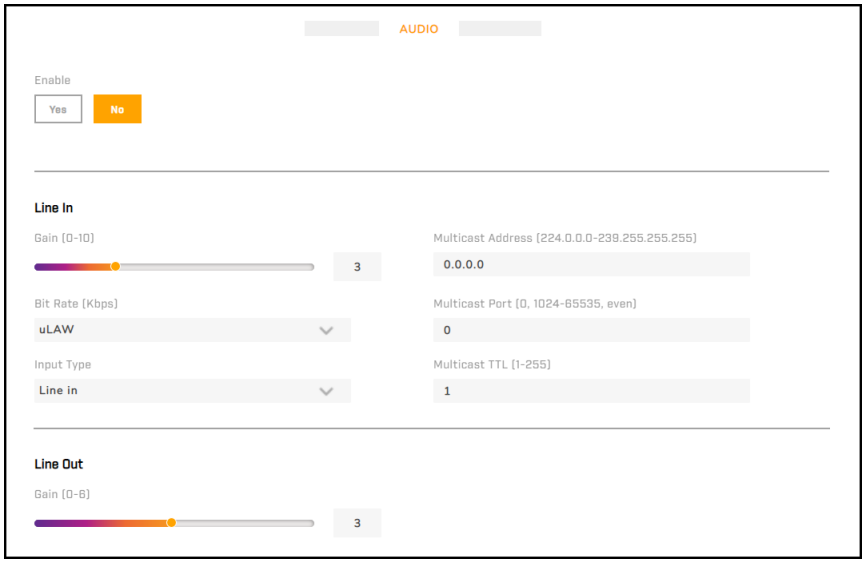
To define or modify a schedule:

1. From the list of schedules on the left, select a schedule.
2. Select one or more days of the week the schedule applies.
3. Select which of the following determines the schedule start time:
   - **Day—**Schedule starts when night turns to day and ends when day turns to night.
   - **Night—**Schedule starts when day turns to night and ends when night turns to day.
   - **Time—**Define the specific Start time for the schedule, in 24-hour format (for example, 09:00), and the Duration (for example, 4:00 hours).
4. Click **Save**. The schedule settings appear in the list of schedules and the **Delete** button becomes available for the schedule.

To delete a schedule, select the schedule and click **Delete**. The schedule's settings are cleared.

5.7 Audio Page

On the Audio page, accounts assigned the Admin or Expert privilege level can enable and configure the camera's audio features.



Line In

- **Gain (0-10)—**The default is 3.
- **Bit Rate (Kbps)—**Select 40 kbps (G.726), 32 kbps (G.726), 24 kbps (G.726), 16 kbps (G.726), uLAW (G.711), ALAW (G.711), AAC, PCM (128 Kbps), PCM (256 Kbps), PCM (384 Kbps), or PCM (768

Kbps). The bit rate for uLAW and ALAW is 64 kbps, but using different compression formats. A higher bit rate can provide higher audio quality, but requires more bandwidth. uLAW is the default.

Notes

- Latitude / UVMS does not support G.726.
- When AAC is selected, users with Listen permission see the Listen button on the View Settings Home Page. They can enable / disable the headset or other audio output device connected to the computer accessing the camera web page, and can listen to the microphone or other audio device connected to the camera's audio input.

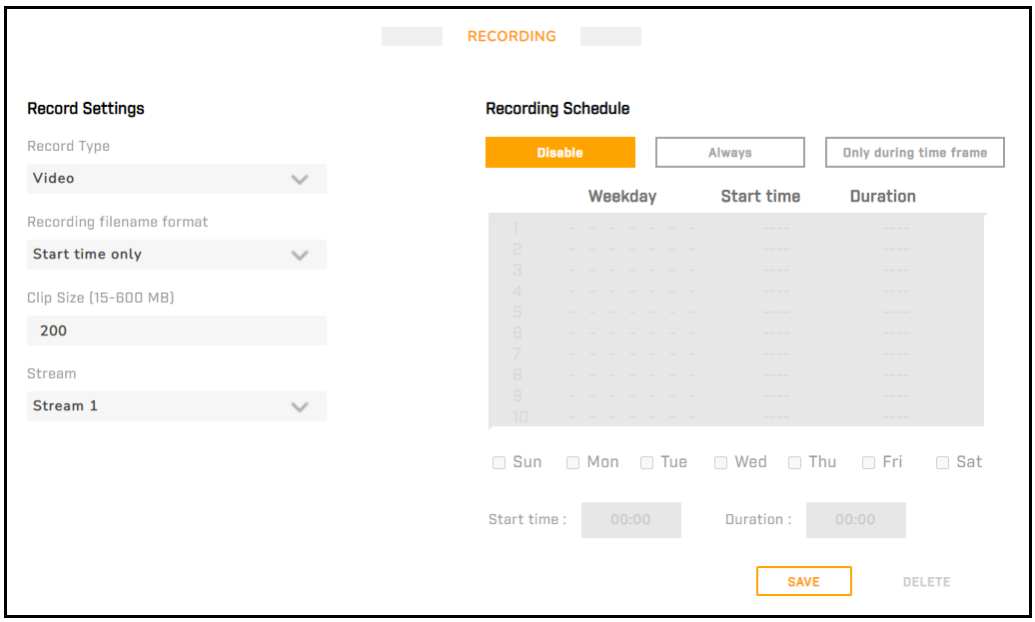
- **Input Type—**Select Line in or External Mic.
- **Multicast Address (224.0.0.0-239.255.255.255)—**A valid multicast address in the specified range.
- **Multicast Port (0, 1024-65535, even)—**The port the camera uses for multicast audio streaming.
- **Multicast TTL (1-255)—**Time to live, the maximum number of network hops before routers discard the camera's data packets. Each time one router forwards a datagram to another router, it subtracts 1 (one) from the packet's TTL. If the TTL reaches zero (0), a router discards the packet. Teledyne FLIR recommends setting TTL at 64.

Line Out

- **Gain (0-6)—**The default is 3.

5.8 Recording Page

On the Recording page, accounts assigned the Admin or Expert privilege level can configure the camera's audio and video recording settings.



Record Settings

- **Record Type—**Select Audio and Video (default) or Video.
- **Recording Filename Format—**Select Start time only (default) or Start time + end time.
- **Clip Size (15-600 MB)—**Maximum clip file size. The default is 200 MB.

- **Stream—**Specify the video stream the camera records. Stream 1 is the default.

