



NewTek NDIHX-PTZ2

IP Video Camera



Operating Instructions

NDI|HX

November 28, 2020

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Table of Contents

SECTION 1 INTRODUCTION AND SETUP	1
1.1 Overview	1
1.2 Getting Ready	1
1.3 Making Connections	2
1.4 Web Configuration	2
1.4.1 Studio Monitor	3
1.4.2 Logging In	5
1.5 Video Source	6
1.5.1 Video Bandwidth	6
1.5.2 Pan, Tilt and Zoom	7
SECTION 2 AUDIO VIDEO SETTINGS	7
2.1 Administration	8
2.1.1 Multicast	9
2.1.2 Network Settings	10
2.2 Tally	10
2.3 Lens Hood Installation	10
2.3.1 Install in 5 Simple Steps	11
SECTION 3 REMOTE CONTROL & OSD	13
3.1 Remote Control	13
3.2 OSD Menu	14
SECTION 4 MOUNTING NDIHX-PTZ2	21
4.1 Preparation	21
4.1.1 Other Precautions	21
4.2 Ceiling Mounting	23
4.3 Removal	24
SECTION 5 ABOUT NDI®	25

5.1 A 'Video Internet'	25
5.2 NDI Benefits	26
5.3 NDI Webcam Input.....	26
SECTION 6 END USER LICENSE AGREEMENT	29
CREDITS.....	39

Section 1 INTRODUCTION AND SETUP



This section explains how to connect and configure your NewTek NDI|HX-PTZ2 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 NDIHX-PTZ2 is the best way to acquire live video for input into modern production workflows.

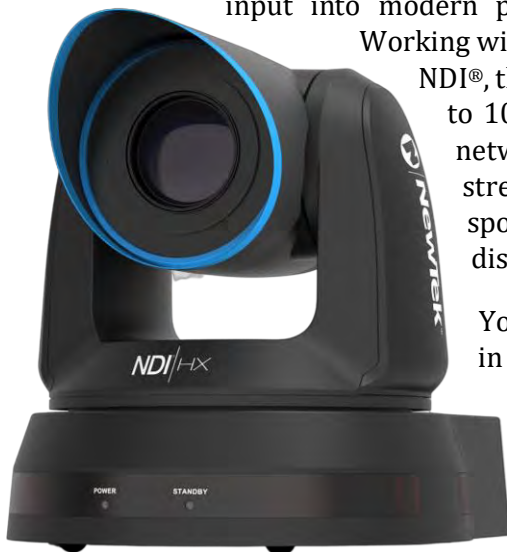
Working with the latest version of

NDI®, this pan-tilt-zoom (PTZ) camera transmits full HD video formats up to 1080p 60 directly to NDI-compatible receiving devices across the network. It is uniquely suited for IP-based live production and streaming, and other single, and multi-camera applications to include sports and event coverage, video conferencing, lecture capture, distance learning, media communications, and surveillance.

Your NewTek NDI|HX-PTZ2 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, PTZ2 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 PTZ2 device uses the NDI|HX protocol for audio/video transmission, and more.

To download the NDI|HX driver, and receive the latest version of NDI 4.5.3, (at no cost) head over to ndi.tv/tools/ and install the NewTek NDI Tools Pack for Windows or Mac.

The NDI Tools Pack will provide a very useful array of additional NDI apps, including the NDI Studio Monitor application, which will not only display the output of your camera, but provide easy access to its settings, also 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.”

1.3 MAKING CONNECTIONS



FIGURE 1

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 NDIHX-PTZ2 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 PTZ2's RJ-45 Ethernet port, marked NDI|HX. 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 PTZ2'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 NDIHX-PTZ2 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 NDIHX-PTZ2 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 PTZ2'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 PTZ2'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 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 NewTek NDIHX Driver folder.
- OS X users will also find a new Studio Monitor application available to them after installing the NDI|HX driver for their platform.

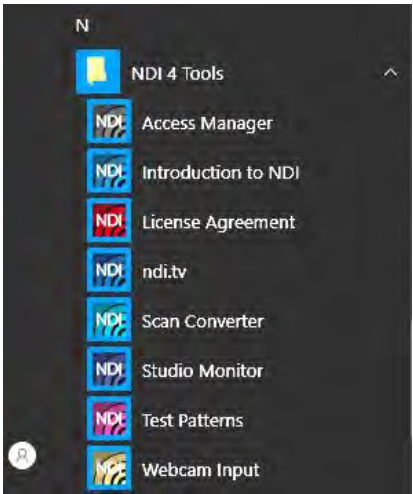


FIGURE 2



FIGURE 3

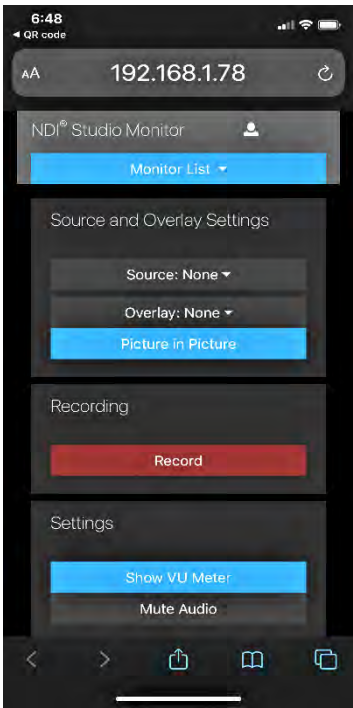


FIGURE 4

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.

