



HuddleCamHD SimplTrack Lite



User Manual
Model No. HC20X-SIMPLTRACKLITE
V1.0
(English)

Please check huddlecamed.com for the most up to date version of this document.

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Preface

Thank you for using the HD Professional Video Conferencing Camera. This manual introduces the function, installation, and operation of the HD camera. Prior to installation and usage, please read the manual thoroughly.

Precautions

This product can only be used in the specified conditions in order to avoid any damage to the unit itself.

- Don't subject the camera to rain or moisture.
- Don't remove the cover. Removal of the cover may result in an electric shock. In addition to voiding the warranty. In case of abnormal operation, contact support@huddlecamhd.com.
- Never operate outside of the specified operating temperature range, humidity, or with any other power supply than the one originally provided with the unit.
- Please use a soft dry cloth to clean the unit. If the unit is very dirty, clean it with diluted neutral detergent; do not use any type of solvents, which may damage the surface.

Warning

- **Electrical Safety**
Installation and operation must be in accordance with national and local electric safety standards. Do not use any power supply other than the one originally supplied with this camera.
- **Polarity of Power Supply**
The power supply output for this product is 12V DC with a maximum current supply of 2A. Polarity of the power supply plug is critical and is as follows:



- **Handling**
 - Avoid any stress, vibration, or moisture during transportation, storage, installation, and operation.
 - Do not lift or move the camera by grasping the camera head. Do not turn the camera head by hand. Doing so may result in mechanical damage.
 - Do not expose the camera to any corrosive solid, liquid, or gas to avoid damage to the cover which is made of a plastic material.
 - Ensure that there are no obstacles in the pan or tilt ranges of the camera lens.
 - Never power the camera on before installation is complete.
- Do not dismantle the camera – HuddleCamHD is not responsible for any unauthorized modification or dismantling

Warranty

HuddleCamHD includes a limited parts & labor warranty for all HuddleCamHD manufactured cameras. The warranty is valid only if HuddleCamHD receives proper notice of such defects during the warranty period. HuddleCamHD, at its option, will repair or replace products that prove to be defective. HuddleCamHD manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.

Supplied Accessories

When you unpack your camera, check that all the supplied accessories are included:

- Camera 1
- AC Power Supply 1
- S-232C Cable 1
- IR Remote Controller 1
- Quick Start Guide 1
- AAA Batteries 2



FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radiofrequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. Operation is subject to the following two conditions: This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- **Warning** - This is a class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.
- **Remote Control Battery Safety Information** - Store batteries in a cool and dry place. Do not throw away used batteries in the trash. Properly dispose of used batteries through specially approved disposal methods. Remove the batteries if they are not in use for long periods of time. Battery leakage and corrosion can damage the remote control. Do not use old batteries with new batteries. Do not mix and use different types of batteries: alkaline, standard (carbon-zinc) or rechargeable (nickel-cadmium). Do not dispose of batteries in a fire. Do not attempt to short-circuit the battery terminals.

Copyright Notice

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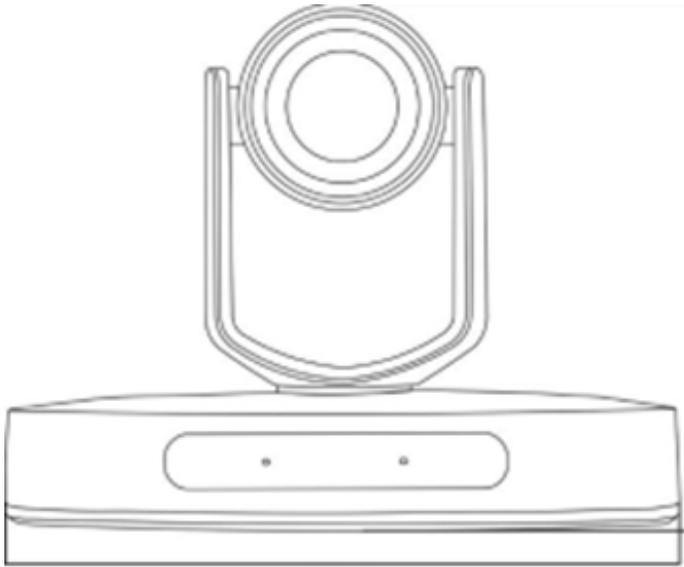
Connection Guide



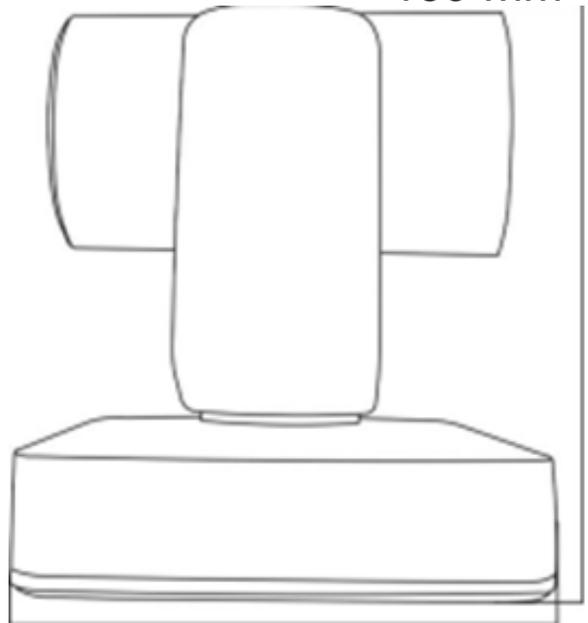
1. USB 2.0 USB 2.0 type B female connection
2. HDMI HDMI ver. 1.4 connection
3. Line In 3.5mm audio connection
4. Network RJ45 port for NDI®|HX & network streaming / control
5. SDI 3G-SDI connection
6. RS-232 In 8-pin mini din connection for joystick controller
7. RS-232 Out 8-pin mini din connection for daisy chaining
7. DC12V DC 12V power connection

Dimensional Drawings (mm)

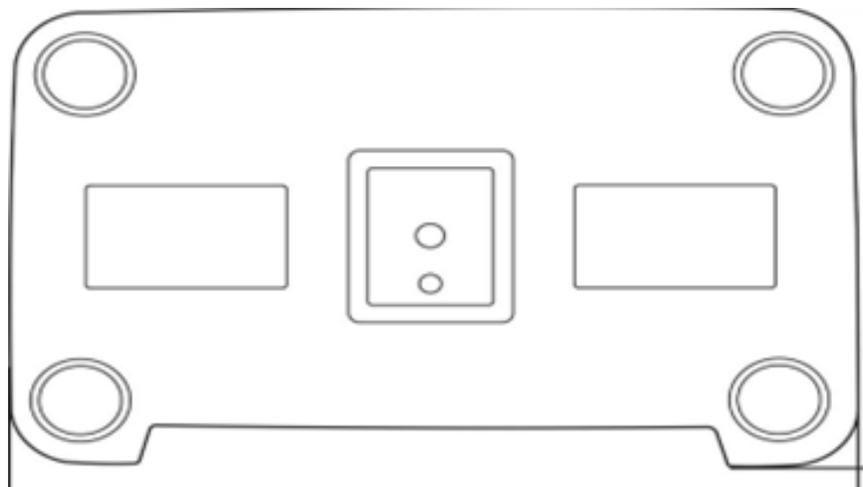
211 mm



139 mm



211 mm



Features

- All-in-One Solution - The SimplTrack Lite does not require a dedicated computer to operate. This simplifies deployment and provides a more seamless less-complicated solution you can rely on for the long term. No need to manage dedicated auto-tracking software, this camera can be tuned to your room and set to operate trouble-free and independent from additional hardware.
- Dedicated Management Software - The SimplTrack Lite features dedicated camera management software that can be controlled from any Windows computer on the network. You don't need a dedicated computer to run the system You can use any Windows PC running the Management Software to remotely manage the cameras when necessary.
- **Image Sensor**
 - 1/2.8", 2.14 million effective pixels, HD CMOS sensor.
 - High quality telephoto lens supporting 20X optical zoom and optional 12X digital zoom.
 - Full HD 1920x1080p resolution up to 60 frames per second.
 - 2D & 3D noise reduction with our latest "low noise CMOS sensor".
 - Wide angle 59.5° horizontal field of view.
 - Dynamic Range Control (DRC) for higher image quality and detail across simultaneously well-lit and shadowed scenes.
 - High SNR (signal to noise ratio) of the CMOS sensor ($\geq 55\text{dB}$), combined with 2D & 3D noise reduction algorithms, effectively reduces noise, even under low illuminated conditions.
- **Video Outputs**
 - Simultaneous NDI®|HX using NDI® 4 / IP network streaming, USB 2.0, 3G-SDI, & HDMI 1.4 o USB 2.0 Full HD video output up to 1080p 30 frames per second.
 - 3G-SDI Full HD video output up to 1080p 60 frames per second.
 - HDMI 1.4 Full HD video output up to 1080p 60 frames per second.
 - RTSP, RTMP, & RTMPS streaming using H.264 or MJPEG.
 - Line level audio embeds over NDI®|HX / network stream. Uses AAC audio encoding for better sound quality and lower bandwidth usage.
- **Control and Settings**
 - Automatic tracking of active participant.
 - NDI®|HX control through NDI® approved platforms that offer control
 - HuddleCamHD VISCA & VISCA over IP
 - IR Remote Control
 - RS-232 VISCA & Pelco-D control
- **Installation**
 - Standard 1/4-20 female thread for camera mounting
 - 12V DC 2.5A Power Supply
 - PoE+ 802.3af
- **Warranty**
 - 3-year warranty

