PTZOptics Link 4K Quick Start Guide

MODEL No.
PT12X-LINK-4K-GY, PT12X-LINK-4K-WH
PT20X-LINK-4K-GY, PT20X-LINK-4K-WH
PT30X-LINK-4K-GY, PT30X-LINK-4K-WH

ptzoptics.com ll 1-800-486-5276

Preface

Before installation and usage, please read the manual thoroughly. If you have any questions or issues with this process, please contact our Support Team.

Precautions

- Do not subject the camera to rain or moisture.
- Do not remove the cover. Removal of the cover will void the camera's warranty and may cause an electric shock. For any abnormal operation, please contact support@ptzoptics.com.
- Never operate outside of the specified operating temperature range or humidity.
- The power supply included in the box is the only power supply to be used with this camera. If this power supply needs to be replaced, please contact our support team.
- Please use a soft cloth to clean the unit. If the unit is very dirty, clean it with diluted neutral detergent; do not use solvents which may damage the surface.

Warning

- Electrical safety
  Installation must be in accordance with national and local electric safety standards.
- Polarity of Power Supply
  The power supply output for this product is 12V DC with a maximum current supply of 2A. The polarity of the power supply plug is critical and is as follows:

- Handling
  - o Avoid any stress, vibration, or moisture during transportation, storage, installation, and operation.
  - o Do not lift or move the camera by grasping the camera from the camera head. Do not turn the camera head by hand. Doing so may result in mechanical damage.
  - o Do no expose the camera to any corrosive solid, liquid, or gas.
  - o Please make sure that there are no obstacles in the pan or tilt ranges of the camera lens.
  - o After installation is complete and secure, power on the camera.
  - o Do not dismantle the camera - PTZOptics is not responsible for any unauthorized modification or dismantling.

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

Warranty

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

Here is the link to the PTZOptics Hardware Warranty Documentation. This product has a 5-year warranty.

FCC Statement

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

Copyright Notice

The entire contents of this manual / guide, whose copyright belongs to PTZOptics, may not be cloned, copied, or translated in any way without the explicit permission of the company. The product specifications referred to in this document are for reference only and as such are subject to updating at any time without prior notice.

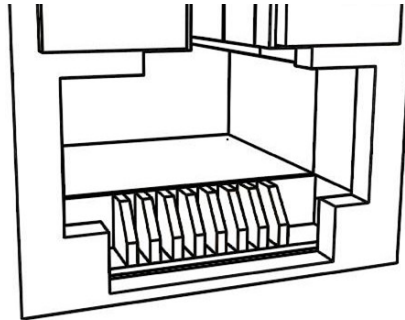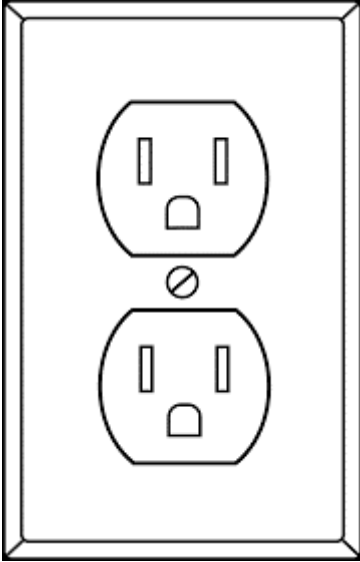## Packing List

Please make sure the items below are included in your camera box:

- o **Camera**
- o **AC Power Supply**
- o **USB A-A Cable**
- o **RS-232C Cable**
- o **Quick Start Guide**
- o **IR Remote**
- o **2 AA Batteries**

Powering the Link 4K

Your camera can be powered through DC power (with the included adapter) or Power over Ethernet Plus (with a switch or router rated for 802.3at).

Starting Your Camera for the First Time

Your new camera has many options for connecting, powering, controlling, and streaming. This Quick Start Guide will help you understand how to use each of these different options.

1. Refer to the Table of Contents on the following page to find the various options available for your camera.
2. Read the instructions for the specific aspect of your camera that you want to use.
3. Refer to the page following the illustration of the back plate of your camera to help determine which aspect of the camera you would like to use.

We have created videos to help you set up and use your camera. Scan the QR code below or type in the URL to get started! Click the links to view:

Unboxing

t.ly/vBSV

Upgrading your Firmware

t.ly/4LC-

Connection Guide

Please check connections are correct before starting.

Connect the power adapter to the power connector on the rear panel of the camera. The power indicator on the front panel of the camera will be on.

After the camera is powered on, it starts to initialize. It will rotate to the left and right limit positions, and then both horizontal and vertical limit positions. It will then stop at the center position. When the motor stops running, the initialization is complete.
(Note: If preset 0 is saved, The camera will move to preset 0)

1. DC 12V	7. RS232 OUT Interface
2. Line In	8. Restore
3. Line Out	9. HDMI
4. Resolution Dial	10. 3G SDI
5. RS485 Interface	11. USB 2.0
6. RS232 IN Interface	12 LAN

HDMI Connection, 3G-SDI Connection, USB Connection

- **HDMI Connection**
  - o   To get the best results from the HDMI outout, PTZOptics recommends the cable legnth used be no longer than 25 ft for 1080p resolutions, and no longer than 10 ft for 4K resolutions. The HDMI output has a maximum resolution and framerate of 3840x2160 @ 60 FPS.

- **3G-SDI**
  - o   To achieve best results, we recommend using a 3G-SDI cable or better. 3G-SDI cables can be run up to 300 feet (91 Meters). The 3G-SDI output has a maximum resolution and framerate of 1920x1080 @ 60 FPS.
  - o   Note: The Move 4K & Link 4K cameras can not output HDMI & 3G-SDI simultaneously. You can use the IR remote shortcut [*] > [*] > [F3] or navigate to the Web UI to toggle between the HDMI and SDI video output.