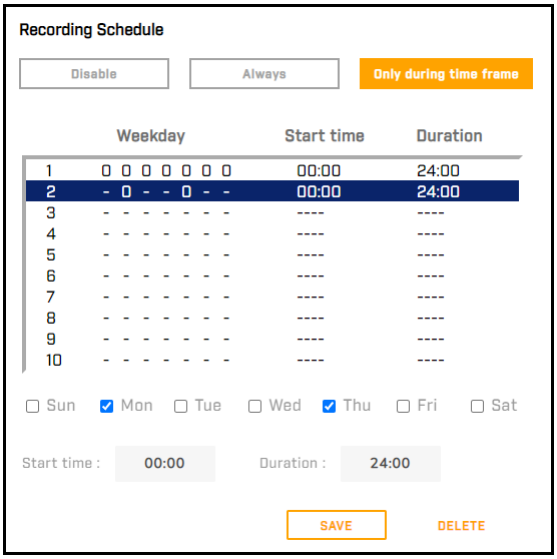
Recording Schedule

By default, recording is disabled. To permanently enable recording, click **Always**. You can configure up to 10 schedules; that is, times during the week recording is enabled.

To define or modify a recording schedule:

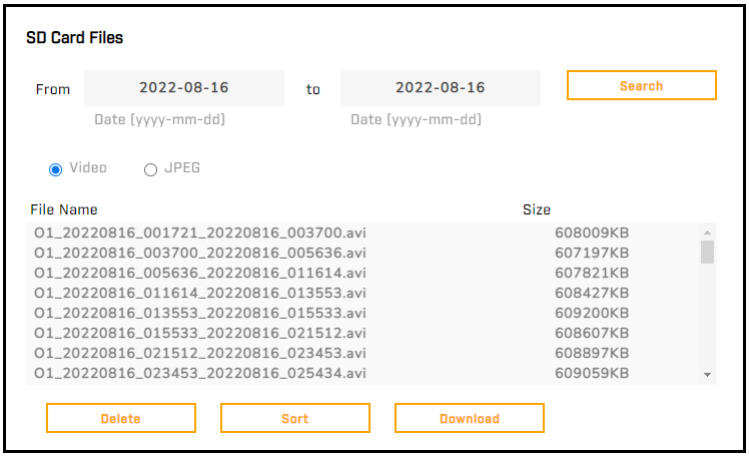
1. Click **Only during time frame**.
2. From the list of schedule numbers on the left, select a number.
3. Select one or more days of the week the schedule applies.
4. Define the Start time, in 24-hour format (for example, 00:00 = midnight).
5. Define the Duration (for example, 24:00 hours).
6. Click **Save**. The schedule settings appear and the **Delete** button becomes available for the schedule.

In the following example, a schedule for recording all day Monday and Thursday has been specified and saved.



SD Card Files

A list of the files recorded on the card, if any exist.



Uppercase letters at the beginning of the file names indicate the recording trigger:

- R—regular (always or schedule)
- N—network failure
- M—motion (M0 indicates the first motion trigger)
- A—alarm (A0 indicates the first alarm input trigger)
- T—tampering
- O—manual SD card video recording (see View Settings Home Page)

You can manually remove, sort, and download recorded files.

By default, files recorded today appear in the list (if any exist). To see other files, specify start and end dates using the format yyyy-mm-dd, and then click **Search**.

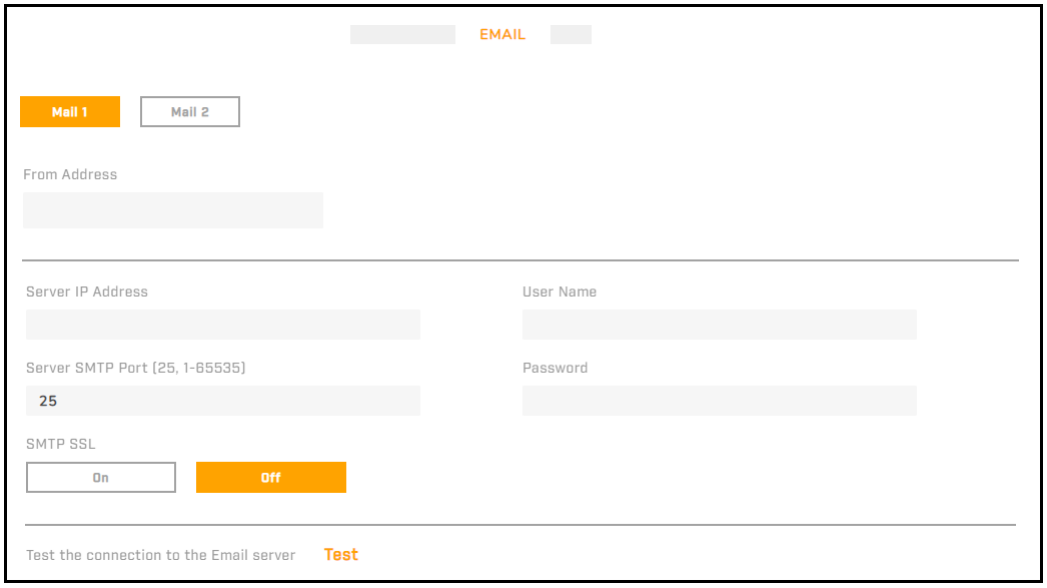
You can:

- Filter the list to show video clips (default) or snapshots (JPEG).
- Delete one or files.
- Download up to 50 files / up to 300 MB, as a ZIP file.
- Sort the list by file name, trigger type, or date.

5.9 Email Page

On the Email page, accounts assigned the Admin or Expert privilege level can configure the settings of two servers the camera can use for sending alarm notification messages or uploading images by email.

Email servers use Simple Mail Transfer Protocol (SMTP) to send and receive email. If you do not know how to configure these settings, contact your email service provider.



Select Mail 1 (primary server) or Mail 2 and then configure:

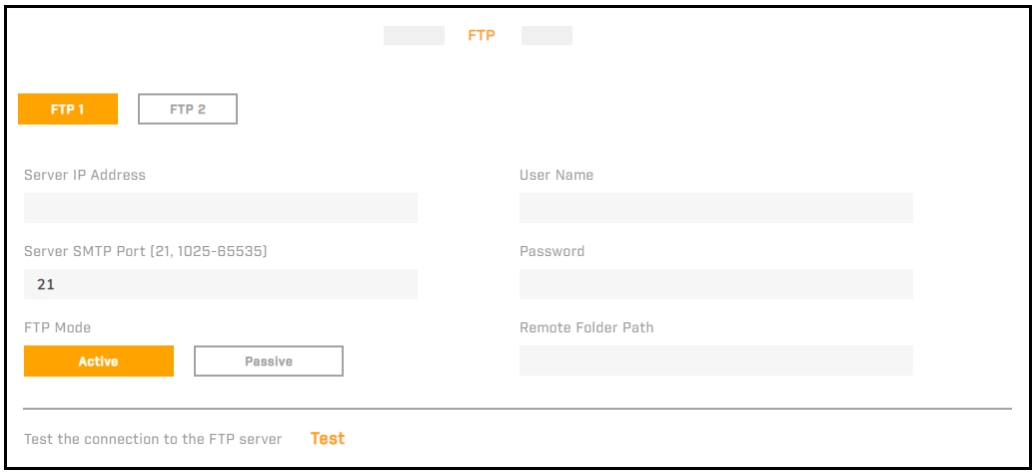
- **From Address—**Email address that appears as the sender on notification emails the camera sends.
- **Server IP Address—**IP address of the server.

