

IndigoVision

**PTZ Dome Camera
BX Range**

User Guide



IndigoVision

THIS MANUAL WAS CREATED ON 6/15/2016.

DOCUMENT ID: IU-PTZ-MAN018-4

Legal considerations

LAWS THAT CAN VARY FROM COUNTRY TO COUNTRY MAY PROHIBIT CAMERA SURVEILLANCE. PLEASE ENSURE THAT THE RELEVANT LAWS ARE FULLY UNDERSTOOD FOR THE PARTICULAR COUNTRY OR REGION IN WHICH YOU WILL BE OPERATING THIS EQUIPMENT. INDIGOVISION LTD. ACCEPTS NO LIABILITY FOR IMPROPER OR ILLEGAL USE OF THIS PRODUCT.

Copyright

COPYRIGHT © INDIGOVISION LIMITED. ALL RIGHTS RESERVED.

THIS MANUAL IS PROTECTED BY NATIONAL AND INTERNATIONAL COPYRIGHT AND OTHER LAWS. UNAUTHORIZED STORAGE, REPRODUCTION, TRANSMISSION AND/OR DISTRIBUTION OF THIS MANUAL, OR ANY PART OF IT, MAY RESULT IN CIVIL AND/OR CRIMINAL PROCEEDINGS.

INDIGOVISION IS A TRADEMARK OF INDIGOVISION LIMITED AND IS REGISTERED IN CERTAIN COUNTRIES. SMS4, CAMERA GATEWAY, AND MOBILE CENTER ARE UNREGISTERED TRADEMARKS OF INDIGOVISION LIMITED. ALL OTHER PRODUCT NAMES REFERRED TO IN THIS MANUAL ARE TRADEMARKS OF THEIR RESPECTIVE OWNERS.

SAVE AS OTHERWISE AGREED WITH INDIGOVISION LIMITED AND/OR INDIGOVISION, INC., THIS MANUAL IS PROVIDED WITHOUT EXPRESS REPRESENTATION AND/OR WARRANTY OF ANY KIND. TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAWS, INDIGOVISION LIMITED AND INDIGOVISION, INC. DISCLAIM ALL IMPLIED REPRESENTATIONS, WARRANTIES, CONDITIONS AND/OR OBLIGATIONS OF EVERY KIND IN RESPECT OF THIS MANUAL. ACCORDINGLY, SAVE AS OTHERWISE AGREED WITH INDIGOVISION LIMITED AND/OR INDIGOVISION, INC., THIS MANUAL IS PROVIDED ON AN "AS IS", "WITH ALL FAULTS" AND "AS AVAILABLE" BASIS. PLEASE CONTACT INDIGOVISION LIMITED (EITHER BY POST OR BY E-MAIL AT PARTNER.SUPPORT@INDIGOVISION.COM) WITH ANY SUGGESTED CORRECTIONS AND/OR IMPROVEMENTS TO THIS MANUAL.

SAVE AS OTHERWISE AGREED WITH INDIGOVISION LIMITED AND/OR INDIGOVISION, INC., THE LIABILITY OF INDIGOVISION LIMITED AND INDIGOVISION, INC. FOR ANY LOSS (OTHER THAN DEATH OR PERSONAL INJURY) ARISING AS A RESULT OF ANY NEGLIGENT ACT OR OMISSION BY INDIGOVISION LIMITED AND/OR INDIGOVISION, INC. IN CONNECTION WITH THIS MANUAL AND/OR AS A RESULT OF ANY USE OF OR RELIANCE ON THIS MANUAL IS EXCLUDED TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAWS.

Contact address



IndigoVision Limited
Charles Darwin House,
The Edinburgh Technopole,
Edinburgh,
EH26 0PY

TABLE OF CONTENTS

	Legal considerations	2
	Copyright	2
	Contact address	2
1	About This Guide	5
	Safety notices	5
2	Hardware Description	7
	Variants	7
	Internal Pendant	7
	External Pendant	8
	Connections	11
	Internal Pendant connections	11
	External Pendant connections	12
	Audio	13
	Binary I/O	13
	Power	14
	Lens options	14
	Local storage	14
3	Getting Started	17
	Package contents	17
	Internal Pendant variant	17
	External Pendant variant	18
	Removing the packing material from the internal pendant	18
	Removing the packing material from the external pendant	19
	Powering up the dome	19
	Configuring the camera	20
	Configure the settings	20
4	Installation	21
	Installing the Internal Pendant variant	21
	Internal Pendant variant	21
	Fit the Mounting Plate	22
	Run the cabling to the camera	22
	Fit the dome to the Mounting Plate	22
	Installing the External Pendant variant	23
	External Pendant variant	24
	Fixing the mount	24
	Fitting the dome to the mount	25

5	Operations	27
	Configuring the camera	27
	Reset to factory defaults	27
6	Configuration	29
	Web Configuration pages	29
	Home	29
	Network	29
	Date and Time	30
	Video	30
	Audio	32
	Encoder	32
	Analytics	33
	PTZ	33
	Binary IO	35
	Edge Storage	35
	Profile Schedule	36
	Advanced Network	37
	Network Security	37
	Firmware Upgrade	38
	Diagnostics	39
7	Hardware Specification	41
	Codec specification	41
	Video	41
	Resolution	41
	Streaming	41
	Audio	41
	Sensor specification	42
	Power consumption	42
	Control Center requirements	42
	Network connections	42
	Environment	43
	Regulatory	43
A	Optional mount components	45

1 ABOUT THIS GUIDE

This guide is for users of the IndigoVision PTZ Dome Camera. It provides installation and configuration information for the camera, as well as a description of the hardware and specifications.

Please ensure you read the instructions provided in the guide before using the camera.

Safety notices

This guide uses the following formats for safety notices:



Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in moderate injury, damage the product, or lead to loss of data.

Notice

Indicates a hazardous situation which, if not avoided, may seriously impair operations.



Additional information relating to the current section.

2 HARDWARE DESCRIPTION

This chapter details the PTZ Dome Camera, its connections, and its weights and dimensions.

Variants

The IndigoVision PTZ Dome Camera is a PTZ dome with a 2 or 3 Megapixel CMOS sensor (H.264). The PTZ Dome Camera is an auto-focus camera, and is ONVIF conformant.

The following variants are available:

- Internal Pendant
- External Pendant

For each variant, the following options are available:

- HD (2MP) - 30x optical zoom
- 3MP - 30x optical zoom

Internal Pendant

The Internal Pendant PTZ Dome Camera is designed for internal installations. The pendant can be mounted using the optional mounts available.