LOCATING YOUR CAMERA ON THE NETWORK – WINDOWS®

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 NDI-PTZ2 listed in the menu. Rolling the mouse pointer over this label shows the individual names for the NDI output channels of any NDI-PTZ2 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.



FIGURE 5

3. For NDI sources (like PTZ2) 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 5.



FIGURE 6

4. Click the gear to open PTZ2'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 NDIHX-PTZ2. Rolling the mouse pointer over this label shows the individual names for the NDI output channels of any PTZ2 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 2.1.2 for details of an alternative way to locate it on the network.

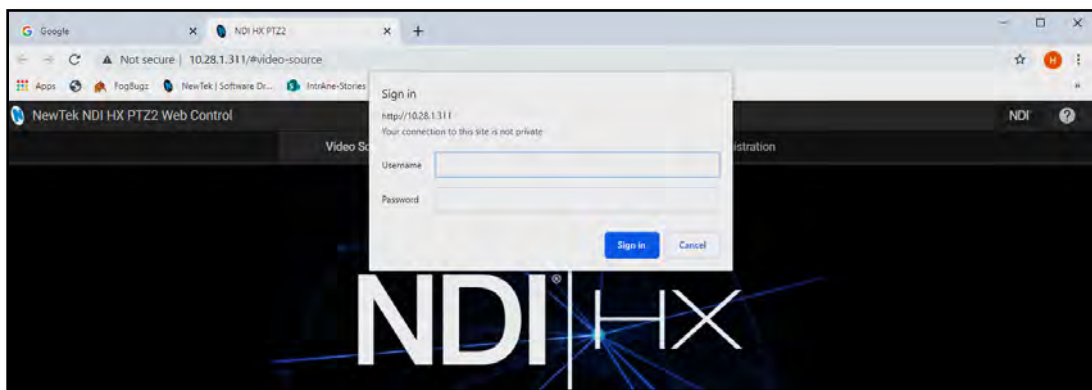


FIGURE 7

1. Enter the User Name “admin” and the default Password - also “admin”.

1.5 VIDEO SOURCE

After logging in, your camera's options and controls are shown in your web browser (Figure 8).

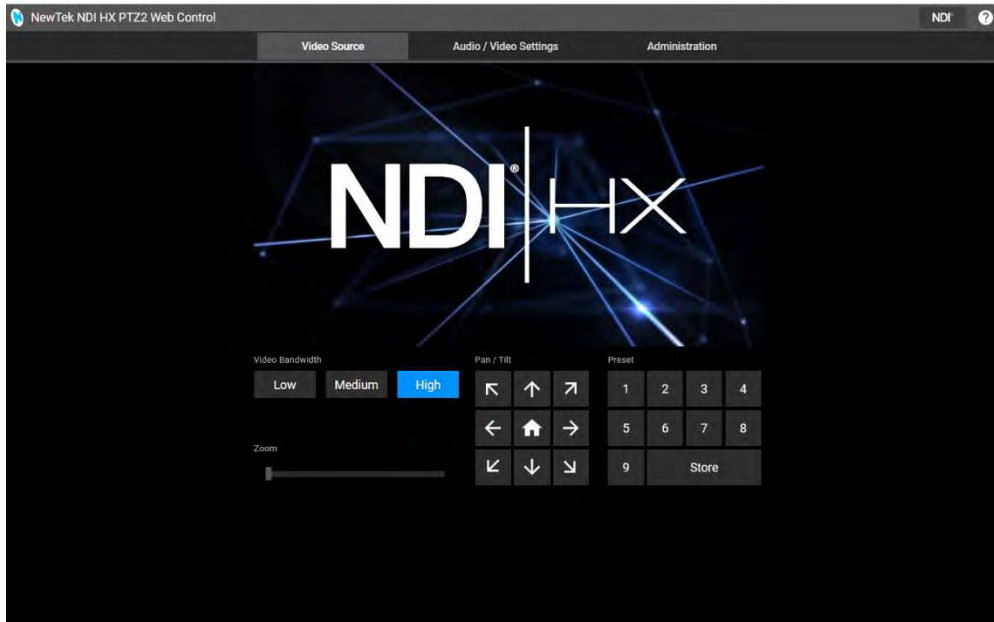


FIGURE 8

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:

- Video Bandwidth buttons
- 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.

1.5.1 VIDEO BANDWIDTH

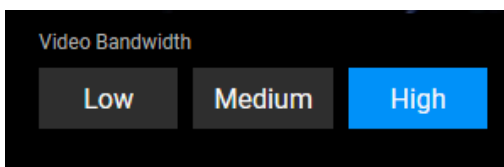


FIGURE 9

Video Bandwidth controls (Figure 9) allow you to select between the default High bandwidth output, or Medium and Low reduced bandwidth options which, dependent on your network throughput capabilities and other traffic, or size of the image required to display on the receiver, may work better for you.



FIGURE 10

The highest Video Bandwidth setting outputs the same video format as you have selected using the Output DIP switches, located near the 3G-SDI connector on the camera's connector panel.

NOTE: The various DIP switch configurations for different output formats are depicted on a sticker on the underside of PTZ2's pedestal base. Typically, you might choose something like 1080p/59.94, or 1080p/50.

