NewTek NDI® PTZUHD

4K Video Camera

Operating Instructions

NDI®

Table of Contents

Section 1 INTRODUCTION AND SETUP

This section explains how to connect and configure your NewTek NDI®|HX PTZUHD camera. It also explains how to update the device, and where you can find additional NDI software to extend your workflow. After completing this short section, you'll be all set to begin using your new camera.

1.1 OVERVIEW

Thank you for purchasing this NewTek™ product. NewTek is proud of its record of innovation and commitment to excellence in design, manufacture, and superb product support.

NewTek provides some of the most advanced live production tools available, and we are confident you will find them exceptionally powerful and versatile.

Your NewTek camera delivers amazing functionality in a compact package. Prosumers and video professionals alike will appreciate the convenience and flexibility it provides in connection with video production and capture.

Unlike typical cameras, PTZUHD leverages the ground-breaking benefits of the NDI-based IP workflow supported by leading video software and hardware developers around the globe. This manual will assist you to install and configure your new product.

1.2 GETTING READY

Your NewTek PTZUHD device uses the NDI®|HX protocol for audio/video transmission, and more.

Your first step will be to install NDI|HX drivers if using a TriCaster, or Microsoft HEVC decode on non-TriCaster systems, as appropriate for your computer platform or device:

1. Navigate to ndi.tv/formats in your web browser, and follow the relevant directions to download and install the drivers for your computer platform.

    NOTE: The NDI|HX driver also installs NewTek's NDI Studio Monitor application, which will not only display the output of your camera, but provide easy access to its settings. It even includes built-in PTZ controls.

    NOTE: The End User License Agreement under which you use the NDI|HX driver specifies that "you may use up to five (5), and no more than five, copies on separate machines at one time."

2. Optional – for Microsoft Windows® users, downloading and installing the NewTek NDI® Tools pack, available at no cost from ndi.tv/tools/, will provide a very useful array of practical NDI learning tools and utilities.

1.3 MAKING CONNECTIONS
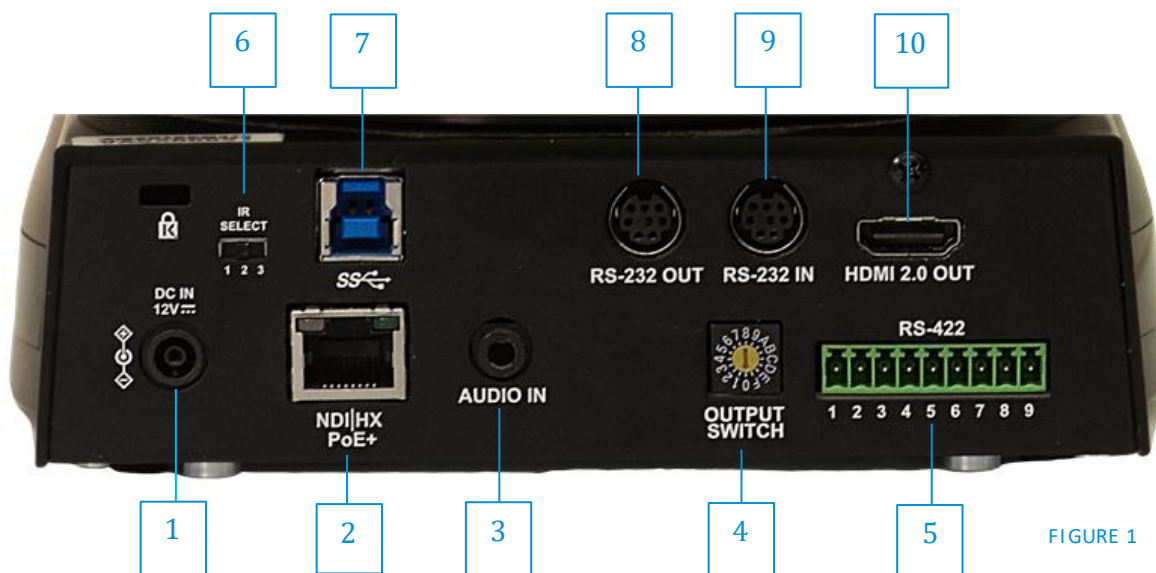
FIGURE 1

1. DC IN 12V
2. RJ-45 Ethernet Port
3. Audio Input
4. Rotary Dial (see chart below)
5. RS-422 Connector

6. DIP Switch
7. USB 3.0 SuperSpeed
8. RS-232 Out
9. RS-232 IN
10. HDMI Out

No.	Resolution	Frame Rate
0	3840 x 2160	59.94
1		50
2		29.97
3		25
4	1920 x 1080	59.94 (default)
5		50
6		29.97
7		25
8	1280 x 720	59.94
9		50
A		Reserved
B		Reserved
C	Reserved	Reserved
D		
E		
F		

Rotary Switch

To use the SDI or HDMI output you will need to make sure the resolution/framerate of the camera is the same as the destination of where you are plugging it in.

There is a rotary dial on the back of your camera, and this is what you need to change to adjust the output of the SDI/HDMI of the camera. The chart on the left tells you what the rotary corresponds to. Be sure the camera is off when you change this dial.

Hint: You will not be able to achieve 4K/60p (HEVC) when ISO Recording in TriCaster. However, you can utilize the MIX recorders while shooting 4K/60p to work around this. (other resolutions/framerates will work fine)

1. Connect the *power supply* line cord to an A/C power outlet, and insert the round power plug into the DC IN 12V socket located at left on the a/v connection panel (Figure 1). Push the power plug into the socket until it is firmly seated.

   Hint: Your PTZUHD supports the Power over Ethernet standard (IEEE802.3at). This allows you to skip the step above if your network supplies DC power by this means.

2. Connect one end of a network cable to PTZUHD's RJ-45 Ethernet port, marked NDI|HX *PoE+* (*Power over ethernet*). Connect the other end of the cable to your network switch or router, or a computer's Ethernet port.

At this point, two lights on the front of PTZUHD's base illuminate as the camera performs a self-test. If this does not happen, check your connections and retry. After a few moments, the standby light will go out, leaving only the power light on.

Hint: These front panel lights do dual duty, serving as Tally lights as discussed later.

Your NewTek NDI® PTZUHD is already sending NDI audio and video to your local network. We'll talk about how to access it soon, but first let's discuss how to manage configuration settings and options.

1.4 WEB CONFIGURATION

NewTek PTZUHD is very easy to configure. In many installations, all you need to do is supply power, connect a video source and your network, and you're ready to go.

Sometimes, though, you will want to access its settings, perhaps to configure login credentials, adjust color balance, and so on.

Note: As web browsers vary widely, you may occasionally find it necessary to delete cached files (sometimes referred to as the browser's "history") before the display refreshes to properly show some recent change. This can happen, for example, after a firmware update.

These settings are made available by means of a configuration webpage, which you can access from any suitable device (i.e., one with a web browser) on the same network.

KEEP READING TO LEARN HOW TO ACCESS YOUR CAMERA'S WEBPAGE.

Some devices provide direct, easy access to PTZUHD's configuration webpage.

For example, when you select its NDI® output as the source for a NewTek TriCaster® input, a convenient "Configure" button is shown. Simply click it to open PTZUHD's web control page.

1.4.1 STUDIO MONITOR

For other platforms, you can use the Studio Monitor application you installed along with the NDI|HX driver or Microsoft HEVC decoder back in Section 1.2.

- Windows platform users can launch Studio Monitor from the Start menu or App list (Figure 2), where it will appear in the folder.