For more information, see *"Optional mount components"* on page 45



Figure 1: PTZ Dome Camera - Internal Pendant

Dimensions

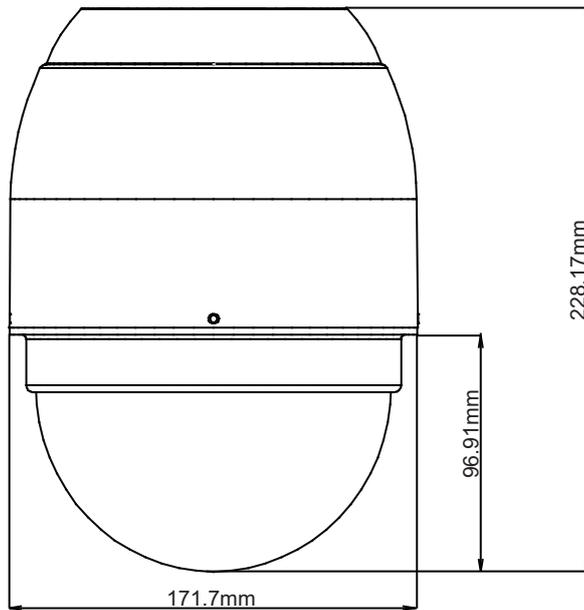


Figure 2: Internal Pendant dimensions

Weight

The following unit weights do not include packaging:

- 1.62Kg (3.57lbs)

External Pendant

The External Pendant PTZ Dome Camera provides IP66 Dust and Water Ingress protection, as well as IK10 (IEC 62262) impact protection. The pendant can be mounted using the optional mounts available.

For more information about the optional mounts, see "*Optional mount components*" on page 45.



Figure 3: PTZ Dome Camera - External Pendant

Dimensions

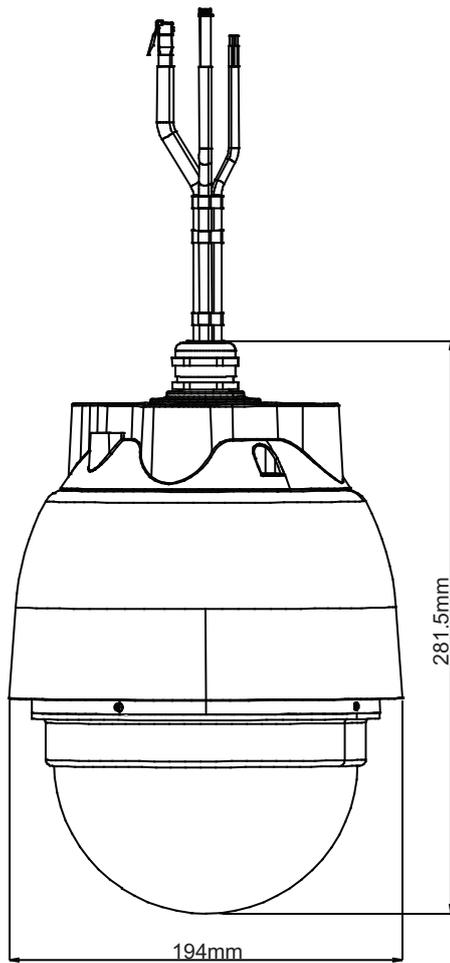


Figure 4: External Pendant dimensions

Weight

The following unit weights do not include packaging:

- 2.32Kg (including sunshield) - (5.11lbs)

Connections

Internal Pendant connections

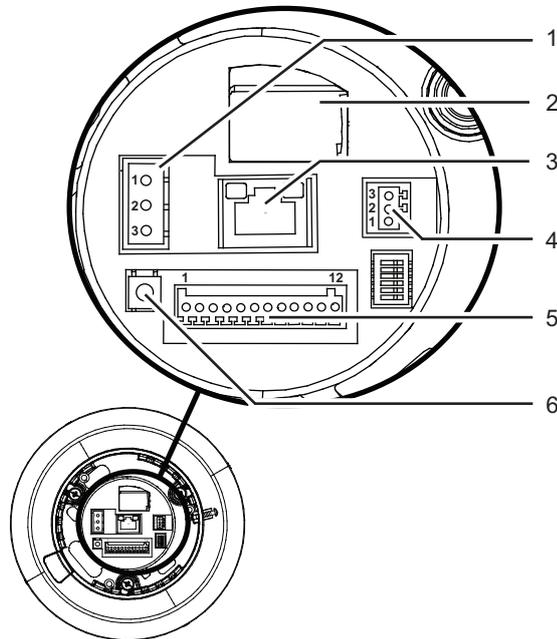


Figure 5: Internal Pendant connections

Use the following table to connect the dome appropriately.

Table 1: Internal Pendant connections

No.	Definition	Remarks
1	Power	Pin 1: AC 24_1 Pin 2: FG Pin 3: AC 24_2
2	microSD slot	Local video storage
3	Network	RJ45 (with PoE)
4	Audio	Pin 1: LINE_OUT Pin 2: GND Pin 3: LINE_IN
5	Alarm I/O	Pin 1: ALARM_OUT_NO_1 Pin 2: ALARM_OUT_NC_1 Pin 3: ALARM_OUT_COM_1 Pin 4: GND Pin 5: ALARM_OUT_NO_2 Pin 6: ALARM_OUT_NC_2 Pin 7: ALARM_OUT_COM_2 Pin 8: GND Pin 9: ALARM_IN_4 Pin 10: ALARM_IN_3 Pin 11: ALARM_IN_2 Pin 12: ALARM_IN_1
6	Reset button	Reset to factory defaults

External Pendant connections

The External Pendant variant has a pre-terminated cable bundle. The cables are all labeled.

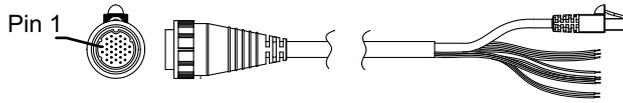


Figure 6: External Pendant cable bundle

Use the following table to connect the camera appropriately.

Table 2: Cable bundle wiring

Connector pin number	Signal	Wire Colour	Gauge	Description
1-5 and 8-10	CAT5 Connector			
7	EARTH	Yellow/Green	18 AWG	
6 and 11	Not connected			
12	GND	Red/Green	26 AWG	
13	Not connected			
14	AUX-	Black	18 AWG	24V AC/DC Power
15 and 16	Not connected			
17	BIO_IP1	White	26 AWG	Binary Input
18	BIO_IP2	Yellow	26 AWG	Binary Input
19	AUX+	Red	18 AWG	24V AC/DC Power
20	BIO_RA2	Pink	26 AWG	Output relay
21	Not connected			
22	INPUT_AUDIO	White/Black	26 AWG	Mic or Line input
23	GND	Black	26 AWG	
24	GND	Brown/Green	26 AWG	
25	BIO_RA1	Grey	26 AWG	Output relay
26	Not connected			
27	Not connected			
28	GND_AUDIO	White/Violet	26 AWG	Audio return
29	AUDIO_OUT	Violet	26 AWG	Headphone output
30	Not connected			
31	Not connected			



Bared ends of any unused connections on the cable bundle should be removed during installation and before powering up the camera.



For Ethernet protection to be operational, the camera must be earthed. Connect pin 7, the EARTH wire, to a suitable ground point.

Audio

- Input: Line in
- Output: Line out

Binary I/O

The cameras have four binary inputs and two binary outputs. These are connected using the Alarm IO connections on the camera.

- Input: 5V 10k Ω pull up
- Output: Solid state opto-isolated relay (50V AC/DC)

► For more information about the Alarm IO connections, see "Connections" on page 11

Binary input

The binary input is operated by an external switch:

- 10k Ω Pull up input
- Normally low

The input must be configured on the Web Configuration pages to ensure correct behavior.

