



Hall Technologies • 1234 Lakeshore Dr Suite #150 Coppell, TX 75019 • halltechav.com

# HT-CAM-4K-DUAL

4K Dual-Lens AI PTZ Conference Camera

## USER MANUAL

November 26, 2024



# Important Safety Instructions



1. Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.



2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.



3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.



4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



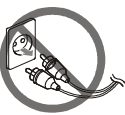
5. Do not place sources of naked flames, such as lighted candles, on the unit.



6. Clean this apparatus only with dry cloth.



7. Unplug this apparatus during lightning storms or when unused for long periods of time.



8. Protect the power cord from being walked on or pinched particularly at plugs.



9. Only use attachments / accessories specified by the manufacturer.



10. Refer all servicing to qualified service personnel.

# TABLE OF CONTENTS

Introduction .....	3
Overview .....	3
Features.....	3
Package Contents .....	3
Connectors & Indicators.....	5
Front View .....	5
Rear View .....	6
Installation .....	7
Installing Camera onto a Display.....	7
Installing Camera onto a Wall .....	9
Application Wiring .....	10
Modes .....	10
Standalone .....	10
Integrating with HT-RANGER2.....	11
Integrating with DSCV1 .....	11
Integrating with DSCV2 .....	12
Control – IR Remote Control .....	13
Web UI.....	14
Web UI – Overview Tab.....	15
Overview .....	15
Web UI – Camera Tab.....	16
Camera Settings .....	16
Tracking Mode: Auto Framing.....	17
Tracking Mode: Speaker Tracking .....	17
Tracking Mode: Presenter Tracking.....	17
Tracking Mode: Individuals Gallery.....	17
Tracking Mode: Off.....	18
Web UI – Settings Tab .....	19
General Settings .....	19
System Settings .....	20
Web UI – Support Tab .....	21
Device Info & Firmware Update.....	21
Soft Codec Support .....	22
Google Meet .....	22
Microsoft Teams.....	22
Zoom .....	23
Specifications .....	24



# Introduction

---

## OVERVIEW

The HT-CAM-4K-DUAL is a 4K dual lens tracking camera designed for medium-sized meeting rooms, providing a perfect display of the room along with zoomed in details. With built-in AI intelligence, the camera can automatically pan, tilt, and/or zoom to the best view to include all participants or track a presenter while displaying a wide fixed view of the room with picture-in-picture.

The HT-CAM-4K-DUAL is fully compatible with most operating systems, including Windows 10/11 and Mac OS, and can be used with Microsoft Teams, Google Meet, Zoom, and other conferencing soft applications.

## FEATURES

- Supports up to 4K@30fps, USB3.0
- Has a built-in dual-eye camera with a panoramic camera to detect all participants in real-time and a PTZ camera to capture the best picture of everyone in the room.
- 4K 3x optical zoom PTZ camera with FOV 110°, panoramic lens with FOV 120°.
- Based on AI technology, the camera enables auto framing, speaker tracking, or presenter tracking.
- Dual-lens design offers a speaker view and wide-angle view simultaneously with PIP layout options.
- Supports MJPG, NV12, and H.265/H.264 video compression
- Easy setup and USB plug-and-play
- Compatibility with mainstream operating systems such as Windows 10/11, Mac OS, and collaboration with Google Meet, Microsoft Teams, Skype, and others.

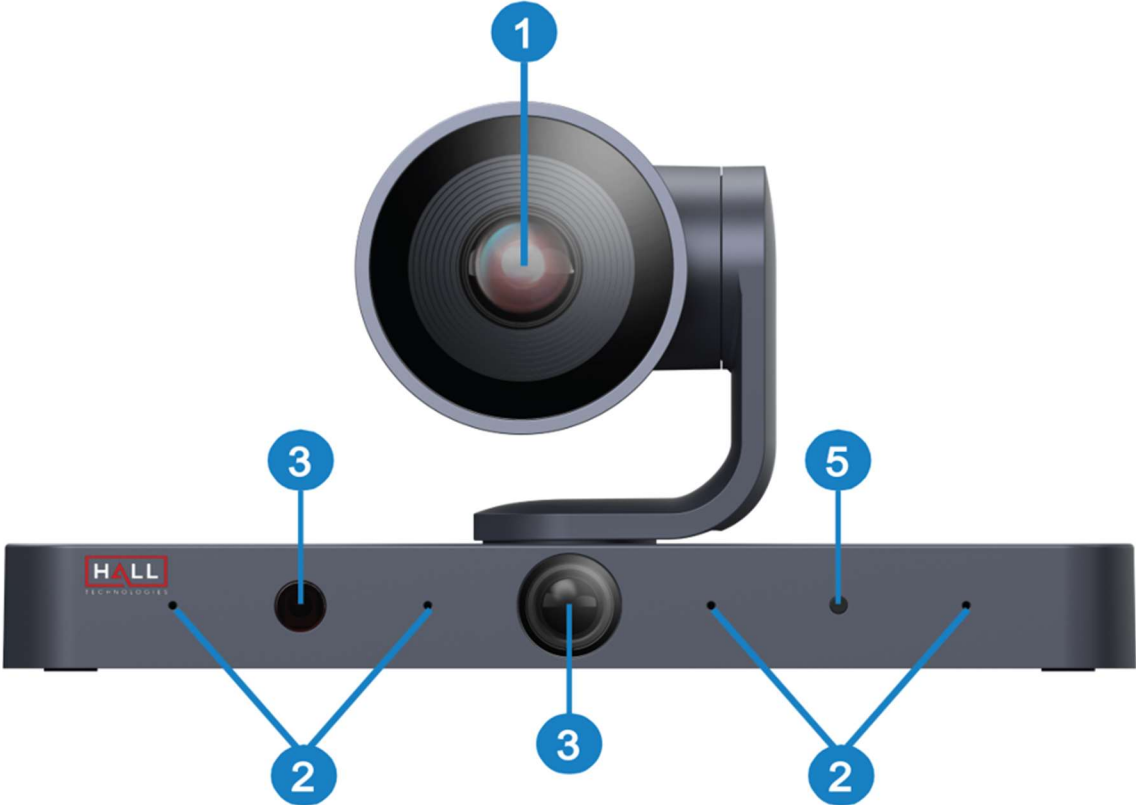
## Package Contents

---

- 1x 4K Dual PTZ Camera
- 1x USB 3.0 Type-C to Type A Cable (1.5m)
- 1x 12V/3A Power Adapter
- 1x Mounting Bracket
- 1x Privacy Shutter for Panoramic Lens

# Connectors & Indicators

## FRONT VIEW



No.	Name	Description
1	Camera Lens	4k Optical zoom lens.
2	Microphones	4 x Linear mic array for sound source location.
3	IR Window	Receive IR signals from the include IR remote control.
4	Camera Lens	1080p Fixed focus lens.
5	Status LED	<ul style="list-style-type: none"><li>White LED illuminated for 2 seconds and then off: the camera is starting up</li><li>White LED "breathing": the camera is in idle mode (note: color can be set to red or set to off using web UI.)</li><li>White solid LED: the camera is active</li><li>White LED blinking quickly: the camera is being upgrade.</li></ul>