- OS X users will also find a new Studio Monitor application available to them after installing the NDI|HX driver for their platform.
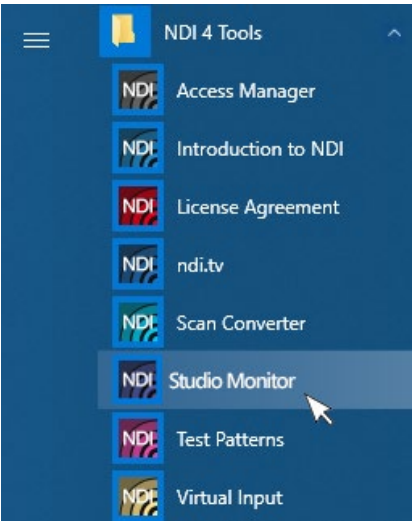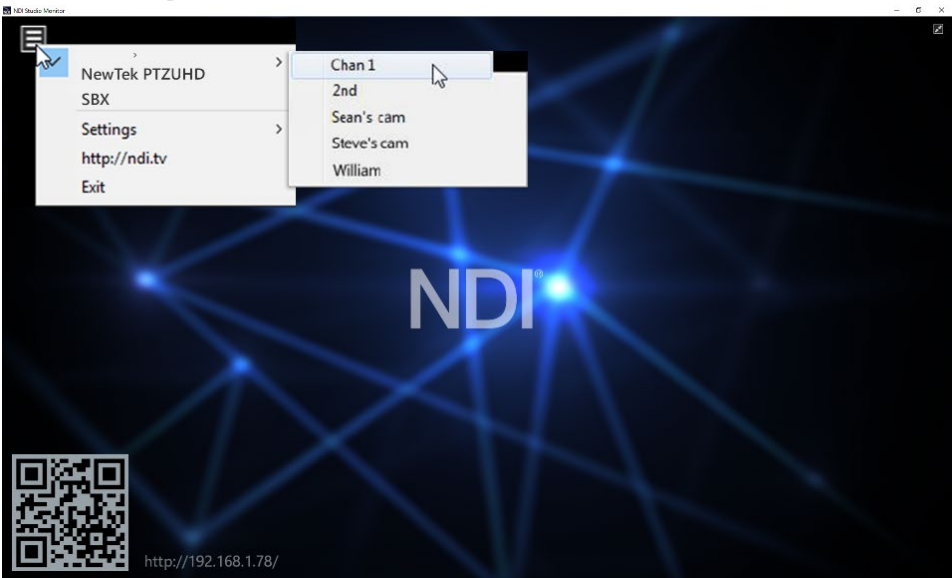
Among its capabilities, Studio Monitor (see Figure 3, which shows the Windows version of the application) detect and display any NDI or NDI|HX sources available on your network.

In the lower bottom left of the Studio Monitor's screen, you will find a QR Code. This gives you an option for mobile management as seen in Figure 4.
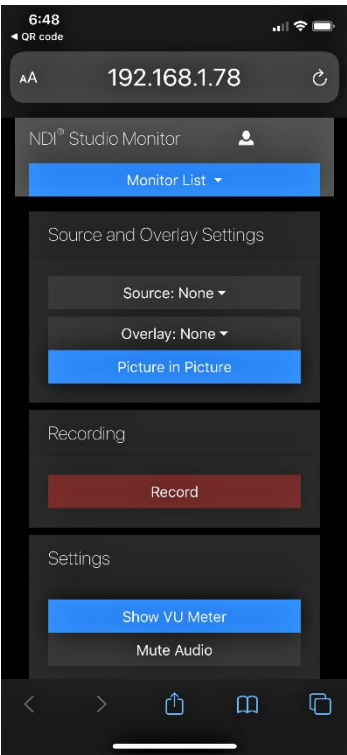
1. Having launched Studio Monitor, click the small menu gadget ('hamburger') at upper left to open the application menu. Among other things, this menu displays all NDI® sources detected on your network.

2. Shortly, you should see a new main entry named PTZUHD listed in the menu. Rolling the mouse pointer over this label shows the individual names for the NDI output channels of any PTZUHD cameras detected on the network.

   Hint: Detection of newly-connected NDI sources can take a few moments; in network settings with a great number of NDI sources available, a complete refresh of the source list can take a minute or even more.

   When the sub-menu lists multiple NDI channels with the same name, the device IP address is shown to further identify them. (NDI users seldom need to bother with mundane matters such as IP addresses. ☺)

   Select the newly listed channel for the camera you wish to configure. In a few moments, its NDI video output will appear in the Studio Monitor window.

3. For NDI sources (like PTZUHD) that supply a configuration web page, Studio Monitor displays a small configuration (gear) icon at lower right when you roll the mouse pointer over it window – Figure 6.

4. Click the gear to open PTZUHD's web page, popping up a request for you to enter login credentials.

LOCATING YOUR CAMERA ON THE NETWORK – OS X™

The process is very similar for OS X users.

1. Having launched the Studio Monitor application, use the File menu to locate a new main entry named PTZUHD. Rolling the mouse pointer over this label shows the individual names for the NDI® output channels of any PTZUHD cameras detected on the network.

   Hint: Detection of newly-connected NDI sources can take a few moments; in network settings with a great number of NDI sources available, a complete refresh of the source list can take a minute or even more.

   When the sub-menu lists multiple NDI channels with the same name, the device IP addresses are shown to further identify them. (NDI users seldom need to bother with mundane matters such as IP addresses. ☺)

   Select the newly listed channel for the camera you wish to configure. In a few moments, its video output will appear in the Studio Monitor window.

2. The Studio Monitor application's Settings menu shows an option near the bottom that lets you open the Device Webpage in your system web browser. Select this item, and continue as follows.

1.4.2 LOGGING IN

Note: If you were unable to detect your camera using the methods described above, refer to the sub-heading Network Settings in Section 1.3.2 for details of an alternative way to locate it on the network.

1. Enter the Username "admin" and the default Password - also "admin".
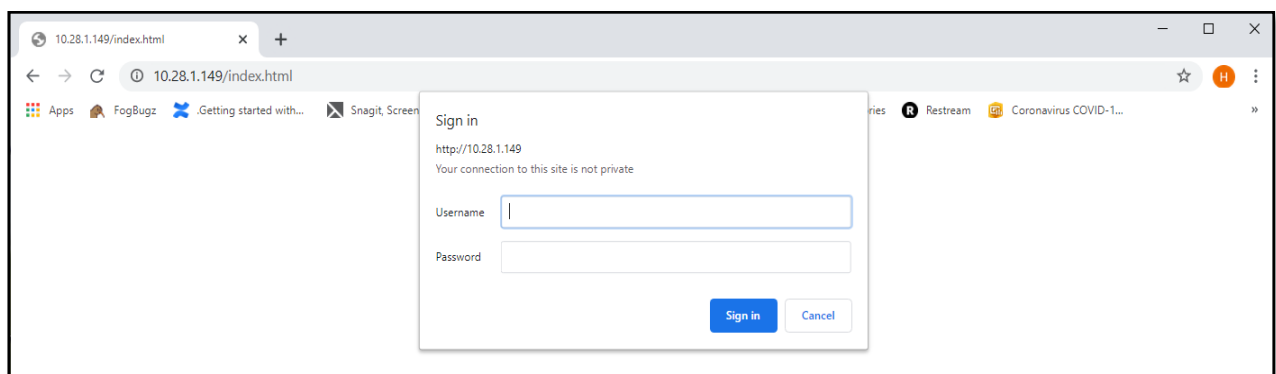
FIGURE 7

1.1 VIDEO SOURCE

After logging in, your camera's options and controls are shown in your web browser (Figure 8).
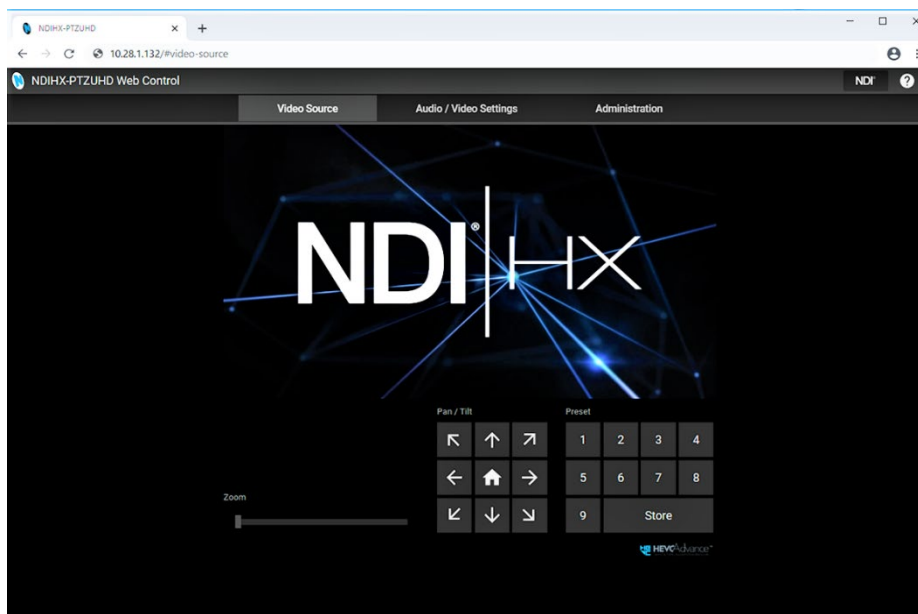
The first tab shown on this web page is labeled Video Source. At the time of writing, a placeholder image substitutes for the 'monitor' on the web page. Below this, you will see:

- Live Pan, Tilt, and Zoom controls
- Preset buttons

Hint: Studio Monitor provides an excellent alternative to almost all of the settings on this first tab.

