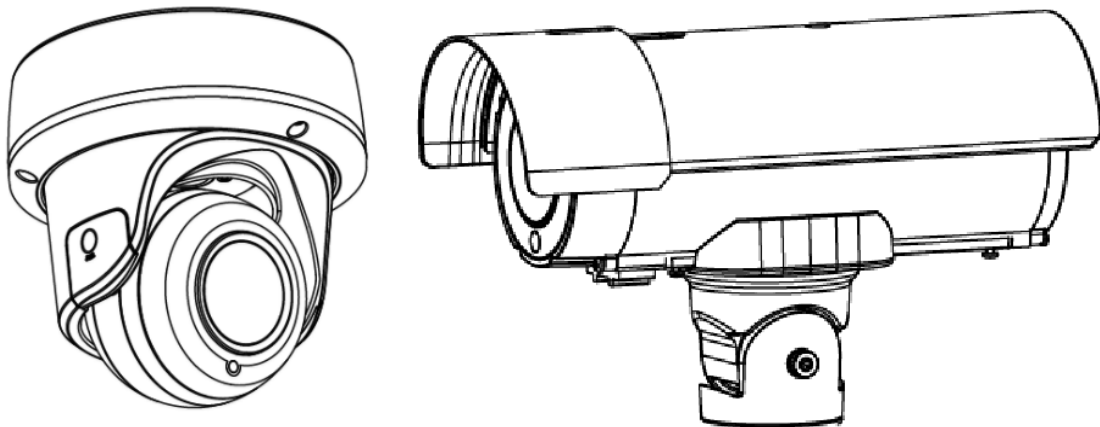


Illustra Pro Series Installation and Configuration Guide



Notice

Please read this manual thoroughly and save it for future use before attempting to connect or operate this unit.

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Table of Contents

Overview	6
Illustra Pro Gen3 Dome cameras	8
Product overview	8
Installation	9
Illustra Pro Gen 3 Bullet cameras	14
Product overview	14
Installation	15
Network Topology	25
Network Connection	27
Default IP Address	27
DHCP	28
Managing cameras with the Illustra Connect tool	29
Configuration	31
Live menu	34
Quick Start Menu	36
Basic Configuration	36
Video Menu	63
Streams	63
Picture Settings	74
Date / Time / OSD	85
Privacy Zones	88
Events and Actions Menu	90
Event Settings	90
Event Actions	93
Alarm I / O	95
Analytics	97
Video Intelligence	100
Event Logs	107
Applications	110

Applications	110
License	111
Security	112
Security Status	112
Security Status	114
Users	115
HTTP/HTTPS	117
IEEE 802.1x	118
Firewall	120
Remote Access	122
Session Timeout	124
Network Menu	126
TCP/IP	126
Multicast	127
FTP	128
SMTP	130
SNMP	131
CIFS	132
Dynamic DNS	132
SIP	133
System	135
Maintenance	135
Date / Time	139
Audio	140
Analog Video	142
Health Monitor	142
Logs	143
About	144
Edge Recording	146
Micro SD Card Management	146
Record Settings	148
Event Download	149

Appendix A: User Account Access	150
Appendix B: Using Media Player to View RTSP Streaming	153
Appendix C: Stream Tables	154
Appendix D: Camera Defaults	162
Appendix E: Technical Specifications	173
End User License Agreement (EULA)	190

Overview

This Illustra Pro Gen3 Installation and Configuration Guide is a user manual which provides physical properties, installation, and configuration information of the cameras in Table 1 on Page 6.

Table 1 Product codes

Product Code	Model Name	Description
IPS02-D12-OI03	Illustra Pro Gen3 2MP Dome camera	Illustra Pro Gen3 2MP Dome, 2.7-13.5mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS02-D17-OI03	Illustra Pro Gen3 2MP Dome camera	Illustra Pro Gen3 2MP Dome, 7-22mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS03-D12-OI03	Illustra Pro Gen3 3MP Dome camera	Illustra Pro Gen3 3MP Dome, 2.7-13.5mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS03-D17-OI03	Illustra Pro Gen3 3MP Dome camera	Illustra Pro Gen3 3MP Dome, 7-22mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS05-D12-OI03	Illustra Pro Gen3 5MP Dome camera	Illustra Pro Gen3 5MP Dome, 2.7-13.5mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS05-D17-OI03	Illustra Pro Gen3 5MP Dome camera	Illustra Pro Gen3 5MP Dome, 6-22mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS08-D13-OI03	Illustra Pro Gen3 8MP (4K) Dome camera	Illustra Pro Gen3 8MP Dome, 3.6-10mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS08-D14-OI03	Illustra Pro Gen3 8MP (4K) Dome camera	Illustra Pro Gen3 8MP Dome, 6-22mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS02-B12-OI03	Illustra Pro Gen3 2MP Bullet camera	Illustra Pro Gen3 2MP Bullet, 2.7-13.5mm, White, TDN w/IR, Multi-Exposure WDR
IPS02-B15-OI03	Illustra Pro Gen3 2MP Bullet camera	Illustra Pro Gen3 2MP Bullet, 4.7-47mm, White, TDN w/IR, Multi-Exposure WDR
IPS03-B12-OI03	Illustra Pro Gen3 3MP Bullet camera	Illustra Pro Gen3 3MP Bullet, 2.7-13.5mm, White, TDN w/IR, Multi-Exposure WDR
IPS03-B15-OI03	Illustra Pro Gen3 3MP Bullet camera	Illustra Pro Gen3 3MP Bullet, 4.7-47mm, White, TDN w/IR, Multi-Exposure WDR
IPS05-B12-OI03	Illustra Pro Gen3 5MP Bullet camera	Illustra Pro Gen3 5MP Bullet, 2.7-13.5mm, White, TDN w/IR, Multi-Exposure WDR
IPS05-B16-OI03	Illustra Pro Gen3 5MP Bullet camera	Illustra Pro Gen3 5MP Bullet, 13-55mm, White, TDN w/IR, Multi-Exposure WDR

Product Code	Model Name	Description
IPS08-B13-OI03	Illustra Pro Gen3 8MP (4K) Bullet camera	Illustra Pro Gen3 8MP Bullet, 3.6-10mm, White, TDN w/IR, Multi-Exposure WDR
IPS08-B16-OI03	Illustra Pro Gen3 8MP (4K) Bullet camera	Illustra Pro Gen3 8MP Bullet, 13-55mm, White, TDN w/IR, Multi-Exposure WDR

The first portion of this guide contains information pertaining specifically to the aforementioned cameras.

- For the Illustra Pro Gen3 Dome cameras, refer to Illustra Pro Gen3 Dome cameras on page 8.
- For the Illustra Pro Gen3 Bullet cameras, refer to Illustra Pro Gen 3 Bullet cameras on page 14.

The second portion of this guide contains information regarding the Illustra User Web Interface and the web configuration of the aforementioned cameras. Refer to Configuration on page 31 for procedural information pertaining to camera configuration.

Illustra Pro Gen3 Dome cameras

This chapter provides product features, installation procedures, and connection information regarding the Illustra Pro Gen3 Dome camera.

Product overview

This chapter explains the installation of the Illustra Pro 2MP, 3MP, 5MP and 8MP Dome cameras. Product codes and description of the cameras are provided in Table 2 on page 8.

Table 2 Product code and description of the Pro 2MP, 3MP, 5MP and 8MP Dome cameras

Product Code	Model Name	Description
IPS02-D12-OI03	Illustra Pro Gen3 2MP Dome camera	Illustra Pro Gen3 2MP Dome, 2.7-13.5mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS02-D17-OI03	Illustra Pro Gen3 2MP Dome camera	Illustra Pro Gen3 2MP Dome, 7-22mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS03-D12-OI03	Illustra Pro Gen3 3MP Dome camera	Illustra Pro Gen3 3MP Dome, 2.7-13.5mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS03-D17-OI03	Illustra Pro Gen3 3MP Dome camera	Illustra Pro Gen3 3MP Dome, 7-22mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS05-D12-OI03	Illustra Pro Gen3 5MP Dome camera	Illustra Pro Gen3 5MP Dome, 2.7-13.5mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS05-D17-OI03	Illustra Pro Gen3 5MP Dome camera	Illustra Pro Gen3 5MP Dome, 6-22mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS08-D13-OI03	Illustra Pro Gen3 8MP (4K) Dome camera	Illustra Pro Gen3 8MP Dome, 3.6-10mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR
IPS08-D14-OI03	Illustra Pro Gen3 8MP (4K) Dome camera	Illustra Pro Gen3 8MP Dome, 6-22mm, Outdoor, White, TDN w/IR, Multi-Exposure WDR

Installation

In the box

Check everything in the packing box matches to the order form and the packing slip. In addition to this guide, items below are included in the packing box.

- 4 plastic screw anchors
- 4 Phillips pan head tapered screws TP4x31mm
- 1 Torx T10 security L-Key
- 1 Printed Quick Start Guide
- 1 Printed regulatory document
- 1 NTSC / PAL output female BNC cable
- 1 Molded cap
- 1 Mounting template

Contact your dealer if any item is missing.

Installation tools

The following tools assist with installation:

- Drill
- Screw Drivers
- 1 Torx T10 security L-Key

Quick reference

- Default IP: 192.168.1.168 (DHCP enabled)
- Default Username: admin
- Default Password: admin
- Power: AC24V / PoE 802.3af

Checking appearance

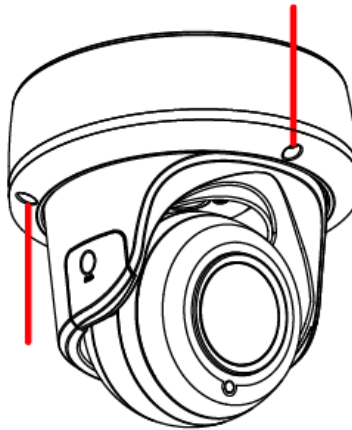
When first unboxing, check whether if there is any visible damage to the appearance of the unit and its accessories. The protective materials used for the packaging should be able to protect the unit from most types of accidents during transportation. Remove the protective part of the unit when every item is checked in accordance with the list in Installation tools on page 10.

Procedure 1 Removing the camera from the mounting base.

Step	Action
------	--------

- | | |
|---|-------------------------------------------------------|
| 1 | Unscrew the three M3x16mm (Torx T10) screws (Fig. 3). |
|---|-------------------------------------------------------|

Figure 3 Removing the camera from the mounting base



- End -

Procedure 2 Mounting and power up the camera.

Step	Action
1	Remove the required grommets (Fig. 4) from the mounting base, fit the grommets to the cable(s) and then refit into the mounting base.

Figure 4 Mounting base grommets

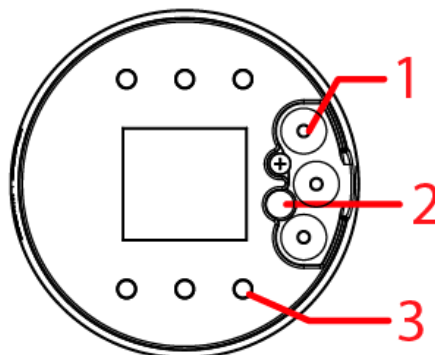
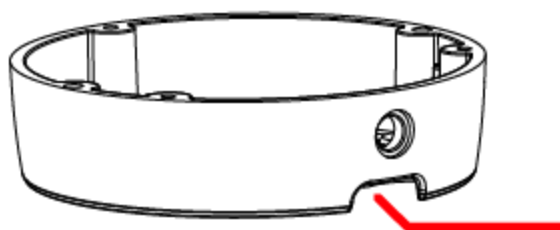


Table 5 Mounting base hole descriptions

Number	Description
1	Cable holes for the RJ45, Audio, I/O and power (AC24).
2	Cable holes for the analog cable.
3	Holes for the mounting screws.

- 2 Mark & drill four holes that correspond to the mounting holes on the camera base, (Fig 4).
- 3 Insert screw anchors into the drilled holes and use the TP4 x 31mm tapered screws provided to attach the camera base to the mounting surface.
- 4 Connect the required cabling (24VAC, RJ45, etc.) to the camera, optionally attach the molded cap if not using the side entry cabling (Fig. 6).

Figure 6 Molded cap side entry



- 5 Secure the camera to the mounting base using the three screws in Procedure 1.

Note: These screws need to be loosened slightly for camera head adjustment.

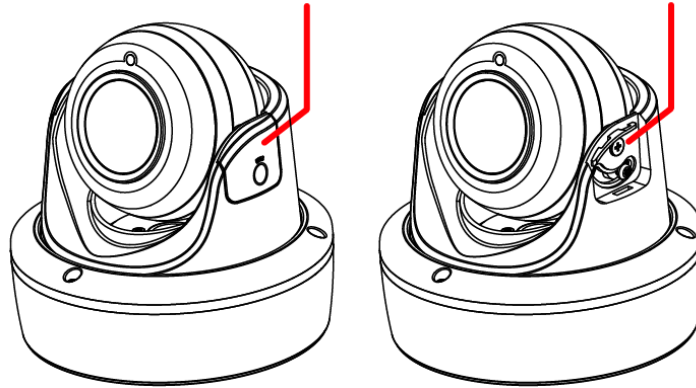
- End -

Procedure 3 Adjusting the camera lens.

Step	Action
------	--------

- | | |
|---|------------------------------------------------------------------------------|
| 1 | Remove the side cover and loosen the screw (Fig. 7) to adjust the lens tilt. |
|---|------------------------------------------------------------------------------|

Figure 7 Camera buttons / connections














- | | |
|---|-------------------------------------------------------------------------------------------------------------|
| 2 | Loosen the three screws (Fig. 3) to adjust the lens pan. |
| 3 | Once the lens is positioned, retighten the screw (Fig. 7) and the three screws on the camera base (Fig. 3). |

- End -

Warnings

- 1 For US and Canada use an NRTL listed PSU.
- 2 Ensure you use a power supply adaptor marked as LPS or SELV and rated for 24VAv 16.5W 50/60Hz or POE Class 3 12.95W.
- 3 The product should be professionally installed in accordance with all local regulations.
- 4 The product should be connected only to a power and data network associated with the same building and infrastructure.
- 5 To meet EU security immunity requirements, use an uninterruptible power supply to provide mains power to the power adaptor.

Table 8 Camera buttons / connections

Button / connections	Description
	Alarm in 1
	Alarm in 2
	Alarm out
	Audio in
	Audio out
	Analog out cable connection
	Micro SD card slot
AC 24 V	AC power connection
	USB cable connection
	Reboot button (Hold for 10 seconds)
	Reset button (Hold for 20 seconds)
	RJ45 Ethernet cable connection / PoE

Illustra Pro Gen 3 Bullet cameras

This chapter provides product features, installation procedures, and connection information regarding the Illustra Pro Gen3 Bullet camera.

Product overview

This chapter explains the installation of the Illustra Pro 3MP and 8MP Bullet cameras. Product codes and description of the cameras are provided in Table 9 on page 14.

Table 9 Product code and description of the Pro 3MP and 8MP Bullet cameras

Product Code	Model Name	Description
IPS03-B12-OI03	Illustra Pro Gen3 3MP Bullet camera	Illustra Pro Gen3 3MP Bullet, 2.7-13.5mm, White, TDN w/IR, Multi-Exposure WDR
IPS03-B15-OI03	Illustra Pro Gen3 3MP Bullet camera	Illustra Pro Gen3 3MP Bullet, 4.7-47mm, White, TDN w/IR, Multi-Exposure WDR
IPS08-B13-OI03	Illustra Pro Gen3 8MP (4K) Bullet camera	Illustra Pro Gen3 8MP Bullet, 3.6-10mm, White, TDN w/IR, Multi-Exposure WDR
IPS08-B16-OI03	Illustra Pro Gen3 8MP (4K) Bullet camera	Illustra Pro Gen3 8MP Bullet, 13-55mm, White, TDN w/IR, Multi-Exposure WDR
IPS02-B12-OI03	Illustra Pro Gen3 2MP Bullet camera	Illustra Pro Gen3 2MP Bullet, 2.7-13.5mm, White, TDN w/IR, Multi-Exposure WDR
IPS02-B15-OI03	Illustra Pro Gen3 2MP Bullet camera	Illustra Pro Gen3 2MP Bullet, 4.7-47mm, White, TDN w/IR, Multi-Exposure WDR
IPS05-B12-OI03	Illustra Pro Gen3 5MP Bullet camera	Illustra Pro Gen3 5MP Bullet, 2.7-13.5mm, White, TDN w/IR, Multi-Exposure WDR
IPS05-B16-OI03	Illustra Pro Gen3 5MP Bullet camera	Illustra Pro Gen3 5MP Bullet, 13-55mm, White, TDN w/IR, Multi-Exposure WDR

Installation

In the box

Check everything in the packing box matches to the order form and the packing slip. In addition to this guide, items below are included in the packing box.

- 4 x plastic screw anchors (use on masonry walls and wood)
- 4 x Phillips pan head tapered screw TP6x32mm (use on masonry wall and wood)
- 4 x Phillips pan head tapered screw M5x8mm (Adaptor plate base)
- 1 x Printed Quick Start Guide
- 1 x Printed regulatory document
- 1 x NTSC / PAL output female BNC cable
- 1 x RJ45 Connector
- 1 x Terminal block
- 1 x Mounting arm
- 1 x Mounting template
- 1 x Desiccant bag
- 4 x Toggle screw (Expansion Bolt)
- 1 x T10 security Torx wrench
- 1 x Universal electrical box mounting plate (IPSMDEBPLATE)
- 1 x Pendant / pole mount adaptor
- 1 x rubber plug (with two holes) and 1 rubber pin
- 1 x rubber plug (with no holes)
- 1 x 4mm Allen key

Contact your dealer if any item is missing.

Installation tools

The following tools assist with installation:

- 1 x Drill
- 1 x T10 security Torx driver
- 1 x Phillips screw driver

Quick reference

- Default IP: 192.168.1.168 (DHCP enabled)
- Default Username: admin
- Default Password: admin

Note: You can attach the camera to a surface or directly to a pendant or pole 1 ½" Male NPT pipe using the pendant / pole mount adaptor. (The pendant / pole mount adaptor can be attached to a standard 1 ½" NTP pipe using threads or set screws).

Note: To ensure optimal lens performance, JCI recommends using the automated lens calibration feature within the web GUI following initial camera installation.

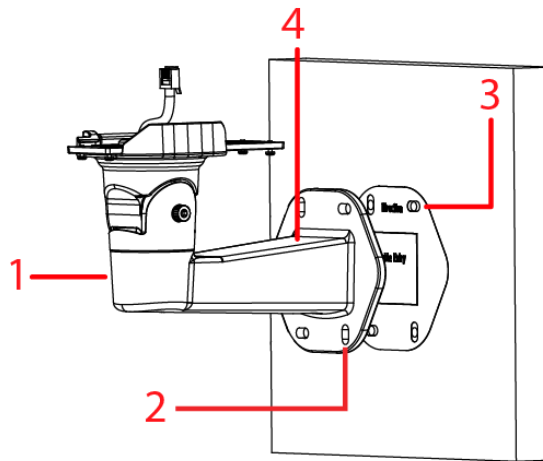
Checking appearance

When first unboxing, check if there is any visible damage to the appearance of the unit and its accessories. The protective materials used for the packaging should be able to protect the unit from most types of accidents during transportation. Remove the protective part of the unit when every item is checked in accordance with the list in Installation tools on page 15.

Procedure 4 Attaching the mounting arm to a surface.

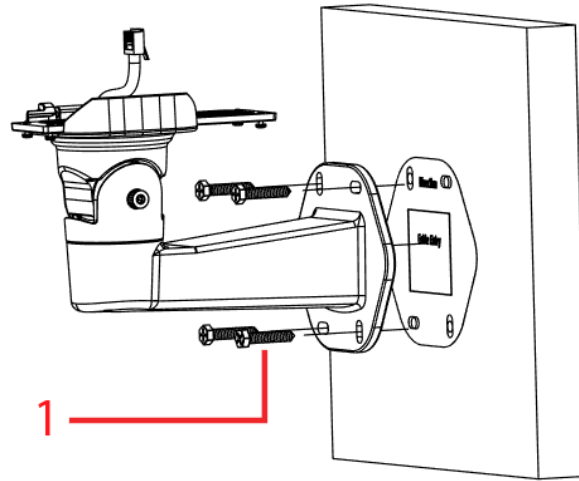
Step	Action
1	Place the mounting template provided on the surface and drill four 8mm (0.314inch) holes.
2	Insert the four screw anchors into the four holes on the surface.
3	After passing all required cabling through the mounting arm, place the mounting arm (1) (Figure 10) on the surface and align the four holes on the mounting arm (2) (Figure 10) with the four screw anchors or expansion bolts on the surface (3) (Figure. 10).
4	Insert the rubber plug into the top hole on the mounting arm (4) (Figure 10) to prevent water from entering the mounting arm.

Figure 10 Mounting the arm to a surface



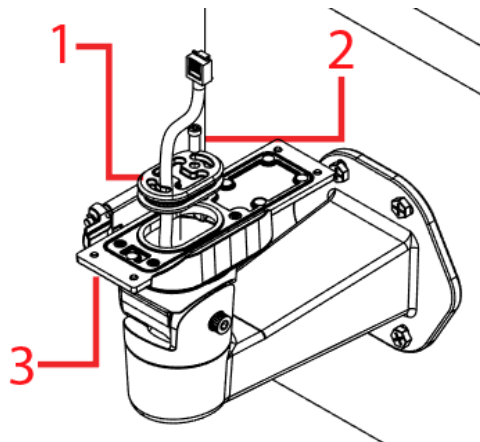
- 5 Securely attach the mounting arm to the surface with the four TP6x32mm screws (1) (Figure 11).

Figure 11 Attaching the arm to the surface



- 6 Insert the Ethernet cable through the waterproof rubber (1) (Figure 12) and if not using both grommet holes insert the rubber pin (2) (Figure 12) into the waterproof rubber.
- 7 Insert the waterproof rubber onto the mounting arm plate. (3) (Figure 12).

Figure 12 Inserting the ethernet cable through the waterproof rubber



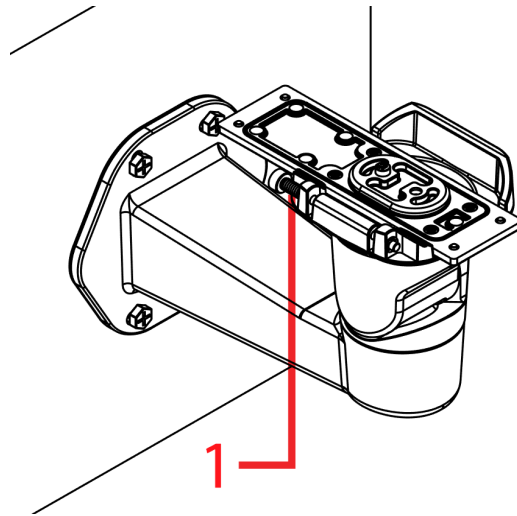
- End -

Procedure 5 Attaching the camera to the mounting arm.

Step	Action
-------------	---------------

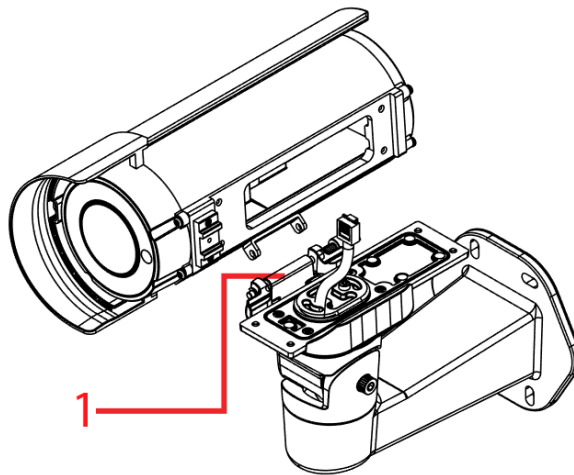
- 1 Push the pin (1) (Figure 13) from the mounting arm hinge.

Figure 13 Location of the mounting arm hinge



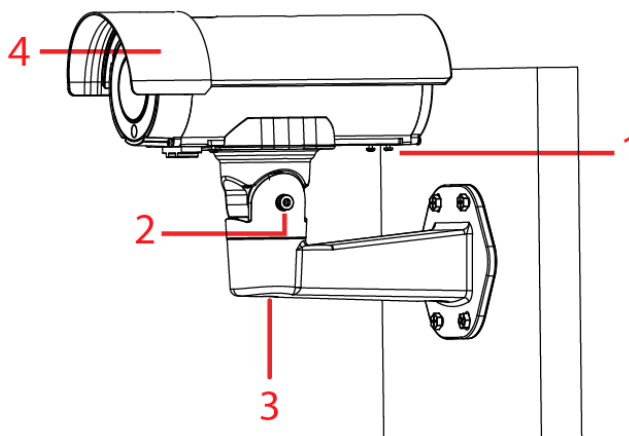
- 2 Place the camera onto the hinge (1) (Figure 14) and release the pin so that the camera is attached to the mounting arm plate.

Figure 14 Attaching the camera to the mounting arm plate



- 3 See Procedure 7 to connect the power cable and then continue on at step 4 below.
- 4 Flip the camera so that it sits properly on the mounting arm plate and secure it to the mounting arm plate with the four T10 screws (1) (Figure 15).

Figure 15 Adjusting the camera



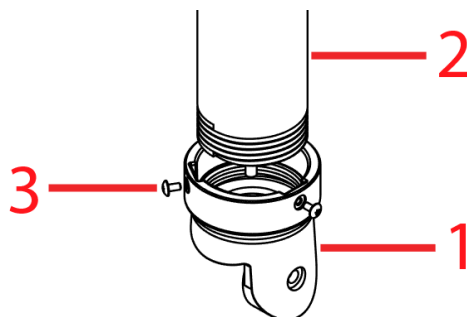
- End -

Procedure 6 Attaching the camera to a pendant or pole 1 ½ " NTP pipe

Step Action

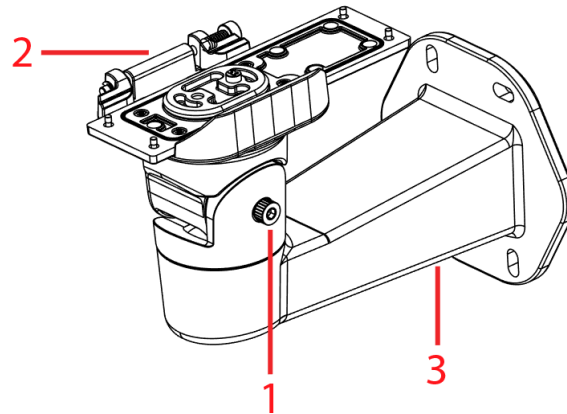
- 1 Place the pendant/pole mount adaptor (1) (Figure 16) around a standard 1 ½" Male NPT threaded water pipe (2) (Figure 16) and securely attach the two M3x0.5P (L = 6mm) screws on the pendant mount adaptor with the T10 security Torx wrench.

Figure 16 Attaching the pendant / pole mount adaptor



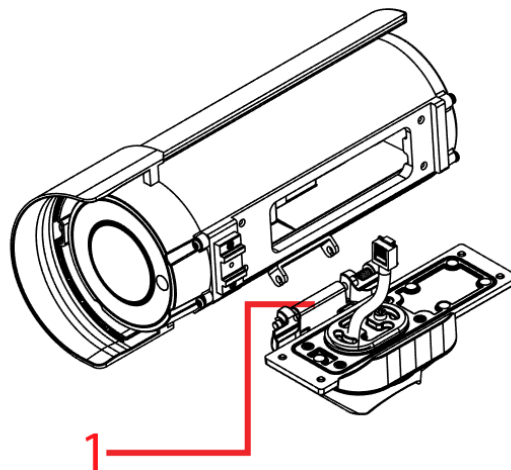
- 2 Unscrew the M5 Hex socket cap screw (1) (Figure 17) to remove the mounting arm plate (2) (Figure 17) from the mounting arm (3) (Figure 17).

Figure 17 Removing the mounting arm plate from the mounting arm



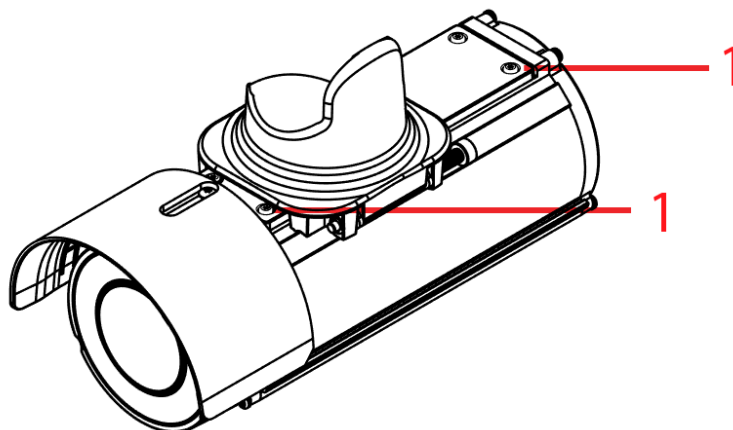
- 3 Push the pin (1) (Figure 18) and place the camera onto the hinge and release the pin so that the camera is attached to the mounting arm plate.

Figure 18 Attaching the camera to the mounting arm plate



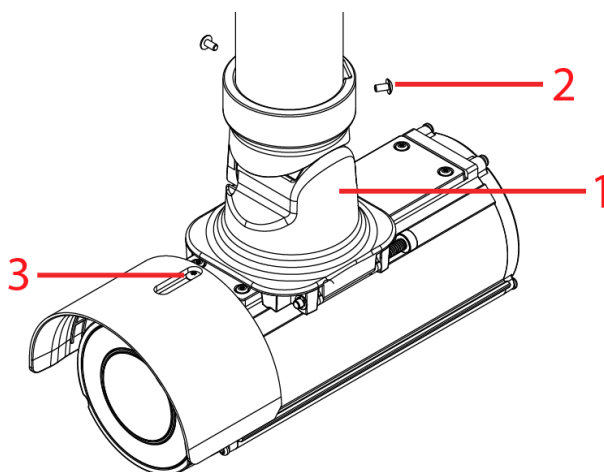
- 4 See Procedure 7 to connect the power cable and then continue on at step 5.
- 5 Securely attach the mounting arm plate to the camera with the four T10 screws (1) (Figure 19) on the mounting arm plate.

Figure 19 Securing the camera to the mounting arm plate



- 6 Place the mounting plate arm and camera into the pendant mount adaptor (1) (Figure 20) and securely attach the two M3x0.5P (L = 6mm) screws with the T10 security Torx wrench.

Figure 20 Attaching the camera to the pendant mount adaptor



- End -

Procedure 7 Connecting the power cable to the power plugs

Step	Action
-------------	---------------

- | | |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Connect the power cable to the power plugs with one of the following options: <ul style="list-style-type: none">• AC 24V: Connect 24V cables to terminals AC 24V.• PoE+: Connect the RJ45 jack to a PoE compatible network device that supplies power through the Ethernet cable. |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
-

- End -

Procedure 8 Adjusting the camera position

Step	Action
1	Use the T10 security Torx wrench to adjust the bracket Tilt angle (2) (Figure 15) and to adjust the bracket Pan angle (3) (Figure 15).

- End -

Procedure 9 Adjusting the sun shield hood

Step	Action
1	Move the sun shield hood (4) (Figure 15) forward and backward to adjust the position of the sunshade.

- End -

Note:When the camera is mounted inverted to a pendant 1 ½" NTP pipe you must remove the sun shield hood by unscrewing the M3x0.5P (L = 8mm) screw with the T10 security Torx wrench (3) (Figure 20) and relocate the sun shield with screw as per the sun shield hood located in (3) (Figure 20).

CAUTION: Extending the sun shield hood forward could obstruct the field of view (FOV) when the camera lens is set to 'Wide'.

Note:The figure below indicates the location of the camera buttons and connections (1) (Figure 21) and Desiccant bag (2) (Figure 21) on the camera.

Figure 21 Location of the camera buttons and connections

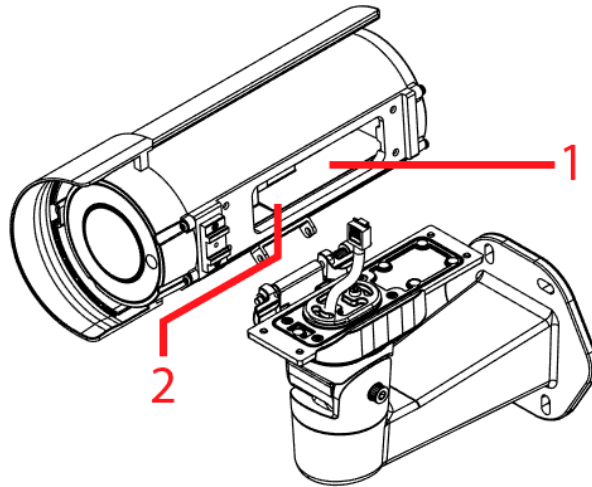















Table 22 Camera buttons / connections

Button / Connections	Description
	Alarm in 1
	Alarm in 2
	Alarm out
	COM
	Audio line in
	Audio line out
	Ground
	Analog out cable connection
	Micro SD card slot
<p>AC 24V</p>	AC power connection
	USB cable connection
	Reboot button (Hold for 10 seconds)
	Reset button (Hold for 20 seconds)
	RJ45 Ethernet cable connection / PoE+

Warnings

- 1 For US and Canada use a NRTL listed power adaptor.
- 2 The mains power adaptor equipment should be marked LPS (Limited Current Source) or PS2 and rated according to 50C, 24VAC, 1.27A min or PoE IEEE802.3at type 2 Class 4, 48VDC, 0.38A min.
- 3 To meet security immunity requirements use an uninterruptable PSU to supply power to the mains adaptor or POE mid/end span.
- 4 The cables for 24Vac, Audio and Alarms should not exceed 3m unless additional measures are taken to reduce the effect of interference picked up on the cables.
- 5 USB and Analogue Video out cables should only be used temporarily for service and not permanently installed.
- 6 For outdoor use the camera should be mounted at least 3m above ground level.

Network Topology

The Illustra Pro Gen3 cameras deliver video images and audio in real-time using the internet and intranet. It is equipped with an Ethernet RJ-45 network interface.

The following images illustrate the network topologies of the Dome and Bullet cameras.

Pro Gen3 Dome Camera Topology

Figure 23 Dome Cameras Network Topology Type I.