## REAR VIEW



No.	Name	Description
1	DC 12V	Connect included power supply
2	LAN	RJ-45 port for connection to the network for web UI or telnet control
3	USB	USB 2.0 Type-A port for USB peripherals, such as a speakerphone
4	HDMI OUT	HDMI output to display
5	TYPE-C	USB 3.0 Type-C port for connection to a laptop, room PC, or all-in-one conference device for transmitting audio and camera video signal using the included USB-A to USB-C cable.
6	RESET	<ul style="list-style-type: none"> <li>Press once to show IP address and tracking mode</li> <li>Hold and press for at least 5 seconds to set the camera to factory default.</li> </ul>
7	LOCK	Kensington security slot

# Installation

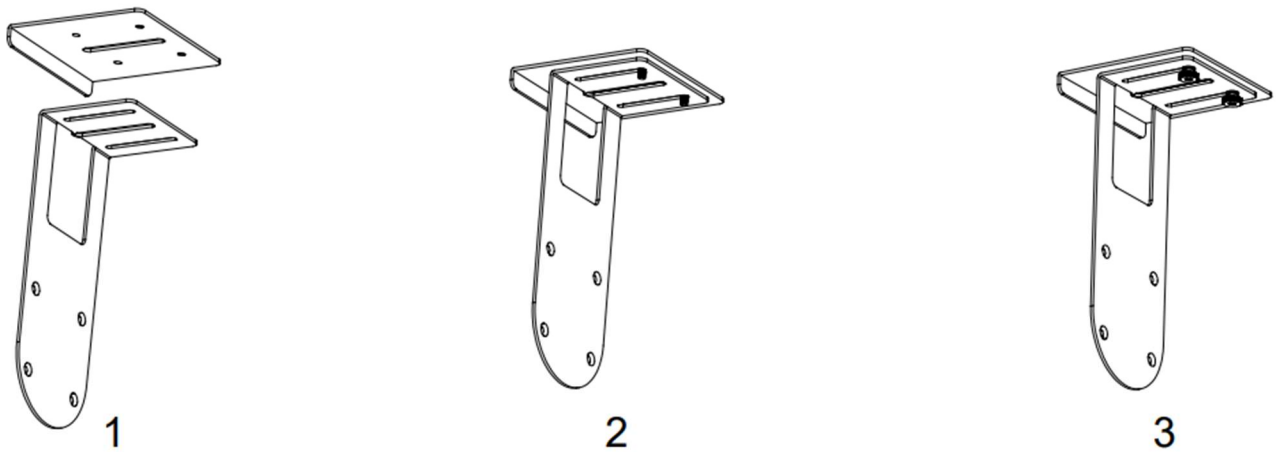
---

The HT-CAM-4K-DUAL can be installed onto the top of a display or on a wall using the included mounting brackets.

## INSTALLING CAMERA ONTO A DISPLAY

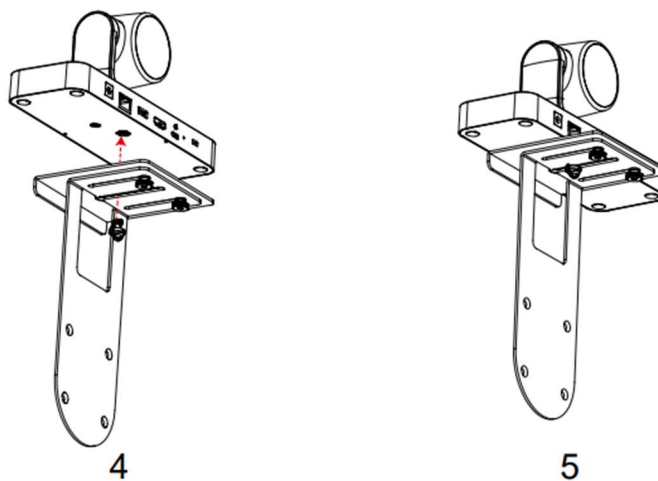
### 1. Step One

Assemble the base bracket panel and base support bracket using the two bracket assembly screws provided, as shown in the following pictures.



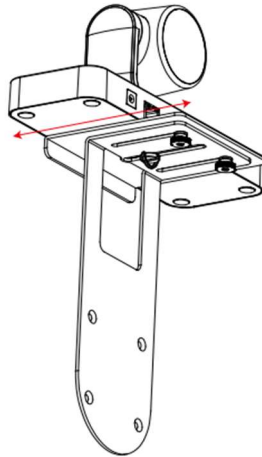
### 2. Step Two

Use the thumb screw to fix the mounting brackets to the camera, as shown:



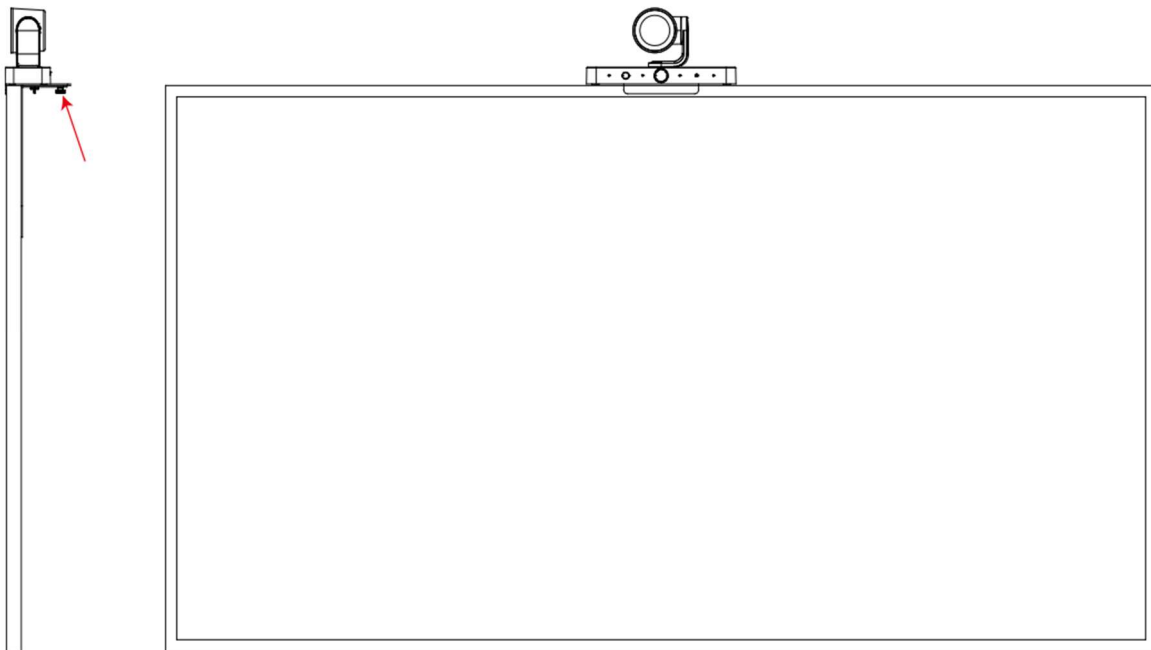
### 3. Step Three

Loosen the two bracket assembly screws on the base support bracket, move the long portion of the base support bracket to increase the distance between the two.