Technical Specifications

Model	HC20X-SIMPLTRACKLITE
Type	HuddleCamHD SimplTrack Lite HD 1080p Color Video Camera
Camera	
Video System	1080p-60/50/30/25, 1080i-60/50, 720p-60/50
Sensor	1/2.8" CMOS, 2.14 megapixel
Lens	20X
Digital Zoom	12X Digital Zoom
Shutter	1/1 ~ 1/10000
White Balance	Auto, ATW, OnePush, Indoor, Outdoor, Manual, Sodium Lamp, Fluo Lamp
Backlight Compensation	Supported
Digital Noise Reduction	2D & 3D Digital Noise Reduction
Video S/N	≥55dB
Horizontal Field of View	2.9° ~ 59.5°
Vertical Field of View	2° ~ 36°
Horizontal Rotation Range	±170°
Vertical Rotation Range	-30° ~ +90°
Pan Speed Range	0.2° ~ 100°/s
Tilt Speed Range	0.2° ~ 60°/s
Image Flip / Mirror	Supported
Image Freeze	Not supported
PoE+	Supports PoE+ (802.3af)
Face Detection	Not supported
Local Storage	Not supported
Number of Presets	64
Preset Accuracy	0.1°
Input / Output Interface	
HD Output	1 x RJ45 NDI® HX using NDI® 4 / IP Network 10/100M Ethernet port
	1 x USB 2.0, Type B Female
	1 x HDMI version 1.4
	1 x 3G-SDI: BNC type, 800mVp-p, 75Ω, Along to SMPTE 424M standard
Network Interface	1 x RJ45: 10/100M Adaptive Ethernet ports
Audio Interface	1 x 3.5 audio interface, Line in (NDI® HX & IP Network stream only) (Unbalanced stereo)
Communication Interface	1 x RS-232 In: 8-pin mini DIN, Max Distance 30m, Protocol: VISCA/Pelco-D
	1 x RS-232 Out: 8-pin mini DIN, Max Distance 30m, Protocol: VISCA daisy chaining only

IR	4 x IR addresses, Max Distance 9m (30ft)
Power Jack	JEITA type (DC IN 12V)
IP Video Features	
Video Compression	H.264 / H.265
Video Stream	Two (2) IP video output streams available
First Stream Resolutions	1080p / 720p / 704x480(D1) / 320x240(QVGA) – 60/50/30/25
Second Stream Resolutions	704x480(D1) / 320x240(QVGA) – 60/50/30/25
Video Bit Rate	0Kbps ~ 16383 Kbps
Bit Rate Type	Constant or Variable bit rate
Frame Rate	50Hz: 1 ~ 50 FPS, 60Hz: 1 ~ 60 FPS
Audio Compression	AAC
Audio Bit Rate	16Kbps, 32Kbps, 48Kbps
Supported Protocols	TCP/IP, HTTP, RTSP, RTMP, DHCP, Multicast, NDI® HX etc.
Generic Specifications	
Input Voltage	DC 12V / PoE+ (802.3at)(optional)
Current Consumption	<15W
Operating Temperature	32°F ~ 104° (0°C ~ +40°C)
Storage Temperature	-4°F ~ 140° (-20°C ~ +60°C)
Humidity Range	10% RH ~ 90% RH
Size in. (W x D x H)	8.31" x 5.47" x 8.19" 211mm x 139mm x 208mm
Camera Weight	2.43lbs 1.1kg

NDI®|HX with NDI® 4 Connection

The NDI®|HX connection allows you to connect and control your camera through any NDI compatible hardware or software on your Local Area Network. Once your camera is setup on a LAN, you can utilize the NDI®|HX connection.

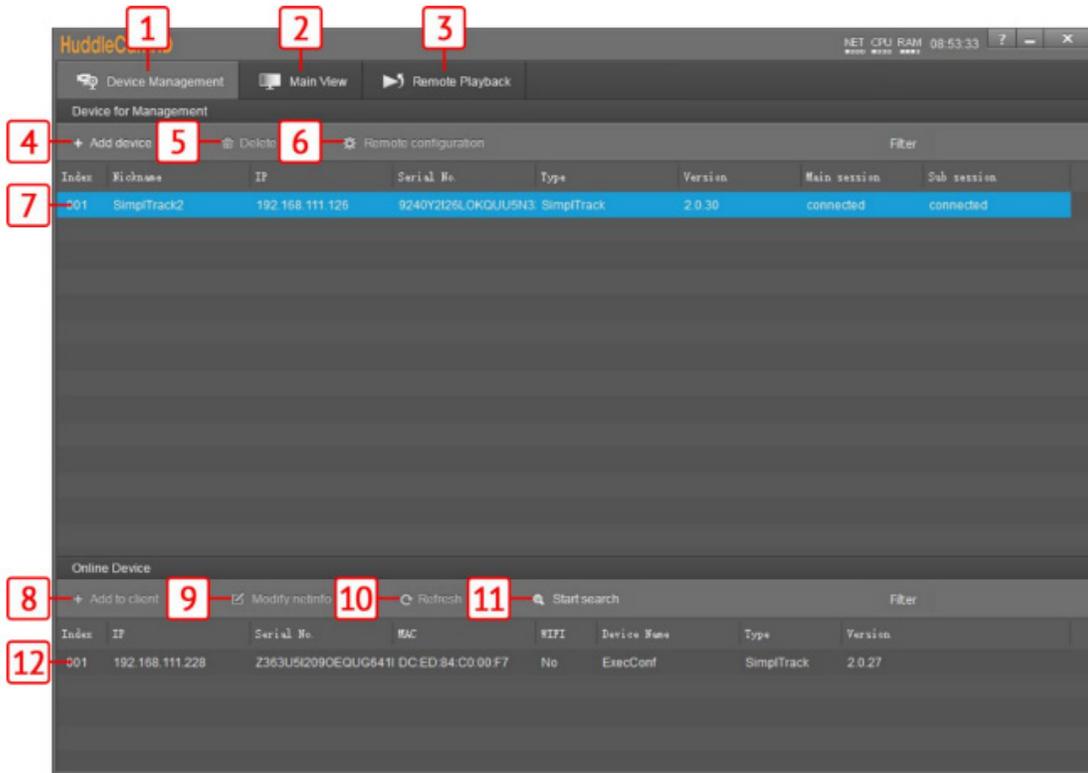
Three Easy Steps:

1. Download and install the latest NDI®|HX Tools.
2. Select your camera within the NDI®|HX compatible device.
3. 3. Select your camera. The NDI feed will utilize the camera's device friendly name.

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Please note that your NDI License key is non-transferrable.

Tracking Software

Device Management Interface

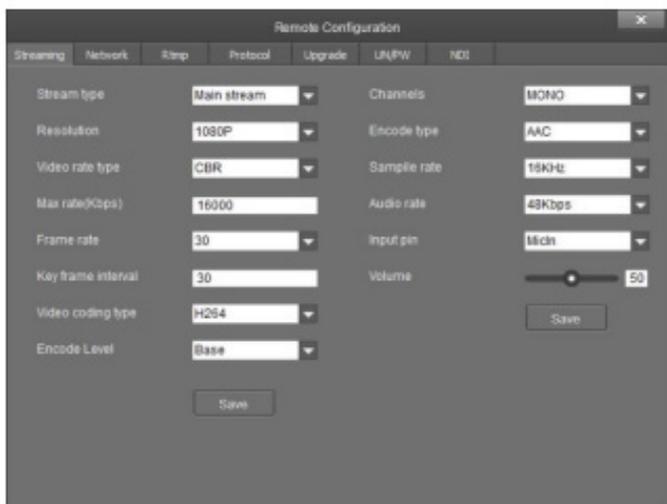


1	Device Management interface	7	*Selected* device within Device Management
2	Video Configuration interface	8	Add selected camera from Online Device section
3	View & Download video and / or photos.	9	Modify network settings of selected Online Device
4	Manually add device using camera info	10	Refresh Online Device list
5	Delete selected device from Device Management list	11	Start / Stop searching for Online Devices
6	Configure network settings of camera	12	*Unselected* device from Online Devices section

Configuring the Camera

To configure a camera, you will need to connect it to the Device Management section using the methods above. From there, select the camera you wish to configure, then select “Remote Configuration”.

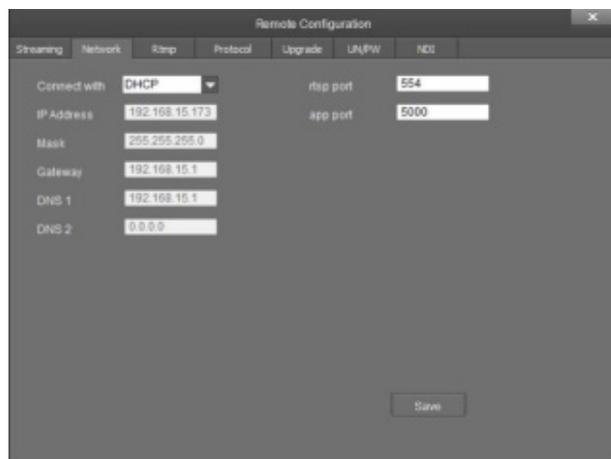
Streaming – The Streaming tab allows you to adjust the camera’s Real Time Streaming Protocol settings.



- **Stream Type** – RTSP stream dropdown selector.
 - Options include: Main Stream, Sub Stream, Stream 3, & Stream 4
- **Resolution** – RTSP resolution.
 - Main Stream resolutions: 1080p, 720p, 704x480(D1), & 320x240(QVGA)
 - Sub Stream resolutions: 720p, 704x480(D1), & 320x240(QVGA)
 - Stream 3 resolutions: 720p, 704x480(D1), & 320x240(QVGA)
 - Stream 4 resolutions: 704x480(D1) & 320x240(QVGA)
- **Video Rate Type** – Adjust the video rate.
 - Options include: CBR & VBR
 - Max Rate (Kbps) – Adjust the RTSP stream’s maximum bit rate
- **Key Frame Interval** – Adjust the RTSP stream’s I-Key Frame Interval
 - Options include: 1 ~ 120 (we recommend setting this value to double the stream’s frame rate)
- **Video Coding Type** – Adjust the Video Coding type.

