



# NewTek NDIHX-PTZ2 IP Video Camera



Operating Instructions

NDI|HX

November 28, 2020

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## Section 1 INTRODUCTION AND SETUP

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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

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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.

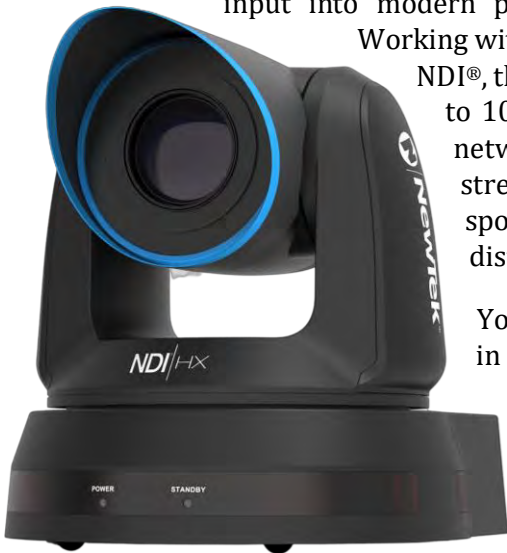
Working with the latest version of

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

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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/](http://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.

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

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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.

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### 1.4.1 STUDIO MONITOR

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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.

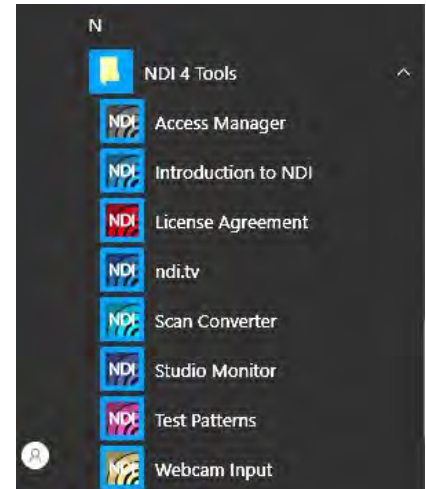


FIGURE 2



FIGURE 3

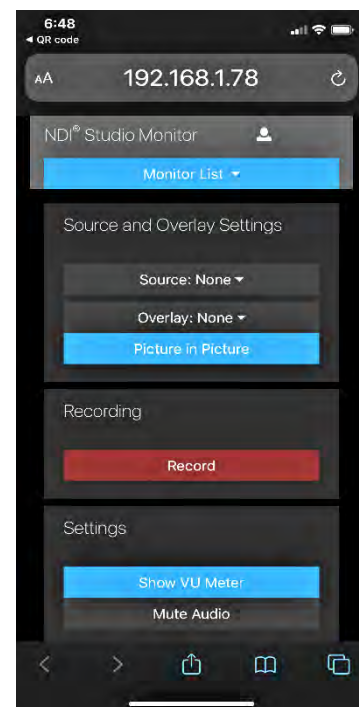


FIGURE 4

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.

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#### LOCATING YOUR CAMERA ON THE NETWORK – OS X™

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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.

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#### 1.4.2 LOGGING IN

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*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.*

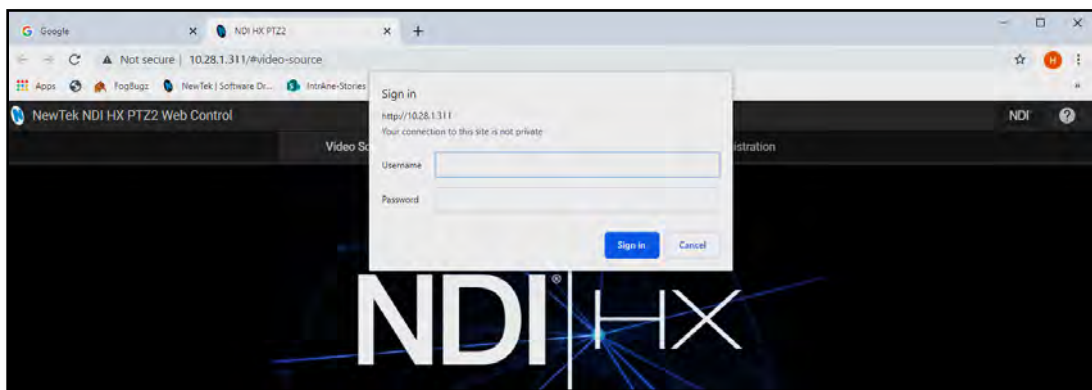


FIGURE 7

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).