### 4. Step Four

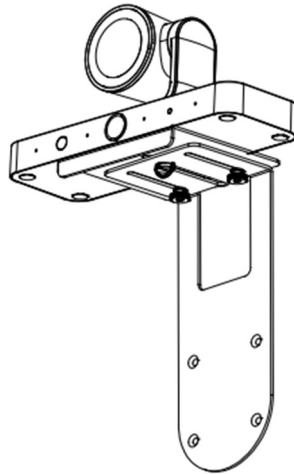
Place the camera on the display and adjust the base support bracket to rest against the back of the display.



## INSTALLING CAMERA ON A WALL

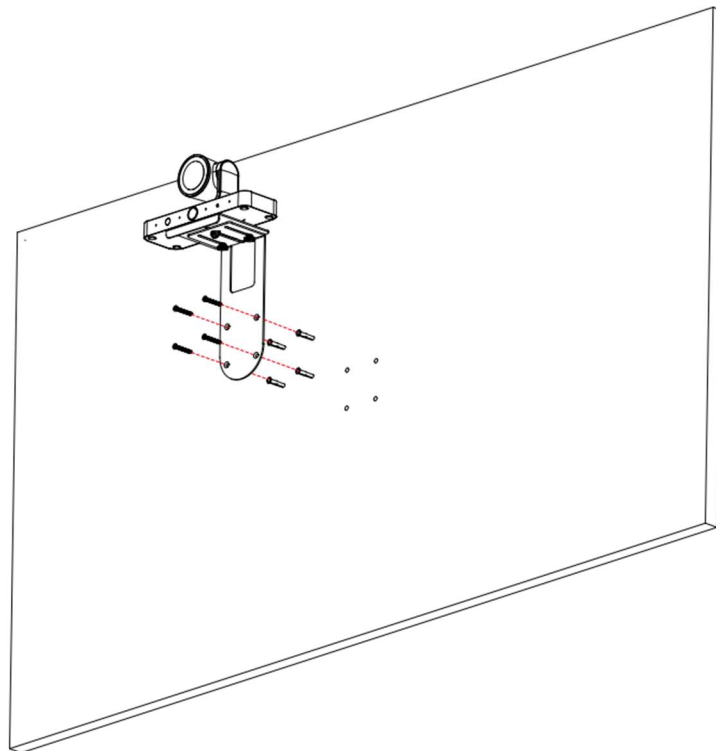
### 1. Step One

Follow the same method as in step 1 in the above section except for the wall installation flip the bottom bracket assembly 180° so the long portion can be snug against the wall:



### 2. Step Two

Using the included wall mounting screws, secure the mount to the wall.



# Application Wiring

---

## MODES

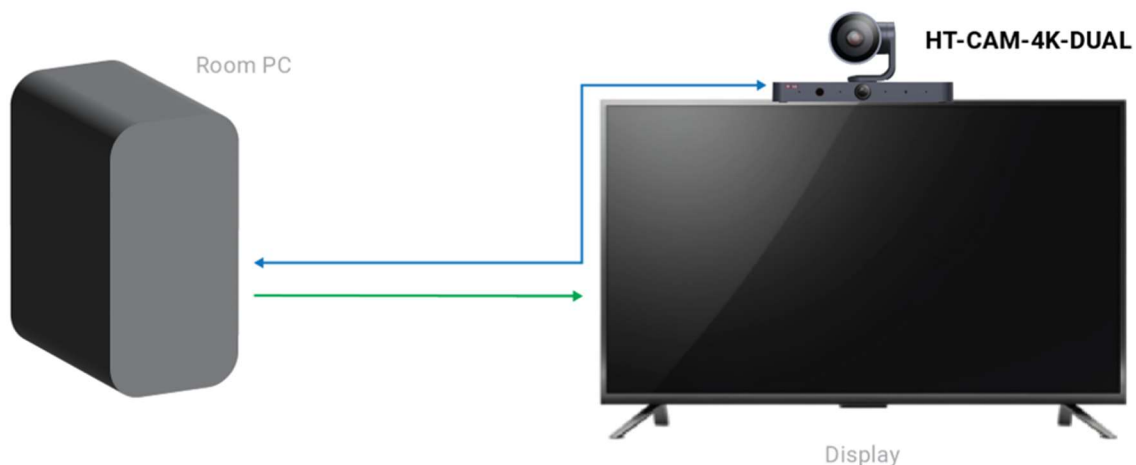
The camera supports three modes:

1. **Initialize Mode:** When the camera is powered on it enters initialization mode. When there is no UVC (USB Video Class) signal transmission and no HDMI display is connected to the HDMI OUT of the camera within 10s after starting up, the camera will enter Idle Mode. When the UVC channel is opened up, or the HDMI OUT is connected to a display within 10s after starting up, the camera will enter Active Mode.
2. **Idle Mode:** In this mode, the camera's PTZ lens will aim down, and the panoramic lens is disabled for privacy. Connecting a USB cable, or by pressing any button on the IR remote, the camera will enter Initialize Mode and opening up a UVC channel (accessing the video on the camera), the camera will enter Active Mode.
3. **Active Mode:** In this mode the camera's video is accessed by the connected device through the UVC channel. When the UVC channel is closed, the camera will enter Initialize Mode, and if there is no UVC channel connected within 10s, the camera will enter Idle Mode.

There are many applications for using the HT-CAM-4K-DUAL camera depending on the needs of the user. The following are some examples, which can also be used simultaneously.

## STANDALONE

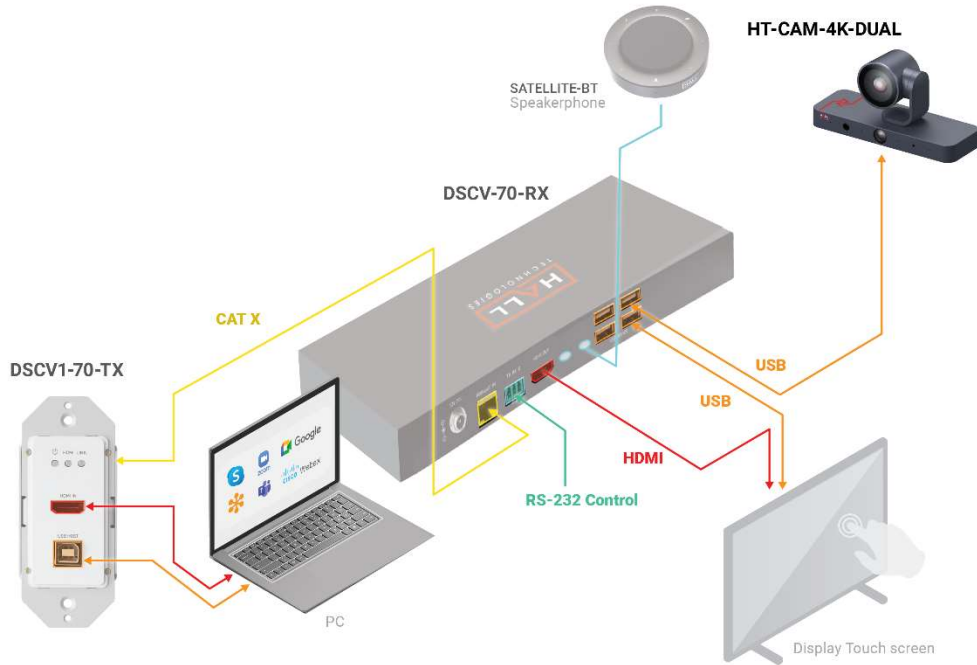
Connect the included USB-C to USB-A cable to the camera and a PC. The PC's built-in camera application, along with any soft codec application, can view the video from the camera.