- Options include: H.264 & MJPEG
- **Encode Level** – Adjust the level at which the video is encoded.
 - Options include: Base, Main, & High
- **Channels** – Adjust the audio channel of the embedded audio.
 - Options include: Mono & Stereo
- **Encode Type** – Adjust the Audio Encoding type of the embedded audio.
 - Options include: AAC
- **Sample Rate** – Adjust the audio sample rate of the embedded audio.
 - Options include: 16KHz, 44.1KHz, & 48KHz
- **Audio Rate** – Adjust the audio rate of the embedded audio.
 - Options include: 1 ~ 16383
- **Input Pin** – Adjust the embedded audio connection type.
 - Options include: LinIn & MicIn
- **Volume Slider** – Adjust the audio level of the embedded audio.
 - Range: 0 ~ 100

Network – The Network tab allows you to adjust the camera’s network settings.



- **Network** – The Network tab allows you to adjust the camera’s network settings.
- **Connect With** – Adjust the method of network connection.
 - Options include: DHCP & Static IP

Note: While in DHCP, you can only adjust the RTSP Port & App Port.

- **Gateway** – Adjust the camera’s gateway.
 - Default value: 192.168.1.1
- **DNS 1** – Adjust the camera’s DNS 1.
 - Default value: 0.0.0.0
- **DNS 2** – Adjust the camera’s DNS 2.
 - Default value: 0.0.0.0
- **RTSP Port** – Adjust the camera’s RTSP port number.
 - Default value: 554
- **App Port** – Adjust the camera’s App Port number.
 - Default value: 5000

RTMP – The RTMP tab allows you to adjust the camera’s Real Time Multimedia Protocol settings for up to 4 streams.

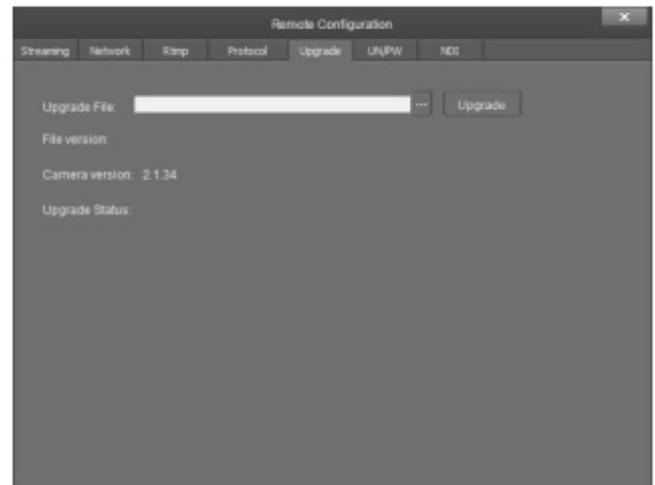


- **RTMP # Checkbox** – Enable / Disable the corresponding RTMP stream.
- **Stream # Dropdown** – Select the stream you would like to utilize.
 - Options include: Main Stream, Sub Stream.
- **RTMP Text Field** – This field allows you to input the RTMP server address and stream key you wish to stream to

Protocol – The Protocol tab allows you to adjust the camera’s control settings

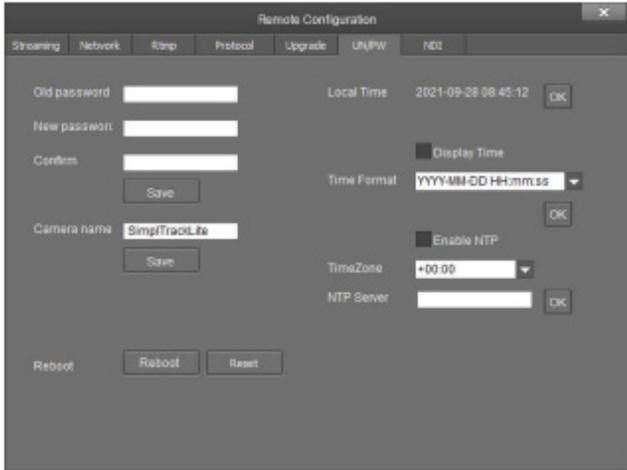
- **Enable** – Enable / Disable 3rd party control to the camera.
 - Options include: Enable & Disable
- **Protocol** – Adjust the control protocol method.
 - Options include: TCP & UDP
- **Camera As** – Adjust whether the camera acts as a server or a controllable device (Client).
 - Options include: Server & Client
- **IP** – Adjust the IP address to which the camera sends commands to (Server Mode).
 - Default value: 0.0.0.0
- **Port** – Adjust the control port of the device the camera sends commands to (Server mode).
 - Default value: 5678

Upgrade – The Upgrade tab allows you to apply firmware updates to the camera.



- **Upgrade File** – Browse your computer for the firmware upgrade file.
- **File Version** – Displays the firmware version of the selected file.
- **Camera Version** – Displays the firmware version of the connected camera.
- **Upgrade Status** – Displays the status of the firmware upgrade.

UN / PW – The UN / PW tab allows you to adjust the camera’s name & password, as well as adjust the NTP settings

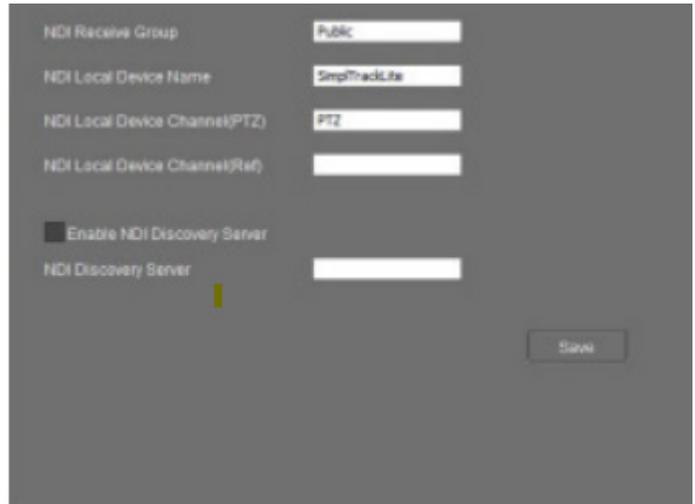


- **Old Password** – Type the old password into this field in order to change the camera password.
 - Default value: “admin”
- **New Password** – Type the new password into this field in order to change the camera password.

Note: Passwords must contain only letters and numbers. Special characters are not applicable.

Max length: 15 characters.
- **Confirm** – Type the new password into this field again in order to change the camera password.
- **Camera Name** – Adjust the camera’s friendly name.
 - Default value: SimpliTrack Lite

NDI – The NDI tab allows you to adjust the NDI protocol settings.



- **NDI Receive Group** – The NDI® Receive Group allows you to limit which users on your LAN can see the NDI® source
 - Default value: Public

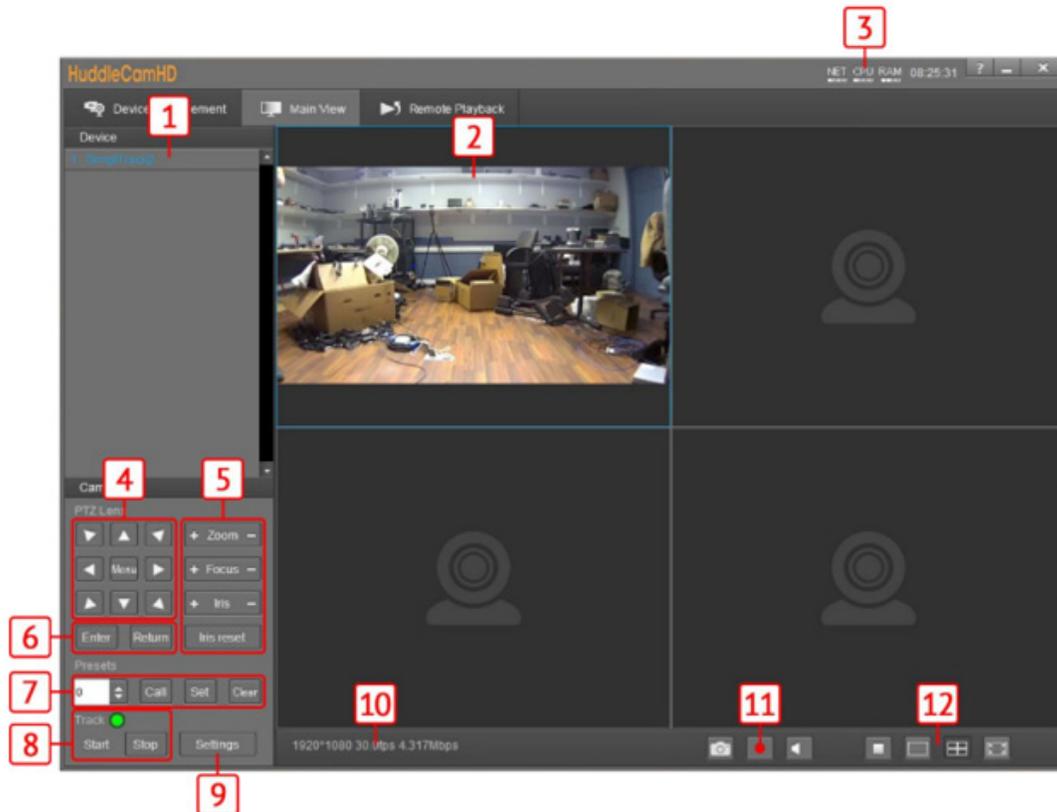
For best results, the Receive Group should remain “Public”. Once the Receive Group is changed, you will need to join the Receive Group through NDI® Access Manager.
- **NDI Local Device Name** – The friendly name of the camera will show up as within NDI® devices.
 - Default value: SimpliTrack Lite

For best results, give all ‘like’ cameras the same Local Device Name. e.g., “Tracking cams” or “Framing Cams”
- **Enable NDI® Discovery Server Checkbox** – Enable / Disable connectivity to a NDI® Discovery Server
 - Default value: Off (unchecked)
- **NDI® Discovery Server Textbox** – This field allows you to define the IP address of the NDI® Discovery Server.
 - Default value: (blank)

For information on the NDI Discovery Server, check out <https://support.newtek.com/hc/en-us/articles/218109477-NDI-Discovery-and-Registration>.