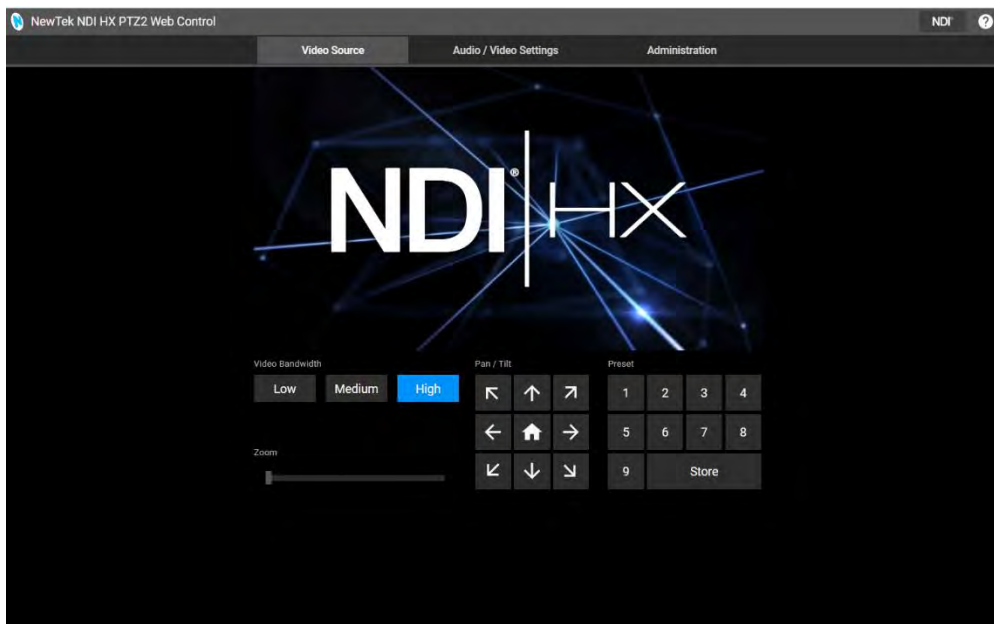


FIGURE 8

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

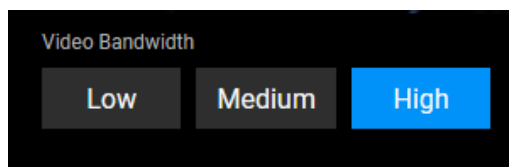


FIGURE 9

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).

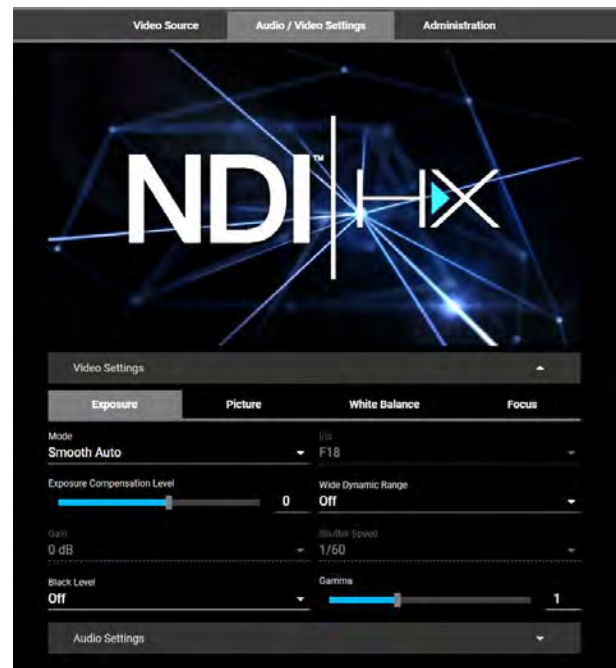


FIGURE 12

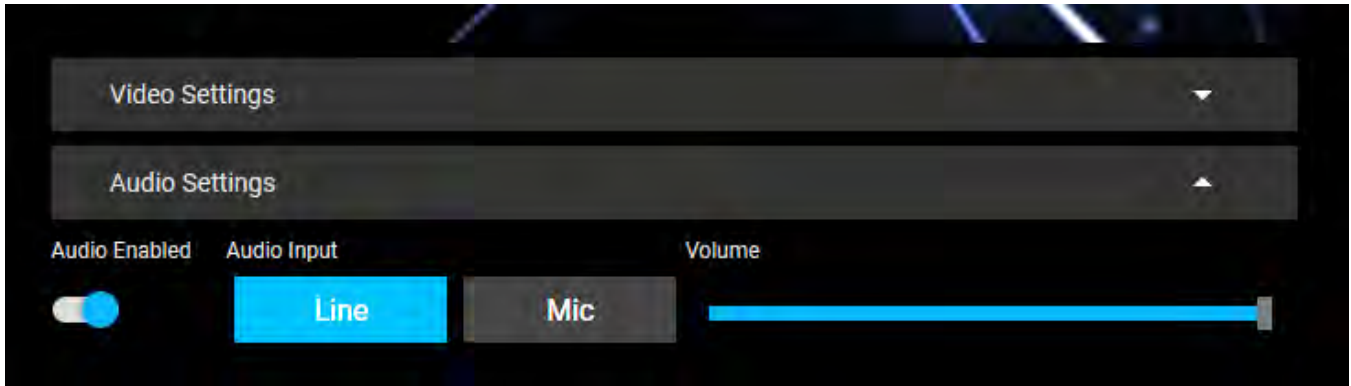


FIGURE 13

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.