1.1.1 PAN, TILT AND ZOOM

The Pan, Tilt controls and Zoom slider work much as you would expect.

Likewise, the neighboring preset buttons are easy to use.

Simply click Store followed by a numbered Preset button to store the current PTZUHD position; click the numbered Preset button along to send the camera to the stored position.

FIGURE 9

1.2 AUDIO VIDEO SETTINGS

Click the second web page tab to reveal more advanced Audio/Video Settings (Figure 10).

Expanding the Video Settings control group shows additional nested tabs with various Exposure, Picture, White Balance, and Focus options.

A little lower on the page, you can expand the Audio Settings control group (Figure 11).
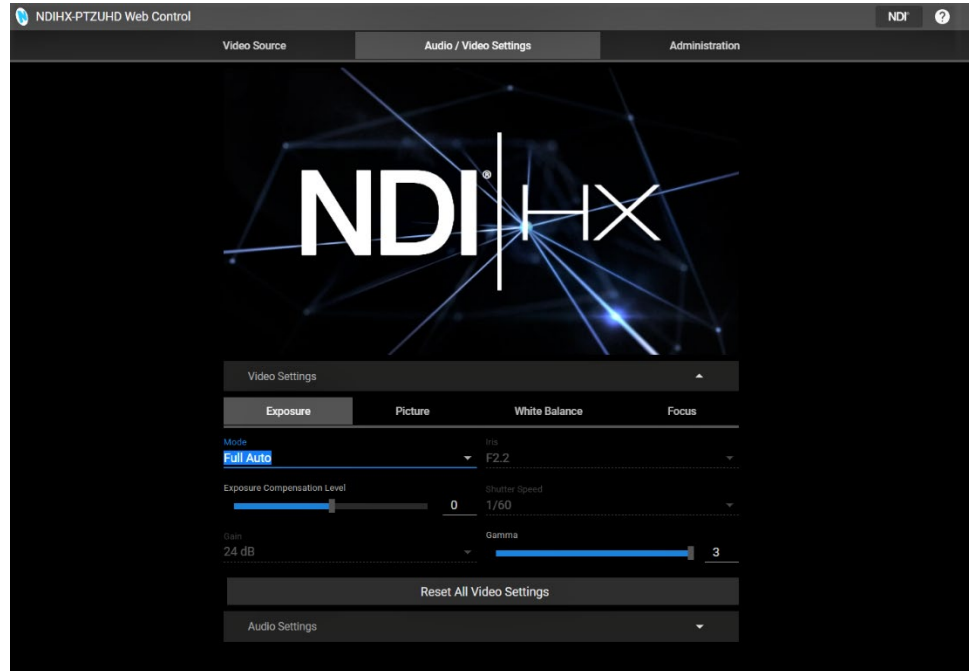
FIGURE 10
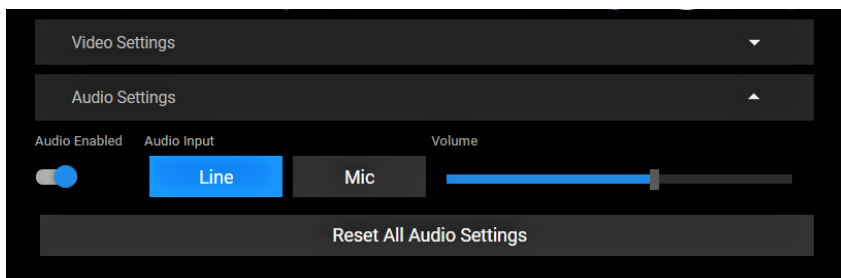
FIGURE 11

This group includes Audio Input level buttons labeled Line and Mic, along with the Volume slider. The switch at left allows you to completely disable audio output.

1.3 ADMINISTRATION

FIGURE 12

The third tab on the configuration web page is labeled Administration. Here you will find information and settings related to your camera, and its network connection.

FIGURE 13

The uppermost section of this tab displays the Device Name and NDI® Channel Name fields, which determine how your camera is identified on your NDI network. These names are editable, allowing you a convenient way to make identify the output of specific cameras to other NDI-enabled devices and systems connected downstream.

You will also see the Hardware and Firmware versions for your camera displayed in this area, along with its unique serial number. Buttons just below allow you to update the installed firmware, modify the default network password, or to power the device down ('sleep').

1.3.1 MULTICAST

FIGURE 14

Click Multicast to transmit video using multicast, rather than the default unicast method. A suitable Multicast address is generated, but you can edit the result manually if you need to. To update the address to another random value, click Generate Address. *Please take time to consider the following information before enabling this feature.*

Multicast can seem like a bandwidth-saving miracle. Unlike NDI's default mode (unicast), multicast does not require a unique stream from the source to each receiver. When using unicast, each connection to the sender reduces the bandwidth available by a similar amount.

By contrast, multicast connections do *not* add significantly to the bandwidth required as connections multiply. You could be forgiven for wondering why anyone would ever turn this option off - yet, it is off by default. Why?

This is because multicast requires more careful network configuration. While you might not notice any issues in a simple network setting; a poorly configured environment can have serious impact on more complex networks.

- Specifically, it is essential that IGMP snooping be enabled for each switch on the network. This lets the device listen to traffic between other hosts, switches and routers, and identify receiving ports using various IP multicast streams.

- In addition, we strongly recommend that all network switches be of the 'managed' type (see the sidebar "Managed vs. Un-managed").

Managed vs. Unmanaged

An un-managed (a.k.a., 'dumb') network switch will cause a multicast stream to revert to unicast. This can have serious ramifications.

For example, even though a device broadcasts a multicast stream, the un-managed switch will pass *unicast* packets to downstream switches and clients. This can flood parts of the network with unnecessary traffic. It can even slow down the rest of the network, as upstream devices are forced to wait for responses from the over-saturated devices.

The net result of such a poor setup can be likened to a self-inflicted denial of service attack.

1.3.2 NETWORK SETTINGS

| Network Settings | ▼ |
| Camera Date / Time | ▼ |
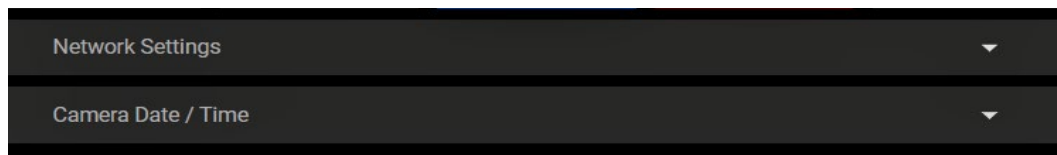
FIGURE 15

Controls in the Network Settings section will be familiar to anyone who has connected a computer or mobile device to a network, and thus require little explanation.

Typically, your network will be configured to automatically supply IP addresses to devices you connect to it by means of a DHCP server. Your camera's IP Address resolution method is set to Dynamic by default, to take advantage of this scheme. To assign a static IP address to your PTZUHD, change the IP Address setting to Manual.