From left to right, the other Bandwidth options correspond to SD and 720P output formats.



FIGURE 11

1.5.2 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 PTZ2 position; click the numbered Preset button along to send the camera to the stored position.

Section 2 AUDIO VIDEO SETTINGS

Click the second web page tab to reveal more advanced Audio/Video Settings (Figure 11).

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 12).

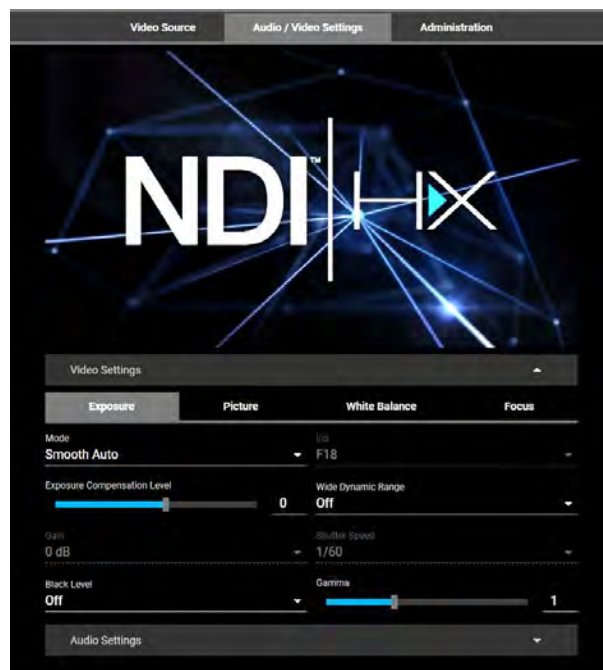


FIGURE 12

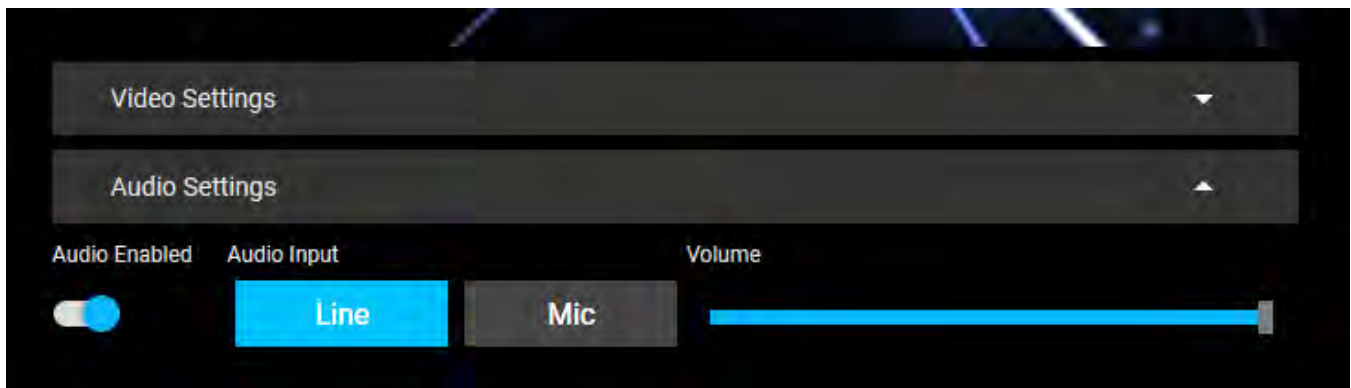


FIGURE 13

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.

2.1 ADMINISTRATION



FIGURE 14

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.

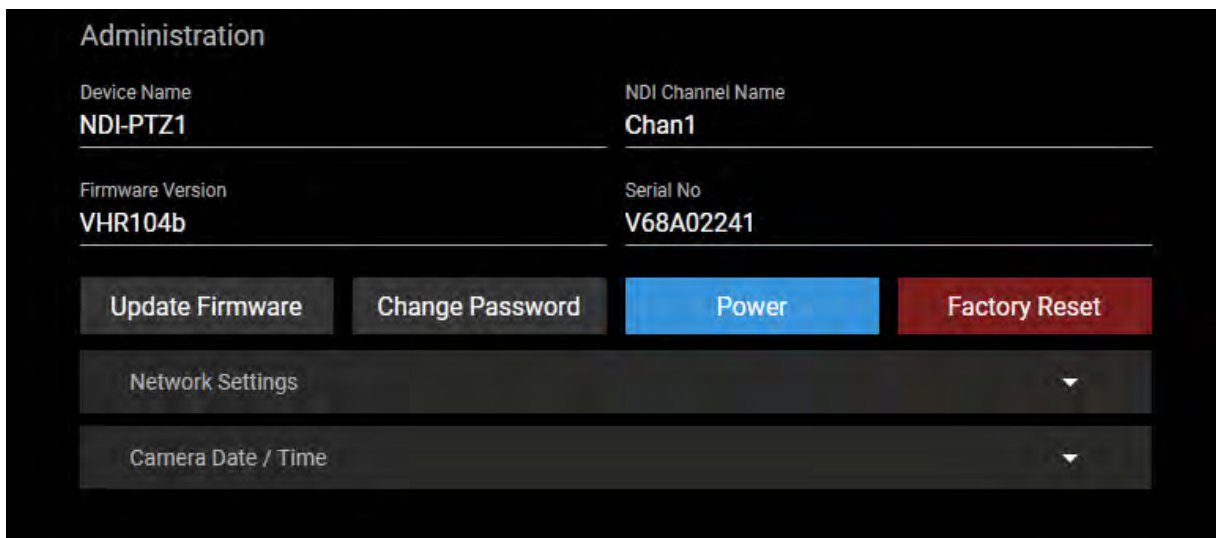


FIGURE 15

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').

