



IV-CAMA3-20-N-W-1B, IV-CAMA3-20-N-SLVR-1B, IV-CAMA3-20-W-1B, and IV-CAMA3-20-SLVR-1B

1 Beyond AutoTracker™ 3 Series

Product Manual

Crestron Electronics, Inc.

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# Overview

The [IV-CAMA3-20-N-W-1B](#), [IV-CAMA3-20-N-SLVR-1B](#), [IV-CAMA3-20-W-1B](#), and [IV-CAMA3-20-SLVR-1B](#) AutoTracker™ 3 series cameras are high-quality PTZ cameras that automatically track and frame a presenter based on facial and motion detection. Ideal for lecture capture or conferences, the IV-CAMA3-20-N-W-1B camera can automate camera operations with no personnel present and still have the viewing experience of a manned camera. All the tracking intelligence is built into the camera – no external system is needed. In addition, the IV-CAMA3-20-N-W-1B and IV-CAMA3-20-N-SLVR-1B NDI®|HX enabled cameras allow for monitoring, control, power, and video output on a single Ethernet connection.

**NOTE:** The IV-CAMA3-20-N-W-1B, IV-CAMA3-20-N-SLVR-1B, IV-CAMA3-20-W-1B, and IV-CAMA3-20-SLVR-1B are functionally similar. For simplicity within this manual, the term "AutoTracker" is used except where otherwise noted.

# AutoTracker Features

Key features for the AutoTracker series cameras include:

- Automatically pans, tilts, and zooms to smoothly follow and frame the presenter
- AI-enabled tracking with dual camera technology
- Smooth tracking and quiet operation
- Compatible with popular conferencing platforms such as Microsoft Teams® and Zoom Rooms™ software
- Connects directly to a codec or recording/streaming device with no external computer required
- High quality video supporting resolutions up to 1080p60
- Single Ethernet connection provides power (PoE+), monitoring, control, and NDI®|HX compatible video<sup>2</sup> (only supported on the IV-CAMA3-20-N-W-1B and IV-CAMA3-20-N-SLVR-1B)
- Compatible with Automate™ VX multicamera systems
- Supports 20x optical zoom for tracking distances up to 50 ft from the participants

**NOTE:** The IV-CAMA3-20-N-W-1B, IV-CAMA3-20-N-SLVR-1B, IV-CAMA3-20-W-1B, and IV-CAMA3-20-SLVR-1B AutoTracker cameras include integrated circuits produced by HiSilicon (part numbers HI3516ARBCV100 and HI3516ARFCV200), a subsidiary of Huawei® Technologies Company.

## Intelligent Tracking Technology

Intelligent tracking<sup>1</sup> automatically detects the presenter and keeps them in the optimal part of the frame. It is easily set up to prevent tracking other subjects or displays. The AutoTracker is two cameras in one: a wide-angle camera that continually monitors the room for motion and a PTZ camera that follows the presenter. This dual camera approach allows the camera to adjust more quickly and never lose the presenter.

## Conferencing Compatibility

Optimize video conferencing, recording, or streaming by using the AutoTracker 3 series cameras with Microsoft Teams®, Zoom Rooms™, Cisco WebEx®, MediaSite®, or Panopto® software. The AutoTracker camera includes 3G-SDI video output for use with popular video conferencing codecs and capture appliances. The IV-CAMA3-20-N-W-1B and IV-CAMA3-20-N-SLVR-1B also support NDI|HX video output.

## High Quality Video

A high quality Sony Exmor® CMOS sensor enables the camera to output up to 1080p60 resolution video via the 3G-SDI port. The AutoTracker works well in low light and in front of bright screens.

## Manual Control Options

Use VISCA over IP to control the camera with a Crestron® control system. 1B Cam Manager Software is included for easy configuration from a computer on the network.

## Networked Power, Stream, and Control

Connect a single Ethernet cable to power (PoE+), monitor, set up, and control the AutoTracker camera.

## Quiet, Fast Switching Between Presets

Up to 256 pan, tilt, and zoom combination presets can be configured. The camera will move to the selected preset point. A quiet, fast motor (120°/s pan speed) sets camera angles quickly.

## Multicamera Capability with Automate Systems

Add the AutoTracker camera to an Automate multicamera system. Automate can be set to autoswitch between multiple 1 Beyond cameras to focus on the active speaking participant. Incorporate popular microphones and DSPs to switch between the presenter and audience.

## Mounting Options

Standard mounting holes make it easy to mount the camera to a wall mount (included) or a [J-Mount ceiling bracket](#) (sold separately).

## NDI|HX for High Quality Network Video

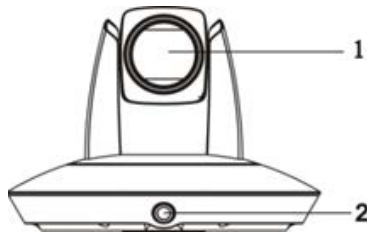
NDI|HX supports efficient and flexible IP configuration with other networked NDI-enabled devices. NDI|HX allows for easy installation and scalability with a single network pull (only supported on the IV-CAMA3-20-N-W-1B and IV-CAMA3-20-N-SLVR-1B).

**NOTE:** NDI|HX is only supported on the IV-CAMA3-20-N-W-1B and IV-CAMA3-20-N-SLVR-1B AutoTracker cameras.

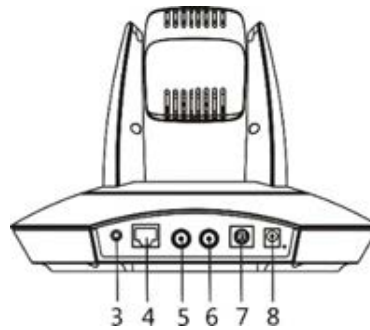


# Physical Description

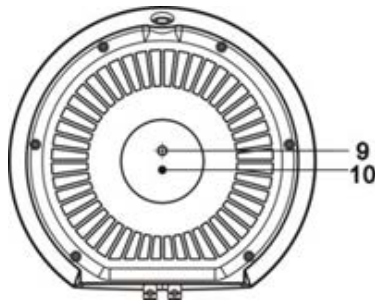
Front



Rear



Bottom



No.	Description
1	PTZ Tracking Camera
2	Wide-Angle Camera
3	Audio Input (Only for IP video stream)
4	Ethernet (Supports PoE+)
5	SDI 2 (PTZ camera video output)
6	SDI 1 (Wide-angle camera video output)
7	EXT Port (RS485 / RS 232 serial control)
8	12V DC Power Input
9	1/4 in. Screw Mounting Hole (standard tripod screw)
10	Locating Hole

## 1 Beyond Camera Manager Software

The 1 Beyond Camera Manager software is a central hub for configuring, monitoring, and controlling 1 Beyond IP cameras. The software enables 1 Beyond AutoTracker 3 camera configuration and simultaneous monitoring of up to 4 video streams.

The 1 Beyond Camera Manager software provides the following features for the 1 Beyond AutoTracker 3 camera.

- Discover 1 Beyond cameras on the network
- Upgrade camera firmware
- Modify camera network settings
- Modify camera RTMP (Real-Time Messaging Protocol) settings
- Set authentication credentials for the camera
- Modify general settings, such as the camera name
- Set a secondary connection to the camera from a control device (such as a touch screen)
- View up to 4 camera video streams (close-up or panorama) simultaneously
- Use the PTZ Lens controls to adjust the camera's pan, tilt, zoom, focus, and iris levels
- Create, recall, and delete camera presets
- Use the OSD (on-screen display) menu to adjust advanced settings
- Start and stop tracking for the camera
- Define tracking and blocking zones and adjust tracking parameters for the camera

**CAUTION:** The 1 Beyond Camera Manager software enables changing of critical camera settings that impact the camera's functionality and effectiveness. Ensure that all procedures in this document are followed carefully for optimal camera performance.

# Specifications

Product specifications for the AutoTracker 3 series cameras.

## Optics and Processing

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<b>Image Sensor</b>	Tracking Camera: 1/2.8 in. Sony Exmor CMOS, 2.14MP; Reference Camera: 1/2.8 in. CMOS, f=3.4 mm, Horz: 92°, Vert: 50°
<b>Recommended Range</b>	15-50 ft from subject, 7-12 ft from ground
<b>Focal Lens &amp; Iris</b>	f=4.7-94 mm, F1.6 - F3.5
<b>Field of View</b>	59.5° - 2.9°
<b>Focus System</b>	Auto, Manual, One Push
<b>Minimum Illumination</b>	0.5 Lux (30FPS), 0.1 Lux (60FPS)
<b>Shutter Speed</b>	1/1 - 1/10,000 sec
<b>Gain</b>	Auto, Manual
<b>White Balance</b>	Auto, Indoor, Outdoor, One Push, Manual
<b>Exposure</b>	Auto, Manual, Shutter Priority, Iris Priority
<b>Number of Presets</b>	Up to 256
<b>Serial Control</b>	RS-485, RS-232 (VISCA, PELCO-D)
<b>Protocol</b>	HTTP, RTP, TCP, UDP, ONVIF

## Pan, Tilt, Zoom

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<b>Tilt/Pan Angle</b>	Tilt: 30° - 90°, Pan: 170° - 170°
<b>Tilt/Pan Speed</b>	Tilt: 0.1° - 90° /s, Pan: 0.1° - 120° /s
<b>Zoom</b>	20x Optical, 20x Digital

## Connectivity

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<b>Ethernet</b>	RJ-45, 100Mb
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## Video

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<b>Video Outputs<sup>1</sup></b>	3G-SDI (Tracking and Reference); NDI HX over Ethernet (only supported on the IV-CAMA3-20-N-W-1B and IV-CAMA3-20-N-SLVR-1B)
<b>Signal Formats (HD)</b>	1080p60/50/30/25, 1080i60/50, 720p60/50
<b>IP Video Compression</b>	H.265, H.264 (Four streams) (IP Stream Only)
<b>Streaming</b>	RTSP, RTMP
<b>Streaming Resolution</b>	Up to 1080p60, User-selectable framesize/framerate/bitrate

## Audio

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<b>IP Audio Compression</b>	AAC (IP Stream Only)
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## Power

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<b>Power</b>	12VDC, <30 W, PoE+
<b>PoE+ Rating</b>	25.5 W

**NOTE:** To comply with the European Directive (CE), shielded CAT5e cable must be used as a minimum for PoE power.

## Environmental

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<b>Temperature</b>	32° to 104°F (0° to 40°C)
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## Construction

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<b>Mounting</b>	1/4 in. threaded mount hole, compatible with Wall Mount and J-Mount ceiling bracket
<b>Color</b>	Silver; White
<b>S/N</b>	≥50dB

## Dimensions

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<b>Dimensions</b>	8.9 in. x 8.3 in. x 6.4 in. (226 mm x 211 mm x 163 mm)
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## Weight

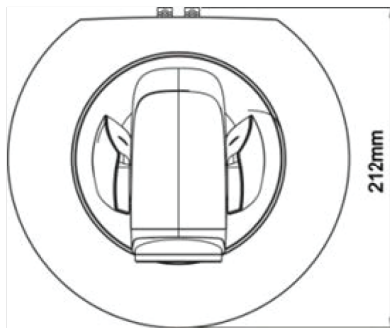
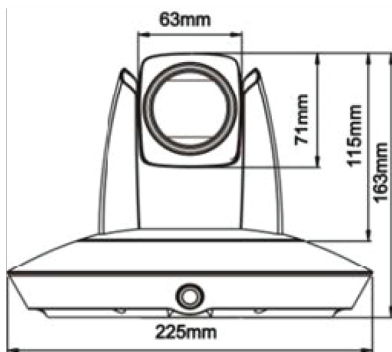
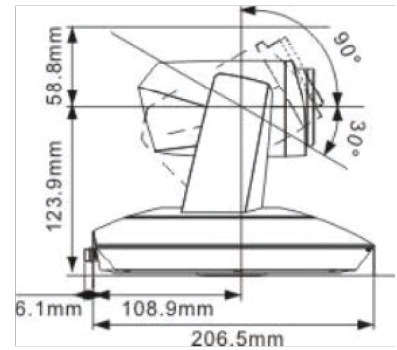
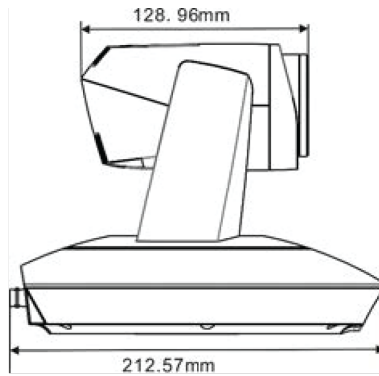
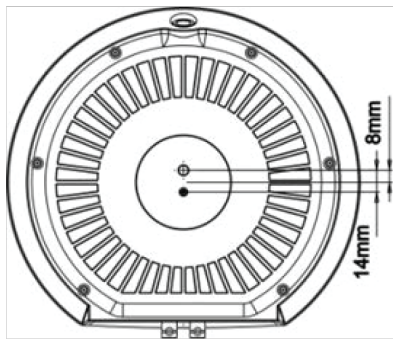
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4.3 lb (1.96 kg)

### Note:

1. The IV-CAMA3-20-N-W-1B, IV-CAMA3-20-N-SLVR-1B, IV-CAMA3-20-W-1B, and IV-CAMA3-20-SLVR-1B camera includes integrated circuits produced by HiSilicon (part numbers HI3516ARBCV100 and HI3516ARFCV200), a subsidiary of Huawei Technologies Company.

# Dimension Drawings



# Installation

Use the following procedures to install the Automate cameras.

**NOTES:** To avoid damage and ensure optimum performance of the camera, exercise the following cautions:

- Check the source power before powering on the camera. The AutoTracker can be powered via a 30 W PoE+ switch or with 12VDC. Under or overpowering the camera will cause damage and poor performance that may not be immediately visible. If using PoE+ switch, be sure the port is properly configured for 30 W. If using DC power and connecting to a network switch, be sure the port is not set for PoE.
- Do not power the camera with PoE+ and a power supply at the same time. Doing so may cause it to malfunction.
- Do not operate the camera beyond the specified temperature and humidity limits. Operating range of the camera is between 32°F - 104°F (0°C -40°C). Ambient humidity should be less than 95%RH.
- Do not remove any screws from the camera. There are no user-serviceable parts inside. Contact [Crestron's True Blue Support Team](#) if the camera is damaged or malfunctioning.
- Do not aim the camera lens at the sun or extremely bright lights. Doing so can cause damage to the image sensor.
- Do not move the camera head manually. Doing so can cause damage to the camera and inner gear systems. Do not carry the camera by the head; always handle the camera by the base.
- Do not directly expose the camera to rain, water, or high moisture.
- This camera is for indoor use only.