## INTEGRATING WITH HT-RANGER2

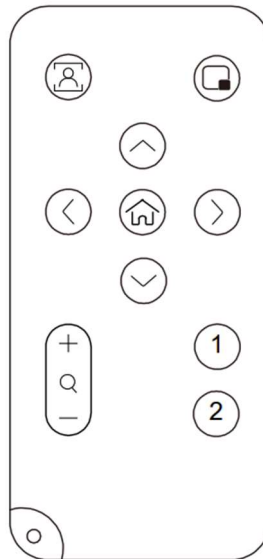


## INTEGRATING WITH DSCV1





# Control – IR Remote Control



Remote Element	Description
	<b>Tracking Mode:</b> Press to toggle between Auto Framing, Presenter Tracking, Speaker Tracking, Individuals Gallery, and Off.
	<b>Picture Mode:</b> Press to toggle between single picture mode (only from 4k optical lens) and picture-in-picture mode. <b>Note:</b> PiP is not available in Auto Framing or Individuals Gallery modes.
	<b>Home:</b> Press once to return the camera to the default mode. Hold button for 2s to display screen overlay showing current tracking mode and IP address.
	<b>Pan:</b> Press the arrow left/right buttons to pan the camera. <b>Tilt:</b> Press the arrow up/down buttons to tilt the camera. <b>Note:</b> Holding the buttons will continue to pan/tilt and stops as soon as the button is released.
	<b>Zoom:</b> Press + to zoom in and - to zoom out.
	<b>Presets 1 &amp; 2:</b> Press and hold for 3s to save current camera view to preset 1 or 2. Single press to switch the camera to the saved preset. <b>Note:</b> This function is only available when tracking mode is set to Off.
	<b>Home:</b> This button returns the camera to the middle position, or, acts as the enter button in the OSD menu.

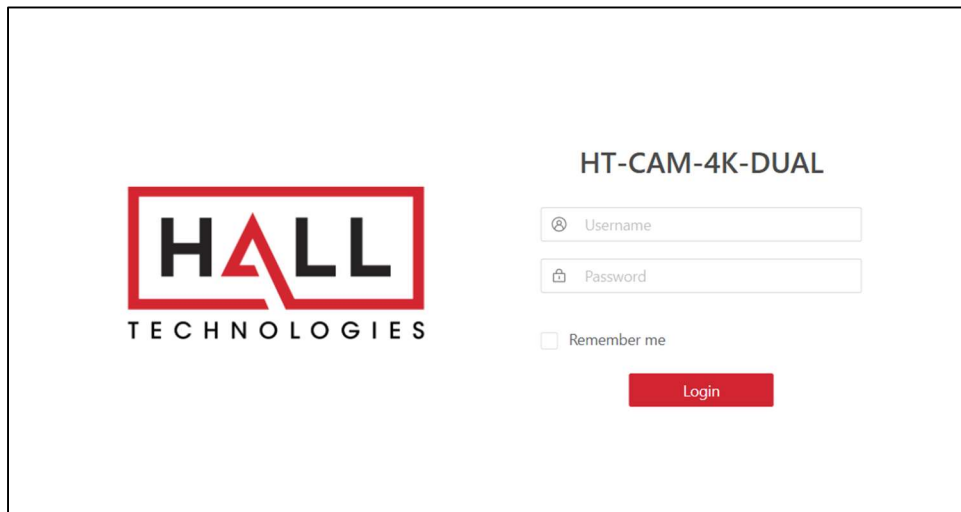
# Web UI

---

The Web UI for this device allows for more advanced controls and device settings. This Web UI can be accessed through a modern browser, e.g. Chrome, Safari, Firefox, IE10+, etc.

## To get access to the Web UI:

1. Connect the LAN port of the device to a local area network. By default, the camera is in DHCP mode. To view the IP address, simply single press the reset button and it will appear in the top left corner of a connected display.
2. Connect the PC to the same network as the device.
3. Input the device's IP address in the browser and press Enter, the following window pops up.

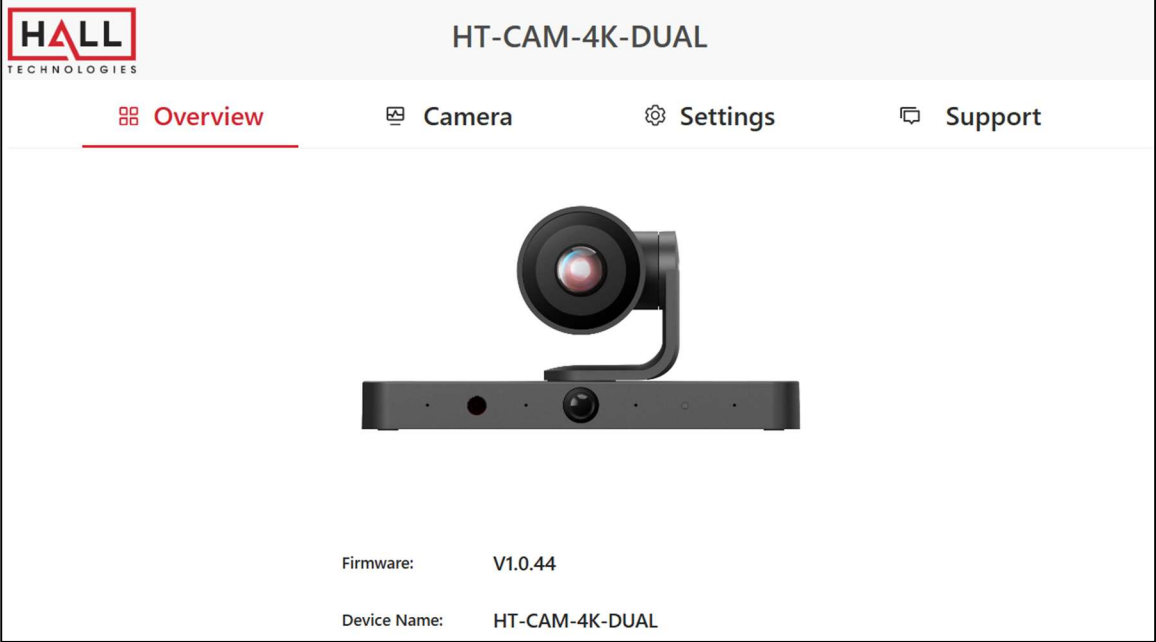


4. Input Username and Password (default: admin / admin) and click Login to enter the main page of Web UI.

The Web UI main page consists of four tabs along the top: Overview, Camera, Settings, and Support.