- **Server SMTP Port (25, 1-65535)—**Port the server uses for SMTP communication. The default is 25.
- **User Name—**User name of the account on the server.
- **Password—**Password for the account on the server.
- **SMTP SSL—**To enable SSL (Secure Socket Layers) for communication with the selected SMTP server, click **On**.

To test the connection with the selected SMTP server using the specified values, click **Test**.

5.10 FTP Page

On the FTP page, accounts assigned the Admin or Expert privilege level can configure the settings of two File Transfer Protocol servers to which the camera can upload images or send alarm notifications.



Select FTP 1 or FTP 2 and then configure:

- **Server IP Address—**IP address of the FTP server.
- **Server FTP Port (21, 1025-65535)—**Port the server uses for FTP communication. The default is 21.
- **User Name—**User name of the account on the FTP server.
- **Password—**Password for the account on the FTP server.
- **FTP Mode—**Click **Active** (default) or **Passive**.

  In passive mode, the client - in this case, the camera - initiates the connections both to and from the FTP server, which addresses the issue of the client-side firewall blocking incoming data from the server.

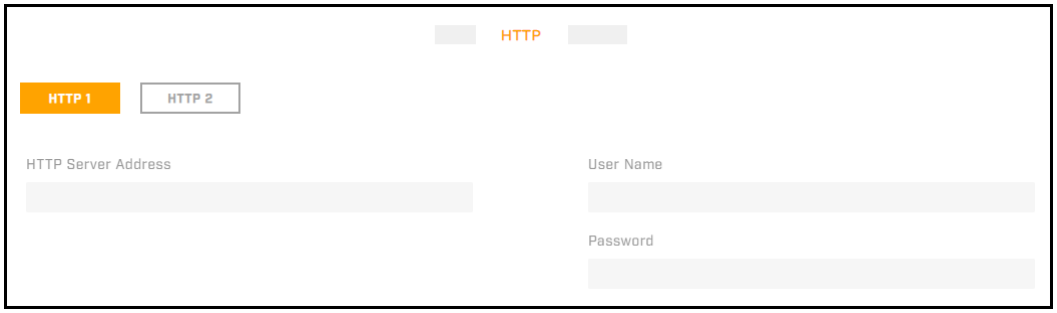
  To support passive mode on the server side, the following communication channels must be open:

  - FTP server port 21 from anywhere (client initiates connection)
  - FTP server port 21 to ports > 1023 (server responds to client's control port)
  - FTP server ports > 1023 from anywhere (client initiates data connection to random port specified by server)
  - FTP server ports > 1023 to remote ports > 1023 (server sends ACKs and data to client's data port)
- **Remote Folder Path—**Path of the file folder on the FTP server to which the camera uploads images.

To test the connection with the selected FTP server using the specified values, click **Test**.

5.11 HTTP Page

On the HTTP page, accounts assigned the Admin or Expert privilege level can configure the settings of two HTTP servers to which the camera can send alarm notifications.



Select HTTP 1 or HTTP 2 and then configure:

- **HTTP Server Address—**IP address of the HTTP server.
- **User Name—**User name of the account on the HTTP server.
- **Password—**Password for the account on the HTTP server.

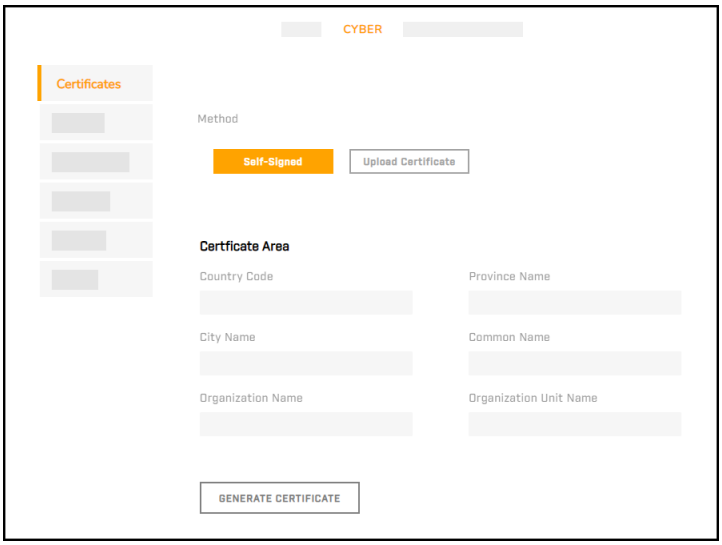
5.12 Cyber Page

On the Cyber page, accounts assigned the Admin or Expert privilege level can enable and configure the following cybersecurity settings:

- Certificates
- 802.1X
- TLS / HTTPS
- Services
- IP Filter
- SNMP

If you do not know how to configure these settings, contact your network administrator.

5.12.1 Certificates



Before you can enable TLS/HTTPS or 802.1X, you need to install a certificate on the camera. In the Certificates section, you can:

- generate a self-signed certificate
- upload a self-signed certificate
- upload a certificate issued by a certificate authority (CA)

Note

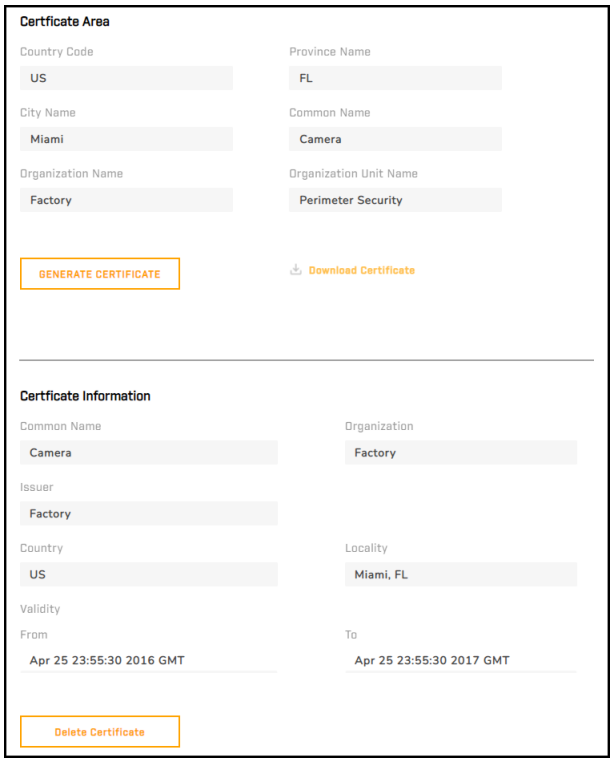
CA-issued certificates are publicly recognized and provide a higher level of security than self-signed certificates. For example, browsers do not trust self-signed certificates.