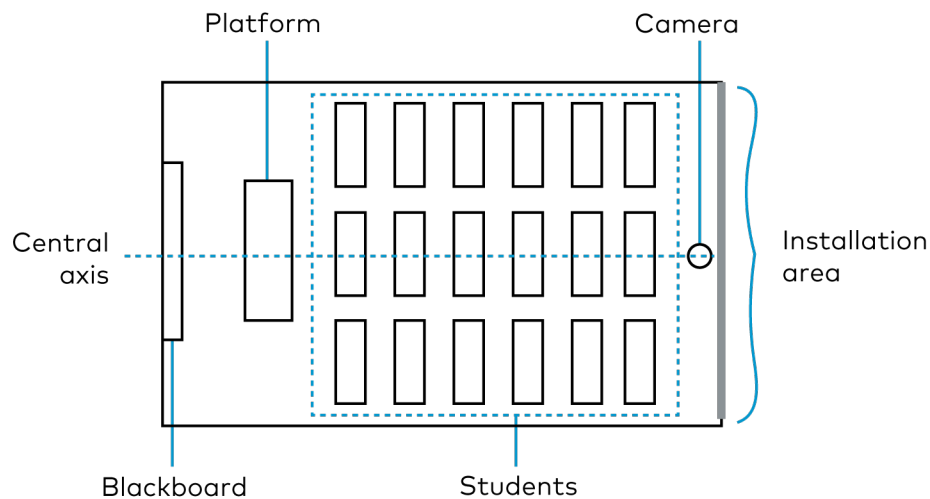
## In the Box

Qty.	Description
1	1 Beyond AutoTracker Intelligent Camera
<b>Additional Items</b>	
1	Power Supply
1	Serial Control Breakout
1	Wall Mount

# Mounting Requirements

For the optimum tracking performance:

- Mount the camera upright with a clear view of the area where the subject will be tracked.
- The camera should be mounted 15-50 ft (5-15 m) from the subject and at a height of 7-12 ft (2-4 m).
- The fixed wide-angle camera lens must be able to see the entire area that the subject will be tracked in as it is used by the tracking algorithm for motion detection.
- The area in which the subject will be tracked in must be in the top half (ideally in the top third) of the wide-angle camera's field of view. Positioning the camera where the wide-angle covers predominately the ceiling will result in sub-optimal tracking performance. If the room slants down, the camera should be positioned at a slant as well.
- Mount the camera as close as possible to the central axis of the area where the subject will be tracked. This is commonly the center of the back wall.



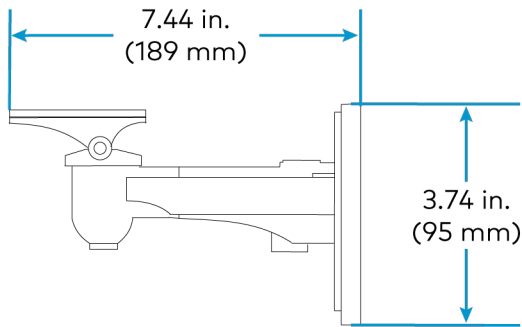
## Mounting Options

The AutoTracker camera can be mounted on a wall using the included wall mount kit or suspended from the ceiling using the [J-mount kit](#) (sold separately).

**NOTE:** Do not tilt the camera more than 15° to maintain optimum tilt and pan accuracy.

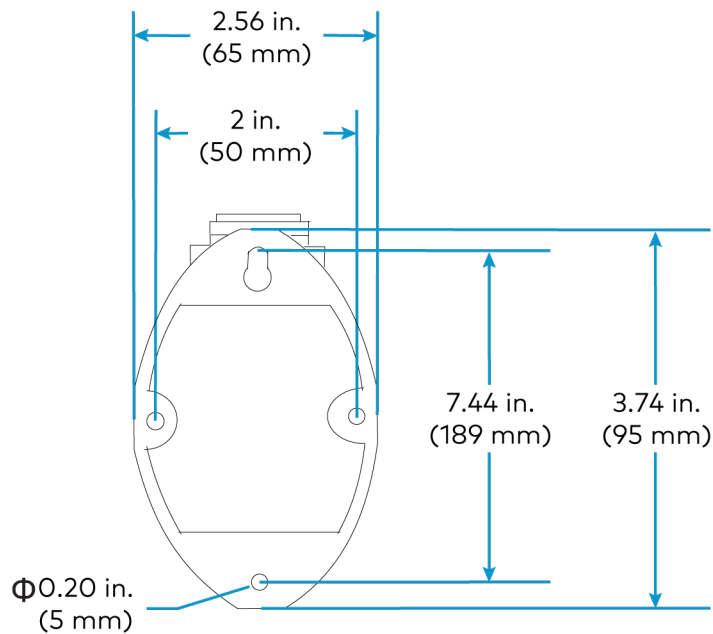
# Wall Mount

Use the 1 Beyond Wall Mount Bracket to mount the camera for video conferencing.



To mount the camera to a wall:

1. Using the following diagram, position the four installation holes on the mount and drill 4 holes in the wall.
2. Attach the mount onto the wall using four screws (not included). Choose the length of the screws in accordance with building specifications.
3. Use the included screw to fix the camera on the wall mount.

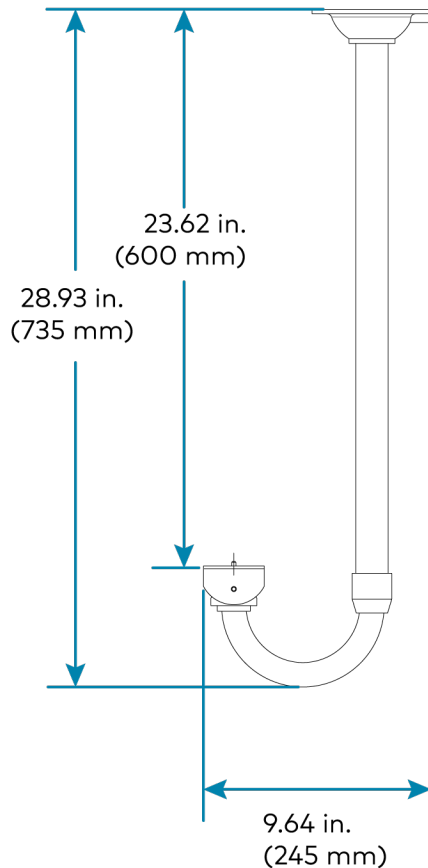


**Caution:** This camera cannot be inverted.



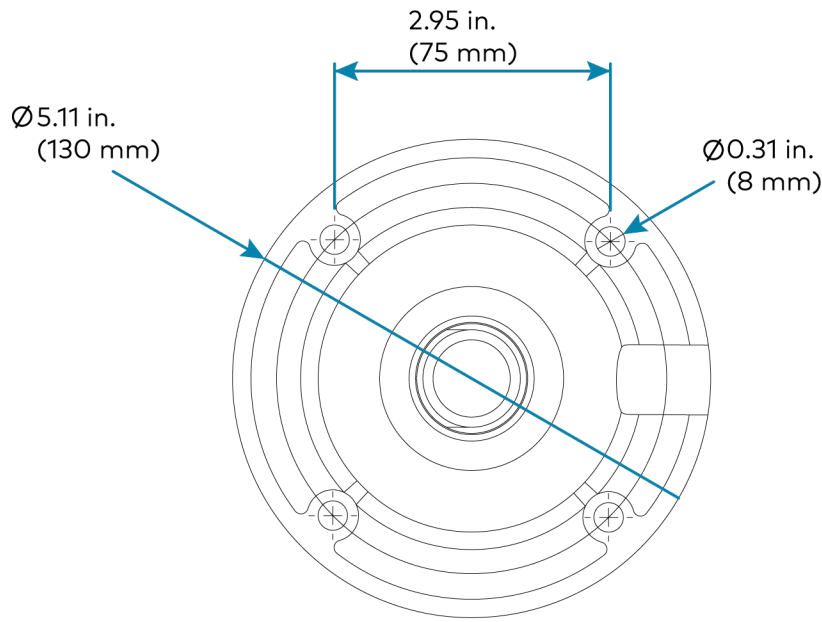
## J Ceiling Mount

Use the 1 Beyond [J-mount kit](#) (sold separately) to suspend the camera from the ceiling to achieve optimum distance from the presentation area.



To mount the camera:

1. Using the following diagram, position the four installation holes on the mount and drill four holes in the ceiling.
2. Attach the ceiling mounted bracket onto the ceiling using four screws (not included). Choose the length of the screws in accordance with building specifications.
3. Screw the J-mount into the ceiling mounted bracket.
4. Use the included screw to fix the camera on the J-mount.



## Wiring

The camera should be properly wired with power, video and control. Please note that the audio input of the camera only feeds into the encoded IP stream. It is recommended to record/stream audio using a separate device.

## Network Connection

A network connection enables easy configuration, control from any PC connected to the same network, and access to the camera's IP video streams for monitoring. Use a CAT5 or CAT6 cable to connect the camera to the network or directly to the host computer used for configuration.

The camera is shipped with a static IP address. The network connection can also be used to send VISCA commands over TCP/IP.

Default IP address: 192.168.18.77

Subnet Mask: 255.255.255.0

If an Ethernet cable is connected directly to a computer running the 1 Beyond Camera Manager software, the computer's network port must be set to an address on the same subnet (for example, 192.168.18.77) in order to communicate with the camera.

When configuring multiple cameras, connect them to the network individually and assign them each a unique IP address that conforms to your overall IP scheme.

## PoE+ Power

This camera allows control, monitoring and power input using a single Ethernet cable thanks to PoE+ compatibility. To power the camera from your network switch, make sure that it is a PoE+ certified switch that can supply 30 W of power for each connected camera. Alternatively, a PoE+ injector can be used to inject power between the switch and camera.

**NOTE:** To comply with the European Directive (CE), shielded CAT5e cable must be used as a minimum for PoE power.

## DC Power

Power the camera using 12VDC or PoE+, but not simultaneously. The camera cannot operate properly with less than 12VDC power. Since voltage drops over distance, the supplied 12V power adapter is not sufficient if the power source is greater than 10 ft (3 m) from the camera.

**WARNING:** Providing too little or too much power can damage the camera. For PoE+, make sure the network port is configured for 30 W. For DC power, be sure to supply 12V to the camera.

## Video Output

For quality video capture, it is recommended to use the 3G-SDI outputs on the camera. The rear of the camera has two female 3G-SDI ports to use with standard 3G-SDI cabling: RG-6 Coax cable, 75 ohms with BNC male connectors. Depending on specific building fire codes, cables may need to be plenum rated.

- SDI 2 – Video output of the PTZ tracking camera
- SDI 1 – Video output of the wide-angle camera (optional connection)

3G-SDI converters are offered to convert the 3G-SDI output of the AutoTracker™ 3 to HDMI. An 3G-SDI cable is recommended to be run for longer distances and then converted at the capturing / streaming device to ensure the best possible video quality. For more information on compatible SDI to HDMI converters, refer to [OLH 1001364: Recommended SDI to USB Adapters for use with Automate VX / Select](#).

**NOTE:** For NDI-enabled 1 Beyond cameras, SDI is an optional output.

## Serial Control

The AutoTracker supports serial control over RS-485 and RS-232. The serial connection is for sending remote commands to the camera using the VISCA or PELCO\_D protocols from a control system. In most cases, serial cabling is optional because control of the AutoTracker is done through a network connection.

If serial control is required, it is recommended to use RS-485. RS-485 can support cable lengths of up to 4,000 feet while RS-232 is limited to cable distances of 50 feet. Also, RS-485 can support up to 32 controller devices while RS-232 only supports one.

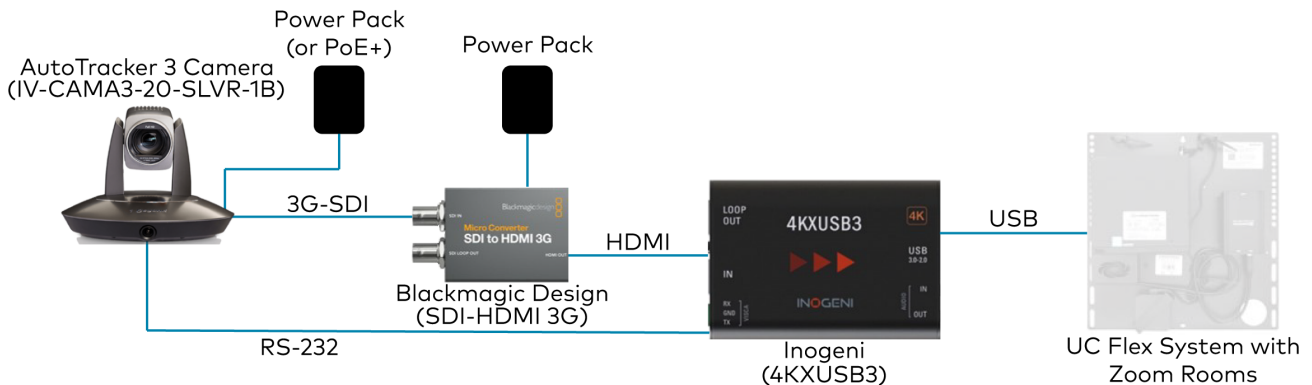
For control cabling 22 or 24 Awg twisted pair cable is recommended. Depending on specific building fire codes, cables may need to be plenum rated.

To wire serial control, connect one of the included standard serial cables to the EXT port on the rear of the camera and then connect the ends of control cable to the control device you will be using.

# Zoom Rooms Installation

The 1 Beyond AutoTracker 3 camera is compatible with Zoom Rooms® software. To utilize Zoom Rooms capabilities, the following items are required:

- 1 Beyond AutoTracker 3 camera (IV-CAMA3-20-N-W-1B, IV-CAMA3-N-SLVR-1B, IV-CAMA3-20-W-1B, or IV-CAMA3-20-SLVR-1B)
- RS-232 cable (included with the camera)
- 3G-SDI cable
- HDMI® cable ([CBL-8K-HD-1.5](#))
- Inogeni™ 4KXUSB3 converter (includes Inogeni terminal block)
  - Firmware version 1.54 or higher. To update the firmware on the Inogeni 4KXUSB3 converter, refer to [Inogeni's website](#).
- Blackmagic Design® Micro Converter SDI to HDMI 3G
- 1 Beyond AutoTracker 3 camera firmware version 5.1.82. For more information on updating the firmware of the camera, refer to [Upgrade Tab on page 29](#)
- Zoom Rooms software firmware version 5.13 or higher. To update the firmware for Zoom Rooms software, refer to [Zoom's website](#).



Complete the following procedure to connect the camera to a Zoom Rooms control system:

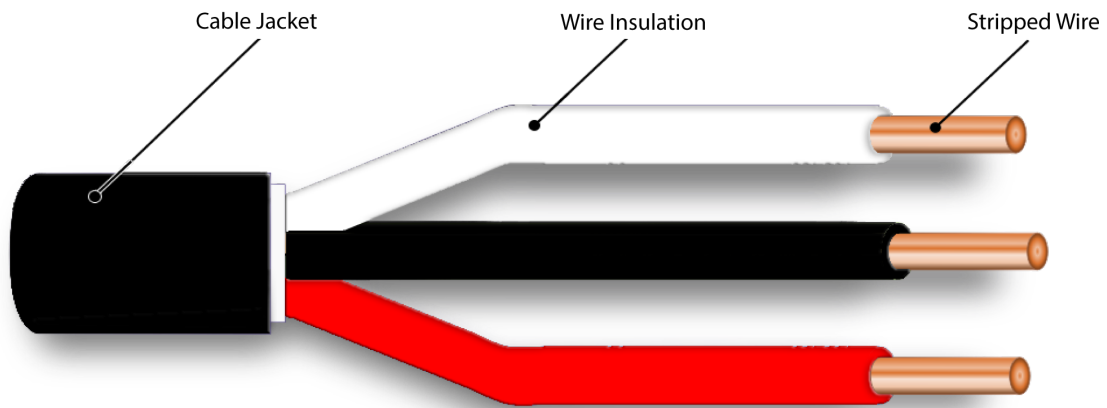
1. Set the resolution of the camera to 1080p, and the frame rate to 30. For more information about changing the resolution and frame rate of the camera, refer to [Basic 1 Tab on page 46](#).
2. Connect the RS-232 mini-DIN (male) connector to the **RS-232** port located on the rear side of the camera.