> *NOTE: Should the default IP Address mode (Dynamic) fail to provide a usable IP address within a minute or two of powering up – as when an active DHCP server is not found on the network – PTZUHD will automatically switch to Manual mode and attempt to connect using a static IP address. The default IP address is 192.168.100.168.*

1.4 TALLY

Your camera unit provides 'tally' notification from NDI® devices supporting it. The Power and Standby lights are located on the top of the camera's head, as well as the front of the pedestal base. Both locations light up in red or green to tell you when video output from the device is visible on the Program output or Preview, as listed in the following table.

POWER	STANDBY	Indicates (tally state)
Green	Off	On preview
Red	Red	On program
Green	Red	On program and preview
Off	Off	Not on output

Section 2 REMOTE CONTROL & OSD

Some of the more exotic settings and options available on your NDI®|HX PTZUHD are supported by means of the onscreen display, and accessed via the included remote control. This section first describes the features of the latter, then provides a full list of options and settings in the 'OSD'.

2.1 REMOTE CONTROL

The following table identifies the various controls and buttons on your NDI® PTZUHD remote control.

Item	Description
◀,▶,▲,▼	Pan or tilt the camera
Back Light	Enable/Disable backlight compensation
Camera select	Control 1 ~ 3 of VC-A50P
Auto	Auto focus
Focus: Manual, Far, Near	Turn on manual focus to adjust the focal length using the Far and Near buttons
Freeze	Freeze the screen
Home-Enter	Go back to the main page / Execute
Info	Status information
L/R Direction Set	L/R Direction / Normal
Menu	Display OSD menu
Mirror	Rotate the image (OFF / Mirror / Flip / Rotate)
Pan/Tilt Reset	Clear the Pan / Tilt setting
Picture	Image effect: OFF / NEG / Black & White
Power	Power Switch
Preset	Select a Preset (0 ~ 9) to store the current position data
Reset	Select a Preset (0 ~ 9) to clear
Zoom-Fast	Adjust image size
Zoom-Slow	Fine-tune image size

2.2 OSD MENU

Press the Menu button on the remote control to display the OSD (On Screen Display) and settings menu over your live video on PTZUHD's <u>hardware</u> video output (SDI or HDMI).

Hint: The bold underlined values in the following table are the defaults.

The following tables detail the options available to you in the OSD settings menu.

Level 1	Level 2	Level 3		Description
Exposure	Mode	1. Full Auto 2. Shutter Pri 3. Iris Pri 4. Manual 5. White Board 6. **Smooth Auto**		Exposure mode
	Exposure Comp.	On / **Off**		AE Level
	Exposure Comp. Level	-6 ~ **0** ~ 5		Available when **Exposure Comp.** is enabled.
	Shutter Pri	60/30 mode	50/25 mode	
		1/10000	1/10000	
		1/5000	1/5000	
		1/3000	1/3000	
		1/2500	1/2500	
		1/2000	1/1750	
		1/1500	1/1250	
		1/1000	1/1000	
		1/725	1/600	
		1/500	1/425	
		1/350	1/300	
		1/250	1/215	
		1/180	1/150	
		1/120	1/120	
		1/100	1/100	
		1/90	1/75	
		1/60	**1/50**	
		1/30	1/25	
		1/15	1/12	
		1/8	1/6	
		1/4	1/3	
		1/2	1/2	
		1/1	1/1	

	Iris Pri	1. **F1.6** 2. F2 3. F2.2 4. F2.7 5. F3.2 6. F3.8 7. F4.5 8. F5.4 9. F6.3 10. F7.8 11. F9 12. F11 13. F13 14. F16 15. F18		Iris setting
	Manual Gain	1. **0dB** 2. 2 dB 3. 4 dB 4. 6 dB 5. 8 dB 6. 10 dB 7. 12 dB 8. 14 dB 9. 16 dB 10. 18 dB 11. 20 dB 12. 22dB 13. 24dB 14. 26 dB 15. 28 dB 16. 30 dB		Manually set the gain

		60/30 mode	50/25 mode	
	Manual Speed	1/10000	1/10000	Manually set the shutter
		1/5000	1/5000	
		1/3000	1/3000	
		1/2500	1/2500	
		1/2000	1/1750	
		1/1500	1/1250	
		1/1000	1/1000	
		1/725	1/600	
		1/500	1/425	
		1/350	1/300	
		1/250	1/215	
		1/180	1/150	

		1/120	1/120	
		1/100	1/100	
		1/90	1/75	
		1/60	**1/50**	
		1/30	1/25	
		1/15	1/12	
		1/8	1/6	
		1/4	1/3	
		1/2	1/2	
		1/1	1/1	
	Manual Iris	1. **F1.6** 2. F2 3. F2.2 4. F2.7 5. F3.2 6. F3.8 7. F4.5 8. F5.4 9. F6.3 10. F7.8 11. F9 12. F11 13. F13 14. F16 15. F18		Manually set the iris
	Gain Limit	1. 8 dB 2. 10 dB 3. 12 dB 4. 14 dB 5. 16 dB 6. 18 dB 7. **20 dB**		Maximum limit of electronic gain
	Iris Limit	1. F1.6 2. **F2.2** 3. F3.2 4. F4.5 5. F6.3 6. F9 7. F13 8. F18		Maximum limit value of iris

	WDR	1. **Off** 2. 1 3. 2 4. 3 5. 4 6. 5	WDR settings
White Balance	**Mode**	1. **Auto** 2. Indoor 3. Outdoor 4. One Push WB 5. ATW 6. Manual 7. Sodium Lamp 8. 3000K 9. 4300K 10. 5000K 11. 6500K 12. 8000K 13. WideAuto	Select color temperature mode 1. 4000k～7000k 2. 3200k 3. 5800k 4. 1700k～10000k 5. 1700k～10000k 6. Custom 7. 2800k 8. 3000K 9. 4300K 10. 5000K 11. 6500K 12. 8000K 13. 3000k～7000k
	One Push Trigger	**ENTER**	One push trigger
	Manual Red	0 ～ **C** ～ 128	Adjustable when the white balance mode is set to **Manual**
	Manual Blue	0 ～ **C** ～ 128	Adjustable when the white balance mode is set to **Manual**
Picture	**Picture effect**	1. **Off** 2. Neg 3. B & W	Set the picture effect
	Sharpness	0 ～ **C** ～ 15	Adjust the **sharpness** of the image
	2D NR	1. **Auto** 2. Off 3. 1 4. 2 5. 3 6. 4 7. 5	2D noise reduction settings
	3D NR	1. Off 2. Low 3. **Typ** 4. Max 5. Auto	3D dynamic noise reduction settings

	Image Mode	1. Mode 1 2. **Mode 2** 3. Mode 3 4. Mode 4 5. Mode 5 6. Mode 6 7. Custom	Customize desired image modes
	Image Mode Load	1. Mode 1 2. **Mode 2** 3. Mode 3 4. Mode 4 5. Mode 5 6. Mode 6	Adjustable when the *image mode* is set to *Custom*. After selection, the *image mode* parameters are read and applied to *Custom*
	Brightness	0 ~ **C** ~25	Adjustable when the *image mode* is set to *Custom*
	Contrast	0 ~ **C** ~ 25	Contrast adjustment; Adjustable when the *image mode* is set to *Custom*
	Saturation	0 ~ **C** ~ 25	Adjustable in the *Custom Mode*
	Black Level	1. **Off** 2. Type 1 3. Type 2 4. Type 3 5. Type 4 6. Type 5	Adjustable in the *Custom Mode*
	Gamma	0 ~ **C** ~ 3	Adjustable in the *Custom Mode*
	Skin Tone	0 ~ **C** ~ 5	Skin tone setting, adjustable in the *Custom Mode*
Pan Tilt Zoom	Pan/Tilt Limit	ON/**Off**	Turn on/off the angle limit setting
	Pan Right Limit	0 ~ **170**	Limit the right angle
	Pan Left Limit	**-170** ~ 0	Limit the left angle
	Tilt UP Limit	0 ~ **90**	Limit the upward angle
	Tilt Down Limit	**-30** ~ 0	Limit the downward angle
	Pan Flip	On/**Off**	Activate the reverse Pan command
	Tilt Flip	On/**Off**	Activate the reverse Tilt command
	Preset Speed	1. 5 per second 2. 25 per second 3. 50 per second 4. **120 per second**	Set the rotation speed of the cradle head when Preset is executed
	PTZ Speed Comp	On/**Off**	PTZ Speed Compensation