Tracking Software

Main View Interface



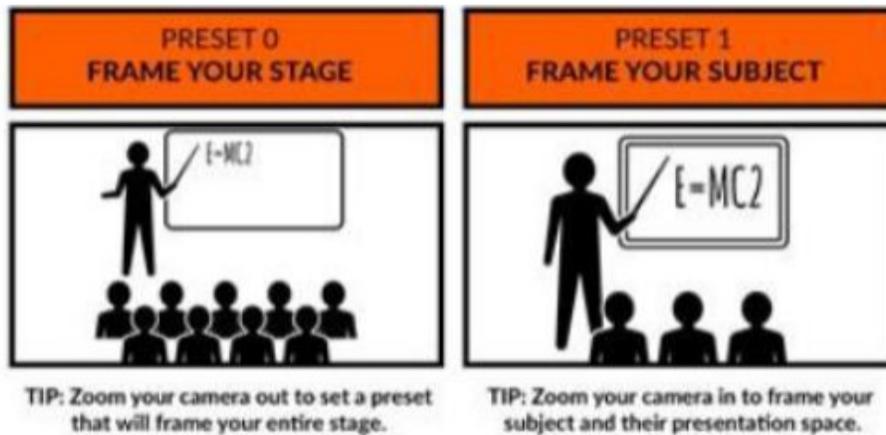
1	Cameras connected to Device Management	7	Preset control
2	Camera video feed	8	Enable / Disable tracking & Tracking Status
3	PC performance & time	9	Open Tracking Settings
4	Pan, Tilt, & OSD Menu control	10	Connected camera resolution & frame rate
5	Lens control	11	Snapshot, Enable / Disable recording, & Enable / Disable audio
6	OSD Menu Enter / Return	12	Stop video, full screen, & gallery view

Controlling the Camera

The Main View can connect and control up to 4 cameras simultaneously. Right-click a camera from the Device Management section and select the RTSP feed you wish to view. From there, you have full control over Pan, Tilt, Zoom, Focus, Iris, Presets, the On-Screen Display Menu & Tracking Settings. To further cater the camera to your environment, click the Settings button.

Tracking Settings

The SimplTrack Lite is truly plug and play tracking camera that does not require much set up before use.



Preset Zones

Preset Zones allow the camera to temporarily halt tracking once the subject enters a defined area. Once they enter that area, the camera will call a preset to frame the subject in that Preset Zone. This allows the subject to move around the stage and be framed when they enter the Preset Zone. Once the subject leaves that Preset Zone, the camera resumes tracking the subject normally.

There are 4 Preset Zones: 84-87 for Zones 1-4. You must set up Preset 0 as the Stage and Preset 1 as the subject. The subject must be in the view during the setup for the focus to be correct.

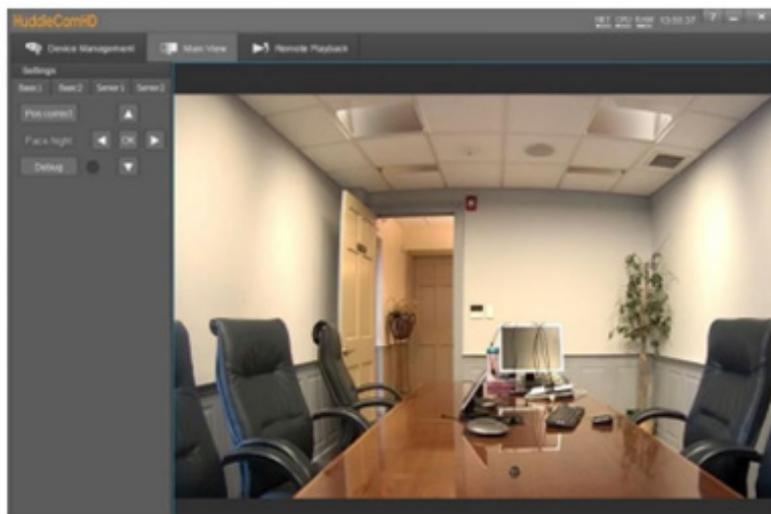
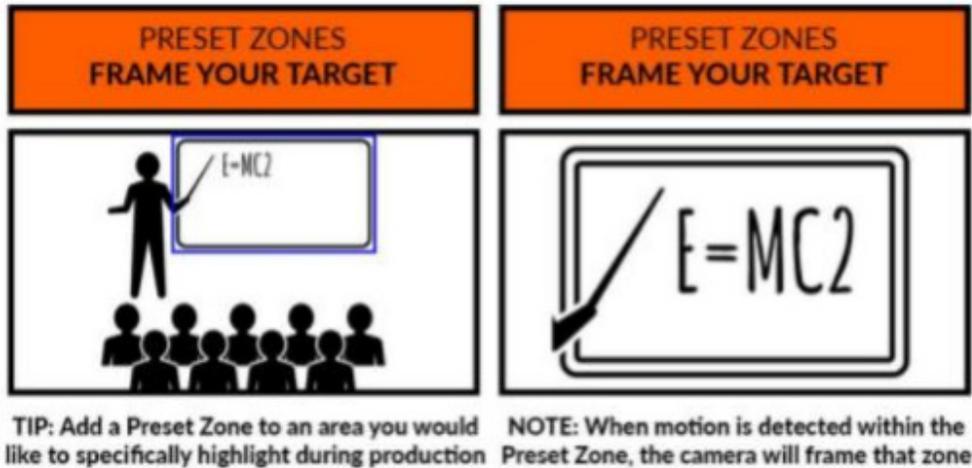
Each Preset Zone has a specific preset number associated with it:

- Preset Zone 1 = preset 84
- Preset Zone 2 = preset 85
- Preset Zone 3 = preset 86
- Preset Zone 4 = preset 87

To set up a Preset Zone:

1. Open the tracking software and select the Main View tab.
2. Have the subject move to the desired Preset Zone location.
3. Position the camera view in the location you'd like the corresponding Preset Zone to move to.
4. "Set" the corresponding preset number (84 ~ 87) using the Presets section of the Main View tab.
 - o You can double check that the presets are in the desired location by "Calling" the corresponding preset number.
6. Once the Preset Zones are set, you need to call Preset 88 to turn them on. To turn them off, you need to call Preset 89.

6. To enable a Preset Zone, select the Preset number from the Preset dropdown list and hit "Call".
For example:
 - o Setting Preset 84 will enable Preset Zone 1
 - o Setting Preset 85 will enable Preset Zone 2
7. Enable tracking and allow the subject to enter the Preset Zone.

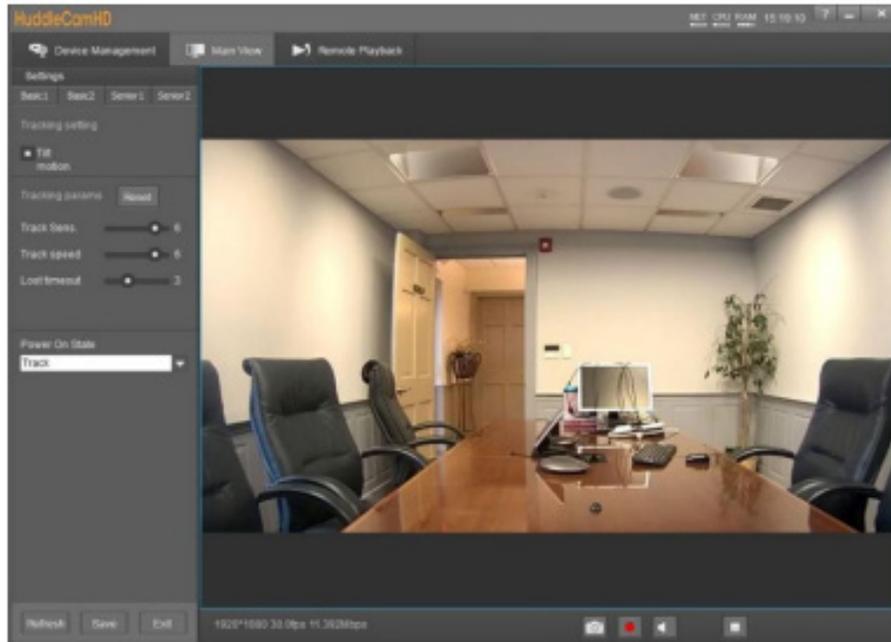


Basic 1 -

- Lower bound is the level it will track in (the camera will not track anything below the green line).
- Debug: shows what the camera is trying to track in the video image.
- The arrows are just used for the lower bound.

Basic 2 -

- The Basic 2 tab allows you to adjust the tracking & zoom settings of the camera.
- Tilt motion: adds tilt to the camera when tracking. When this is off, the camera will only pan left or right.
- Tracking params reset: resets the below values.
- Track sens: a number 1 - 7 this is how sensitive the is to movement while tracking.
- Track speed: is the speed of movement while tracking.
- Lost timeout: the amount of time the camera will try to look for a subject after it loses said subject while tracking.
- Power on state: does the camera track or not on startup.