# Web UI – Overview Tab

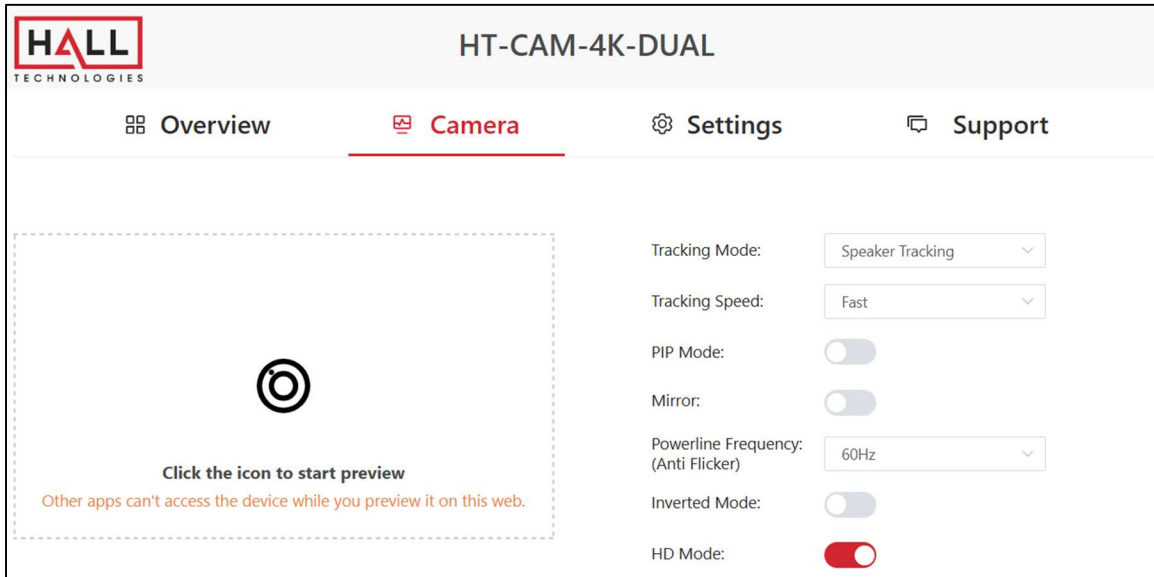
## OVERVIEW



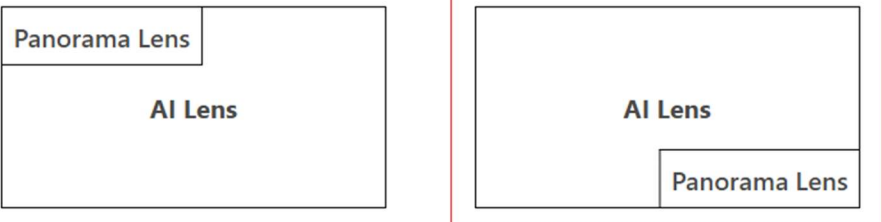


UI Element	Description
Firmware	Shows version of installed firmware.
Device Name	Shows the name of the device (can be changed in settings).

# Web UI – Camera Tab

## CAMERA SETTINGS:



UI Element	Description
<b>Tracking Mode</b>	Click to select a tracking mode from the drop-down menu. The tracking modes include Auto Framing, Presenter Tracking, Speaker Tracking, Individuals Tracking, and Off.
<b>Tracking Speed</b>	Select the tracking speed between Fast, Normal, and Slow. The default setting is Fast.
	Click this icon in the middle of the preview section to see a preview of the camera. <b>NOTE:</b> Only one application at a time can view the camera’s video. If the camera is not viewable in this window, check to see that the camera isn’t being used in another application.
<b>PIP Mode</b>	Click to set PIP mode to on/off. The default setting is off. When set to on, users can select PIP layout mode by clicking on the desired layout diagram. (Not available in Auto Framing and Individuals Gallery tracking modes.) PIP Mode:  
<b>Mirror</b>	Click to set the camera’s mirror display function to on/off. The default setting is off.

UI Element	Description
<b>Powerline Frequency</b>	Set the camera's AC frequency to either 50Hz or 60Hz to match the corresponding environment's frequency to prevent flickering.
<b>Inverted Mode</b>	Click to set the inverted mode to on/off. The default setting is off. When set to on, the camera's image will be upside down.
<b>HD Mode</b>	Click to turn on or off the high-definition camera view. The default setting is on. The state will automatically restart the device to apply the setting.

### TRACKING MODE: AUTO FRAMING

In Auto Framing mode, the optical AI lens will monitor in real-time the positional changes of individuals in the meeting venue, automatically adjusting angles and focal lengths to ensure that the target person is framed while maintaining optimal clarity of their facial features.

### TRACKING MODE: SPEAKER TRACKING

In Speaker Tracking mode, the camera will locate the person speaking according to their voice, automatically selecting the frame of the person speaking (left/right:  $\pm 15^\circ$ ) and providing a close-up view.

### TRACKING MODE: PRESENTER TRACKING

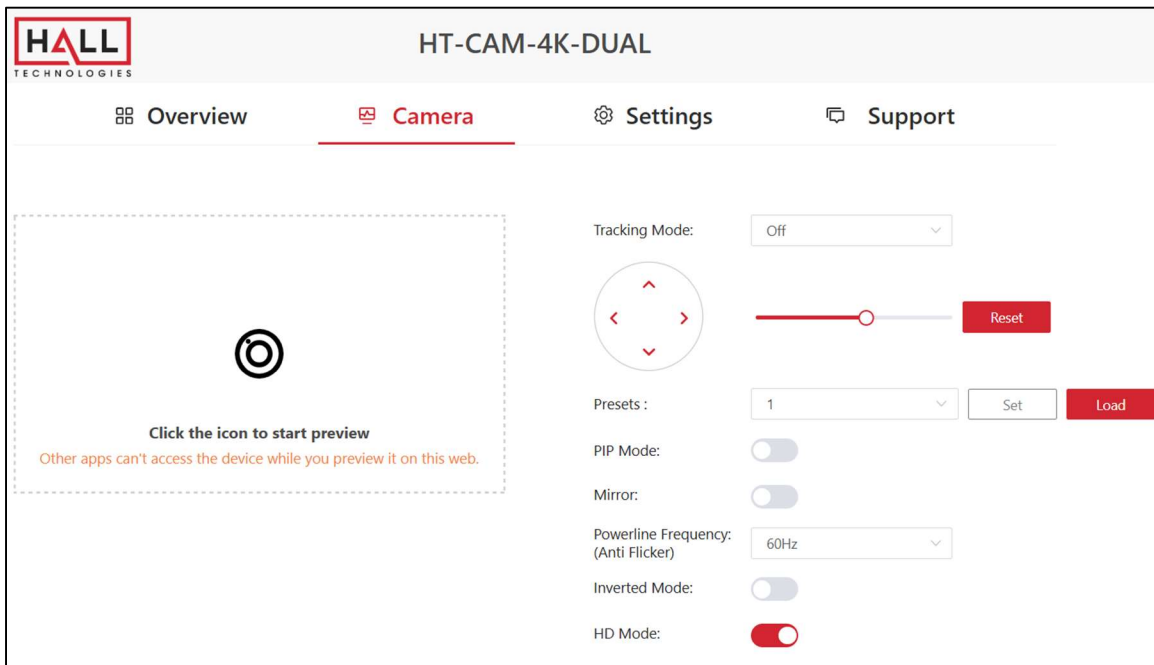
In Presenter Tracking mode, the camera will identify the first person speaking and continuously tracks that person in real-time.