To generate a self-signed certificate:

1. On the Date & Time Page, make sure the camera's date and time is the current date and time. Synchronize the camera's time with an NTP server or copy the PC's time.
2. Under Method, select **Self-Signed**.
3. Enter information such as country code, city name, common name, and organization name. For the common name, you can specify the name of the person or other entity the certificate identifies; for example, it can identify the website.
4. Click **Create Certificate**.

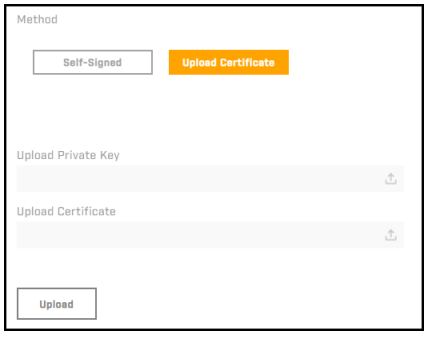
   After the camera generates the certificate, the certificate information appears.

You can now enable TLS/HTTPS and 802.1X; download the certificate as a PEM file; or delete the certificate.



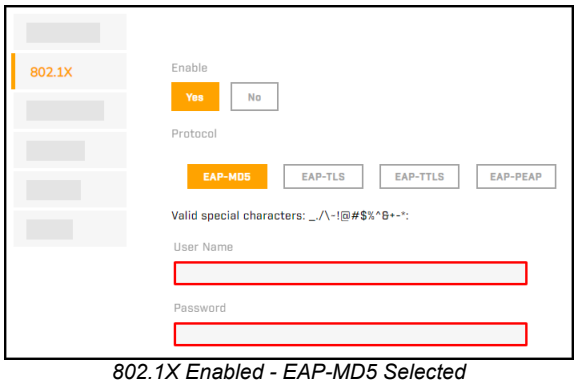
To upload a certificate:

1. Under Method, select **Upload Certificate**.
2. Under **Upload Private Key**, and then under **Upload Certificate**:
   a. Click .
   b. Browse for and select the appropriate file.
   c. Click **Upload**. The camera uploads and installs the key and the certificate.



5.12.2 802.1X

In the 802.1X section, accounts assigned the Admin or Expert privilege level can enable and configure the camera to access a network protected by 802.1X / EAPOL (Extensible Authentication Protocol over LAN). To obtain certificates, user IDs, passwords, and other information, contact the network administrator.



802.1X Enabled - EAP-MD5 Selected

Enable 802.1X; select the Protocol (EAP-MD5, EAP-TLS, EAP-TTLS, or EAP-PEAP); and then specify the information the protocol requires.

EAP-MD5

- **User Name**
- **Password**

EAP-TLS

- **User Name—**User name associated with the certificate, up to 16 characters.
- **Private Key Password—**Password for the private key, up to 16 characters.
- **CA Certificate / Client Certificate—**Click **Upload file**, and then browse for and select the certificate file.
- **Private Key—**Click **Upload file**, and then browse for and select the key file.

EAP-TTLS

- **Inner Auth—**Select the inner tunnel authentication method (CHAP, EAP-MSCHAPV2, EAP-MD5, MSCHAP, MSCHAPV2, or PAP).
- **User Name—**User name associated with the certificate, up to 16 characters.
- **Password—**Password for the user, up to 16 characters.
- **Anonymous ID—**Anonymous ID for the user, up to 16 characters.
- **CA Certificate—**Click **Upload file**, and then browse for and select the CA-issued certificate file.

EAP-PEAP

- **User Name—**User name associated with the certificate, up to 16 characters.
- **Password—**Password for the user, up to 16 characters.
- **CA Certificate—**Click **Upload file**, and then browse for and select the CA-issued certificate file.

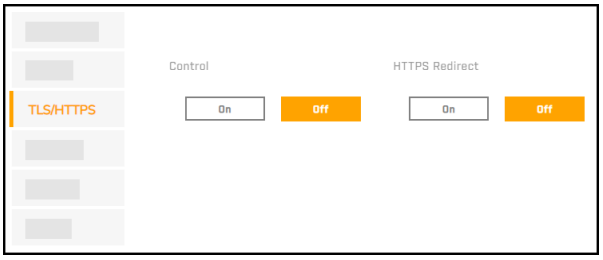
Fields with red borders are required.

To save any changes to the IEEE 802.1X settings and to upload files, click **Save**.

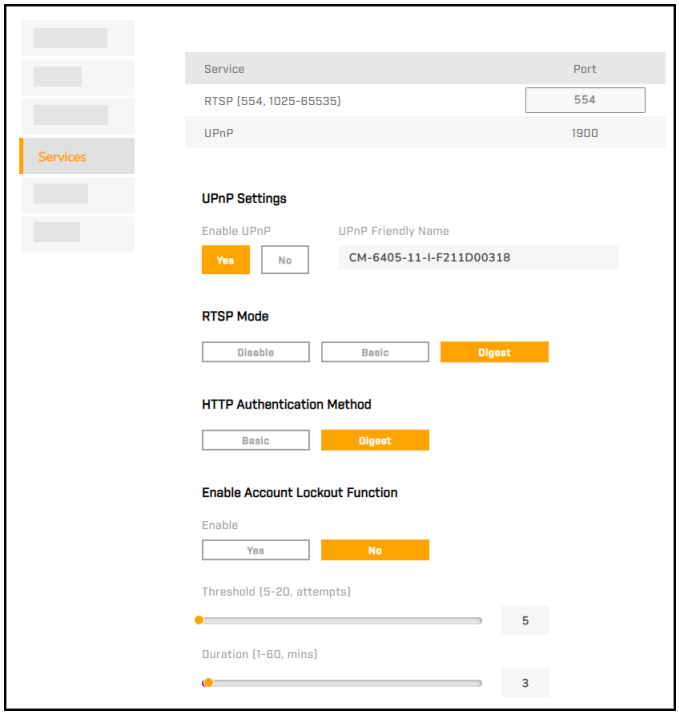
5.12.3 TLS / HTTPS

In the TLS / HTTPS section, accounts assigned the Admin or Expert privilege level can enable camera control using Transport Layer Security (TLS) / secure HTTP (HTTPS), which secures communication between the camera and web browser. Enabling control requires generating a self-signed certificate or

uploading a CA-signed certificate in the Certificates section. When control is enabled, you can enable HTTPS redirect.