► For more information, see "Binary IO" on page 35

When using an external switch to trigger the input, connect the switch between the `ALARM_IN_x` input and `GND`. When the switch is open the level is high. Close the switch to set the input low.

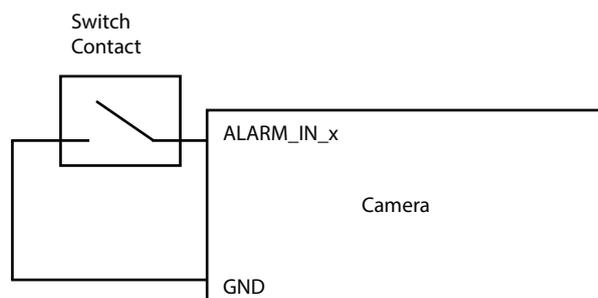


Figure 7: Binary input - external switch

► For more information about pin numbering, see "Connections" on page 11

Binary output

The binary output is an opto-isolated solid-state relay:

- Max load voltage: 50V AC/DC
- Max current carrying capacity: 130mA
- Max resistance: 20 Ω

The relay is a single-pole double-throw (SPDT) relay. Ensure that the trigger mechanism and the relay wiring are aligned.

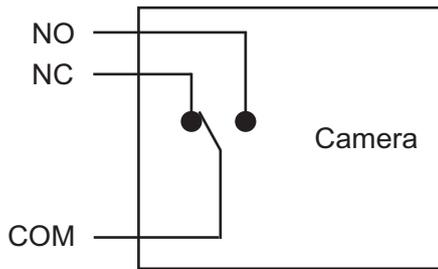


Figure 8: Binary output - relay wiring

► For more information about pin numbering, see "Connections" on page 11

Power

Power is supplied to the dome by one of the following:

- Internal Pendant:
 - CAT5 Ethernet cable to the RJ-45 connector from a PoE+ Injector or switch (802.3at)
 - 24V AC cable to the power terminal block (max 1A)
- External Pendant:
 - CAT5 Ethernet cable to the RJ-45 connector from an Ultra PoE (60W) Injector (for 30x models) or switch
 - 24V AC cable to the power terminal block (max 3A)

► For more information, see "Connections" on page 11

Notice *In some cases you may need to use an Ethernet crossover cable when connecting the dome directly to a PC.*



If using PoE+ or Ultra PoE (60W), make sure Power Sourcing Equipment (PSE) is in use on the network.

Lens options

The PTZ Dome Camera is fitted with a 4.3-129mm auto-iris lens.

- Horizontal view angle 52.2 (W) to 4.1(T)
- F1.6, Varifocal
- Auto-iris DC drive lens
- 30x optical + 10x digital zoom

Local storage

The cameras have a microSD memory card slot for local video storage. The local storage is accessible using the Configuration pages.

- SD cards: microSDHC - 64 GB support

► For more information, see "Edge Storage" on page 35

The microSD memory card slot is located on the top panel of the camera.

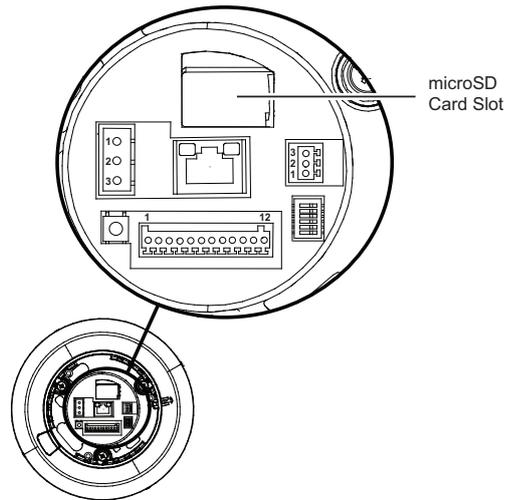


Figure 9: microSD card slot

Power down the camera before inserting or replacing a microSD card.

3 GETTING STARTED

This chapter describes the initial steps required to start using your PTZ Dome Camera.

Package contents

Internal Pendant variant

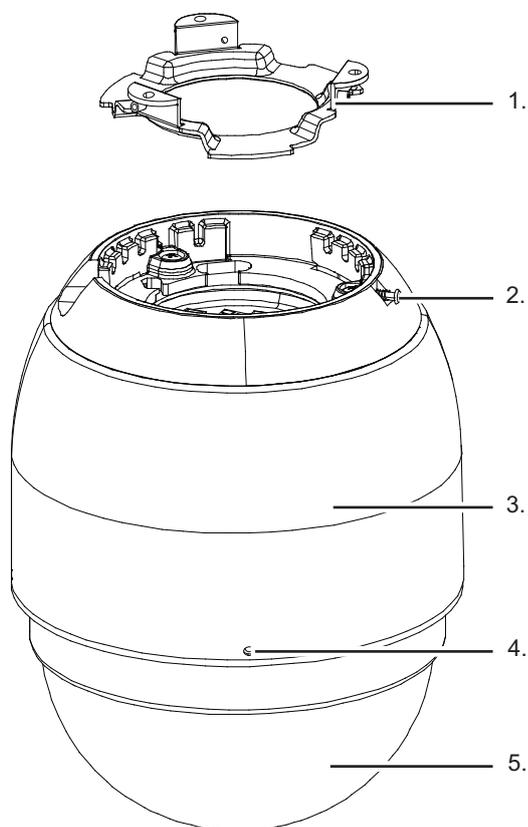


Figure 10: Internal Pendant package contents

1. Mounting Plate
2. Locking Screw
3. Dome Body
4. M3 Screw
5. Dome Bubble

In addition to the camera, the following items are also provided:

- 3 x M4 screws
- 3 x Plastic anchors

- 1 x M3 screw

External Pendant variant

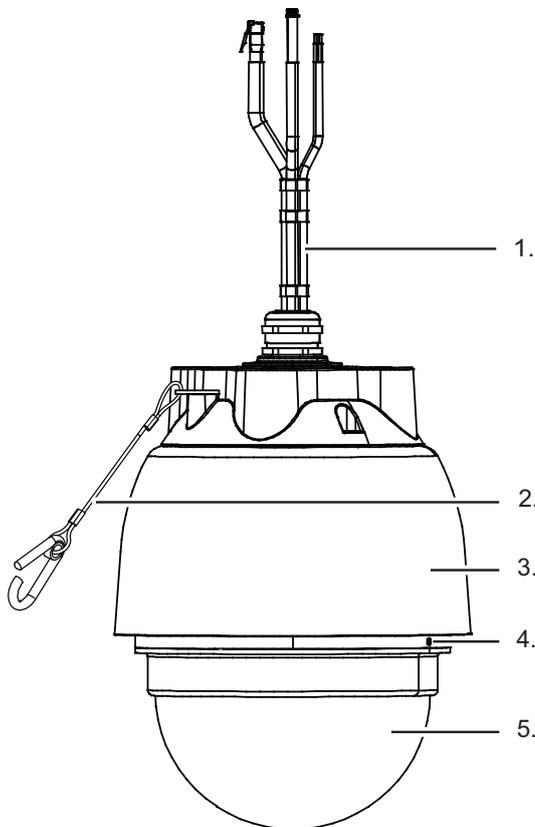


Figure 11: External Pendant package contents

1. Cable Bundle
2. Safety Lanyard
3. Dome Body
4. M3 Screw
5. Dome Bubble

In addition to the camera, the following items are also provided:

- 4 x M3 security screws
- 1 x Security torx
- 1 x Lubricant
- 1 x Mini inline coupler for Ethernet

Removing the packing material from the internal pendant

Before you install or configure the camera, you must remove the packing material underneath the Dome Bubble.