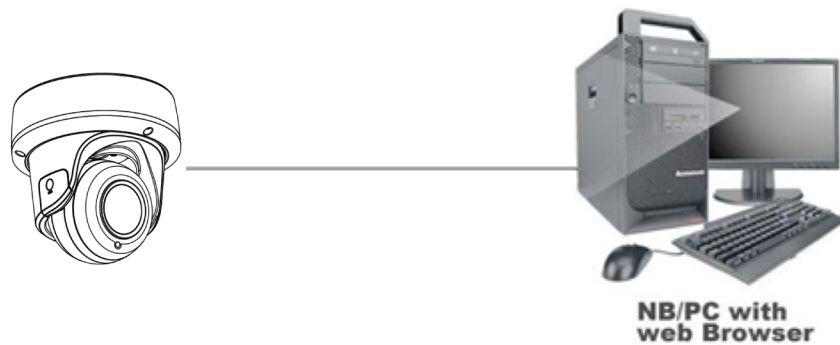
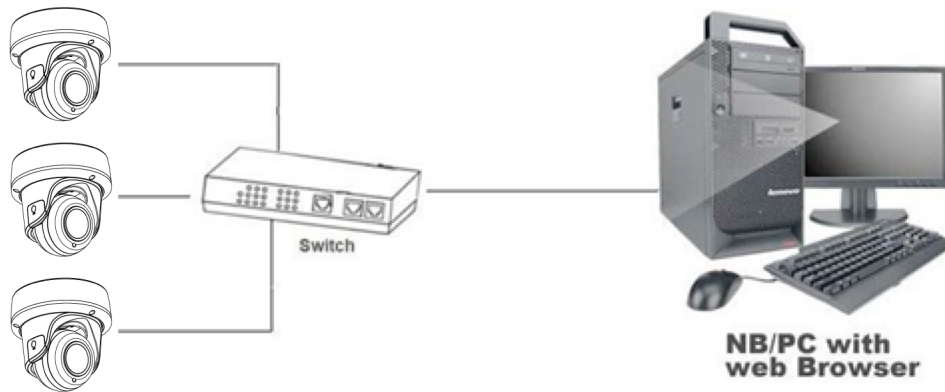


Figure 24 Dome Cameras Network Topology Type II

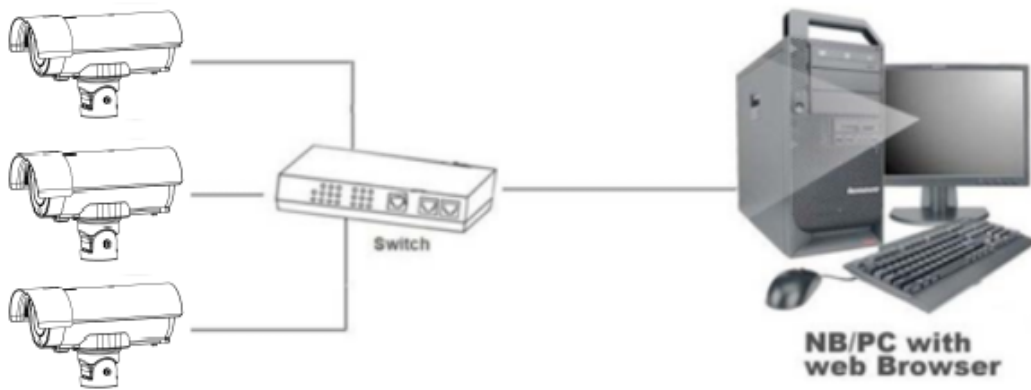


Pro Gen3 Bullet Camera Topology

Figure 25 Bullet Cameras Network Topology Type I.



Figure 26 Bullet Cameras Network Topology Type II



Network Connection

Default IP Address

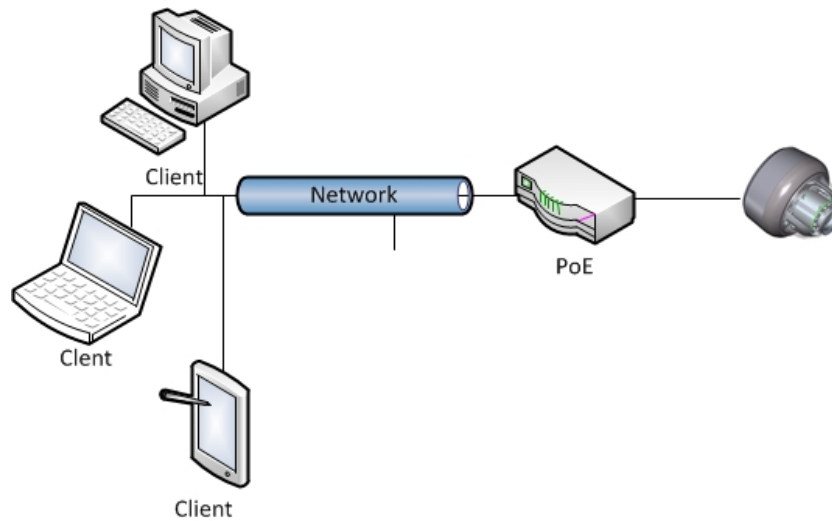
Since this is a network-based unit, an IP address must be assigned at the very first bootup. The default IP address of the unit is 192.168.1.168 and sub mask is 255.255.255.0.

However, if you have a DHCP server in your network, the unit obtains an IP address automatically from the DHCP server so that you do not need to change the IP address of the camera.

Note: If you assign the camera a Static IP address prior to DHCP being enabled, the camera first reboots for approximately 30 seconds and then remains accessible at its Static IP until it connects to a DHCP server.

- Connect to a PC directly: Directly connect the camera to a PC using a standard Ethernet cable. This requires POE switch or injector.
- Connecting a camera to a Local Area Network (LAN): To add the camera to an existing LAN, connect the camera to the POE hub or switch on your network.

Figure 27 Network connection diagram



Default camera settings

The following table describes the default camera settings.

Network Settings	Defaults
DHCP	Enabled
Static IP Address	192.168.1.168
Default Username	admin
Default Password	admin

Note: At first login the user is prompted to change the default username and password.

Procedure 10 Connecting from a computer

Step	Action
1	Ensure the camera and your computer are in the same subnet.
2	Check whether if the network is available between the unit and the computer by pinging the default IP address. <ol style="list-style-type: none"> Start a command prompt. Type "Ping 192.168.1.168". If the message "Reply from..." appears, it means the connection is available.
3	Start Internet Explorer and enter IP address: 192.168.1.168. A login window appears. In the window, enter the default user name: admin and password: admin to log in.

- End -

DHCP

On initial camera startup, and after a hardware factory reset, Dynamic Host Configuration Protocol (DHCP) is enabled by default and remains enabled until the camera receives either a DHCP address or is assigned a Static IP address.

Procedure 11 Enable DHCP

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the TCP/IP tab in the Basic Configuration menu.
3	Select the Enable DHCP check box to enable DHCP and disable manual settings.
4	Select Apply to save the settings.

The camera searches for a DHCP server. If one is found it connects to that server. If no connection is made to a DHCP server within two minutes, the camera goes to the default IP address 192.168.1.168, but continues to search for a DHCP address.

Note: If you assign the camera a Static IP address prior to DHCP being enabled, the camera first reboots for approximately 30 seconds and then remains accessible at its Static IP until it connects to a DHCP server.

- End -

Procedure 12 Disable DHCP

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the TCP/IP tab in the Basic Configuration menu.
3	Clear the Enable DHCP check box to disable DHCP and allow manual settings to be entered. The default setting is 'Enabled'.
4	If Enable DHCP has been disabled:

- a Enter the IPv4 Address in the **IPv4 Address** text box in the form xxx.xxx.xxx.xxx. The default setting is '192.168.1.168'
 - b Enter the Network Mask in the **Network Mask** text box xxx.xxx.xxx.xxx. The default setting is '255.255.255.0'
 - c Enter the Gateway IP address in **Gateway** text box xxx.xxx.xxx.xxx.
 - d Enter the Primary DNS Server in the **Primary DNS Server** text box xxx.xxx.xxx.xxx.
- 5 Select **Apply** to save the settings.

- End -

Managing cameras with the Illustra Connect tool

In addition to using the IE browser to access your camera, you can alternatively use the provided tool, Illustra Connect.

Illustra Connect is a management tool designed to manage your network cameras on the LAN. It can:

- help you find multiple network cameras
- set the IP addresses
- show connection status
- manage firmware upgrades
- bulk configuration

Refer to Configuration on page 31 for further information regarding using the Illustra Connect tool for configuring the cameras.

Procedure 13 Connecting to the camera using Illustra Connect

Note:

Illustra Connect can only discover devices on the same subnet as its host computer. Therefore, the camera and the computer being used to configure it must be on the same subnet.

Step	Action
------	--------

- | | |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Using a computer which is connected to the same network and subnet, install the Illustra Connect software.

The Illustra Connect software and the Illustra Connect manual are available to download on www.illustracameras.com |
| 2 | When the installation is complete, run Illustra Connect.

It searches the network and displays all compliant devices. |
| 3 | Select the camera you want to configure, locating it by its unique MAC address. |
| 4 | Right-click the camera and select Launch Web GUI Configuration. The camera Web User Interface displays. |

- End -

Procedure 14 Connecting to the camera using the static IP address

Step	Action
1	The camera attempts to obtain an IP Address from the DHCP Server. When no DHCP Server is available the camera is assigned a Static IP address of 192.168.1.168.
2	Open Microsoft Internet Explorer and enter the URL of the camera as 192.168.1.168. The camera sign in page displays.

Note:

The computer you use to configure the camera must have an IP address on the same subnet.

- End -

Procedure 15 Logging on to the camera web user interface

Step	Action
1	When you select the camera, the sign in page displays. Select your preferred language from the drop-down menu.
2	Enter the username in the Username text box. The default username is admin.
3	Enter the password in the Password text box. The default password is admin.
4	Select Log in .

Note: The first time that you access the camera or after a factory reset the following two pop up windows are visible: A pop up window that requests the user to **Define a Host ID** and a pop up window that requests the user to select a **Security Type**. Please refer to the user manual for further information on this.

5 The Live view page is visible. This displays the current view of the camera.

Note:

At first login the user is prompted to change the default username and password.

- End -

Procedure 16 Enabling the correct video orientation for a wall mounted camera

Step	Action
1	Log on to the camera web user interface.
2	Select Setup on the camera web user interface banner to display the setup menus.
3	Select the Picture Basic tab from the Basic Configuration menu.
4	Select the required Orientation setting: <ul style="list-style-type: none"> • Mirror • Flip
5	The video pane updates to display the new settings.

- End -

Configuration

The following sections explain the how you can configure Illustra Pro Gen3 cameras using the Web User Interface.

Security Mode Profiles for First Time Connection

The Illustra Pro Gen3 cameras have features that allow for operation in a Standard Security mode or in an Enhanced Security mode.

When the camera is in Enhanced Security mode, you require a complex eight character Administrator password to make changes to these protocols.

Refer to Summary of Security Modes on page 32 for further information regarding the differences between Standard and Enhanced Security modes.

Accessing the Illustra Pro Gen3 Series Camera Web User Interface

Use the following procedure to access the camera Web User Interface.

Procedure 17 Logging in to the Camera

Step	Action
1	Refer to Network Connection on page 27 for details on how to connect the camera to your network or computer.
2	When you select the camera, the sign in page displays.
3	Select your preferred language from the drop-down menu. The default language is English.
4	Enter the default username and password when prompted - Username: admin, Password: admin.
5	Click Log in . The camera Web User Interface displays. The first time that you access the camera, or after a factory reset, you are prompted to Define a Host ID and Select a Security Type . <ul style="list-style-type: none">• Define a Host ID: The admin user must enter a 6 character code for the Host ID that includes both letters and/or numbers. This unique password can be used to access the operating system files. The HostID is not stored on the camera for security reasons and must be presented to Illustra Technical Support when remote access to the operating system is required.• Select a Security Type: Standard Security or Enhanced Security.
6	If you select the Standard Security option, password change is mandatory.
<hr/> Note: Password complexity is set to require a minimum of 5 characters, 'admin' cant be used.	
7	If you select the Enhanced Security option, a default admin username and password change is mandatory.

Note: The password must meet the following requirements:

Be a minimum of eight characters long.

Have at least one character from each of the following character groups:

-
- Upper-case letters - ABCDEFGHIJKLMNOPQRSTUVWXYZ
 - Lower-case letters - abcdefghijklmnopqrstuvwxyz
 - Numeric characters - 0123456789
 - Special characters - @ % + \ / ' ! # \$ ^ ? : , () { } [] ~ - _ `
-

Note: Once the above steps are complete, the Live view page is visible. This displays the current view of the camera.

- End -

Summary of Security Modes

Standard Security:

- A default admin password change is mandatory.
- Changes to communication protocols are available to all users with appropriate privileges.
- Passwords complexity is set to require minimum of any 5 characters, 'admin' cant be used.
- Authentication method is set to basic by default.

Enhanced Security:

- Unsecure Protocols are disabled by default until enabled by a user.
- When you select enhanced security you must change the default 'admin' username and password.
- Discovery protocols are disabled by default until enabled by a user.
- Changes in the protocols are only be available to a user with administrative privileges and require that user to reenter their password.
- Authentication method is set to Digest by default.
- HTTPS protocol is enabled by default.
- Passwords for all accounts will meet the following password complexity requirements:
 - Minimum characters: 8
 - The password cannot contain the username
 - Have at least one character from each of the following character groups:
 - Upper-case letters - ABCDEFGHIJKLMNOPQRSTUVWXYZ
 - Lower-case letters - abcdefghijklmnopqrstuvwxyz
 - Numeric characters - 0123456789
 - Special characters - @ % + \ / ' ! # \$ ^ ? : , () { } [] ~ - _ `
 - Changing protocols require an administrator to re-enter their password

Changing the Camera Web User Interface Language

Use the following procedure to change the language used in the camera Web User Interface.

Procedure 18 Change the Camera Web User Interface Language

Step	Action
1	Open the camera sign in page. If you are already logged in to the Web User Interface, select Log Off to display the sign in page.
2	Select your preferred language from the drop-down menu: <ul style="list-style-type: none">• English• Arabic• Czech• Danish• German• Spanish• French• Hungarian• Italian• Japanese• Korean• Dutch• Polish• Portuguese• Swedish• Turkish• Chinese Simplified• Chinese Traditional• Russian• Hindi The default language is English.
3	Enter the Username.
4	Enter the Password.
5	Select Log in.

The camera web User Interface displays in the selected language.

- End -

Live menu

When you log in to the Illustra Web User Interface, the **Live** menu appears, as seen in Figure 28 on page 34.

Figure 28 Live menu page



Displaying the Live View Page

Display the live camera view page.

Procedure 19 Display Live View Page

Step	Action
1	Select Live in the Web User Interface banner. The Live view page displays.
2	Select a video stream from Stream to view.
3	Select a percentage from Scale to change the display size of the video pane: <ul style="list-style-type: none">• 25%• 50%• 75%• 100% The default setting is 100%.

- End -

Accessing the Setup Menus from Live View

Setup menus within the Web User Interface are restricted by user account access levels. Refer to Appendix A: User Account Access on page 150 for details on the features which are available to each role.

Procedure 20 Access Setup Menus from Live View

Step	Action
------	--------

- | | |
|---|------------------------------------------------------|
| 1 | On the Live menu, click the Setup tab. |
|---|------------------------------------------------------|
-

Note:When an admin user logs in for the first time the Live menu displays. After this, on each login the Stream page on the Video menu displays.

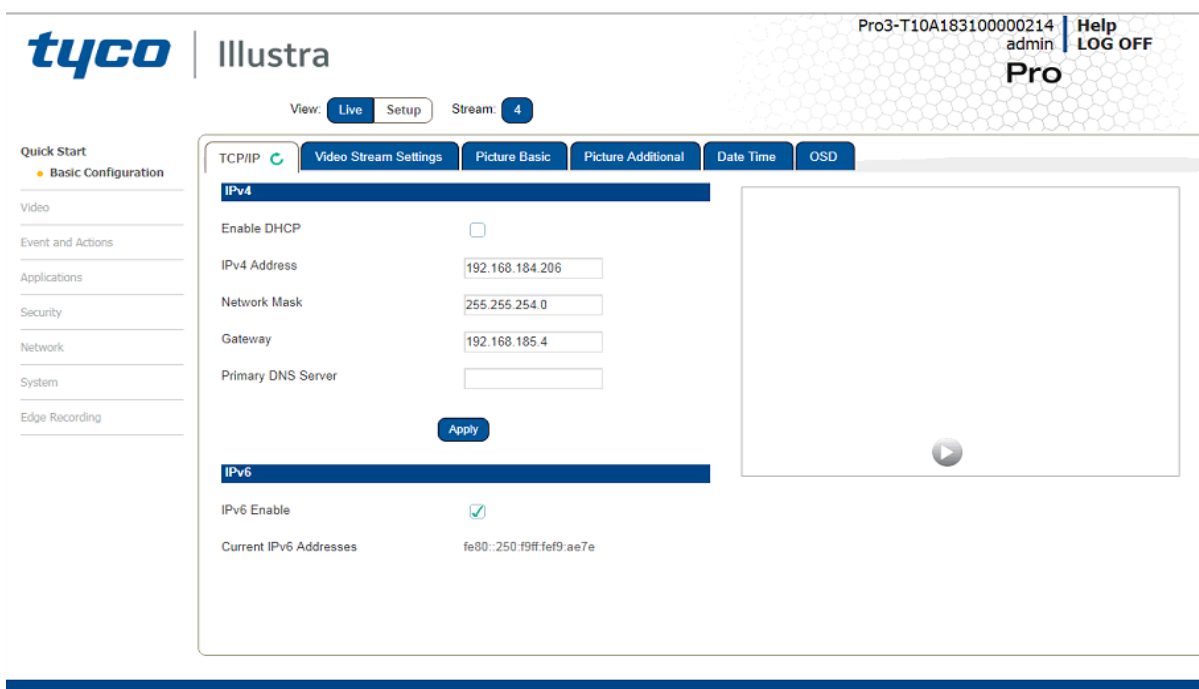
- End -

Quick Start Menu

When you select the Quick Start menu, the Basic Configuration Page displays, as shown in Figure 29 on page 36.

Note: When an admin user logs in for the first time the Basic Configuration page displays. After this, on each login the Video > Streams page displays.

Figure 29 Basic Configuration Menu



Basic Configuration

The **Basic Configuration** menu provides access to the most common features required when setting up a camera for the first time and is only available to an 'admin' user. The following tabs are displayed:

- TCP/IP
- Video Stream Settings
- Picture Basic
- Picture Additional
- Date Time
- OSD

TCP/IP

Configure the IPv4 and IPv6 network settings on the camera.

Note:When you perform a factory reset or reboot the unit searches for the last known IP address. If this is not available it reverts to the default IP address of 192.168.1.168. This could result in duplicate IP addresses. Refer to Quick Start Menu on page 36 for more information.

DHCP

On initial camera startup, and after a hardware factory reset, Dynamic Host Configuration Protocol (DHCP) is enabled by default and remains enabled until the camera receives either a DHCP address or is assigned a Static IP address.

Procedure 21 Enable DHCP

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the TCP/IP tab in the Basic Configuration menu.
3	Select the Enable DHCP check box to enable DHCP and disable manual settings.
4	Select Apply to save the settings.

The camera searches for a DHCP server. If one is found it connects to that server. If no connection is made to a DHCP server within two minutes, the camera goes to the default IP address 192.168.1.168, but continues to search for a DHCP address.

Note:If you assign the camera a Static IP address prior to DHCP being enabled, the camera first reboots for approximately 30 seconds and then remains accessible at its Static IP until it connects to a DHCP server.

- End -

Procedure 22 Disable DHCP

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the TCP/IP tab in the Basic Configuration menu.
3	Clear the Enable DHCP check box to disable DHCP and allow manual settings to be entered. The default setting is 'Enabled'.
4	If Enable DHCP has been disabled: <ol style="list-style-type: none"> a Enter the IPv4 Address in the IPv4 Address text box in the form xxx.xxx.xxx.xxx. The default setting is '192.168.1.168' b Enter the Network Mask in the Network Mask text box xxx.xxx.xxx.xxx. The default setting is '255.255.255.0' c Enter the Gateway IP address in Gateway text box xxx.xxx.xxx.xxx. d Enter the Primary DNS Server in the Primary DNS Server text box xxx.xxx.xxx.xxx.
5	Select Apply to save the settings.

- End -

IPv4

Configure the IPv4 network settings for the camera.

Procedure 23 Configure the IPv4 Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the TCP/IP tab in the Basic Configuration menu.
3	Select the Enable DHCP check box to enable DHCP and disable manual settings. OR Clear Enable DHCP to disable DHCP and allow manual settings to be entered. The default setting is 'Enabled'.
4	If Enable DHCP has been disabled: a Enter the IPv4 Address in the IPv4 Address text box in the form xxx.xxx.xxx.xxx. The default setting is '192.168.1.168' b Enter the Network Mask in the Network Mask text box xxx.xxx.xxx.xxx. The default setting is '255.255.255.0' c Enter the Gateway IP address in Gateway text box xxx.xxx.xxx.xxx. d Enter the Primary DNS Server in the Primary DNS Server text box xxx.xxx.xxx.xxx.
5	Select Apply to save the settings.

- End -

IPv6

Enable or disable IPv6 on the camera.

Procedure 24 Enable/Disable IPv6

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the TCP/IP tab in the Basic Configuration menu.
3	Select the IPv6 Enable check box to enable IPv6 on the camera. OR Clear the IPv6 Enable check box to disable IPv6 on the camera. The default setting is 'Enabled'. If IPv6 is enabled the Link Local and DHCP address display beside 'Current IPv6 Addresses' if available.

- End -

Video Stream Settings

You can configure three video streams on the camera: Stream 1, Stream 2, Stream 3 and Stream 4.

Note:Stream 4 is not fully configurable. Its main purpose is the GUI live view.

Configuring the Web Video Stream

Adjust the settings for each video stream.

Procedure 25 Configure the Video Stream settings

Step	Action
------	--------

- | | |
|---|---------------------------------------------------------------------------------------------------------------|
| 1 | Select Setup on the Web User Interface banner to display the setup menus. |
| 2 | Select the Video Streams Settings tab in the Basic Configuration menu. |
| 3 | Select either Stream 1 , 2 , 3 or 4 from the Stream Number drop-down menu. |

Note:Stream 4 is not fully configurable. Its main purpose is the GUI live view.

- | | |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 | Select the required Codec from the drop-down list: <ul style="list-style-type: none">• H264• H264 IntelliZip• H265• H265 IntelliZip• MJPEG |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

The default setting is 'H264'.

Note:When you select H264 or H264 IntelliZip you can set the Profile. If you do not select either of these options then continue at step 6 below.

- | | |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5 | Select the required Profile from the drop-down list: <ul style="list-style-type: none">• Main• High The default setting is 'Main'. |
| 6 | Select the required Resolution from the drop-down menu.
The resolutions available depend on the type of camera sensor (megapixel). |

Table 30 2MP Camera Stream Set A (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Normal Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264, h.264 Intellizip	1920 x 1080	(1080p) 16:9	60	30	15
	h.265, h.265 Intellizip	1664 x 936	(HD+) 16:9	60	30	15
	MJPEG	1280 x 720	(720p) 16:9	60	30	15
Stream 2	h.264, h.264 Intellizip	1280 x 720	(720p) 16:9	30	30	15
	h.265, h.265 Intellizip	1024 x 576	(PAL+) 16:9	30	30	15
	MJPEG	960 x 544	(qHD) 16:9	30	30	15
	h.264, h.264 Intellizip	816 x 464	16:9	30	30	15
	MJPEG	640 x 360	(nHD) 16:9	30	30	15
Stream 3	h.264, h.264 Intellizip	640 x 360	16:9	30	30	15
	h.265, h.265 Intellizip	480 x 272	16:9	30	30	15
Stream 4	MJPEG	640 x 368	16:9	7	7	7

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Table 31 2MP Camera Stream Set B (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Corridor Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264, h.264 Intellizip	1920 x 1080	(1080p) 16:9	30	30	15
	h.265, h.265 Intellizip	1664 x 936	(HD+) 16:9	30	30	15
	MJPEG	1280 x 720	(720p) 16:9	30	30	15
Stream 2	h.264, h.264 Intellizip	1280 x 720	(720p) 16:9	30	30	15
	h.265, h.265 Intellizip	1024 x 576	(PAL+) 16:9	30	30	15
	MJPEG	960 x 544	(qHD) 16:9	30	30	15
	h.264, h.264 Intellizip	816 x 464	16:9	30	30	15
	MJPEG	640 x 360	(nHD) 16:9	30	30	15
Stream 3	h.264, h.264 Intellizip	480 x 272	16:9	30	30	15
	h.265, h.265 Intellizip	480 x 272	16:9	30	30	15
Stream 4	MJPEG	640 x 368	16:9	7	7	7

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Table 32 3MP Camera Stream Set A (all resolution, codes and frame rate combinations of Stream 1, 2, 3 and 4 are valid)

		Normal Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264,	2048 x 1536	4:3	30	30	30
	h.264 Intellizip	1920 x 1080	(1080p) 16:9	60	30	30
	h.265,	1664 x 936	(HD+) 16:9	60	30	30
	h.265 Intellizip	1280 x 960	4:3	60	30	30
	MJPEG	1280 x 720	(720p) 16:9	60	30	30
Stream 2	h.264,	1280 x 720	(720p) 16:9	30	30	30
	h.264 Intellizip	800 x 600	(SVGA) 4:3	30	30	30
	h.265,	640 x 840	(VGA) 4:3	30	30	30
	h.265 Intellizip	480 x 360	4:3	30	30	30
	MJPEG	384 x 288	4:3	30	30	30
Stream 3	h.264,	640 x 840	16:9	30	30	30
	h.264 Intellizip		4:3			
	h.265,	480 x 360	4:3	30	30	30
	h.265 Intellizip	384 x 288	4:3	30	30	30
MJPEG						
Stream 4	MJPEG	640 x 368	16:9	7	7	7

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:Enabling TWDR on the 3MP cameras turns analogue video off.

Table 33 3MP Camera Stream Set B (all resolution, codes and frame rate combinations of Stream 1, 2, 3 and 4 are valid)

		Corridor Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264,	2048 x 1536	4:3	30	30	30
	h.264 Intellizip	1920 x 1080	(1080p) 16:9	30	30	30
	h.265,	1664 x 936	(HD+) 16:9	30	30	30
	h.265 Intellizip	1280 x 960	4:3	30	30	30
	MJPEG	1280 x 720	(720p) 16:9	30	30	30
Stream 2	h.264,	1280 x 720	(720p) 16:9	30	30	30
	h.264 Intellizip	800 x 600	(SVGA) 4:3	30	30	30
	h.265,	640 x 840	(VGA) 4:3	30	30	30
	h.265 Intellizip	480 x 360	4:3	30	30	30
	MJPEG	384 x 288	4:3	30	30	30
Stream 3	h.264,	640 x 840	16:9	30	30	30
	h.264 Intellizip		4:3			
	h.265,		4:3			
	h.265 Intellizip		4:3			
MJPEG	384 x 288	4:3	30	30	30	
Stream 4	MJPEG	640 x 368	16:9	7	7	7

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:Enabling TWDR on the 3MP cameras turns analogue video off.

Table 34 5MP Camera Stream Set A (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Normal Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264,	2592 x 1944	4:3	30	30	-
	h.264 Intellizip	2560 x 1440	16:9	30	30	-
	h.265,	2048 x 1536	4:3	30	30	-
	h.265 Intellizip	1920 x 1080	(1080p) 16:9	60	30	-
	MJPEG	1664 x 934	(HD+) 16:9	60	30	-
		1280 x 960	4:3	60	30	-
Stream 2	h.264,	1280 x 720	(720p) 16:9	30	30	-
	h.264 Intellizip	800 x 600	(SVGA) 4:3	30	30	-
	h.265,	640 x 480	(VGA) 4:3	30	30	-
	h.265 Intellizip	480 x 360	4:3	30	30	-
	MJPEG	384 x 288	4:3	30	30	-
Stream 3	h.264,	640 x 360	16:9	30	30	-
	h.264 Intellizip		4:3	30	30	-
	h.265,	480 x 360	4:3	30	30	-
	h.265 Intellizip	384 x 288	4:3	30	30	-
MJPEG						
Stream 4	MJPEG	640 x 368 *1	16:9	7	7	-

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:*1 - The aspect ratio of stream 4 will match the aspect ratio of stream 1.

Table 35 5MP Camera Stream Set B (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Corridor Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264,	2592 x 1944	4:3	30	30	-
	h.264 Intellizip	2560 x 1440	16:9	30	30	-
	h.265,	2048 x 1536	4:3	30	30	-
	h.265 Intellizip	1920 x 1080	(1080p) 16:9	30	30	-
	MJPEG	1664 x 934	(HD+) 16:9	30	30	-
			1280 x 960	4:3	30	30
Stream 2	h.264,	1280 x 720	(720p) 16:9	30	30	-
	h.264 Intellizip	800 x 600	(SVGA) 4:3	30	30	-
	h.265,	640 x 480	(VGA) 4:3	30	30	-
	h.265 Intellizip	480 x 360	4:3	30	30	-
	MJPEG	384 x 288	4:3	30	30	-
Stream 3	h.264,					
	h.264 Intellizip	640 x 360	16:9	30	30	-
	h.265,	480 x 360	4:3	30	30	-
	h.265 Intellizip	384 x 288	4:3	30	30	-
MJPEG						
Stream 4	MJPEG	640 x 368 *1	16:9	7	7	-

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:*1 - The aspect ratio of stream 4 will match the aspect ratio of stream 1.

Table 36 8MP Camera Stream Set A (all resolution, codes and frame rate combinations of Stream 1, 2, 3 and 4 are valid)

		Normal Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR 2x	TWDR 3x
Stream 1	h.264,	3840 x 2160	4K 16:9	30	25	-
	h.265	3264 X 1840	16:9	30	25	-
		2688 X 1520	16:9	30	25	-
	h.264,	1920 x 1080	(1080p) 16:9	60	30	-
	h.264 Intellizip					
	h.265,					
h.265 Intellizip	1664 x 936	(HD+) 16:9	60	30	-	
MJPEG	1280 x 960	(720p) 16:9	60	30	-	
Stream 2	h.264,	1280 x 720	(720p) 16:9	30*1	30*1	-
	h.264 Intellizip	1024 x 576	(PAL+) 16:9	30*1	30*1	-
	h.265,	960 x 544	(qHD) 16:9	30*1	30*1	-
	h.265 Intellizip	816 x 464	16:9	30*1	30*1	-
	MJPEG	640 x 360	(nHD) 16:9	30*1	30*1	-
		480 x 272	16:9	30*1	30*1	-
Stream 3	h.264,	640 x 360	16:9	30*2	30*2	-
	h.264 Intellizip		16:9	30*2	30*2	-
	h.265,	480 x 272	16:9	30*2	30*2	-
	h.265 Intellizip		16:9	30*2	30*2	-
MJPEG						
Stream 4	MJPEG	640 x 368	16:9	7	7	-

Note:*1 - Stream 2 is restricted to 15 FPS when Stream 1 resolution is greater than 1920x1080

Note:*2 - Stream 3 is restricted to 10 FPS when Stream 1 resolution is greater than 1920x1080

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:Enabling TWDR on the 8MP camera requires Analogue Video to be disabled.

Note:Enabling TWDR will restrict the frame rate of Stream 1 to 25 FPS if the resolution is higher than 1920x1080.

Figure 37 8MP Camera Stream Set B (all resolution, codes and frame rate combinations of Stream 1, 2, 3 and 4 are valid)

		Corridor Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR 2x	TWDR 3x
Stream 1	h.264,	3840 x 2160	4K 16:9	30	25	-
	h.265	3264 X 1840	16:9	30	25	-
		2688 X 1520	16:9	30	25	-
	h.264,	1920 x 1080	(1080p) 16:9	30	30	-
	h.264 Intellizip					
	h.265,					
h.265 Intellizip	1664 x 936	(HD+) 16:9	30	30	-	
MJPEG	1280 x 960	(720p) 16:9	30	30	-	
Stream 2	h.264,	1280 x 720	(720p) 16:9	30*1	30*1	-
	h.264 Intellizip	1024 x 576	(PAL+) 16:9	30*1	30*1	-
	h.265,	960 x 544	(qHD) 16:9	30*1	30*1	-
	h.265 Intellizip	816 x 464	16:9	30*1	30*1	-
	MJPEG	640 x 360	(nHD) 16:9	30*1	30*1	-
		480 x 272	16:9	30*1	30*1	-
Stream 3	h.264,	640 x 360	16:9	30*2	30*2	-
	h.265 Intellizip		16:9	30*2	30*2	-
	h.265,	480 x 272	16:9	30*2	30*2	-
	h.265 Intellizip		16:9	30*2	30*2	-
MJPEG						
Stream 4	MJPEG	640 x 368	16:9	7	7	-

Note:*1 - Stream 2 is restricted to 15 FPS when Stream 1 resolution is greater than 1920x1080

Note:*2 - Stream 3 is restricted to 10 FPS when Stream 1 resolution is greater than 1920x1080

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:Enabling TWDR on the 8MP camera requires Analogue Video to be disabled.

Note:Enabling TWDR will restrict the frame rate of Stream 1 to 25 FPS if the resolution is higher than 1920x1080.

- 7 Use the slider bar to select the **Frame Rate (fps)**.

The settings for the 2MP cameras are:

- **Stream 1** - 1 - 30 fps, default 30 fps.
- **Stream 2** - 1 - 30 fps, default is 30 fps.
- **Stream 3** - 1 - 30 fps, default is 30 fps.
- **Stream 4** - 7 fps, default is 7 fps.

The settings for the 3MP cameras are:

- **Stream 1** - 1 - 60 fps, default 30 fps.
- **Stream 2** - 1 - 30 fps, default is 30 fps.
- **Stream 3** - 1 - 30 fps, default is 30 fps.
- **Stream 4** - 7 fps, default is 7 fps.

The settings for 5MP cameras are:

- **Stream 1** - 1 - 60 fps, default 30 fps.
- **Stream 2** - 1 - 30 fps, default is 30 fps.
- **Stream 3** - 1 - 30 fps, default is 30 fps.
- **Stream 4** - 7 fps, default is 7 fps.

The settings for 8MP cameras are:

- **Stream 1** - 1 - 60 fps, default 30 fps.
- **Stream 2** - 1 - 30 fps, default is 30 fps.
- **Stream 3** - 1 - 30 fps, default is 30 fps.
- **Stream 4** - 7 fps, default is 7 fps.

Note:FPS varies depending on other features - refer to the Pro Gen 3 2 Release Notes for further information.

- 8 If MJPEG has been selected, MJPEG Quality is enabled. Use the slider bar to select the **MJPEG Quality**.

The default setting is 50.

OR

- 9 If H264 has been selected in step 4, Rate Control is enabled. Select the required **Rate Control** by selecting the radio buttons:

- **VBR (Variable Bit Rate)**
- **CBR (Constant Bit Rate)**
- **CVBR (Constrained Variable Bit Rate)**

The default setting is 'VBR'.