5.12.4 Services

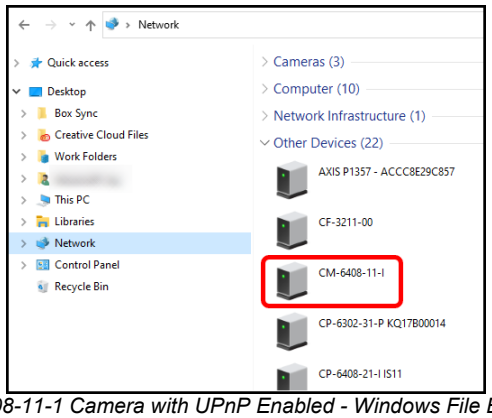


In the Services section, accounts assigned the Admin or Expert privilege level can:

- Specify the RTSP port (554, 1025-65535). The default is 554.
- **Enable UPnP—**By default, UPnP is enabled. Windows computers and other compliant devices can discover the camera on the LAN. In Windows, the connected camera appears as a Network device.

> **Note**
>
> To use UPnP on a computer, make sure UPnP is installed on the computer. For information about how to install UPnP components on a Windows computer, see Install UPnP Components.

- **UPnP Friendly Name—**Name that identifies the camera on UPnP devices.



CM-6408-11-1 Camera with UPnP Enabled - Windows File Explorer

- Enable RTSP basic or digest authentication for accessing the camera's video streams:
  - **Disable—**Accessing the camera's video streams does not require authentication. By default, RTSP authentication is disabled.
  - **Basic—**Uses unencrypted base64 encoding. Teledyne FLIR recommends enabling basic authentication only when TLS / HTTPS is enabled.
  - **Digest—**Encrypts the credentials when transmitted.

  When RTSP authentication is enabled, accessing the camera's video streams requires providing the name and password for a camera user. All camera users have access to the camera's video streams.
- Configure the HTTP Authentication Method for accessing the camera's web page. Select Basic (default) or Digest.
- Enable and configure account lockout. When enabled, if a user unsuccessfully attempts to log in the specified number of times (Threshold) within the specified duration, the account is locked. By default, account lockout is disabled.
  - **Threshold (5-20, attempts)—**The default is 5 attempts.
  - **Duration (1-60, mins)—**The default is 3 minutes.

5.12.5 IP Filter

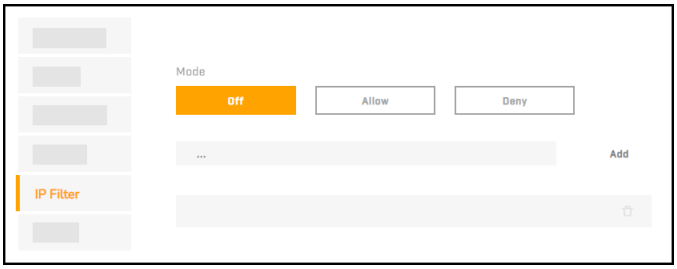
In the IP Filter section, accounts assigned the Admin or Expert privilege level can enable and configure the camera's IP filter.

Select the IP filter mode:

- **Allow—**Allows access to the camera only from the specified IP addresses.
- **Deny—**Denies access to the camera from the specified IP addresses.

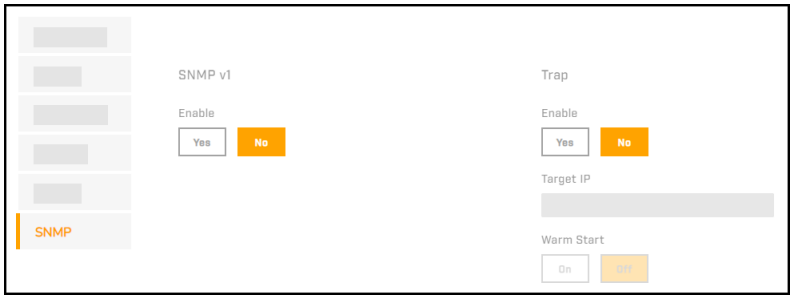
To add an IP address to the list, in the text field under the Mode selection buttons, specify an IPv4 address and then click **Add**. You can specify up to 256 IP addresses.

To remove an IP address from the list, click the corresponding trash icon .



5.12.6 SNMP

In the SNMP section, accounts assigned the Admin or Expert privilege level can enable and configure SNMP (Simple Network Management Protocol). SNMP allows network management systems to monitor and to remotely manage the camera. By default, all SNMP features are disabled.



SNMP v1—Enable SNMP v1.

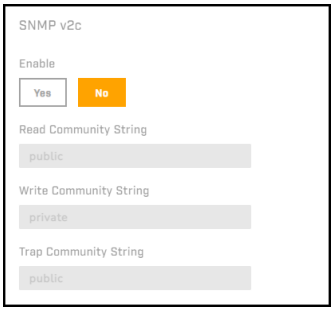
Trap

The camera uses traps to send messages to the network management system for important events or status changes.

After enabling traps, specify:

- **Target IP—**IP address of the network management system server.
- **Warm Start—**Enables traps that indicate when the camera is rebooting, but configuration data or MIB variable values have not changed.

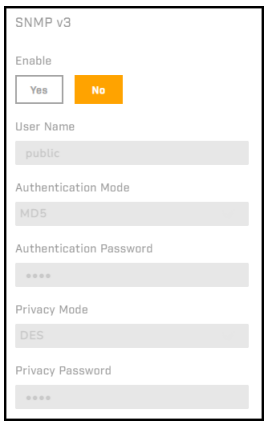
SNMP v2



After enabling SNMP v2, specify:

- **Read Community String—**Name of community that has read-only access to all supported SNMP objects. The default value is *public*.
- **Write Community String—**Name of community that has read/write access to all supported SNMP objects (except read-only objects). The default value is *private*.
- **Trap Community String—**Name of community camera uses when sending traps to the network management system. The default value is *public*.