1. Remove the Dome Bubble (5).
2. Remove the packing piece, tape, and lens cap.
Retain for refitting if the dome is to be shipped after configuration.
3. Replace the Dome Bubble (5), aligning the Locating Pin with one of the holes in the Dome Body (3).

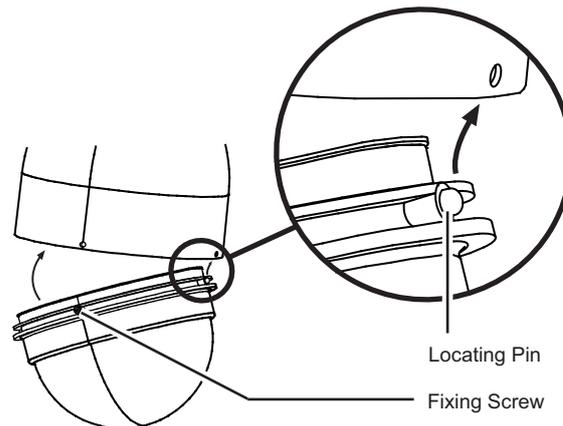


Figure 12: Replace the Dome Bubble

4. Turn the two fixing screws in the Dome Bubble (5) counter-clockwise to fix the Dome Bubble to the Dome Body (3).
Ensure you do not turn the screws too far as this can distort the housing of the Dome Body.
5. Secure the Dome Bubble (5) using the M3 screw (4).

Removing the packing material from the external pendant

Before you install or configure the camera, you must remove the packing material underneath the Dome Bubble.

1. Remove the Dome Bubble (5).
2. Remove the packing piece, tape, and lens cap.
Retain for refitting if the dome is to be shipped after configuration.
3. Replace the Dome Bubble (5).
Use the lubricant on the seal if necessary, ensuring none gets on the Dome Bubble as this will reduce the image quality.
4. Secure the Dome Bubble (5) using the 4 M3 screws (4) provided.



Do not remove the Dome Bubble for a period of more than 5 minutes or the desiccant must be replaced.

Powering up the dome

Internal PTZ Dome Camera

The Internal Pendant PTZ Dome Camera can be powered by PoE+ or an external power supply.

To power the dome by PoE+, connect a CAT5 Ethernet cable between the PoE+ device and the RJ-45 connector of the camera..

To power the PTZ Dome Camera using an external power supply, plug the dome's power cable into the power terminal block.

A 30V DC PSU or PoE+ Injector with mains power lead can be ordered separately from IndigoVision.

► For more information, see "Power" on page 14

External PTZ Dome Camera

The External Pendant PTZ Dome Camera can be powered by Ultra PoE (60W or higher) or an external power supply.

To power the dome by Ultra PoE (60W), connect a CAT5 Ethernet cable between the PoE device and the RJ-45 connector of the camera.

A 30V DC PSU, PoE+ Injector or Ultra PoE (60W) Injector with mains power lead can be ordered separately from IndigoVision.

► For more information, see "Power" on page 14

Internal and External PTZ Dome Camera

The external power supply must have an output of 24V AC +/-20% or 30V DC +/-10%.

An in line ethernet coupler is supplied. Ensure the network is powered correctly.

To power the PTZ Dome Camera using an external power supply, plug the dome's power cable into the power terminal block.

To power the PTZ Dome Camera using an external power supply, terminate the power cables in the cable bundle with an appropriate connector, and connect to the power supply.

Configuring the camera

Before you connect the camera to your network, you must configure the camera's IP address and subnet mask appropriately.

Configure the settings

1. Connect the camera to a PC via a PoE switch or an Ethernet crossover cable.
2. Navigate to the camera's default IP address using a web browser, and enter the default user name and password.

Table 3: Default network settings

Default Username	Admin
Default Password	1234
Default IP Address	10.5.1.10
Default Subnet Mask	255.0.0.0
Default Gateway	10.0.0.1

3. Enter the NTP server on the **Date & Time** menu.
4. Enter a new IP address and subnet mask on the **Network** menu.
5. Select the maximum video frame rate for your country using the **TV System** option on the **Video > Advanced** menu.

Choose **25/50fps (PAL)** for countries with 50Hz power frequency and **30/60fps (NTSC)** for countries with 60Hz power frequency.

4 INSTALLATION

This chapter details the installation procedures for the PTZ Dome Camera variants.

Installing the Internal Pendant variant

This section describes the procedure for installing the Internal Pendant variant.

► For camera weight and dimensions, see "Internal Pendant" on page 7



Always handle the camera carefully so that the main electronics and motor mechanism are not damaged.

Internal Pendant variant

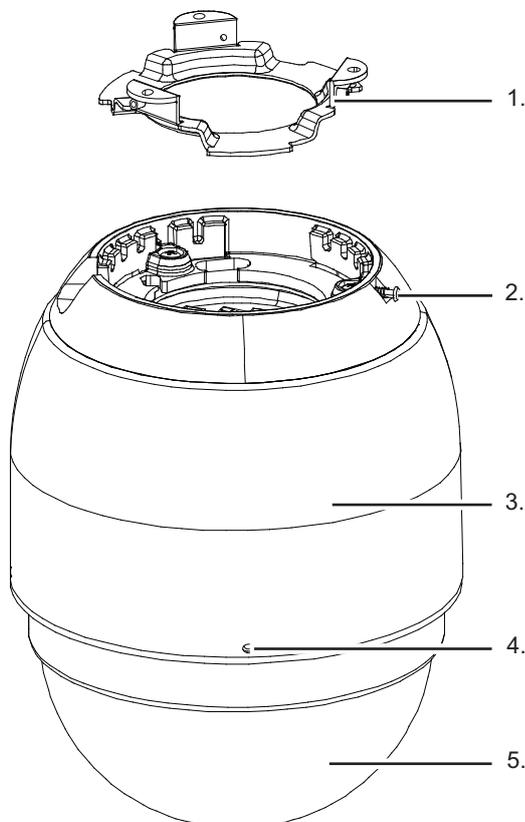


Figure 13: Internal Pendant package contents

1. Mounting Plate

2. Locking Screw
3. Dome Body
4. M3 Screw
5. Dome Bubble

In addition to the camera, the following items are also provided:

- 3 x M4 screws
- 3 x Plastic anchors
- 1 x M3 screw

Fit the Mounting Plate

1. Use the Mounting Plate (1) as a template to mark out the fixing holes and cable access point on the mounting surface.
2. Prepare the holes and make the cutout on the mounting surface, fitting appropriate mounting plugs.
3. Secure the Mounting Plate (1) to the surface using the M4 screws and plastic anchors provided.

Run the cabling to the camera

Use the mounting plate as a template to mark out the cable access points on the mounting surface. Run the required cabling up to the location where the camera will be installed.