	Zoom Limit	X1 - **X20**	
Dig-Effect	**Mirror**	1. **Off** 2. Mirror 3. Flip 4. Mirror + Flip	Set the mode at which the image is turned
Auto Focus	**AF Sensitivity**	1. Low 2. **Middle** 3. High	Select the AF triggering speed. The higher the speed is, the faster AF is triggered
	AF speed	Fast / **Normal**	Focus speed after AF triggering
	AF Frame	**Full Frame**/Center	AF frame setting, when central area was set as AF frame, focusing will be on the center of the screen. When Full Frame was set as AF frame, focusing will be calculated based on the full screen
	PTZ Assist	1. On 2. **Off**	On: Focus In Manual mode, PTZ will trigger focus. Scene changes do not trigger focus (such as blocking the lens with paper) Off: Focus In Manual mode, PTZ will not trigger focus. Scene changes do not trigger focus, but retain Zoom Tracking (remember the last Zoom focus setting).
Ethernet	**DHCP**	**On** / Off	Enable/Disable DHCP setting using left and right arrow keys and press [ENTER] to apply setting.
	IP Address	**192.168.100.168**	Press [ENTER] to modify the items; select the item to be modified using left and right arrow keys, and modify the value using numeric keys.
	Subnet mask	**255.255.255.0**	Press [ENTER] to modify the items; select the item to be modified using left and right arrow keys, and modify the value using numeric keys.
	Gateway	**0.0.0.0**	Press [ENTER] to modify the items; select the item to be modified using left and right arrow keys, and modify the value using numeric keys.
Audio	**Audio In**	1. **Line In** 2. Mic In	
	Audio Enable	1. Line In 2. **On**	

	Audio Volume	0 - 10	Defaults to 5
	Audio Delay	1. **Off** 2. On	
	Audio Delay Time	**-1ms** to -500ms	
System	Prompt	On / **Off**	Turn on/off the prompt information on the display
	IR Receive	**On** / Off	Turn on/off the infrared reception
	Motionless Preset	On / **Off**	When the function is enabled, the screen will Freeze when Preset is executed. Freeze will be released after Preset is completed.
	Tally Lamp	**Enable** / Disable	Turn on/off the Tally Mode
	Audio In	**Line In**/Mic In	Set Audio In
	Audio Enable	On / **Off**	Turn on/off sound output
	Audio Volume	0 ~ **C** ~ 10	Volume Setting
	Language	1. **English** / Chinese	Language
	Initial Position	**Last Mem** 1st Preset	On bootup, return to the last position or Preset1
	Control Device	Encoder / **Controller**	Control Device: Controller: acceleration on Encoder: acceleration off
	Protocol	1. **Protocol V** / Protocol PD	Protocol V: VISCA Protocol PD: PELCO D
	PD Address	1~ **C** ~255	The Protocol set to PD allows the camera ID address to be assigned
	Factory Reset	On / **Off**	Resume the factory default setting
	FW Upgrade	On / **Off**	Upgrade Firmware
			Display the current setting status
Status			Displays current settings

Of course it is vital that your camera installation be secure and safe. This section provides detailed information to help you ensure your installation poses neither safety nor environmental risks, and provides performance consistent with your expectations.

3.1 PREPARATION

Installation and connection of your camera requires some skill. Please ensure stable and secure mounting of the device, and pay attention to your personal safety and that of any other persons while mounting the unit to avoid any accident.

- Ensure a safety installation environment. Please do not install the device on an unstable ceiling or anywhere the unit would be in danger of falling. Be careful to avoid overhead or hidden hazards.

- Please choose a suitable place for installation of PTZUHD in advance. Please determine an installation place according to requirements which follow in this section.

- It is recommended that the unit be located more than 1 meter away from the object to be captured. Please adjust for a best distance according to the magnification of the lens, confirming the position suits the scene you wish to capture.

- Confirm the unit is a suitable distance from nearby light sources and any visual obstructions.

3.1.1 OTHER PRECAUTIONS

- Handle and transport the unit by its pedestal base. Do not lift, carry or manipulate the camera head by hand, nor manually rotate the camera head (improper handling may damage the camera).
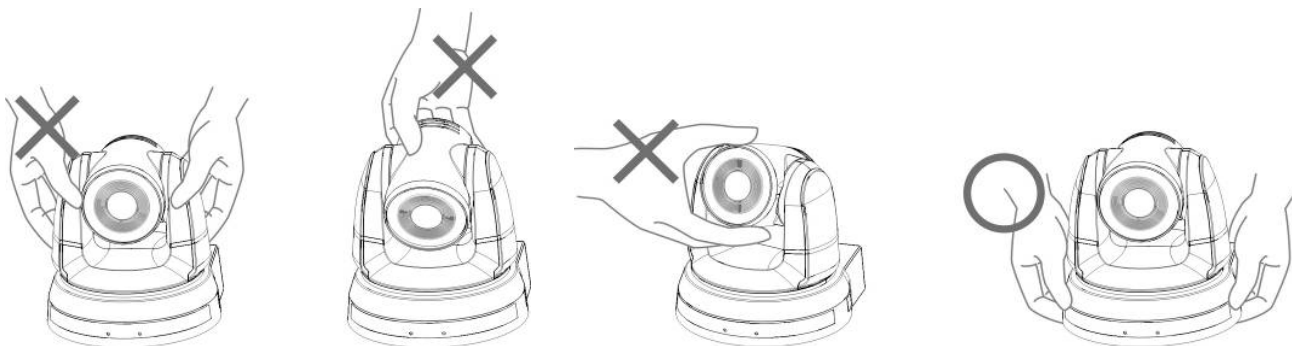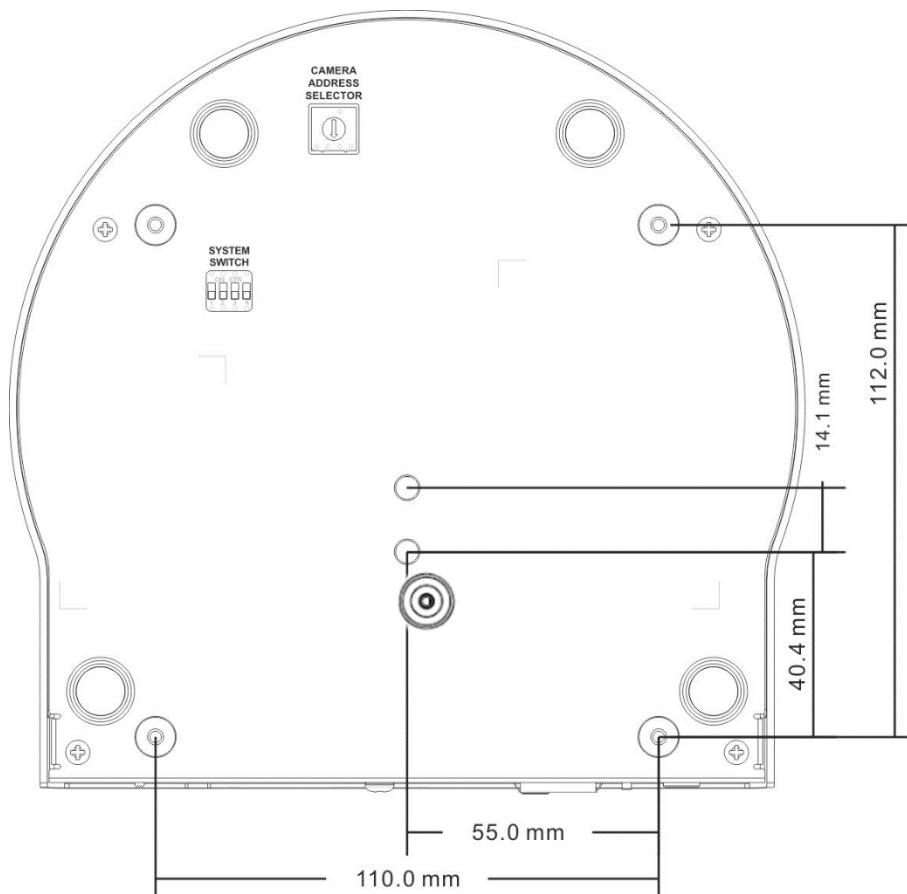