- a If you select VBR, VBR Quality is enabled. Select the required **VBR Quality** from the drop-down menu. The default setting is High.

- **Highest**

- **High**
- **Medium**
- **Low**
- **Lowest**

OR

- b If you select CBR , CBR Bit Rate is enabled. Use the slider bar to select the **CBR Bit Rate**. The default setting is 1000.

OR

- c If you select CVBR, Max Bit Rate is enabled. Use the slider bar to select the **Max Bit Rate**. The default setting is 8000.

- 10 If selecting Intellizip coded the camera offers a max GOP configuration. Use the slider bar to select the Max GOP range. Range available is 1-180. The default is 62.

- End -

Picture Basic

Adjust Picture Rotation, Focus / Zoom and Exposure displayed in the video pane.

Picture Rotation

Configure the orientation and corridor mode settings. Both settings are optional.

Procedure 26 Configure Orientation Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Basic tab from the Basic Configuration menu.
3	Select the required Orientation setting: <ul style="list-style-type: none"> • Mirror • Flip Mirror and Flip settings are not selected by default. The video pane updates to display the new settings.
<p>Note:When wall mounting the camera you should select Flip and Mirror to correct the lens orientation.</p>	

- End -

Corridor Mode

Provides a better perspective when viewing a long corridor.

Procedure 27 Configure Corridor Mode Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Basic tab from the Basic Configuration menu.

- 3 Select the **Play** button to start the video stream if it is not already active.
- 4 Select the required **Corridor Mode** setting:
 - None
 - -90°
 - +90°

The camera requires a reboot to set the new corridor mode. Once rebooted the video pane updates to display the new settings.

- End -


Focus / Zoom

You can configure the focus and zoom using the Web User Interface. You can use the plus and minus arrows to fine tune the image. The Zoom slider bar is used to manually zoom in and out to manually configure to picture. The table below describes the features supported by each camera.

Table 38 Lens features supported for the Outdoor Dome


	Outdoor Dome	Bullet
Mechanical Focus		
Motorized Focus	X	X
Mechanical Zoom		
Motorized Zoom	X	X
Lens Calibration	X	X
Auto One Touch	X	X
Configurable Continuous Auto-Focus		

Procedure 28 Adjust Camera Focus / Zoom

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Basic tab from the Basic Configuration menu.
3	Select  to start the video stream if it is not already active.
4	Use the plus and minus arrows to manually configure the focus and the slider bar to adjust zoom settings until the image is clear. The video pane updates to display the new settings.

- End -

Procedure 29 Adjust Camera Focus using OneTouch Autofocus

- 1 Select **Setup** on the Web User Interface banner to display the setup menus.
- 2 Select the **Picture Basic** tab from the **Basic Configuration** menu.
- 3 Select  to start the video stream if it is not already active.

- 4 In the **Focus/Zoom** section, click the **One Touch** button. The camera refocuses to the zoom level selected for the image.
The video pane updates to display the new settings.


Note: The user can create a ROI focus point for the camera to use during the one touch procedure - use the pencil icon and highlight the desired ROI.

- End -

Exposure

Configure the exposure settings for the camera.

Procedure 30 Configure Exposure Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Settings tab from the Basic Configuration menu.
3	Select  to start the video stream if it is not already active.
4	Select the Exposure Profiles from the drop-down menu: See Exposure Profile descriptions below:
	<p>Demo</p> <ul style="list-style-type: none"> • Bitrate controller VBR • Quality highest • Set max exposure and min exposure allowed • Set max gain value allowed • Auto exposure selects shutter speed (between min and max exposure values) and gain (between 0db and max gain selection) to adjust exposure if light level or scene changes • Use case: Out of the box configuration for optimal video and image quality

Note:

- Demo Mode VBR Highest is the default out of the box (or after a factory reset)
- Exposure default buttons will default Exposure profile to Auto (it will not apply any bitrate changes)
- Demo mode will only revert back to VBR Highest on a Factory reset
- Demo mode to other values will change the bitrate to CVBR Max Bitrate 8000
- Other to Demo does not change the bitrate under any circumstance
- Other to Other does not change the bitrate under any circumstance
- When Exposure profiles sets new bitrate values, they will not automatically restart active stream to update to the new settings. Manual restart is required.

Auto

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set any iris position
- Set Max exposure and Min exposure allowed
- Set max gain value allowed
- Auto Exposure selects shutter speed (between min and max exposure values) and gain (between 0db and max gain selection) to adjust exposure if light level or scene changes
- Use case: To select a required depth of focus.. Selecting a high iris value will give a larger depth of focus so that objects close to and far from the camera can be in focus at the same time. Caution: With a high iris value the camera is not able to produce a bright image in very low light levels

Manual

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set any shutter speed, gain value and iris position
- Fixed exposure
- Does not auto adjust if light level or scene changes
- Use case: Fixed conditions where illumination and scene will not change. If the lighting or scene changes the apparent brightness of the image will change.

Shutter Priority

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set any shutter speed
- Set max gain value allowed
- Auto Exposure selects gain (between 0db and max gain selection) and iris position to adjust exposure if light level or scene changes
- Use case: Typically for use in scenes with motion, e.g. overlooking traffic.. Caution: The illumination required for this configuration would need to be quite consistent.

Iris Priority

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set any Iris position
- Set Max exposure and Min exposure allowed
- Set max gain value allowed
- Auto Exposure selects shutter speed (between min and max exposure values) and gain (between 0db and max gain selection) to adjust exposure if light level or scene changes
- Use case: To select a required depth of focus. Selecting a high iris value gives a larger depth of focus so that objects close to and far from the camera can be in focus at the same time. Caution: With a high iris value the camera is not able to produce a bright image in very low light levels

License Plate Recognition (LPR) low, mid and high

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set max gain value allowed
- Set min exposure allowed
- Low vs mid vs high, set slower or faster max exposure values
- Auto exposure selects iris position, shutter speed and gain to adjust exposure if light level or scene changes
- Use case: License Plate Recognition such as parking garages or other moving vehicle scenario where a fast shutter speed must be maintained to give sharper images, while the vehicle or object is moving, to help License Plate Recognition software.

Gaming

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set Stream 1 Framerate to 30 (if lower than)
- Set max gain value allowed
- Set min exposure allowed
- Set max exposure no slower than 1/30s (NTSC/60Hz) or 1/25s (PAL/50Hz)
- Use case: Casinos or other situations where Frame Rate must be no slower than 30fps (NTSC/60Hz) or 25fps (PAL/50Hz)

Indoor

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set max gain allowed
- Set max exposure allowed

- Set min exposure allowed
- Auto Exposure selects shutter speed (between min and max exposure values), gain (between 0db and max gain selection) and iris position to adjust exposure if light level or scene changes
- Use case: Office environment where light levels can change quickly

Outdoor

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set max gain allowed
- Set max exposure allowed
- Set min exposure allowed
- Auto Exposure selects shutter speed (between min and max exposure values), gain (between 0db and max gain selection) and iris position to adjust exposure if light level or scene changes
- Iris operation tailored to give larger depth of focus if conditions are bright enough
- Use case: Outdoor operation with or without IR illumination enabled

Note:

- Demo Mode VBR Highest is the default out of the box (or after a factory reset)
- Exposure default buttons will default Exposure profile to Auto (it will not apply any bitrate changes)
- Demo mode will only revert back to VBR Highest on a Factory reset
- Demo mode to other values will change the bitrate to CVBR Max Bitrate 8000
- Other to Demo does not change the bitrate under any circumstance
- Other to Other does not change the bitrate under any circumstance
- When Exposure profiles sets new bitrate values, they will not automatically restart active stream to update to the new settings. Manual restart is required.

5 Select the **Exposure Method** from the drop-down menu:

- **Full Picture Weighted**
- **Upper**
- **Lower**
- **Center Weighted**
- **Spot**
- **Left**
- **Right**

The default setting is center weighted.

6 Select the **Min Exposure** from the drop-down menu.
The default setting is 1/10000s.

- 7 Select the **Max Exposure** from the drop-down menu.
The default setting is 1/8s.
- 8 Select the **Exposure (sec)** from the drop-down menu.
The default setting is 1/8s.
- 9 Select the **Exposure Offset (F-Stops)** from the drop-down menu.
The default setting is 0.
- 10 Select the **Max Gain** from the drop-down menu.
The default setting is 51db.
- 11 Select the **Iris Level** from the drop-down menu.
The default setting is 1.


Note:The Iris Level differs depending on the camera.

- 12 Select the **Frequency** radio button for either **50Hz** or **60Hz**.
The default setting is 60Hz.
- 13 Select or clear the check box for **Flickerless Mode**.
This feature is not selected by default.
 - When you select **Flickerless Mode**, the minimum and maximum exposure times are locked to 1/100 and 1/50 respectively (PAL) or 1/120 and 1/60 respectively (NTSC). This applies to all cameras referenced in this guide.

- End -

Procedure 31 Restore Exposure Defaults

Step	Action
------	--------

- | | |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select Setup on the Web User Interface banner to display the setup menus. |
| 2 | Select the Picture Settings tab from the Basic Configuration menu. |
| 3 | Select  to start the video stream if it is not already active. |
| 4 | Select Exposure Defaults to restore the default settings. |

- End -

Gaming Mode

Specifically designed for multiple gaming industries, e.g., casino, Gaming Mode maintains Frame Rate as a priority to meet the demanding requirements of gaming environments. The default setting is OFF.

Note:Gaming mode can be enabled or disabled for the primary stream (Stream 1).

Note:If the camera requires FPS adjustment during Gaming mode, this can be applied through the recorder (using the Illustra API (IAPI)). The camera will continue to provide frame rate a priority at the new set FPS value.

Fixed Item	Fixed Value
Frame Rate	Fixed to 30 FPS
Max Exposure	Fixed to 1/30

Picture Additional

Configure Wide Dynamic Range, Day Night Mode, and Picture Adjustments including Brightness, Contrast, White Balance, Saturation and Sharpness which displays in the video pane.

Wide Dynamic Range

Wide Dynamic Range (WDR) is a feature that supports the viewing of high contrast scenes that include both bright and low light areas in the same field of view (FOV).

WDR Level allows you to adjust the WDR level to favor a underexposed or overexposed image. By selecting the lower end of the control, the image is underexposed which provides more detail in areas of bright but less details in areas of darkness. Selecting the higher end of the control, the image is overexposed which provides more detail in the dark areas but less details in the bright areas.

A typical use for this feature would be viewing a scene with both indoor and outdoor lighting conditions simultaneously, for example, in a warehouse area with an open bay door.

Smart Wide Dynamic

Smart Wide Dynamic Range is available in the Pro Gen3 Mini-Dome and reduces the configuration time while greatly improving the quality of the video stream in varying lighting environments. By effectively reading the scene, the Mini-Dome can adjust contrasting and overall scene balance without operator intervention or maintenance. Setup times are also reduced with the addition of application profiles that automatically adjust the camera's settings based on the environment.

Procedure 32 Disable/Enable Wide Dynamic Range (WDR)

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Additional tab from the Basic Configuration menu.
3	Select the required WDR from the drop-down list: <ul style="list-style-type: none"> • True WDR: Two shutter wide dynamic range, to compensate for bright and dark areas in the scene. • SWDR: Smart Wide Dynamic Range reduces the configuration time while greatly improving the quality of the video stream in varying lighting environments. • True WDR3x: Three shutter wide dynamic range, to compensate for bright and dark areas in the scene.
Note: True WDR3x is supported on the 2MP and 3MP models only.	
The default setting is SWDR.	
Note: Enabling TWDR on the 3MP cameras turns analogue video off.	

- End -

Day Night Mode

IR/DayNight Mode utilizes a series of specific camera functions to dramatically enhance low light performance.

When needed, the True TDN mechanism removes an IR Cut Filter (IRCF) from in front of the images allowing the camera to see in black and white (BW) and utilize additional near-infrared energy found in many lighting sources like halogen, moonlight, etc.

This, along with slowing down another function, the shutter speed, significantly improves low light performance rendering clear images where none could be viewed previously.

IR Illuminator

When the camera is in B/W mode it can utilize or see near-IR illumination; something the human eye cannot do. This can be extremely powerful when the dome is paired with 850~950nm IR illuminators. With this combination a scene can be well lit with IR light that the dome can see but people cannot. This is great for areas where externally lighting is not allowed or there is a need for covert security.

Procedure 33 Enable / Disable IR Illuminator

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Additional from the Basic Configuration menu.
3	Select the Enable IR Illuminator check box to enable IR Illuminator. OR Clear the Enable IR Illuminator check box to disable IR Illuminator . The default setting is 'Enabled'.
- End -	

Day Night Mode

The dome provides a black-and-white (B/W) mode to improve camera performance when the light level falls below certain thresholds. This allows clear images to be obtained under low-light conditions.

Procedure 34 Configure Day Night Mode

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Additional from the Basic Configuration menu.
3	Select a Day Night Mode setting from the drop-down menu: <ul style="list-style-type: none"> • Forced Color - enable full-time color mode. • Forced B&W - enable full-time black and white mode. • Auto Low- camera will adjust between BW and Color depending on light levels. • Auto Mid - camera give a good balance of Color and BW depending on the scene.

- **Auto High** - increases the chance of switching to BW mode as light levels drop.
- **Manual** - a slider bar will display, the user can adjust the setting to suit the environment.

The default setting is 'Auto Mid'.


- End -

Picture Adjustment

Adjust brightness, contrast and saturation of the image displayed on the video pane.

Procedure 35 Adjust the Brightness, Contrast and Saturation

Step	Action
------	--------

- | | |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select Setup on the Web User Interface banner to display the setup menus. |
| 2 | Select the Picture Additional tab from the Basic Configuration menu. |
| 3 | Select  to start the video stream if it is not already active.
The video pane will display the current camera view. |
| 4 | Use the slider bars to adjust: <ul style="list-style-type: none"> • Brightness • Contrast • Saturation • Sharpness • Hue |

The values range from 1% to 100%. The video pane updates to display the new settings.

- End -

Procedure 36 Restore Picture Balance Defaults

Step	Action
------	--------

- | | |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select Setup on the Web User Interface banner to display the setup menus. |
| 2 | Select the Picture Settings tab from the Basic Configuration menu. |
| 3 | Select Defaults to restore the default settings.
The default values are: <ul style="list-style-type: none"> • Brightness: 50% • Contrast: 50% • Saturation: 50% • Sharpness: 50% • Hue: 50% |


- End -

White Balance

White balance, the ability to keep whites looking white, is normally compensated for automatically using the default Auto White Balance setting.


Manual White Balance is available when specific color temperature settings want to be set and preserved. This can be done using the red and blue slider adjustments set for optimal viewing.

Procedure 37 Configure Auto White Balance

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Additional tab from the Basic Configuration menu.
3	Select  to start the video stream if it is not already active. The video pane displays the current camera view.
4	Select the required White Balance from the drop-down menu: <ul style="list-style-type: none"> • Auto Wide: Suitable for a wider than normal range of lighting conditions • Auto Normal Suitable for a normal range of lighting conditions • Manual: Adjustable red and blue balance

- End -

Procedure 38 Manually Select White Balance

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Additional tab from the Basic Configuration menu.
3	Select  to start the video stream if it is not already active. The video pane displays the current camera view.
4	Select Manual from the White Balance drop-down menu. The Red and Blue slider bars display.
5	Use the slider bars to adjust the Red and Blue balance. The live video pane updates to display the new settings. The red and blue values range from 1% to 100%. If you change the configuration to Manual , the slider bar reads the real-time setting of the FOV.

- End -

Lens Calibration

Use the lens calibration process to recover focus and zoom after motor stalling has occurred. Motor step stalling is rare, but it can occur during shipping or through mishandling of the camera. If the One Touch focus at Wide or Tele is not working through the zoom range, the camera requires lens

calibration. The lens calibration tool uses infinity focus curves to align the camera lens and correct problems focusing at Wide or Tele.

Lens calibration is automatic and you can run it from the **Lens Calibration** tab.

Procedure 39 Run a Lens Calibration

Step	Action
1	Select Setup on the Web Interface Banner to display the setup menus.
2	Select Picture Settings from the Video menu.
3	Select the Lens Calibration tab.
4	Select Start Calibration and wait for the camera lens initialization to complete.
5	To confirm the success of the lens calibration, select the Picture Basic tab from the Picture Settings menu and verify that the image is in focus through the zoom range. Use the OneTouch button to automatically focus the area.

- End -

Date / Time / OSD

Change the camera name, date and time and enable OSD.

Camera Name

The camera name displays on the Web User Interface banner and the on-screen display for the camera. This name also displays when using Illustra Connect or ONVIF.

Procedure 40 Changing the on screen camera text size

- 1 Select **Setup** on the Web User Interface banner to display the setup menus.
- 2 Select the **OSD** tab in the **Basic Configuration** menu.
- 3 In the **Text Size** section, select **Normal** to display the text in a normal size.
OR
In the **Text Size** section, select **Large** to display the text in a larger size.
The default setting is 'Normal'.

- End -

Procedure 41 Change the Camera Name

Step	Action
1	Select Setup on the Web User Interface banner.
2	Select the Date/Time/OSD tab in the Basic Configuration menu.
3	Enter the name of the camera in the Camera Friendly Name text box.

- End -

Date / Time

Set the date and time on the camera.

Procedure 42 Configuring the Date and Time

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Date/Time/OSD from the Basic Configuration menu.
3	Select the Time 24-hour check box to enable the 24-hour clock. Or Deselect the Time 24-hour check box to enable the 12-hour clock. The default setting is '24-hour'.
4	Select the Date Display Format from the drop-down menu: <ul style="list-style-type: none"> • DD/MM/YYYY • MM/DD/YYYY • YYYY/MM/DD The default setting is 'YYYY/MM/DD'.
5	Select the Time Zone from the drop-down menu. The default setting is '(GMT-05:00) Eastern Time (US & Canada)
6	Select the Set Time setting by selecting the radio buttons: <ul style="list-style-type: none"> • Manually • via NTP The default setting is 'Manually'.
7	If you select Manually in step 5: <ol style="list-style-type: none"> a Select the Date (DD/MM/YYYY) using the drop-down menus. b Select the Time (HH:MM:SS) using the drop-down menus.
8	If you select via NTP in step 5: <ol style="list-style-type: none"> a Enter the NTP Server Name in the text box.

- End -

On-Screen Display (OSD)

Within OSD you can set enable or disable camera name and time display.

Procedure 43 Display or Hide the Camera Name OSD

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the OSD tab in the Basic Configuration menu.
3	In the Camera Name section, select the Enable check box to display the camera name in the OSD. OR In the Camera Name section, clear the Enable check box to hide the camera name in the OSD. The default setting is 'Disabled'.

- End -

Procedure 44 Display or Hide the Camera Time OSD

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the OSD tab in the Basic Configuration menu.
3	In the Date Time section, select the Enable check box to display the camera name in the OSD. OR In the Date Time section, clear the Enable check box to hide the camera name in the OSD. The default setting is 'Disabled'.

- End -

Procedure 45 Display or Hide the User Defined OSD

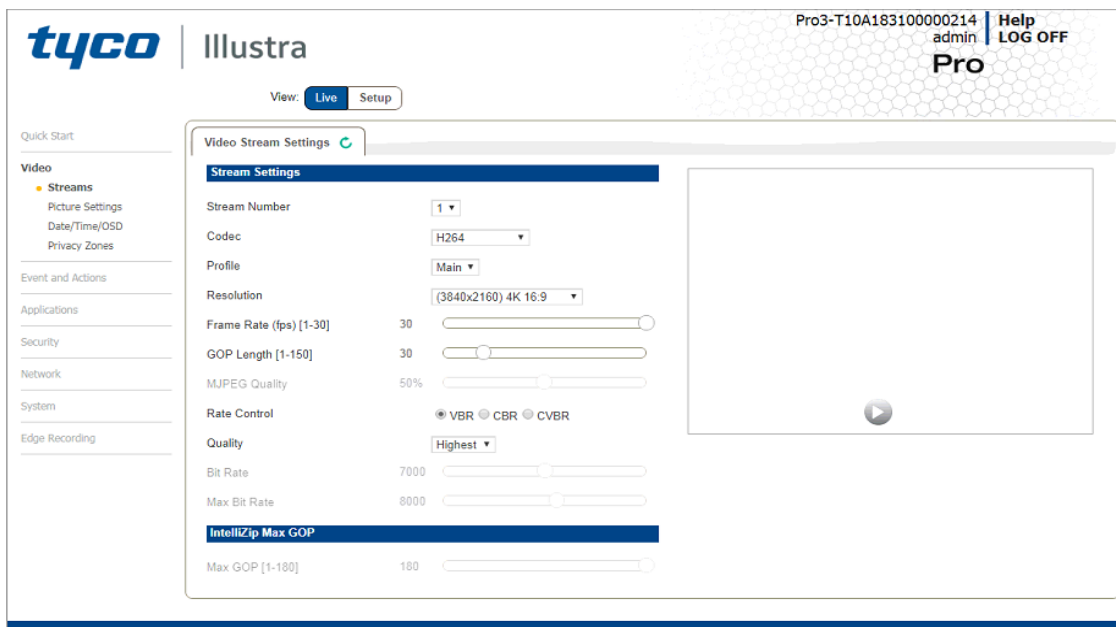
Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the OSD tab in the Basic Configuration menu.
3	In the User Defined section, select the Enable check box to display the camera name in the OSD. OR In the User Defined section, clear the Enable check box to hide the camera name in the OSD. The default setting is 'Disabled'.
4	Select a Location from the drop-down menu.
5	Enter a name in the Name field. The OSD User Defined fields must comply with the following validation criteria: <ul style="list-style-type: none">• 0 - 24 characters• Cannot begin or end with:<ul style="list-style-type: none">• . (dot)• - (hyphen)• _ (underscore)• \ (backslash)• " (quotes)

- End -

Video Menu

When you select the **Video** menu, the **Streams** page displays, as seen in Figure 39 on page 63.

Figure 39 Video Menu



The **Video** Menu provides access to the following camera settings and functions:

- Streams
- Picture Settings
- Date / Time / OSD
- Privacy Zones

Streams

You can configure up to four independent video streams on the camera: Stream 1, Stream 2, Stream 3 and Stream 4.

Note: The Web User Interface uses Stream 4.

Alarm Video

Edge Recording

Camera can directly record specific events (MD, DIO and Face detection) directly to Micro SD card. User can chose either Stream 1, 2 or 3 to be recorded. When setting up motion detection on the camera, both streams can be used. Alarm Video is configured in the Edge Recording > Record Settings menu.

Integration with other Illustra API Clients

You can configure the 3 video streams through the Web User Interface, as detailed here, or through the Illustra API interface. Changes made to the streams through either method are applied and the video displays according to the configuration.

Opening the Web User Interface live video allows the stream to be shared with the Illustra API and will minimize the impact on camera resources.

Configuring the Video Stream

Adjust the settings for each video stream.

Procedure 46 Configure the Video Stream settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Video Stream Settings tab in the Video menu.
3	Select Stream1, 2, 3 or 4 , from the Stream Number drop-down menu.
Note: Stream 4 is not fully configurable. Its main purpose is the GUI live view.	
4	Select the required Codec from the drop-down list: <ul style="list-style-type: none"> • H264 • H264 IntelliZip • H265 • H265 IntelliZip • MJPEG The default setting is 'H264'.
Note: When you select H264 or H264 IntelliZip you can set the Profile. If you do not select either of these options then continue at step 6 below.	
5	Select the required Profile from the drop-down list: <ul style="list-style-type: none"> • Main • High The default setting is 'Main'.
6	Select the required Resolution from the drop-down menu. The resolutions available depend on the model selected:

Table 40 2MP Camera Stream Set A (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Normal Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264, h.264 Intellizip	1920 x 1080	(1080p) 16:9	60	30	15
	h.265, h.265 Intellizip	1664 x 936	(HD+) 16:9	60	30	15
	h.265 Intellizip	1280 x 720	(720p) 16:9	60	30	15
	MJPEG					
Stream 2	h.264, h.264 Intellizip	1280 x 720	(720p) 16:9	30	30	15
	h.264 Intellizip	1024 x 576	(PAL+) 16:9	30	30	15
	h.265, h.265 Intellizip	960 x 544	(qHD) 16:9	30	30	15
	h.265 Intellizip	816 x 464	16:9	30	30	15
	MJPEG	640 x 360	(nHD) 16:9	30	30	15
	MJPEG	480 x 272	16:9	30	30	15
Stream 3	h.264, h.264 Intellizip	640 x 360	16:9	30	30	15
	h.265, h.265 Intellizip	480 x 272	16:9	30	30	15
	MJPEG					
	MJPEG					
Stream 4	MJPEG	640 x 368	16:9	7	7	7

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Table 41 2MP Camera Stream Set B (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Corridor Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264, h.264 Intellizip	1920 x 1080	(1080p) 16:9	30	30	15
	h.265, h.265 Intellizip	1664 x 936	(HD+) 16:9	30	30	15
	MJPEG	1280 x 720	(720p) 16:9	30	30	15
Stream 2	h.264, h.264 Intellizip	1280 x 720	(720p) 16:9	30	30	15
	h.265, h.265 Intellizip	1024 x 576	(PAL+) 16:9	30	30	15
	MJPEG	960 x 544	(qHD) 16:9	30	30	15
	h.264, h.264 Intellizip	816 x 464	16:9	30	30	15
	MJPEG	640 x 360	(nHD) 16:9	30	30	15
Stream 3	h.264, h.264 Intellizip	480 x 272	16:9	30	30	15
	h.265, h.265 Intellizip	480 x 272	16:9	30	30	15
Stream 4	MJPEG	640 x 368	16:9	7	7	7

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Table 42 3MP Camera Stream Set A (all resolution, codes and frame rate combinations of Stream 1, 2, 3 and 4 are valid)

		Normal Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264,	2048 x 1536	4:3	30	30	30
	h.264 Intellizip	1920 x 1080	(1080p) 16:9	60	30	30
	h.265,	1664 x 936	(HD+) 16:9	60	30	30
	h.265 Intellizip	1280 x 960	4:3	60	30	30
	MJPEG	1280 x 720	(720p) 16:9	60	30	30
Stream 2	h.264,	1280 x 720	(720p) 16:9	30	30	30
	h.264 Intellizip	800 x 600	(SVGA) 4:3	30	30	30
	h.265,	640 x 840	(VGA) 4:3	30	30	30
	h.265 Intellizip	480 x 360	4:3	30	30	30
	MJPEG	384 x 288	4:3	30	30	30
Stream 3	h.264,	640 x 840	16:9	30	30	30
	h.264 Intellizip		4:3	30	30	30
	h.265,	384 x 288	4:3	30	30	30
	h.265 Intellizip		4:3	30	30	30
MJPEG						
Stream 4	MJPEG	640 x 368	16:9	7	7	7

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:Enabling TWDR on the 3MP cameras turns analogue video off.

Table 43 3MP Camera Stream Set B (all resolution, codes and frame rate combinations of Stream 1, 2, 3 and 4 are valid)

		Corridor Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264,	2048 x 1536	4:3	30	30	30
	h.264 Intellizip	1920 x 1080	(1080p) 16:9	30	30	30
	h.265,	1664 x 936	(HD+) 16:9	30	30	30
	h.265 Intellizip	1280 x 960	4:3	30	30	30
	MJPEG	1280 x 720	(720p) 16:9	30	30	30
Stream 2	h.264,	1280 x 720	(720p) 16:9	30	30	30
	h.264 Intellizip	800 x 600	(SVGA) 4:3	30	30	30
	h.265,	640 x 840	(VGA) 4:3	30	30	30
	h.265 Intellizip	480 x 360	4:3	30	30	30
	MJPEG	384 x 288	4:3	30	30	30
Stream 3	h.264,	640 x 840	16:9	30	30	30
	h.264 Intellizip		4:3			
	h.265,	384 x 288	4:3	30	30	30
	h.265 Intellizip		4:3			
Stream 4	MJPEG	640 x 368	16:9	7	7	7

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:Enabling TWDR on the 3MP cameras turns analogue video off.

Table 44 5MP Camera Stream Set A (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Normal Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264,	2592 x 1944	4:3	30	30	-
	h.264 Intellizip	2560 x 1440	16:9	30	30	-
	h.265,	2048 x 1536	4:3	30	30	-
	h.265 Intellizip	1920 x 1080	(1080p) 16:9	60	30	-
	MJPEG	1664 x 934	(HD+) 16:9	60	30	-
		1280 x 960	4:3	60	30	-
Stream 2	h.264,	1280 x 720	(720p) 16:9	30	30	-
	h.264 Intellizip	800 x 600	(SVGA) 4:3	30	30	-
	h.265,	640 x 480	(VGA) 4:3	30	30	-
	h.265 Intellizip	480 x 360	4:3	30	30	-
	MJPEG	384 x 288	4:3	30	30	-
Stream 3	h.264,	640 x 360	16:9	30	30	-
	h.264 Intellizip	480 x 360	4:3	30	30	-
	h.265,	384 x 288	4:3	30	30	-
	h.265 Intellizip					
MJPEG						
Stream 4	MJPEG	640 x 368 *1	16:9	7	7	-

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:*1 - The aspect ratio of stream 4 will match the aspect ratio of stream 1.

Table 45 5MP Camera Stream Set B (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Corridor Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264,	2592 x 1944	4:3	30	30	-
	h.264 Intellizip	2560 x 1440	16:9	30	30	-
	h.265,	2048 x 1536	4:3	30	30	-
	h.265 Intellizip	1920 x 1080	(1080p) 16:9	30	30	-
	MJPEG	1664 x 934	(HD+) 16:9	30	30	-
		1280 x 960	4:3	30	30	-
Stream 2	h.264,	1280 x 720	(720p) 16:9	30	30	-
	h.264 Intellizip	800 x 600	(SVGA) 4:3	30	30	-
	h.265,	640 x 480	(VGA) 4:3	30	30	-
	h.265 Intellizip	480 x 360	4:3	30	30	-
	MJPEG	384 x 288	4:3	30	30	-
Stream 3	h.264,	640 x 360	16:9	30	30	-
	h.264 Intellizip	480 x 360	4:3	30	30	-
	h.265 Intellizip	384 x 288	4:3	30	30	-
	MJPEG					
Stream 4	MJPEG	640 x 368 *1	16:9	7	7	-

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:*1 - The aspect ratio of stream 4 will match the aspect ratio of stream 1.

Table 46 8MP Camera Stream Set A (all resolution, codes and frame rate combinations of Stream 1, 2, 3 and 4 are valid)

		Normal Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR 2x	TWDR 3x
Stream 1	h.264,	3840 x 2160	4K 16:9	30	25	-
	h.265	3264 X 1840	16:9	30	25	-
		2688 X 1520	16:9	30	25	-
	h.264,	1920 x 1080	(1080p) 16:9	60	30	-
	h.264 Intellizip					
	h.265,					
h.265 Intellizip	1664 x 936	(HD+) 16:9	60	30	-	
MJPEG	1280 x 960	(720p) 16:9	60	30	-	
Stream 2	h.264,	1280 x 720	(720p) 16:9	30*1	30*1	-
	h.264 Intellizip	1024 x 576	(PAL+) 16:9	30*1	30*1	-
	h.265,	960 x 544	(qHD) 16:9	30*1	30*1	-
	h.265 Intellizip	816 x 464	16:9	30*1	30*1	-
	MJPEG	640 x 360	(nHD) 16:9	30*1	30*1	-
		480 x 272	16:9	30*1	30*1	-
Stream 3	h.264,	640 x 360	16:9	30*2	30*2	-
	h.264 Intellizip		16:9	30*2	30*2	-
	h.265,	480 x 272	16:9	30*2	30*2	-
	h.265 Intellizip					
MJPEG						
Stream 4	MJPEG	640 x 368	16:9	7	7	-

Note:*1 Stream 2 is restricted to 15 FPS when Stream 1 resolution is greater than 1920x1080

Note:*2 - Stream 3 is restricted to 10 FPS when Stream 1 resolution is greater than 1920x1080

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:Enabling TWDR on the 8MP camera requires Analogue Video to be disabled.

Note:Enabling TWDR will restrict the frame rate of Stream 1 to 25 FPS if the resolution is higher than 1920x1080.

Figure 47 8MP Camera Stream Set B (all resolution, codes and frame rate combinations of Stream 1, 2, 3 and 4 are valid)

		Corridor Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR 2x	TWDR 3x
Stream 1	h.264,	3840 x 2160	4K 16:9	30	25	-
	h.265	3264 X 1840	16:9	30	25	-
		2688 X 1520	16:9	30	25	-
	h.264,	1920 x 1080	(1080p) 16:9	30	30	-
	h.264 Intellizip					
	h.265,					
h.265 Intellizip	1664 x 936	(HD+) 16:9	30	30	-	
MJPEG	1280 x 960	(720p) 16:9	30	30	-	
Stream 2	h.264,	1280 x 720	(720p) 16:9	30*1	30*1	-
	h.264 Intellizip	1024 x 576	(PAL+) 16:9	30*1	30*1	-
	h.265,	960 x 544	(qHD) 16:9	30*1	30*1	-
	h.265 Intellizip	816 x 464	16:9	30*1	30*1	-
	MJPEG	640 x 360	(nHD) 16:9	30*1	30*1	-
		480 x 272	16:9	30*1	30*1	-
Stream 3	h.264,	640 x 360	16:9	30*2	30*2	-
	h.264 Intellizip		16:9	30*2	30*2	-
	h.265,	480 x 272	16:9	30*2	30*2	-
	h.265 Intellizip					
MJPEG						
Stream 4	MJPEG	640 x 368	16:9	7	7	-

Note:*1 **Stream 2** is restricted to 15 FPS when Stream 1 resolution is greater than 1920x1080

Note:*2 - **Stream 3** is restricted to 10 FPS when Stream 1 resolution is greater than 1920x1080

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:Enabling TWDR on the 8MP camera requires Analogue Video to be disabled.

Note:Enabling TWDR will restrict the frame rate of Stream 1 to 25 FPS if the resolution is higher than 1920x1080.

7 Use the slider bar to select the **Frame Rate (fps)**.

The settings for 2MP cameras are:

- **Stream 1** - 1 - 30 fps, default 30 fps.
- **Stream 2** - 1 - 30 fps, default is 30 fps.
- **Stream 3** - 1 - 30 fps, default is 30 fps.
- **Stream 4** - 7 fps, default is 7 fps.

The settings for 3MP cameras are:

- **Stream 1** - 1 - 60 fps, default 30 fps.
- **Stream 2** - 1 - 30 fps, default is 30 fps.
- **Stream 3** - 1 - 30 fps, default is 30 fps.
- **Stream 4** - 7 fps, default is 7 fps.

The settings for 5MP cameras are:

- **Stream 1** - 1 - 60 fps, default 30 fps.
- **Stream 2** - 1 - 30 fps, default is 30 fps.
- **Stream 3** - 1 - 30 fps, default is 30 fps.
- **Stream 4** - 7 fps, default is 7 fps.