The Mounting Plate can be used in conjunction with a standard back-box. If you are using a suitable back-box, ensure it has been fitted securely before running the cabling.

Fit the dome to the Mounting Plate



Warning

Ensure the power supply is switched off before continuing.

1. Run the cabling to the Mounting Plate (1).
2. Connect the required cables to the dome.
3. Fit the dome to the Mounting Plate (1), and turn the dome clockwise to secure it in place.

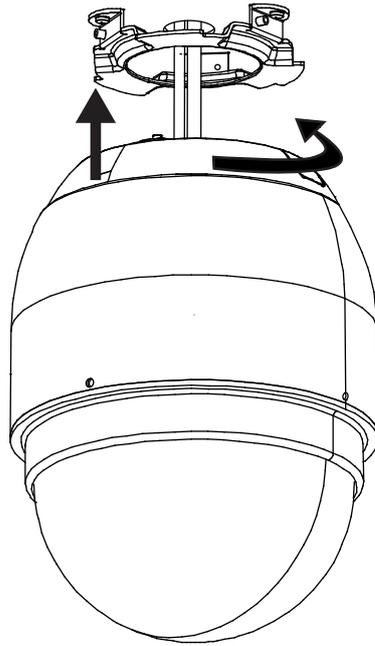


Figure 14: Attach the dome to the Mounting Plate

4. Tighten the Locking Screw (2) to secure the dome in place.

Installing the External Pendant variant

This section describes the procedure for installing the External Pendant variant.

- For camera weight and dimensions, see "External Pendant" on page 8.



Caution

Always handle the camera carefully so that the main electronics and motor mechanism are not damaged.

External Pendant variant

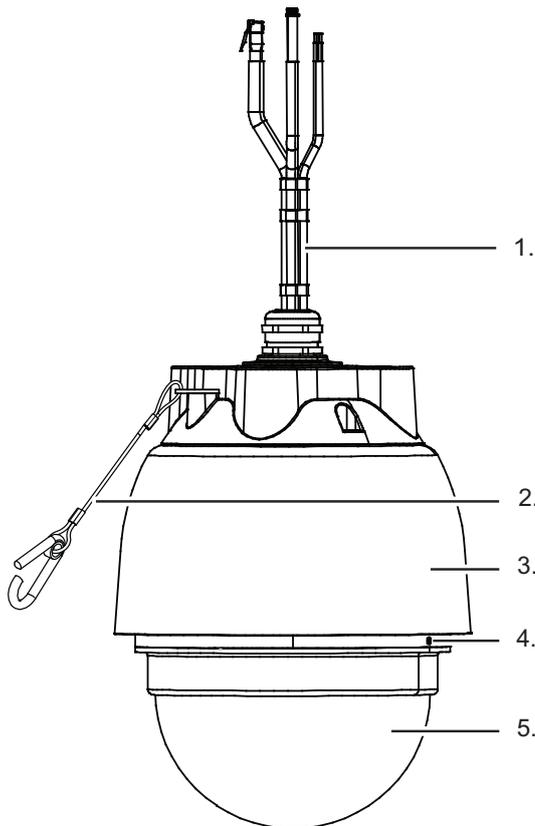


Figure 15: External Pendant package contents

1. Cable Bundle
2. Safety Lanyard
3. Dome Body
4. M3 Screw
5. Dome Bubble

In addition to the camera, the following items are also provided:

- 4 x M3 security screws
- 1 x Security torx
- 1 x Lubricant
- 1 x Mini inline coupler for Ethernet

Fixing the mount

The PTZ Dome Camera can be mounted using a Wall, Swan-Neck, or Vertical Mount.

For more information about the mounts available, see *"Optional mount components"* on page 45.

Use the mount base as a template or use the profile to fit it to the mounting surface.

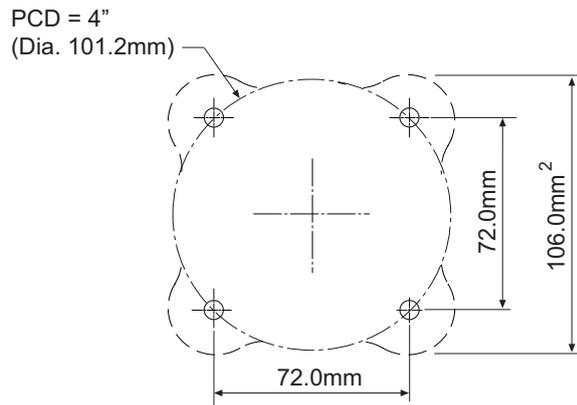


Figure 16: Mount base mounting centers

Fitting the dome to the mount

1. Connect the Safety Lanyard (2) to the mount.
2. Run the cables through the mount, and connect them to the dome.
 - ▶ For more information, see "Connections" on page 11
3. Secure the dome to the mount using the mounting fixings provided.

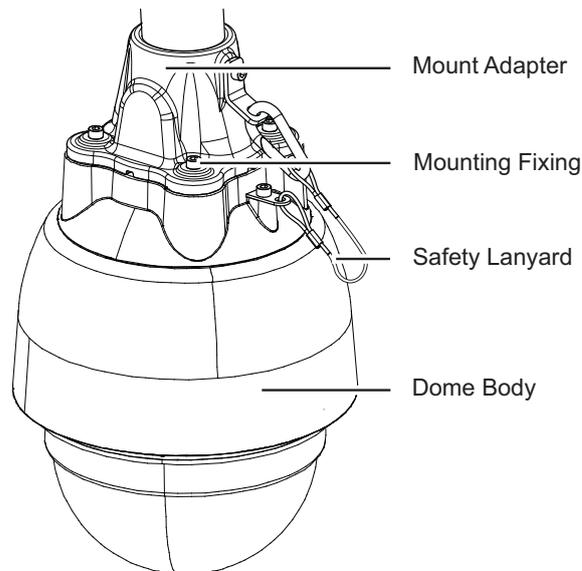


Figure 17: Secure dome

5 OPERATIONS

This chapter describes common tasks required for the operation of the PTZ Dome Camera.

Configuring the camera

You can access the camera configuration pages using the IP address of the camera. Alternatively, you can access these pages through IndigoVision Control Center.

Notice *This functionality is only available if you have administrator permissions.*

1. In Setup view, select the camera you want to configure.
2. Select the **Configure** tab, and enter a valid user name and password if required.
 - ▶ *For more information, see "Configuration" on page 29*

Reset to factory defaults

You can reset the camera settings to factory defaults using the following methods:

- Press and hold the Reset button on the camera for ten seconds.
 - ▶ *For more information, see "Connections" on page 11*
- Click **Diagnostics > Maintenance > Full Restore** on the camera's Configuration pages.
 - ▶ *For more information, see "Maintenance" on page 39*

6 CONFIGURATION

This section explains the various configuration options provided by the Web Configuration pages for the following firmware versions:

- 1.0.1

Web Configuration pages

To access the Web Configuration pages, enter the IP address of your device into a web browser. The Home menu is displayed.

Notice *IndigoVision products support Microsoft® Internet Explorer (version 6 or higher recommended).*

To access any of the other configuration pages, click the required option in the menu on the left of each page.