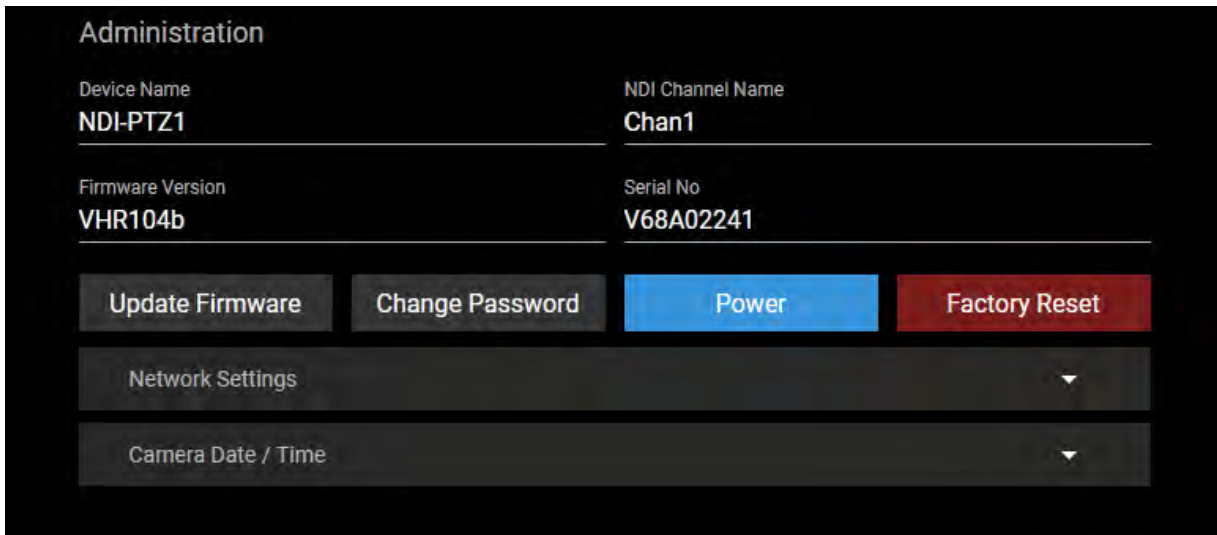


FIGURE 15

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').

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### 2.1.1 MULTICAST

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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.

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## 2.1.2 NETWORK SETTINGS

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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.*

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## 2.2 TALLY

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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

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## 2.3 LENS HOOD INSTALLATION

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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

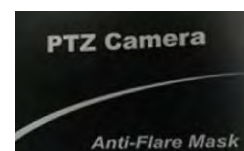


FIGURE 18

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## 2.3.1 INSTALL IN 5 SIMPLE STEPS

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### Step 1

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

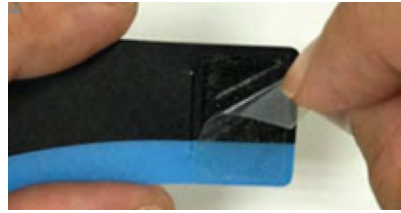


FIGURE 20

### 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.

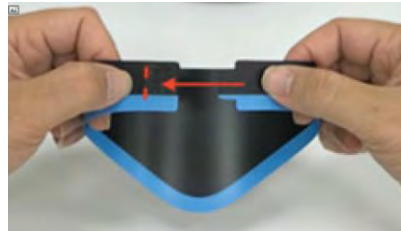


FIGURE 21

### 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 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. <b><u>Smooth Auto</u></b>		Exposure mode	
	Exposure Comp.	On / <b><u>Off</u></b>		AE Level	
	Exposure Level	-6 ~ <b><u>0</u></b> ~ 5		Available when <b>Exposure Comp.</b> 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		
<b><u>1/60</u></b>	<b><u>1/50</u></b>				
1/30	1/25				
1/15	1/12				
1/8	1/6				
1/4	1/3				
1/2	1/2				
1/1	1/1				