3. Use wire strippers to remove the other end of the RS-232 DB9 cable. Then, strip the RS-232 cable insulation to expose the three wires inside. The colored cables correspond to the following connections:

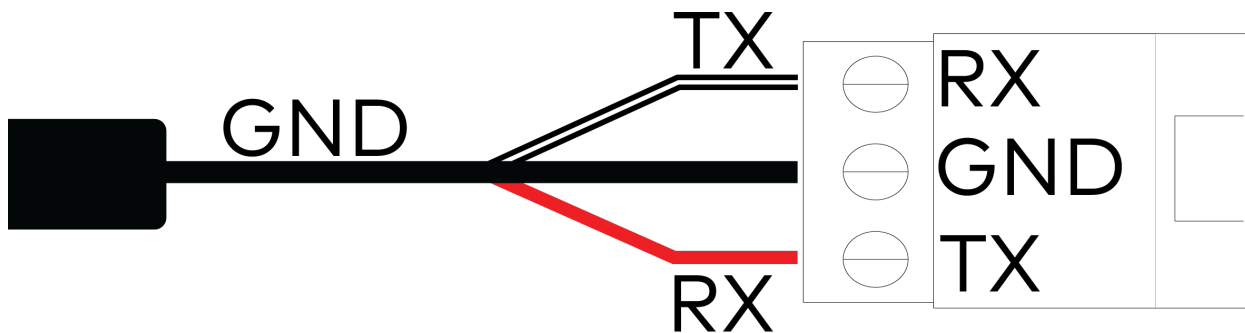
- TX: White sleeved wire

**NOTE:** In some circumstances, the RS-232 DB9 cable will have a blue sleeved wire instead of the white sleeved wire. For the purposes of this procedure, the blue sleeved wire is identical to the white sleeved wire.

- RX: Red sleeved wire
- Ground: Black sleeved wire



4. Connect the TX (white sleeve) wire to the RX terminal on the Inogeni terminal block.
5. Connect the Ground (black sleeve) wire to the GND terminal on the Inogeni terminal block.
6. Connect the RX (red sleeve) wire to the TX terminal on the Inogeni terminal block.



7. Insert the Inogeni terminal block into the **VISCA** port on the Inogeni 4KXUSB3 converter.
8. Connect the 3G-SDI cable from the camera into the **SDI IN** port on the Blackmagic Design SDI to HDMI 3G converter.

**NOTE:** Do not use the HDMI cable to cover long wiring distances. The 3G-SDI cable provides the best video output over long wiring distances.

9. Connect the HDMI cable from the Blackmagic Design Micro Converter SDI to HDMI 3G **HDMI OUT** port to the **HDMI INPUT** port on the Inogeni 4KXUSB3 converter.
10. Connect the USB 3.0 type-B cable to the Inogeni 4KXUSB3 **USB 3.0-2.0** port. Connect the USB 3.0 type-A end of the cable into the UC-Engine or other compatible Zoom Rooms system.

**NOTE:** Ensure that the camera and the Blackmagic Design Micro Converter SDI to HDMI 3G are receiving power as specified by the product requirements.

11. Select **Inogeni 4KXUSB3** as the camera source in Zoom Rooms.

The 1 Beyond AutoTracker 3 camera will now have full compatibility with Zoom Rooms software.

# 1 Beyond Camera Manager System Requirements

Ensure the host computer running the 1 Beyond Camera Manager software meets the following system requirements.

- Windows® 10 OS or later
- Dual-core processor
- 4GB (or greater) memory
- 1GB (or greater) storage
- Ethernet or Wi-Fi™ Network connection to the local network

# 1 Beyond Camera Manager Initial Setup

Use the following procedures to set up the 1 Beyond Camera Manager software on a computer.

## Install the Software

To install the 1 Beyond Camera Manager software:

**NOTE:** Ensure the software is installed onto a computer that meets or exceeds the specifications described in [1 Beyond Camera Manager System Requirements on page 23](#).

1. Download the 1 Beyond Camera Manager installation package from [www.crestron.com/Support/Resource-Library](http://www.crestron.com/Support/Resource-Library) or from the 1 Beyond camera product pages on [Crestron.com](http://Crestron.com)
2. Open the installer executable file and follow all prompts to install the software.

# Configuration

The AutoTracker uses a unique combination of motion and facial detection along with sophisticated algorithms to track a presenter much like a human camera operator would. Its unique two-camera design with a fixed wide-angle camera working in tandem with a moving PTZ camera guarantees that the AutoTracker will track any subject reliably across the presentation area.

The sophisticated dual-processor design of AutoTracker allows tracking without any additional hardware. A one-time configuration is required to tailor the tracking parameters to your environment. Once configured, the camera will work autonomously and the software will not be required for operation.

This section provides the following information:

- [Configuration via the 1 Beyond Camera Manager](#)
- [VISCA Commands](#)

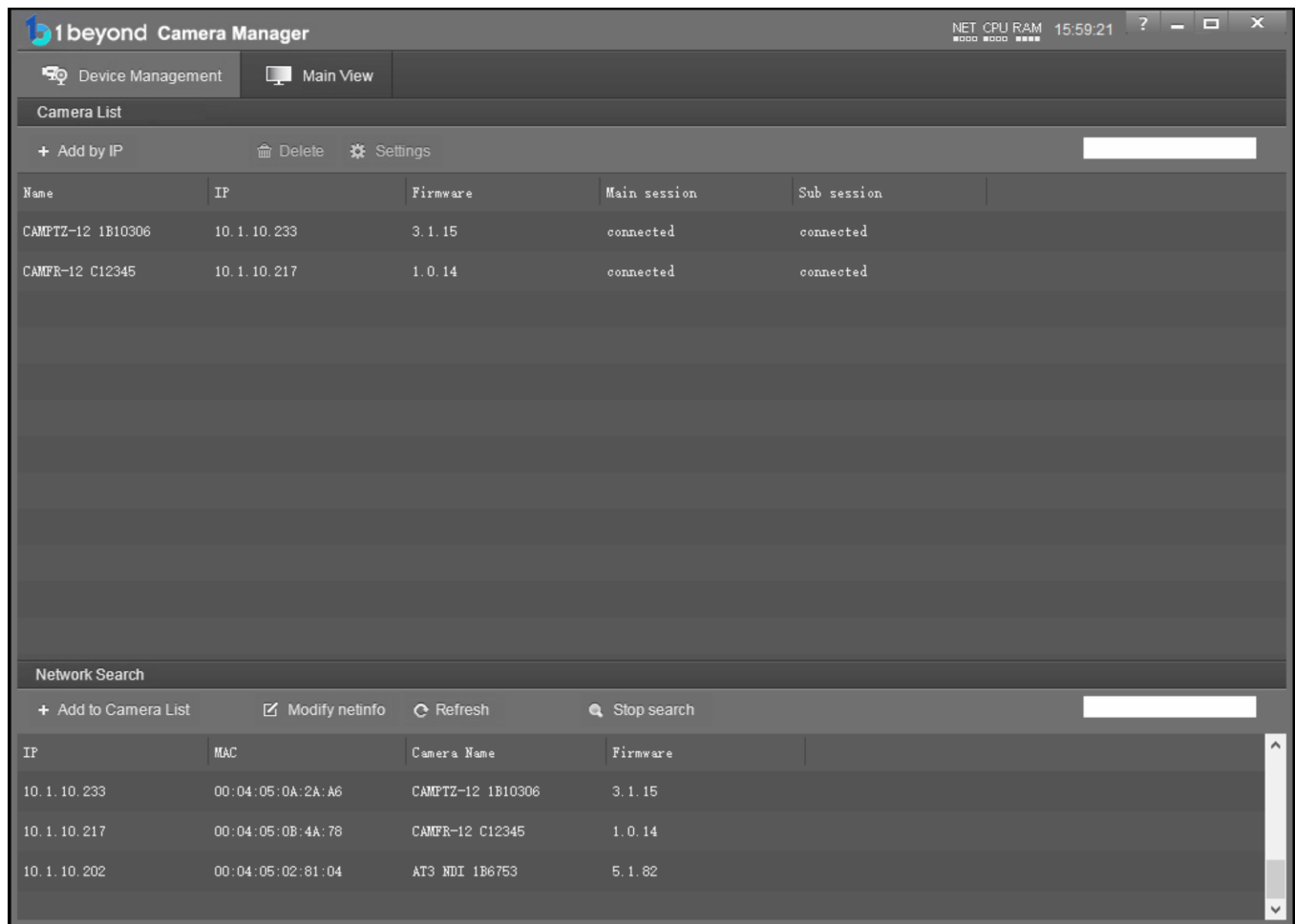


# Configuration via the 1 Beyond Camera Manager

The 1 Beyond Camera Manager software is the central hub for configuring, monitoring, and controlling 1 Beyond IP cameras. It allows monitoring of up to four video streams simultaneously and lets you configure the latest 1 Beyond cameras.

## Add to Camera List

Once 1 Beyond Camera Manager software is installed on the host computer and the camera is connected to the network or directly via Ethernet, launch the software to start configuring the camera. Use the **Device Management** tab of the software to add the camera to the Camera List.



The screenshot displays the 1 Beyond Camera Manager software interface. The window title is "1 beyond Camera Manager" and the system tray shows "NET CPU RAM 15:59:21". The interface has two tabs: "Device Management" (selected) and "Main View".

The "Camera List" section includes a search bar and buttons for "+ Add by IP", "Delete", and "Settings". It contains a table with the following data:

Name	IP	Firmware	Main session	Sub session
CAMP TZ-12 1B10306	10.1.10.233	3.1.15	connected	connected
CAMPFR-12 C12345	10.1.10.217	1.0.14	connected	connected

The "Network Search" section includes buttons for "+ Add to Camera List", "Modify netinfo", "Refresh", and "Stop search". It contains a table with the following data:

IP	MAC	Camera Name	Firmware
10.1.10.233	00:04:05:0A:2A:A6	CAMP TZ-12 1B10306	3.1.15
10.1.10.217	00:04:05:0B:4A:78	CAMPFR-12 C12345	1.0.14
10.1.10.202	00:04:05:02:81:04	AT3 NDI 1B6753	5.1.82

1. Click **Start Search** to start scanning the network for 1 Beyond cameras. The camera appears with its IP address, MAC Address, camera name (for example, and serial number), and firmware version displayed.

Network Search			
+ Add to Camera List		☑ Modify netinfo	🔄 Refresh
			🔍 Stop search
IP	MAC	Camera Name	Firmware
10.1.10.233	00:04:05:0A:2A:A6	CAMPTZ-12 1B10306	3.1.15
10.1.10.217	00:04:05:0B:4A:78	CAMFR-12 C12345	1.0.14
10.1.10.202	00:04:05:02:81:04	AT3 NDI 1B6753	5.1.82

2. To change the camera's network settings to match your network's information, click **Modify netinfo** which will bring up the network settings panel.

✕
Modify Network Parameter

Ethernet

Device information:

CameraName

Mac

Network information:

ConnType

IP

Mask

GateWay

DNS1

DNS2

3. Under **Network information**, confirm that the **ConnType** (Connection Type) is correct for how the camera is connected. Set it to either Static IP or DHCP.

By default, the camera ships with the static IP address *192.168.18.77* and a subnet mask of *255.255.255.0*

**NOTES:**

- If an Ethernet cable is connected directly to the computer running the 1 Beyond Camera Manager software, the computer's network port will need to be set to an address on the same subnet (for example, *192.168.18.78*) in order to communicate with the camera.
- If the camera is connected to a network switch, the camera's IP address needs to be changed to DHCP or to a static address within the same subnet as the computer running the software.
- If the camera is set to **DHCP** for **ConnType**, it will receive its IP address dynamically from a network router. This option does not work when the camera is connected directly to the host computer for configuration.
- If the installation requires a different static address (for example, The IP address of the camera needs to be modified to match the subnet of the computer), enter the IP, Mask and Gateway info and then click **Modify**.

4. After modifying the IP address, click **Refresh** to update the camera list.
5. Select the camera and click **Add to Camera List**. The **Add** panel appears where you can verify that the camera's network settings are correct. By default, 1 Beyond cameras do not require any administrator credentials to be controlled. Once added, the camera will appear in your camera list.

## View the Connection Status

When the 1 Beyond Camera manager software connects to a camera, the camera shows as connected in the **Main session** and **Sub session** columns. These columns indicate the camera's main and substreams connection status for IP (RTSP) video.

**NOTE:** When the chosen camera is set to match your IP address, its status will read connected for both columns.

The following connection status messages can be shown for a camera:

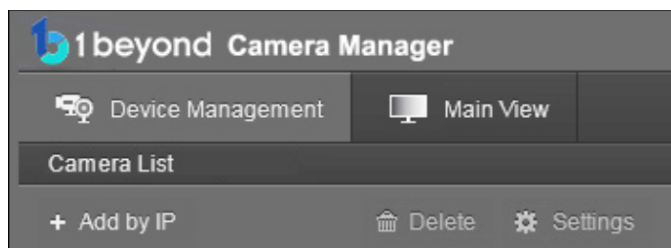
- **Connected:** The 1 Beyond Camera Manager software has received RTSP video streams from the camera and has connected to the camera.
- **Connection Failed:** The 1 Beyond Camera Manager software discovered the camera on the network, but video streams cannot be received. The camera is likely connected to a different subnet from the host computer.
- **Disconnected:** The camera is not currently accessible on the network.

**NOTE:** When a camera is first connected to the network, it can take up to 30 seconds after powering the camera on for it to be discovered by the 1 Beyond Camera Manager software. This is because the camera performs a diagnostic routine prior to activating the video encoder.

## Configure Camera Settings

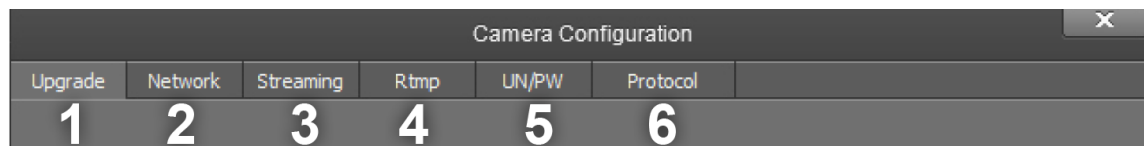
Once a camera has been added to the 1 Beyond Camera Manager software as described in [Device Management](#), select **Settings** to configure general settings for the camera.

### Camera Manager - Settings Button



Selecting **Settings** opens the **Camera Configuration** dialog box, which provides access to many of the camera's system settings.