Home

This menu is read-only and provides a basic configuration overview of the unit.

Notice *This page is accessible to all users even if they are not authorized to access the other configuration pages.*

Network

Use this menu to configure the network settings for the unit. Click **Save** to apply any changes.

Host Name — Enter a name to identify this device. This name is used for the on screen display and is by video clients.

Location — Enter a location to identify this device. This location appears at the top of all web pages.

Use DHCP — Assigns the following Network parameters via a DHCP Server:

- Host name
- IP address
- Subnet mask
- Default gateway

- NTP

If the unit does not receive any response from the DHCP server it will default to using the network parameters last successfully applied.



Control Center requires that the IP address for a unit in a site remains fixed. If the DHCP server has been configured to lease addresses from an address pool, rather than based on MAC address, the device will not work correctly with Control Center.

Use fixed IP address — Allows you to enter the following Network parameters manually:

- IP address
- Subnet mask
- Default gateway
- Primary DNS
- Secondary DNS

Use PPPoE — Enter the user name and password required for PPPoE.

Date and Time

Use this menu to configure the date and time settings for the unit. Click **Save** to apply any changes.

Hardware clock (Local time) — Enter the current date (yyyy/mm/dd), and time (hh:mm:ss).

Sync with NTP server — Enter the host name or IP address of the NTP server, and the update interval.

Time zone — Select the appropriate time zone.

Enable daylight saving time — Select this box to enable a time offset with the settings you define.

Video

Use this menu to configure the video settings for the unit.

Basic

Use this menu to view video and set the basic video settings. Click **Set** to apply any changes.

The following controls are available for the live stream.

 — View the video at its native size.

 — View the video at half its native size.

 — Toggle the microphone for the camera.

 — View the video in full screen mode.

 — Toggle the video audio on and off.

 — Stop / Start the video.

 — Show PTZ controls for the video.

Zoom — Adjust zoom settings for the video.

Focus — Adjust focus settings for the video.

ExpComp — (Exposure Compensation) Define the value of exposure compensation.

Sharpness — Standard color-space control. Adjust as necessary.

White Balance — Specifies the method by which the camera determines color levels. IndigoVision recommends this should be left at automatic unless one of the fixed values provides a more accurate representation of the hues within a particular scene.

- **Auto**: Automatically adjusts for the current input.
- **Indoor**: Automatically adjusts for low light conditions.
- **Outdoor**: Automatically adjusts for daylight conditions.
- **ATW**: Automatic trace white balance.
- **One Push**: Calibrate the white balance when the button is selected.
 - a. Select **One Push**
 - b. Select **Set**
 - c. Select the **Trigger** button
- **Manual**: Manually calibrate the white balance. The **Rgain** and **Bgain** settings are the compensation white balance gains for the red and blue channels.

WDR Function — (Wide Dynamic Range) Filters intense back light surrounding a subject to enhance the features and shapes of the subject.

Exposure

Use this menu to set the exposure controls for the unit. Click **Set** to apply any changes.

Auto Mode — Iris settings and shutter speed are set automatically

- **Max Gain**: Sets the maximum gain used.
- **Full Auto**: Sets the mode to full auto.
- **Shutter Priority**: Sets the shutter priority.
- **P-iris**: Sets the iris to the f-number selected.
- **Iris Priority**: Sets the iris priority.

Manual Mode — Shutter settings are set manually.

Advanced

Use this menu to set the advanced video settings for the unit. Click **Save** or **Set** to apply any changes.

Backlight compensation (BLC) — Compensates for backlight.

Day/Night Function — Specifies the Day/Night mode.

ICR threshold — Specifies the light level at which the infrared cut filter is engaged.

Auto Defog — Improves contrast in certain situations such as poor visibility due to local weather conditions.

2DNR — Apply 2-dimensional noise reduction.

3DNR — (HD only) Apply 3-dimensional noise reduction.

TV System — Sets the maximum frame rate. Choose **25/50fps (PAL)** for countries with 50Hz grid power supply-frequency or **30/60fps (NTSC)** for countries with a 60Hz grid power supply-frequency.

Video Rotate Type — Sets the type of rotation applied to the video output.

- **Normal Video:** Displays the video with no rotation applied.
- **Flip Video:** Flips the video on the horizontal axis to provide an inverted view of the original image.
- **Mirror Video:** Flips the video on the vertical axis to provide a mirrored view of the original image.
- **90 degree clockwise:** Rotates the image by 90 degrees clockwise.
- **180 degree rotate:** Rotates the image by 180 degrees.
- **90 degree counter-clockwise:** Rotates the image by 90 degrees counter-clockwise.

Text Overlay Settings — Sets the information included in text overlay.

Audio

Use this menu to configure the audio settings for the unit. Click **Save** to apply any changes.

Transmission Mode — Sets the transmission mode. Select one of the available options to enable audio, or select **Disable** to disable audio transmission.

Server Gain Setting

- **Input Gain:** Sets the audio input gain.
- **Output Gain:** Sets the audio output gain.
- **Bit Rate:** Sets the audio bit rate.

Recording to Storage — Enables audio recording to the local storage when video is recorded.

Encoder

Use this menu to define encoder settings for the unit. Click **Save** to apply any changes.

Multi-encoder

Video Resolution — Select the streams required and choose the video resolution parameters for each stream.

MJPEG Compression setting — Sets the MJPEG Q factor.

MJPEG frame rate setting — Sets the MJPEG target frame rates.

H.264

Use these menus to configure each H.264 stream independently. The available streams depend on the streams selected on the **Encoder > Multi-encoder** menu. Click **Save** to apply any changes.

H.264 frame rate — Sets the H.264 target frame rate.

H.264 bit rate — Sets the H.264 target bit rate.

H.264 GOV Length — Sets the GOV length for each stream to determine the ratio of I-frames to P-frames. The default value is 60, which means one I-frame every 60 frames.

The higher the value, the greater the time between each I-frame, and the lower the bandwidth requirements.

Enable CBR mode — Attempts to cap the bit-rate at the target bit-rate, regardless of motion. When disabled, the bit-rate can exceed the target level to provide better quality of video.

Streaming Mode

Use this menu to select the streaming mode.

Analytics

Use this menu to configure the analytics settings for the unit. Click **Save** to apply any changes.

Motion detection

Use this menu to configure the motion detection settings for the unit. When motion is detected, an event is generated.

You can configure multiple filters for the camera. Select a filter from the **Motion Detection** drop-down list to configure the motion detection settings for that filter.

► *For more information about configuring a video stream, see "Encoder" on page 32*

Motion Detection — Turns motion detection on or off. When motion detection is enabled, the Motion dialog opens and displays activity.

This option can be changed based on a predefined schedule.

► *For more information about defining a schedule, see "Profile Schedule" on page 36*

Motion Detection Setting — Allows you to set the following parameters:

- **Sampling pixel interval:** Specifies the number of pixels in the region of interest used to determine motion. The lower the value, the more sensitive the detection. For example, a value of 5 means one pixel is sampled for every 5 pixels. The default value is 1.
- **Detection level:** Specifies the gain level at which each pixel is activated. The lower the value, the more sensitive the detection. The default value is 10.
- **Sensitivity level:** Specifies the threshold of the detection. The higher the value, the more sensitive the detection. For example, a value of 80 means that only 20% of the sampled pixels must be active to trigger an event. The default value is 80 (20%).
- **Time interval:** Specifies in seconds the interval between each detection. The lower the value, the more sensitive the detection. The default value is 10.