The settings for 8MP cameras are:

- **Stream 1** - 1 - 60 fps, default 30 fps.
- **Stream 2** - 1 - 30 fps, default is 30 fps.
- **Stream 3** - 1 - 30 fps, default is 30 fps.
- **Stream 4** - 7 fps, default is 7 fps.

Note: FPS varies depending on other features - refer to the Pro Gen3 Release Notes for further information.

- 8 If MJPEG has been selected, MJPEG Quality enables. Use the slider bar to select the **MJPEG Quality**.

The default setting is 50.

OR

- 9 If H264 has been selected in step 4, Rate Control will be enabled. Select the required **Rate Control** by selecting the radio buttons:

- **VBR (Variable Bit Rate)**
- **CBR (Constant Bit Rate)**
- **CVBR (Constrained Variable Bit Rate)**

The default setting is 'VBR'.

- a If VBR has been selected, VBR Quality is enabled. Select the required **VBR Quality** from the drop-down menu. The default setting is 'High'.

- **Highest**
- **High**
- **Medium**
- **Low**
- **Lowest**

OR

- b If CBR has been selected, CBR Bit Rate will be enabled. Use the slider bar to select the **CBR Bit Rate**. The default setting is 1000.

OR

- c If you select CVBR, Max Bit Rate is enabled. Use the slider bar to select the **Max Bit Rate**. The default setting is 8000.

- 10 If selecting Intellizip coded the camera offers a max GOP configuration. Use the slider bar to select the Max GOP range. Range available is 1-180. The default is 62.

- End -

Picture Settings

Picture Basic

Adjust the Picture Rotation, Focus / Zoom, Exposure and White Balance settings.

Picture Rotation

Configure the orientation and corridor mode settings. Both settings are optional.

Procedure 47 Configure Orientation Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Basic tab from the Video menu.
3	Select the required Orientation setting: <ul style="list-style-type: none"> • Mirror • Flip Mirror and Flip settings are not selected by default. The video pane updates to display the new settings.
<p>Note:When wall mounting the camera you should select Flip to correct the lens orientation.</p>	

- End -


Focus/Zoom

The Focus is manually configured on initial setup. The **One Touch** button can be used to automatically focus the area of view. The plus and minus arrows are used to manually fine tune the image. The Zoom slider bar is used to manually zoom in and out to manually configure to picture. The table below describes the features supported by each camera.


Table 48 Lens features supported for the Outdoor Dome cameras

	Outdoor Dome	Bullet
Mechanical Focus		
Motorized Focus	X	X
Mechanical Zoom		
Motorized Zoom	X	X
Lens Calibration	X	X
Auto One Touch	X	X
Configurable Continuous Auto-Focus		

Procedure 48 Adjust Camera Focus / Zoom

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Basic tab from the Basic Configuration menu.
3	Select  to start the video stream if it is not already active.
4	Use the plus and minus arrows to manually configure the focus and the slider bar to adjust zoom settings until the image in clear. The video pane updates to display the new settings.
- End -	

Procedure 49 Adjust Camera Focus using OneTouch Autofocus

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Basic tab from the Basic Configuration menu.
3	Select  to start the video stream if it is not already active.
4	In the Focus/Zoom section, click the One Touch button. The camera refocuses to the zoom level selected for the image. The video pane updates to display the new settings.


Note: The user can create a ROI focus point for the camera to use during the one touch procedure - use the pencil icon and highlight the desired ROI.

- End -

Exposure

Configure the exposure settings for the camera.

Procedure 50 Configure Exposure Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Settings tab from the Basic Configuration menu.
3	Select  to start the video stream if it is not already active.
4	Select the Exposure Profiles from the drop-down menu: See Exposure Profile descriptions below: Demo <ul style="list-style-type: none"> • Bitrate controller VBR • Quality highest • Set max exposure and min exposure allowed • Set max gain value allowed • Auto exposure selects shutter speed (between min and max exposure values) and gain (between 0db and max gain selection) to adjust exposure if light level or scene changes • Use case: Out of the box configuration for optimal video and image quality

Note:

- Demo Mode VBR Highest is the default out of the box (or after a factory reset)
- Exposure default buttons will default Exposure profile to Auto (it will not apply any bitrate changes)
- Demo mode will only revert back to VBR Highest on a Factory reset
- Demo mode to other values will change the bitrate to CVBR Max Bitrate 8000
- Other to Demo does not change the bitrate under any circumstance
- Other to Other does not change the bitrate under any circumstance.
- When Exposure profiles sets new bitrate values, they will not automatically restart active stream to update to the new settings. Manual restart is required.

Auto

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set any iris position
- Set Max exposure and Min exposure allowed
- Set max gain value allowed
- Auto Exposure selects shutter speed (between min and max exposure values) and gain (between 0db and max gain selection) to adjust exposure if light level or scene changes

- Use case: To select a required depth of focus.. Selecting a high iris value will give a larger depth of focus so that objects close to and far from the camera can be in focus at the same time. Caution: With a high iris value the camera is not able to produce a bright image in very low light levels

Manual

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set any shutter speed, gain value and iris position
- Fixed exposure
- Does not auto adjust if light level or scene changes
- Use case: Fixed conditions where illumination and scene will not change. If the lighting or scene changes the apparent brightness of the image will change.

Shutter Priority

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set any shutter speed
- Set max gain value allowed
- Auto Exposure selects gain (between 0db and max gain selection) and iris position to adjust exposure if light level or scene changes
- Use case: Typically for use in scenes with motion, e.g. overlooking traffic.. Caution: The illumination required for this configuration would need to be quite consistent.

Iris Priority

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set any Iris position
- Set Max exposure and Min exposure allowed
- Set max gain value allowed
- Auto Exposure selects shutter speed (between min and max exposure values) and gain (between 0db and max gain selection) to adjust exposure if light level or scene changes
- Use case: To select a required depth of focus. Selecting a high iris value gives a larger depth of focus so that objects close to and far from the camera can be in focus at the same time. Caution: With a high iris value the camera is not able to produce a bright image in very low light levels

License Plate Recognition (LPR) low, mid and high

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set max gain value allowed

- Set min exposure allowed
- Low vs mid vs high, set slower or faster max exposure values
- Auto exposure selects iris position, shutter speed and gain to adjust exposure if light level or scene changes
- Use case: License Plate Recognition such as parking garages or other moving vehicle scenario where a fast shutter speed must be maintained to give sharper images, while the vehicle or object is moving, to help License Plate Recognition software.

Gaming

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set Stream 1 Framerate to 30 (if lower than)
- Set max gain value allowed
- Set min exposure allowed
- Set max exposure no slower than 1/30s (NTSC/60Hz) or 1/25s (PAL/50Hz)
- Use case: Casinos or other situations where Frame Rate must be no slower than 30fps (NTSC/60Hz) or 25fps (PAL/50Hz)

Indoor

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set max gain allowed
- Set max exposure allowed
- Set min exposure allowed
- Auto Exposure selects shutter speed (between min and max exposure values), gain (between 0db and max gain selection) and iris position to adjust exposure if light level or scene changes
- Use case: Office environment where light levels can change quickly

Outdoor

- Set camera Bitrate controller to CVBR
- Set Max Bitrate to 8000
- Set max gain allowed
- Set max exposure allowed
- Set min exposure allowed
- Auto Exposure selects shutter speed (between min and max exposure values), gain (between 0db and max gain selection) and iris position to adjust exposure if light level or scene changes
- Iris operation tailored to give larger depth of focus if conditions are bright enough
- Use case: Outdoor operation with or without IR illumination enabled

Note:

- Demo Mode VBR Highest is the default out of the box (or after a factory reset)
- Exposure default buttons will default Exposure profile to Auto (it will not apply any bitrate changes)
- Demo mode will only revert back to VBR Highest on a Factory reset
- Demo mode to other values will change the bitrate to CVBR Max Bitrate 8000
- Other to Demo does not change the bitrate under any circumstance
- Other to Other does not change the bitrate under any circumstance
- When Exposure profiles sets new bitrate values, they will not automatically restart active stream to update to the new settings. Manual restart is required.

5 Select the **Exposure Method** from the drop-down menu:

- **Full Picture Weighted**
- **Upper**
- **Lower**
- **Center Weighted**
- **Spot**
- **Left**
- **Right**

The default setting is Center Weighted.

6 Select the **Min Exposure** from the drop-down menu.
The default setting is 1/10000s.

7 Select the **Max Exposure** from the drop-down menu.
The default setting is 1/8s.

8 Select the **Exposure Offset (F-Stops)** from the drop-down menu.
The default setting is 0.

9 Select the **Max Gain** from the drop-down menu.
The default setting is 51db.

10 Select the **Iris Level** from the drop-down menu.
The default setting is 1.

Note:The Iris Level differs depending on the camera.


11 Select the **Frequency** radio button for either **50Hz** or **60Hz**.
The default setting is 60Hz.

12 Select or clear the check box for **Flickerless Mode**.
This feature is not selected by default.

- When you select **Flickerless Mode**, the minimum and maximum exposure times are locked to 1/100 and 1/50 respectively (PAL) or 1/120 and 1/60 respectively (NTSC). This applies to all cameras referenced in this guide.

- End -

Procedure 51 Restore Exposure Defaults

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Settings tab from the Basic Configuration menu.
3	Select  to start the video stream if it is not already active.
4	Select Exposure Defaults to restore the default settings.

- End -

Picture Additional

Configure Wide Dynamic Range, Day Night Mode, Flicker Control and Picture Adjustments including Brightness, Contrast, White Balance, Saturation and Sharpness displayed in the video pane.

Wide Dynamic Range

Wide Dynamic Range (WDR) is a feature that allows viewing of high contrast scenes that include both bright and low light areas in the same field of view (FOV).

WDR Level allows you to adjust the WDR level to favor an underexposed or overexposed image. By selecting the lower end of the control, the image is underexposed which provides more detail in areas of bright but less details in areas of darkness. Selecting the higher end of the control, the image is overexposed which provides more detail in the dark areas but less details in the bright areas.

A typical use for this feature would be viewing a scene with both indoor and outdoor lighting conditions simultaneously, for example, in a warehouse area with an open bay door.

Smart Wide Dynamic

Smart Wide Dynamic Range is available in the Pro Gen3 Mini-Dome and reduces the configuration time while greatly improving the quality of the video stream in varying lighting environments. By effectively reading the scene, the Mini-Dome can adjust contrasting and overall scene balance without operator intervention or maintenance. Setup times are also reduced with the addition of application profiles that automatically adjust the camera's settings based on the environment.

Procedure 52 Disable/Enable Wide Dynamic Range (WDR)

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Additional tab from the Picture Settings menu.
3	Select the required WDR from the drop-down list: <ul style="list-style-type: none"> • True WDR: Two shutter wide dynamic range, to compensate for bright and dark areas in the scene. • SWDR: Smart Wide Dynamic Range reduces the configuration time while greatly improving the quality of the video stream in varying lighting environments. • True WDR3x: Three shutter wide dynamic range, to compensate for bright and dark areas in the scene.

Note: True WDR3x is supported on the 2MP and 3MP models only.

The default setting is SWDR.

Note: Enabling TWDR on the 3MP cameras turns analogue video off.

- End -

Day Night Mode

IR/DayNight Mode utilizes a series of specific camera functions to dramatically enhance low light performance.

When needed, the True TDN mechanism removes an IR Cut Filter (IRCF) from in front of the images allowing the camera to see in black and white (BW) and utilize additional near-infrared energy found in many lighting sources like halogen, moonlight, etc.

This, along with slowing down another function, the shutter speed, significantly improves low light performance rendering clear images where none could be viewed previously.

IR Illuminator

When the camera is in B/W mode it can utilize or “see” near-IR illumination; something the human eye cannot do. This can be extremely powerful when the dome is paired with 850~950nm IR illuminators. With this combination a scene can be well lit with IR light that the dome can see but people cannot. This is great for areas where externally lighting is not allowed or there is a need for covert security.

Procedure 53 Enable / Disable IR Illuminator

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Additional from the Basic Configuration menu.
3	Select the Enable IR Illuminator check box to enable IR Illuminator.
	OR
	Clear the Enable IR Illuminator check box to disable IR Illuminator . The default setting is 'Disabled'.

- End -

Day Night Mode

The dome provides a black-and-white (B/W) mode to improve camera performance when the light level falls below certain thresholds. This allows clear images to be obtained under low-light conditions.

Procedure 54 Configure Day Night Mode

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Additional from the Basic Configuration menu.
3	Select a Day Night Mode setting from the drop-down menu: <ul style="list-style-type: none">• Forced Color - enable full-time color mode.


- **Forced B&W** - enable full-time black and white mode.
- **Auto Low**- camera will adjust between BW and Color depending on light levels.
- **Auto Mid** - camera give a good balance of Color and BW depending on the scene.
- **Auto High** - increases the chance of switching to BW mode as light levels drop.
- **Manual** - a slider bar displays, the user can adjust the setting to suit the environment.

The default setting is 'Auto Mid'.

Picture Adjustment

Adjust brightness, contrast, and saturation of the image displaying on the video pane.

Procedure 55 Adjust the Brightness, Contrast and Saturation

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Additional tab from the Basic Configuration menu.
3	Select  to start the video stream if it is not already active. The video pane displays the current camera view.
4	Use the slider bars to adjust: <ul style="list-style-type: none"> • Brightness • Contrast • Saturation • Sharpness • Hue The values range from 1% to 100%. The video pane updates to display the new settings.

- End -

Procedure 56 Restore Picture Balance Defaults

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Picture Settings tab from the Basic Configuration menu.
3	Select Defaults to restore the default settings. The default values are: <ul style="list-style-type: none"> • Brightness: 50% • Contrast: 50% • Saturation: 50% • Sharpness: 50%

- **Hue:** 50%

- End -


White Balance

White balance, the ability to keep whites looking white, is normally compensated for automatically via the default Auto White Balance setting.

Manual White Balance is available when specific color temperature settings want to be set and preserved. This can be done using the red and blue slider adjustments set for optimal viewing.

Procedure 57 Configure Auto White Balance


Step	Action
------	--------

- | | |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select Setup on the Web User Interface banner to display the setup menus. |
| 2 | Select the Picture Additional tab from the Basic Configuration menu. |
| 3 | Select  to start the video stream if it is not already active.
The video pane displays the current camera view. |
| 4 | Select the required White Balance from the drop-down menu: <ul style="list-style-type: none">• Auto Wide: Suitable for a wider than normal range of lighting conditions• Auto Normal: Suitable for a normal range of lighting conditions• Manual: Adjustable red and blue balance The default setting is 'AutoNormal'. |

- End -

Procedure 58 Manually Select White Balance

Step	Action
------	--------

- | | |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select Setup on the Web User Interface banner to display the setup menus. |
| 2 | Select the Picture Additional tab from the Basic Configuration menu. |
| 3 | Select  to start the video stream if it is not already active.
The video pane displays the current camera view. |
| 4 | Select Manual from the White Balance drop-down menu.
The Red and Blue slider bars display. |
| 5 | Use the slider bars to adjust the Red and Blue balance.
The live video pane updates to display the new settings.
The red and blue values range from 1% to 100%.
If you change the configuration to Manual , the slider bar reads the real-time setting of the FOV. |

- End -

Image Profiles

The Image Profiles feature enables users to capture, export and restore selected picture settings configurations from a previously saved data file. The data file can be saved to a specified location and used to restore the camera picture settings configuration.

Procedure 59 Capturing a profile

Step	Action
------	--------

- 1 Select **Setup** on the Web Interface Banner to display the setup menus.
- 2 Select the **Picture Basic** or **Picture Additional** tab from the **Picture Settings** menu.
- 3 Configure the required settings.

Note:Frequency and Wide Dynamic Range settings are not supported.

- 4 Select the **Image Profiles** tab from the **Picture Settings** menu.
- 5 Select **Save** in the **Capture Profile** section. The user is prompted to choose a location to save the file.

- End -

Procedure 60 Uploading a profile

Step	Action
------	--------

- 1 Select **Setup** on the Web Interface Banner to display the setup menus.
- 2 Select the **Image Profiles** tab from the **Picture Settings** menu.
- 3 Select **Browse** in the **Upload Profile** section and navigate to saved data file.
- 4 Select **Upload**.
- 5 If the upload is successful, the profile is automatically applied to the camera and will be visible in the **Image Profiles** drop down list.

- End -

Procedure 61 Applying a profile

Step	Action
------	--------

- 1 Select uploaded profile from the **Image Profiles** drop down menu.
- 2 Select **Set**.

- End -

Procedure 62 Deleting a profile

Step	Action
------	--------

- 1 Select uploaded profile from the **Image Profiles** drop down menu.
- 2 Select **Delete**.

- End -

Lens Calibration

Use the lens calibration process to recover focus and zoom after motor stalling has occurred. Motor step stalling is rare but it can occur during shipping or through mishandling of the camera. If the One Touch focus at Wide or Tele is not working through the zoom range, the camera requires lens calibration. The lens calibration tool uses infinity focus curves to align the camera lens and correct problems focusing at Wide or Tele.

You can run a lens calibration from the **Lens Calibration** tab.

Procedure 63 Run a Lens Calibration

Step	Action
1	Select Setup on the Web Interface Banner to display the setup menus.
2	Select Picture Settings from the Video menu.
3	Select the Lens Calibration tab.
4	Select Start Calibration and wait for the camera lens initialization to complete.
5	To confirm the success of the lens calibration, select the Picture Basic tab from the Picture Settings menu and verify that the image is in focus through the zoom range. Use the OneTouch button to automatically focus the area of view highlighted in the yellow box displayed in the video pane.

- End -

Date / Time / OSD

Change the Camera Name, Date and Time and enable On-Screen Display (OSD).

Camera Name

The camera name will be displayed on the Web User Interface banner and the on-screen display for the camera. This name will also be displayed when using Illustra Connect or ONVIF.

Procedure 64 Changing the on screen camera text size

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the OSD tab in the Basic Configuration menu.
3	In the Text Size section, select Normal to display the text in a normal size. OR In the Text Size section, select Large to display the text in a larger size. The default setting is 'Normal'.

- End -

Procedure 65 Change the Camera Name

Step	Action
1	Select Setup on the Web User Interface banner.
2	Select Date/Time/OSD from the Video menu.
3	Enter the name of the camera in the Camera Friendly Name text box.

- End -

Date / Time

Set the date and time on the camera.

Procedure 66 Configuring the Date and Time

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Date/Time/OSD from the Video menu.
3	Select the Time 24-hour check box to enable the 24-hour clock. Or Deselect the Time 24-hour check box to enable the 12-hour clock. The default setting is '24-Hour'.
4	Select the Date Display Format from the drop-down menu: <ul style="list-style-type: none"> • DD/MM/YYYY • MM/DD/YYYY • YYYY/MM/DD The default setting is 'YYYY/MM/DD'.
5	Select the Time Zone from the drop-down menu. The default setting is '(GMT-05:00) Eastern Time (US & Canada)'
6	Select the Set Time setting by selecting the radio buttons: <ul style="list-style-type: none"> • Manually • via NTP The default setting is 'Manually'.
7	If you select Manually in step 5: <ol style="list-style-type: none"> a Select the Date (DD/MM/YYYY) using the drop-down menus. b Select the Time (HH:MM:SS) using the drop-down menus.
8	If you select via NTP in step 5: <ol style="list-style-type: none"> a Enter the NTP Server Name in the text box.

- End -

On-Screen Display (OSD)

Within OSD you can set enable or disable camera name and time display.

Procedure 67 Display or Hide the Camera Name

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Date/Time/OSD tab in the Basic Configuration menu.
3	Select the Camera Name check box to display the camera name in the OSD. OR Deselect the Camera Name check box to hide the camera name in the OSD. The default setting is 'Disabled'.
- End -	

Procedure 68 Display or Hide the Camera Time

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Date/Time/OSD tab in the Basic Configuration menu.
3	Select the Time check box to display the camera name in the OSD. OR Deselect the Time check box to hide the camera name in the OSD. The default setting is 'Disabled'.
- End -	

Procedure 69 Display or Hide the User Defined OSD

- 1 Select **Setup** on the Web User Interface banner to display the setup menus.
- 2 Select the **OSD** tab in the **Basic Configuration** menu.
- 3 In the **User Defined** section, select the **Enable** check box to display the camera name in the OSD.
OR
In the **User Defined** section, clear the **Enable** check box to hide the camera name in the OSD.
The default setting is 'Disabled'.
- 4 Select a **Location** from the drop-down menu.
- 5 Enter a name in the **Name** field.
The OSD User Defined fields must comply with the following validation criteria:
 - 0 - 24 characters
 - Cannot begin or end with:
 - . (dot)
 - - (hyphen)
 - _ (underscore)
 - \ (backslash)

- " (quotes)

- End -

Privacy Zones

Privacy Zones are “masked” sections of the camera’s viewing area. These masks prevent operators of the surveillance system who do not have access to the camera password from viewing these designated zones. Each zone has four sides, and the zones may overlap to form irregular shapes.


The apparent size of the Privacy Zone adjusts automatically as the zoom level is adjusted. Privacy Zones are useful for high security areas. For example, you might establish a privacy Zone around a safe’s combination, but still view people approaching or opening the safe.

Up to 8 rectangular privacy zones can be used on the camera.

Defining a Privacy Zone

Create a privacy zone on the camera.

Procedure 70 Define a Privacy Zone

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Privacy Zones from the Video menu.
3	Select  to start the video stream if it is not already active. The video pane displays the current camera view.
4	Click on the edit pencil button. Click and drag on the camera picture to define an area for the privacy zone.
5	Release the mouse button. The selected privacy area will turn yellow.
6	Select Add to save the current privacy zone.
7	To reselect an alternative area for the privacy zone select Cancel and repeat from step 4.


Note:When a new privacy zone is created it is automatically enabled.

- End -

Enabling or Disabling a Privacy Zone

Select a privacy zone to hide or display on the camera.

Procedure 71 Enable/Disable a Privacy Zone

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Privacy Zones from the Video menu. The Privacy Zones tab displays.
3	Select  to start the video stream if it is not already active.

The video pane displays the current camera view.

- 4 Select the corresponding **Enabled** check box to enable the privacy zone.
OR
Clear the corresponding **Enabled** check box to disable the privacy zone.

- End -

Deleting a Privacy Zone

Delete a privacy zone from the camera.

Procedure 72 Delete a Privacy Zone

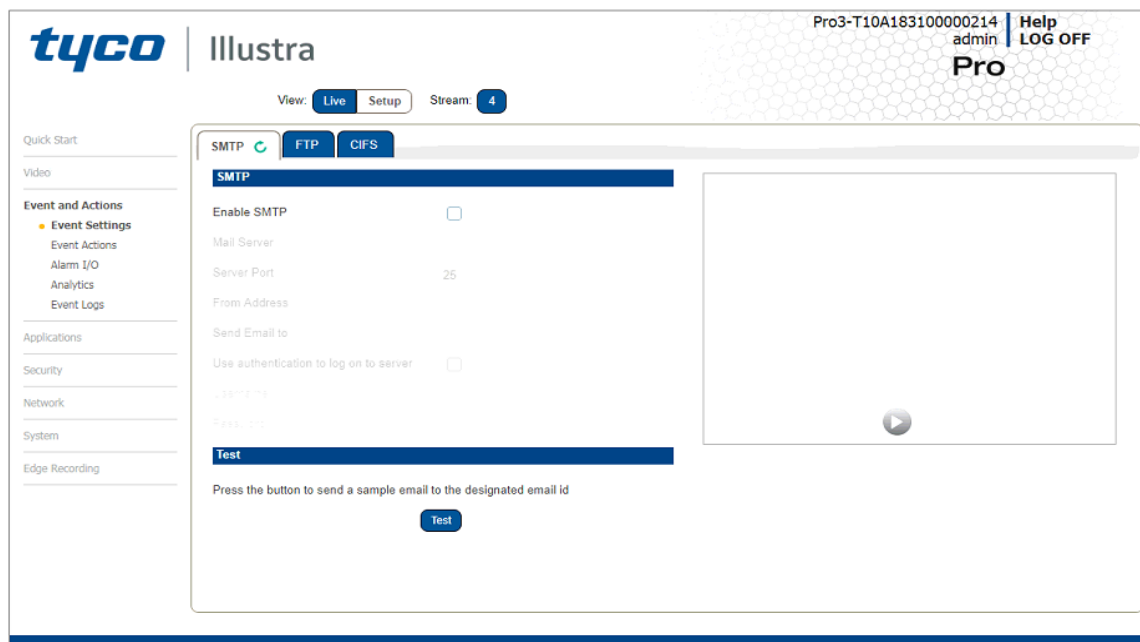
Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Privacy Zones from the Video menu. The Privacy zones tab displays.
3	Select the corresponding Delete check box to mark the privacy zone for deletion.
4	Select Delete to delete the selected privacy zones.
5	You are prompted to confirm the deletion.
6	Select OK to confirm the deletion. OR Select Cancel .

- End -

Events and Actions Menu

When you select the Events and Actions menu the Event Settings page displays, as seen in Figure 49 on page 90.

Figure 49 Events and Actions Menu



The Event Menu provides access to the following camera settings and functions:

- Event Settings
- Event Actions
- Alarms I / O
- Analytics
- Events Logs

Event Settings

Configure the SMTP, FTP and CIFS details required when setting Event Actions for analytic alerts.

SMTP

Configure the SMTP settings to allow e-mail alerts to be sent from the camera when an analytic alert is triggered. SMTP settings must be configured to enable email alerts when using analytics.

Procedure 73 Configure SMTP Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Event Settings from the Events and Actions menu.
3	Select the SMTP tab.
4	Select the Enable SMTP check box to enable SMTP. Fields on the tab become available for entry of information. OR Clear the Enable SMTP check box to disable SMTP. The default setting is 'Disabled'.
<hr/> <p>Note:When in Enhanced Security mode, enabling SMTP requires the admin account password.</p> <hr/>	
5	Enter the IP Address of the mail server in the Mail Server text box.
6	Enter the server port in the Server Port text box. The default setting is '25'.
7	Enter the from email address in the From Address text box.
8	Enter the email address to send email alerts to in the Send Email to text box.
9	Select the Use authentication to log on to server check box to allow authentication details to be entered. OR Clear the Use authentication to log on to server to disable authentication. The default setting is 'Disabled'.
10	If 'Use authentication to log on to server' check box has been selected: <ol style="list-style-type: none"> Enter the username for the SMTP account in the Username text box. Enter the password for the SMTP account in the Password text box.

- End -

FTP

Configure the FTP settings for the FTP server. This is required to send video files from triggered analytic alerts. FTP must be configured to enable FTP video alerts when using analytics. You can configure FTP settings through the **Network** menu.

Procedure 74 Configure FTP Server Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Event Settings from the Events and Actions menu.
3	Select the FTP tab.
4	Select the Enable FTP check box to enable FTP. OR Clear the Enable FTP check box to disable FTP. The default setting is 'Enabled'.
5	If required, select the Secure FTP checkbox. The default setting is 'Disabled'.
Note: When in Enhanced Security mode, enabling FTP requires the admin account password.	
6	Enter the IP address of the FTP Server in the FTP Server text box.
7	Enter the FTP username in the Username text box.
8	Enter the FTP password in the Password text box.
9	Enter the FTP upload path in the Upload Path text box.
Note: Refer Test the FTP Settings on page 93 to confirm that the FTP settings are working as expected.	

- End -

File Transfer Rate

You can limit the File Transfer Rate and assign a max transfer rate to manage the amount of FTP bandwidth used.

Procedure 75 Configure the FTP Transfer Rate

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Event Settings from the Events and Actions menu.
3	Select the FTP tab.
4	Select the Limit Transfer Rate check box to limited the FTP transfer rate. OR Deselect the Limit Tranfer Rate check box to disable limited FTP transfer. The default setting is 'Enabled'.
5	Enter the Max Transfer Rate in the Max Transfer Rate (Kbps) textbox.

- End -

Test FTP Settings

Test the SMTP settings that have been configured in Procedure 7-4 Configure FTP Server Settings.

Procedure 76 Test the FTP Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Event Settings from the Events and Actions menu.
3	Select the FTP tab.
4	Select Test . A sample text file is sent to the specified FTP destination to confirm that FTP settings are correct.
- End -	

CIFS

The CIFS feature permits files generated from the camera such as alarm related video to be directed to network attached file storage through the Common Internet File System protocol. This supplements existing distribution methods such as FTP, SFTP and email.

Procedure 77 Configure CIFS Server Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Event Settings from the Events and Actions menu.
3	Select the CIFS tab.
4	Select the Enable check box to enable CIFS. OR Clear the Enable check box to disable CIFS. The default setting is 'Enabled'.
5	Enter the network path in the Network Path text box.
6	Enter the domain name in the Domain Name in the text box.
7	Enter the username in the Username text box.
8	Enter the password h in the Password text box.
- End -	

Event Actions

The camera can be commanded to carry out a specified operation when an analytic alert is triggered which are defined using event actions. Up to 5 event actions can be configured on the camera.

The event action can be used to configure any combination of the following actions:

- Record a clip to micro SD Card.

- Send an external alarm via email that includes alarm detail, where to retrieve the AVI video file and one JPEG picture of the event if recording MJPEG to micro SD Card. If MJPEG is not being recorded on micro SD Card, then no JPEG picture is sent.
- Send an AVI video file to a pre-configured external FTP or CIFS server. The video file contains pre and post alarm video buffer.
- Trigger alarm out.
- Audio Playback: Playback and Audio clip from the camera speakers when triggered.

Note:A micro SD Card must be inserted to enable recording and so that the camera can send FTP, CIFS, and SMTP events. SMTP e-mails are sent without inserting a micro SD card but do not include snapshot images of the event trigger. Micro SD cards are also required for audio clip storage on the camera.

Creating an Event Action

Configure an event action which can be triggered by an analytic alert.

Procedure 78 Create an Event Action

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Event Actions from the Events and Actions menu.
3	Select an entry on the event actions list and enter an event action name in the Name text box.
4	Select the Output check box to enable an alarm output.
5	Select the Record check box to enable the Record Settings.
6	Select the Email check box to send an e-mail to the email address configured in the Configure SMTP Settings procedure.
7	Select the FTP check box to send a video file to the FTP details configured in the Configure FTP Server Settings procedure.
8	Select the CIFS check box to send a video file to the SFTP details configured in the Configure CIFS Server Settings procedure.

Note:

1. If you select Record, the AVI clip is saved to the micro SD card and it has to be removed from the camera to view the video file.
 2. AVI clips can only be sent through FTP if a micro SD card has been installed and FTP and CIFS has been selected.
 3. The selected pre and post event duration buffer is included in any video clips sent through FTP and CIFS.
-

- | | |
|---|------------------------------------------------------------------|
| 9 | Select the Audio Playback option from the drop-down menu. |
|---|------------------------------------------------------------------|

- End -

Editing a Event Action

Modify the details of an existing event action.

Procedure 79 Edit an Event Action

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Event Actions from the Events and Actions menu.
3	Select an entry on the event actions list, you can edit the following: <ul style="list-style-type: none"> • Name • Output - Enable/Disable • Record - Enable/Disable • Email - Enable/Disable • FTP - Enable/Disable • CIFS - Enable/Disable • Audio Playback - select the required audio clip
- End -	

Alarm I / O

The cameras provide one alarm input. By connecting alarm devices, such as smoke alarms, twilight sensors, or motion sensors to these inputs you can enhance the usability of your video surveillance system.

For 15 seconds after being triggered, any additional individual input changes on that alarm source are logged and do not generate any other action. This is to reduce the effect that any oscillating alarm source, such as if a door is simply vibrating in the wind, causing a series of alarms to be generated.

Input alarms are triggered upon change of state. Either from opened to closed or from closed to open. The camera reports the current state of each input alarms (open or closed) as well as an active or inactive status in the alarm configuration page. Active alarms are also be visible in the current faults page.

The triggering of any input alarm affects scheduled tasks and delay them until at least 30 seconds has passed since the last digital alarm input was triggered.

Alarm Actions

Upon triggering each alarm input can be configured to trigger a faulty action:

- Activate the digital output contact. This stays active until the alarm is acknowledged and cleared by an operator.
- Send an external alarm WS-Event that includes alarm details
- Send an external alarm through email that includes alarm detail, where to retrieve the AVI video file and one JPEG picture of the event if recording MJPEG to local storage. If MJPEG is not being recorded on local storage, then no JPEG picture is sent.
- Send an audio file through the unit. If a speaker has been connected to the audio output on the unit the file can be played as the alarm is triggered.
- Send an AVI video file to a pre-configured external FTP server. The video file contains pre and post alarm video buffer and audio if enabled and supported, as outlined above.

Note:

1. An active internal alarm only resets when the input state changes to “normal.” A manual reset is not available.
 2. A micro SD Card must be inserted to send an SMTP email, video files, audio and images from triggered alarms.
-

Procedure 80 Configure an Alarm

Step	Action
1	Select Alarm I/O from the Event and Actions menu.
2	Enter the alarm name in the Name text box.
3	Select the Enabled check box to enable the alarm. OR Clear the Enabled check box to disable to alarm.
4	Select when the alarm is required to be activated from the Normal drop-down menu. i.e. when the dry contact is open or closed.
5	Select the required configured fault action from the Action drop down menu.

- End -

Procedure 81 Enable/Disable an Alarm

Step	Action
1	Select Alarm I/O from the Event and Actions menu.
2	Select the Enabled check box to enable the corresponding alarm. OR Clear the Enabled check box to disable the corresponding alarm.

- End -

Enable or Disable Alarm Output

Alarm Output allows the alarm to activate a digital output as an action. For example, this digital output could be linked to an electrical device, i.e. a security light or siren.

Procedure 82 Enable/Disable Alarm Output

Step	Action
1	Select Alarm I/O from the Event and Actions menu.
2	Select the Output check box to enable alarm output. OR Clear the Output check box to disable alarm output.

- End -

Procedure 83 Clearing Alarm Output

Step	Action
1	Select Alarm I/O from the Event and Actions menu.
2	Under Alarm Output , select the Apply button to Clear Active Output. The Alarm Output is cleared.

- End -

Analytics

Analytics is a feature which detects and tracks objects in video. Analytics supported are Region of Interest, Face Detection, Motion Detection, Video Intelligence and Blur Detection.

Region of Interest (ROI)


A region of interest is a defined area of the camera view which considered to be higher priority than areas of non-interest. For example, in secure environments, areas of potential activity could be a specific door or window. They are specified by drawing a rectangular overlay on the video stream. The overlay is highlighted in green and an OSD is displayed outlining the size % for the x and y axis. Up to five regions of interest can be configured, all of which can be enabled / disabled.

Procedure 84 Configure a Region of Interest

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Analytics from the Events and Actions menu. The ROI tab displays.
3	Use the drawing tools to draw the region of interest overlay on the video stream.
4	Enter the name of the region of interest in the Name text box.
5	Select the Enabled check box to enable the region of interest. OR Clear the Enabled check box to disable the region of interest.
6	Click Add . The region of interest is configured.