### Camera Configuration Dialog Box



The numbers in the preceding image correlate with the following functions.

1. **Upgrade:** Select this tab to upgrade the firmware on the camera.
2. **Network:** Select this tab to change the camera's network settings (similar to the **Modify Netinfo** function in the **Device Management** tab).
3. **Streaming:** Select this tab to customize the camera's IP video streams. The bit rate and encoding level of each stream can be adjusted manually.
4. **RTMP:** Select this tab to enter up to 4 URLs or IP addresses that can receive video streams from the camera.
5. **UN/PW:** Select this tab to change the camera name, to set authentication credentials for the camera, and to change the system time.
6. **Protocol:** Select this tab to configure the camera to be operated from a control device (such as a Crestron® touch screen).

## Upgrade Tab

Select the **Upgrade** tab to perform a firmware update for the camera.

### Upgrade Tab



To upgrade firmware, use the ellipses button (...) next to the **Upgrade File** field to navigate to and select the appropriate firmware file for the camera. After the file has been chosen, select **Upgrade** to initiate the firmware upgrade. The camera will restart automatically after the process is complete.

**CAUTION:** Note the following when performing a firmware upgrade:

- Before attempting to upgrade camera firmware, verify that you have received the appropriate firmware file for your camera model. Firmware files are specific to individual 1 Beyond camera models.
- Only use Crestron firmware files. Attempting to upgrade the device using third-party files may prevent the camera from functioning correctly.
- Do not disconnect the camera or attempt to control it while upgrading firmware. This may cause the firmware file to become corrupted and prevent the camera from functioning correctly.
- Only perform a firmware upgrade if recommended by [Crestron True Blue Support](#) during a support call.

## Network Tab

Select the **Network** tab to modify the camera's network settings and to configure the port for the camera's IP video streams.

## Network Tab

Field	Value
Connect with	Static IP
IP Address	10.1.10.223
Mask	255.255.255.0
Gateway	10.1.10.1
DNS 1	0.0.0.0
DNS 2	0.0.0.0
rtsp port	554
app port	5002

The following settings can be modified:

- **Connect with:** Use the drop-down menu to select whether the camera connects to the network over a static IP or dynamically over DHCP.
- **IP Address:** If **Connect with** is set to **Static IP**, set a static IP address for the camera.
- **Mask:** If **Connect with** is set to **Static IP**, set a static subnet mask address for the camera.
- **Gateway:** If **Connect with** is set to **Static IP**, set a static address for the default gateway router.
- **DNS 1:** If **Connect with** is set to **Static IP**, set a static primary DNS (Domain Name Server) lookup address.
- **DNS 2:** If **Connect with** is set to **Static IP**, set a static secondary DNS (Domain Name Server) lookup address.
- **rtsp port:** Set a port that will be used for the camera's RTSP video-over-IP streams. The default port for most cameras is 554 or 5000.
- **app port:** Set a port that will be used for communication between the 1 Beyond Camera Manager software and the camera.

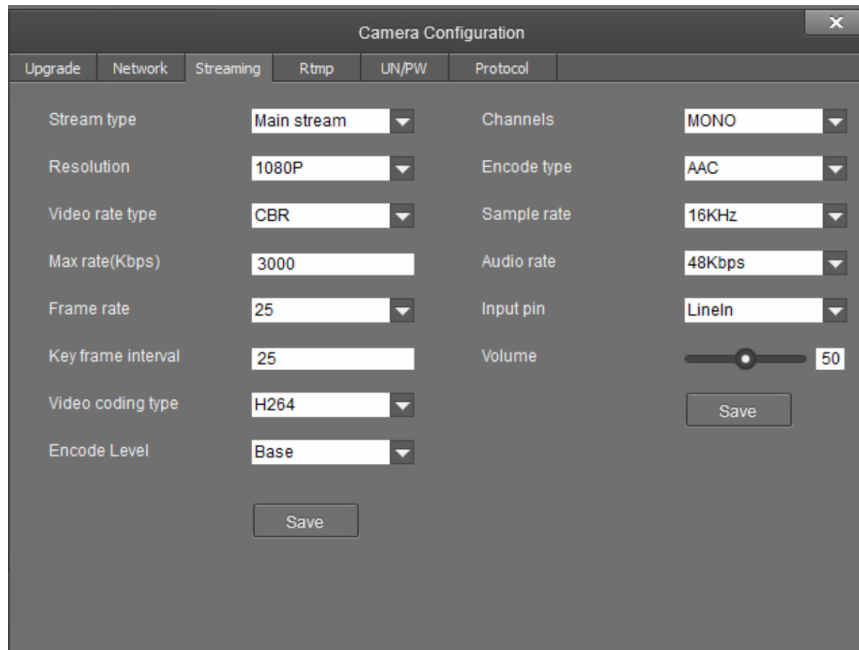
**NOTE:** The **app port** value should not be changed unless instructed to do so by Crestron True Blue Support.

Select **Save** to save any changes made to these settings.

## Streaming Tab

Select the **Streaming** tab to modify the camera's streaming settings.

### Streaming Tab



The screenshot shows the 'Camera Configuration' dialog box with the 'Streaming' tab selected. The dialog has a title bar with a close button (X) and a tabbed interface with the following tabs: Upgrade, Network, Streaming (selected), Rtmp, UN/PW, and Protocol. The Streaming tab contains the following settings:

Setting	Value
Stream type	Main stream
Resolution	1080P
Video rate type	CBR
Max rate(Kbps)	3000
Frame rate	25
Key frame interval	25
Video coding type	H264
Encode Level	Base
Channels	MONO
Encode type	AAC
Sample rate	16KHz
Audio rate	48Kbps
Input pin	LineIn
Volume	50

There are two 'Save' buttons: one at the bottom left and one at the bottom right.

The **Streaming** tab is used to adjust the properties of the native IP video streams that are encoded and transmitted by the camera. 1 Beyond Intelligent cameras can broadcast up to 4 simultaneous RTSP streams, while all other supported 1 Beyond cameras output 2 simultaneous streams. Each video stream can be configured individually.

The following settings can be modified:

- **Stream type:** Use the drop-down menu to select the stream that will be configured.
- **Resolution:** Use the drop-down menu to select the desired stream resolution independently of the camera's operating resolution.
- **Video rate type:** Use the drop-down menu to select whether the video will be encoded with constant or variable bit rate. Selecting variable bit rate causes reduced stream bit rate during static shots with little movement. The bit rate increases as motion increases.
- **Max rate[Kbps]:** Set the maximum bit rate of the video stream. The maximum supported value varies by camera model.

**NOTE:** For NDI-enabled 1 Beyond cameras, the **Max rate[Kbps]** setting controls the maximum bitrate of the camera's NDI stream.

- **Frame rate:** Use the drop-down menu to select the stream's frame rate. This value should always equal the camera's native frame rate.
- **Key frame interval:** Set the desired frame rate for the video stream. This value does not have to equal the camera's native frame rate.

- **Video coding type:** Use the drop-down menu to select whether the video stream will use H.264 or H.265 encoding.
- **Encode Level:** Use the drop-down menu to select whether the video stream will use a low, base, or high-profile encoding type.
- **Channels:** Use the drop-down menu to select the audio channel type used for the camera's analog audio input.
- **Encode type:** Use the drop-down menu to select the encoding type for the camera's analog audio input.
- **Sample rate:** Use the drop-down menu to select the sampling rate for the camera's analog audio input.
- **Audio rate:** Use the drop-down menu to select the audio rate for the camera's analog audio input.
- **Input pin:** Use the drop-down menu to select the input type for the camera's analog audio input.
- **Volume:** Use the slider to set the default volume level for the camera's analog audio input.

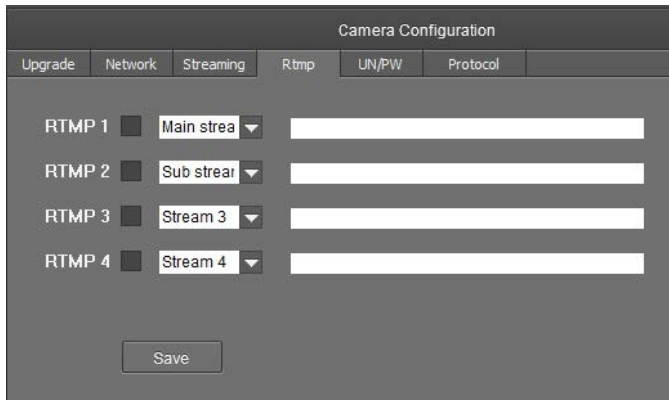
Select **Save** under the video or audio settings to save any changes made to those settings, respectively.



## RTMP Tab

Select the **RTMP** tab to modify the camera's RTMP (Real-Time Messaging Protocol) settings.

### RTMP Tab



The screenshot shows the 'Camera Configuration' interface with the 'Rtmp' tab selected. It features four rows for configuring RTMP streams. Each row includes a checkbox, a dropdown menu for stream type, and a text input field for the destination. The stream types are 'Main stream', 'Sub stream', 'Stream 3', and 'Stream 4'. A 'Save' button is located at the bottom left of the configuration area.

The **RTMP** tab is used to configure 1 Beyond cameras to broadcast video streams to RTMP destinations such as servers or web services. Up to 4 RTMP streams can be configured.

**NOTE:** This feature will work only with RTMP destinations that do not require a stream key for authentication.

To configure the camera's video stream to RTMP destinations:

1. Select the check box next to a stream to activate it.
2. Set the stream type using the drop-down menu.
3. Enter the host name or IP address of the RTMP destination in the text field.
4. Select **Save** to save any changes made.

## UN/PW Tab

Select the **UN/PW** tab to modify the camera name, authentication credentials, and other administrative settings.

### UN/PW Tab

The screenshot shows the 'Camera Configuration' window with the 'UN/PW' tab selected. The window has a dark grey background and a light grey header with tabs for 'Upgrade', 'Network', 'Streaming', 'Rtmp', 'UN/PW', and 'Protocol'. The 'UN/PW' tab is active. The main area contains several fields and buttons: 'Old password' (text input), 'New password' (text input), 'Confirm' (text input), 'Camera name' (text input with value 'CAMPTZ-12 1B1030'), 'Local Time' (displaying '2022-07-21 16:20:07' with an 'OK' button), 'TimeZone' (dropdown menu with '+00:00'), and 'NTP Server' (text input with an 'OK' button). There are also buttons for 'Save', 'Reboot', and 'Reset'. An 'Enable NTP' checkbox is also visible.

The following settings can be modified:

- Password settings
  - **Old password:** If applicable, enter the existing admin password set for the camera.
  - **New password:** Enter a new admin password for the camera.
  - **Confirm:** Enter the admin password specified in the **New password** field.
  - Select **Save** to change the password.

**CAUTION:** Do not lose the admin password, as it cannot be reset if it is forgotten.

- Reboot
  - Select **Reboot** to restart the camera.
  - Select **Reset** to restore the camera to its factory default settings.

**CAUTION:** Resetting a camera associated with an Automate™ VX camera switcher system will clear all camera presets.

- **Camera Name:** Enter a new camera name for identification and management purposes. By default, the camera name includes the device's serial number.
- **Local Time:** View the local time on the host computer. Select **OK** to refresh the time.
- **NTP Settings**

- Select the **Enable NTP** check box to synchronize the camera's internal clock to an external NTP (Network Time Protocol) server.

**NOTE:** Using an external NTP server requires a constant network connection for the camera.

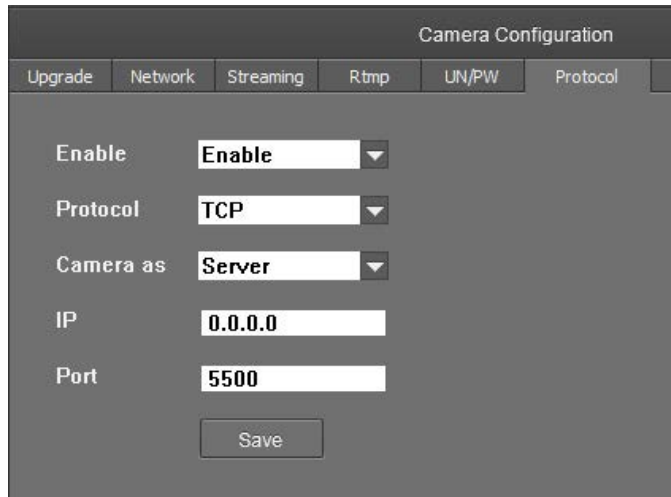
- **TimeZone:** Use the drop-down menu to set the time zone for the camera.
- **NTP Server:** Enter the URL or IP address of the external NTP server, then select **OK**.

Select **Save** to save any changes made to these settings.

## Protocol Tab

Select the **Protocol** tab to set a secondary connection to the camera from a control device (such as a Crestron touch screen).

### Protocol Tab



Camera Configuration					
Upgrade	Network	Streaming	Rtmp	UN/PW	Protocol
Enable	Enable				
Protocol	TCP				
Camera as	Server				
IP	0.0.0.0				
Port	5500				
Save					

The following settings can be modified:

- **Enable:** Use the drop-down menu to turn the secondary connection on or off.

**NOTE:** For 1 Beyond Intelligent cameras, a secondary connection is turned off by default, as it is not required in most circumstances since port 5500 supports VISCA control over TCP.

- **Protocol:** Use the drop-down menu to select the communication protocol for the secondary connection.
- **Camera as:** Use the drop-down menu to select the role for the camera (such as server) for the secondary connection.
- **IP:** Enter the IP address for the secondary connection device. The default value of "0.0.0.0" should be retained for most setups.
- **Port:** Enter the port number for the secondary connection. The default value of "5500" should be retained for most setups.

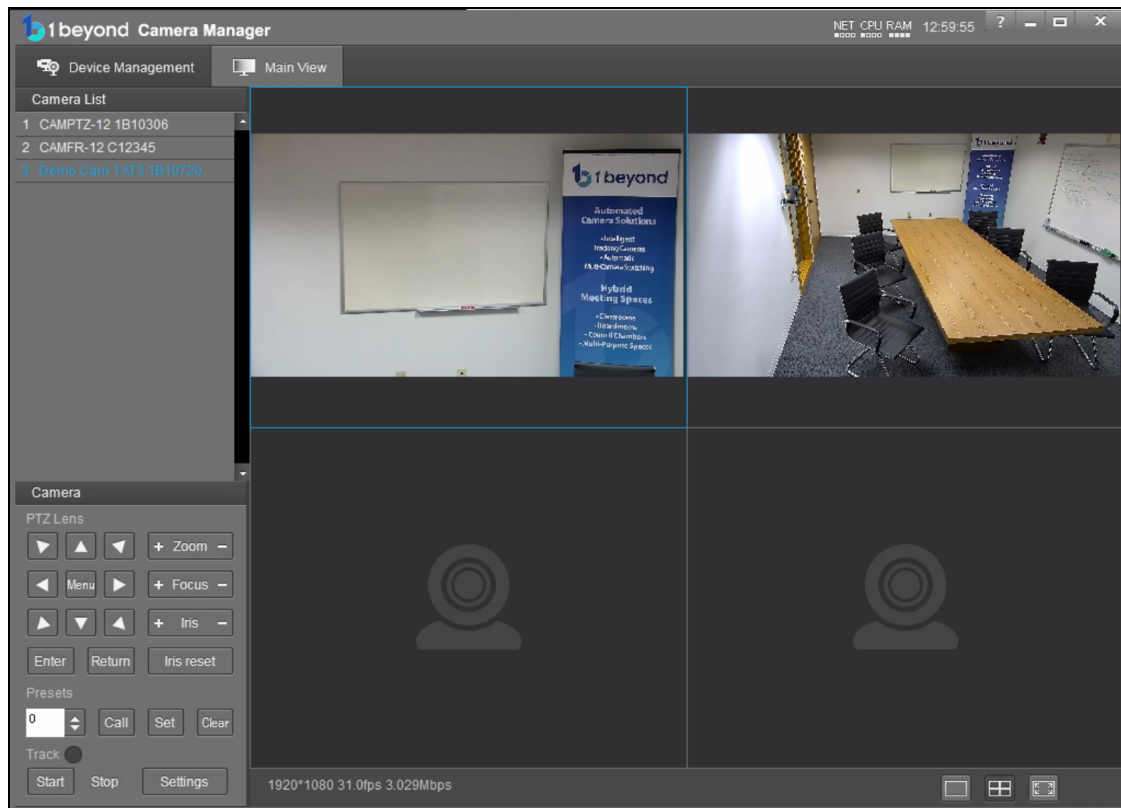
Select **Save** to save any changes made to these settings.