SNMP v3



SNMP v3 provides security features including:

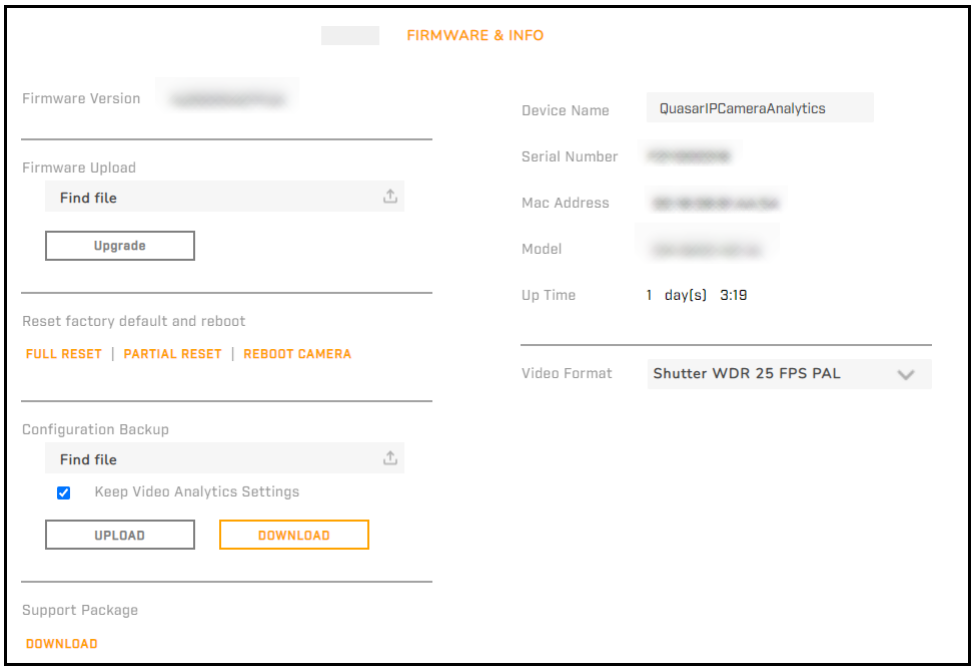
- **Confidentiality—**Packet encryption prevents snooping by unauthorized sources.
- **Message Integrity—**Ensures that packets have not been tampered with in transit, including an optional packet replay protection mechanism.
- **Authentication—**Verifies the message is from a valid source.

After enabling SNMP v3, specify:

- **User Name—**Name of user on network management system using SNMP v3.
- **Authentication Mode—**Select MD5 (default) or SHA.

- **Authentication Password—**Password for authentication on network management system.
- **Privacy Mode—**Select DES (default) or AES.
- **Privacy Password—**Password for privacy on network management system.

5.13 Firmware & Info Page

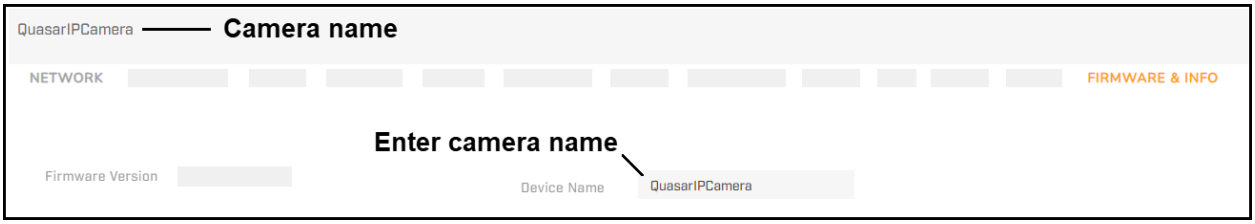


On the Firmware & Info page, accounts assigned the Admin or Expert privilege level can:

- See the currently installed firmware version and other information about the camera
- Specify a unique name for the camera
- Upgrade the camera's firmware
- Reset the camera's settings to their factory defaults
- Reboot the camera
- Download or upload a configuration backup file
- Download system information
- Configure the camera's video format, including enabling a Shutter WDR format

Device Name

Specify a unique, friendly name for the camera, using only alphanumeric characters.



Firmware Upload

To upgrade the camera's firmware:

1. Under Firmware Upload, click **Find file**.
2. On your computer or network, browse to and select the firmware file.

Notes

- Do not change the firmware file name. If you change the file name, the system fails to find the file.
- Firmware can also be upgraded via DNA version 2.3.0.31 or higher.

Caution:
Do not unplug power or change the screen while upgrading software.
Attention:
Ne débranchez pas l'alimentation pendant la mise à niveau du logiciel.

3. Click **Upgrade**. The system verifies that the upgrade file exists and begins to upload the file. An upgrade status bar appears. When the camera completes the upgrade, the View Settings page appears.

Reset factory default and reboot

Full Reset—Reboots the camera and restores factory default settings, including its networking settings; for example, the camera's IP addressing mode and its IP address. To discover the camera again and reconfigure its network configuration, use the DNA tool. For more information, see Configure for Networking.

Partial Reset—Reboots the camera and restores factory default settings, except its current networking and video format settings.

Reboot Camera—Reboots the camera without changing its current settings.

Tip

You can also reboot and reset the camera to its factory default settings by pressing the camera's physical Default button for at least 20 seconds; for example, if you are unable to access the camera via its web page or other communication method. The Default / Reset button is located on the camera's side panel.

Configuration Backup

You can back up the camera's current settings or upload a configuration backup file; for example, when you replace a camera.

To upload a configuration backup file:

1. Click **Find file**.
2. On your computer or network, browse to and select the configuration backup file.

Caution

Make sure to upload a configuration backup file that was downloaded from another camera that is the exact same model.

3. Click **Upload**. If the configuration backup file includes privacy mask settings, select the checkbox.

   The camera uploads the backup file and reboots.

To download the camera's saved settings:

1. To include video analytics settings in the configuration backup, make sure Keep Video Analytics Settings is selected.
2. Click **Download**.
3. On your computer or network, browse to and select the location where you want to save the backup file. **config_file.bin** is the backup file name. Do not change the file name.

Support Package

To download the camera's log file, click **Download**. Teledyne FLIR Support can use this file to help resolve issues.

Video Format

Select Shutter WDR 30 FPS NTSC (default), Shutter WDR 25 FPS PAL, Linear 60 FPS NTSC, or Linear 50 FPS PAL. When a Shutter WDR format is selected:

- The camera:
  - analyzes the exposure and level of detail in two frames taken at different exposure settings and shutter speeds,
  - uses an algorithm to determine the optimal combination of regions within the scene, and
  - generates a single, composite frame with wide dynamic range.
- The maximum frame rate of the camera's video output is 30 / 25 (NTSC / PAL).

When a Shutter WDR is not selected, the camera operates in linear mode; that is, the camera streams every frame it takes. In scenes with high contrast or changing light issues, bright areas can be overexposed and dark areas can be underexposed.

Shutter WDR Format Selected

Shutter WDR Format Not Selected

Tips

- For most lighting conditions, to achieve video with a consistent exposure level regardless of changing contrast or lighting conditions, Teledyne FLIR recommends selecting a Shutter WDR format.
- When the frequency of a light source around the camera (including reflected light) is closely synced with the Shutter WDR operation, a pixelization effect can appear. Under these conditions, Teledyne FLIR recommends selecting a linear format; that is, 60 FPS NTSC or 50 FPS PAL.
- For more information about video resolutions and frame rates supported in linear and shutter modes, see Video Page.