Triggered Action — Enables additional actions when an event is generated. Select the option required.

Notice *Confirm how the camera's binary outputs have been wired (for more information, see "Connections" on page 11) and configured (for more information, see "Binary IO" on page 35) to ensure the triggered action is as expected.*

Motion Detection Windows — Add or remove region of interest windows. The area within all the windows defined is considered as the region of interest. You can add up to 10 windows.

Select a window and drag the border to resize it, or click **Delete** to remove.

PTZ

Use this menu to configure the PTZ settings for the unit.

Preset

A preset is a predefined position. Use this menu to define up to 256 preset positions for the camera.

1. Move the camera to the required position using the controls in the **Video > Basic** menu.
2. Select a preset position from the drop-down in the **Preset setting** area.
Use **PrePage** and **NextPage** to scroll through the available preset positions.
3. Enter a name for the preset and click **Set**.

To action a defined preset position, select the preset number from the **Preset go** drop-down.

Preset Tour

A preset tour is a predefined list of presets the camera moves through. Use this menu to define up to 8 preset tours for the camera.

1. Click **Edit** to access the sequence setting menu.
2. Add presets to the sequence list, and define their dwell time and speed.
3. Click **Save** to save the sequence list.

To action a sequence, select the tour number and click **Start Tour**.

Mimic Tour

A mimic tour is a predefined sequence of pan, tilt and zoom actions. Use this area to define up to 8 mimic tours for the camera.

1. Select a path number.
2. Move the camera to the required start position using Control Center, and click **Set** next to **Record start**.
3. Move the camera through the required cruise path and click **Set** next to **Record end** after you have completed the tour.

To action a defined cruise path, select the path number and click **Run**.

Auto Pan

An auto pan path is a predefined horizontal movement of the camera from one point to another. Use this area to define up to four auto pan paths for the camera.

1. Select a path number.
2. Move the camera to the required start position, and click **Set** next to **Start point**.
3. Enter the speed and direction of the auto pan path.
4. Move the camera to the required end position, and click **Set** next to **End point**.

To action a defined auto pan path, select the path number and click **Run**.

Privacy mask

Use this area to define an area that will be obscured when viewed by the camera.

Mask settings - Uses these settings to turn masks on or off. Also define the colour and transparency of the mask.

Mask clearing - Clear all or selected mask lists.

Advanced

Use this menu to specify the advance PTZ settings for the unit. Click **Set** to apply any changes.

Home setting — The camera defaults to this action if it is idle for a defined period of time. Use this area to define the Home action for the unit.

1. Select **On** next to **Switch** and click **Set** to enable the Home action.
2. Define the amount of time the camera is idle before defaulting to the Home action (1-128 minutes).
3. Select the type of action and specify the preset, sequence, auto pan or cruise path to run.
4. Click **Set**.

Angle Setting — Sets the minimum and maximum tilt angles for the unit.

Flip — Automatically pans the camera 180 degrees at the bottom of a tilt to allow the camera to come up the other side.

Digital zoom — Enables the digital zoom.

Speed by zoom — Adjusts the speed of camera movement according to the zoom level.

Auto Calibration — Automatically calibrates the camera.

Stabilizer — (HD only) When enabled, the camera compensates for any motion to provide a stable image.

OSD — (On Screen Display) Enable the on screen display.

Set Pan Zero — Set the current camera position as the Pan Zero position.

Binary IO

Use this menu to configure the Binary IO and alarm settings for the unit. Click **Save** to apply any changes.

Alarm Switch — Enable or disable alarms.

This option can be changed based on a predefined schedule.

► *For more information about defining a schedule, see "Profile Schedule" on page 36*

Alarm Type — Specify if the alarms (binary inputs) for the camera are Normally closed, (high) or Normally open (low).

Triggered Action — Select the action the camera performs when the alarm is triggered.



Triggered actions must be disabled to enable Control Center to control the binary output (relay).

Edge Storage

Use this menu to configure the edge storage settings for the unit.

Configuration

Use this menu to configure the local storage management. Click **Save** to apply any changes.

► *For more information about local storage, see "Local storage" on page 14*

Device information — Provides an overview of the local storage available.

Format device — Click **Format** to format the local storage and delete all recordings.

Disk cleanup setting — Enables routine disk clean up. Click **Save** to save any changes made to these settings.

- **Remove recordings older than:** Automatically delete recordings older than the specified number of days or weeks.
- **Remove oldest recording when the disk is:** The oldest recordings are deleted when the storage reaches the specified capacity (%).

Recording list — Displays all the recording files available on the local storage. Each recording file is limited to 60 MB.

Select a recording file and click **Remove** to delete it, or **Download** to download the file. Downloads are limited to 300 MB.

Notice

*The initial letter of the file name denotes the type of recording: **A** - Alarm, **M** - Motion, and **R** - Regular recording.*

Schedule

Use this menu to configure video recording to the local storage device.

► *For more information about local storage, see "Local storage" on page 14*

Recording schedule — Select when video is recorded to the local storage.

- **Disable:** Video is not recorded to the local storage.
- **Always:** Video can be recorded at any time.
- **Only during time frame:** Video can only be recorded during the time periods specified in the schedule on this page.

To create or edit a schedule entry:

1. Select a line in the table.
2. Select the days of the week the schedule will be active.
3. Enter the **Start time** (local camera time).
4. Enter the **Duration** in hours the schedule will be active (max 168 hours).
5. Click **Save**.

Profile Schedule

Use this menu to define a schedule that can be used to activate camera functions, for example, enable motion detection.

To create or edit a schedule entry:

1. Select a line in the table.
2. Select the days of the week the schedule will be active.
3. Enter the **Start time** (local camera time).
4. Enter the **Duration** in hours the schedule will be active (max 168 hours).
5. Click **Save**.

Advanced Network

Use this menu to specify the advanced network settings for the unit. Click **Save** to apply any changes.

Advanced

Web Server port — Enter the Web Server port number.

RTSP port — Enter the RTSP port number.

MJPEG over HTTP port — Enter the MJPEG over HTTP port number.

HTTPS port — Enter the HTTPS port number.

MTU — Enter the MTU value to be used.

SNMP

SNMP v1/v2 — Enable SNMP v1 and v2 to be used by the camera.

- **Read Community** — Specify which user groups have SNMP read access to the camera.
- **Write Community** — Specify which user groups have SNMP write access to the camera.

The BX Range cameras support the standard MIB files.

► For more information, refer to <http://www.net-snmp.org/docs/mibs/>

SNMP v3 — Enable SNMP v3 to be used by the camera.

- **Security Name** — Specify the user name to be used by the camera.
- **Authentication Type** — Specify the authentication type required.
- **Authentication Password** — Specify the authentication password to be used by the camera.
- **Encryption Type** — Specify the encryption type required.
- **Encryption Password** — Specify the encryption password to be used by the camera.