## Access Video Feeds

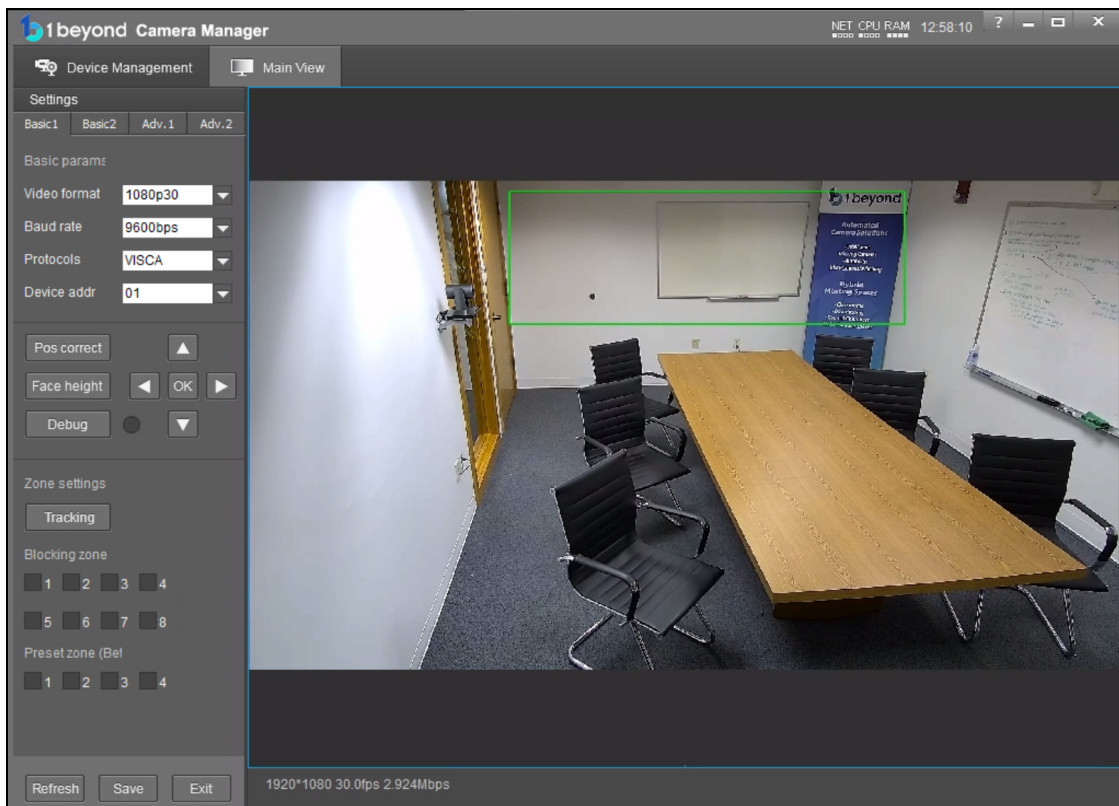
Proceed to the **Main View** tab to monitor the video feeds and begin setting up the tracking parameters. In the Camera List, right-click on the camera name and select **PTZ** and **Reference** to add the streams the multi view area. The PTZ and wide-angle cameras appear side-by-side.

# Tracking Settings

Once the camera is connected and streaming video to the host computer, click **Stop** in the lower left corner to stop tracking.



To access the camera's tracking properties, click **Settings**. This will bring up the tracking settings panel and shows a full view of the wide-angle with the Tracking Zone shown as a green rectangle.



## Set the Tracking Zone

The camera detects motion within the tracking zone of the wide-angle lens. The camera uses the tracking zone to detect faces with the PTZ lens. Limit the tracking zone to the presentation area to prevent false motion triggers.

**NOTE:** Blocking Zone 1 may be set by default. Remove the blocking zone as detailed in the [Set the Blocking Zone on page 39](#).

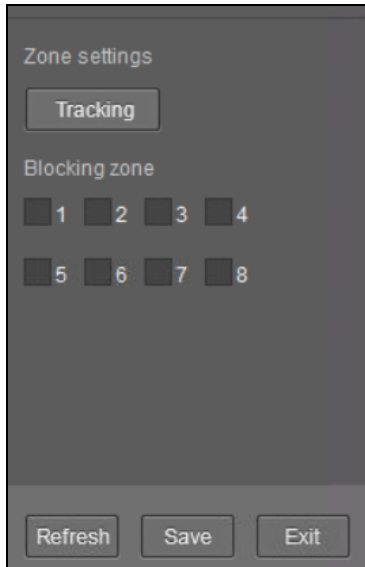
### Requirements:

- Set the Tracking Zone to contain the entire area where a presenter will move around. Draw the Tracking Zone so it fills a presenter's head and torso. Tracking is more effective when zones are narrow and defined.
- Leave room on the left and right of the zones to allow the presenter to leave the zone and another presenter to enter.
- If the front row of audience seats covers some of the presentation area, don't include it in the Tracking Zone. Instead, draw it so that at least the torso and/or head of the presenter will be the only moving subjects in the Tracking Zone.

**NOTE:** The camera does not auto-save settings. Make sure to save frequently during the setup process.

To draw a Tracking Zone:

1. Click **Tracking** in the lower half of the settings panel. The cursor will move into the video frame.
2. While holding down the left mouse button, drag the mouse to draw the tracking zone.
3. Let go of the left mouse button to release the cursor from the video frame.
4. Once the Tracking Zone is set, click **Save** to store the setting in the camera's memory.

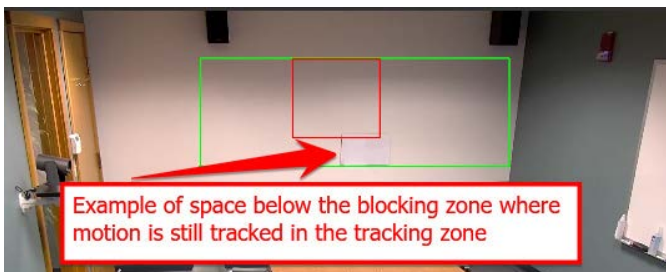


## Set the Blocking Zone

Set Blocking Zones within the Tracking Zone to prevent projection screens, windows, or moving objects from triggering the camera's motion detection. Up to 8 blocking zones can be configured.

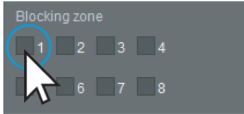
Guidelines:

- Blocking Zones are only active within the Tracking Zone and will not have an effect outside of the Tracking Zone.
- Set the Blocking Zone so it does not block an entire section of the tracking zone as this could potentially cause the camera to lose the presenter if they remain in the blocked area for too long.
- There should be space left in the Tracking Zone under the Blocking Zone so that motion can be tracked as the person walks in front of the display or window you are blocking.
- Use Blocking Zone 7 or 8 for environments where a presenter will stand in front of a display or projection screen. Blocking Zones 7 and 8 are customized to prioritize motion detection over face detection.



**NOTE:** On cameras running firmware versions 5.1.82 or earlier, only Blocking Zone 8 can be used to block displays and projection screens.

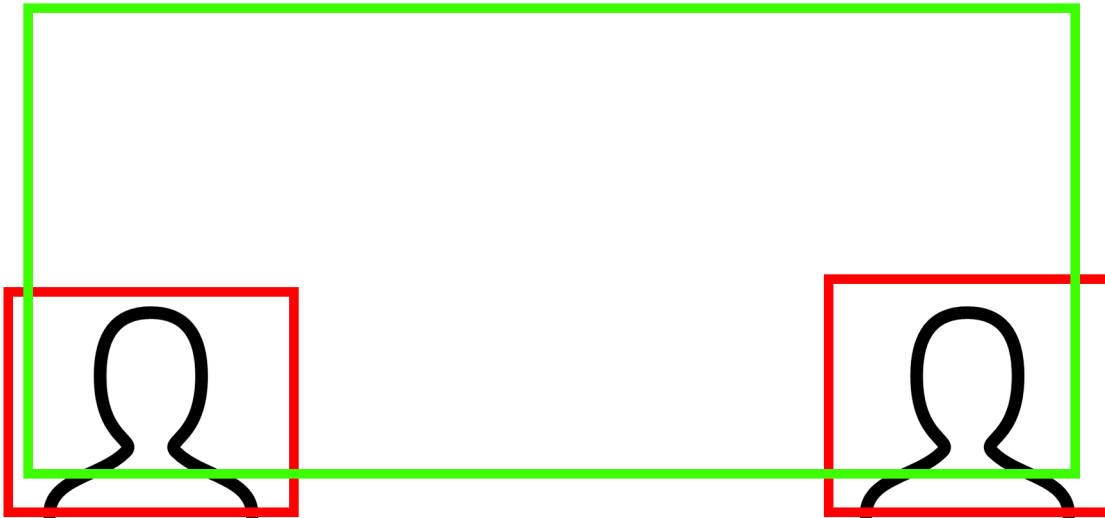
To set up a Blocking Zone, click on one of the check boxes in the Blocking Zone area of the settings pane and draw the zone in your desired spot within the tracking zone. This process is identical to setting up the Tracking Zone.



## Tracking and Blocking Zone Configurations

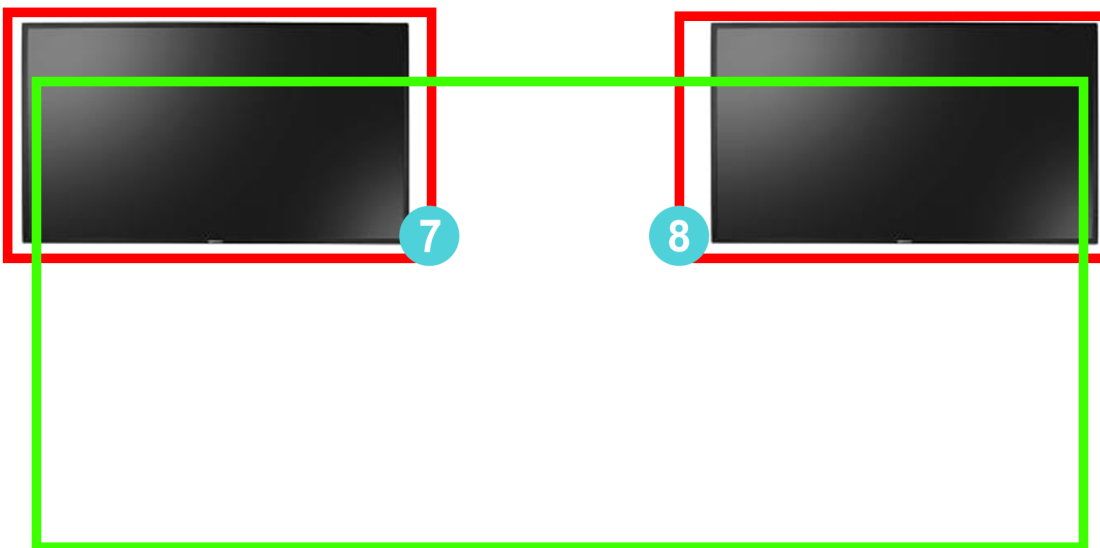
For the best presenter tracking performance, ensure that Tracking Zones and Blocking Zones abide by the following guidelines:

1. Audience members should be blocked with Blocking Zones 1 through 6. Alternately, draw the Tracking Zone to exclude audience members, or remove front seating arrangements (if possible).



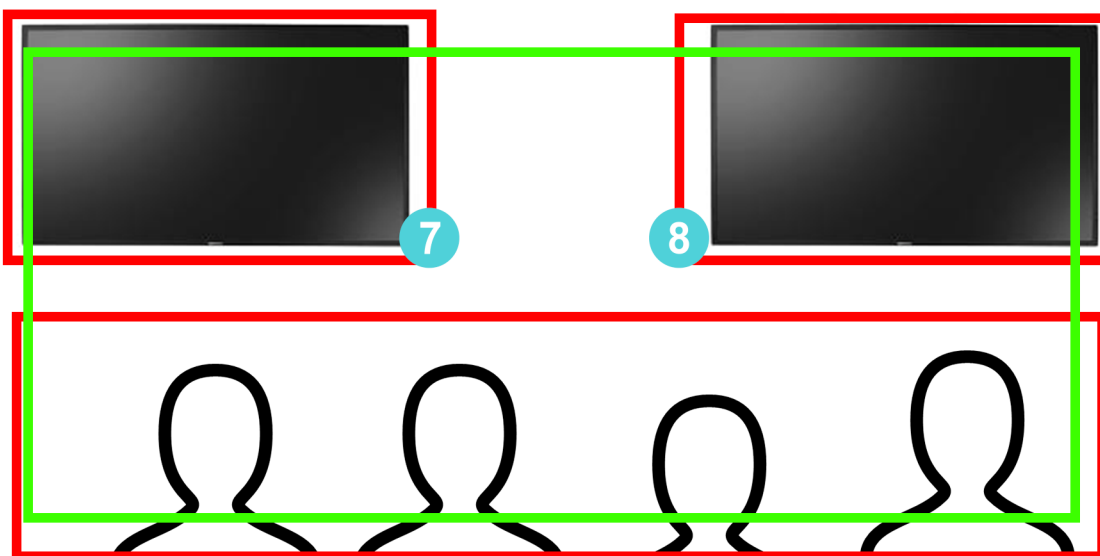


2. Displays and projectors should be blocked off using Blocking Zones 7 and 8. Confirm that there is adequate tracking coverage around the displays.



Avoid the following practices to provide the best presenter tracking performance:

1. If displays, projectors, or audience members overlap in the tracking zone, false tracking triggers will occur. Redraw the Tracking Zone so that a presenter can be tracked without intersecting with Blocking Zones. Front seating arrangements may need to be moved to achieve a proper Tracking Zone.