After changing the Video Format, the camera reboots. If the camera is attached to a VMS, after it reboots, you need to re-attach the camera to the VMS.

6 Appendices

6.1 Technical Specifications

Up-to-date resources for the camera, including the camera's specifications, are available from the camera's product information and support pages on the Teledyne FLIR website. See Accessing Product Information from the Teledyne FLIR Website.

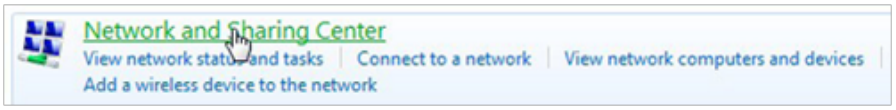
6.2 Install UPnP Components

Follow the instructions below to enable UPnP so that the camera can be discovered and displayed in the *Network and Sharing Center*.

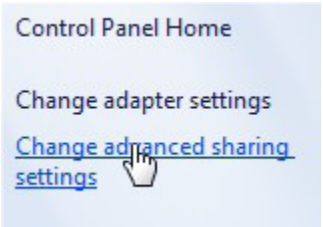
To enable UPnP discovery

1. Click or (**Start**) and select *Control Panel*.
2. Click *Network and Internet* (Win 7, 8, 8.1, or 10).

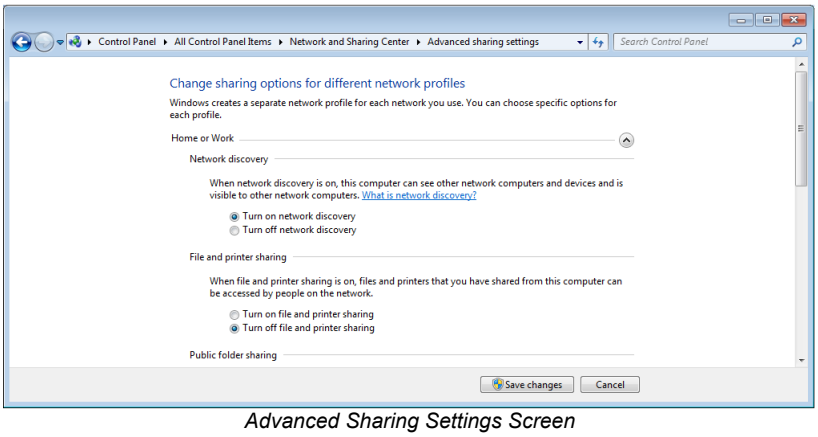
3. Click *Network and Sharing Center* (all OSs).



4. Click *Change advanced sharing settings*.



5. Expand the Home or Work node, select *Turn on network discovery.*



Advanced Sharing Settings Screen

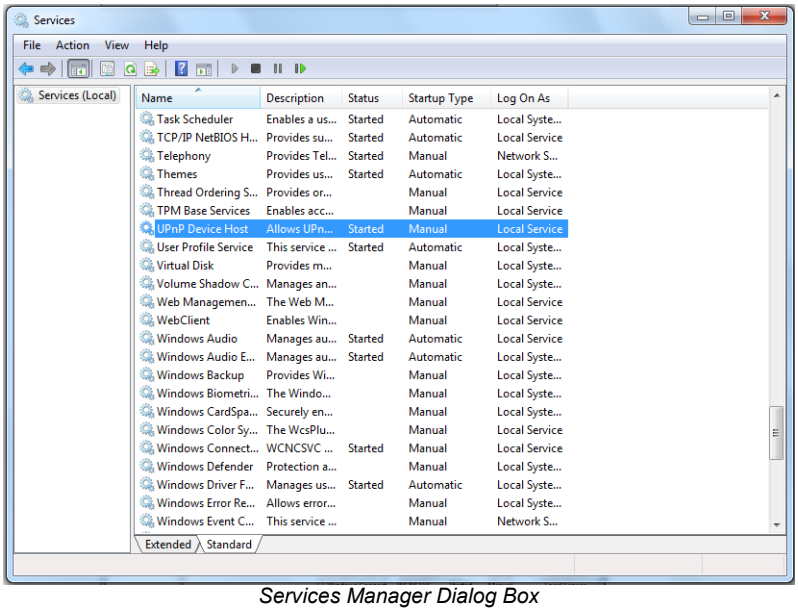
6. Click **Save Changes**.

Note

Network discovery requires that the DNS Client, Function Discovery Resource Publication, SSDP Discovery, and UPnP Device Host services are started, that network discovery is allowed to communicate through Windows Firewall, and that other firewalls are not interfering with network discovery.

To check that the UPnP Device Host services are running

1. Click or (**Start**) and type in the Search programs and files field **services.msc** and then select **services.msc** from the displayed Programs. The **Services manager** dialog box appears.



Services Manager Dialog Box

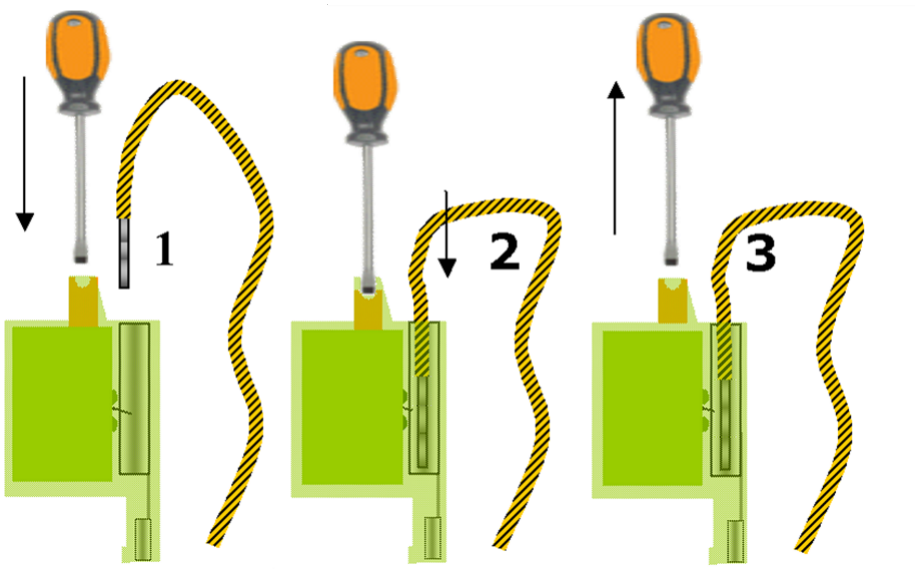
2. In the **Services manager** dialog box, scroll down the list to *UPnP Device Host* and verify that it shows the status *Started*. If *Started* is not displayed, right-click and select **Start** from the shortcut menu.