- Locate the parts and equipment required for installation
  o Accessories (metal plates A,B, M3 screw silver x 8, black x 2)
  o Screw for locking on ceiling mounted hanger x 4
  o Drill, screwdriver, ladder

- Length x Width x Height: 170.20 x 187.63 x 226.58 mm
- Weight: .24 kg
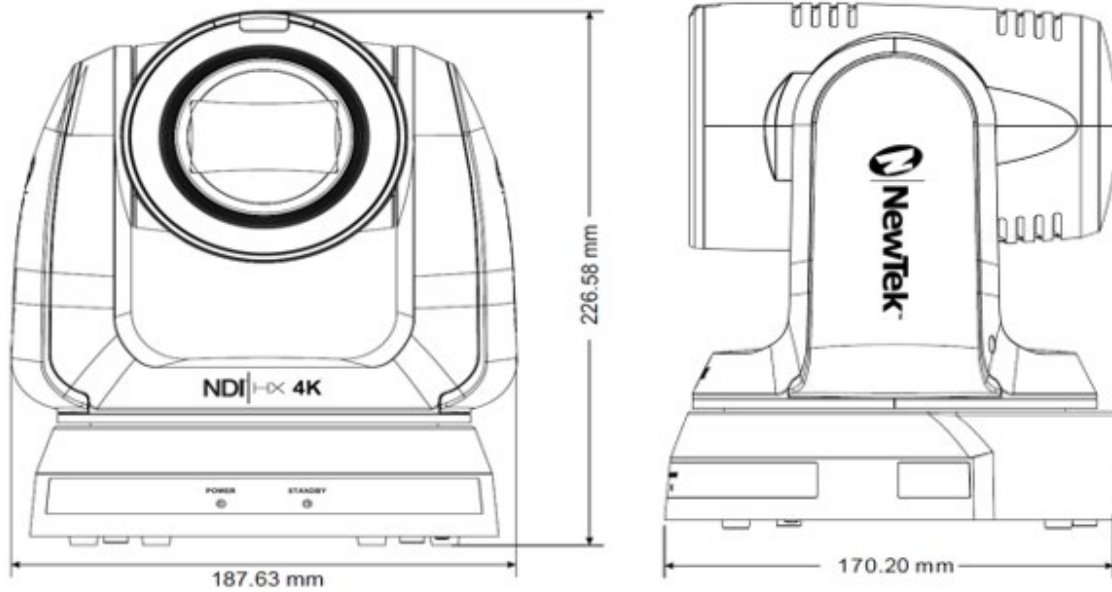
BOTTOM DETAILS

The camera (including mounting plates) weighs about 3.5 kg. If it is to be installed on the ceiling, please use the supplied UL approved hanger, which is designed to prevent the unit from falling.

*NOTE: Please check periodically to ensure the camera is installed securely.*

- Please determine the desired resolution for the camera, and set it using the DIP switches before continuing.

NOTE: The various DIP switch configurations for different output formats are depicted on a sticker on the underside of PTZUHD's pedestal base. Typically, you might choose something like 1080p/59.94, or 1080p/50.

- Attach the metal plate (A) on the machine base using 4x M3 silver screws.

- Lock the metal plate B on ceiling mounted hanger

Caution: Please use supplied UL approved mounting plate.

- Combine the metal plates A and B
  - Push metal plate A up to the ceiling and then to the right to latch the metal plate B;
  - Then secure with 2x M3 silver screws and 1x M3 black screw.

black
screw
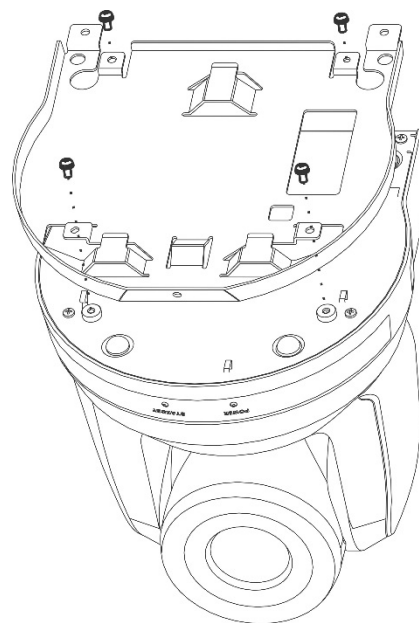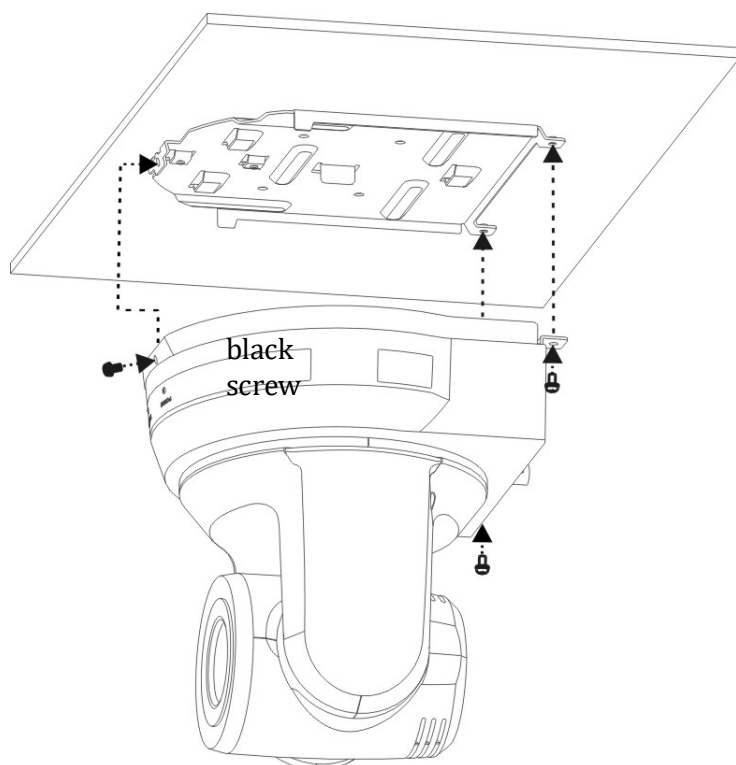
- Remove the connecting wires from the camera.

- Uninstall the camera together with the ceiling, loosen the three screws that fix the metal plates A and B and push to the left to remove the machine.

- Then remove the screws on the hanger and the camera.

- Loosen three screws affixing metal plates A and B, and slide the camera sideways to dismount it.

- Then remove the screws on the hanger and the machine.

NDI is much more than simply 'video over IP'. As you begin using it, you'll increasingly discover its many advantages. Soon you'll realize you never want to go back to simple 'point A to point B' methods of video transport.

This section provides a brief overview of NDI and the power it delivers to unleash your creativity and provide newfound production efficiency.

We live in a world in which virtually every computer system in the world is potentially connected to every other. Likewise, our countless mobile devices are connected too. These devices have high quality screens, fast processors and cameras. It is no surprise, then, that efficient, economical, non-linear video transfer in IP space is augmenting and even superseding traditional linear connection methods (SDI, HDMI, etc.) and systems.

NewTek NDI® (Network Device Interface) makes it easy to share high-quality video over a local Ethernet network. However, the NDI vision is vastly exciting than any mere 'cable upgrade'. Production systems using IP to integrate data, video, and audio are transforming live video production in ways that would have seemed miraculous just a few years ago. You can think of NDI as turning your network into a 'video internet'.