	<b>Iris Pri</b>	<ol style="list-style-type: none"> <li>1. <b>F1.6</b></li> <li>2. F2</li> <li>3. F2.2</li> <li>4. F2.7</li> <li>5. F3.2</li> <li>6. F3.8</li> <li>7. F4.5</li> <li>8. F5.4</li> <li>9. F6.3</li> <li>10. F7.8</li> <li>11. F9</li> <li>12. F11</li> <li>13. F13</li> <li>14. F16</li> <li>15. F18</li> </ol>		Iris setting																										
	<b>Manual Gain</b>	<ol style="list-style-type: none"> <li>1. <b>0dB</b></li> <li>2. 2 dB</li> <li>3. 4 dB</li> <li>4. 6 dB</li> <li>5. 8 dB</li> <li>6. 10 dB</li> <li>7. 12 dB</li> <li>8. 14 dB</li> <li>9. 16 dB</li> <li>10. 18 dB</li> <li>11. 20 dB</li> <li>12. 22dB</li> <li>13. 24dB</li> <li>14. 26 dB</li> <li>15. 28 dB</li> <li>16. 30 dB</li> </ol>		Manually set the gain																										
	<b>Manual Speed</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">60/30 mode</th> <th style="text-align: left;">50/25 mode</th> </tr> </thead> <tbody> <tr><td>1/10000</td><td>1/10000</td></tr> <tr><td>1/5000</td><td>1/5000</td></tr> <tr><td>1/3000</td><td>1/3000</td></tr> <tr><td>1/2500</td><td>1/2500</td></tr> <tr><td>1/2000</td><td>1/1750</td></tr> <tr><td>1/1500</td><td>1/1250</td></tr> <tr><td>1/1000</td><td>1/1000</td></tr> <tr><td>1/725</td><td>1/600</td></tr> <tr><td>1/500</td><td>1/425</td></tr> <tr><td>1/350</td><td>1/300</td></tr> <tr><td>1/250</td><td>1/215</td></tr> <tr><td>1/180</td><td>1/150</td></tr> </tbody> </table>		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	Manually set the shutter
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	
		<b><u>1/60</u></b>	<b><u>1/50</u></b>	
		1/30	1/25	
		1/15	1/12	
		1/8	1/6	
		1/4	1/3	
		1/2	1/2	
		1/1	1/1	
	<b>Manual Iris</b>	<ol style="list-style-type: none"> <li>1. <b><u>F1.6</u></b></li> <li>2. F2</li> <li>3. F2.2</li> <li>4. F2.7</li> <li>5. F3.2</li> <li>6. F3.8</li> <li>7. F4.5</li> <li>8. F5.4</li> <li>9. F6.3</li> <li>10. F7.8</li> <li>11. F9</li> <li>12. F11</li> <li>13. F13</li> <li>14. F16</li> <li>15. F18</li> </ol>		Manually set the iris
	<b>Gain Limit</b>	<ol style="list-style-type: none"> <li>1. 8 dB</li> <li>2. 10 dB</li> <li>3. 12 dB</li> <li>4. 14 dB</li> <li>5. 16 dB</li> <li>6. 18 dB</li> <li>7. <b><u>20 dB</u></b></li> </ol>		Maximum limit of electronic gain
	<b>Iris Limit</b>	<ol style="list-style-type: none"> <li>1. F1.6</li> <li>2. <b><u>F2.2</u></b></li> <li>3. F3.2</li> <li>4. F4.5</li> <li>5. F6.3</li> <li>6. F9</li> <li>7. F13</li> <li>8. F18</li> </ol>		Maximum limit value of iris

	<b>WDR</b>	<ol style="list-style-type: none"> <li><b>Off</b></li> <li>1</li> <li>2</li> <li>3</li> <li>4</li> <li>5</li> </ol>	WDR settings
<b>White Balance</b>	<b>Mode</b>	<ol style="list-style-type: none"> <li><b>Auto</b></li> <li>Indoor</li> <li>Outdoor</li> <li>One Push WB</li> <li>ATW</li> <li>Manual</li> <li>Sodium Lamp</li> <li>3000K</li> <li>4300K</li> <li>5000K</li> <li>6500K</li> <li>8000K</li> <li>WideAuto</li> </ol>	Select color temperature mode <ol style="list-style-type: none"> <li>4000k ~ 7000k</li> <li>3200k</li> <li>5800k</li> <li>1700k ~ 10000k</li> <li>1700k ~ 10000k</li> <li>Custom</li> <li>2800k</li> <li>3000K</li> <li>4300K</li> <li>5000K</li> <li>6500K</li> <li>8000K</li> <li>3000k ~ 7000k</li> </ol>
	<b>One Push Trigger</b>	<b>ENTER</b>	One push trigger
	<b>Manual Red</b>	0 ~ <b>C</b> ~ 128	Adjustable when the white balance mode is set to <b>Manual</b>
	<b>Manual Blue</b>	0 ~ <b>C</b> ~ 128	Adjustable when the white balance mode is set to <b>Manual</b>
<b>Picture</b>	<b>Picture effect</b>	<ol style="list-style-type: none"> <li><b>Off</b></li> <li>Neg</li> <li>B &amp; W</li> </ol>	Set the picture effect
	<b>Sharpness</b>	0 ~ <b>C</b> ~ 15	Adjust the <b>sharpness</b> of the image
	<b>2D NR</b>	<ol style="list-style-type: none"> <li><b>Auto</b></li> <li>Off</li> <li>1</li> <li>2</li> <li>3</li> <li>4</li> <li>5</li> </ol>	2D noise reduction settings
	<b>3D NR</b>	<ol style="list-style-type: none"> <li>Off</li> <li>Low</li> <li><b>Typ</b></li> <li>Max</li> <li>Auto</li> </ol>	3D dynamic noise reduction settings