2.1.1 MULTICAST



FIGURE 16

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 Apply. *Please take time to consider the following information before enabling this feature.*

MULTICAST OR UNICAST?

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.

2.1.2 NETWORK SETTINGS



FIGURE 17

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 PTZ2, 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 – PTZ2 will automatically switch to Manual mode and attempt to connect using a static IP address. The default IP address is 192.168.100.168.

2.2 TALLY

Your camera unit provides 'tally' notification from NDI devices supporting it. Specifically, the Power and Standby lights and located on the front of the pedestal base 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

2.3 LENS HOOD INSTALLATION

There are rare occasions when a light source near the camera enters at such an angle it causes lens glare. If this happens, we have provided an accessory hood that can be installed to remove the glare.

Included in the installation kit: Hood sheet with double-sided tape edge (Figure 19) and Fixing tape.



FIGURE 19

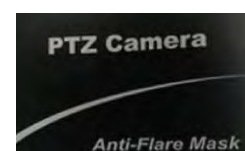


FIGURE 18

Step 1

Take the hood sheet and remove the double-sided tape from one end using the tab.

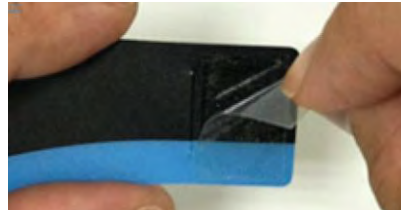


FIGURE 20

Step 2

Bend the hood, bringing together the ends and inserting the smaller end into the slot to the left of the adhesive area. Once inserted, press firmly to ensure the adhesive sticks.

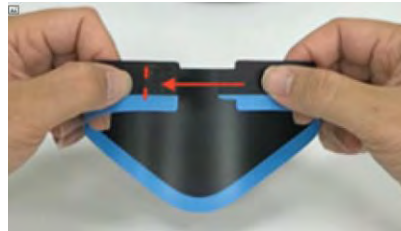


FIGURE 21

Step 3

To attach the hood, align the notch in the hood to where the upper and lower lens cover meet. Push the hood onto the camera as shown.



FIGURE 22

Step 4

Align the bottom edge of the hood to the front of the lens and then move to the top position. Here, align the bottom edge of the hood to the front of the lens and confirm the alignment by looking at the camera from the side.



FIGURE 23

Step 5

When the hood is in position, place the fixing label on the point where the hood meets the camera casing (Figure 24) to ensure a secure fit.



FIGURE 24



FIGURE 25

Below is what your PTZ2 camera will look like with either option, with and without the hood.



FIGURE 26

Section 3 REMOTE CONTROL & OSD



Some of the more exotic settings and options available on your NDIHX-PTZ2 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'.

3.1 REMOTE CONTROL

The following table identifies the various controls and buttons on your NDIHX-PTZ2 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	L/R Direction / Normal
	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

3.2 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 PTZ2's hardware 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. <u>Smooth Auto</u>		Exposure mode
	Exposure Comp.	On / <u>Off</u>		AE Level
	Exposure Comp. Level	-6 ~ <u>0</u> ~ 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	
		<u>1/60</u>	<u>1/50</u>	
		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. <u>F1.6</u> 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. <u>0dB</u> 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
	Manual Speed	60/30 mode 1/10000 1/5000 1/3000 1/2500 1/2000 1/1500 1/1000 1/725 1/500 1/350 1/250 1/180	50/25 mode 1/10000 1/5000 1/3000 1/2500 1/1750 1/1250 1/1000 1/600 1/425 1/300 1/215 1/150	Manually set the shutter

		1/120	1/120	
		1/100	1/100	
		1/90	1/75	
		<u>1/60</u>	<u>1/50</u>	
		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. <u>F1.6</u> 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. <u>20 dB</u>		Maximum limit of electronic gain
	Iris Limit	1. F1.6 2. <u>F2.2</u> 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. <u>Mode 2</u> 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. <u>Mode 2</u> 3. Mode 3 4. Mode 4 5. Mode 5 6. Mode 6	Adjustable when the <i>image mode</i> is set to Custom . After selection, the <i>image mode</i> parameters are read and applied to Custom
	Brightness	0 ~ <u>C</u> ~ 25	Adjustable when the <i>image mode</i> is set to Custom
	Contrast	0 ~ <u>C</u> ~ 25	Contrast adjustment; Adjustable when the <i>image mode</i> is set to Custom
	Saturation	0 ~ <u>C</u> ~ 25	Adjustable in the Custom Mode
	Black Level	1. <u>Off</u> 2. Type 1 3. Type 2 4. Type 3 5. Type 4 6. Type 5	Adjustable in the Custom Mode
	Gamma	0 ~ <u>C</u> ~ 3	Adjustable in the Custom Mode
	Skin Tone	0 ~ <u>C</u> ~ 5	Skin tone setting, adjustable in the Custom Mode
Pan Tilt Zoom	Pan/Tilt Limit	ON/ <u>Off</u>	Turn on/off the angle limit setting
	Pan Right Limit	0 ~ <u>170</u>	Limit the right angle
	Pan Left Limit	<u>-170</u> ~ 0	Limit the left angle
	Tilt UP Limit	0 ~ <u>90</u>	Limit the upward angle
	Tilt Down Limit	<u>-30</u> ~ 0	Limit the downward angle
	Pan Flip	On/ <u>Off</u>	Activate the reverse Pan command
	Tilt Flip	On/ <u>Off</u>	Activate the reverse Tilt command
	Preset Speed	1. 5 per second 2. 25 per second 3. 50 per second 4. <u>120 per second</u>	Set the rotation speed of the cradle head when Preset is executed
	PTZ Speed Comp	On/ <u>Off</u>	PTZ Speed Compensation