4.1 A 'VIDEO INTERNET'
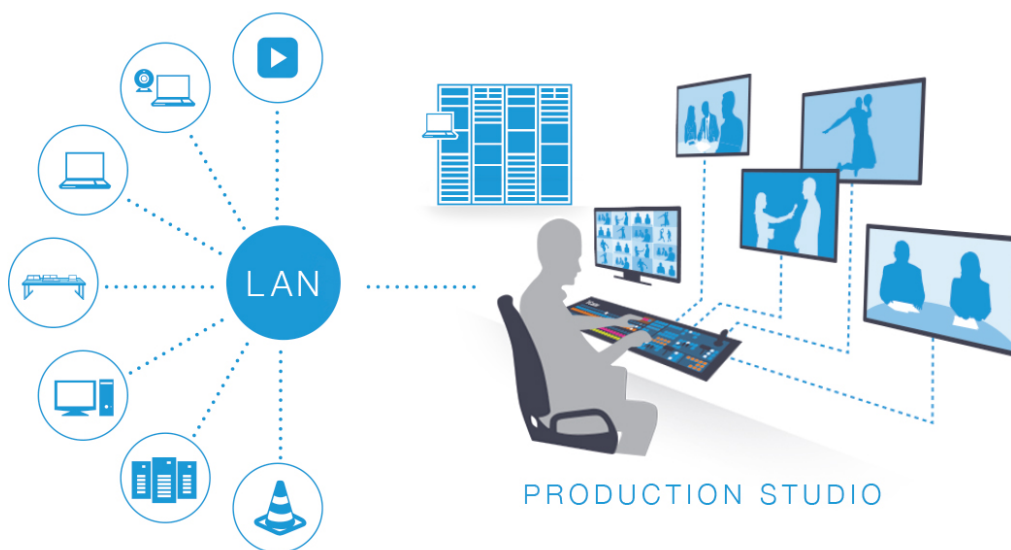
PRODUCTION STUDIO

Like a webpage, each NDI source is instantly available to many viewers and devices. Wherever your network extends – throughout your office, broadcast studio, hospital, campus (etc.) – NDI is ready for immediate display, capture, replay, production, and more. NDI operates bi-directionally over a local area network, and supports many ultra-low latency, ultra-high quality video streams on shared connections. It is resolution and framerate independent, and natively supports tally, metadata, access management, and more.

NDI's superb performance over standard 1Gbit/s networks makes it possible to transition facilities to an incredibly versatile IP video production pipeline without negating existing investments in SDI infrastructure, or costly new high-speed network installations. NDI|HX is a high-efficiency NDI mode expressly designed to facilitate wifi and long distance connections.

4.2 NDI® BENEFITS

The NDI concept is simple: You supply a video source – in this case, an NDI stream from your NewTek NDI|HX PTZUHD. At that point, anyone else on that network can see it and work with it just as if it was a locally connected to their system (unless you deliberately limit access).

In this brave new world of IP video, you hardly need to think about capture cards, SDI, HDMI connections, a/v formats, etc. You also enjoy freedom from dependency on distribution amps, video matrix routers, and the like. There are many hundreds of software and hardware systems with native NDI input and output support – both commercial and open source. Now you can supply your video to these without running bulky cables over long distances.

More than simply replacing a cable, though, NDI enables multiple applications to access the same sources at the same time. For example, you might simultaneously send high-quality, low latency video to your video mixer system, while also streaming it and capturing it elsewhere on your network.

For a deeper introduction to the world of NDI, download and install the free NewTek NDI Tools pack from ndi.tv/tools/, which includes a Getting Started with NDI guide.

4.3 NDI VIRTUAL INPUT

If you installed the NDI|HX driver for Windows®, you were given the opportunity to install NewTek NDI Virtual Input at the same time. This is a very useful application that allows you to make a designated NDI source available on the local as a proxy 'webcam'.

In turn, this means that you can quickly and flexibly assign NDI sources from your network to supply video to applications like Skype™, Google + Hangouts™, GoToMeeting™, and many more.

> *Hint: At the time of installation, you will be asked whether you would like to Virtual Input to be launched automatically when you boot the system. In most situations you may want to choose this option.*

When running, NDI Virtual Input adds a small icon to the Windows task tray (Figure 16).
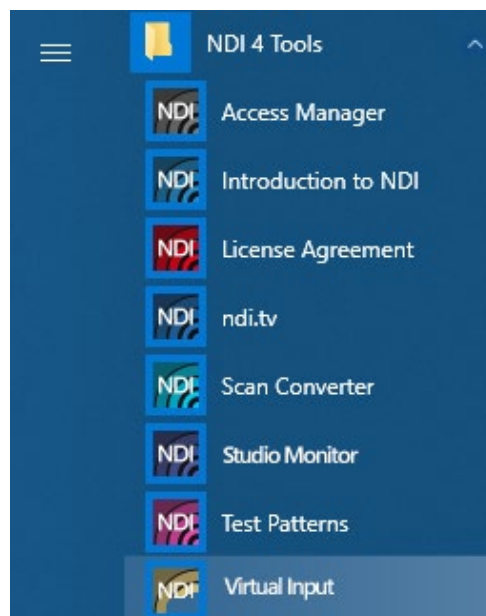
FIGURE 16
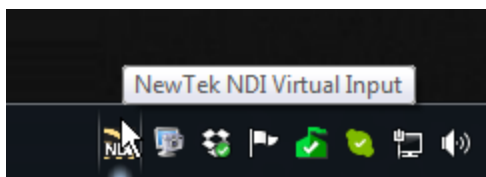
FIGURE 17

Configuring (and using) Virtual Input is very easy:

- Simply right-click the icon to select an NDI® source from your network (Virtual Input requires that at least one NDI|HX source must be detected on the network for this to work).

- The Settings menu item allows you mute or adjust audio levels, or select a Low Bandwidth mode, as you might do to make optimal use of your network when a lower resolution image will suffice.

FIGURE 18

- Afterward, you will see an entry named NewTek NDI Video (or Audio) listed along with any other qualified sources available to applications like Skype™, etc.

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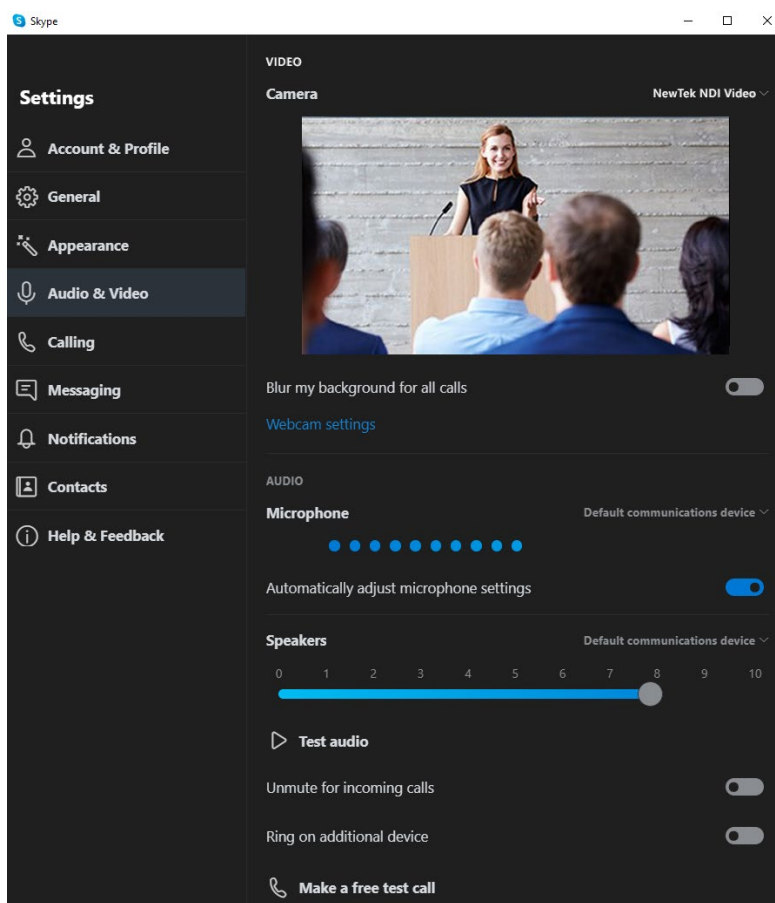TriCaster® TC1, TriCaster® TCXD8000™, TriCaster® TCXD860™, TriCaster® TCXD460™, TriCaster® TCXD410™, TriCaster® Mini™, TriCaster® Mini SDI™, TriCaster® TCXD40™, MDS1, Media DS, VMC1, NC1 IN, NC1 I/O, VMC1 IN, VMC1 OUT, 3Play™ 3PXD4800™, 3Play™ 3PXD440™, 3Play Mini™, 3Play™ 3PXD425™, TalkShow™, NewTek TC1, NewTek VMC1, NewTek NC1 IN, NewTek NC1 I/O, NewTek VMC1 OUT, TalkShow, TalkShow VS 4000, TalkShow VS100, Network Device Interface, NDI, NewTek Connect, NewTek Connect Pro, NewTek IsoCorder, NewTek IsoCorder Pro, NewTek NDI PTZ Camera, NewTek Connect Spark SDI, NewTek Connect Spark HDMI, NewTek NVG1 Vizrt IP Graphics Server, including all Factory Reconditioned versions of the above Products (except TalkShow factory reconditioned products).