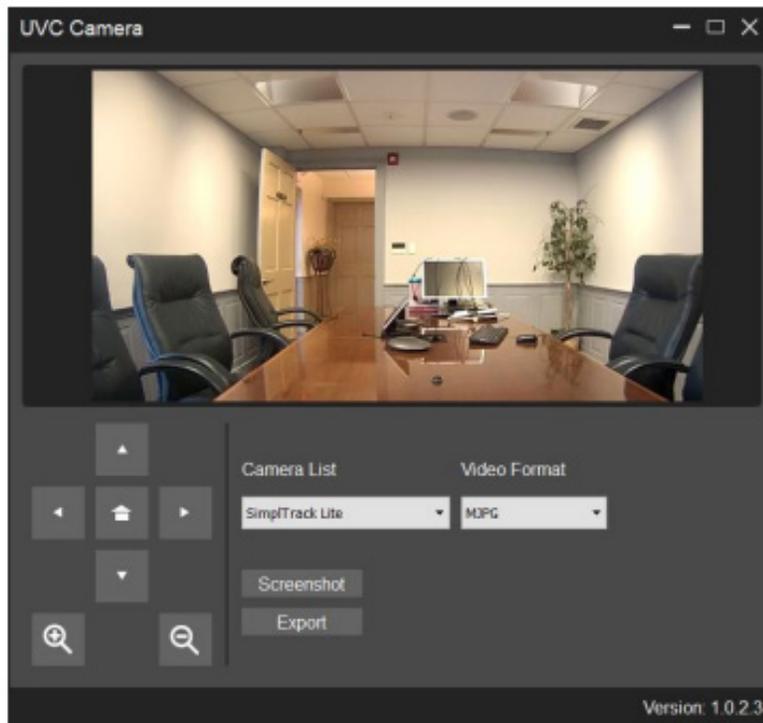
Senior 1 & Senior 2 tabs are not usable on the SimplTrack Lite.

Remote Playback

Remote Playback is not usable on the SimplTrack Lite.

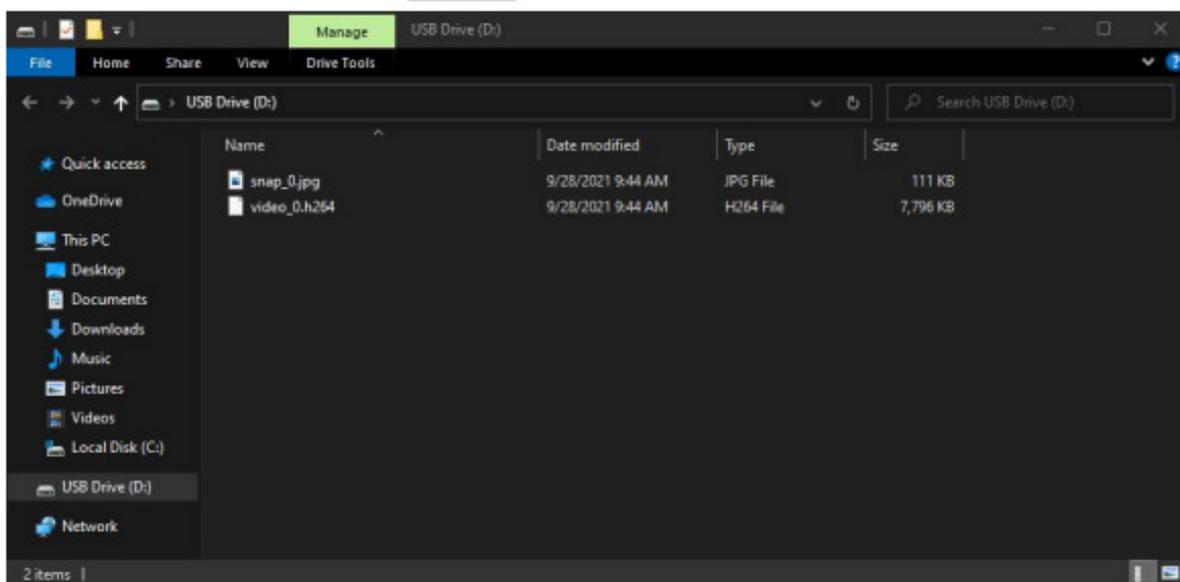
Video Recording & Screenshot

You can record short videos and take screenshots using a secondary UVC recording software and save those files directly to your camera. To do so, connect the SimplTrack Lite to your PC, then open the UVC Camera SFX program.



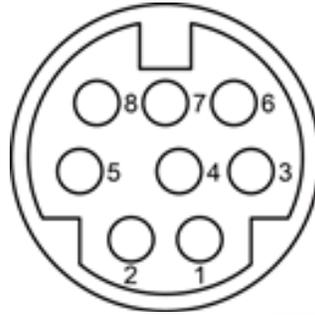
To take a screenshot, click the “Screenshot” button. Once the screenshot is finished being taken, you’ll be greeted with a “Screenshot Successful” notification.

To record a short video to the camera, click the “Export” button. Once the video is finished being recorded, a new File Explorer window will open under a new “USB Drive” directory. This USB Drive is the camera’s memory. While accessing the camera’s memory, you will be unable to use its video capabilities. To return the SimplTrack Lite to a usable state, power it off and back on.



In this example, “snap_0.jpg” is the photo file, and “video_0.h264” is the video file. View the video file within VLC Media Player for best results.

RS232 Interface



No.	Function
1	DTR
2	DSR
3	TXD
4	GND
5	RXD
6	GND
7	IR OUT
8	NC

Camera	Windows DB-9
6.GND	6.DSR
7.IR OUT	7.RTS
8.NC	8.CTS
	9.RI

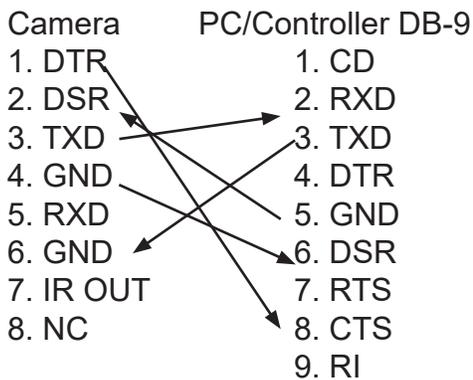
The correspondence between the camera and the Mini DIN pin:

The correspondence between the camera and Windows DB-9 pin:

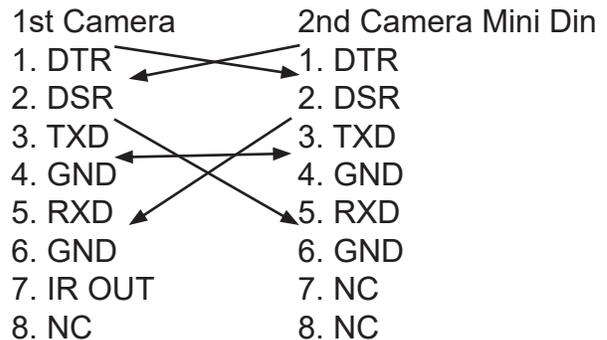


Camera	Mini DIN
1.DTR	1.DTR
2.DSR	2.DSR
3.TXD	3.TXD
4.GND	4.GND
5.RXD	5.RXD
6.GND	6.GND
7.IR OUT	7.NC
8.NC	8.NC

For Initial Connection



For Daisy Chain Control



Serial Communication Control

In default working mode, the camera is able to connect to a VISCA controller with an RS-232.

RS-232 Communication Control

Baud rate: 2400/4800/9600/38400;

Starting Position: 1 bit

Data bit: 8 bits

Stop bit: 1 bit

Check digit: None

After power on, the camera goes to the upper right limit and then back to the middle position. The zoom lens is pulled to the farthest position, auto focus, and the aperture is adjusted to the default value. If the camera has preset 0 saved, the camera will be set to position 0 after the initialization is completed. At this point, the user can use the serial port command to control the camera.²⁰

HuddleCamHD VISCA Command List

ACK / Completion Messages				
	Command Messages	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 Messages	Comments		
Syntax Error	z0 60 02 FF	Returned when the command format is different or when a command with		
Command Buffer Full	z0 60 03 FF	Indicates that two sockets are already being used (executing two commands)		
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.		
Command Not Executable	z0 6y 41 FF (y:Execution command Socket No. Inquiry com-	Returned when a command cannot be executed due to current conditions. For example, when commands controlling the focus manually are received during auto focus		
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	
CommandCancel		81 2p FF	p: Socket No.(=1or2)	
CAM_Power	On	81 01 04 00 02 FF	Power ON/OFF	
	Off	81 01 04 00 03 FF		
CAM_Zoom	Stop	81 01 04 07 00 FF	p=0 (Low) to 7 (High)	
	Tele(Standard)	81 01 04 07 02 FF		
	Wide(Standard)	81 01 04 07 03 FF		
	Tele(Variable)	81 01 04 07 2p FF		
	Wide(Variable)	81 01 04 07 3p FF		
	Direct	81 01 04 47 0p 0q 0r		pqrs: Zoom Position
CAM_Focus	Stop	81 01 04 08 00 FF	p=0 (Low) to 7 (High)	
	Far(Standard)	81 01 04 08 02 FF		
	Near(Standard)	81 01 04 08 03 FF		
	Far(Variable)	81 01 04 08 2p FF		
	Near(Variable)	81 01 04 08 3p FF		
	Direct	81 01 04 48 0p 0q 0r		pqrs: Focus Position
	Auto Focus	81 01 04 38 02 FF		AF ON/OFF
	Manual Focus	81 01 04 38 03 FF		
	Auto/Manual	81 01 04 38 10 FF		
One Push Trigger	81 01 04 18 01 FF	One Push AF Trigger		