- End -

Procedure 85 Delete a Region of Interest

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Analytics from the Events and Actions menu. The ROI tab is displays.
3	Select  to delete the corresponding region of interest.

- End -

Face Detection

Face Detection works by detecting human faces and ignoring other objects, such as trees or buildings. This feature can be enabled or disabled and the required face orientation selected.

Procedure 86 Enable / Disable Face Detection

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Analytics from the Events and Actions menu. The ROI tab is displayed.
3	To enable Face Detection on the camera: a Select the Enable Face Detection checkbox. b Select the Highlight Faces checkbox to enable OR Deselect the Highlight Faces checkbox to disable. c Select the Enhances Faces checkbox to enable. OR Deselect the Enhances Faces checkbox to disable. d Select the Face Orientation from the drop-down menu. • Top • Left • Right OR Deselect the Enable Face Detection checkbox to disable Face Detection on the camera.
4	Select the required preconfigured action to be taken if a face is detected from the Action drop down menu.

- End -

Motion Detection

Motion detection enables you to define a region of interest in the camera's field of view which can be used to trigger an Event Action. Multiple areas of interest can be selected in the field of view but only one Event Action may be triggered.

Motion Detection Best Practices

To ensure you get the highest quality results when using Motion Detection on the camera it is recommended that you adhere to the following:

- An object exhibiting motion needs to be at least 8x8 pixels in size to be detected.
- The color of the object (in gray scale) should be approximately 10-15% different than the background.
- Exclude the Time Stamp region from motion detection, because the time stamp changes constantly and could register as motion.
- Try not to point cameras into sunlight, because high brightness prevents detection of movement of bright objects such as a person with a white shirt.

- Avoid areas with persistent motion, such as trees, blinking lights, or spinning signs, by using an appropriate region of interest.

Motion Detection Configuration Pane

The regions of interest within the camera's field of view are defined using the Motion Detection Configuration Pane. The regions of interest are set by drawing/highlighting an area on the pane. This is done by using the drawing tools on the Motion Detection Configuration Pane.

Creating a Motion Detection Alert

Create a motion detection alert on the camera.

The Motion Detection Alert feature supports up to three profiles in a Field of View (FOV). You can configure each profile with an individual sensitivity level and an event action.

Note:

- 1 If the motion detection video stream is changed after the region of interest has been drawn it is necessary to re-draw a new region.
- 2 If the stream settings are modified the motion detection is disabled and it is necessary to enable motion detection again if required.
- 3 Motion detection can only be enabled on a video stream that uses H.264 with a resolution on 1920x1440 or lower.

Procedure 87 Create a Motion Detection Alert

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Analytics from the Events and Actions menu.
3	Select the Enable motion detection check box to enable Motion Detection on the camera. OR Clear the Enable motion detection check box to disable Motion Detection on the camera.
4	Select the zone for detection in the Motion zone drop-down list.
5	Select the Enable motion zone check box to enable the zone for motion detection.
6	Select Edit in the Region configuration field.

Note: The user can configure three separate rules each with a different region, sensitivity and fault actions.

- 7 Use the drawing tools on the Motion Detection Configuration Pane to draw the region of interest on the pane. Multiple selections can be made.
- 8 Select the sensitivity from the **Sensitivity** drop-down menu:
 - **Highest**
 - **High**
 - **Medium**
 - **Low**
 - **Lowest**
- 9 Select the fault action from the **Action** drop-down menu.

This fault action activates when motion is detected in the selected region of interest.
Refer to the Create a Fault Action procedure if a fault action has not yet been defined.

- 10 Select **Apply** to save the changes.

- End -

Enable or Disable a Motion Detection Alert

Motion detection can be turned on and turned off when required.

Procedure 88 Enable or Disable a Motion Detection Alert

Step	Action
------	--------

- | | |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select Setup on the Web User Interface banner to display the setup menus. |
| 2 | Select Analytics from the Events and Actions menu. |
| 3 | Select the Motion Detection tab.
The Motion Detection Configuration pane displays. |
| 4 | Select the Enable motion detection checkbox to enable Motion Detection on the camera.
OR
Clear the Enable motion detection checkbox to disable Motion Detection on the camera. |
| 5 | Select Apply to save. |

- End -

Blur Detection

The camera generates an alarm and then takes the action you specified during configuration when the Blur Detection feature is enabled and the camera detects incidents that make the video image blur, such as: redirection, blocking, or defocusing.

When you enable Blur detection, it has a polling period of roughly 1 minute.

A Blur Detection start fault is raised when blur has been detected at 60 successive polling periods of 1 second (up to 1 minute).

Video Intelligence

Video Intelligence Camera Alarms

After enabling Video Intelligence on a camera, you can define alarm rules that trigger an event.

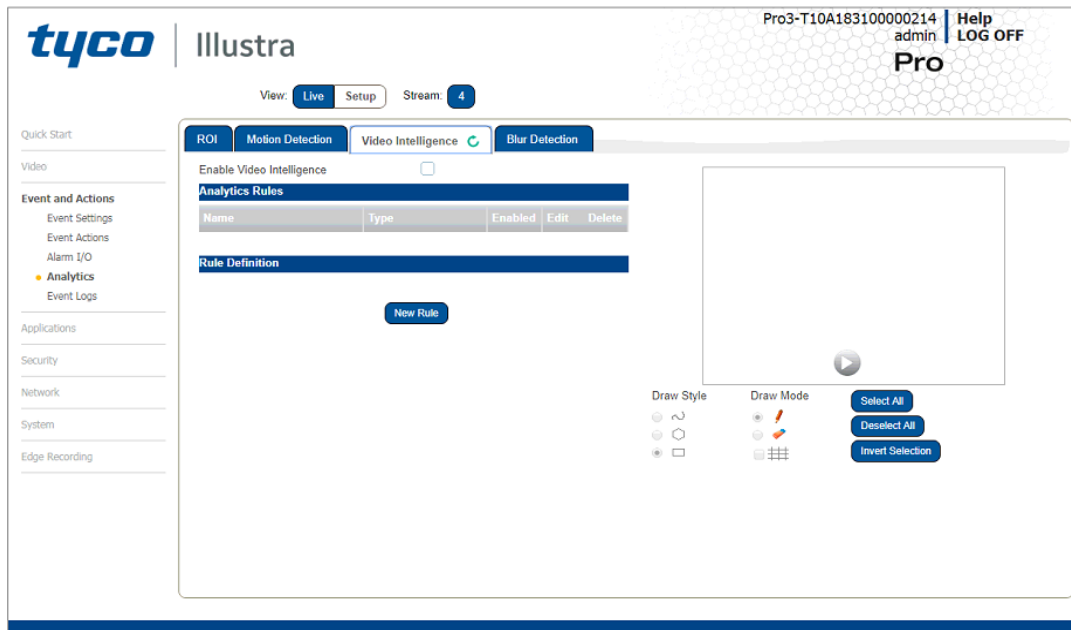
Each camera can have any number of independent Video Intelligence rules. In each rule you can define the areas in the cameras view that you want to monitor. You can name each alarm rule. It is best to use descriptive names like 'Back Door' or 'Conference Room', as these names make it easier to identify the alarm rule in the alerts log better than an abstract name. You can choose the Video Intelligence or Deep Intelligence type for the rule.

The areas that you want to monitor in a cameras view are configured in the Camera Alarm Configuration drawing window, a live display of the camera view. To determine the areas of the camera view that you want monitored, you need to draw on the window. Use the drawing tools to draw on the Camera Alarm Configuration window.

The status of each Video Intelligence alarm is highlighted in the **Status** field. There are three alarm states:

- **Red** - Alarm is disabled. The alarm can be disabled via the **Enabled** option button.
- **Yellow** - Alarm is enabled, however, the recording mode set for the camera does NOT support alarms so the alarms will not be generated. Supported modes are **Only Record on Alarm** or **Recording Always with Alarm On**.
- **Green** - Alarm is enabled and a supported recording mode is selected. Alarms will be generated.

Figure 50 Video Intelligence Tab



Video Intelligence Best Practices

To ensure you get the highest quality results when using Video Intelligence on the NVR, it is recommended that you adhere to the following:

- An object exhibiting movement or a change in the scene background must be large enough to be detected, i.e. it must be around 1/25 of the image size.
- The color of the object (in grayscale) should be approximately 10-15% different than the background.
- The frame rate of the video should be high enough to capture the object in one or more captured frames.
- Video Intelligence events create entries in the victor Application Server database. It is important to ensure that the Video Intelligence parameters are accurate to avoid generating false log entries.
- Exclude the Time Stamp region from the region of interest, because the time stamp changes constantly and could register as movement.
- Try not to point cameras into sunlight, because high brightness will prevent detection of movement of bright objects such as a person with a white shirt.

- Avoid areas with persistent motion, such as trees, blinking lights, or spinning signs, by using an appropriate region of interest.
- Choose your Video Intelligence alarms selectively. You do not want to create alarms that will trigger a high number of alerts, making the important alerts more difficult to identify.
- Situate cameras to provide the best possible views of the areas of interest, objects and people. It is best to ensure camera views separate objects from people, ensure objects and people take up a larger portion of the camera view, and keep the entire region of interest within the camera's view.
- Use staff to help identify regions of interest to monitor based on their observations, for example, of missing merchandise or missing fixtures. Video Intelligence alarms can therefore be configured to monitor areas of potential activity.
- Use searches frequently and watch activity leading up to an alarm being triggered. This may give an indication of suspicious activity and other areas to monitor.
- Tune your alarms regularly to ensure the alarms reflect changes to the environment, for example, objects being rearranged or replaced. Monitoring these changes and re-tuning your alarms will ensure maximum effectiveness of the Video Intelligence alarms and searches.
- Use the new information that Video Intelligence provides to learn and adapt. Use it to implement changes that will improve surveillance and reduce losses, for example, eliminate blind spots, make staff aware of suspicious behavior, or re-design the environment and alarms

Creating a Video Intelligence Camera Alarm

To create a Video Intelligence camera alarm you must have Video Intelligence enabled on the camera.

Procedure 89 Enable/Disable Video Intelligence

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Analytics from the Events and Actions menu.
3	Select the Video Intelligence tab.
4	Select the Enable Video Intelligence check box to enable Video Intelligence on the camera. OR Deselect the Enable Video Intelligence check box to disable Video Intelligence on the camera.
5	Select Save to save your changes.

- End -

Procedure 90 Creating a Video Intelligence alert

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Analytics from the Events and Actions menu.
3	Select the Enable Video Intelligence check box to enable Video Intelligence on the camera.
4	Use the drawing tools beneath the live video feed to create a Region of Interest
5	Type a Rule Name for your rule definition in the field provided.
6	Select a fault action from the Action drop-down menu. This fault action is activated when the parameters of the analytics rule are met.
7	Select a rule type from the Rule Type drop-down menu: <ul style="list-style-type: none"> a Object Detection - Used to detect people or objects moving into a region of interest. This alarm is similar to a motion alarm, but only detects people or objects the first time they enter the region of interest. A separate event is generated for each object that enters the region, even if the objects move into the region at the same time, unlike motion detection that generates one event. b Abandoned / Removed - (Video Intelligence only) Used to find changes to the background of a scene in a region of interest, for example, use it to detect when a stationary object was placed, moved or removed. Draw the region of interest that contains all of the area you want to search for changes. c Direction - Used to detect objects moving in a certain direction through a region of interest, for example, a car traveling the wrong way on a road. It is best to use a thin region of interest to detect the direction of an object. d Linger - Used to detect objects loitering in a region of interest. An object is lingering if it remains in the region of interest. The minimum amount of time an object must linger before being included in the results can be defined and you can draw a region in the area where you want to detect objects lingering. Use a higher Overlap setting to avoid detecting objects lingering nearby. e Dwell: Used to detect objects lagging or tarrying in a region of interest. An object is dwelling if it is mostly stationary. The minimum amount of time an object must dwell before being included in the results can be defined. Draw a region in the area where you want to detect objects dwelling. Use a higher Overlap setting to avoid detecting objects dwelling nearby. f Queue Analysis: Used to monitor length of queues, for example, in a point of sale environment or highway tollbooth. Alarms can be triggered for when a queue grows beyond or falls below a specified threshold. g Perimeter: Used to detect when objects enter a protected area through a perimeter area, or detect when an object is in the perimeter area for too long. Draw regions of interest to define the perimeter area and the protected area. You must also draw regions of interest to define the minimum size and the maximum size of objects that can trigger the perimeter alarm. h Crowd Formation: Used to detect and raise an alarm when a crowd forms in a specified region of interest. A minimum crowd size can be specified to trigger alarms only when the specified size is reached. For example if a particular region should not have more than 2 people at any given time the minimum crowd size should be set to 3.

- i **Exit** - Used to detect objects exiting a camera view through a region of interest, for example, a doorway or threshold. It is best to draw the region of interest around the doorway or threshold to include areas in which the door can move or objects can be seen, for example, glass. This will exclude objects that can be seen in the region of interest but does not pass through it.
 - j **Enter** - Used to detect objects entering a camera view through a region of interest, for example, a doorway or threshold. It is best to draw the region of interest around the doorway or threshold to include areas in which the door can move or objects can be seen, for example, glass. This will exclude objects that can be seen in the region of interest but does not pass through it.
- 8 Use the **Overlap** slider bar to increase or decrease the percentage of overlap.
- 9 To apply a color filter over the Region of Interest, select one of the seven **Color Filter** check boxes.
- 10 Select **Save** to save your changes.
- The rule name and type that you have created appears in the **Analytics Rules** table.

Note:When rule type is selected, extra configuration items appear for some rule types. See the section on Video Intelligence above for information on the extra configuration options for each rule type.

The Color Filters parameter allows you to limit your search results to the specified color(s) only. The color filters parameter is not available on Abandoned / Removed, Perimeter, Queue Analysis, or Crowd Formation. Leaving the color filter parameter blank has the equivalent function of 'ANY' color.

Object Detection

- a Overlap (%) - The amount of a detected object that must be in the region of interest before an alarm is triggered. Use a higher setting to detect objects that are mostly inside the region, and use a lower value to find objects that just brush the edge of the region.

Abandoned / Removed

- a Overlap (%) - The amount of background change that must be in the region of interest before an alarm is triggered. Use a higher setting to avoid finding nearby changes or changes that are not completely in the region of interest.
- b Minimum Skip (secs) - This is the period of time after an alert, during which no further alerts are generated. A setting of 0 seconds triggers all alerts.
- c Fast Trigger - Enable Fast trigger to reduce the time required to assess if an object is abandoned or removed. As a result, alerts trigger more quickly, but the number of false alarms also increases.
- d Wipeout Amount Changed (%) - The percentage of the region of interest that must change before an alarm is triggered. Adjust to look for either a larger or smaller change in the region.
- e Wipeout Within (secs) - Time frame within which the change must occur in order to trigger the alarm. A setting of 0 seconds represents instantaneous change.

Direction

- a Overlap (%) - The amount of a detected object that must be in the region of interest while moving in the specified direction for an alarm to be triggered.
- b Direction - This is the general direction the object must move in to trigger an alarm. You can choose North, South, East or West.
- c Traversal Time- This is the maximum amount of time which an object can take to traverse most of the region before the alarm is triggered. This is to exclude objects that move too slow.

Linger

- a Overlap (%) - The amount of detected object that must be in the region of interest while lingering for an alarm to be triggered. Use a higher setting to avoid detecting objects lingering nearby.
- b Linger Time- The minimum amount of time an object lingers before the alarm is triggered.

Dwell

- a Overlap (%) - The amount of a detected object that must dwell in the region of interest for an alarm to be triggered.
- b Dwell Time - This is the minimum amount of time that an object must dwell in the region of interest before the alarm is triggered.

Queue Analysis

- a Select Area - Additional tools display when using queue analysis to highlight zones of interest; Short, Medium and Long. Use these to define the zones of interest that must be occupied to form a short medium and long queue, all 3 zones must be defined, regardless of the queue length. Each selection is highlighted via a different color (Short = green, Medium = yellow and Long = purple).
- b Overlap (%) - The amount of detected object that must be in the region of interest to be identified as a person in a queue.
- c Queue Length - The required minimum length for an alarm to be generated. The following options are available:
 - **Empty**; this will generate an alarm when no objects are present in the designated regions of interest.
 - **Not Empty**; this will generate an alarm when an object(s) is present in the designated regions of interest.
 - **Short**; this will generate an alarm when objects are present in the short designated region of interest and meet the overlap requirements.
 - **Medium**; this will generate an alarm when objects are present in both the short and medium designated regions of interest and meet the overlap requirements.
 - **Long**; this will generate an alarm when objects are present in the short, medium and long designated regions of interest and meet the overlap requirements.

Perimeter

- a Select Area - Additional tools display when using perimeter to highlight zones of interest. Use these tools to define the zones of interest for the protected area, the perimeter area, the minimum object size, and the maximum object size. Each selection is

highlighted via a different color (perimeter area = green, protected area = yellow, minimum object size = purple, and maximum object size = red).

- b Linger Time- The minimum amount of time an object lingers before the alarm is triggered.

Crowd Formation

- a Overlap (%) - The amount of detected object that must be in the region of interest to be considered for determining the crowd size.
- b Minimum Crowd Size - The minimum number of people that must be present to generate an alarm. This can be between 2-50 people.

Exit

- a Overlap (%) - The amount of detected object that must be in the region of interest when the object leaves the scene for an alarm to be triggered. The object must appear in the scene while being outside the region of interest by the same amount. For best results select a higher overlap setting.

Enter

- a Overlap (%) - The amount of detected object that must be in the region of interest when it first appears in the camera view. The object must leave the region of interest by the same amount before an alarm is triggered. For best results select a higher overlap setting.


- End -

Procedure 91 Enable/Disable an Analytics Rule

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Analytics from the Events and Actions menu.
3	Select the Video Intelligence tab.
4	From the Analytics Rules table, select the check box of the target Analytics Rule to enable the analytics rule
	OR
	Deselect the check box of the target Analytics Rule to disable the analytics rule.


- End -

Procedure 92 Edit an Analytics Rule

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Analytics from the Events and Actions menu.
3	Select the Video Intelligence tab.
4	From the Analytics Rules table, select the edit icon  across from the analytics rule that you want to edit.
5	Edit the settings in the Rule Definition until you are happy with your changes.
6	Select Save to save your changes.

- End -

Procedure 93 Delete an Analytics Rule

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Analytics from the Events and Actions menu.
3	Select the Video Intelligence tab.
4	From the Analytics Rules table, select the delete icon  across from the analytics rule that you want to delete.
5	Select OK when you are asked to confirm your action.
6	Select Save to save your changes.

- End -

Event Logs

Event Log

When events are triggered the resulting alarms are displayed in the Event Log with the following information:

- **No.** - details the event index.
- **Event** - this is listed as 'MotionDetected'.
- **Date created** - the time and date when the motion detection was triggered.
- **Component** - internal software component that raised the fault for a motion detection alert. This is listed as ANALYTICS.
- **Severity** - indicates how serious the fault is. Motion detection alerts list as 'Warning'.
- **Detail** - extra information that supplements the motion detection alert.
- **Delete** - remove the motion detection alert notification from the fault table.

Procedure 94 Display Event Log

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Event Logs from the Events and Actions menu. The Event Log tab displays. Triggered motion detection alerts display.

- End -

Procedure 95 Delete Current Events

- 1 Select **Setup** on the Web User Interface banner to display the setup menus.
- 2 Select **Event Logs** from the **Event and Actions** menu. The Event Logtab displays.
- 3 Select the corresponding **Delete** check box to mark the motion detection alert for deletion.
OR

Clear the corresponding **Delete** check box to keep the motion detection alert.

Note:You can select the **Select All** check box to mark all motion detection alerts displayed in the list for deletion.

- 4 Select **Delete** to delete the selected motion detection alerts.
You are prompted to confirm the deletion.
- 5 Select **OK** to confirm the deletion.
OR
Select **Cancel**.

- End -

Fault Log

Any system or environmental faults experienced by the camera are displayed in the Fault Log with the following:

- **#** - details the fault index.
- **Fault** - a description of the fault.
- **Date created** - the time and date when the fault occurred.
- **Component** - internal software component that raised the fault.
- **Severity** - indicates how serious the fault is. The following are supported, in increasing order of severity, Clear, Warning, Critical and Error.
- **Detail** - extra information that supplements the fault description.
- **Delete** -remove the fault from the fault table.

System Faults

The following system faults may be raised:

- **DiskUsage(Warning)** - this warning is raised when the disk utilisation rises above the threshold value "threshold2" held in SYSM.conf. Once an alarm is generated and the disk utilization decreases 1% below the threshold value, the fault is then automatically cleared. The default threshold value is 80%.

Environmental Monitor (ENVM) Component

The following environmental faults can be raised by the ENVM (Environmental Monitor) component:

- **TemperatureTooHigh (Warning)** - this fault is raised when the internal temperature of the enclosure is equal to or exceeds the value MAX_TEMPERATURE held in ENVM.conf. Once an alarm is generated and the temperature drops to a level 1 degree below the MAX_TEMPERATURE value the fault is then automatically cleared. This is to avoid transient changes in temperature around the threshold.
- **TemperatureTooLow (Warning)** - a fault is raised when the internal temperature of the enclosure is equal to or is below the value MIN_TEMPERATURE held in ENVM.conf. Once an alarm is generated and the temperature drops to a level 1 degree above the MIN_TEMPERATURE value the fault is then automatically cleared. This is to avoid transient changes in temperature around the threshold.

Procedure 96 Display Current Faults

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Event Logs from the Event and Actions menu.
3	Select the Fault Log tab.

- End -

Procedure 97 Delete Current Faults

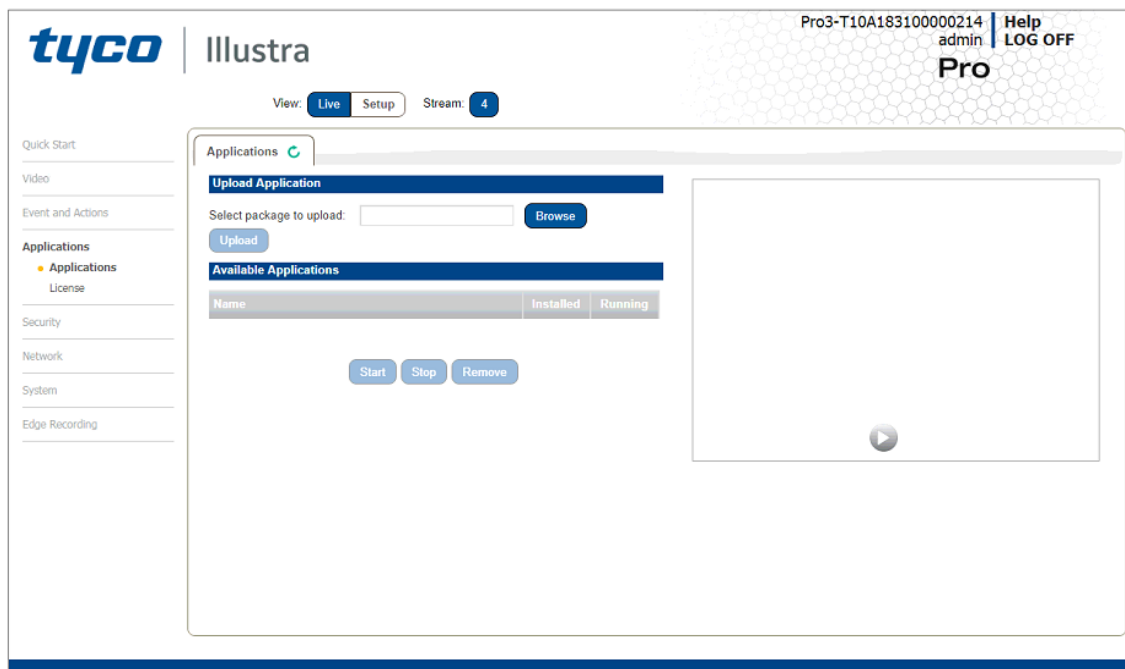
Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Event Logs from the Events and Actions menu.
3	Select the Fault Log tab.
4	Select the corresponding Delete check box to mark the fault for deletion. OR Clear the corresponding Delete check box to keep the fault.
	Note: You can select the Select All check box to mark all faults displayed in the list for deletion.
5	Select Delete to delete the selected faults. You are prompted to confirm the deletion.
6	Select OK to confirm the deletion. OR Select Cancel .

- End -

Applications

When you select the Applications menu the Applications page displays, as seen in on page 110.

Figure 51 Applications Menu



Applications support allow for the upload of binary files that add custom functionality and value to the camera. Applications are uploaded through the Web User Interface.

These applications are licensed by Tyco Security Products using a licensing facility.

Applications

Procedure 98 Upload an Application

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Applications menu. The Applications tab displays.
3	Select Browse . The Choose file dialog is displayed.
4	Navigate to the location where the application has been saved.
5	Select the application file then select the Open button.
6	Select Upload . The upload process begins.

- End -

Available Applications

A list of applications currently installed and running are displayed. Each can be started, stopped and removed.

Procedure 99 Start, Stop or Remove an Application

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Applications menu. The Applications tab displays.
3	Select the corresponding Application checkbox to Start, Stop or Remove.
4	Select one of the following options: <ul style="list-style-type: none"> a Start to start the application running. b Stop to stop the application running. c Remove to remove the application.

- End -

License

License files for applications are uploaded using the licensing webpage. Available licenses are listed displaying their application ID and their license expiry date.

Procedure 100 Upload a License File

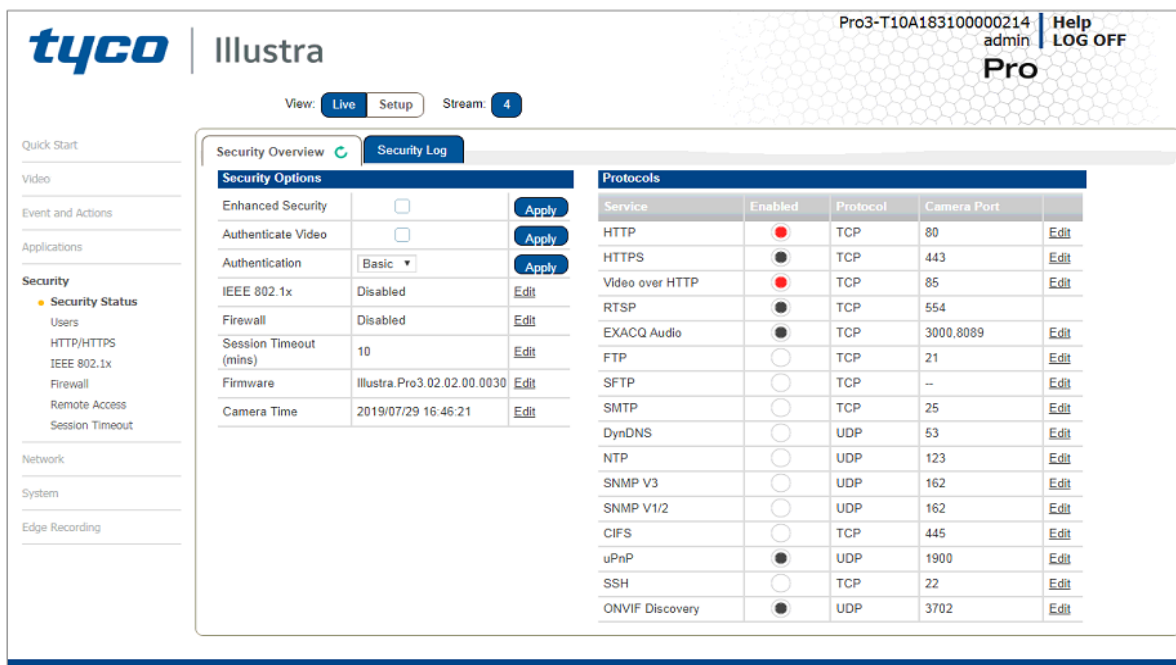
Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select License from the Applications menu.
3	Select Browse . The Choose file dialog is displayed.
4	Navigate to the location where the license file has been saved.
5	Select the license file then select the Open button.
6	Select Upload . The upload process begins.

- End -

Security

When you select the **Security** menu, the **Security Status** page appears, as seen in Figure 52 on page 112.

Figure 52 Security menu



The Event Menu provides access to the following camera settings and functions:

- Security Status
- Users
- HTTP/HTTPS
- IEEE 802.1x
- Firewall
- Remote Access
- Session Timeout

Security Status

This section explains how to configure security features for the camera and modify the communication protocols that are used.

Note: Any changes in the Security section, either changes to the Security Mode or to an individual protocol, are logged in the Security Log.

Enhanced Security

When you first log in to the Web User Interface, an overlay over the Live menu tab appears prompting you to choose either Standard or Enhanced Security mode. For more information regarding the requirements for Enhanced Security mode, refer to Summary of Security Modes on page 32.

Admin users can change the Security Mode of the camera from Standard Security to Enhanced Security.

Procedure 101 Enable Enhanced Security

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Security Status from the Security menu.
3	Select the Security Overview tab.
4	Check the Enable Enhanced Security check box to enable enhanced security. A prompt appears asking you for your current password and the new password for the Enhanced Security feature. Your password must adhere to the minimum requirements for an Enhanced Security password as seen below. OR Clear the Enable Enhanced Security check box to disable enhanced security. Enhanced Security is disabled by default. The Security Warning dialog appears.
5	Enter the current password in the Current Password text box.
6	Enter the new password in the New Password text box. The password for enhanced security must meet the following requirements: <ul style="list-style-type: none"> • Be a minimum of eight characters long • Have at least one character from each of the following character groups: <ul style="list-style-type: none"> Upper-case letters Lower-case letters Numeric characters Special characters
7	Re-enter the new password in the Confirm Password text box.
8	Click Apply .
Note: Any changes to the Security Mode are logged in the Security Log.	

- End -

Procedure 102 Disable Enhanced Security Mode

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Security Status from the Security menu.
3	Select the Security Overview tab.
	Note: When in Enhanced Security mode, changing the security mode requires the admin account password.
4	Click Apply .
	Note: Any changes to the Security mode are logged in the Security Log.

- End -

Security Status

This section summarizes the communication protocols that are used and their status. The following communication protocols can be enabled: HTTP, FTP, CIFS, Dyn DNS, SMTP, HTTPS, SNMP V1/2, SNMP V3, uPNP, and SFTP.

Security Overview

Procedure 103 Enable/Disable Communication Protocols

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Security Status from the Security menu.
3	Select the Security Overview tab.
4	Select or clear the Protocols check box to enable or disable that protocol.
5	Click Apply to save your settings.
	Note: When in Enhanced Security, enabling/disabling individual protocols requires the admin account password. Any changes to individual protocol settings are logged in the Security Log.

Security Log

The security log records any changes made to the security mode or to an individual protocol.

Procedure 104 Display Security Log

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Security Status from the Security menu.
3	Select the Security Log tab.

- 4 Select **Refresh** to refresh the log for the most up-to-date information.

- End -

Procedure 105 Filter the Security Log

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Security Status from the Security menu.
3	Select the Security Log tab.
4	Enter the number of lines of the log file you would like to view in the Lines (from the end of the log file) text box.
5	Enter the word or phrase that you would like to search for in the Filter (only lines containing text) text box.
6	Select Refresh to refresh the log for the most up-to-date information that meets the filter parameters.
7	Select Clear to empty the log of its current entries. You will be required to enter your password to do this.

- End -

Users

In this section you are able to add a user, change a user password and a delete user account. There are three levels of access: admin, operator and user.

Refer to Appendix A: User Account Access on page 150 for details on the features which are available to each role.

Note: The default Username is **admin** and the default Password is **admin**. To maintain security the password on the admin account should be changed.

View Current User Accounts

View a list of the current user accounts assigned to the camera.

Procedure 106 View User Accounts

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Users from the Security menu. The current user accounts assigned to the camera display.

- End -

Add User

Add a new user account to allow access to the camera.

Procedure 107 Add a User

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Users from the Security menu.
3	Select the Add User tab.
4	Enter a User Name in the Name text box. The username must start with a letter and can be followed by any alphanumeric values (a-z, A-Z, 0-9) and the following special characters, underscore(_), dash(-), or dot(.)
5	Select a Role : <ul style="list-style-type: none">• admin• operator• user Refer to Appendix A: User Account Access for details on the features which are available to each role.
6	Enter a password in the Password text box. The password for Standard Security must start with an alphanumeric character and is case sensitive, it can contain alphanumeric characters with a length of between 5 and 32 characters. The password for enhanced security must meet the following requirements: <ul style="list-style-type: none">• Be a minimum of eight characters long.• The password cannot contain the username.• Have at least one character from each of the following character groups:<ul style="list-style-type: none">• Upper-case letters - ABCDEFGHIJKLMNOPQRSTUVWXYZ• Lower-case letters - abcdefghijklmnopqrstuvwxyz• Numeric characters - 0123456789• Special characters - @ % + \ / ' ! # \$ ^ ? : , () { } [] ~ - _ `
7	Enter the same password in the Confirm Password text box.
8	Select Apply to save the settings. The new user account appears in the Users list on the Users tab.

- End -

Changing the User Accounts Password

Change the password of an existing user account.

Procedure 108 Change User Password


Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Users from the Security menu.
3	Select the Change Password tab.
4	Select the user account from the Name drop-down menu.
5	Enter the current password for the user account in the Current Password text box.
6	Enter the new password for the user account in the New Password text box. The password is case sensitive and can contain alphanumeric characters with a length of between 5 and 32 characters.
7	Enter the same new password in the Confirm New Password text box.
8	Select Apply to save the settings.
- End -	

Delete a User Account

Delete a user account from the camera.

Note: The default 'admin' account cannot be deleted.

Procedure 109 Delete a User Account

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Users from the Security menu. The Users tab displays.
3	Select  to delete the corresponding user account. You will be prompted to confirm the deletion.
4	Select OK to delete. OR
5	Select Cancel .
- End -	

HTTP / HTTPS

User can select the option to use HTTP, HTTPS or both. The camera automatically creates an SSL certificate file to use for HTTPS. It is possible to upload a custom SSL certificate if validation is required.

Procedure 110 Specify HTTP Method

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select HTTP/HTTPS from the Security menu.
3	Select the HTTP Method using the radio buttons <ul style="list-style-type: none">• HTTP• HTTPS• Both
- End -	

Procedure 111 Add a HTTPS Certificate

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select HTTP/HTTPS from the Security menu.
3	Click on the Upload button and navigate to the certificate location.
4	Select the file and select Open .
<hr/> Note: The camera only accepts .pem format certificates. The certificate must have the server certificate and private key combined and the private key must not be password protected. <hr/>	
After the certificate has been uploaded the camera must be rebooted to take affect.	
- End -	

Delete a HTTPS Certificate

If you delete the existing certificate it will be replaced by a temporary substitute. The current browser session will be lost and you will be required to log back in to the camera Web User Interface.