	<b>Image Mode</b>	<ol style="list-style-type: none"> <li>Mode 1</li> <li><b>Mode 2</b></li> <li>Mode 3</li> <li>Mode 4</li> <li>Mode 5</li> <li>Mode 6</li> <li>Custom</li> </ol>	Customize desired image modes
	<b>Image Mode Load</b>	<ol style="list-style-type: none"> <li>Mode 1</li> <li><b>Mode 2</b></li> <li>Mode 3</li> <li>Mode 4</li> <li>Mode 5</li> <li>Mode 6</li> </ol>	Adjustable when the <i>image mode</i> is set to <b>Custom</b> . After selection, the <i>image mode</i> parameters are read and applied to <b>Custom</b>
	<b>Brightness</b>	0 ~ <u>C</u> ~ 25	Adjustable when the <i>image mode</i> is set to <b>Custom</b>
	<b>Contrast</b>	0 ~ <u>C</u> ~ 25	Contrast adjustment; Adjustable when the <i>image mode</i> is set to <b>Custom</b>
	<b>Saturation</b>	0 ~ <u>C</u> ~ 25	Adjustable in the <b>Custom Mode</b>
	<b>Black Level</b>	<ol style="list-style-type: none"> <li><b>Off</b></li> <li>Type 1</li> <li>Type 2</li> <li>Type 3</li> <li>Type 4</li> <li>Type 5</li> </ol>	Adjustable in the <b>Custom Mode</b>
	<b>Gamma</b>	0 ~ <u>C</u> ~ 3	Adjustable in the <b>Custom Mode</b>
	<b>Skin Tone</b>	0 ~ <u>C</u> ~ 5	Skin tone setting, adjustable in the <b>Custom Mode</b>
<b>Pan Tilt Zoom</b>	<b>Pan/Tilt Limit</b>	ON/ <b>Off</b>	Turn on/off the angle limit setting
	<b>Pan Right Limit</b>	0 ~ <u>170</u>	Limit the right angle
	<b>Pan Left Limit</b>	<u>-170</u> ~ 0	Limit the left angle
	<b>Tilt UP Limit</b>	0 ~ <u>90</u>	Limit the upward angle
	<b>Tilt Down Limit</b>	<u>-30</u> ~ 0	Limit the downward angle
	<b>Pan Flip</b>	On/ <b>Off</b>	Activate the reverse Pan command
	<b>Tilt Flip</b>	On/ <b>Off</b>	Activate the reverse Tilt command
	<b>Preset Speed</b>	<ol style="list-style-type: none"> <li>5 per second</li> <li>25 per second</li> <li>50 per second</li> <li><b>120 per second</b></li> </ol>	Set the rotation speed of the cradle head when Preset is executed
	<b>PTZ Speed Comp</b>	On/ <b>Off</b>	PTZ Speed Compensation

	<b>Zoom Limit</b>	X1 - <b>X20</b>	
<b>Dig-Effect</b>	<b>Mirror</b>	<ol style="list-style-type: none"> <li><b>Off</b></li> <li>Mirror</li> <li>Flip</li> <li>Mirror + Flip</li> </ol>	Set the mode at which the image is turned
<b>Auto Focus</b>	<b>AF Sensitivity</b>	<ol style="list-style-type: none"> <li>Low</li> <li><b>Middle</b></li> <li>High</li> </ol>	Select the AF triggering speed. The higher the speed is, the faster AF is triggered
	<b>AF speed</b>	Fast / <b>Normal</b>	Focus speed after AF triggering
	<b>AF Frame</b>	<b>Full Frame</b> /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
	<b>PTZ Assist</b>	<ol style="list-style-type: none"> <li>On</li> <li><b>Off</b></li> </ol>	<p>On: Focus In Manual mode, PTZ will trigger focus. Scene changes do not trigger focus (such as blocking the lens with paper)</p> <p>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).</p>
<b>Ethernet</b>	<b>DHCP</b>	<b>On</b> / Off	Enable/Disable DHCP setting using left and right arrow keys and press [ENTER] to apply setting.
	<b>IP Address</b>	<b>192.168.100.168</b>	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.
	<b>Subnet mask</b>	<b>255.255.255.0</b>	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.
	<b>Gateway</b>	<b>0.0.0.0</b>	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.
<b>Audio</b>	<b>Audio In</b>	<ol style="list-style-type: none"> <li><b>Line In</b></li> <li>Mic In</li> </ol>	
	<b>Audio Enable</b>	<ol style="list-style-type: none"> <li>Line In</li> <li><b>On</b></li> </ol>	