	Zoom Limit	X1 - <u>X20</u>	
Dig-Effect	Mirror	1. <u>Off</u> 2. Mirror 3. Flip 4. Mirror + Flip	Set the mode at which the image is turned
Auto Focus	AF Sensitivity	1. Low 2. <u>Middle</u> 3. High	Select the AF triggering speed. The higher the speed is, the faster AF is triggered
	AF speed	Fast / <u>Normal</u>	Focus speed after AF triggering
	AF Frame	<u>Full Frame</u> /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. <u>Off</u>	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	<u>On</u> / Off	Enable/Disable DHCP setting using left and right arrow keys and press [ENTER] to apply setting.
	IP Address	<u>192.168.100.168</u>	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	<u>255.255.255.0</u>	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	<u>0.0.0.0</u>	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. <u>Line In</u> 2. Mic In	
	Audio Enable	1. Line In 2. <u>On</u>	

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

Section 4 MOUNTING NDIHX-PTZ2



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.

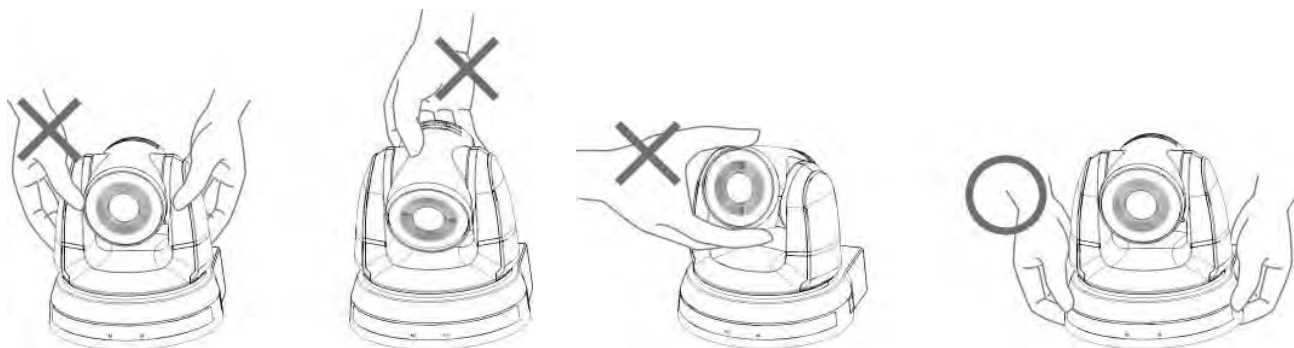
4.1 PREPARATION

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 NDIHX-PTZ2 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.

4.1.1 OTHER PRECAUTIONS

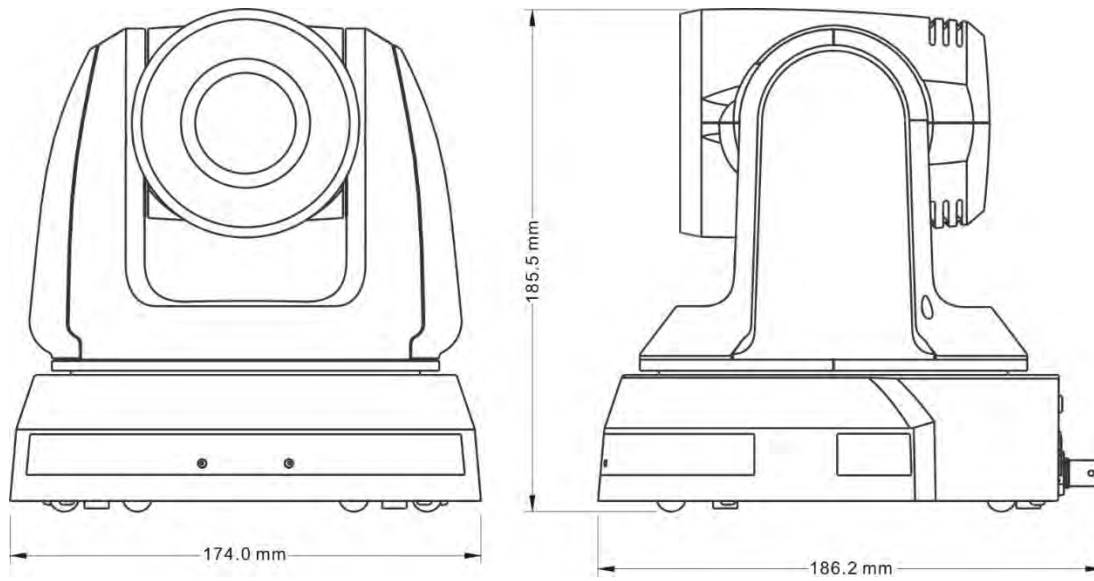
- Handle and transport the unit by its pedestal base. Do not lift, carry or manipulate the camera head by hand, nor manually rotate the camera head (improper handling may damage the camera).