### TRACKING MODE: INDIVIDUALS GALLERY

In Individuals Gallery mode, AI detects everyone in the meeting room and automatically frames each participant and displays them on the screen, allowing remote participants to see facial expressions of each. (NOTE: when there are more than 4 participants, Individuals Gallery behaves like Auto Framing.)



## TRACKING MODE: OFF



UI Element	Description
<b>Tracking Mode</b>	Click to select a tracking mode from the drop-down menu. The tracking modes include Auto Framing, Presenter Tracking, Speaker Tracking, Individuals Tracking, and Off.
	Click up, down, left, or right arrows to adjust the pan and tilt of the camera.
	Drag the slider right or left to adjust the focal length to zoom in or out, respectively.
<b>Reset</b>	Click the button to reset the focal length to the default setting
<b>Presets</b>	Select a preset number and click “Set” to save current camera view in this preset. Click “Load” to recall the saved preset.
<b>Mirror</b>	Click to set the camera’s mirror display function to on/off. The default setting is off.
<b>Powerline Frequency</b>	Set the camera’s AC frequency to either 50Hz or 60Hz to match the corresponding environment’s frequency to prevent flickering.
<b>Inverted Mode</b>	Click to set the inverted mode to on/off. The default setting is off. When set to on, the camera’s image will be upside down.
<b>HD Mode</b>	Click to turn on or off the high-definition camera view. The default setting is on. The state will automatically restart the device to apply the setting.

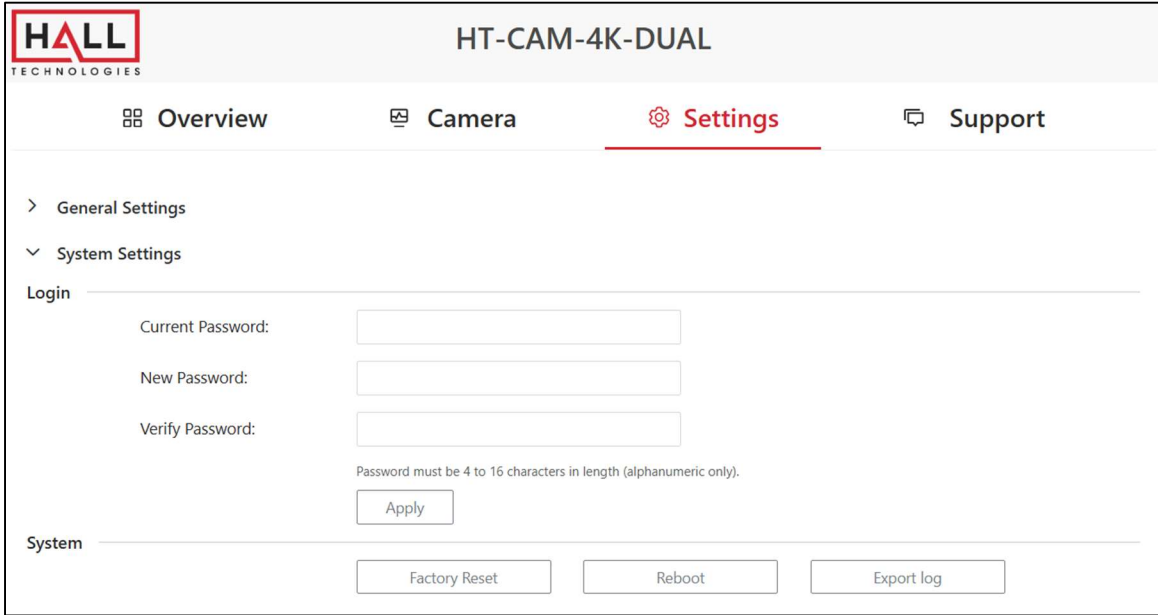
# Web UI – Settings Tab

## GENERAL SETTINGS

The screenshot shows the 'Settings' tab for the 'HT-CAM-4K-DUAL' device. The interface includes a navigation bar with 'Overview', 'Camera', 'Settings', and 'Support'. The 'Settings' section is expanded to show 'General Settings' and 'IP Settings'. Under 'General Settings', the 'Device Name' is set to 'HT-CAM-4K-DUAL' with an 'Apply' button and a note: 'Note: The device name must be 1 to 20 characters long (letters, numbers, '\_' or '-' only)'. Under 'IP Settings', the 'IP Method' is set to 'DHCP' (selected with a radio button), and the 'IP Address' is '10.20.0.137', 'Subnet' is '255.255.255.0', and 'Gateway' is '10.20.0.1'. There is an 'Apply' button and a note: 'Note: LAN Module will automatically reboot after changing Network setting.'. Under 'IP Conflict Detection', the 'IP Conflict Detection' toggle is turned on. Under 'Standby indicator', the setting is 'White breathing'.

UI Element	Description
Device Name	Change the name of the camera.
IP Setting	Select between Static and DHCP mode. (Default is DHCP)
IP Conflict Detection	Enable or disable IP Conflict Detection of the device. (Default is enabled)