CAM_ZoomFocus	Direct	81 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF	pqr: Zoom Position tuvw: Focus Position
CAM_WB	Auto	81 01 04 35 00 FF	Normal Auto
	Indoor	81 01 04 35 01 FF	Indoor mode
	Outdoor	81 01 04 35 02 FF	Outdoor mode
	One Push WB	81 01 04 35 03 FF	One Push WB mode
	Manual	81 01 04 35 05 FF	Manual Control mode
	One push trigger	81 01 04 10 05 FF	One Push WB Trigger
CAM_RGain	Reset	81 01 04 03 00 FF	Manual Control of R Gain
	Up	81 01 04 03 02 FF	
	Down	81 01 04 03 03 FF	
	Direct	81 01 04 43 00 00 0p 0q FF	pq: R Gain
CAM_BGain	Reset	81 01 04 04 00 FF	Manual Control of B Gain
	Up	81 01 04 04 02 FF	
	Down	81 01 04 04 03 FF	
	Direct	81 01 04 44 00 00 0p 0q FF	pq: B Gain
CAM_AE	Full Auto	81 01 04 39 00 FF	Automatic Exposure mode
	Manual	81 01 04 39 03 FF	Manual Control mode
	Shutter Priority	81 01 04 39 03 FF	Shutter Priority Automatic Exposure
	Iris Priority	81 01 04 39 0B FF	Iris Priority Automatic Exposure mode
	Bright	81 01 04 39 0D FF	Bright Mode (Manual control)
CAM_Shutter	Reset	81 01 04 0A 00 FF	Shutter Setting
	Up	81 01 04 0A 02 FF	
	Down	81 01 04 0A 03 FF	
	Direct	81 01 04 4A 00 00 0p 0q FF	pq: Shutter Position
CAM_Iris	Reset	81 01 04 0B 00 FF	Iris Setting
	Up	81 01 04 0B 02 FF	
	Down	81 01 04 0B 03 FF	
	Direct	81 01 04 4B 00 00 0p 0q FF	pq: Iris Position
CAM_Gain	Reset	81 01 04 0C 00 FF	Gain Setting
	Up	81 01 04 0C 02 FF	
	Down	81 01 04 0C 03 FF	
	Direct	81 01 04 4C 00 00 0p 0q FF	pq: Gain Position
CAM_Bright	Reset	81 01 04 0D 00 FF	Bright Setting
	Up	81 01 04 0D 02 FF	
	Down	81 01 04 0D 03 FF	
	Direct	81 01 04 4D 00 00 0p 0q FF	pq: Bright Position

CAM_ExpComp	On	81 01 04 3E 02 FF	Exposure Compensation ON/OFF
	Off	81 01 04 3E 03 FF	
	Reset	81 01 04 0E 00 FF	Exposure Compensation Amount Setting
	Up	81 01 04 0E 02 FF	
	Down	81 01 04 0E 03 FF	
	Dlrect	81 01 04 4E 00 00 0p 0q FF	
CAM_Backlight	On	81 01 04 33 02 FF	Back Light Compensation ON/OFF
	Off	81 01 04 33 03 FF	
CAM_Aperture	Reset	81 01 04 02 00 FF	Aperture Control
	Up	81 01 04 02 02 FF	
	Down	81 01 04 02 03 FF	
	Dlrect	81 01 04 42 00 00 0p 0q FF	pq: Aperture Gain
CAM_PictureEffect	Off	81 01 04 63 00 FF	Picture Effect Setting
	Neg.Art	81 01 04 63 02 FF	
	B&W	81 01 04 63 04 FF	
CAM_Memory	Reset	81 01 04 3F 00 pp FF	pp: Memory Number (=0 to 255) Corresponds to 0 to 255 on the Remote Commander.
	Set	81 01 04 3F 01 pp FF	
	Recall	81 01 04 3F 02 pp FF	
SYS_Menu	Off	81 01 06 06 03 FF	Turns off the menu screen
CAM_IDWrite		81 01 04 22 0p 0q 0r 0s FF	pqrs: Camera ID (=0000 to FFFF)
IR_Receive	On	81 01 06 08 02 FF	IR(remote commander) receive ON/OFF
	Off	81 01 06 08 03 FF	
Information Display	On	81 01 7E 01 18 02 FF	ON/OFF of the Operation status display
	Off	81 01 7E 01 18 03 FF	
Pan-tiltDrive	Up	81 01 06 01 VV WW 03 01 FF	VV: Pan speed 0 x01 (low speed) to 0 x18 (high speed) WW: Tilt Speed 0 x 01 (low speed) to 0 x14 (high speed) YYYY: Pan Position ZZZZ: Tilt Position
	Down	81 01 06 01 VV WW 03 02 FF	
	Left	81 01 06 01 VV WW 01 03 FF	
	Right	81 01 06 01 VV WW 02 03 FF	
	UpLeft	81 01 06 01 VV WW 01 01 FF	
	UpRight	81 01 06 01 VV WW 02 01 FF	
	DownLeft	81 01 06 01 VV WW 01 02 FF	
	DownRight	81 01 06 01 VV WW 02 02 FF	
	Stop	81 01 06 01 VV WW 03 03 FF	
	AbsolutePosition	81 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	RelativePosition	81 01 06 03 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	Home	81 01 06 04 FF	
	Reset	81 01 06 05 FF	

Pan-tiltLimitSe	LimitSet	81 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
CAM_TrackingON	Enable Tracking / Framing	81 01 04 3F 02 50 FF	
CAM_TrackingOFF	Disable Tracking / Framing	81 01 04 3F 02 51 FF	
CAM_AutoFrameTrigger	One Push Auto Frame	81 01 0E 24 6C 0p 0p FF	P P: seconds (i.e. to enable framing / tracking for 21 seconds would be 0p 0p = 02 01)
CAM_DynBlockZones	On	81 0B 0D 00 0p 01 FF	
	Off	81 0B 0D 00 0p 02 FF	

Inquiry Commands

Command Set	Command	Inquiry Packet	Comments
CAM_PowerInq	81 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	81 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_FocusModelInq	81 09 04 38 FF	y0 50 02 FF	Auto Focus
		y0 50 03 FF	Manual Focus
CAM_FocusPosInq	81 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_WBModelInq	81 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	81 09 04 43 FF	y0 50 00 00 0p 0q FF	pq: R Gain
CAM_BGainInq	81 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: B Gain
CAM_AEModelInq	81 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	81 09 04 4A FF	y0 50 00 00 0p 0q FF	pq: Shutter Position
CAM_IrisPosInq	81 09 04 4B FF	y0 50 00 00 0p 0q FF	pq: Iris Position
CAM_GainPosInq	81 09 04 4C FF	y0 50 00 00 0p 0q FF	pq: Gain Position
CAM_BrightPosInq	81 09 04 4D FF	y0 50 00 00 0p 0q FF	pq: Bright Position
CAM_ExpCompModelInq	81 09 04 3E FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_ExpCompPosInq	81 09 04 4E FF	y0 50 00 00 0p 0q FF	pq: ExpComp Position
CAM_BacklightModelInq	81 09 04 33 FF	y0 50 02 FF	On
		y0 50 03 FF	Off

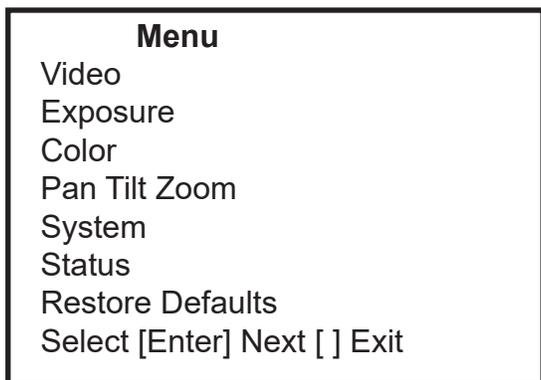
CAM_ApertureInq	81 09 04 42 FF	y0 50 00 00 0p 0q FF	pp: Aperture Gain	
CAM_PictureEffectModelInq	81 09 04 63 FF	y0 50 00 FF	Off	
		y0 50 02 FF	Neg.Art	
		y0 50 04 FF	B&W	
CAM_MemoryInq	81 09 04 3F FF	y0 50 0p FF	p: Memory number last operated	
SYS_MenuModelInq	81 09 06 06 FF	y0 50 02 FF	On	
		y0 50 03 FF	Off	
CAM_IDInq	81 09 04 22 FF	y0 50 0p 0q 0r 0s FF	pqrs: Camera ID	
CAM_VersionInq	81 09 00 02 FF	y0 50 00 01 mn pq rs tu vw FF	mnpq: Model Code (0504) rstu: ROM version vw: Socket Number (=02)	
Information Display	81 09 7E 01 18 FF	y0 50 02 FF	On	
		y0 50 03 FF	Off	
VideoSystemInq	81 09 06 23 FF	y0 50 00 FF	60 Hz System	
		y0 50 01 FF		1920 x1080p/30
		y0 50 02 FF		1280 x720p/60
		y0 50 03 FF		1280 x720p/30
		y0 50 07 FF	1920 x1080p/60	50 Hz System
		y0 50 08 FF	1920 x1080i/50	
		y0 50 09 FF	1920 x1080p/25	
		y0 50 0A FF	1280 x720p/50	
		y0 50 0B FF	1280 x 720p/25	
		y0 50 0F FF	1920 x1080p/50	
IR_Receive	81 09 06 08 FF	y0 50 02 FF	On	
		y0 50 03 FF	Off	
Pan-tiltMaxSpeedInq	81 09 06 11 FF	y0 50 ww zz FF	ww = Pan Max Speed zz = Tilt Max Speed	
Pan-tiltPosInq	81 09 06 12 FF	y0 50 0w 0w 0w 0w 0z 0z 0z 0z FF	www = Pan Position zzzz = Tilt Position	
Pan-tiltModelInq	81 09 06 10 FF	y0 50 pq rs FF	pqrs: Pan/Tilt Status	
CAM_AnalyticsInq	81 01 0E 24 6E 00 00 FF	[tracking status on/off][current X, Y	Inquires tracking status, current PTZ position, faces in sight, & when the command was sent	

On Screen Display

Main Menu

There are many ways to adjust the camera's On-Screen Display (OSD) Menu. The following instructions will go over the OSD Menu while using the included IR remote.