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

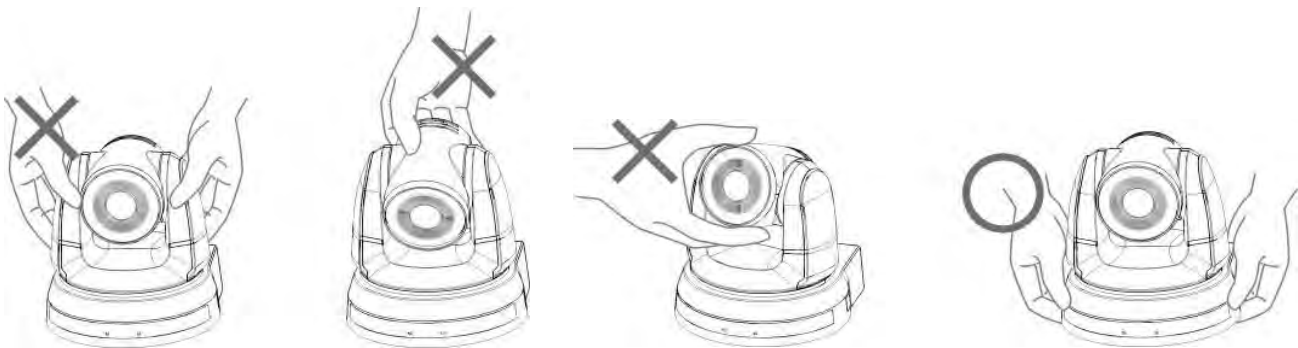
### 4.1 PREPARATION

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

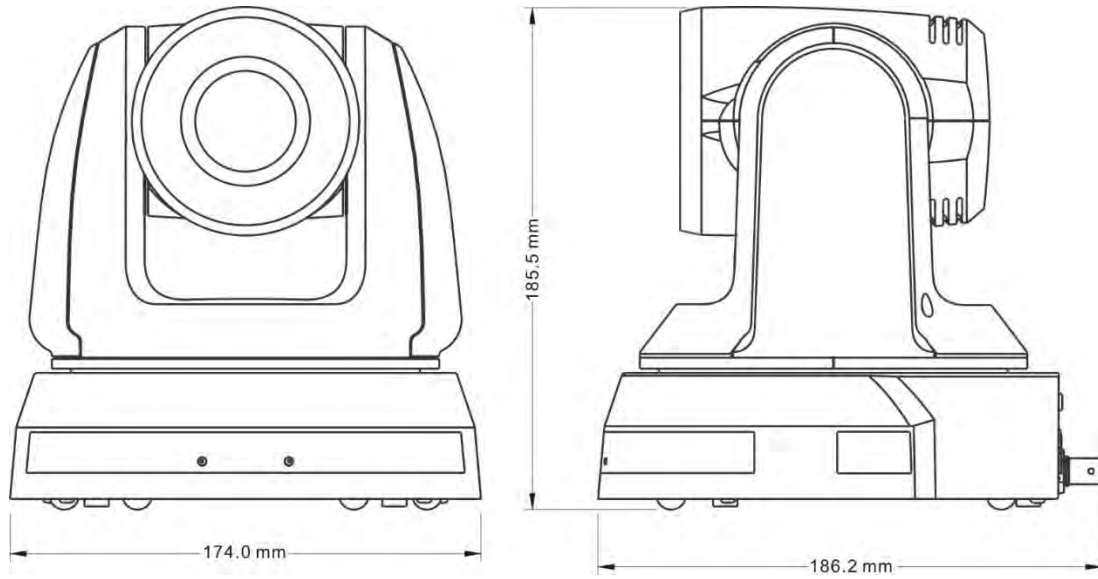
- Handle and transport the unit by its pedestal base. Do not lift, carry or manipulate the camera head by hand, nor manually rotate the camera head (improper handling may damage the camera).



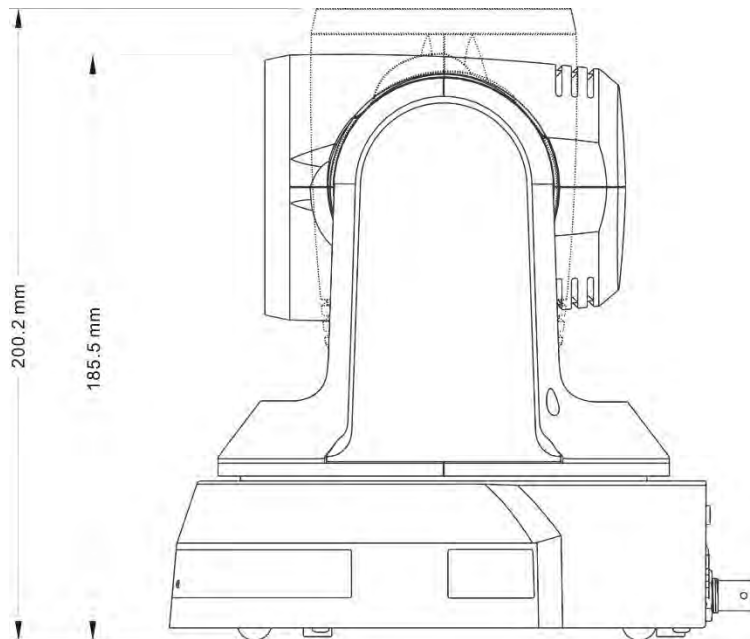
- Locate the parts and equipment required for installation
  - Accessories (metal plates A,B, M3 screw silver x 8, black x 2)
  - Screw for locking on ceiling mounted hanger x 4
  - Drill, screw driver, ladder