Procedure 112 Delete a HTTPS Certificate

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select HTTP/HTTPS from the Security menu.
3	Select Delete . The camera displays a "Restarting HTTPS Service" page with a progress bar showing the deletion progress.
4	When complete, the camera returns to the log in page.
- End -	

IEEE 802.1x

The IEEE 802.1x security feature provides port based network access control i.e. securing corporate networks from the attachment of unauthorized devices.

Authentication is carried out through use of the Extensible Authentication Protocol or EAP. Both PEAP and TLS methods are supported.

Procedure 113 Configure IEEE 802.1x Security

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select IEEE 802.1x from the Security menu. The EAP Settings tab displays.
3	Select the Enable IEEE802.1x check box to enable IEEE802.1x security . OR
4	Clear the Enable IEEE802.1x check box to disable IEEE802.1x security.
5	Select the EAPOL Version from the drop-down menu.
6	Select the EAP Method using the radio buttons.
7	Enter the EAP identity name in the EAP Identify textbox.
8	Select Upload to navigate to the CA Certificate location. The Choose file dialog displays.
9	Navigate to the location where the certificate has been saved. Select the file and select Open .
10	Select Upload . The upload process starts.
11	If PEAP is selected: a Enter the required PEAP Password . OR If TLS is selected - a Select Upload to navigate to the Client Certificate location. The Choose file dialog will be displayed. b Navigate to the location where the certificate has been saved. c Select the file and select Open . d Select Upload . The upload process starts. e Enter the required Private Key Password .

- End -

Firewall

Configure the Basic Filtering and Address Filtering for the firewall.

Basic Filtering

Enable or disable basic filtering for the camera this includes:

- ICMP (Internet Control Message Protocol) Blocking
- RP (Reverse Path) Filtering
- SYN Cookie Verification.

Procedure 114 Enable/Disable Basic Filtering

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Firewall from the Security menu. The Basic Filtering tab displays.
3	Select the ICMP Blocking check box to enable ICMP blocking. OR Clear the ICMP Blocking check box to disable ICMP blocking. The default setting is 'Disabled'.
4	Select the RP Filtering check box to enable the RP filtering. OR Deselect the RP Filtering check box to disable. The default setting is 'Disabled'.
5	Select SYN Cookie Certification check box to enable SYN cookie certification. OR Deselect the SYN Cookie Certification check box to disable. The default setting is 'Disabled'.

- End -

Address Filtering

Configure the IP or MAC addresses which are denied access to the camera.

Procedure 115 Enable/Disable and configure Address Filtering

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Firewall from the Security menu.
3	Select the Address Filtering tab.
4	Select Off to disable address filtering completely. OR

Select **Allow** to allow address filtering for specified addresses

OR

Select **Deny** to deny address filtering for specific addresses.

The default setting is 'Off'.

- 5 If address filtering has been set to **Allow** or **Deny**:
 - a Enter an IP or MAC Address to allow / deny in the **IP or MAC Address** text box in the following format xxx.xxx.xxx.xxx.

Note: CIDR (Classless Inter-Domain Routing) is supported when using address filtering. If using a CIDR address use the following format xxx.xxx.xxx.xxx/xx.

- b Select **Add**.

- 6 Select **Apply** to save the settings.

- End -

Editing an Address Filter

Edit an existing address filter.

Procedure 116 Edit an Address Filter


Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Firewall from the Security menu.
3	Select the Address Filtering tab.
4	Edit the IP or MAC Address in the IP or MAC Address text box.
5	Select Add to save the changes.

- End -

Deleting an Address Filter

Delete an existing address filter.

Procedure 117 Delete an Address Filter

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Firewall from the Security menu.
3	Select the Address Filtering tab.
4	Select to  delete the corresponding address filter.

- End -

Remote Access

SSH Enable

Enables Secure Shell access into the camera, if remote access is permitted by the camera network. This will also enable Tyco Security Products Level 3 Technical Support to diagnose any problems on the camera.

Note:It is recommended to keep SSH Enable disabled. This function should only be enabled this when it is requested by Tyco Security Products Level 3 Technical Support.

Procedure 118 Configure SSH

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Remote Access from the Security menu. The Remote Access tab displays.
3	Select the SSH Enable check box to enable SSH. OR Deselect SSH Enable check box to disable SSH. The default setting is 'Disabled'.

- End -

ONVIF

The Web User Interface allows ONVIF functionality to be managed at a high level. ONVIF Discovery Mode and User Authentication can be enabled or disabled.

- ONVIF Discovery Mode allows enabling or disabling discovery of the camera via ONVIF.
- ONVIF User Authentication allows the camera to accept ONVIF commands from all users or only authenticated users. Enabling User Authentication ensures the camera will only execute commands from authenticated users.

The separation of Discovery Mode and User Authentication allows the camera to be set up in a configuration that suits requirements for the network and users. The preferred discovery method for the camera is Illustra Connect, and this utilizes ONVIF discovery. It is therefore recommended that ONVIF Discovery Mode is always enabled.

ONVIF Discovery Mode

Enable or disable ONVIF discovery on the camera.

Procedure 119 Enable/Disable ONVIF Discovery Mode

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Remote Access from the Security menu. The Remote Access tab displays.
3	Select the ONVIF Discovery Mode check box to enable ONVIF Discovery Mode. OR Deselect ONVIF Discovery Mode check box to disable ONVIF Discovery Mode. The default setting is 'Enabled'.

- End -

ONVIF User Authentication

To utilize ONVIF User Authentication, there must be at least one admin level user in the ONVIF service.

Note:When in Enhanced Security mode, editing ONVIF User Authentication requires the admin account password.

Procedure 120 Enable/Disable ONVIF User Authentication

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Remote Access from the Security menu. The Remote Access tab displays.
3	Select the ONVIF User Authentication check box to enable ONVIF User Authentication. OR Deselect ONVIF User Authentication check box to disable ONVIF User Authentication. The default setting is 'Enabled'.

- End -

Video over HTTP

Enable or disable video or steam metadata over HTTP on the camera.

Procedure 121 Enable/Disable Video over HTTP

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Remote Access from the Security menu. The Remote Access tab displays.
3	Select the Video over HTTP check box to enable Video over HTTP. OR Deselect Video over HTTP check box to disable Video over HTTP.

The default setting is 'Enabled'.

- End -

UPnP Discovery

Enable or disable UPnP Discovery on the camera.

Procedure 122 Enable/Disable UPnP Discovery

Step	Action
------	--------

- | | |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select Setup on the Web User Interface banner to display the setup menus. |
| 2 | Select Remote Access from the Security menu.
The Remote Access tab displays. |
| 3 | Select the UPnP Discovery check box to enable UPnP Discovery.
OR
Deselect UPnP Discovery check box to disable UPnP Discovery.
The default setting is 'Enabled'. |

- End -

ExacqVision Server Audio

Enable or disable audio ports used for ExacqVision bidirectional audio integration.

Procedure 123 Enable/Disable EXACQ Audio

Step	Action
------	--------

- | | |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select Setup on the Web User Interface banner to display the setup menus. |
| 2 | Select Remote Access from the Security menu.
The Remote Access tab displays. |
| 3 | Select the EXACQ Audio check box to enable EXACQ Audio.
OR
Deselect EXACQ Audio check box to disable EXACQ Audio.
The default setting is 'Enabled'. |

- End -

Session Timeout

Session timeout specifies the number of minutes that a web session can remain idle before it is automatically terminated.

Procedure 124 Set a Session Timeout time

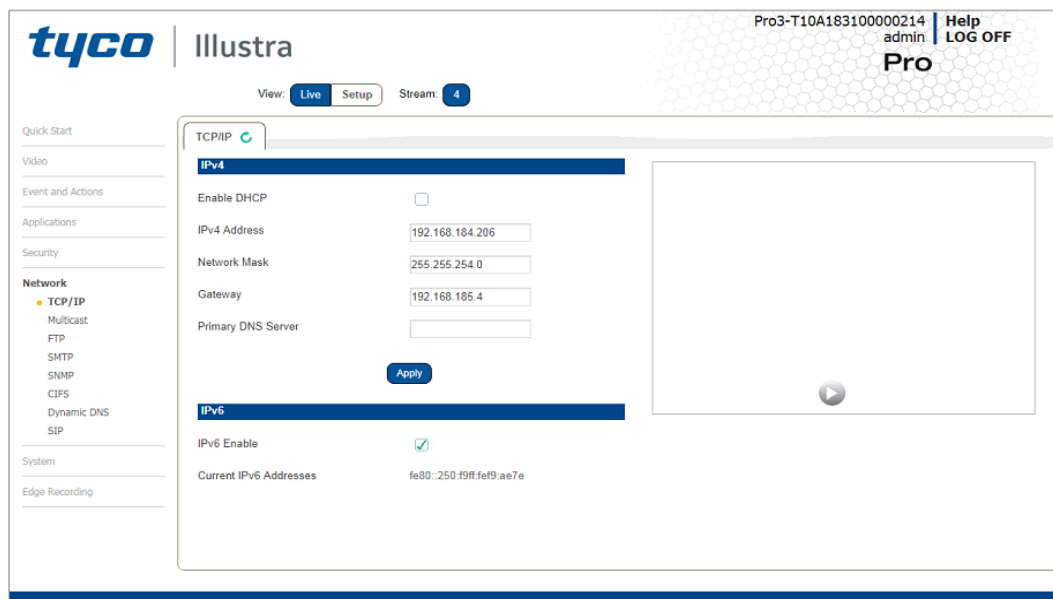
Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Session Timeout from the Security menu. The Session Timeout tab displays.
3	Use the slider bar to select the Session Timeout (mins) . The default setting is 15 minutes.

- End -

Network Menu

When you select the **Network** menu, the **TCP/IP** page displays, as seen in Figure 53 on page 126.

Figure 53 Network Menu



The Network Menu provides access to the following camera settings and functions:

- TCP/IP
- FTP
- SMTP
- SNTP
- CIFS
- Dynamic DNS
- SIP

TCP/IP

Configure the IPv4 and IPv6 settings on the camera.

IPv4

Configure the IPv4 settings for the camera.

Note:When you perform a factory reset or reboot the unit searches for the last known IP address. If this is not available it reverts to the default IP address of 192.168.1.168. This could result duplicate IP addresses. Refer to Network Menu on page 126 for more information.

Procedure 125 Configure the IPv4 Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select TCP/IP from the Network menu.
3	Select the Enable DHCP check box to enable DHCP and disable manual settings. OR Deselect Enable DHCP to disable DHCP and allow manual settings to be entered. The default setting is 'Disabled'.
4	If Enable DHCP has been disabled: <ol style="list-style-type: none"> Enter the IPv4 Address in the IPv4 Address text box in the form xxx.xxx.xxx.xxx. The default setting is '192.168.1.168' Enter the Network Mask in the Network Mask text box xxx.xxx.xxx.xxx. The default setting is '255.255.255.0' Enter the Gateway IP address in Gateway text box xxx.xxx.xxx.xxx. Enter the Primary DNS Server in the Primary DNS Server text box xxx.xxx.xxx.xxx. Enter the Secondary DNS Server in the Secondary DNS Server text box xxx.xxx.xxx.xxx.
5	Select Apply to save the settings.

- End -

IPv6

Enable IPv6 on the camera.

Procedure 126 Enable/Disable IPv6

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select TCP/IP from the Network menu.
3	Select the IPv6 Enable check box to enable IPv6 on the camera. OR Deselect the IPv6 Enable check box to disable IPv6 on the camera. The default setting is 'Enabled'. If IPv6 is enabled the Link Local and DHCP address displays beside 'Current IPv6 Addresses' if available.

- End -

Multicast

Multicast streaming is a one-to-many relationship between a camera and the clients receiving the stream. With a multicast stream, the server streams to a multicast IP address on the network, and clients receive the stream by subscribing to the IP address.

Procedure 127 Configure Multicast Streaming

Step	Action
1	Select Network on the Web User Interface to display the Network menu options and click the Multicast tab.
2	Select the Stream Number from the drop-down list you want to configure.
3	In the Video Address field, enter a valid IP address for the Multicast broadcasting. The valid range for the IP address is: 224 . xxx . xxx . xxx 232 . xxx . xxx . xxx 234 . xxx . xxx . xxx 239 . xxx . xxx . xxx
	Multicast stream addresses must be unique to the stream and cameras.
4	In the Port field, enter a port for the Multicast broadcasting. The Multicast stream port must be unique to stream cameras. The approved port range is: 0-65535.
5	In the Time to live field, enter a value.

Example of correct Multicast configuration:

```
Stream.1.Multicast.IPAddress=224.16.18.2  
Stream.1.Multicast.Port=1032  
Stream.2.Multicast.IPAddress=224.16.18.2  
Stream.2.Multicast.Port=1030  
Stream.3.Multicast.IPAddress=0.0.0.0  
Stream.3.Multicast.Port=0
```

FTP

Configure the FTP settings for the FTP server. This is required to send video files from triggered analytic alerts. FTP must be configured to enable FTP video alerts when using analytics.

Note:FTP settings can also be configured in the **Network** menu.

Procedure 128 Configure FTP Server Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select FTP from the Network menu.
3	Select the Enable check box to enable FTP. OR Deselect the Enable check box to disable FTP.

The default setting is 'Enabled'.

Note:When in Enhanced Security mode, enabling FTP requires the admin account password.

- 4 If required, select the **Secure FTP** checkbox.
The default setting is 'Disabled'.
- 5 Enter the IP address of the FTP Server in the **FTP Server** text box.
- 6 Enter the FTP port in the **FTP Port** text box.
The default setting is 21.
- 7 Enter the FTP username in the **Username** text box.
- 8 Enter the FTP password in the **Password** text box.
- 9 Enter the FTP upload path in the **Upload Path** text box.

Note:When entering the upload path the following format should be used '`///<name of ftp directory>/<folder>`'

- End -

File Transfer Rate

You can limit the File Transfer Rate and assign a max transfer rate assigned to manage the amount of FTP bandwidth used.

Procedure 129 Configure the FTP Transfer Rate

Step	Action
------	--------

- | | |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select Setup on the Web User Interface banner to display the setup menus. |
| 2 | Select Event Settings from the Events and Actions menu. |
| 3 | Select the FTP tab. |
| 4 | Select the Limit Transfer Rate check box to limit the FTP transfer rate.
OR
Clear the Limit Transfer Rate check box to disable limited FTP transfer.
The default setting is 'Enabled'. |
| 5 | Enter the Max Transfer Rate in the Max Transfer Rate (Kbps) textbox.
The default setting is 50. |

- End -

Test FTP Settings

Test the FTP settings that have been configured correctly.

Procedure 130 Test the FTP Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select FTP from the Network menu.
3	Select the FTP tab.
4	Select Test . A sample text file will be sent to the specified FTP destination to confirm that FTP settings are correct.

- End -

SMTP

Configure the SMTP settings to allow e-mail alerts to be sent from the camera when an analytic alert is triggered.

Note:SMTP settings must be configured to enable email alerts when using analytics.

Procedure 131 Configure SMTP Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select SMTP from the Network menu. The SMTP tab displays.
3	Check the Enable SMTP check box to enable SMTP. Text boxes on the tab become available for entry. <hr/> Note: When in Enhanced Security mode, enabling SMTP requires the admin account password. <hr/>
4	Enter the IP Address of the mail server in the Mail Server text box.
5	Enter the server port in the Server Port text box. The default setting is '25'.
6	Enter the from email address in the From Address text box.
7	Enter the email address to send email alerts to in the Send Email to text box.
8	Select the Use authentication to log on to server check box to allow authentication details to be entered. OR Clear the Use authentication to log on to server to disable authentication. The default setting is 'Disabled'.
9	If 'Use authentication to log on to server' check box has been selected: a Enter the username for the SMTP account in the Username text box. b Enter the password for the SMTP account in the Password text box.
10	Select Apply to save the settings.

- End -

SNMP

The camera introduces support for the Simple Network Management Protocol making it easier to manage on an IP network.

The SNMP support includes support for V2 and V3. Using V2 means no authentication is required to access the data and results are unencrypted. V3 offers enhanced encryption and authentication security features.

Procedure 132 Configure SNMP Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select SNMP from the Network menu.
3	Enter a location reference in the Location text box.
4	Enter an SNMP managing contact reference in the Contact text box.
5	If using V2 : <ol style="list-style-type: none"> a Select the Enable V2 checkbox. b Enter the authorized ID for reading SNMP data in the Read Community text box. c Enter the Trap Community. d Enter the Trap Address. e Select Apply. OR If using V3 : <ol style="list-style-type: none"> a Select the Enable V3 checkbox. b Enter the Read User. c Select the Security Level from the drop down menu: <ul style="list-style-type: none"> - noauth: No authentication / no encryption. - auth: Authentication / no encryption. A user password is required. It is symmetrically encrypted using either MD5 or SHA. - priv: Authentication / encryption. A user password is required as is symmetrically encrypted using either MD5 or SHA. A data encryption password is required as is symmetrically encrypted using either DES or AES. d Select the Authentication Type using the radio buttons. e Enter the Authentication Password f Select the EncryptionType using the radio buttons. g Enter the Encryption Password h Select Apply.

- End -

CIFS

The CIFS feature permits files generated from the camera such as alarm related video to be directed to network attached file storage via the Common Internet File System protocol. This supplements existing distribution methods such as FTP, SFTP and email.

Procedure 133 Configure CIFS Server Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select CIFS from the Network menu.
3	Select the Enable check box to enable CIFS. OR Deselect the Enable check box to disable CIFS. The default setting is 'Disabled'.
	Note: When in Enhanced Security mode, enabling CIFS requires the admin account password.
4	Enter the network path in the Network Path text box. Note: When entering the network path the following format should be used '<IP Address>/<folder name>'
5	Enter the domain name in the Domain Name in the text box.
6	Enter the username in the Username text box.
7	Enter the password in the Password text box.
- End -	

Dynamic DNS

Dynamic DNS is supported for updating, in real time a changing IP address on the Internet to provide a persistent domain name for a resource that may change location on the network. RFC 2136 Dynamic Updates in the Domain Name System. In this situation the camera talks only to the DHCP server and the DHCP server is responsible for updating the DNS server. The camera sends its hostname to the DHCP server when requesting a new lease and the DHCP server updates the DNS records accordingly. This is suitable for an intranet style configuration where there is an internal DHCP and DNS service and the user wants only to access their camera within their own network.

By default, when making a DHCP request the camera transmits its hostname as part of the DHCP request. This option is not user configurable. The cameras hostname matches the configurable parameter "camera name" on the Web User Interface. Any DHCP request contains the cameras hostname for use of the DHCP server to forward to an appropriate DNS server.

Dynamic DNS

Configure the Dynamic DNS settings for the camera.

Procedure 134 Configure Dynamic DNS

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Dynamic DNS from the Network menu.
3	Select the Service Enable check box to enable Dynamic DNS. OR Deselect Service Enable check box to disable Dynamic DNS. The default setting is 'Disabled'.
4	If Service Enable has been enabled: <ol style="list-style-type: none"> Enter the Camera Alias in the text box. Select a Service Provider from the drop-down list: <ul style="list-style-type: none"> • dyndns.org • easydns.com • no-ip.com • zerigo.com • dynsip.org • tzo.com Enter a Username in the text box. Enter a Password in the text box. Enter Service Data in the text box.
5	Select Apply to save the settings.
- End -	

SIP

The Session Initiation Protocol (SIP) feature enables the camera to be configured as a SIP User Agent that can register with a SIP server to make and receive audio calls to another SIP device, for example, a SIP IP phone or softphone. The camera can operate as a SIP phone if it is equipped with an external microphone and speaker. The camera can also be configured to monitor the audio from a SIP call and make this available as an RTSP/RTP stream.

Note: Only the the SIP incoming audio is recorded in the RTSP stream.

Procedure 135 Enable/Disable SIP

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select SIP from the Network menu.
3	Check the Enabled check box to enable SIP OR Clear the Enabled check box to disable SIP.

The default setting is 'Disabled'.

- 4 Click **Apply** to save your settings.

Note:After you enable SIP, the camera reboots automatically.

- End -

Procedure 136 Configure the SIP Server Settings

Step	Action
------	--------

- 1 Select **Setup** on the Web User Interface banner to display the setup menus.
- 2 Select **SIP** from the **Network** menu.
- 3 Check the **Enabled** check box to enable SIP.
- 4 Enter the IP address of the SIP Server in the **Domain** text box.
- 5 Enter the SIP account username in the **Username** text box.
- 6 Enter the SIP account password in the **Password** text box.
- 7 From the **Audio Source** dropdown menu, select the Audio Source for calls:
 - **Mic** - only external microphones are currently supported.
- 8 From the **Audio Output** dropdown menu, select an audio output:
 - **Speaker** - the SIP call audio is output to the external speaker.
 - **Network Stream** - the SIP call audio can be streamed using an RTSP Audio Stream.
- 9 Click **Apply** to save your settings.

Note:After you enable SIP, the camera reboots automatically.

- End -

Procedure 137 Place a SIP call

Step	Action
------	--------

- 1 Select **Setup** on the Web User Interface banner to display the setup menus.
- 2 Select **SIP** from the **Network** menu.
- 3 Enter the SIP Extension number in the **Extension** text box.
- 4 Click **Dial** to activate the call.
- 5 Click **Hang up** to end the call.

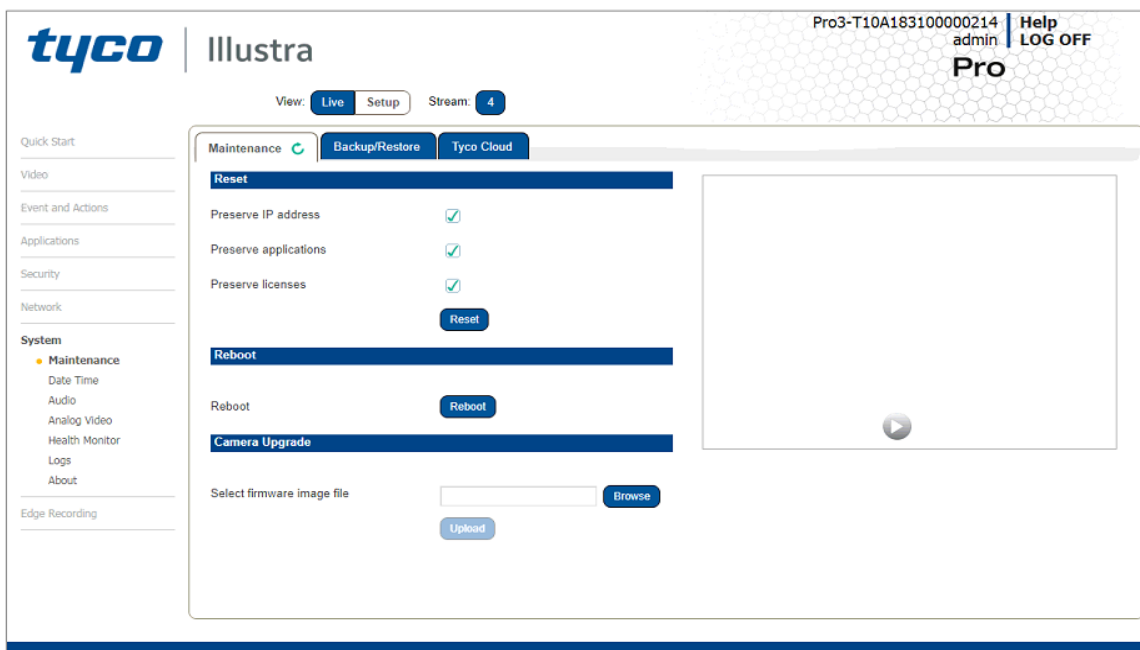
Note:The Status Log, located below the Dial and Hang up buttons, reports the status of SIP connection and active calls.

- End -

System

When you open the **System** menu, the **Maintenance** page appears, as seen in Figure 54 on page 135.

Figure 54 System Menu



The System Menu provides access to the following camera settings and functions:

- Maintenance
- Date Time
- Audio
- Analog Video
- Health Monitor
- Logs
- About

Maintenance

The Maintenance menu allows you to restore the camera settings to factory default, reboot the camera and apply a firmware upgrade.

Reset

To perform a physical reset of the camera, refer to the chapter regarding your camera model in this guide.

Note: Network settings can be retained if required.

Procedure 138 Resetting the Camera

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Maintenance from the System menu.
3	Select the Preserve IP address check box to retain the current network settings during the camera reset. OR Deselect the Preserve IP address check box to restore the default networking settings. The default setting is 'Enabled'.
4	Select Reboot You will be prompted to confirm the camera reset. <ul style="list-style-type: none"> • Select OK to confirm. The Web User Interface will display a "Camera Resetting" page with a progress bar showing the reboot progress. • When the camera is restarted it will take 2 - 3 minutes until it is online and ready to be accessed and controlled. OR Select Cancel .
5	The Log in page displays.

- End -

Reboot

To perform a physical reset of the camera, refer to the chapter regarding your camera model in this guide.

Procedure 139 Reboot the Camera

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Maintenance from the System menu.
3	Select Reboot . You will be prompted to confirm the camera reboot.
4	Select OK to confirm. The Web User Interface will display a "Camera Rebooting" page with a progress bar showing the reboot progress. When the camera is restarted it will take 2 - 3 minutes until it is online and ready to be accessed and controlled. OR Select Cancel .
5	The Log in page displays.

- End -

Camera Firmware Upgrade

The camera can be upgraded using firmware provided by Illustra. Alternatively, the camera can also be upgraded using Illustra Connect. Refer to the Illustra Connect User Guide for further information.

Note:All existing camera settings are maintained when the firmware is upgraded.



Caution

You should only use firmware that has been provided by Illustra. Using any other firmware may cause a malfunction and damage the camera.

Procedure 140 Upgrade Camera Firmware

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Maintenance from the System menu.
3	Select Browse . The Choose file to Upload dialog displays.
4	Navigate to the location where the firmware file has been saved.
5	Select the firmware file then select the Open button.
6	Select Upload . The file transfer will begin. Do not disconnect power to the camera during the upgrade process. The camera restarts automatically after the updates have been completed, this can take from 1 to 10 minutes. The Log in page displays.

- End -

Backup/Restore

Backup camera data and restore from a previously saved data file. The data file can be saved to a specified location and used to restore the camera configuration.

Note:A saved backup data file created on a camera is camera specific and cannot be used to restore the settings on a different camera.

Procedure 141 Backup Camera Data

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Maintenance from the System menu.
3	Select the Backup/Restore tab.
4	Select Backup . You are prompted to save the backup file.
5	Select Save .

- End -

Procedure 142 Restore Camera from Backup

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Maintenance from the System menu.
3	Select the Backup/Restore tab.
4	Select Browse . The Choose file to Upload dialog displays.
5	Navigate to the location where the firmware file has been saved.
6	Select the firmware file then select the Open button.
7	Select Upload . The file transfer begins. Do not disconnect power to the camera during the upgrade process. The camera restarts automatically after the updates have been completed, this can take from 1 to 10 minutes. The Log in page displays.

- End -

Tyco Cloud

The Tyco Cloud feature implements Illustra Cameras to Cloud (C2C) from Tyco Cloud to provide a secure, scalable, cloud-based storage solution. Before you enable this feature, you need to install the mobile application. You can download the app from either the iOS App Store or the Google Play Store and then you can complete the registration using the app.

Procedure 143 Enabling Tyco Cloud integration

Note: If a Tyco Cloud server is not setup when enabling the Tyco Cloud feature then the camera may become inaccessible.

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Maintenance from the System menu.
3	Select the Tyco Cloud tab.
Note: All options are disabled if not internet connection is available.	
4	Enter a valid Tyco Cloud Partner (case sensitive) into the blank text field.
5	Select supported Tyco Cloud Data Center from the drop-down list.
6	Select Apply .
7	Enter an administrator password to validate the request. <ul style="list-style-type: none"> The camera then makes a Tyco Cloud integration request. If successful then the camera is only available through Tyco Cloud. If the request fails then a pop up window is visible.

Note: If an Internet connection is detected, a factory reset begins. This clears all previous user defined configurations including user management settings.

The camera boots in Tyco Cloud mode and is only accessible using HTTPS.
The password changes to a string of characters determined by the Tyco Cloud.

- 8 Refer to Tyco Cloud documentation and follow the procedure to add a camera to regain access.

- End -

Procedure 144 Resetting the camera to normal operation

Note: There are two procedures for resetting the camera, please select one.

Step	Action
------	--------

- | | |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select Setup on the Web User Interface banner to display the setup menus. |
| 2 | Select Maintenance from the System menu. |
| 3 | Select the Maintenance tab. This page displays two types of factory reset: <ul style="list-style-type: none">a Factory Reset: Resets the camera and boots the camera in Illustra mode.b Tyco Cloud Reset: Resets the camera and boots the camera in Tyco Cloud mode. |
| 4 | If you do not have the credentials to perform a reset, you can perform a factory reset on the hardware itself by using the hardware reset button as detailed in the Product Overview of each camera. |

- End -

Date / Time

Set the date and time on the camera.

Note:

Date and Time can also be configured in the **Quick Start** menu.

Procedure 145 Configuring the Date and Time

Step	Action
------	--------

- | | |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select Setup on the Web User Interface banner to display the setup menus. |
| 2 | Select the Date Time from the System menu. |
| 3 | Select the Time 24-hour check box to enable the 24-hour clock.
Or
Deselect the Time 24-hour check box to enable the 12-hour clock.
The default setting is '24-hour'. |
| 4 | Select the Date Display Format from the drop-down menu: <ul style="list-style-type: none">• DD/MM/YYYY• MM/DD/YYYY• YYYY/MM/DD The default setting is 'YYYY/MM/DD'. |

- 5 Select the **Time Zone** from the drop-down menu.
The default setting is '(GMT-05:00) Eastern Time (US & Canada)
- 6 Select the **Set Time** setting by selecting the radio buttons:
 - **Manually**
 - **via NTP**
 The default setting is 'Manually'.
- 7 If you select Manually in step 5:
 - c Select the Date (**DD/MM/YYYY**) using the drop-down menus.
 - d Select the Time (**HH:MM:SS**) using the drop-down menus.
- 8 If you select via NTP in step 5:
 - a Enter the **NTP Server Name** in the text box.

- End -

Audio

You can configure the audio input, output, upload audio and stored audio clips, as well as configure Audio Video Synchronisation on this tab.

Procedure 146 Configure Audio Input

Step	Action
1	Select Audio from the System menu. The Audio Input tab displays.
2	Select the Input Enable check box to enable the audio input settings. Or Clear the Input Enable check box to disable audio input settings. The default setting is 'Disabled'.
3	Use the slider bar to select the Input Volume . Values range from 1 to 100. The default setting is 72.

- End -

Procedure 147 Configuring Audio Output

Step	Action
1	Select Audio from the Camera Configuration menu.
2	Select the Output Enable check box to enable the audio output settings. Or Deselect the Output Enable check box to disable audio input settings. The default setting is 'Disabled'.
3	If Output Enable has been enabled, use the slider bar to select the Output Volume. Values range from 1 to 100.

The default setting is 50.

- End -

Configuring Stored Audio

When connected to an appropriate device, the unit is capable of playing back stored audio when an alarm has been triggered. A maximum of five audio files can be uploaded to the unit.

Note: Audio clips can only be used if a micro SD Card has been installed. Refer to the relevant Quick Reference Guide for information on installing the micro SD Card.

When uploading an audio file it must meet the following requirements:

- The filename cannot contain spaces.
- It must be a 'wav' file with a '.wav' extension.
- A single channel mono file with a bit depth of 16kHz.
- The sample rate must be 8kHz.
- The duration must be no longer than 20 seconds.

Procedure 148 Play Stored Audio

Step	Action
1	Select Audio from the System menu.
2	Select the Audio Clips tab.
3	Select to play back the corresponding audio file.

- End -

Procedure 149 Upload an Audio File

Step	Action
1	Select Audio from the System menu.
2	Select the Audio Clips tab.
3	Select Browse . The Choose file dialog displays.
4	Navigate to the location where the audio file has been saved. Select the audio file then select the Open button. When uploading an audio file it must meet the following requirements: <ul style="list-style-type: none">• The filename cannot contain spaces.• It must be a 'wav' file with a '.wav' extension.• A single channel mono file with a bit depth of 16kHz.• The sample rate must be 8kHz.• The duration must be no longer than 20 seconds.
5	Select Upload .
6	You will be prompted to confirm that you would like to upload the audio file.

Select **OK** to confirm the upload.

Or

Select **Cancel**.

- End -

Procedure 150 Delete a Stored Audio file

Step	Action
------	--------

- | | |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select Audio from the System menu. |
| 2 | Select the Audio Clips tab. |
| 3 | Select the corresponding Delete check box to mark the audio file for deletion.
Or
Deselect the corresponding Delete check box to keep the audio file. |
| 4 | Select the Select All check box to mark all audio files for deletion. |
| 5 | Select Delete to delete the selected audio files.
You will be prompted to confirm the deletion. |
| 6 | Select OK to confirm the deletion.
Or
Select Cancel . |

- End -

Analog Video

You can select an Analog Video Source from the drop-down menu found in the **Analog Video** menu. You can manage output format of the analogue video by the dip switch located on the camera (default value) or through the Web User Interface page.

Available options are **PAL**, **NTSC** and **OFF**.

Note: Once PAL or NTSC are selected through the Web User Interface- the physical DIP Switch selection on camera will be obsolete.

Health Monitor

The Health Monitor function provides visibility on the health status of popular device parameters. Each parameter can be enabled or disabled. The refresh frequency of the health monitor can be determined by selecting a duration from the Reporting Period drop-down menu.

Procedure 151 Configure Health Monitor Settings

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select the Health Monitor from the System menu.
3	Select the Recording Period from the drop-down menu.
4	Select the corresponding check box to enable health monitoring on a parameter. OR Clear the corresponding check box to disable health monitoring on a parameter. The default setting for all parameters is Enabled.

- End -

Logs

Information is provided on system and boot logs created by the camera.

System Log

The system log gives the most recent messages from the `unix/var/log/messages` file. Information will include the following:

- Messages about system behavior such as process startup/shutdown.
- Warnings about recoverable problems that processes encounter.
- Error messages where processes encounter problems they cannot fix; note that this does not mean that the process will not continue to work, only that it encountered an issue it could do nothing about.

Procedure 152 Display System Log

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Logs from the System menu. The System Log tab displays.
3	Select Refresh to refresh the log for the most up-to-date information.

- End -

Procedure 153 System Log Filter

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Logs from the System menu. The System Log tab displays.
3	Enter the number of lines of the log file you would like to view in the Lines text box.
4	Enter the word or phrase that you would like to search for in the Filter text box.

- 5 Select **Refresh** to refresh the log for the most up-to-date information.