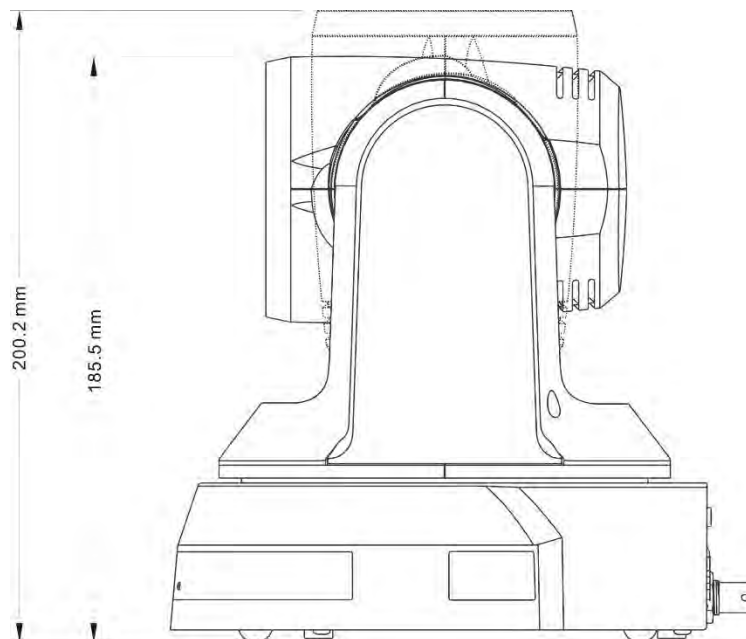
- Locate the parts and equipment required for installation
 - Accessories (metal plates A,B, M3 screw silver x 8, black x 2)
 - Screw for locking on ceiling mounted hanger x 4
 - Drill, screw driver, ladder

DIMENSIONS

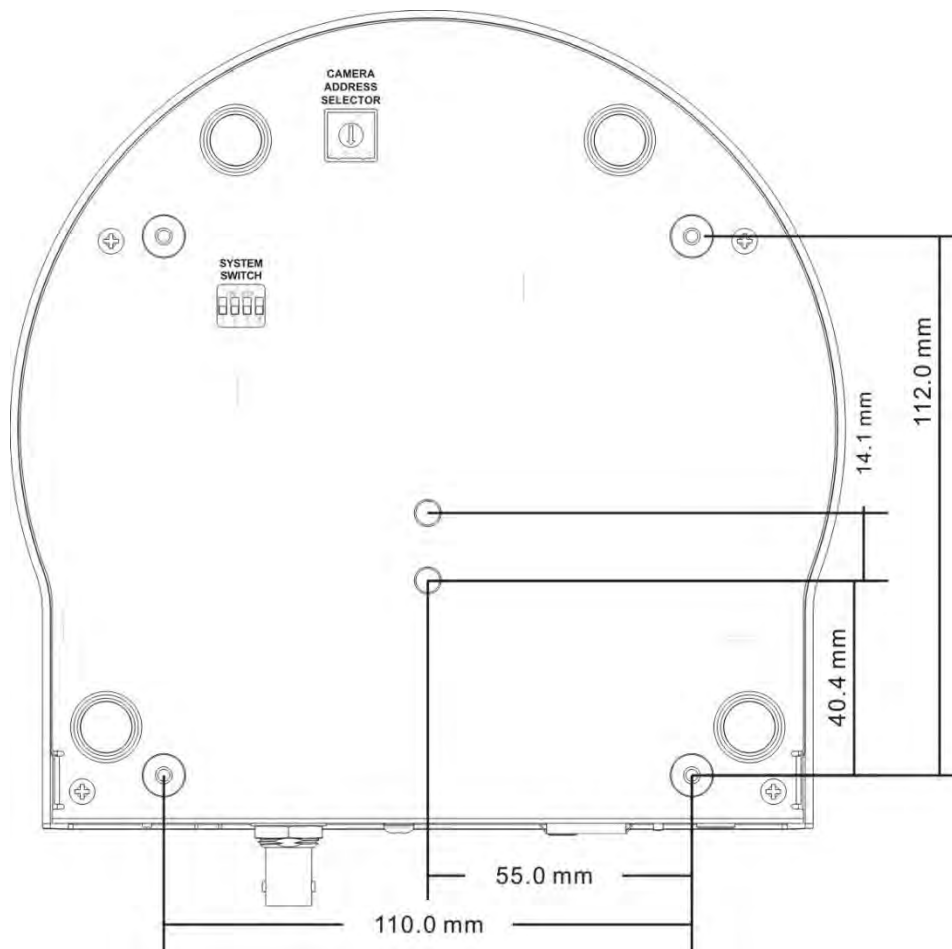
- Length x Width x Height: 174 x 186.2 x 185.5 mm
- Weight: 1.8 Kg



MAX. ROTATIONAL DIMENSION



BOTTOM DETAILS



4.2 CEILING MOUNTING

The camera (including mounting plates) weighs about 2.5 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.