Traps for SNMP v1/v2/v3 — Enable the camera to use SNMP traps. Specify the IP address and authorized community groups for SNMP traps.

- **Warm start** — Enables the camera to perform a warm start.

UPnP Settings

Enable UPnP — Enable UPnP for the camera.

Enable UPnP port forwarding — Enable UPnP port forwarding for the camera.

Friendly name — Enter a friendly name for the camera.

IPv6 Address Configuration

Enable IPv6 — Enable IPv6 addresses.

Network Security

Use this menu to configure the network security settings for the unit.

User Configuration

Use this menu to configure the users for the unit.

Admin Password — Enter a password for the unit. This must contain between 1 and 14 alphanumeric characters. Click **Save** to apply the change.

Add User — Add a user to the unit. Specify their user name, password, and permissions.

Manage User — Edit or delete existing users.

HTTPS

Use this menu to configure the HTTPS settings for the unit.

Create self-signed certificate — Create a self-signed certificate with the settings you define.

Install signed certificate— Install a self-signed certificate to activate the HTTPS feature.

- **Create Certificate Request**: Create a request for a certificate.
- **Upload signed certificate**: Browse to and upload a signed certificate file from your computer.

Created Request — View and remove certificate requests that have been created.

Installed Certificate — View and remove certificates that have been installed.

IP Filter

Use this menu to configure the IP filter settings for the unit.

Enable IP Filter — Select this box to enable network security restrictions. Choose **Deny** or **Allow**, and click **Apply** to switch between these modes.

Filtered IP Addresses — This contains all the IP addresses currently being filtered in the selected mode.

Select an address and click **Delete** to delete it from the list. You can use shift-click to select several addresses to be removed.

Add — Enter an IP address and click **Add** to add it to the list of IP addresses being filtered in the selected mode.

IEEE 802.1X

Use this menu to configure the settings used to access a network protected by 802.1X/EAP-TLS (EAP-Transport Layer Security).

Click **Save** to save any changes made on this page.

CA certificate — Browse to and upload the Certification Authority certificate file from your computer. To remove a CA certificate, click the **Remove** button.

Client certificate — Browse to and upload the Client certificate file from your computer. To remove a client certificate, click the **Remove** button.

Private key — Browse to and upload a private key file from your computer. To remove a private key, click the **Remove** button.

Settings — Enter the user identity and password associated with the certificate.

- **Enable IEEE 802.1X** : Select to enable IEEE 802.1X authentication.

Firmware Upgrade

Use this menu to upgrade the camera firmware.

The upgrade may take a few minutes. It is important not to interrupt the upgrade or power off the unit while the upgrade is in progress.

Diagnostics

Use this menu to access the diagnostics tools for the unit.

Firmware Version

This is a read-only menu that displays the firmware version running on the unit.

Log file

This menu is read-only and provides a log of actions carried out on the unit.

Parameters

This menu is read-only and provides an overview of parameters on the unit.

Maintenance

Use this menu to access maintenance tools for the unit.

Full Restore — Resets all the camera settings to the factory defaults.

Partial Restore — Resets the camera settings to the factory defaults with the exception of the network settings.

Reboot — Reboots the camera.

Export Files — Export configuration files for the unit.

Upload Files — Browse to and upload configuration files for the unit from your computer.

7 HARDWARE SPECIFICATION

This chapter details the hardware specifications for the PTZ Dome Camera.

Codec specification

Video

- Bitrate: User-configurable from 64Kbps to 8Mbps
- Compression: Full frame rate, full colour: H.264 / MJPEG, up to 60fps

Resolution

- 3MP: 2048 x 1536 pixels (3MP only)
- 1080p: 1920 x 1080 pixels
- 720p: 1280 x 720 pixels
- D1: 720 x 576 pixels
- SIF: 352 x 288 pixels

Streaming

Multiple streams supported.

Table 4: Streaming options

Stream 1	Stream 2	Framerate
3MP (3MP only)	D1	@ 30fps
1080p	D1	@ 60fps
1080p	1080p	@15fps
720p	720p	@30fps

Audio

- Compression: G.711
- Full duplex 8Khz sample rate
- Mono input / mono output

Sensor specification

Sensor	1/2.8" Progressive CMOS
Active pixels	2 Megapixel / 3 Megapixel
Minimum Sensitivity	Day: 0.05 Lux (color). Night: 0.01 Lux (mono). 30 IRE, F1.6, 1/30s shutter
Wide Dynamic Range	WDR Function
Gain control	Auto / Manual
Scan mode	Progressive
Mirror mode	On / Off
Stabilizer	On / Off (Image stabilization) (HD only)
Back light compensation	On / Off
White balance mode	Auto / Manual
Iris control	Auto-iris DC drive lens
Shutter speed	Rolling; Auto from 1 to 1/10000 sec
Time	Embedded real-time clock, NTP client
Day/Night	True day/night with mechanical IR Cut Filter
Exposure Control	Auto / Manual / Slow AE / Shutter-priority / Iris-priority
Noise Reduction (2D) (3MP only)	On / Off
Noise Reduction (2D and 3D) (HD Only)	On / Off
Presets	256
Preset Tours	8
Privacy Mask	16
Pan Range	360°
Tilt Range	200 (-10° above horizon)
Pan/Tilt Speed	5°/s to 400°/s
Preset Move Speeds	5-400°/s
Manual Speed	0.5-90°/s
Auto Flip	Digital / Mechanical / Off

Power consumption

- Internal: 20W
- External: 60W (with heater)

Control Center requirements

The PTZ Dome Camera variants require Control Center 12.2 suite or later.

Network connections

- IEEE802.3 and IETF standards

- 10/100 Base-T Ethernet (RJ45)
- TCP, UDP, RTP, RTSP, ICMP, IGMP, SNMP, HTTP, HTTPS, PPPoE, uPnP, DHCP
- Up to 4 simultaneous unicast video users or unlimited multicast users

Environment

- Operating Temperature:
 - Internal Pendant: 0°C to 40°C (32°F to 104°F)
 - External Pendant: -40°C to 50°C (-22°F to 122°F)
- Storage Temperature: -20°C to + 70°C (-4°F to 158°F)
- Humidity: 10% to 90%, no condensation

Regulatory

- EN 55022 Class A
- EN 61000-3-2, EN 61000-3-3
- AS/NZS CISPR 22
- FCC Part 15, Subpart B Class A
- EN 50130-4, AS/NZS CISPR 24
- IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11
- EN60529 (1992) IP66 Dust and Water Ingress (External Pendant only)
- IEC 62262 IK10 Impact protection - IK code (External Pendant only)
- This product meets the requirements of the EC restriction of hazardous substances (RoHS) directive 2002/95/EC



In accordance with the EC Waste Electrical and Electronic Equipment (WEEE) directive 2002/96/EC this product must be sent to a recycling plant for proper disposal at the end of its use.

A

OPTIONAL MOUNT COMPONENTS

To ensure that your camera is installed and configured for optimal coverage and operation, IndigoVision provides a range of camera mounts.

Mount components are sold separately.

- ▶ *For information, refer to the IndigoVision website.*
- ▶ *<http://www.indigovision.com/cameras-and-encoders-accessories>*