6.3 Connecting Leads to a Spring Clamp Terminal Block

The unit features two terminal block connectors with spring clamps: a four-pin connector for 12VDC / 24VAC power, and a nine-pin connector for audio I/O, and alarm I/O. For more information about these connectors, see Connect the Camera.

To connect a wire to the spring clamp terminal block:

1. Strip the insulation form the end of each wire that is to be connected to the terminal block. Approximately 1 cm (2.54”) of wire should be exposed.
2. With a small screwdriver, press in and hold the orange spring clamp button next to the female outlet where the wire will be inserted.
3. Insert the stripped end of the wire into the female outlet.
4. Release the orange spring clamp button.



Connecting a Wire to a Terminal Block

6.4 Troubleshooting

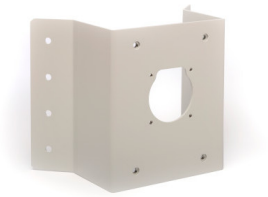
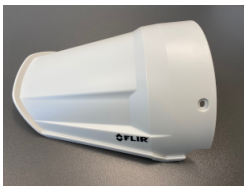
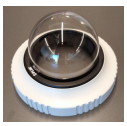
This section provides useful information and remedies for common situations.

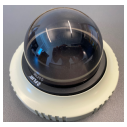
Problem	Possible Solution
No network connection	**Hardware issues:** • Check that the network is working and the unit is powered on. • Check that the network (Ethernet) cable is properly attached to the unit. • Confirm that the network cables are not damaged and replace if necessary. **IP address issues:** • Change the default IP address/addresses of the unit. • From the PC running the web browser, ping the unit IP address and confirm that it can be reached. • Confirm that the network settings/firewalls are set according to the requirements. • The camera might be located on a different subnet. Contact your IT administrator to get the IP address of the camera.
How do I find the IP address of my unit?	• Check the network DHCP server IP address assignments and lease. • Alternatively, move the camera to an isolated network and make sure camera gets DHCP address and is accessible. Move the camera back to the network and test it. If you still have issues, reset the camera physically by pressing the reset button on the rear of the camera and test the camera again. This will ensure the camera releases the IP address.
The IP address responds to a ping on the network from the workstation but does not show in the Discovery List	• Disconnect the Ethernet cable from the camera's RJ-45 connector or turn the unit off. Then, ping the IP address again. If the IP address responds, there is another device using the IP address. Consult with your network administrator to resolve the conflict. • Check the network port and ensure that it is working OK. • Ensure that the switch ports provide the necessary power.
The unit IP address is in use by another computer (collision)	• Check the DHCP settings. Obtain a new IP address using DHCP. Ensure this is a unique IP address. • Alternatively, change the unit IP address after connecting to it directly (not through the system network).
Cannot log in to the camera	• Check the login user ID of the user or admin. • Check the login password of the user or admin.

Problem	Possible Solution
No video image displayed on the camera's web page	• Reset the browser security settings to the default value. • Check that the correct port was configured. The default port is 554.
Bad output video quality	• Check that the network cable is connected securely. • Check that the camera settings are correct on the camera and in the unit. • Check that the camera lens is clean and unobstructed. • Check that the cable length is within specification.
Streaming video image is hanging (stopped)	• Confirm the unit's video streaming settings. • Refresh your browser screen (F5). • Check that the bandwidth and bit rate settings of the network are set properly. • Check that other processes and applications are not causing undue latency. • Check that the firewall analysis or blocking is not interfering with the video stream and supports the required ports and communication protocols.
Bluish picture in an indoor scene (possibly mixing indoor and outdoor lighting)	Change the white balance setting to *Auto*. If the lighting in the scene is fixed, manually adjust the white balance to an acceptable image.
Reddish picture and incorrect colors in the image	Check the PoE power supply and associated network cables. Connect directly to the PoE and compare the images. If the problem persists, contact Support.
IR LEDs do not function	The camera has a circuit protection mechanism that activates if the cover is removed while the IR LEDs are on. • Re-attach the cover (making sure that the IR contacts are in place). • Make sure that the cover is closed properly. • Power cycle the camera.

6.5 Accessories

The following accessories are available from Teledyne FLIR for installing your CM-640x camera. For more information, contact your Teledyne FLIR sales representative or visit www.FLIR.com/security to request details on where to get the accessory.

Part number / item code	Description and notes	Images (not to scale)
CM-SECA-W4	Side conduit adapter kit for CM-640x mini-dome cameras: • Includes cable housing attached **Dimensions** 191 x 157 x 52 mm **Color** Grey **Shipping box size** 234 x 234 x 128 mm **Shipping box weight** 2.83 kg	
CM-RCSD-G4	Recessed mount kit for CM-640x mini-dome cameras, including ceiling sticker template and trim ring • Supports conduit connections **Dimensions** 212 x 212 x 76 mm **Trim ring color** FLIR White **Shipping box size** 234 x 234 x 128 mm **Shipping box weight** 1.11 kg	 *Mounted with camera*
421-0066-00 DH-CRNR-00	Corner mount for use with 421-0069-00 pendant mount **Overall dimensions (W x H)** 262.34 x 139.4 mm **Color** FLIR White	
421-0067-00 DH-POLE-00	Pole mount kit for use with 421-0069-00 pendant mount, including straps **Pole diameter range** ⌀ 150-230mm (6.0-9.0") **Color** FLIR White	
CM-SNSHLD-G4	Sun shield for CM-640x mini-dome cameras **Dimensions** 175.68 x 200.51 x 87.66 mm **Color** FLIR White **Shipping box size** 234 x 234 x 128 mm **Shipping box weight** 0.47 kg	
CM-CLEAR-64-11	Clear bubble for CM-640x mini-dome cameras **Dimensions** 161 x 161 x 100 mm **Outer ring color** FLIR White **Shipping box size** 234 x 234 x 128 mm **Shipping box weight** 0.8 kg	

Part number / item code	Description and notes	Images (not to scale)
CM-SMOKE-64-11	Smoked bubble for CM-640x mini-dome cameras **Dimensions** 161 x 161 x 100 mm **Outer ring color** FLIR White **Shipping box size** 234 x 234 x 128 mm **Shipping box weight** 0.8 kg	
421-0068-00 DH-PDST-00	Pendant mount shroud	
421-0069-00 DH-PDST-01	Pendant mount kit, including pendant mount shroud and CX-ARMX-G3 wall mount bracket • Attach directly to a wall • Use with 421-0066-00 corner mount kit • Use with 421-0067-00 pole mount kit	

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Support:
https://support.flir.com/

Document:
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Revision: 120
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