## DIMENSIONS

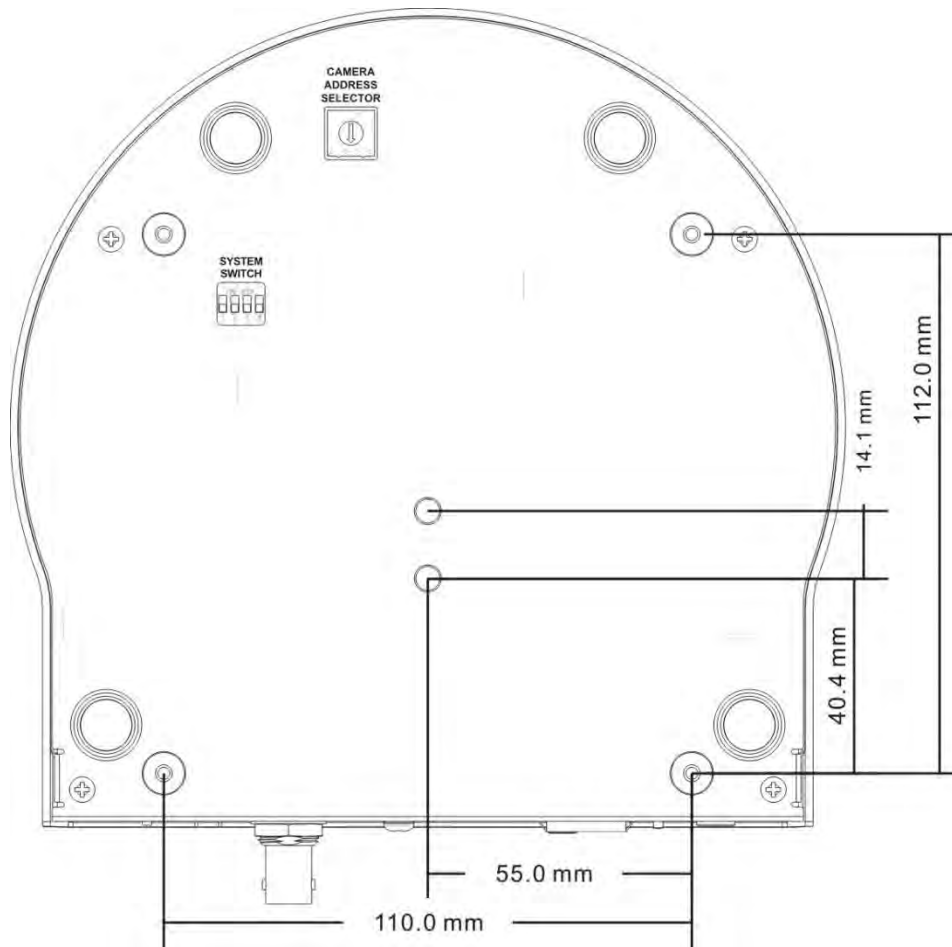
- Length x Width x Height: 174 x 186.2 x 185.5 mm
- Weight: 1.8 Kg



## 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.

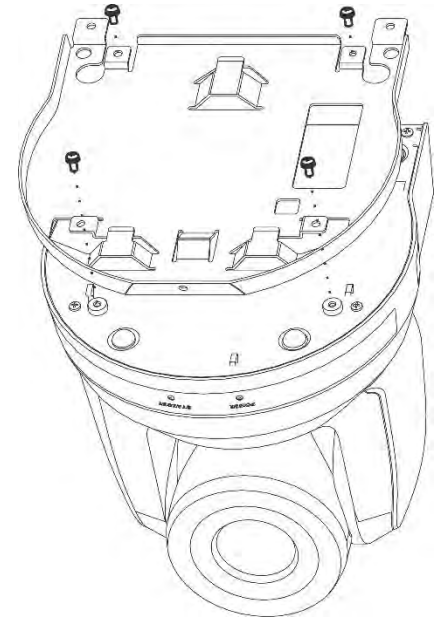
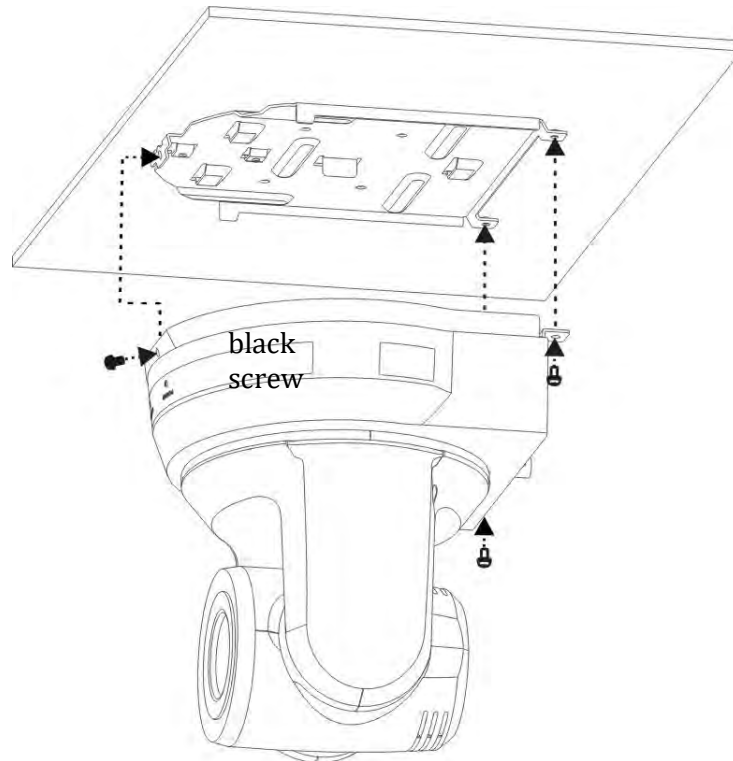
**NOTE:** The various DIP switch configurations for different output formats are depicted on a sticker on the underside of PTZ2's pedestal base. Typically, you might choose something like 1080p/59.94, or 1080p/50.