2. If displays and projectors overlap the entire Tracking Zone, the camera can lose track of the presenter if it is unable to lock onto a presenter's face or detect motion.



## Set Preset 0 and 1

After the camera's tracking properties are set, set presets 0 and 1. These two presets serve as the camera's reference for how it frames a presenter and the shot it defaults to when no one is presenting.

### NOTES:

- Do not overwrite presets 0 and 1. They serve as the main reference point to determine the camera's tracking properties.
- If the camera will be controlled using a 3rd party control system and presets need to recall different shots, use presets 2 and higher.

## Preset 0 - The Home Position

Preset 0 is the shot that the camera will revert to when no presenter is detected or tracked. This preset should be set to a view of the entire presentation area.

Under some circumstances, it may not be preferential for the camera to zoom all the way out only to zoom in again once a presenter or speaker enters - for example when a podium shot is preferred. In this case, a tighter shot should be set for Preset 0.

To set Preset 0:

1. Navigate to the Main View tab.
2. To move the camera, use the arrow buttons and Zoom + / - in the PTZ Lens section.

- To store Preset 0, select the number 0 from the drop-down menu and click **Set**.



## Preset 1 - The Tracking Shot

Preset 1 determines how tightly the camera frames a presenter while tracking and the maximum amount of zoom and upwards tilt-motion of the tracking shot.

To configure Preset 1, have someone act as a subject to determine the optimal camera position and zoom in. Position the camera to ensure the subject fits in the frame in the following situations:

- The subject stands with outstretched arms.
- The subject raises a hand (to simulate writing on a blackboard or gesturing).
- Depending on the height of the subject, add enough headroom to allow taller presenters. The headroom defined in Preset 1 limits how far up the camera will tilt while tracking.

**NOTE:** If the Tracking Shot is not set (Preset 1) it can lead to the camera not being framed correctly, and can lead to poor presenter tracking. Confirm that there is a Tracking Shot (Preset 1) set by Calling Preset 1 in the bottom left of the Main View.

## Adjust White Balance

As the lighting in presentation spaces can change frequently due to projectors, displays or windows, set the camera to static white balance in order to guarantee the most reliable tracking performance. Additional white balance settings are detailed in the [OSD Menu Tree on page 51](#).

The most reliable way to achieve accurate static white balance is to focus the camera on a white object like a white board or a white balance target and perform a One-Push white balance measurement.

1. Focus on a white Object  
Pan / tilt / zoom until the white object fills the entire frame.
2. Open the OSD Menu  
Click the **Menu** button in the center of the PTZ controller to toggle the camera's onscreen menu. This menu will appear overlaid on top of the tracking shot / PTZ feed.
3. Enter COLOR Settings  
Using the down-arrow, navigate to the COLOR option and click **Enter** to confirm your selection.
4. Cycle to the **ONE PUSH** option using the right-arrow button and select **ONE PUSH TRIGGER** to initiate the white balance adjustment.

## Adjusting Exposure

In challenging lighting conditions, adjusting exposure compensation might be necessary in order to guarantee optimum tracking performance.

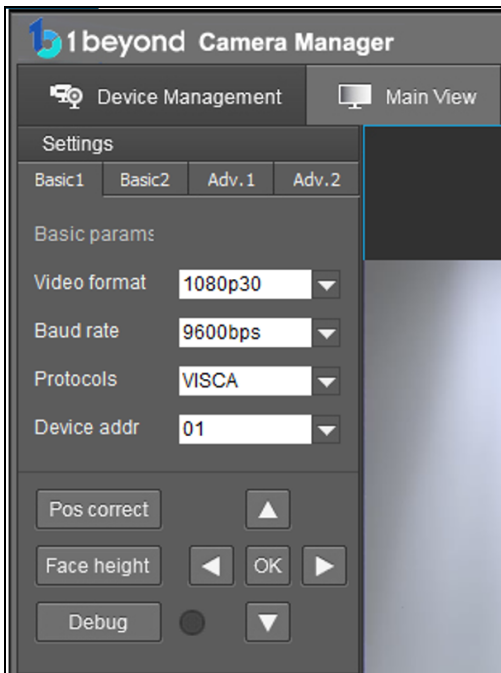
1. Open OSD Menu
2. Enter EXPOSURE Settings
3. Adjust Exposure Settings to your liking.

## Test and Refine Tracking Performance

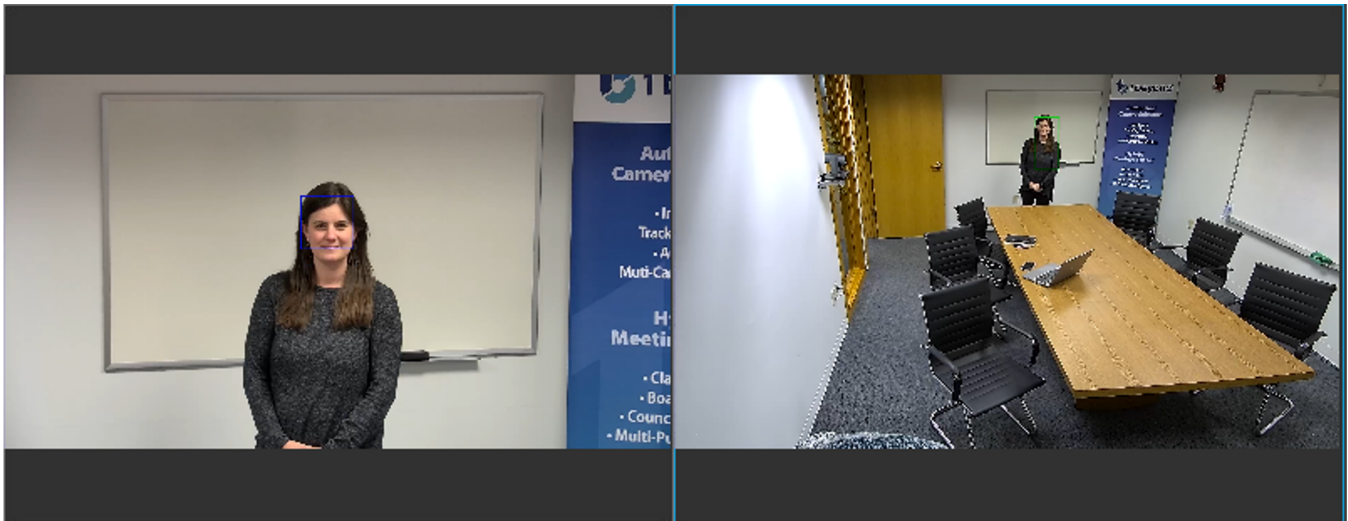
Now that the initial configuration is complete, test tracking behavior using a stand-in presenter. Have the presenter walk around and monitor the camera to pinpoint any unwanted detection or incorrect framing.

To activate Debug mode:

1. In the first tab of the **Tracking** settings, click the **Debug** button. The green indicator reflects whether this mode is turned on or off.
2. Once this mode is engaged and tracking starts, monitor the camera's motion and facial detection behavior.



If motion has been detected within the Tracking Zone, the wide-angle reference feed will show a green box in that area of the frame.



The PTZ camera moves to and zooms into the area where motion has occurred. As it is zooming in toward the position defined in preset 1, the tracking shot shows a blue box around the presenter's face once it has been detected.

Use this mode to determine whether there are any dead zones within the Tracking Zone where the camera might lose the presenter's face or fail to properly detect motion.

If needed, make changes to the Tracking and Blocking zone configuration or adjust exposure to eliminate these issues.

**CAUTION:** Be sure to disable debug mode after testing. Failure to do so will show facial detection indicators on the camera feed.

## Basic 1 Tab

Settings

Basic1 Basic2 Adv.1 Adv.2

Basic params

Video format 1080p30

Baud rate 9600bps

Protocols VISCA

Device addr 01

Pos correct PTZ

Face height

Debug

Zone settings

Tracking

Blocking zone

1 2 3 4

5 6 7 8

Refresh Save Exit

### Video Format

Changes the camera's video resolution.

**NOTE:** The resolution and frame rate of the IP video streams can be set independently. Refer to the 1 Beyond Camera Manager manual on how to adjust the RTSP stream settings.

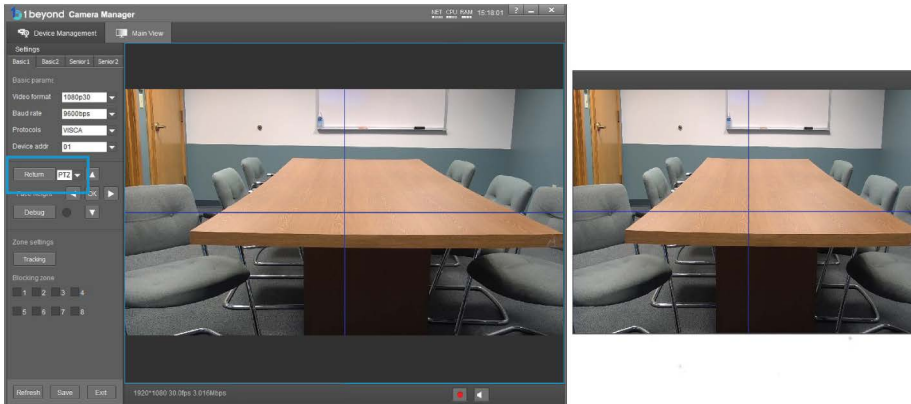
### Baud Rate, Protocol, Device Address

These settings determine the baud rate, control protocol and device address for serial control via RS-485 or RS-232.

## PTZ Alignment Correction

To correct PTZ camera alignment in relation to the static wide-angle camera:

1. Open the Tracking Settings.
2. Locate the **POS Correct** button in the **Basic 1** tab of the settings panel. A secondary window will be displayed showing the PTZ's video feed overlaid with a blue crosshair.
3. Place the PTZ video feed window next to the wide-angle feed so that both are visible simultaneously.



4. Use the PTZ Lens controls in the settings panel to move the PTZ video feed's blue crosshair into the same position as the wide-angle feed's crosshair. For the best results, place an object that can be seen in both camera feeds as a point of reference for the blue crosshairs.
5. Once the blue crosshairs in the PTZ video feed and the wide-angle feed are aligned, click **Save** to confirm the changes.
6. Click **Return** to exit the PTZ Alignment Correction interface.

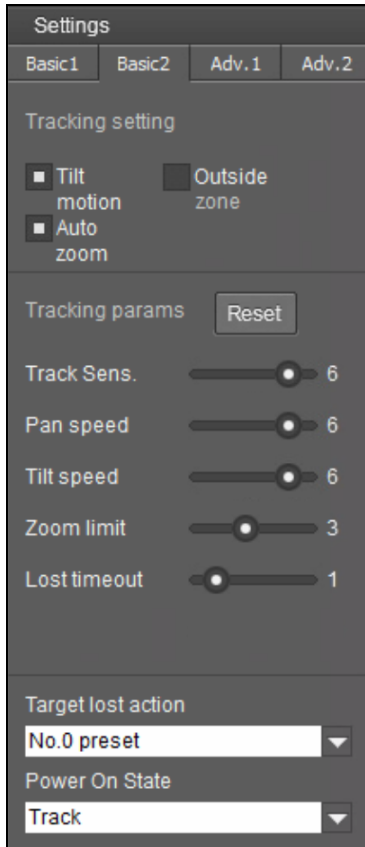
**NOTE:** Click **Exit** to leave the PTZ Alignment Correction interface without saving any changes.

## Face Height

This setting adjusts the camera's calibration. The default value of the Face Height setting is 0.

**CAUTION:** Do not adjust the Face Height setting. Any value changed from the default value of 0 can cause the camera to not track properly.

## Basic 2 Tab



### Tilt Motion

When activated, the camera will tilt up or down once locked onto a subject.

### Auto Zoom

When activated, the camera will automatically zoom in or out as the tracked subject moves closer to or away from the camera.

### Outside Zone

Determines whether the camera will keep tracking a subject that it has locked onto as they exit the Tracking Zone to the left or right.

Once the camera has detected and locked on a presenter's face in the Tracking Zone, the presenter will be tracked until they leave the pan and tilt range of the PTZ camera. The camera will still switch to a new active presenter if they enter the Tracking Zone.

### Tracking Sensitivity

Determines how sensitive the wide angle camera is to motion that occurs within the tracking zone. Lower this setting if the camera gets distracted by lighting changes or shadows.

### Pan/Tilt Speed

This setting adjusts the speed of pan and tilt movement during tracking. This can be increased if presenters tend to be more active.



## Zoom Limit

Determines the maximum amount of zoom applied when the tracked subjects walks further into the background. In most settings, this setting will not have any effect.

## Lost Timeout

Defines how long the camera will wait before returning to preset 0 once the subject has left the Tracking Zone.

## Target Lost Action

Determines whether the camera returns to preset 0, preset 1, or stays at its current position when no presenter is being tracked.

## Power On State

Determines whether the camera powers on with tracking enabled or disabled.

## Advanced 2 Tab

The Advanced 2 tab contains network settings that pertain to controlling the camera through external hardware or software. By default, the camera accepts TCP VISCA over IP control via TCP port 5500.

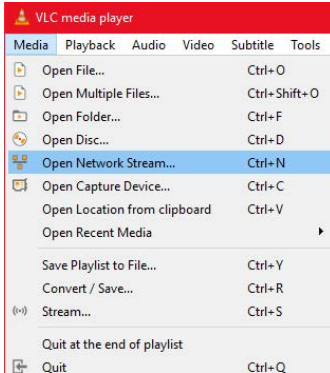
In order to maintain compatibility with 1 Beyond hardware and Crestron control modules, these settings should not be changed.

**NOTE:** If the control system being used requires a different port or the UDP protocol, these settings can be changed accordingly to communicate with the control system.

# Monitor RTSP Streams

The RTSP IP video streams that are being broadcast by the camera can also be previewed and monitored in third-party apps like VLC Media Player® software. The following example demonstrates how to access the streams in the VLC® player.

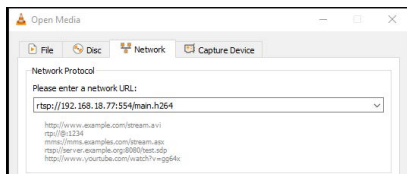
1. Launch VLC player and click **Media > Open Network Stream**.



2. Select **Open Media > Network** (tab) and enter the RTSP URL using the following syntax:

rtsp://xx.xx.xx.xx:554/4.h264

Substitute "sub" for the secondary stream from the wide-angle camera or "3" / "4" for subsequent streams.



554 is the port number. If you have a different port set up for the RTSP stream, enter its number instead.

To learn how to adjust the bit rate and resolution settings for the camera's RTSP streams, refer to the [1 Beyond Camera Manager](#) manual.

**NOTE:** The VLC player induces noticeable latency when monitoring RTSP streams.

## On-Screen (OSD) Menu

```
<MENU>
VIDEO...
EXPOSURE...
COLOR...
PAN TILT ZOOM...
SYSTEM...
STATUS...
RESTORE DEFAULTS...
```

[▲▼] SELECT [OK] [➡] NEXT

All 1 Beyond cameras feature an integrated on-screen menu which can be accessed by pressing **Menu** in the PTZ controller section of 1 Beyond Camera Manager. The menu is then displayed overlaid on the camera's video feed.