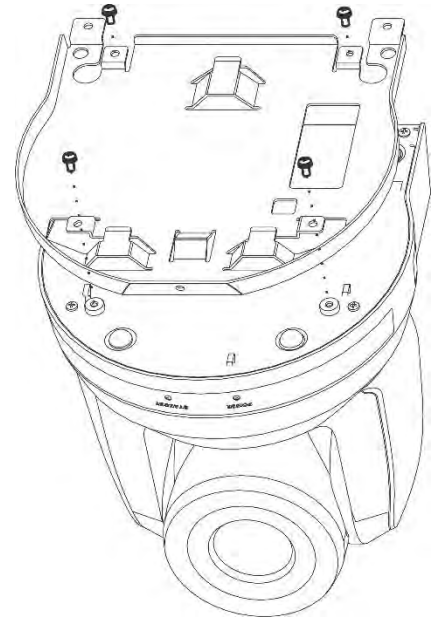
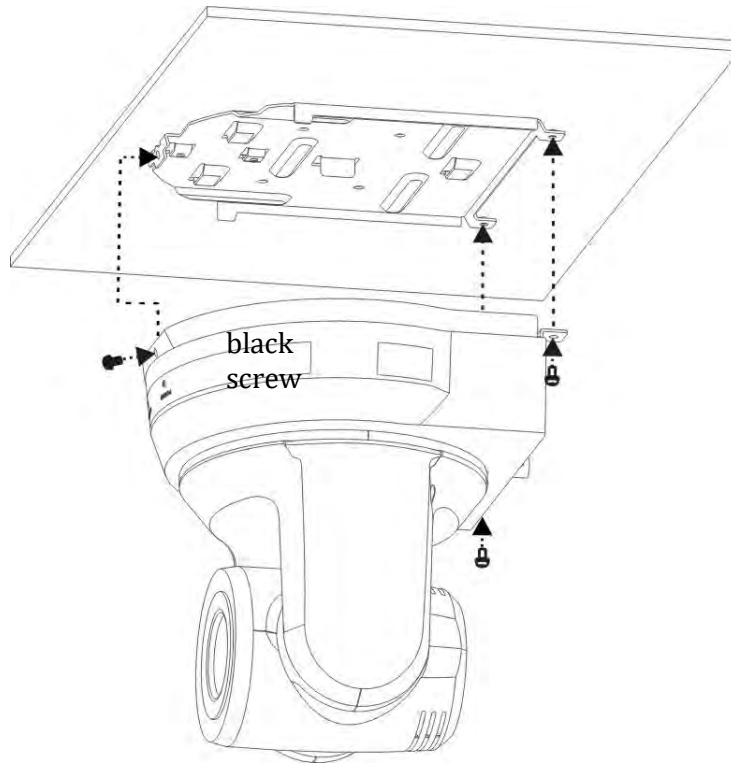
NOTE: The various DIP switch configurations for different output formats are depicted on a sticker on the underside of PTZ2's pedestal base. Typically, you might choose something like 1080p/59.94, or 1080p/50.

- 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.



4.3 REMOVAL

- 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.

Section 5 ABOUT NDI®



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'.

5.1 A 'VIDEO INTERNET'



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.

5.2 NDI BENEFITS

The NDI concept is simple: You supply a video source – in this case, an NDI stream from your NewTek NDIHX-PTZ2. 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.

5.3 NDI WEBCAM INPUT

If you installed the NDI|HX driver for Windows®, you were given the opportunity to install NDI Webcam 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.

When running, NDI Webcam Input adds a small icon to the Windows task tray, and the first time Webcam is opened a launcher applet will walk you through the process. (Figure 28).

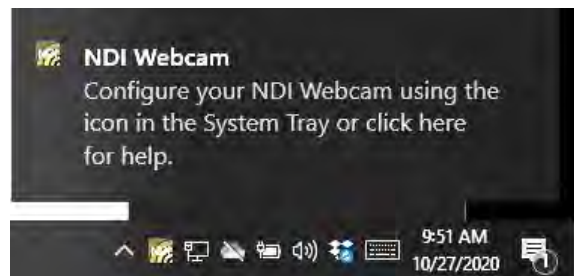


FIGURE 28

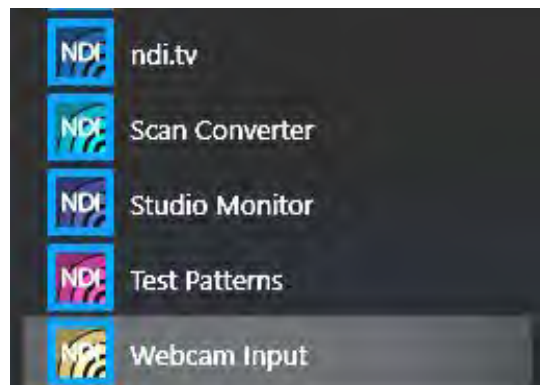


FIGURE 27

Configuring (and using) Webcam Input is very easy:

- Simply right-click the icon to select an NDI source from your network (Webcam 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 to 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.