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c. You agree that NewTek may share certain information about the use and performance of the TalkShow system with Skype™ and Microsoft

d. As with other software licensed elsewhere in this License, your license of the TalkShow software is limited to the object code only, and all of the provisions of this license apply, including those in paragraph two.

e. You are further prohibited from any transfer, assignment, or sublicensing of the TalkShow software.

Limited Hardware Warranty

This limited warranty covers only the hardware portion of the Product and extends to the original purchaser only. Software with the Product, installed or uninstalled, is licensed to you, not sold, under the separate license agreement, above, that has its own limited warranty terms.

Except for Factory Reconditioned products dealt with hereafter, NewTek warrants that for a period of two (2) years from the date of your original purchase of the Product the hardware shall be free from defects in material and workmanship, subject to the limitations herein. If a defect is determined to be covered by this warranty as determined by NewTek, NewTek will correct it, and may do so using new or remanufactured components.

IF THIS IS AN EVALUATION OR BETA VERSION, YOU ACKNOWLEDGE THAT THE HARDWARE AND MATERIALS ARE ACCEPTED "AS IS" AND MAY NOT BE FREE FROM DEFECTS.

IF THIS PRODUCT IS A FACTORY RECONDITIONED PRODUCT, THE WARRANTY IS LIMITED TO NINETY (90) DAYS. All other terms of the Limited Warranty apply, including exclusions. A Factory Reconditioned product is a refurbished product that has been used and/or returned as trade in or for other reasons. Such products may have replacement parts that are used. Factory Reconditioned products (sometimes referred to as B Stock) will be noted on the Product and/or accompanying product literature as Factory Reconditioned, or with the "B" notation on the front label and/or at initial sign in.

LIMITATIONS ON WARRANTY AND LIMITATIONS ON NewTek's Liability. NewTek's obligations are only as expressly stated herein. NewTek is not liable for loss or damage for inconvenience or interruption of service, loss of business, data or anticipatory profits, or consequential, incidental or punitive damages resulting from the use (or operation) of any of the Product. NewTek's liability is limited solely to the repair or replacement of the defective Product. NewTek is under no obligation or responsibility to enhance or update the product. This warranty does not cover damage or malfunctions resulting from improper handling, accident, misuse, abuse, neglect, electrical surges, failure of electrical power, use with other products not manufactured or approved by NewTek, installation or removal charges or damages, damage while in transit for repair, repair attempted by any unauthorized person, or any other reason not due to defects in materials and workmanship. This warranty is also void if any applicable serial number has been altered, defaced, or removed, OR IF THE PRODUCT WAS PURCHASED UNDER FRAUD OR FALSE PRETENSES.

The hardware and software in this product are designed to work in conjunction with each other. Any termination of the Software License, and any use of the software, or any portion of the software, not in

conjunction with the hardware, will void all warranties and any technical support service otherwise available.

TO THE BEST OF NEWTEK'S KNOWLEDGE, NEITHER THE SOFTWARE NOR THE HARDWARE OF THE PRODUCT INFRINGE ANY PATENT, TRADEMARK, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHTS OF ANY THIRD PARTY; NO WARRANTY IS PROVIDED AGAINST SUCH INFRINGEMENT OR CLAIMS OF INFRINGEMENT. THIS EXCLUSION OF WARRANTY AGAINST INFRINGEMENT IS INAPPLICABLE WHERE SUCH EXCLUSION IS PROHIBITED BY LAW.

To Obtain Warranty Service. To obtain free repair under this warranty, contact NewTek Technical Support for confirmation, at www.newtek.com, or call at 1-210-370-8000, or write to NewTek, Inc. 5131 Beckwith Blvd., San Antonio, TX, USA, 78249 to receive a Returned Materials Authorization (RMA), and deliver the product along with proof of ownership (such as the original invoice, or a photocopy) to NewTek. You will be responsible for any costs associated with the delivery to and from our service center.

Other Legal Disclosures and Limitations. The above warranty is exclusive and in lieu of all other warranties, express or implied. Because so many states have different laws that are ever-changing, and because we have no desire to conflict with these laws, then any term of this warranty or the warranty limitations that is prohibited by applicable law shall not apply. IF ANY STATE PROHIBITS EXCLUSION OF ANY IMPLIED OR OTHER WARRANTY, THEN SUCH MANDATED IMPLIED OR OTHER WARRANTY SHALL BE LIMITED TO SUCH WARRANTY CLAIMS BEING BROUGHT WITHIN TWO (2) YEARS FROM DATE OF PURCHASE.

ALL ACTIONS ON ANY BREACH OF WARRANTY OF ANY KIND MUST BE BROUGHT WITHIN TWO (2) YEARS OF DATE OF PURCHASE AND ANY LONGER STATUTE OF LIMITATION SHALL NOT APPLY. Some states do not allow limitations on how long an implied warranty lasts or the exclusion of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

The above warranty limitations will not apply in case of personal injury only where and to the extent that applicable law requires such liability.

For certain purchasers in Australia of certain of our Products governed by the Australian Consumer Law, the following applies:

"Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. Goods presented for repair may be replaced by refurbished goods of the same type rather than being repaired. Refurbished parts may be used to repair the goods. If you have any questions, please contact NewTek at the above address. If goods covered by this Limited Warranty are defective, NewTek will reimburse you for the reasonable direct costs which you incur in making your claim subject to you providing us with original receipts of those direct costs with your claim."

This Limited Hardware Warranty will be construed under the laws of the State of Texas, USA, except for that body of law dealing with conflicts of law. If any provision shall be held by a court of competent jurisdiction to be contrary to law that provision will be enforced to the maximum extent permissible and the remaining provisions of this Limited Warranty will remain in full force and effect.

CREDITS

Acknowledgments: Tim Jenison, Jim Plant

Engineering: Andrew Cross, Alvaro Suarez, Artem Skitenko, Brian Brice, Cary Tetrick, Charles Steinkuehler, Dan Fletcher, Heidi Kyle, Ivan Perez, James Killian, Jarrod Davis, Jeremy Wiseman, John Perkins, Karen Zipper, Kevin Rouviere, Kirk Morger, Mahdi Mohajer, Matt Gorner, Menghua Wang, Michael Gonzales, Michael Joiner, Michael Watkins, Mike Murphy, Nancy Sanchez, Naveen Jayakumar, Ryan Cooper, Ryan Hansberger, Shawn Wisniewski, Steve Bowie, Troy Stevenson

Additional thanks to: NewTek Marketing, Sales, Business Development, Customer Support, Training and Development, and Operations