- End -

Boot Log

The Boot log is a log of the Linux operating system boot processes and will only be useful to Tyco Security Products support engineers who require additional information on the device.

Procedure 154 Display Boot Log

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Logs from the System menu.
3	Select the Boot Log tab.
4	Select Refresh to refresh the log for the most up-to-date information.

- End -

Procedure 155 Boot Log Filter

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select Logs from the System menu.
3	Select the Boot Log tab.
4	Enter the number of lines of the log file you would like to view in the Lines text box.
5	Enter the word or phrase that you would like to search for in the Filter text box.
6	Select Refresh to refresh the log for the most up-to-date information.

- End -

Audit Log

The Audit Log will log details obtained when anything is logged are source, class, result, user and a description of the change.all changes that have been made in the following areas of the Web User Interface as outlined below:

- Changes in FTP, CIFS, SMTP, IPV4, IPV6, DNS and SNMP are logged under class NETWORK.
- Changes in Stream are logged under class VIDEO.
- Changes in Reboot, Reset and Upgrade are logged under class MAINTENANCE.
- Changes in DIO and ROI are logged under EVENT.

About

The About menu provides the following camera information:

- Camera Name
- Model

- Product Code
- Manufacturing Date
- Serial Number
- MAC Address
- Firmware Version
- Hardware Version

Procedure 156 Display Model Information

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select About from the System menu. The model tab displays.

- End -

Procedure 157 Edit Camera Name

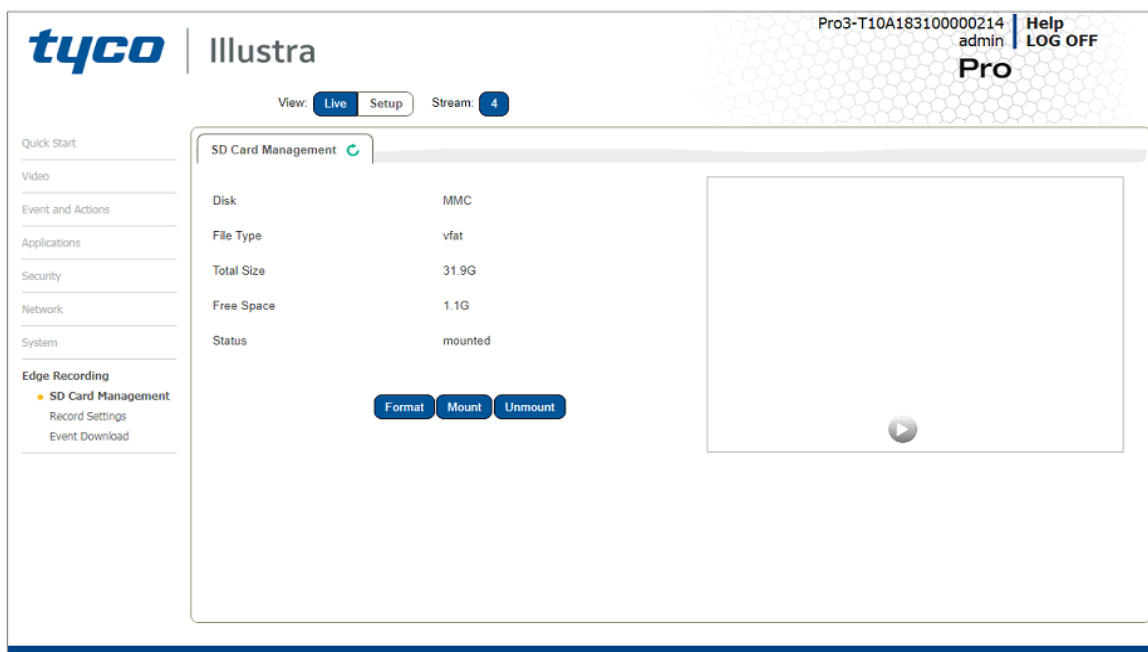
Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select About from the System menu. The model tab displays.
3	Edit the name in the Camera Name textbox.

- End -

Edge Recording

When you select the **Edge Recording** menu, the **Micro SD Card Management** page appears, as seen in Figure 55 on page 146.

Figure 55 Edge Recording Menu



The Edge Recording Menu provides access to the following camera settings and functions:

- Micro SD Card Management
- Record Settings
- Event Download

Micro SD Card Management

Edge recording provides the ability to save recorded video to a Micro SD Card. Video can be configured to be recorded based on an event. Without a Micro SD Card current faults notifications displayed on camera if an alarm is triggered. Using a Micro SD Card enables the following:

- Current faults notifications displayed on camera if an alarm is triggered.
- Video/Audio and screen shot are saved to the SD card.
- SMTP notifications can be sent.
- FTP and CIFS uploads of video can be sent.
- Audio can be played via the Audio Out port.

Inserting the Micro SD Card

When inserting a Micro SD Card it is essential that the camera is rebooted. The Micro SD Card should be mounted and unmounted through the Web User Interface. If you receive a 'Device is Busy' model you should wait and try again in a few minutes. If this does not work then it may be necessary to disable Motion Detection, FTP or any other process which may be using the Micro SD Card.

Note: Refer to the Quick Reference Guide supplied with the product for details on how to remove the housing assembly and gain access to the camera.

Procedure 158 Insert the Micro SD Card by powering down the Camera

Step	Action
1	Turn off the camera by disconnecting the power supply.
2	Insert the Micro SD card into the camera.
3	Reconnect the power supply and power up the camera.
- End -	

Procedure 159 Mount the Micro SD Card through the Web User Interface to reboot the Camera

Step	Action
1	Insert the Micro SD card into the camera.
2	Select Setup on the Web User Interface banner to display the setup menus.
3	Select SD Card Management menu from the Edge Recording menu.
4	Select Mount .
- End -	

Removing the Micro SD Card

If at any stage you need to remove the Micro SD card from the camera one of the following two procedures should be used:

- Remove the Micro SD Card by powering down the camera - Use this procedure if you do not have access to the Web User Interface and are unable to unmount the Micro SD card before removal.
- Unmount the Micro SD Card for Removal - Use this procedure when you are unable to access the power supply to the camera.

Note: Refer to the Quick Reference Guide supplied with the product for details on how to remove the housing assembly and gain access to the camera.

Procedure 160 Remove the Micro SD Card by powering down the Camera

1	Turn off the camera by disconnecting the power supply.
2	Remove the Micro SD card from the camera.
<hr/> <p>Note: AVI clips are not available on the camera until the Micro SD card has been inserted and the camera rebooted.</p> <hr/>	

- 3 Reconnect the power supply and power up the camera.

- End -

Procedure 161 Unmount the Micro SD Card for Removal

Step	Action
1	Select Setup on the Web User Interface banner to display the setup menus.
2	Select SD Card Management menu from the Edge Recording menu.
3	Select Unmount . You are prompted to confirm the unmounting.
4	Select OK to confirm. OR
5	Select Cancel . Remove the Micro SD card from the camera. MP4 clips are not available on the camera until the Micro SD card has been inserted and mounted.

- End -

Record Settings

Select which video stream to use for alarm video and configure pre and post event durations for the playable video clip. The camera can record video generated from MD, face detection and DIO events.

Procedure 162 Configure Record Settings

Step	Action
1	Select Setup on the Web User Interface Banner to display the setup menus.
2	Select Record Settings from the Edge Recording menu.
3	Select Enable Record to allow the camera to create a playable video clip. OR Deselect Enable Record to disable the feature.
4	If Enable Record has been enabled: <ol style="list-style-type: none">Select the required video stream from the Video drop-down menu. Refer to Procedure 5-1 Configure the Video Stream Settings.Select the Pre Event (secs) in seconds from the drop-down menu. Values range from 0 to 10. The default setting is 5 seconds.Select the Post Event (secs) in seconds from the drop-down menu. Values range from 0 to 10. The default setting is 5 seconds.
5	Select Apply to save.

- End -

Offline Record Settings

When you configure the Offline Record Settings feature and once it detects a loss of connection with the recorder, it sends the video stream to the Micro SD card within the unit. This satisfies the loss of video and continues recording. Once the recorder is back online the camera initiates sending recorded video from the Micro SD card to the recorder. The maximum time recording during the outage depends on the Micro SD card and the recorded stream you selected. If the Micro SD reaches full capacity, it deletes video from earliest recording to latest recording. This feature integrates with the VE NVR 5.0 Trickle Stor.

Procedure 163 Configure Offline Recording Settings

Step	Action
1	Select Setup on the Web User Interface Banner to display the setup menus.
2	Select Record Settings from the Edge Recording menu.
3	Select the Offline Record Settings tab.
4	In the Video Edge Recorder Address field, enter the IP address of the Video Edge recorder the camera is connected to.
5	In the Pre event (secs) field, enter a time in seconds of the amount of time you want recorded before the offline event.
6	In the Post event (secs) field, enter a time in seconds of the amount of time you want recorded after the offline event.

- End -

Event Download

If an event action has record mode enabled, when triggered, the associated video is logged in the event download table where it can later be downloaded from an Micro SD Card using the specified upload protocol.

Note:An event action must have record mode enabled to be logged and downloaded. This is configured in **Event Actions** under the **Events and Actions** menu.

Appendix A: User Account Access

Camera Menu	Sub Menu	Tab	Admin	Operator	User
Live View	Live View		X	X	X
Quick Start	Basic Configuration	TCP/IP	X		
		Video Stream Settings	X	X	
		Picture Basic	X	X	
		Picture Additional	X	X	
		Date Time	X		
		OSD	X	X	
Video	Streams	Video Stream Settings	X	X	
	Picture Settings	Picture Basic	X	X	
		Picture Additional	X	X	
		Lens Calibration	X		
	Date/Time/OSD	Date Time	X		
		OSD	X	X	
	Privacy Zones	Privacy Zones	X	X	
Applications	Applications	Applications	X		
	License	License	X		
Events and Actions	Event Settings	SMTP	X		
		FTP	X		
		CIFS	X		
	Event Actions	Event Actions	X		
	Alarm I/O	Alarm I/O	X		
	Analytics	ROI	X		
		Face Detection	X		
		Motion Detection	X		
		Video Intelligence	X		
		Blur Detection	X		
	Event Logs	Event Log	X		

Camera Menu	Sub Menu	Tab	Admin	Operator	User
		Fault Log	X		
Security	Security Status	Security Overview	X		
		Security Log	X		
	Users	User	X		
		Add User	X		
		Change Password	X	X	X
	HTTP/HTTPS	HTTP/HTTPS	X		
	IEEE 802.1x	EAP Settings	X		
	Firewall	Basic Filtering	X		
		Address Filtering	X		
	Remote Access	Remote Access	X		
	Session Timeout	Session Timeout	X		
Network	TCP/IP	TCP/IP	X		
	Multicast	Multicast	X		
	FTP	FTP	X		
	SMTP	SMTP	X		
	SNTP	SNTP	X		
	CIFS	CIFS	X		
	Dynamic DNS	Dynamic DNS	X		
	SIP	SIP	X		
System	Maintenance	Maintenance	X		
		Backup / Restore	X		
	Date Time	Date Time	X		
	Audio	Audio	X		
		Audio Clips	X	X	
	Analog Video	Analog Video	X	X	
	Health Monitor	Health Monitor	X		
	Logs	System Log	X		
		Boot Log	X		
		Audit Log	X		

Camera Menu	Sub Menu	Tab	Admin	Operator	User
	About	Model	X	X	X
Edge Recording	SD Card Management	SD Card Management	X		
	Record Settings	Record Settings	X		
		Offline Record Settings	X		
	Event Download	Event Download	X		

Appendix B: Using Media Player to View RTSP Streaming

Note: This appendix is provided for user instruction only. Tyco Security Products does not support or is not responsible for any error caused during the use of third party software used for RTSP playback.

Procedure 164 Viewing RTSP Stream through Media Player

Step	Action
------	--------

You can use Media Player to view live video and audio in real time from the camera.

- 1 Select **Media** then **Open Network Stream**.
- 2 Enter the IP address of the camera stream in the **Network URL** text box in the following format to view Stream 1 and 2:
 - **Stream 1:** rtsp://cameraip:554/videoStreamId=1
 - **Stream 2:** rtsp://cameraip:554/audioStreamId=1For example: rtsp://192.168.1.168:554/videoStreamId=1
OR
rtsp://192.168.1.168:554/videoStreamId=1&audioStreamId=1
- 3 Select **Play**. The live video stream displays.

- End -

Appendix C: Stream Tables

Pro Gen3 - 2MP, 3MP 5MP and 8MP Streaming Combinations

Table 56 on page 154 and Table 57 on page 155 provide information for the stream resolutions and supported FPS of the Pro Gen3 2MP cameras herein.

Table 58 on page 156 and Table 59 on page 157 provides information for the stream resolutions and supported FPS of the Pro Gen3 3MP cameras.

Table 60 on page 158 and Table 61 on page 159 provides information for the stream resolutions and supported FPS of the Pro Gen3 5MP cameras.

Table 62 on page 160 and Figure 63 on page 161 provides information for the stream resolutions and supported FPS of the Pro Gen3 8MP cameras.

Table 56 2MP Camera Stream Set A (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Normal Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264, h.264 Intellizip	1920 x 1080	(1080p) 16:9	60	30	15
	h.265, h.265 Intellizip	1664 x 936	(HD+) 16:9	60	30	15
	h.265 Intellizip	1280 x 720	(720p) 16:9	60	30	15
	MJPEG					
Stream 2	h.264, h.264 Intellizip	1280 x 720	(720p) 16:9	30	30	15
	h.265, h.265 Intellizip	1024 x 576	(PAL+) 16:9	30	30	15
	h.265 Intellizip	960 x 544	(qHD) 16:9	30	30	15
	h.265 Intellizip	816 x 464	16:9	30	30	15
	MJPEG	640 x 360	(nHD) 16:9	30	30	15
	MJPEG	480 x 272	16:9	30	30	15
Stream 3	h.264, h.264 Intellizip	640 x 360	16:9	30	30	15
	h.265, h.265 Intellizip	480 x 272	16:9	30	30	15
	MJPEG					
	MJPEG					
Stream 4	MJPEG	640 x 368	16:9	7	7	7

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Table 57 2MP Camera Stream Set B (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Corridor Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264, h.264 Intellizip	1920 x 1080	(1080p) 16:9	30	30	15
	h.265, h.265 Intellizip	1664 x 936	(HD+) 16:9	30	30	15
	h.265 Intellizip	1280 x 720	(720p) 16:9	30	30	15
	MJPEG					
Stream 2	h.264, h.264 Intellizip	1280 x 720	(720p) 16:9	30	30	15
	h.265, h.265 Intellizip	1024 x 576	(PAL+) 16:9	30	30	15
	h.265 Intellizip	960 x 544	(qHD) 16:9	30	30	15
	MJPEG	816 x 464	16:9	30	30	15
		640 x 360	(nHD) 16:9	30	30	15
		480 x 272	16:9	30	30	15
Stream 3	h.264, h.264 Intellizip	640 x 360	16:9	30	30	15
	h.265, h.265 Intellizip	480 x 272	16:9	30	30	15
	MJPEG					
Stream 4	MJPEG	640 x 368	16:9	7	7	7

Note: A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Table 58 3MP Camera Stream Set A (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Normal Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264,	2048 x 1536	4:3	30	30	30
	h.264 Intellizip	1920 x 1080	(1080p) 16:9	60	30	30
	h.265,	1664 x 936	(HD+) 16:9	60	30	30
	h.265 Intellizip	1280 x 960	4:3	60	30	30
	MJPEG	1280 x 720	(720p) 16:9	60	30	30
Stream 2	h.264,	1280 x 720	(720p) 16:9	30	30	30
	h.264 Intellizip	800 x 600	(SVGA) 4:3	30	30	30
	h.265,	640 x 840	(VGA) 4:3	30	30	30
	h.265 Intellizip	480 x 360	4:3	30	30	30
	MJPEG	384 x 288	4:3	30	30	30
Stream 3	h.264,	640 x 840	16:9	30	30	30
	h.264 Intellizip		4:3	30	30	30
	h.265,	480 x 360	4:3	30	30	30
	h.265 Intellizip	384 x 288	4:3	30	30	30
	MJPEG					
Stream 4	MJPEG	640 x 368	16:9	7	7	7

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:Enabling TWDR on the 3MP cameras turns analogue video off.

Table 59 3MP Camera Stream Set B (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Corridor Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264,	2048 x 1536	4:3	30	30	30
	h.264 Intellizip	1920 x 1080	(1080p) 16:9	30	30	30
	h.265,	1664 x 936	(HD+) 16:9	30	30	30
	h.265 Intellizip	1280 x 960	4:3	30	30	30
	MJPEG	1280 x 720	(720p) 16:9	30	30	30
Stream 2	h.264,	1280 x 720	(720p) 16:9	30	30	30
	h.264 Intellizip	800 x 600	(SVGA) 4:3	30	30	30
	h.265,	640 x 840	(VGA) 4:3	30	30	30
	h.265 Intellizip	480 x 360	4:3	30	30	30
	MJPEG	384 x 288	4:3	30	30	30
Stream 3	h.264,	640 x 840	16:9	30	30	30
	h.264 Intellizip		4:3			
	h.265,	384 x 288	4:3	30	30	30
	h.265 Intellizip		4:3			
MJPEG						
Stream 4	MJPEG	640 x 368	16:9	7	7	7

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:Enabling TWDR on the 3MP cameras turns analogue video off.

Table 60 5MP Camera Stream Set A (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Normal Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264,	2592 x 1944	4:3	30	30	-
	h.264 Intellizip	2560 x 1440	16:9	30	30	-
	h.265,	2048 x 1536	4:3	30	30	-
	h.265 Intellizip	1920 x 1080	(1080p) 16:9	60	30	-
	MJPEG	1664 x 934	(HD+) 16:9	60	30	-
		1280 x 960	4:3	60	30	-
		1280 x 720	(720p) 16:9	60	30	-
Stream 2	h.264,	1280 x 720	(720p) 16:9	30	30	-
	h.264 Intellizip	800 x 600	(SVGA) 4:3	30	30	-
	h.265,	640 x 480	(VGA) 4:3	30	30	-
	h.265 Intellizip	480 x 360	4:3	30	30	-
	MJPEG	384 x 288	4:3	30	30	-
Stream 3	h.264,	640 x 360	16:9	30	30	-
	h.264 Intellizip		4:3	30	30	-
	h.265,	480 x 360	4:3	30	30	-
	h.265 Intellizip	384 x 288	4:3	30	30	-
	MJPEG					
Stream 4	MJPEG	640 x 368 *1	16:9	7	7	-

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:*1 - The aspect ratio of stream 4 will match the aspect ratio of stream 1.

Table 61 5MP Camera Stream Set B (all resolution, codes and frame rate combinations of Stream 1, 2 and 3 are valid)

		Corridor Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR	TWDR 3x
Stream 1	h.264,	2592 x 1944	4:3	30	30	-
	h.264 Intellizip	2560 x 1440	16:9	30	30	-
	h.265,	2048 x 1536	4:3	30	30	-
	h.265 Intellizip	1920 x 1080	(1080p) 16:9	30	30	-
	MJPEG	1664 x 934	(HD+) 16:9	30	30	-
		1280 x 960	4:3	30	30	-
Stream 2	h.264,	1280 x 720	(720p) 16:9	30	30	-
	h.264 Intellizip	800 x 600	(SVGA) 4:3	30	30	-
	h.265,	640 x 480	(VGA) 4:3	30	30	-
	h.265 Intellizip	480 x 360	4:3	30	30	-
	MJPEG	384 x 288	4:3	30	30	-
Stream 3	h.264,					
	h.264 Intellizip	640 x 360	16:9	30	30	-
	h.265,	480 x 360	4:3	30	30	-
	h.265 Intellizip	384 x 288	4:3	30	30	-
	MJPEG					
Stream 4	MJPEG	640 x 368 *1	16:9	7	7	-

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:*1 - The aspect ratio of stream 4 will match the aspect ratio of stream 1.

Table 62 8MP Camera Stream Set A (all resolution, codes and frame rate combinations of Stream 1, 2, 3 and 4 are valid)

		Normal Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR 2x	TWDR 3x
Stream 1	h.264,	3840 x 2160	4K 16:9	30	25	-
	h.265	3264 X 1840	16:9	30	25	-
		2688 X 1520	16:9	30	25	-
	h.264,	1920 x 1080	(1080p) 16:9	60	30	-
	h.264 Intellizip	1664 x 936	(HD+) 16:9	60	30	-
	h.265,	1280 x 960	(720p) 16:9	60	30	-
	MJPEG					
Stream 2	h.264,	1280 x 720	(720p) 16:9	30*1	30*1	-
	h.264 Intellizip	1024 x 576	(PAL+) 16:9	30*1	30*1	-
	h.265,	960 x 544	(qHD) 16:9	30*1	30*1	-
	h.265 Intellizip	816 x 464	16:9	30*1	30*1	-
	MJPEG	640 x 360	(nHD) 16:9	30*1	30*1	-
		480 x 272	16:9	30*1	30*1	-
Stream 3	h.264,	640 x 360	16:9	30*2	30*2	-
	h.264 Intellizip	480 x 272	16:9	30*2	30*2	-
	h.265,					
	h.265 Intellizip					
	MJPEG					
Stream 4	MJPEG	640 x 368	16:9	7	7	-

Note:*1 - Stream 2 is restricted to 15 FPS when Stream 1 resolution is greater than 1920x1080

Note:*2 - Stream 3 is restricted to 10 FPS when Stream 1 resolution is greater than 1920x1080

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:Enabling TWDR on the 8MP camera requires Analogue Video to be disabled.

Note:Enabling TWDR will restrict the frame rate of Stream 1 to 25 FPS if the resolution is higher than 1920x1080.

Figure 63 8MP Camera Stream Set B (all resolution, codes and frame rate combinations of Stream 1, 2, 3 and 4 are valid)

		Corridor Mode				
		Resolution	Description	Max FPS		
				TWDR Off	TWDR 2x	TWDR 3x
Stream 1	h.264,	3840 x 2160	4K 16:9	30	25	-
	h.265	3264 X 1840	16:9	30	25	-
		2688 X 1520	16:9	30	25	-
	h.264,	1920 x 1080	(1080p) 16:9	30	30	-
	h.264 Intellizip	1664 x 936	(HD+) 16:9	30	30	-
	h.265,	1280 x 960	(720p) 16:9	30	30	-
	MJPEG					
Stream 2	h.264,	1280 x 720	(720p) 16:9	30*1	30*1	-
	h.264 Intellizip	1024 x 576	(PAL+) 16:9	30*1	30*1	-
	h.265,	960 x 544	(qHD) 16:9	30*1	30*1	-
	h.265 Intellizip	816 x 464	16:9	30*1	30*1	-
	MJPEG	640 x 360	(nHD) 16:9	30*1	30*1	-
		480 x 272	16:9	30*1	30*1	-
Stream 3	h.264,	640 x 360	16:9	30*2	30*2	-
	h.264 Intellizip	480 x 272	16:9	30*2	30*2	-
	h.265,					
	h.265 Intellizip					
	MJPEG					
Stream 4	MJPEG	640 x 368	16:9	7	7	-

Note:*1 - Stream 2 is restricted to 15 FPS when Stream 1 resolution is greater than 1920x1080

Note:*2 - Stream 3 is restricted to 10 FPS when Stream 1 resolution is greater than 1920x1080

Note:A maximum of 5 concurrent streams are supported by the camera. This includes shared streams.

Note:Enabling TWDR on the 8MP camera requires Analogue Video to be disabled.

Note:Enabling TWDR will restrict the frame rate of Stream 1 to 25 FPS if the resolution is higher than 1920x1080.

Appendix D: Camera Defaults

The below table details the defaults for the Illustra Connect Web User Interface.

Table 64 Camera Defaults

Tab	Item	Default			
TCP/IP					
	Enable DHCP	ON			
	IPv4 Address	192.168.1.168			
	Network Mask	255.255.255.0			
	Gateway	Unspecified			
	Primary DNS	Unspecified			
	IPv6 Enable	ON			
	Current IPv6 Address	Unspecified			
Video Stream Settings					
	Stream Number	1	2	3	4
	Codec	H264	H264	H264	MJPEG
	Profile	Main	Main	Main	N/A
	2MP Resolution	1920x1080	1280x720	640x360	640x368
	2MP Frame Rate (fps)	30	30	30	7
	2MP GOP Length [1-150]	60	30	30	7
	3MP Resolution	2048x1536	1280x720	640x360	640x368
	3MP Frame Rate (fps)	30	30	30	7
	3MP GOP Length [1-150]	30	30	30	N/A
	5MP Resolution	2592x1944	1280x720	640x360	640x368
	5MP Frame Rate (fps)	30	30	30	7
	5MP GOP Length [1-150]	30	30	30	7

Tab	Item	Default			
	8MP Resolution	3840x2160	1280x720	640x360	640x368
	8MP Frame Rate (fps)	30	15	10	7
	8MP GOP Length [1-150]	30	15	10	N/A
	MJPEG Quality	N/A	N/A	N/A	80
	Rate Control	VBR	VBR	VBR	N/A
	VBR Quality	Highest	Highest	Highest	N/A
	CVBR Max Bit Rate 2MP	8000	8000	8000	N/A
	CVBR Max Bit Rate 3MP	8000	8000	8000	N/A
	CVBR Max Bit Rate 5MP	8000	8000	8000	N/A
	CVBR Max Bit Rate 8MP	8000	8000	8000	N/A
	CBR Bit Rate 2MP	3000	3000	3000	N/A
	CBR Bit Rate 3MP	3000	3000	3000	N/A
	CBR Bit Rate 5MP	7000	7000	7000	N/A
	CBR Bit Rate 8MP	7000	7000	7000	N/A
Picture Basic					
	Mirror	OFF			
	Flip	OFF			
	Focus	Unspecified			
	Zoom	Unspecified			
	Exposure Method	Center Weighted			
	Exposure Offset (F-stops)	0			
	Min Exposure (sec)	1/10000			
	Max Exposure (sec)	1/8			
	Max Gain (dB)	51dB			

Tab	Item	Default			
	Iris Level	1			
	Frequency	60Hz			
	Flickerless	OFF			
Picture Additional					
	Enable WDR	SWDR			
	Enable IR Illuminator	ON			
	Day Night Mode	Auto Mid			
	Brightness	50%			
	Contrast	50%			
	Saturation	50%			
	Sharpness	50%			
	White Balance Mode	Auto Normal			
	Red	Scene dependent			
	Blue	Scene dependent			
Date/Time/OSD					
	Camera Friendly Name	Pro Gen3 - SERIALNUMBER			
	Camera Time	Unspecified			
	Time 24-hour	ON			
	Date Display Format	YYYY/MM/DD			
	Time Zone	(GMT-05:00) Eastern Time (US and Canada)			
	Set Time	Manually			
	Date(DD/MM/YY)	Unspecified			
	Time(HH:MM:SS)	Unspecified			
	Text size	Normal			

Tab	Item	Default			
	OSD Name	OFF			
	OSD Time	OFF			
	OSD User defined	Unspecified			
Privacy Zones					
	Name	Unspecified			
SMTP					
	Mail Server	Unspecified			
	Server Port	25			
	From Address	Unspecified			
	Send Email To	Unspecified			
	Use authentication to log on to server	OFF			
FTP					
	Enable FTP	ON			
	Secure FTP	OFF			
	FTP Server	Unspecified			
	FTP Port	21			
	Username	Unspecified			
	Password	Unspecified			
	Upload Path	Unspecified			
	Limit Transfer Rate	ON			
	Max Transfer Rate (Kbps)	50			
CIFS					
	Enable	ON			
	Network Path	Unspecified			

Tab	Item	Default			
	Domain Name	Unspecified			
	Username	Unspecified			
	Password	Unspecified			
SIP					
	Enabled	Off			
	Domain	Empty or unspecified			
	Username	Empty or unspecified			
	Password	Empty or unspecified			
	Audio Source	Mic			
	Audio Output	Speaker			
	Extension	Empty or unspecified			
	Status	Bare SIP process not running!			
Event Actions					
	Fault action 1	Unspecified			
	Fault action 2	Unspecified			
	Fault action 3	Unspecified			
	Fault action 4	Unspecified			
	Fault action 5	Unspecified			
Alarm I/O					
	Alarm input 1/2	Unspecified			
	Alarm out 1/2	Not Active			
ROI					
	Table	Unspecified			
	Enable Face Detection	OFF			

Tab	Item	Default			
	Highlight Faces	OFF			
	Enhance Faces	OFF			
	Face Orientation	UP			
	Action	Unspecified			
Motion Detection					
	Enable Motion Detection	OFF			
	Sensitivity	HIGH			
	Action	Unspecified			
Video Intelligence					
	Analytics Rules	Unspecified			
	Rule Definition	Unspecified			
Blur Detection					
	Enable Blur Detection	OFF			
Event Log		Unspecified			
Fault Log		Unspecified			
Applications					
	Select package to upload	Empty or unspecified			
License					
	Select package to upload	Empty or unspecified			
Security					
	Security Status	Standard			
	Enhanced Security	Disabled			
	Authenticate Video	Disabled			
	Authentication	Basic			

Tab	Item	Default			
Users					
	Logon Name	Admin			
	Role	Admin			
Add User					
	Name	Unspecified			
	Role	Unspecified			
	Password	Unspecified			
	Confirm Password	Unspecified			
Change Password					
	Name	Unspecified			
	Current Password	Unspecified			
	New Password	Unspecified			
	Confirm New Password	Unspecified			
HTTP/HTTPS					
	HTTP Method	BOTH			
	Select Certificate File	Unspecified			
EAP Settings					
	Enable IEEE802.1x	OFF			
	EAPOL Version	1			
	EAP Method	PEAP			
	EAP Identity	Unspecified			
	CA Certificate	Unspecified			
	Password	Unspecified			
	Client Certificate	Unspecified			
	Private Key Password	Unspecified			

Tab	Item	Default			
Basic Filtering					
	ICMP Blocking	OFF			
	Rp Filtering	OFF			
	SYN Cookie Verification	OFF			
Address Filtering					
	Filtering	OFF			
	IP or MAC Address	Unspecified			
Remote Access					
	SSH Enable	OFF			
	ONVIF Discovery Mode	ON			
	ONVIF User Authentication	ON			
	Video Over HTTP	ON			
	UPnP Discovery	ON			
	ExacqVision Server Audio	ON			
Session Timeout					
	Session Timeout (mins)	15			
Dynamic DNS					
	Service Enable	OFF			
	Camera Alias	Unspecified			
	Service Provider	dyndns.org			
	Username	Unspecified			
	Password	Unspecified			
	Service Data	Unspecified			
Maintenance					

Tab	Item	Default			
	Preserve IP Address	ON			
	Preserve Applications	ON			
	Preserve License	ON			
	Select Firmware Image File	Unspecified			
Date Time					
	Camera Time				
	Time 24-hour	ON			
	Date Display Format	YYYY/MM/DD			
	Time Zone	Unspecified			
	Set Time	Unspecified			
	NTP Server Name	Unspecified			
Backup/Restore					
	Select Saved Data File	Unspecified			
Audio					
	Enable Audio	OFF			
	Input Enable	OFF			
	Input Volume	72			
	Output Enable	OFF			
	Output Volume	50			
Audio Clips					
	Audio Clips Table	Unspecified			
Analog Video					
	Analog Video Source	DIP Switch			
Health Monitor					
	Reporting Period (seconds)	20			

Tab	Item	Default			
	Health Monitor Table	Unspecified			
System Log					
	Lines (From The End Of The Log File)	Unspecified			
	Filter (Only Lines Containing Text)	Unspecified			
Boot Log					
	Lines (From The End Of The Log File)	Unspecified			
	Filter (Only Lines Containing Text)	Unspecified			
Audit Log					
	Search By	Unspecified			
	Filter Text 1	TEXT			
	Filter Text 2	Unspecified			
	Start Date (DD/MM)	Unspecified			
	End Date (DD/MM)	Unspecified			
Model					
	Camera Name	Factory configuration			
	Model	Factory configuration			
	Product Code	Factory configuration			
	Manufacturing Date	Factory configuration			
	Serial Number	Factory configuration			
	MAC Address	Factory configuration			
	Firmware Version	Factory configuration			
	Hardware Version	Factory configuration			
SD Card Management					
	Disk	Unspecified			

Tab	Item	Default			
	File Type	Unspecified			
	Total Size	Unspecified			
	Free Space	Unspecified			
	Status	Unspecified			
Record Settings					
	Enable Even Recording	OFF			
	Record Source	Stream 1			
	Pre Event (secs)	10			
	Post Event (secs)	10			
Offline Record Setting					
	Video Edge IP address	Unspecified			
	Pre event (sec)	10			
	Post event (sec)	10			
Event Download					
	File Name Table	Unspecified			

Appendix E: Technical Specifications

The table below lists technical specifications of the Illustra Pro Gen3 3MP and 8MP Dome camera.