Press the [Menu] button to display the OSD Menu. Use the arrow buttons to traverse the OSD menu, the [Enter] button to make selections, and the [Return] button to go back a sub menu.



Video

Move the cursor to the "Video" option and press the [Enter] button to enter the Video page, as shown in the figure below.

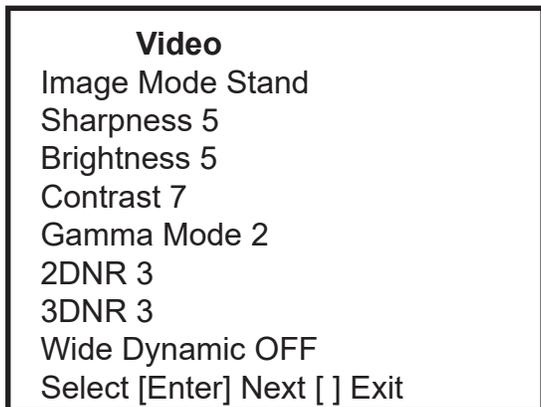


Image Mode: Reverse camera image horizontally. Options include: Stand, Mirror

Sharpness: Adjust camera sharpness value. Options include: 0 ~ 15

Brightness: Adjust camera brightness value. Options include: 0 ~ 14

Contrast: Adjust camera contrast value. Options include: 0 ~ 14

Gamma Mode: Adjust camera gamma value. Options include: 0 ~ 4

2DNR: Adjust 2D noise reduction value. Options include: Off, 1 ~ 5

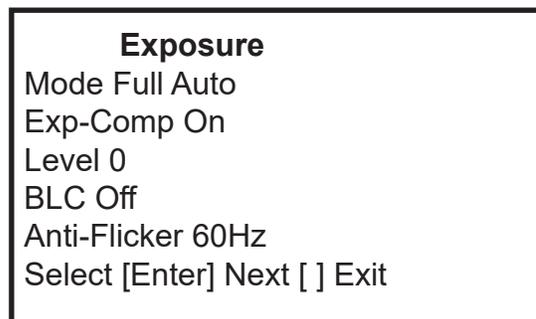
3DNR: adjust 3D noise reduction value. Options include: Off, 1 ~ 5

Wide Dynamic: Adjust wide dynamic range strength.

Options include: Off, 1 ~ 5

Exposure

Move the cursor to the "Exposure" option and press the [Enter] button to enter the Exposure page, as shown in the figure below.



(Exposure) Mode: Full Auto, Manual, Shutter Pri, Iris Pri, & Bright Pri

Exp-Comp: Toggle Exposure Compensation. Options include: On, Off

Level: Exposure Compensation level. Options include: -7 ~ +7 (Only available when Exp-Comp is On).

BLC: Toggle Backlight Compensation. Options include: On, Off (Only available in Full Auto mode).

Anti-Flicker: Anti-Flicker (Lighting). Options include: Off, 50Hz, 60Hz (Only available in Full Auto, Iris Pri, & Bright Pri modes)

Gain: Maximum Gain limit. Options include: 0 ~ 30 (Only available in Manual mode).

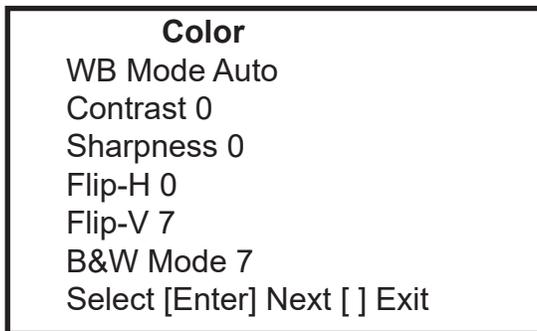
Speed: Camera Shutter speed.
Options include: 1/1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000
(Only available in Manual & Shutter Pri modes).

Iris: Camera Iris position.
Options include: 0 ~ 14 (Only available in Manual & Iris Pri modes).

Bright: Camera Brightness value.
Options include: 0 ~ 27
(Only available in Bright mode).

Color

Move the cursor to the “Color” option and press the [Enter] button to enter the Color page, as shown in the figure below.



WB Mode: Auto, ATW, OnePush, Indoor, Outdoor, Manual, Sodium Lamp, & Fluo Lamp

R. Gain: Camera Red Gain value.
Options include: -7 ~ +7
(Only available in Auto, ATW, & Manual modes).

G. Gain: Camera Green Gain value.
Options include: -7 ~ +7
(Only available in Auto & ATW modes).

B. Gain: Camera Blue Gain value.
Options include: -7 ~ +7
(Only available in Auto, ATW, & Manual modes).

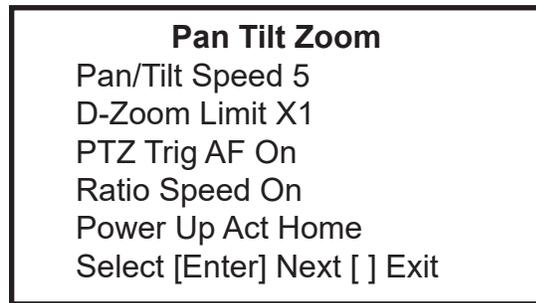
Saturation: Camera Saturation value.
Options include: 0 ~ 14

Hue: Camera Hue value.
Options include: 0 ~ 14

OnePush Trigger: OnePush trigger calculation
Options include: “Press OK”
(Only available in OnePush mode)

Pan Tilt Zoom

Move the cursor to the “Pan Tilt Zoom” option and press the [Enter] button to enter the Pan Tilt Zoom page, as shown in the figure below.



Pan/Tilt Speed: Pan / Tilt speed value.
Options include: 1 ~ 8

D-Zoom Limit: Digital Zoom Limit
Options include: X1 ~ X11

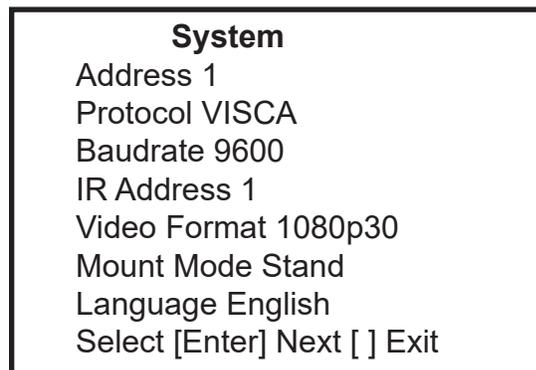
PTZ Trig AF: Enable auto focus when camera P/T/Z
Options include: On, Off

Ratio Speed: P/T speed relates to Zoom speed
Options include: On, Off

Power Up Act: Position the camera calls on power up
Options include: Home, Preset 1 ~ Preset 9

System

Move the cursor to the “System” option and press the [Enter] button to enter the System page, as shown in the figure below.



Address: Camera control address.
Options include: 1 ~ 7

Protocol: Camera control protocol.

Options include: VISCA, Pelco-D, Pelco-P

Baudrate: Camera control baudrate.

Options include: 2400, 4800, 9600, 38400

IR Address: Change camera IR address

Options include: 1 ~ 4

Video Format: Change camera resolution & framerate Options include: 720p60, 720p50, 1080p60, 1080p50, 1080p30, 1080p25, 1080i60, 1080

Mount Mode: Change mounting mode

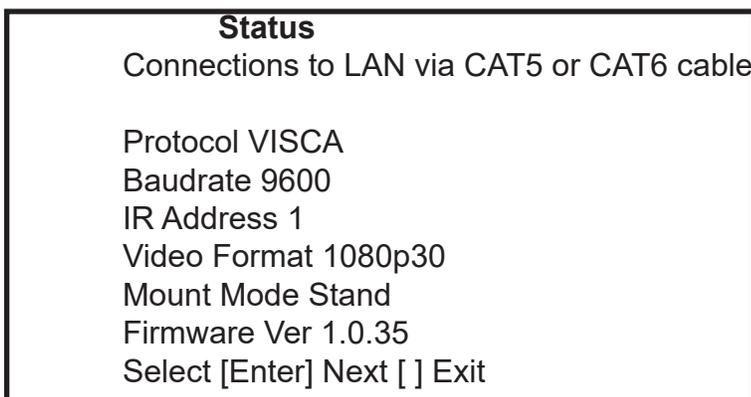
Options include: Stand, Ceiling

Language: Change camera language

Options include: English, Chinese Status

Status

Move the cursor to the “Status” option and press the [Enter] button to enter the Status page, as shown in the figure below.



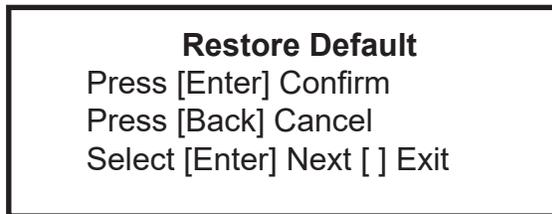
The Status tab shows the current settings of the camera.

You cannot change the values in this tab.

Note: Press the [Enter] button to confirm. All camera parameters will return to default, including IR remote & VISCA Addresses.