Here you can adjust various settings to tailor the camera's performance to the setup.

Navigate the menu using the directional buttons in the software. In the software, press **Enter** to confirm a menu selection, and use the left and right directional buttons to adjust the selected parameter.

To return to a previous menu page, press **Return**.

Pressing the **Menu** button on any control device while anywhere in the menu will close the menu entirely.

**CAUTION:** Always stop tracking before entering the OSD menu as it may cause random changes in system settings that can severely impact image quality.

**NOTE:** Restoring the settings to factory default will not reset Address, Protocol, Baud Rate, Video Format and Mount settings. Likewise, tracking settings will remain unaffected.

## OSD Menu Tree

VIDEO	SHARPNESS	0 - 15	Increase / decrease video sharpening.
	BRIGHTNESS	0 - 14	Adjust video brightness.
	CONTRAST	0 - 14	Adjust video contrast
	GAMMA MODE	0 - 4	Adjust video gamma correction.
	2DNR LEVEL	OFF, 1 - 5	2D Noise Reduction level.
	3DNR LEVEL	OFF, 1 - 5	3D Noise Reduction level.
	WIDE DYNAMIC	OFF, 1-5	Adjust intensity of dynamic range extension.
	FV BRIGHTNESS	0 - 14	Adjust Wide-Angle Brightness.
	FV LDC LEVEL	OFF, 1 - 10	Set level of fisheye correction for wide-angle camera.

EXPOSURE	MODE	FULL AUTO	Automatically adjust exposure.
		MANUAL	Manually adjust exposure.
		SHUTTER PRI	Shutter priority mode.
		IRIS PRI	Iris priority mode.
		BRIGHT PRI	Brightness priority mode.
	EXP COMP	ON / OFF	Exposure compensation on / off.
	LEVEL	-7 - +7	Adjust level of exposure compensation.
	BLC	ON / OFF	Turn Back Light Compensation on / off.
	ANTI FLICKER	OFF / 50Hz / 60 Hz	Reduces flicker induced by 25p / 30p frame rates.
COLOR	WB MODE	AUTO	Fully automatic white balance.
		ATW	Auto-Tracing white balance mode.
		ONE PUSH	Trigger one-time WB adjustment.
		INDOOR	Best for warm lighting.
		OUTDOOR	Best for natural sunlight.
		MANUAL	Fully manual white balance adjustment.
		SODIUM LAMP	Best for sodium gas light.
		FLUO LAMP	Best for fluorescent light sources.
	R. / G. / B. GAIN	-7 - +7	Adjust color channel balance.
	SATURATION	0 - 14	Increase / decrease color saturation.
HUE	0 - 14	Adjust hue for color tint compensation.	
PAN TILT ZOOM	PAN / TILT SPEED	0 - 8	Adjust the speed of camera movement.
	PTZ TRIG AF	x1 - x12	Auto-focus after moving camera.
	RATIO SPEED	ON	Pan/Tilt speed relative to zoom ratio.
	POWER UP ACTION	HOME, PRESET 0-9	Preset the camera calls when powering on.

SYSTEM	ADDRESS	1 - 7	Choose cam address for serial comm.
	PROTOCOL	VISCA	Choose protocol for serial communication.
		PELCO-D	
		PELCO-P	
	BAUDRATE	2400 - 34800	Set baud rate for serial port.
	VIDEO FORMAT	720p50 - 1080p60	Change video resolution & frame rate.
	MOUNT MODE	STAND, CEILING	Chose how camera is mounted. Tracking does not work with ceiling mount.
	RS485 PORT	HALF-DUPLEX 1 / 2	Change Duplex setting for RS485 port.
LANGUAGE	ENGLISH, CHINESE	Choose your OSD language.	
STATUS	SHOWS SYSTEM SETTINGS		
RESTORE DEFAULTS	YES / NO		

## Video Settings

The VIDEO menu adjusts various settings that can help adjust the camera's video output to your specific needs.

### DNR – Digital Noise Reduction

The Sony Exmor image sensor in this camera offers integrated 2-step noise reduction that helps combat noise than can appear when the camera has to compensate for dim lighting.

**2DNR** is the first level of noise reduction. When on, up to five levels can be set. High levels of 2DNR should only be used in low-color settings.

**3DNR** offers dynamic noise reduction ideal for conferencing, streaming, and more. When on, up to five levels can be set. Setting the level too high might lead to "ghosting" when the camera is picking up fast movement or is being moved.

### WIDE DYNAMIC

WDR (Wide Dynamic Range) is a technology that extends the camera's dynamic range to compensate for high contrast image content. This can improve visibility in settings with bright lights and dark shadows as it makes details in the dark parts of the image more easily discernible.



Fig 1: The entire dynamic range of a scene.



Fig 2: The dynamic range (shown in red) captured with WDR OFF. The area to the left is underexposed, and the area to the right is overexposed.

**FV-BRIGHTNESS** adjusts exposure compensation for the wide-angle camera. This can help improve motion detection in areas with low-contrast lighting. If bright lights are within the wide-angle camera's field of view, this setting also helps to properly expose the presentation area.

**FV-LDC LEVEL** - Full View Lens Distortion Correction

**NOTE:** Do not adjust this setting unless instructed by Crestron True Blue Support as it might affect tracking and framing performance.

## Exposure Settings

The **EXPOSURE** menu is used to adjust image brightness and the properties of the camera's automatic exposure adjustment features.

In **FULL AUTO**, the camera automatically adjusts gain (ISO), iris (aperture), shutter speed, and exposure compensation to maintain image brightness. Exposure settings can also be tailored to the needs of your venue using a variety of different parameter priority or manual modes.

**SHUTTER PRI:** Gain and shutter values are adjusted automatically while the shutter speed can be set manually.

**IRIS PRI:** Gain and iris values are adjusted automatically while Iris value can be set manually (in F-stops from 1.6 to 14).

**BRIGHT PRI:** Manually adjust the video brightness.

**SMART:** Set the smart Auto Exposure area (AREA 1~AREA4). When the camera reaches any of these areas, the camera automatically recalls a manual exposure setting. When the camera moves out of the area, the AE mode will default to AUTO.

**EXP-COMP:** Once EXP-COMP is set to ON, you will be able to set a level between -7 and +7 to darken or brighten the image.

**BLC:** Back Light Compensation can be activated if the background of the frame is a bright light source (for example, windows or a projection screen behind a presenter) to maintain proper exposure for foreground subjects.

**ANTI FLICKER:** Fluorescent light sources and computer displays can induce image flickering when outputting at frame rates of 25 or 30 fps. If you are outputting at either of these frame rates, set the **ANTI FLICKER** setting to twice that value (for example, 60 Hz for a 30 fps video signal).

## White Balance

**WHITE BALANCE** adjusts the color levels of the camera image to reproduce what the human eye sees in any given lighting.

**AUTO** is recommended if the lighting conditions in your venue are influenced by weather changes or if you frequently use projections or colored lighting. Other settings are detailed in the **OSD Menu Tree** table above.

**ONE PUSH** is the most reliable way to achieve accurate static white balance. To perform a **ONE PUSH** white balance configuration:

1. Hold a pure white piece of paper in front of the camera lens at a distance where it is properly lit.
2. Select **ONE PUSH**, and press **OK**.
3. Continue holding the piece of paper for 10 seconds until the process is complete.

**MANUAL** mode allows you to set the levels for each color channel individually, whereas HUE can be used to compensate for any form of color tint that may be introduced by certain light sources.

## Pan/Tilt/Zoom

**PAN/TILT SPEED** lets you adjust the speed of camera movement when controlled manually. The speed is fastest when in 1x zoom compared to longer focal lengths. For any given Pan/Tilt Speed setting, pressing the OK button on the remote control toggles between a faster and slower Pan/Tilt speed.

- High speed: 15° ~ 50° / sec  
(max. zoom ~ min. zoom)
- Low speed: 4° ~ 11° / sec  
(max. zoom ~ min. zoom)

**PAN/TILT LIMIT:** Use this setting to define a custom boundary for the camera's pan / tilt range adjustable in 1° increments (Default: OFF).

- UP: -30° ~ +90°
- DOWN: -30° ~ +90°
- LEFT: -170° ~ +170°
- RIGHT: -170° ~ +170°

**D-ZOOM LIMIT:** This sets the amount of digital zoom which extends the camera's optical zoom once it reaches its maximum.

**NOTE:** Digital zoom may decrease image quality.

Example: D-ZOOM LIMIT of X3 allows a total zoom range of up to 60x.

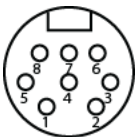
**PTZ TRIG AF:** When enabled, the autofocus is triggered whenever the camera tilts, pans, or zooms. We recommend you leave this setting enabled.

**RATIO SPEED** dynamically adjusts the speed of pan/tilt motion proportional to the amount of zoom. This way, the pan and tilt speed will be identical at any focal length.

**POWER UP ACTION** determines which of the first 9 presets the camera defaults to when powered on.

## Serial Wiring

The EXT port contains pins for both RS-485 and RS-232 serial control. It is recommended to use RS-485 as it supports longer cable runs as well as connecting multiple cameras to a single terminal block.



Pin Number	Pin Definition
1	/
2	/
3	232 TXD
4	232 GND
5	232 RXD
6	232 GND
7	485 D+
8	485 D-

RS-232 and RS-485 cables are included with the camera.

## Reserved Presets

To ensure backwards compatibility with various different control systems, some proprietary camera functions are mapped to fixed preset numbers and can be triggered by calling the associated preset.

These presets cannot be overwritten.

Preset Number	Function
0	Home Position
1	Tracking Shot
5	Preset Zone 1
6	Preset Zone 2
7	Preset Zone 3
8	Preset Zone 4
80	Start tracking
81	Stop tracking
82	Enable NDI on NDI-enabled cameras
83	Disable NDI on NDI-enabled cameras
93	Cruise through presets 0 to 29 in. 10 second intervals
95	Open OSD Menu
96	Clear ALL User Presets
99	Reboot Camera
100	1920 x 1080p50
101	1920 x 1080p25



Preset Number	Function
102	1920 x 1080i50
103	1280 x 720p50
105	1920 x 1080p60
106	1920 x 1080p30
107	1920 x 1080i60
108	1280 x 720p60
181-189	Reserved for storing tracking settings
200	Enable heartbeat
201	Disable heartbeat

## Store and Recall Tracking Settings

The AutoTracker offers the ability to store up to 8 presets for its tracking settings. The parameters that are stored and recalled are the Tracking Zone, Blocking Zones, Preset 0 and Preset 1 and the settings found in the Basic 2 tab of the tracking settings. This feature is useful if the camera is to be used in multi-functional rooms or is frequently moved to different locations.

Presets 181-189 are reserved for this purpose. These presets do not behave like normal presets.

When you "set" preset 181-189, the camera saves the current tracking parameters to that preset.

When you "call" preset 181-189, it loads the tracking parameters from that preset into the camera. The camera will then reboot.

We recommend that you "Stop Tracking" (call preset 81) before calling preset 181-189. And, be aware that after rebooting, the camera will be tracking if the "Power On State" is set to "Tracking On".

If set to "Tracking Off", then "Start Tracking" (call preset 80) will need to be enabled. Issue this command after the reboot and reconnect sequence is completed.

**NOTE:** Custom presets from 2 through 79 are not saved.

## Heartbeat Tracking Status

The camera can send a heartbeat message to indicate if the camera has tracking enabled or disabled. The following presets enable or disable Heartbeat Tracking:

- Preset 200: Enable heartbeat
- Preset 201: Disable heartbeat

With Heartbeat Tracking enabled, the camera will send a heartbeat message every 20 seconds. The heartbeat message will indicate the current tracking status of the camera (tracking on/off). The following VISCA command packet messages will indicate the tracking status:

- Tracking enabled  
30 30 30 30 01 **01** 00 FF
- Tracking disabled  
30 30 30 30 01 **00** 00 FF

The sixth byte indicates the tracking status of the camera: **01** when tracking is enabled, **00** when tracking is disabled.

# VISCA Commands

1 Beyond PTZ cameras can be controlled using the VISCA protocol through either a serial (RS-232 / RS-485) or IP connection. By default, the port for IP control is set to 5500. For serial communication, make sure the baud rate of the controller is set to 9600 bps. Below is a comprehensive list of VISCA commands that can be used to control the cameras.

## Start/Stop Tracking

Command	Command Packet	Comments
Start tracking (Recall CAM_Memory 80)	8x 01 04 3F 02 50 FF	Call Preset 80, camera addr x
Stop tracking (Recall CAM_Memory 81)	8x 01 04 3F 02 51 FF	Call Preset 81, camera addr x

**NOTE:** These commands can only be used with our Intelligent Cameras. Under no circumstances should you ever overwrite presets 80 and 81 on these cameras. Once configured, the end user must not overwrite presets 0 and 1 since these are used as references that the camera uses to adjust framing while tracking is active.

## ACK / Completion Messages

	Command Message	Comments
ACK	z0 4y FF (y:Socket No.)	Returned when the command is accepted.
Completion	z0 5y FF (y:Socket No.)	Returned when the command has been executed.