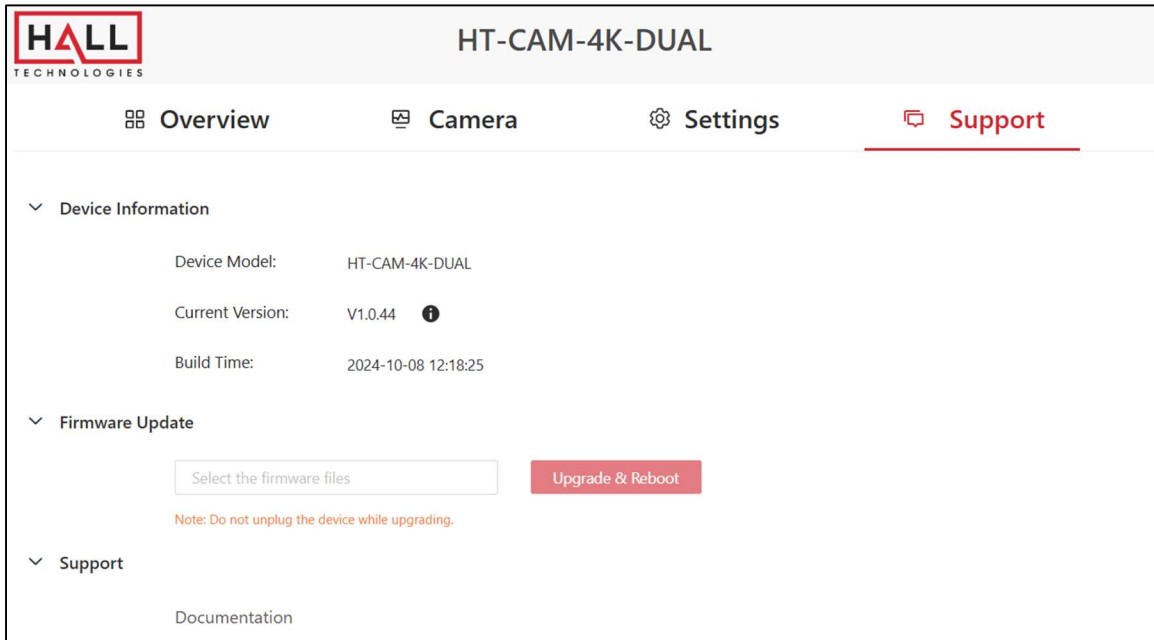
# SYSTEM SETTINGS




UI Element	Description
<b>Login</b>	Update the password of the camera.
<b>System</b>	Perform a factory reset, reboot the camera, and export a log file of the camera.

# Web UI – Support Tab

## DEVICE INFO & FIRMWARE UPDATE



UI Element	Description
<b>Device Information</b>	Displays firmware version and build time of the loaded firmware.
<b>Firmware Update</b>	Click in the box to open the firmware file. When the file is loading a bar will appear to indicate the status of the update, and the LED on the front of the camera will blink fast.  Note: Do not unplug the device while upgrading.
<b>Support</b>	Click to access additional documentation.

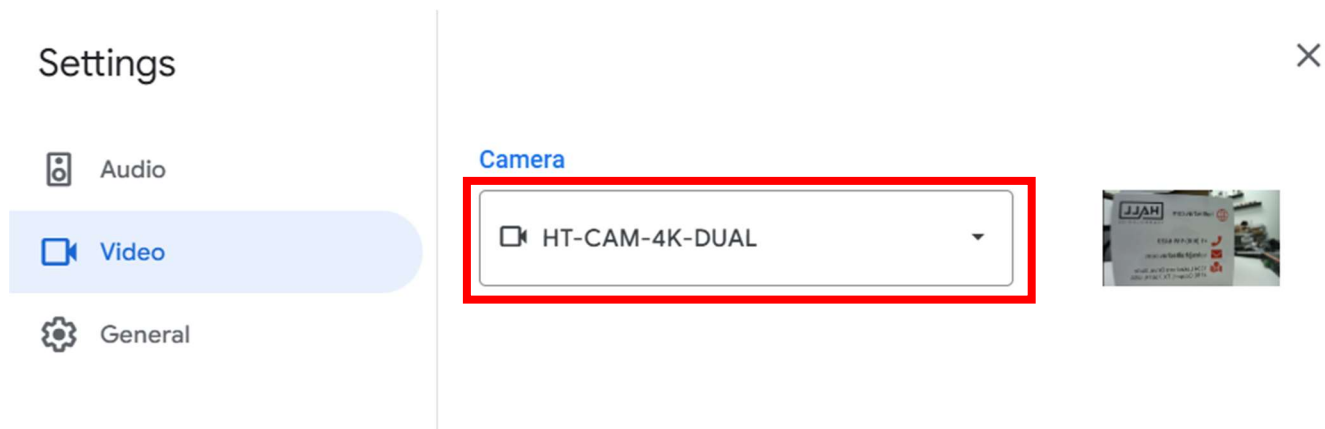
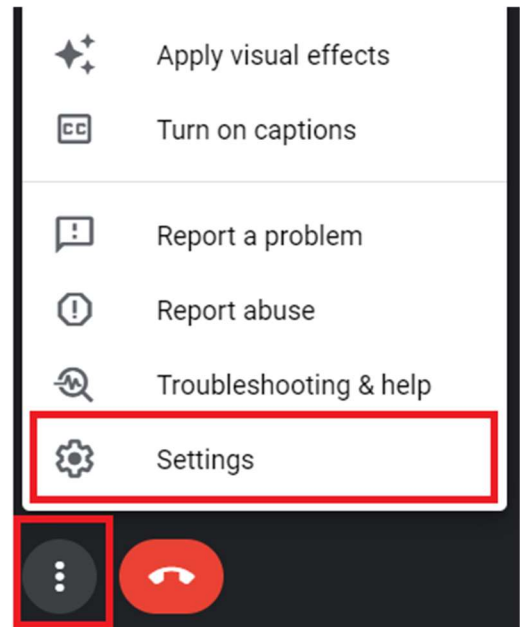
# Soft Codec Support

---

The following are instructions to utilizing the HT-CAM-4K-DUAL camera in the Google Meet, Microsoft Teams, and Zoom soft codec applications (connecting the camera’s USB-B output to the laptop’s USB input). The HT-CAM-4K-DUAL is not limited to these three. *(For soft codec applications outside of these three please refer to their user manual.)*

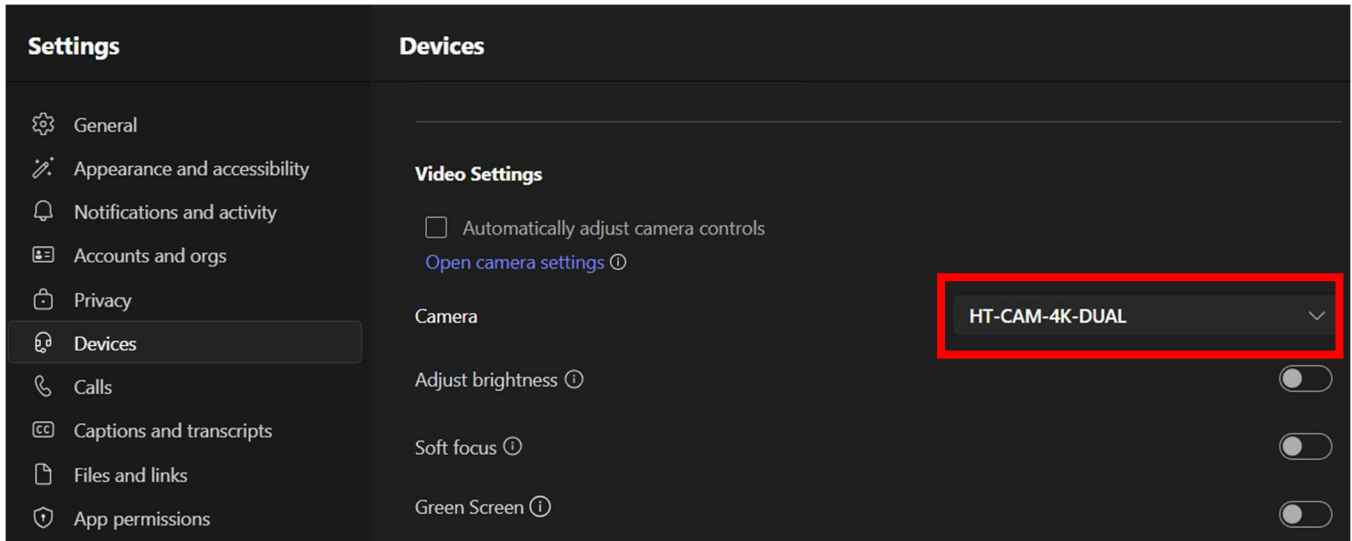
## GOOGLE MEET

To use the camera in Google Meet, open “More Options” and then click on “Settings.” In the video settings, select the HT-CAM-4K-DUAL for the camera.