- 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.

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## 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/](http://ndi.tv/tools/), which includes a Getting Started with NDI guide.

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## 5.3 NDI WEBCAM INPUT

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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).

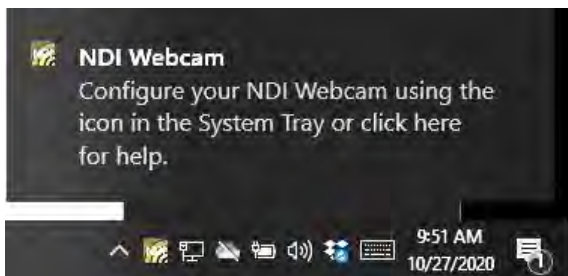


FIGURE 28

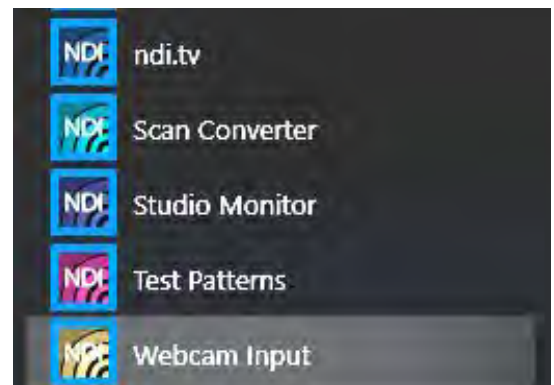


FIGURE 27

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 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.

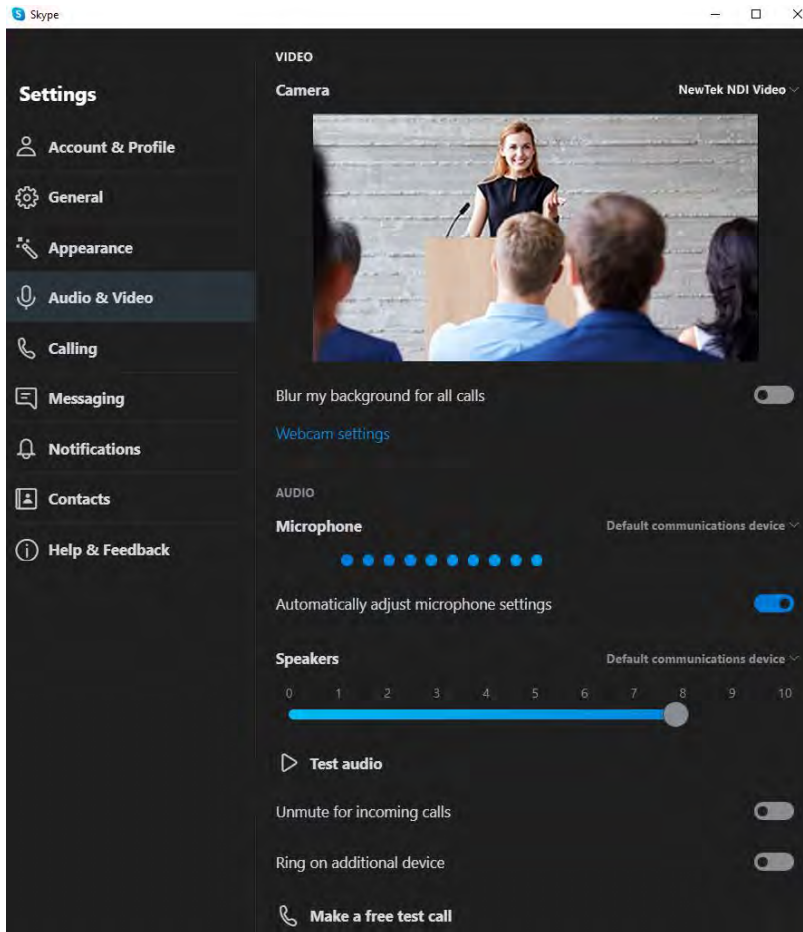


FIGURE 29

- 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.



## Section 6 END USER LICENSE AGREEMENT

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

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