General Features		
Model Type	3MP Outdoor dome camera	8MP Outdoor dome camera
Model No.	IPS03-D12-OI03 / IPS03-D17-OI03	IPS08-D13-OI03 / IPS08-D14-OI03
Camera Body Color	White	White
Vandal Resistant Rating	IK10	IK10
Mechanical Features		
Dimensions	Ø138x138mm	Ø138x138mm
Weight	1.13kg	1.13kg
Pan Rotation Angle	360°	360°
Tilt Angle	75° (Default) 90° (Max)	75° (Default) 90° (Max)
Z-axis Rotation	356°	356°
Housing Material	Aluminum Alloy (ADC 12)	Aluminum Alloy (ADC 12)
Bubble Trim Ring Material	Aluminum Alloy (ADC 12)	Aluminum Alloy (ADC 12)
Other Housing Material	PC (L-1250Z) (S300UR) (PC 2407) Silicon (KE5612GU) (TSE2183U) (TSE221-5U)	PC (L-1250Z) (S300UR) (PC 2407) Silicon (KE5612GU) (TSE2183U) (TSE221-5U)
Video Processor		
ROM/Flash Size	512 Mbytes	512 Mbytes
RAM Size	1GB of RAM (DDR 2 x 4Gb)	1GB of RAM (DDR 2 x 4Gb)
RTC Hold Up Time	24 hours	24 hours
Image Sensor		
Format	1/2.8" CMOS	1/1.8" CMOS
Capture Method	Rolling	Rolling
Scan Method	Progressive	Progressive
Lens		
Design Type	7 groups, 9 elements	8 groups, 10 elements

Mount	14mm	14mm
Aperture Range	f 1.4 - 2.8	f 1.5 – 2.8
Focal Length Range	IPS03-D12-OI03 = 2.7-13.5mm IPS03-D17-OI03 = 7-22mm	IPS08-D13-OI03 = 3.6-10mm IPS08-D14-OI03 = 6-22mm
Focal Means	Motorized	Motorized
Focal Type	Varifocal	Varifocal
Focus Type	Motorized	Motorized
Auto Focus	One-Touch / Manual	One-Touch / Manual
IR Correction	Optical corrected	Optical corrected
Day/Night	True D/N with ICR	True D/N with ICR
Horizontal Angle of View	IPS03-D12-OI03 = 100° (Wide); 32° (Tele) IPS03-D17-OI03 = 36° (Wide); 16° (Tele)	IPS08-D13-OI03 = 95° (Wide); 49° (Tele) IPS08-D14-OI03 = 50° (Wide); 24.2° (Tele)
Vertical Angle of View	IPS03-D12-OI03 = 73° (Wide); 24° (Tele) IPS03-D17-OI03 = 26° (Wide); 12° (Tele)	IPS08-D13-OI03 = 53° (Wide); 28° (Tele) IPS08-D14-OI03 = 27.6° (Wide); 13.7° (Tele)
Format	IPS03-D12-OI03 = 1 / 2.7 IPS03-D17-OI03 = 1 / 2.7	IPS08-D13-OI03 = 1 / 1.8 IPS08-D14-OI03 = 1 / 2.5
Illuminator		
Wavelength	850 nm	850 nm
IR Distance	40m	40m
Smart IR	N/A	N/A
Adaptive IR	Yes. Based on lens position to adjust the IR intensity of both narrow and broad IR LEDs to have better exposure balance.	Yes. Based on lens position to adjust the IR intensity of both narrow and broad IR LEDs to have better exposure balance.
Number of IR LED devices	Tele*4,Wide*2	Tele*4,Wide*2
Power Supply		
Power Requirement	AC 24V, PoE IEEE 802.3af class 3	AC 24V, PoE IEEE 802.3af class 3
Current Draw Amps	1.15A, 0.269A	1.15A, 0.269A
Wattage	16.5W, 12.95W	16.5, 12.95W
Line Frequency Range	47 to 63 Hz	47 to 63 Hz

Video Codecs		
Frame Rate Range	1 to 60 fps	1 to 60 fps
Maximum Resolution and Rate	2048 x 1536 @ 30 fps	3840 x 2160 @ 30 fps
Video Imaging		
Dynamic Range Method	Smart WDR, True WDR, TWDR3x & Tone mapping	Smart WDR, True WDR& Tone mapping
Audio		
Sampling Bits	16-BIT	16-BIT
Input Type	line/microphone	line/microphone
Input Impedance	High Impedance	High Impedance
Maximum Input Level	2Vp-p	2Vp-p
Input connector	Terminal Block	Terminal Block
Output Type Impedance	10K ohms	10K ohms
Maximum Output	2Vp-p	2Vp-p
I/O Interfaces		
Micro SD Card	Micro SD & SDXC slot up to 128GB; Class 10 or higher; Card not included	Micro SD & SDXC slot up to 128GB; Class 10 or higher; Card not included
Alarm Inputs	2 terminal block inputs	2 terminal block inputs
Auxiliary Outputs	1 terminal block output	1 terminal block output
Video Output	NTSC/PAL (permanent)	NTSC/PAL (permanent)
IP Connector	RJ-45	RJ-45
LED Indicators	Network, Green LED, Orange LED	Network, Green LED, Orange LED
Reset Buttons	Reboot Return to defaults except network Return to defaults	Reboot Return to defaults except network Return to defaults
Environmental		
Operating Temperature Range	-50° to +60°C (-58° to +140°F)	-50° to +60°C (-58° to +140°F)
Start-up Temperature	-40° to +60°C (-40° to +140°F)	-40° to +60°C (-40° to +140°F)

Range		
Water/Dust Intrusion	IP66/67	IP66/67
Client Interfaces		
Browsers supported	IE 9 or above, Firefox, Safari, Chrome	IE 9 or above, Firefox, Safari, Chrome
Networking		
Languages supported	English (default), Arabic, Czech, Danish, German, Spanish, French, Hungarian, Italian, Korean, Japanese, Netherlands, Polish, Portuguese, Swedish, Turkish, Chinese Traditional, Chinese Simplified, Russian, Hindi.	English (default), Arabic, Czech, Danish, German, Spanish, French, Hungarian, Italian, Korean, Japanese, Netherlands, Polish, Portuguese, Swedish, Turkish, Chinese Traditional, Chinese Simplified, Russian, Hindi.
Ethernet	10/100Base-T	10/100Base-T
Supported Protocols	TCP/IP, IPv4, IPv6, TCP, UDP, HTTP, FTP, DHCP, WS-Discovery, DNS, DDNS, RTP, TLS, Unicast, Multicast, NTP, SMTP, WSSecurity, IEEE 802.1x, PEAP, SSH, HTTPS, SSL, SOAP, WSAddressing, CIFS, SNMP, UPnP, RTSP, LLDP	TCP/IP, IPv4, IPv6, TCP, UDP, HTTP, FTP, DHCP, WS-Discovery, DNS, DDNS, RTP, TLS, Unicast, Multicast, NTP, SMTP, WSSecurity, IEEE 802.1x, PEAP, SSH, HTTPS, SSL, SOAP, WSAddressing, CIFS, SNMP, UPnP, RTSP, LLDP
Base Protocol	TCP/IP - RFC4614	TCP/IP - RFC4614
Internet Layer Addressing	IPv4 - RFC791 IPv6 - RFC2460	IPv4 - RFC791 IPv6 - RFC2460
Transport Layer	TCP - RFC973 UDP - RFC768	TCP - RFC973 UDP - RFC768
Data Transmission	HTTP/HTTPS - RFC2616 FTP - RFC959 SFTP	HTTP/HTTPS - RFC2616 FTP - RFC959 SFTP
Network Address Configuration	DHCP - RFC2131 Zeroconf - RFC3927 Static IP address LLDP	DHCP - RFC2131 Zeroconf - RFC3927 Static IP address LLDP
Time Synchronization	NTP - RFC1305 IETF NTP Working Group i minute poll rate	NTP - RFC1305 IETF NTP Working Group i minute poll rate
E-mail	SMTP - RFC5321 Authenticated SMTP - RFC4954	SMTP - RFC5321 Authenticated SMTP - RFC4954
Authentication and Security	IEEE.802.1x - TLS/PEAP HTTPS (HTTP over TLS) - RFC2818 WS-Security Multi-level password protection IP address filtering HTTPS encryption User access log	IEEE.802.1x - TLS/PEAP HTTPS (HTTP over TLS) - RFC2818 WS-Security Multi-level password protection IP address filtering HTTPS encryption User access log
Streaming	RTP - RFC3550 RTSP - RFC2326 Unicast Streaming Multicast RFC 1112 level 1	RTP - RFC3550 RTSP - RFC2326 Unicast Streaming Multicast RFC 1112 level 1

Firmware Upgrade	Browser/illustra Connect/ONVIF	Browser/illustra Connect/ONVIF
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The table below lists technical specifications of the Illustra Pro Gen3 2MP and 5MP Dome camera.

General Features		
Model Type	2MP Outdoor dome camera	5MP Outdoor dome camera
Model No.	IPS02-D12-OI03 / IPS02-D17-OI03	IPS05-D12-OI03 / IPS05-D17-OI03
Camera Body Color	White	White
Vandal Resistant Rating	IK10	IK10
Mechanical Features		
Dimensions	Ø138x138mm	Ø138x138mm
Weight	1.13kg	1.13kg
Pan Rotation Angle	360°	360°
Tilt Angle	75° (Default) 90° (Max)	75° (Default) 90° (Max)
Z-axis Rotation	356°	356°
Housing Material	Aluminum Alloy (ADC 12)	Aluminum Alloy (ADC 12)
Bubble Trim Ring Material	Aluminum Alloy (ADC 12)	Aluminum Alloy (ADC 12)
Other Housing Material	PC (L-1250Z) (S300UR) (PC 2407) Silicon (KE5612GU) (TSE2183U) (TSE221-5U)	PC (L-1250Z) (S300UR) (PC 2407) Silicon (KE5612GU) (TSE2183U) (TSE221-5U)
Video Processor		
ROM/Flash Size	512 Mbytes	512 Mbytes
RAM Size	1GB of RAM (DDR 2 x 4Gb)	1GB of RAM (DDR 2 x 4Gb)
RTC Hold Up Time	24 hours	24 hours
Image Sensor		
Format	1/2.8" CMOS	1/2.8" CMOS
Capture Method	Rolling	Rolling
Scan Method	Progressive	Progressive
Lens		
Design Type	6 groups, 9 elements	6 groups, 9 elements

Mount	14mm	14mm
Aperture Range	f 1.4 - 2.8	f 1.4 – 2.8
Focal Length Range	IPS02-D12-OI03 = 2.7-13.5mm IPS02-D17-OI03 = 7-22mm	IPS05-D12-OI03 = 2.7-13.5mm IPS05-D17-OI03 = 6-22mm
Focal Means	Motorized	Motorized
Focal Type	Varifocal	Varifocal
Focus Type	Motorized	Motorized
Auto Focus	One-Touch / Manual	One-Touch / Manual
IR Correction	Optical corrected	Optical corrected
Day/Night	True D/N with ICR	True D/N with ICR
Horizontal Angle of View	IPS02-D12-OI03 = 112° (Wide); 35° (Tele) IPS02-D17-OI03 = 40° (Wide); 18° (Tele)	IPS05-D12-OI03 = 103° (Wide); 33° (Tele) IPS05-D17-OI03 = 40° (Wide); 18° (Tele)
Vertical Angle of View	IPS02-D12-OI03 = 58° (Wide); 20° (Tele) IPS02-D17-OI03 = 21° (Wide); 10° (Tele)	IPS05-D12-OI03 = 74° (Wide); 25° (Tele) IPS08-D17-OI03 = 30° (Wide); 13° (Tele)
Format	IPS02-D12-OI03 = 1 / 2.7 IPS02-D17-OI03 = 1 / 2.7	IPS05-D12-OI03 = 1 / 2.7 IPS05-D17-OI03 = 1 / 2.5
Illuminator		
Wavelength	850 nm	850 nm
IR Distance	40m	40m
Smart IR	N/A	N/A
Adaptive IR	Yes. Based on lens position to adjust the IR intensity of both narrow and broad IR LEDs to have better exposure balance.	Yes. Based on lens position to adjust the IR intensity of both narrow and broad IR LEDs to have better exposure balance.
Number of IR LED devices	Tele*4,Wide*2	Tele*4,Wide*2
Power Supply		
Power Requirement	AC 24V, PoE IEEE 802.3af class 3	AC 24V, PoE IEEE 802.3af class 3
Current Draw Amps	1.15A, 0.269A	1.15A, 0.269A
Wattage	16.5W, 12.95W	16.5, 12.95W
Line Frequency Range	47 to 63 Hz	47 to 63 Hz

Video Codecs		
Frame Rate Range	1 to 60 fps	1 to 60 fps
Maximum Resolution and Rate	1920 x 1080 @ 60 fps	2592 x 1944 @ 60 fps
Video Imaging		
Dynamic Range Method	Smart WDR, True WDR, TWDR3x & Tone mapping	Smart WDR, True WDR& Tone mapping
Audio		
Sampling Bits	16-BIT	16-BIT
Input Type	line/microphone	line/microphone
Input Impedance	High Impedance	High Impedance
Maximum Input Level	2Vp-p	2Vp-p
Input connector	Terminal Block	Terminal Block
Output Type Impedance	10K ohms	10K ohms
Maximum Output	2Vp-p	2Vp-p
I/O Interfaces		
Micro SD Card	Micro SD & SDXC slot up to 128GB; Class 10 or higher; Card not included	Micro SD & SDXC slot up to 128GB; Class 10 or higher; Card not included
Alarm Inputs	2 terminal block inputs	2 terminal block inputs
Auxiliary Outputs	1 terminal block output	1 terminal block output
Video Output	NTSC/PAL (permanent)	NTSC/PAL (permanent)
IP Connector	RJ-45	RJ-45
LED Indicators	Network, Green LED, Orange LED	Network, Green LED, Orange LED
Reset Buttons	Reboot Return to defaults except network Return to defaults	Reboot Return to defaults except network Return to defaults
Environmental		
Operating Temperature Range	-50° to +60°C (-58° to +140°F)	-50° to +60°C (-58° to +140°F)
Start-up Temperature	-40° to +60°C (-40° to +140°F)	-40° to +60°C (-40° to +140°F)

Range		
Water/Dust Intrusion	IP66/67	IP66/67
Client Interfaces		
Browsers supported	IE 9 or above, Firefox, Safari, Chrome	IE 9 or above, Firefox, Safari, Chrome
Networking		
Languages supported	English (default), Arabic, Czech, Danish, German, Spanish, French, Hungarian, Italian, Korean, Japanese, Netherlands, Polish, Portuguese, Swedish, Turkish, Chinese Traditional, Chinese Simplified, Russian, Hindi.	English (default), Arabic, Czech, Danish, German, Spanish, French, Hungarian, Italian, Korean, Japanese, Netherlands, Polish, Portuguese, Swedish, Turkish, Chinese Traditional, Chinese Simplified, Russian, Hindi.
Ethernet	10/100Base-T	10/100Base-T
Supported Protocols	TCP/IP, IPv4, IPv6, TCP, UDP, HTTP, FTP, DHCP, WS-Discovery, DNS, DDNS, RTP, TLS, Unicast, Multicast, NTP, SMTP, WSSecurity, IEEE 802.1x, PEAP, SSH, HTTPS, SSL, SOAP, WSAddressing, CIFS, SNMP, UPnP, RTSP, LLDP	TCP/IP, IPv4, IPv6, TCP, UDP, HTTP, FTP, DHCP, WS-Discovery, DNS, DDNS, RTP, TLS, Unicast, Multicast, NTP, SMTP, WSSecurity, IEEE 802.1x, PEAP, SSH, HTTPS, SSL, SOAP, WSAddressing, CIFS, SNMP, UPnP, RTSP, LLDP
Base Protocol	TCP/IP - RFC4614	TCP/IP - RFC4614
Internet Layer Addressing	IPv4 - RFC791 IPv6 - RFC2460	IPv4 - RFC791 IPv6 - RFC2460
Transport Layer	TCP - RFC973 UDP - RFC768	TCP - RFC973 UDP - RFC768
Data Transmission	HTTP/HTTPS - RFC2616 FTP - RFC959 SFTP	HTTP/HTTPS - RFC2616 FTP - RFC959 SFTP
Network Address Configuration	DHCP - RFC2131 Zeroconf - RFC3927 Static IP address LLDP	DHCP - RFC2131 Zeroconf - RFC3927 Static IP address LLDP
Time Synchronization	NTP - RFC1305 IETF NTP Working Group i minute poll rate	NTP - RFC1305 IETF NTP Working Group i minute poll rate
E-mail	SMTP - RFC5321 Authenticated SMTP - RFC4954	SMTP - RFC5321 Authenticated SMTP - RFC4954
Authentication and Security	IEEE.802.1x - TLS/PEAP HTTPS (HTTP over TLS) - RFC2818 WS-Security Multi-level password protection IP address filtering HTTPS encryption User access log	IEEE.802.1x - TLS/PEAP HTTPS (HTTP over TLS) - RFC2818 WS-Security Multi-level password protection IP address filtering HTTPS encryption User access log
Streaming	RTP - RFC3550 RTSP - RFC2326 Unicast Streaming Multicast RFC 1112 level 1	RTP - RFC3550 RTSP - RFC2326 Unicast Streaming Multicast RFC 1112 level 1

Firmware Upgrade	Browser/illustra Connect/ONVIF	Browser/illustra Connect/ONVIF
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The table below lists technical specifications of the Illustra Pro Gen3 3MP and 8MP Bullet camera.

General Features		
Model Type	3MP Bullet camera	8MP Bullet camera
Model No.	IPS03-B12-OI03 / IPS03-B15-OI03	IPS08-B13-OI03 / IPS08-B16-OI03
Camera Body Color	RAL 9003 - Signal White	RAL 9003 - Signal White
Vandal Resistant Rating	IK10	IK10
Mechanical Features		
Dimensions	Standard lens: Ø79.9 x 205mm(Ø3.15in x 8.07in) Telephoto lens: Ø79.9 x 217mm(Ø3.15in x 8.54in)	Standard lens: Ø79.9 x 205mm(Ø3.15in x 8.07in) Telephoto lens: Ø79.9 x 235.5mm(Ø3.15in x 9.27in)
Weight	Standard lens: 1.18kg (2.6 lb.) + 0.78kg (1.71lb) Bracket Telephoto lens: 1.25kg (2.755 lb.) + 0.78kg (1.71lb) Bracket	Standard lens: 1.18kg (2.6 lb.) + 0.78kg (1.71lb) Bracket Telephoto lens: 1.45kg (3.2 lb.) + 0.78kg (1.71lb) Bracket
Pan Rotation Angle	270°	270°
Tilt Angle	90°	90°
Z-axis Rotation	NA	NA
Housing Material	Aluminum Alloy (AL6063-T5)	Aluminum Alloy (AL6063-T5)
Bubble Trim Ring Material	Aluminum Alloy (ADC 12)	Aluminum Alloy (ADC 12)
Other Housing Material	PC (L-1225Z) (S3000UR) (L-1250Z) (PC 2407) Silicon (KE-931U) (KE-951U) (KE-971U) (TSE2183U)	PC (L-1225Z) (S3000UR) (L-1250Z) (PC 2407) Silicon (KE-931U) (KE-951U) (KE-971U) (TSE2183U)
Video Processor		
ROM/Flash Size	512 Mbytes	512 Mbytes
RAM Size	1GB of RAM (DDR 2 x 4Gb)	1GB of RAM (DDR 2 x 4Gb)
RTC Hold Up Time	24 hours	24 hours

Image Sensor		
Format	1/2.8" CMOS	1/1.8" CMOS
Capture Method	Rolling	Rolling
Scan Method	Progressive	Progressive
Lens		
Design Type	7 groups, 9 elements (Standard Lens) 4 groups, 13 elements (Telephoto Lens)	8 groups, 10 elements (Standard Lens) 4 groups, 13 elements (Telephoto Lens)
Aperture Range	f 1.4 - 2.8 (Standard Lens) f 1.6 - 3.0 (Telephoto Lens)	f 1.5 - 2.8 (Standard Lens) f 1.7 - 2.1 (Telephoto Lens)
Focal Length Range	f 2.7-13.5mm (Standard Lens) f 4.7-47mm (Telephoto Lens)	f 3.6-10mm (Standard Lens) f 13-55mm (Telephoto Lens)
Focal Means	Motorized	Motorized
Focal Type	Varifocal	Varifocal
Focus Type	Motorized	Motorized
Auto Focus	One-Touch / Manual	One-Touch / Manual
IR Correction	Optical corrected	Optical corrected
Day/Night	True D/N with ICR	True D/N with ICR
Horizontal Angle of View	100° (Wide); 31° (Tele) - Standard Lens 58° (Wide); 6.5° (Tele) - Telephoto Lens	98° (Wide); 43° (Tele) - Standard Lens 33° (Wide); 8.4° (Tele) - Telephoto Lens
Vertical Angle of View	70° (Wide); 23° (Tele) - Standard Lens 45° (Wide); 4.5° (Tele) - Telephoto Lens	53° (Wide); 24° (Tele) - Standard Lens 17° (Wide); 4.5° (Tele) - Telephoto Lens
Format	1/2.7"	1/1.8"
Illuminator		
Wavelength	850 nm	850 nm
IR Distance	Standard lens: 60m range IR (standard lens) Telephoto lens: 70m range IR (telephoto lens)	Standard lens: 60m range IR (standard lens) Telephoto lens: 70m range IR (telephoto lens)
Smart IR	N/A	N/A
Adaptive IR	Yes. Based on lens position to adjust the IR intensity of both narrow and broad IR LEDs to have better exposure balance.	Yes. Based on lens position to adjust the IR intensity of both narrow and broad IR LEDs to have better exposure balance.
Power Supply		
Power	Power over Ethernet (PoE+) IEEE 802.3at	Power over Ethernet (PoE+) IEEE 802.3at

Requirement	Type 2 Class 4 AC 24V	Type 2 Class 4 AC 24V
Current Draw Amps	PoE+ = 0.38A AC 24V = 1.27A	PoE+ = 0.38A AC 24V = 1.27A
Wattage	PoE+ = 18.2W AC 24V = 30.5W	PoE+ = 18.2W AC 24V = 30.5W
Line Frequency Range	47 to 63 Hz	47 to 63 Hz
24V AC range	-20% +30%	-20% +30%
Video Codecs		
Frame Rate Range	1 to 60 fps	1 to 60 fps
Maximum Resolution and Rate	2048 x 1536 @ 30 fps	3840 x 2160 @ 30 fps
Video Imaging		
Dynamic Range Method	Smart WDR, True WDR, TWDR3x & Tone mapping	Smart WDR, True WDR & Tone mapping
Audio		
Sampling Bits	16-BIT	16-BIT
Input Type	line/microphone	line/microphone
Input Impedance	High Impedance	High Impedance
Maximum Input Level	2Vp-p	2Vp-p
Input connector	Terminal Block	Terminal Block
Output Type Impedance	10K ohms	10K ohms
Maximum Output	2Vp-p	2Vp-p
I/O Interfaces		
Micro SD Card	Micro SD & SDXC slot up to 512GB; Class 10 or higher; Card not included	Micro SD & SDXC slot up to 512GB; Class 10 or higher; Card not included
Alarm Inputs	2 terminal block inputs	2 terminal block inputs
Auxiliary Outputs	1 terminal block output	1 terminal block output
Video Output	NTSC/PAL (installation only)	NTSC/PAL (installation only)

IP Connector	RJ-45	RJ-45
LED Indicators	NA	NA
Reset Buttons	Reboot Return to defaults except network Return to defaults	Reboot Return to defaults except network Return to defaults
Environmental		
Operating Temperature Range	-50° to +60°C (-58° to +140°F)	-50° to +60°C (-58° to +140°F)
Start-up Temperature Range	-40° to +60°C (-40° to +140°F)	-40° to +60°C (-40° to +140°F)
Water/Dust Intrusion	IP66/67	IP66/67
Client Interfaces		
Browsers supported	IE 9 or above, Firefox, Safari, Chrome	IE 9 or above, Firefox, Safari, Chrome
Networking		
Languages supported	English (default), Arabic, Czech, Danish, German, Spanish, French, Hungarian, Italian, Korean, Japanese, Netherlands, Polish, Portuguese, Swedish, Turkish, Chinese Traditional, Chinese Simplified, Russian, Hindi.	English (default), Arabic, Czech, Danish, German, Spanish, French, Hungarian, Italian, Korean, Japanese, Netherlands, Polish, Portuguese, Swedish, Turkish, Chinese Traditional, Chinese Simplified, Russian, Hindi.
Ethernet	10/100/1000Base-T	10/100/1000Base-T
Supported Protocols	TCP/IP, IPv4, IPv6, TCP, UDP, HTTP, FTP, DHCP, WS-Discovery, DNS, DDNS, RTP, TLS, Unicast, Multicast, NTP, SMTP, WSSecurity, IEEE 802.1x, PEAP, SSH, HTTPS, SSL, SOAP, WSAddressing, CIFS, SNMP, UPnP, RTSP, LLDP	TCP/IP, IPv4, IPv6, TCP, UDP, HTTP, FTP, DHCP, WS-Discovery, DNS, DDNS, RTP, TLS, Unicast, Multicast, NTP, SMTP, WSSecurity, IEEE 802.1x, PEAP, SSH, HTTPS, SSL, SOAP, WSAddressing, CIFS, SNMP, UPnP, RTSP, LLDP
Base Protocol	TCP/IP - RFC4614	TCP/IP - RFC4614
Internet Layer Addressing	IPv4 - RFC791 IPv6 - RFC2460	IPv4 - RFC791 IPv6 - RFC2460
Transport Layer	TCP - RFC973 UDP - RFC768	TCP - RFC973 UDP - RFC768
Data Transmission	HTTP/HTTPS - RFC2616 FTP - RFC959 SFTP	HTTP/HTTPS - RFC2616 FTP - RFC959 SFTP
Network Address Configuration	DHCP - RFC2131 Zeroconf - RFC3927 Static IP address LLDP	DHCP - RFC2131 Zeroconf - RFC3927 Static IP address LLDP
Time Synchronization	NTP - RFC1305 IETF NTP Working Group i minute poll rate	NTP - RFC1305 IETF NTP Working Group i minute poll rate

E-mail	SMTP - RFC5321 Authenticated SMTP - RFC4954	SMTP - RFC5321 Authenticated SMTP - RFC4954
Authentication and Security	IEEE.802.1x - TLS/PEAP HTTPS (HTTP over TLS) - RFC2818 WS-Security Multi-level password protection IP address filtering HTTPS encryption User access log	IEEE.802.1x - TLS/PEAP HTTPS (HTTP over TLS) - RFC2818 WS-Security Multi-level password protection IP address filtering HTTPS encryption User access log
Streaming	RTP - RFC3550 RTSP - RFC2326 Unicast Streaming Multicast RFC 1112 level 1	RTP - RFC3550 RTSP - RFC2326 Unicast Streaming Multicast RFC 1112 level 1
Firmware Upgrade	Browser/illustra Connect/ONVIF	Browser/illustra Connect/ONVIF

The table below lists technical specifications of the Illustra Pro Gen3 2MP and 5MP Bullet camera.

General Features		
Model Type	2MP Bullet camera	5MP Bullet camera
Model No.	IPS02-B12-OI03 / IPS02-B15-OI03	IPS05-B12-OI03 / IPS05-B16-OI03
Camera Body Color	RAL 9003 - Signal White	RAL 9003 - Signal White
Vandal Resistant Rating	IK10	IK10
Mechanical Features		
Dimensions	Standard lens: Ø79.9 x 205mm(Ø3.15in x 8.07in) Telephoto lens: Ø79.9 x 217mm(Ø3.15in x 8.54in)	Standard lens: Ø79.9 x 205mm(Ø3.15in x 8.07in) Telephoto lens: Ø79.9 x 235.5mm(Ø3.15in x 9.27in)
Weight	Standard lens: 1.18kg (2.6 lb.) + 0.78kg (1.71lb) Bracket Telephoto lens: 1.25kg (2.755 lb.) + 0.78kg (1.71lb) Bracket	Standard lens: 1.18kg (2.6 lb.) + 0.78kg (1.71lb) Bracket Telephoto lens: 1.45kg (3.2 lb.) + 0.78kg (1.71lb) Bracket
Pan Rotation Angle	270°	270°
Tilt Angle	90°	90°
Z-axis Rotation	NA	NA
Housing Material	Aluminum Alloy (AL6063-T5)	Aluminum Alloy (AL6063-T5)
Bubble Trim Ring Material	Aluminum Alloy (ADC 12)	Aluminum Alloy (ADC 12)

Other Housing Material	PC (L-1225Z) (S3000UR) (L-1250Z) (PC 2407) Silicon (KE-931U) (KE-951U) (KE-971U) (TSE2183U)	PC (L-1225Z) (S3000UR) (L-1250Z) (PC 2407) Silicon (KE-931U) (KE-951U) (KE-971U) (TSE2183U)
Video Processor		
ROM/Flash Size	512 Mbytes	512 Mbytes
RAM Size	1GB of RAM (DDR 2 x 4Gb)	1GB of RAM (DDR 2 x 4Gb)
RTC Hold Up Time	24 hours	24 hours
Image Sensor		
Format	1/2.8" CMOS	1/1.8" CMOS
Capture Method	Rolling	Rolling
Scan Method	Progressive	Progressive
Lens		
Design Type	7 groups, 9 elements (Standard Lens) 4 groups, 13 elements (Telephoto Lens)	8 groups, 10 elements (Standard Lens) 4 groups, 13 elements (Telephoto Lens)
Aperture Range	f 1.4 - 2.8 (Standard Lens) f 1.6 - 3.0 (Telephoto Lens)	f 1.5 - 2.8 (Standard Lens) f 1.7 - 2.1 (Telephoto Lens)
Focal Length Range	f 2.7-13.5mm (Standard Lens) f 4.7-47mm (Telephoto Lens)	f 3.6-10mm (Standard Lens) f 13-55mm (Telephoto Lens)
Focal Means	Motorized	Motorized
Focal Type	Varifocal	Varifocal
Focus Type	Motorized	Motorized
Auto Focus	One-Touch / Manual	One-Touch / Manual
IR Correction	Optical corrected	Optical corrected
Day/Night	True D/N with ICR	True D/N with ICR
Horizontal Angle of View	112° (Wide); 34° (Tele) - Standard Lens 62° (Wide); 7° (Tele) - Telephoto Lens	103° (Wide); 33° (Tele) - Standard Lens 23° (Wide); 5.72° (Tele) - Telephoto Lens
Vertical Angle of View	59° (Wide); 19° (Tele) - Standard Lens 36° (Wide); 4° (Tele) - Telephoto Lens	75° (Wide); 25° (Tele) - Standard Lens 17° (Wide); 4.28° (Tele) - Telephoto Lens
Format	1/2.7"	1/1.8"
Illuminator		
Wavelength	850 nm	850 nm
IR Distance	Standard lens:	Standard lens:

	60m range IR (standard lens) Telephoto lens: 70m range IR (telephoto lens)	60m range IR (standard lens) Telephoto lens: 70m range IR (telephoto lens)
Smart IR	N/A	N/A
Adaptive IR	Yes. Based on lens position to adjust the IR intensity of both narrow and broad IR LEDs to have better exposure balance.	Yes. Based on lens position to adjust the IR intensity of both narrow and broad IR LEDs to have better exposure balance.
Power Supply		
Power Requirement	Power over Ethernet (PoE+) IEEE 802.3at Type 2 Class 4 AC 24V	Power over Ethernet (PoE+) IEEE 802.3at Type 2 Class 4 AC 24V
Current Draw Amps	PoE+ = 0.38A AC 24V = 1.27A	PoE+ = 0.38A AC 24V = 1.27A
Wattage	PoE+ = 18.2W AC 24V = 30.5W	PoE+ = 18.2W AC 24V = 30.5W
Line Frequency Range	47 to 63 Hz	47 to 63 Hz
24V AC range	-20% +30%	-20% +30%
Video Codecs		
Frame Rate Range	1 to 60 fps	1 to 60 fps
Maximum Resolution and Rate	2048 x 1536 @ 30 fps	3840 x 2160 @ 30 fps
Video Imaging		
Dynamic Range Method	Smart WDR, True WDR, TWDR3x & Tone mapping	Smart WDR, True WDR & Tone mapping
Audio		
Sampling Bits	16-BIT	16-BIT
Input Type	line/microphone	line/microphone
Input Impedance	High Impedance	High Impedance
Maximum Input Level	2Vp-p	2Vp-p
Input connector	Terminal Block	Terminal Block
Output Type Impedance	10K ohms	10K ohms
Maximum	2Vp-p	2Vp-p

Output		
I/O Interfaces		
Micro SD Card	Micro SD & SDXC slot up to 512GB; Class 10 or higher; Card not included	Micro SD & SDXC slot up to 512GB; Class 10 or higher; Card not included
Alarm Inputs	2 terminal block inputs	2 terminal block inputs
Auxiliary Outputs	1 terminal block output	1 terminal block output
Video Output	NTSC/PAL (installation only)	NTSC/PAL (installation only)
IP Connector	RJ-45	RJ-45
LED Indicators	NA	NA
Reset Buttons	Reboot Return to defaults except network Return to defaults	Reboot Return to defaults except network Return to defaults
Environmental		
Operating Temperature Range	-50° to +60°C (-58° to +140°F)	-50° to +60°C (-58° to +140°F)
Start-up Temperature Range	-40° to +60°C (-40° to +140°F)	-40° to +60°C (-40° to +140°F)
Water/Dust Intrusion	IP66/67	IP66/67
Client Interfaces		
Browsers supported	IE 9 or above, Firefox, Safari, Chrome	IE 9 or above, Firefox, Safari, Chrome
Networking		
Languages supported	English (default), Arabic, Czech, Danish, German, Spanish, French, Hungarian, Italian, Korean, Japanese, Netherlands, Polish, Portuguese, Swedish, Turkish, Chinese Traditional, Chinese Simplified, Russian, Hindi.	English (default), Arabic, Czech, Danish, German, Spanish, French, Hungarian, Italian, Korean, Japanese, Netherlands, Polish, Portuguese, Swedish, Turkish, Chinese Traditional, Chinese Simplified, Russian, Hindi.
Ethernet	10/100/1000Base-T	10/100/1000Base-T
Supported Protocols	TCP/IP, IPv4, IPv6, TCP, UDP, HTTP, FTP, DHCP, WS-Discovery, DNS, DDNS, RTP, TLS, Unicast, Multicast, NTP, SMTP, WSSecurity, IEEE 802.1x, PEAP, SSH, HTTPS, SSL, SOAP, WSAddressing, CIFS, SNMP, UPnP, RTSP, LLDP	TCP/IP, IPv4, IPv6, TCP, UDP, HTTP, FTP, DHCP, WS-Discovery, DNS, DDNS, RTP, TLS, Unicast, Multicast, NTP, SMTP, WSSecurity, IEEE 802.1x, PEAP, SSH, HTTPS, SSL, SOAP, WSAddressing, CIFS, SNMP, UPnP, RTSP, LLDP
Base Protocol	TCP/IP - RFC4614	TCP/IP - RFC4614
Internet Layer Addressing	IPv4 - RFC791 IPv6 - RFC2460	IPv4 - RFC791 IPv6 - RFC2460

Transport Layer	TCP - RFC973 UDP - RFC768	TCP - RFC973 UDP - RFC768
Data Transmission	HTTP/HTTPS - RFC2616 FTP - RFC959 SFTP	HTTP/HTTPS - RFC2616 FTP - RFC959 SFTP
Network Address Configuration	DHCP - RFC2131 Zeroconf - RFC3927 Static IP address LLDP	DHCP - RFC2131 Zeroconf - RFC3927 Static IP address LLDP
Time Synchronization	NTP - RFC1305 IETF NTP Working Group i minute poll rate	NTP - RFC1305 IETF NTP Working Group i minute poll rate
E-mail	SMTP - RFC5321 Authenticated SMTP - RFC4954	SMTP - RFC5321 Authenticated SMTP - RFC4954
Authentication and Security	IEEE.802.1x - TLS/PEAP HTTPS (HTTP over TLS) - RFC2818 WS-Security Multi-level password protection IP address filtering HTTPS encryption User access log	IEEE.802.1x - TLS/PEAP HTTPS (HTTP over TLS) - RFC2818 WS-Security Multi-level password protection IP address filtering HTTPS encryption User access log
Streaming	RTP - RFC3550 RTSP - RFC2326 Unicast Streaming Multicast RFC 1112 level 1	RTP - RFC3550 RTSP - RFC2326 Unicast Streaming Multicast RFC 1112 level 1
Firmware Upgrade	Browser/illustra Connect/ONVIF	Browser/illustra Connect/ONVIF

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