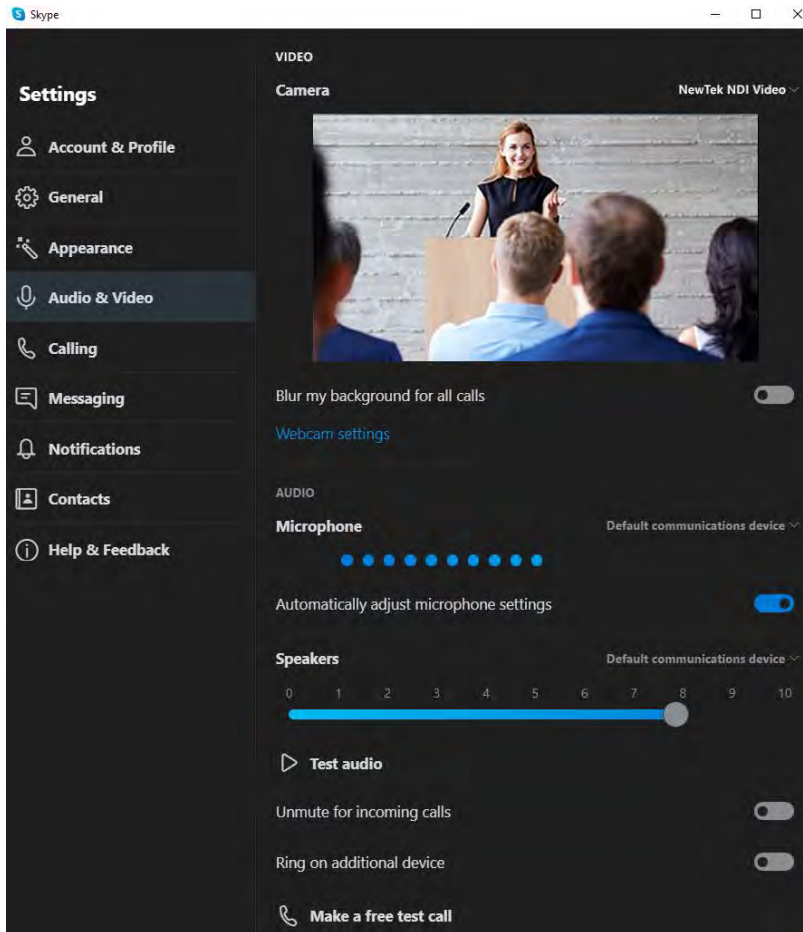


FIGURE 29

- 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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The following additional Limited Warranty terms apply to Australian original purchasers (licensees) only and controls over any expressly contradicting warranty terms above. NewTek warrants to the original Australian purchaser (licensee) of this Software that the recording media on which the software programs are recorded will be free from defects in materials and workmanship for 90 days from the date of purchase. During such period defective media will be replaced if the original product is returned to NewTek at the below address, together with a dated proof of purchase, a statement describing the defects, the faulty media and your return address. This warranty does not apply to the software program itself, which is provided "as is", nor does it apply to media which has been subject to misuse, damage or excessive wear. The benefits to

you by this Limited Warranty are in addition to other rights or remedies you may have under law in relation to the goods to which the warranty relates:

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 www.newtek.com, or call at 1-210-370-8000, or write to NewTek, Inc. 5131 Beckwith Blvd., San Antonio, TX, USA, 78249. 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.

13. Limited Content License.

The following terms apply to the use of the Content that is provided with the TriCaster®. The computer software ("Software"), images ("Images"), printed materials ("Index") and other content files, including any files containing photos, video clips, or music, whether contained on Content CD's or otherwise included with the Product on Content directories or elsewhere, as predesigned images or files of any kind ("Files"), distributed with or in connection with the Products and/or subsequent updates and versions thereof (all such Images and Files collectively called the "Content Data"), are proprietary and all copyrights are owned by NewTek and/or its Licensors. These copyrights are protected under U.S. and International copyright law. NewTek, Inc. ("NewTek") and the parties who granted NewTek special permission to include their respective material as part of the Content Data own and reserve all rights. The Content is for your use only, and not to be distributed in whole or in part by you, with or without being incorporated into any other content or Work, unless expressly granted such right to incorporate the Content Data into your work, granted in writing by NewTek. Certain specific Content Data may have express permissions granted with it. You agree to indemnify and hold harmless NewTek and all of its officers, directors, employees and agents ("Indemnitees") for any and all losses, damages, liabilities, claims, costs or expenses, including reasonable attorneys' fees, incurred directly or indirectly by the Indemnitees in connection with the use of the Content Data for any unlawful, unauthorized or prohibited purpose. You may not sell, sublicense, loan, give, or transfer any part of the Content Data or a copy thereof (except in accordance with the aforementioned permitted use in a work created by you), to another person or company. Under no circumstances shall the Content Data be transferred to third parties through the use of on-line services or networks. The remaining terms of this License apply except where in conflict, in which case the provisions of this Limited Content License shall control.

14. Additional Provisions Pertaining to the TALKSHOW product and software.

In addition to the other terms in this Software License and Limited Warranty, the following terms apply to the TalkShow product and its software:

- a. In order to make or receive Skype calls to be processed using TalkShow and its software, you will need Skype Client Software from Skype™, a Microsoft™ company. You will be directed to create your own Skype™ user account(s) and your use of the Skype client software thereunder will be governed by the standard Skype™ Terms of Use. NewTek is not responsible for that license nor a party to it and you agree to be bound by it and comply with the Skype™ Broadcast Terms of Use as found at:

<http://www.skype.com/en/legal/broadcast/>.

- b. NewTek is solely responsible for the TalkShow product.
- 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.

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

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