## Error Messages

	Command Message	Comments
Syntax Error	z0 60 02 FF	Returned when the command format is different or when a command with illegal command parameters is accepted.
Command Buffer Full	z0 60 03 FF	Indicates that two sockets are already being used (executing two commands) and the command could not be accepted when received.
Command Canceled	z0 6y 04 FF (y:Socket No.)	Returned when a command which is being executed in a socket specified by the cancel command is canceled. The completion message for the command is not returned.
No Socket	z0 6y 05 FF (y:Socket No.)	Returned when no command is executed in a socket specified by the cancel command, or when an invalid socket number is specified.
Command Not Executable	z0 6y 41 FF (y:Execution command Socket No. Inquiry command:0)	Returned when a command cannot be executed due to current conditions. For example, when commands controlling the focus manually are received during auto focus.

z = Device address + 8

## Commands

Command Set	Command	Command Packet	Comments
AddressSet	Broadcast	88 30 01 FF	Address setting
IF_Clear	Broadcast	88 01 00 01 FF	I/F Clear
Command Cancel		8x 2p FF	p: Socket No. (=1or2)
CAM_Power	On	8x 01 04 00 02 FF	Power On/Off
	Off	8x 01 04 00 03 FF	
CAM_Zoom	Stop	8x 01 04 07 00 FF	p: 0(Low)to 7 (High) p,q,r,s: Zoom Position
	Tele(Standard)	8x 01 04 07 02 FF	
	Wide(Standard)	8x 01 04 07 03 FF	
	Tele(Variable)	8x 01 04 07 2p FF	
	Wide(Variable)	8x 01 04 07 3p FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	
CAM_Focus	Stop	8x 01 04 08 00 FF	p: 0(Low)to 7 (High) p,q,r,s: Focus Position
	Far(Standard)	8x 01 04 08 02 FF	
	Near(Standard)	8x 01 04 08 03 FF	
	Far(Variable)	8x 01 04 08 2p FF	
	Near(Variable)	8x 01 04 08 3p FF	
	Direct	8x 01 04 48 0p 0q 0r 0s FF	
	Auto Focus	8x 01 04 38 02 FF	
	Manul Focus	8x 01 04 38 03 FF	
	Auto/Manul	8x 01 04 38 10 FF	
CAM_ZoomFocus	One Push Trigger	8x 01 04 18 01 FF	One Push AF Trigger
	Direct	8x 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF	p,q,r,s: Zoom Position t,u,v,w: Focus Position
CAM_WB	Auto	8x 01 04 35 00 FF	Normal Auto
	Indoor	8x 01 04 35 01 FF	Indoor Mode
	Outdoor	8x 01 04 35 02 FF	Outdoor Mode
	One Push WB	8x 01 04 35 03 FF	One Push WB Mode
	Manual	8x 01 04 35 05 FF	Manual Control Mode
	One Push Trigger	8x 01 04 10 05 FF	One Push WB Trigger

Command Set	Command	Command Packet	Comments
CAM_RGain	Rest	8x 01 04 03 00 FF	Manual Control of R Gain
	Up	8x 01 04 03 02 FF	
	Down	8x 01 04 03 03 FF	
	Direct	8x 01 04 43 00 00 0p 0q FF	p,q: R Gain
CAM_BGain	Rest	8x 01 04 04 00 FF	Manual Control of B Gain
	Up	8x 01 04 04 02 FF	
	Down	8x 01 04 04 03 FF	
	Direct	8x 01 04 44 00 00 0p 0q FF	p,q: B Gain
CAM_AE	Full Auto	8x 01 04 39 00 FF	Automatic Exposure mode
	Manual	8x 01 04 39 03 FF	Manual Control mode
	Shutter Priority	8x 01 04 39 0A FF	Shutter Priority Automatic Exposure mode
	Iris Priority	8x 01 04 39 0B FF	Iris Priority Automatic Exposure mode
	Bright	8x 01 04 39 0D FF	Bright Mode (Manual control)
CAM_Shutter	Reset	8x 01 04 0A 00 FF	Shutter Setting
	Up	8x 01 04 0A 02 FF	
	Down	8x 01 04 0A 03 FF	
	Direct	8x 01 04 4A 00 00 0p 0q FF	p,q: Shutter Position
CAM_Iris	Reset	8x 01 04 0B 00 FF	Iris Setting
	Up	8x 01 04 0B 02 FF	
	Down	8x 01 04 0B 03 FF	
	Direct	8x 01 04 4B 00 00 0p 0q FF	p,q: Iris Position
CAM_Gain	Reset	8x 01 04 0C 00 FF	Gain Setting
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Direct	8x 01 04 4C 00 00 0p 0q FF	p,q: Gain Position
CAM_Bright	Reset	8x 01 04 0D 00 FF	Bright Setting
	Up	8x 01 04 0D 02 FF	
	Down	8x 01 04 0D 03 FF	
	Direct	8x 01 04 4D 00 00 0p 0q FF	p,q: Bright Position

Command Set	Command	Command Packet	Comments
CAM_ExpComp	On	8x 01 04 3E 02 FF	Exposure Compensation On/Off
	Off	8x 01 04 3E 03 FF	
	Reset	8x 01 04 0E 00 FF	Exposure Compensation Amount Setting
	Up	8x 01 04 0E 02 FF	
	Down	8x 01 04 0E 03 FF	
	Direct	8x 01 04 4E 00 00 0p 0q FF	
CAM_Backlight	On	8x 01 04 33 02 FF	Back Light Compensation ON/OFF
	Off	8x 01 04 33 03 FF	
CAM_Aperture	Reset	8x 01 04 02 00 FF	Aperture Control
	Up	8x 01 04 02 02 FF	
	Down	8x 01 04 02 03 FF	
	Direct	8x 01 04 42 00 00 0p 0q FF	
CAM_PictureEffect	Off	8x 01 04 63 00 FF	Picture Effect Setting
	Neg.Art	8x 01 04 63 02 FF	
	B&W	8x 01 04 63 04 FF	
CAM_Memory	Reset	8x 01 04 3F 00 pp FF	pp: Memory Number (=0 to 255) Corresponds to 0 to 255 on the Remote.
	Set	8x 01 04 3F 01 pp FF	
	Recall	8x 01 04 3F 02 pp FF	
SYS_Menu	Off	8x 01 06 06 03 FF	Turns off the menu screen.
CAM_IDWrite		8x 01 04 22 0p 0q 0r 0s FF	p,q,r,s: Camera ID (=0000 to FFFF)
IR_Receive	On	8x 01 06 08 02 FF	IR receiver On/Off
	Off	8x 01 06 08 03 FF	
Information Display	On	8x 01 7E 01 18 02 FF	Operation status display On/Off
	Off	8x 01 7E 01 18 03 FF	

Command Set	Command	Command Packet	Comments
Pan-tiltDrive	Up	8x 01 06 01 VV WW 03 01 FF	VV: Pan speed 0 x01 (low speed) to 0 x18 (high speed)
	Down	8x 01 06 01 VV WW 03 02 FF	
	Left	8x 01 06 01 VV WW 01 03 FF	
	Right	8x 01 06 01 VV WW 02 03 FF	WW: Tilt Speed 0 x 01 (low speed) to 0 x14 (high speed)
	UpLeft	8x 01 06 01 VV WW 01 01 FF	
	UpRight	8x 01 06 01 VV WW 02 01 FF	
	DownLeft	8x 01 06 01 VV WW 01 02 FF	
	DownRight	8x 01 06 01 VV WW 02 02 FF	YYYY: Pan Position
	Stop	8x 01 06 01 VV WW 03 03 FF	
	AbsolutePosition	8x 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	ZZZZ: Tilt Position
	RelativePosition	8x 01 06 03 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	Home	8x 01 06 04 FF	
	Reset	8x 01 06 05 FF	
Pan-tiltLimitSet	LimitSet	8x 01 06 07 00 0W 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	W: 1 UpRight 0: DownLeft YYYY: Pan Limit Position ZZZZ: Tilt Position

## Inquiry Commands

Inquiry Command	Command Packet	Inquiry Packet	Comments
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF	On
		y0 50 03 FF	Off (Standby)
		y0 50 04 FF	Internal power circuit error
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	p,q,r,s: Zoom Position
CAM_FocusModelInq	8x 09 04 38 FF	y0 50 02 FF	Auto Focus
		y0 50 03 FF	Manual Focus
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	p,q,r,s: Focus Position

Inquiry Command	Command Packet	Inquiry Packet	Comments
CAM_WBModelInq	8x 09 04 35 FF	y0 50 00 FF	Auto
		y0 50 01 FF	In Door
		y0 50 02 FF	Out Door
		y0 50 03 FF	One Push WB
		y0 50 05 FF	Manual
CAM_RGainInq	8x 09 04 43 FF	y0 50 00 00 0p 0q FF	p,q: R Gain
CAM_BGainInq	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	p,q: B Gain
CAM_AEModelInq	8x 09 04 39 FF	y0 50 00 FF	Full Auto
		y0 50 03 FF	Manual
		y0 50 0A FF	Shutter Priority
		y0 50 0B FF	Iris Priority
		y0 50 0D FF	Bright
CAM_ShutterPosInq	8x 09 04 4A FF	y0 50 00 00 0p 0q FF	p,q: Shutter Position
CAM_IrisPosInq	8x 09 04 4B FF	y0 50 00 00 0p 0q FF	p,q: Iris Position
CAM_GainPosInq	8x 09 04 4C FF	y0 50 00 00 0p 0q FF	p,q: Gain Position
CAM_BrightPosInq	8x 09 04 4D FF	y0 50 00 00 0p 0q FF	p,q: Bright Position
CAM_ExpCompModelInq	8x 09 04 3E FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_ExpCompPosInq	8x 09 04 4E FF	y0 50 00 00 0p 0q FF	p,q: ExpComp Position
CAM_BacklightModelInq	8x 09 04 33 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_ApertureInq	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	p,q: Aperture Gain
CAM_PictureEffectMode Inq	8x 09 04 63 FF	y0 50 00 FF	Off
		y0 50 02 FF	Neg.Art
		y0 50 04 FF	B&W
CAM_MemoryInq	8x 09 04 3F FF	y0 50 0p FF	p: Memory number last operated.



Inquiry Command	Command Packet	Inquiry Packet	Comments
SYS_MenuModelInq	8x 09 06 06 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_IDInq	8x 09 04 22 FF	y0 50 0p 0q 0r 0s FF	p,q,r,s: Camera ID
CAM_VersionInq	8x 09 00 02 FF	y0 50 00 01	m,n,p,q: Model Code (0504)
		mn pq rs tu vw FF	r,s,t,u: ROM version
			v,w: Socket Number (=02)
Information Display	8x 09 7E 01 18 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
VideoSystemInq	8x 09 06 23 FF	y0 50 00 FF	1920 x1080i/60 60 Hz system
		y0 50 01 FF	1920 x1080p/30 60 Hz system
		y0 50 02 FF	1280 x720p/60 60 Hz system
		y0 50 03 FF	1280 x720p/30 60 Hz system
		y0 50 07 FF	1920 x1080p/60 60 Hz system
		y0 50 08 FF	1920 x1080i/50 50 Hz system
		y0 50 09 FF	1920 x1080p/25 50 Hz system
		y0 50 0A FF	1280 x720p/50 50 Hz system
		y0 50 0B FF	1280 x 720p/25 50 Hz system
		y0 50 0F FF	1920 x1080p/50 50 Hz system
IR_Receive	8x 09 06 08 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
Pan-tiltMaxSpeedI	8x 09 06 11 FF	y0 50 ww zz FF	ww = Pan Max Speed zz = Tilt Max Speed
Pan-tiltPosInq	8x 09 06 12 FF	y0 50 0w 0w 0w 0w	www = Pan Position zzz = Tilt Position
		Oz Oz Oz Oz FF	
Pan-tiltModelInq	8x 09 06 10 FF	y0 50 pq rs FF	p,q,r,s: Pan/Tilt Status

## Zoom Ratio / Position (CAM\_Zoom)

(CAM\_Zoom Direct – p,q,r,s Zoom Position)

Optical Zoom Ratio	Optical Zoom Ratio
1x	0000
2x	1851
3x	22BE
4x	28F6
5x	2D45
6x	3086
7x	3320
8x	3549
9x	371E
10x	38B3
11x	3A12
12x	3B42
13x	3C47
14x	3D25
15x	3DDF
16x	3E7B
17x	3EFB
18x	3F64
19x	3FBA
20x	4000

## Exposure Comp (CAM\_ExpComp)

(CAM\_ExpComp Direct – p,q ExpComp Position)

0E	+7	0000
0D	+6	1851
0C	+5	22BE
0B	+4	28F6
0A	+3	2D45
09	+2	3086
08	+1	3320
07	0	3549
06	-1	371E
05	-2	38B3
04	-3	3A12
03	-4	3B42
02	-5	3C47
02	-6	3D25
00	-7	4000

# Troubleshooting

The following table provides troubleshooting information. If further assistance is required, contact [Crestron True Blue Support](#).

PROBLEM	POSSIBLE CAUSES	CORRECTIVE ACTIONS
No video signal when powered on	Power supply failure	Check power supply output using a multimeter.
	Power adapter damaged	Replace faulty power adapter.
	Power not connected	Plug the provided 12V power supply into a wall outlet and connect the other end to the input on the camera.
No movement when powered on or mechanical noises during movement	Insufficient power is being supplied to the camera	Check and reconnect power supply.
	Mechanical failure	Contact Crestron True Blue Support.
Camera not showing in 1 Beyond Camera Manager	Incorrect IP settings	Check to confirm the camera's IP is set to match the IP settings of your connected computer.
	Cameras are not powered on or not powered properly.	Check camera power supply. If using PoE+, make sure your switch has sufficient remaining power availability to power cameras.
	Ethernet cable connected incorrectly or damaged.	Verify that the cable is fully inserted into the Ethernet port on the camera. If possible, use a cable tester to verify that the cable is working.
Camera shows "Connection Failed" in the camera list	Incorrect IP settings	Confirm the camera's IP is set to match the IP settings of the connected computer.
	Network usage is high	Close all other programs on the computer. Then, restart the 1 Beyond Camera Manager software.  Confirm that the Ethernet and power cables are properly connected.
Connection status shows "Device Refusal".	Camera may have incorrect or corrupted firmware.	Contact Crestron True Blue Support.
Video feed not showing in 1 Beyond Camera Manager	Subnet setting of camera does not match your computer's.	Set the IP, gateway, and subnet mask of your camera to match your network scheme.
	RTSP Stream configured incorrectly	Enter the camera configuration menu from the Main View of 1 Beyond Camera Manager and adjust the resolution and bit rate of the PTZ stream.

PROBLEM	POSSIBLE CAUSES	CORRECTIVE ACTIONS
Video Stream randomly turns gray	Video stream bit rate exceeds available network bandwidth.	Adjust bit rate of video streams until gray frames disappear.
	Video stream bit rate set higher than camera allows.	Reduce video stream bit rate.
Not controllable via serial controller	Wrong address / protocol / baud rate settings.	Open the OSD menu and view the STATUS page to verify if your settings match that on your control device.
	Wrong connection or a faulty RS-485/422/232 cable.	Check cable and reconnect.
Video loss during pan/tilt/zoom	Camera is powered insufficiently	Check output voltage of power supply and reconnect.
	Video cable is not connected properly	Replace with a working video cable or double check the stability of your existing connection.
Camera is not controllable when powered on	Wrong address/protocol/baud rate settings or a faulty serial cable	Open OSD to verify your settings are correct or check serial wiring. Check Advanced 2 settings.
Camera has yellow or blue tint	Auto white balance setting may not be ideal for the lighting environment	Set static or one-push white balance
Camera is tracking or framing off-axis	PTZ camera needs to be calibrated	Perform POS Correct
	Mechanical failure	
Camera tracks presenter outside of the Tracking Zone	Tracking Zone configured incorrectly	Reconfigure the Tracking Zone to exclude audience locations
	Outside Zone setting is enabled	Disable the Outside Zone
Camera fails to detect motion in the Tracking Zone	Camera's Tracking Sensitivity is too low	Increase the Tracking Sensitivity
	The FV Brightness setting is too low	Increase the FV Brightness setting Set the Target Lost Action setting to Stay
Camera is detecting a face on a display or projector	Object is in the Tracking Zone	Edit the Tracking Zone to exclude the object
		Place a Blocking Zone over the object
		Reduce the Tracking Sensitivity

# Resources

The following resources are provided for the IV-CAMA3-20-N-W-1B, IV-CAMA3-20-N-SLVR-1B, IV-CAMA3-20-W-1B, and IV-CAMA3-20-SLVR-1B.

**NOTE:** You may need to provide your Crestron.com web account credentials when prompted to access some of the following resources.

## Crestron Support and Training

- [Crestron True Blue Support](#)
- [Crestron Resource Library](#)
- [Crestron Online Help \(OLH\)](#)
  - [support.crestron.com/app/answers/detail/a\\_id/1001561](https://support.crestron.com/app/answers/detail/a_id/1001561)
- [Crestron Training Institute \(CTI\) Portal](#)

## Product Certificates

To search for product certificates, refer to [support.crestron.com/app/certificates](https://support.crestron.com/app/certificates).

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