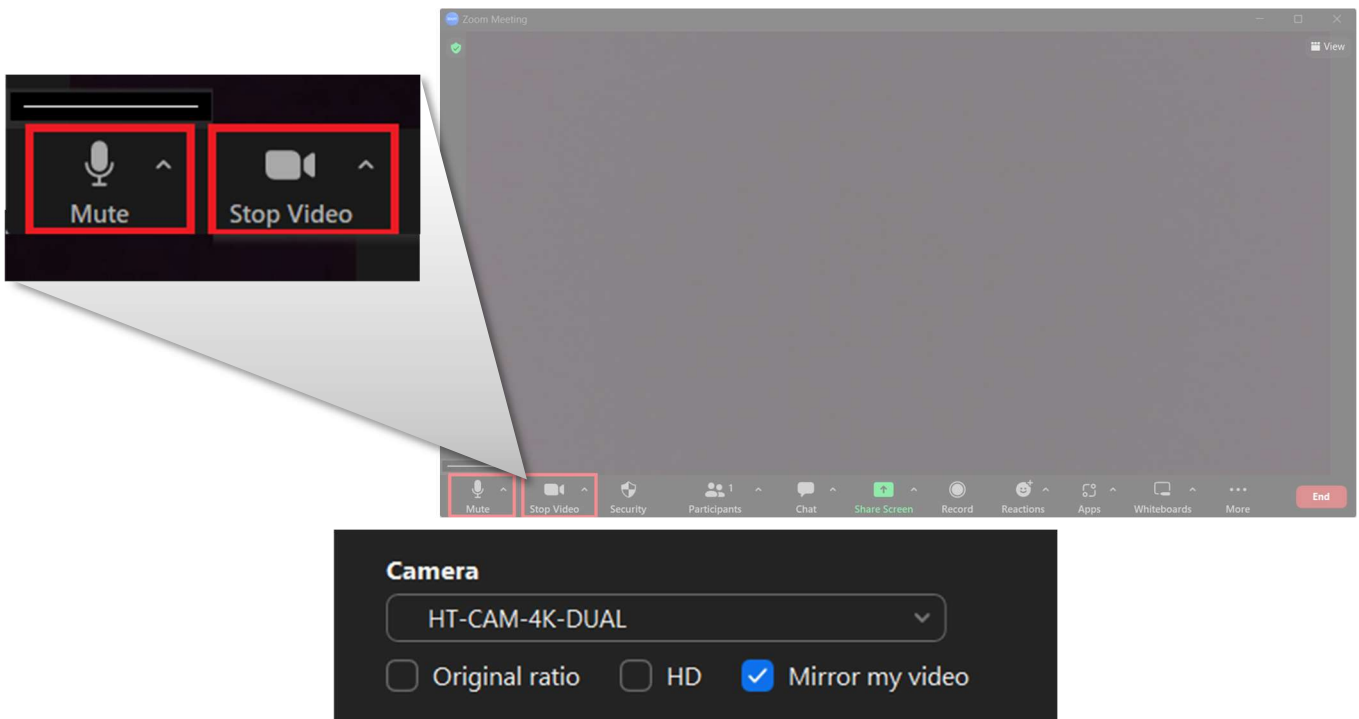
## MICROSOFT TEAMS

To use the camera in Microsoft Teams, under Devices in the Settings page, select the HT-CAM-4K-DUAL.



## ZOOM

To use the camera in Zoom, click on the “up” arrow on the microphone and camera buttons located on the bottom left part of the Zoom screen. In the video settings, select the HT-CAM-4K-DUAL for the camera.



# Specifications

AI PTZ Camera	
Lens	8MP, 3x Optical Lens
Sensor	CMOS, 8MP effective pixels
Video Format	<b>HDMI:</b> Fixed at 4K@30fps <b>USB3.0 Stream:</b> <b>MJPEG/H.265/H.264:</b> 3840x2160   1920x1080   1280x720   640x480   640x360   320x240@fps <b>NV12:</b> 1920x1080   1280x720   640x480   640x360   320x240@30fps
DFOV	110°
Optical Zoom	3x
White Balance	Automatic
Exposure Mode	Automatic
Digital Noise Reduction	Yes
PIP Mode	Yes (set on Web UI or included remote control)
Tracking Modes	Auto Framing, Speaker Tracking, Presenter Tracking

Panoramic Camera	
Lens	2MP, Fixed Lens
Sensor	CMOS, 2MP effective pixels
Video Format	<b>USB2.0 Stream: MJPG:</b> 1920x1080 @30fps
DFOV	120°
Optical Zoom	Fixed Focus

Interfaces	
Video Output	<b>1 x USB 3.0 Type-C</b> <ul style="list-style-type: none"> <li>3.2 Gen 1, Bandwidth 5.0Gbps, backward compatible USB2.0</li> </ul> <b>1 x HDMI 2.0</b> <ul style="list-style-type: none"> <li>Fixed at 4K@30fps, no HDCP, mirror with camera video</li> </ul>
DC Out	12V/3A DC Adaptor
USB-A	USB-A for USB peripheral devices, such as speakerphone
LAN Port	1 x 100Mbps, remote management
Lock	1 x Kingston Lock
Reset	1 x Reset Button

Microphones (Audio Tracking Function only)	
Microphone Array	4 x Built-in Microphones
Sensitivity	-26dbfs @ 94db SPL @ 1kHz
THD	0.2% @ 94db SPL @ 1kHz

General	
USB Protocol	UVC1.1
Configuration & Management	Web UI, IR Remote Control (included), API Commands

General	
Mounting	On top of display, On wall, On table or tripod
Compatible OS	Windows 10/11; Mac OS 10.10 or higher
Operating Temperature	-10°C to 50°C (14°F to 122°F)
Storage Temperature	-10°C to 70°C (14°F to 158°F)
Humidity	20% to 80%, non-condensing
Power Consumption	36W (12V, 3A)
Device Dimension (W x H x D)	7.87" x 4.25" x 2.64" (200mm x 108mm x 67mm)
Product Net Weight	0.95lbs. (0.43kg)
Environment	Indoor



© Copyright 2022. Hall Technologies  
All rights reserved.

1234 Lakeshore Drive, Coppell, TX 75019  
halltechav.com / support@halltechav.com  
(714)641-6607