Operating Environment

- Restore Default
- Move the cursor to the “Restore Default” option and press the [Enter] button to enter the Restore Default page, as shown in the figure below.



Note: Press the [Enter] button to confirm. All camera parameters will return to default, including IR remote & VISCA addresses

Operating System: Windows 2000 / 2003 / XP / Vista / 7 / 8.1 / 10 / 11, Mac Catalina and later

Network Protocol: TCP/IP

Client PC: P4 / 128M RAM / 40GHD / support for scaled graphics card, support for DirectX8.0 or more advanced version.

Network Connection

Assigning an IP Address

By default, the camera is set to DHCP, meaning it will automatically obtain an IP address from your DHCP server, if available. If your network doesn't utilize a DHCP server, the camera will fallback to its static IP address of “192.168.1.180”. To change this IP address to an IP address on your network range, follow the steps below.

DHCP

By default, the camera is set to DHCP. If your camera ever comes out of DHCP mode, you can quickly set it back by using the IR remote shortcut: [F1] > [0] > [0] > [1]: Sets the IP address to DHCP Static Address

If your network supports DHCP, you can have it automatically assign an IP using one of the methods below.

- IR Remote – Press [*] > [#] > [4] to enable DHCP
- Upgrade Tool v2.7/v2.8 – Select DHCP from Config the tab

Static Address

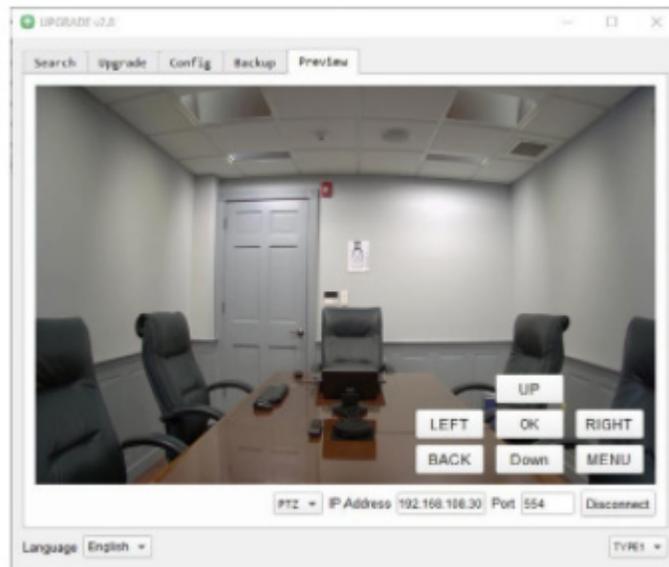
If you want to give your camera a more permanent IP address, assign the camera a static IP address. You have two (2) options to assign this address.

- Upgrade Tool v2.7/v2.8 – Assign a static IP address from the Config tab
- R Remote – Press [#] > [*] > [#] > [number 0~9] to set the camera's IP address to

192.168.100.8(number 0~9)

Preview Tab

The Preview tab allows you to view the RTSP feed of your camera. You can send the camera to the Preview tab from the Search tab, or simply type in the IP address into the field and click “Connect”.



Modify Netinfo

Click the “Start Search” button from the Online Device section. This will search for all HuddleView, SimplTrack2, and SimplTrack Lite cameras on your network range. If you do not see your camera, you will need to change your computer’s IP address to match the network range of the camera.

The camera’s fallback IP address is 192.168.1.180, making the network range 192.168.1. Alternatively, you can use an IR remote shortcut to change the IP address to 192.168.100.8(0~9), making the network range 192.168.100. Change your computer’s IP address to match the network range of the camera to begin discovering the camera.

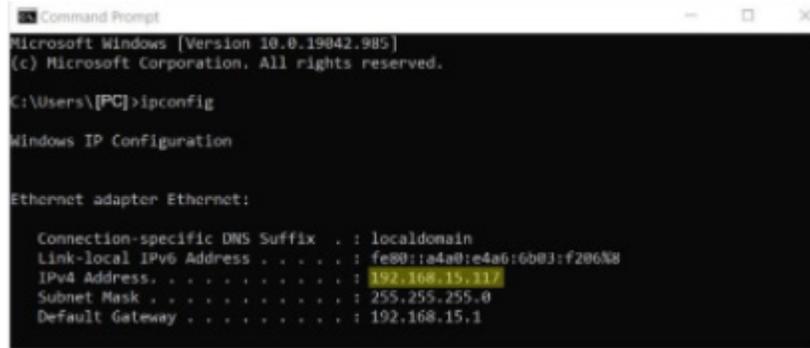
Remote Configuration > Network Interface

The Remote Configuration tab allows you to modify the settings of a camera that is already connected to the software. Once you change the IP address of a camera through this method, you will need to re-add the camera to the Tracking Software.

Discovering your Network Info

To discover your IP address range/scheme, Subnet Mask, Gateway, & First DNS, follow the instructions below for Windows or Mac OS. You may need to talk with your IT department to obtain this information.

Windows



```
Microsoft Windows [Version 10.0.19042.985]
(c) Microsoft Corporation. All rights reserved.

C:\Users\PC>ipconfig

Windows IP Configuration

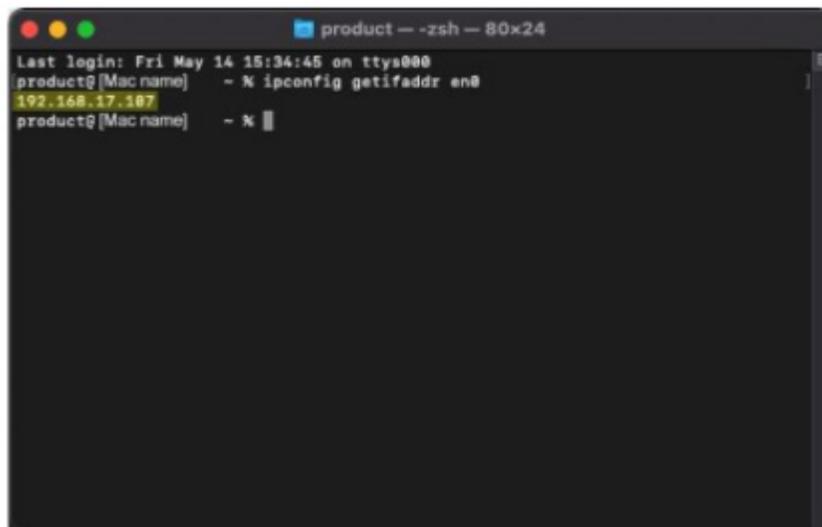
Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : localdomain
    Link-local IPv6 Address . . . . . : fe80::a4a0:e4a6:6b03:f206%8
    IPv4 Address. . . . . : 192.168.15.117
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.15.1
```

1. Open the Start menu and type “CMD” into the search bar.
2. Once the Command Prompt is open, type in “ipconfig” and press the Enter key.
3. Scroll down to the section titled “Ethernet adapter Ethernet” or “Ethernet adapter Wireless Network Connection”.
4. Locate the “IPv4 Address” in that section. This is your computers local IP address.
5. In the example above, the PC’s local address is “192.168.15.117”, making the network range “192.168.15”.

Mac

1. Open a new Finder window and go to the Applications folder.
2. Open the Utilities folder and select the Terminal program.
3. Once the Terminal program is open, type in “ipconfig getifaddr en0” and press the Enter key.



```
product — zsh — 80x24
Last login: Fri May 14 15:34:45 on ttys000
product@Mac name ~ % ipconfig getifaddr en0
192.168.17.107
product@Mac name ~ %
```

4. In the example above, the Mac’s local address is 192.168.17.107”, making the network range “192.168.17”.

Maintenance and Troubleshooting

Unqualified Applications

- Do not shoot extremely bright objects for a long period of time, such as sunlight, ultra-bright light sources, etc.
- Do not operate close to powerful electromagnetic radiation, such as TV or radio transmitters, etc.

Troubleshooting

- No image
 - Check whether the power cord is connected, voltage is OK, & Power LED is illuminated.
 - Check whether the camera can “self-test” after startup (camera will do a brief pan/tilt tour and return to the home position, or preset 0, if that preset is set).
 - Check that the video cable is connected correctly.
- If SDI, make sure that the destination device is accessing the SDI port that you plugged into. If HDMI, make sure that the destination device is accessing the HDMI port that you plugged into
 - Check that the lens cap is not installed onto the camera lens.
 - Check that the iris is not closed.
- Abnormal display of image
 - Check the rotary dial on the back of the camera. Be sure to use a resolution and frame rate that is supported by your software / hardware.
- Image is shaky or vibrating
 - Check whether the camera is mounted solidly or sitting on a steady horizontal and level surface.
 - Check the building and any supporting furniture for vibration. Ceiling mounts are often affected by building vibration more than wall mounts.
 - Any external vibration that is affecting the camera will be more apparent when in tele zoom (zoomed in) settings.
 - Control
- IR Remote controller does not control the camera
 - Does one of the four (4) “Camera Select” buttons (top row of remote) light up when you press any of the buttons on the remote?
 - If not, change the batteries in the remote
 - Are the camera and remote set to the same IR address? When “Display Info” is enabled (within P/T/Z) in the OSD, the camera will display its IR address upon start up. Set the IR remote to the same IR address to control the camera.
 - Try removing other sources of IR interference (e.g., sunlight, fluorescent lighting, etc.)
- Serial communication does not control the camera
 - Make sure the camera is on and functioning with the IR remote controller.
 - Verify that the RS-232 is connected correctly and using the proper pinout.
 - Verify the communication settings of the control software or device (e.g., joystick).
 - Verify that the communication port on the controlling device is activated (e.g., Com port on PC).
 - Verify that all communication settings in the OSD Setup Menu correlate to the commands being used (e.g. VISCA address).