- **USB Connection**
  - o   Your camera comes with a USB connection and a USB-A to USB-A cable. The USB 2.0 output has a maximum resolution and framerate of 3840x2160 @ 30 FPS.
  - o   This camera's movement can also be controlled via UVC 1.5 methods through the USB connection.

3.5 mm Audio Connection

Your camera comes with a 3.5mm audio connection which allows you to embed audio on your video stream.

1. Connect a 3.5mm audio cable (not included) to the 3.5mm audio in port of your camera.
2. Connect the other end of the cable to the device of your choice.

   Note: The 3.5mm audio connection requires Line Level audio in order to function.

System Select Resolution Dial

Resolution Dial			
HDMI		**SDI**	
0	1080p 60	0	1080p 60
1	1080p 50	1	1080p 50
2	1080i 60	2	1080i 60
3	1080i 50	3	1080i 50
4	1080p 30	4	1080p 30
5	720p 60	5	720p 60
6	1080p 29.97	6	1080p 29.97
7	1080in 59.94	7	1080i 59.94
8	1080p 29.97	8	1080p 29.97
9	720p 59.94	9	720p 29.97
A	2160p 29.97	A	1080p 29.97
B	2160p 59.94	B	1080p 59.94
C	2160p 25	C	1080p 25
D	2160p 30	D	1080p 30
E	2160p 50	E	1080p 50
F	2160p 60	F	1080p 60

Connecting the Link 4K to your Network

Upon connecting to your nework, the Link 4K will automatically be assigned an IP address. If the network cannot assign an IP address, the camera will default to "192.168.100.88".

If you cannot find the camera's IP address, please try one of the following two methods to obtain it.

- **Method 1:** Use an Internet browser and type in **"http://ptzoptics.com/local"** to reach the camera's web interface. The login information is defaulted as below:
  - o **Username: admin.**
  - o **Password: admin**

Once you are logged in, navigate to the "Network Settings" page to view your camera's Network Settings. Here you can see your camera's IP address. You can keep the IP address assigned by your DHCP server or set a unique IP address with the Static option.

  - o **Note #1:** If you are setting up multiple cameras, you should do so one at a time.
  - o **Note #2:** It is recommended to give each camera a different Device ID. To do this you can navigate to the "Device Info" tab and type in a unique name in the Device ID text box. This will allow you to set up unique addresses that you can bookmark to connect to each camera. Example, "http://camera1.local/" and "http://camera2.local/"

- **Method 2:** Use the IR remote shortcut **[*] > [#] > [4]** to display the camera's IP address at the top of any live video from the camera. The HDMI output is active by default.

  - o **Note #3:** In Device Info, you should click the "**Check Firmware Version**" button to make sure you have the latest firmware. If there is a new firmware version, you should follow the instructions to update your camera.

Tip: To control multipe cameras with a single IR remote, you can give each camera a unique IR remote control selection in System Settings.

IR Remote Controller Guide

3. * Button
Used predominantly when calling shortcuts.

4 & 13. Set / Clear Presets
To Set a Preset: save a camera position, press [PRESET] + any number zero through nine.
To Clear a Preset: erase a camera position, press [RESET] + any number zero through nine. To erase all presets, press [*] + [#] + [RESET]

5 & 14. Pan / Tilt Control Buttons
Press the [LEFT or RIGHT] arrow to pan. Press the [UP or DOWN] arrow to tilt. Press the [HOME] button to return the camera to the front facing home position.

6. Return Button
Press the [RETURN] button to go back to a previous menu within the on screen display (OSD)

7. Zoom Buttons
Press [+] to zoom in (Slow and fast speed)
Press [-] to zoom out (Slow and fast speed)

8. L / R Set Buttons
Set the Left & Right directional buttons for the remote. *Press the following buttons simultaneously.*
Press [L/R SET] + [1]: Buttons function normally
Press [L/R SET] + [2]: Buttons function inverted

9. Focus Buttons
Adjust camera focus.
[AUTO]: focuses the image on the center object.
[Manual]: Manually control focus. Press [FAR] to focus on a far object. Press [NEAR] to focus on a near object.

10. Camera Select Buttons
Press a number to select the corresponding camera you want to operate.

1. Standby Button
Press this button to enter standby mode. Press it again to enter normal mode.
Note: Power consumption in standby mode is approxinately half of the normal mode.

2. Position Buttons
Press to set or call preset camera position

11. # Button
For multiple functions. Typically used when calling shortcuts

12. Multiple Function Buttons

Function 1: Auto Tracking Control
- **[F1]:** Enable video-based auto-framing (nonfunctional)
- **[F2]:** Enable audio-based auto-tracking (nonfunctional)
- **[F3]:** Enable video-based auto-tracking
- **[F4]:** Disable auto-tracking

Function 2: For setting camera IR address. Press the keys one after another to set the camera IR address as follows:

[*] > [#] > [F1]: Address 1
[*] > [#] > [F2]: Address 2
[*] > [#] > [F3]: Address 3
[*] > [#] > [F4]: Address 4

Function 3: Toggle Outputs
- **[*] > [*] > [F3]:** Toggle the HDMI/SDI output

Function 4: Image Freeze
- **[#] > [*] > [F4]:** Freeze the video feed. Repeat to unfreeze.

15. Menu Settings
For adjusting the camera On Screen Display (OSD) Menu settings
[MENU]: Open or close the On Screen Display menu

16. Backlight Button
Use to enable or disable backlight compensation.
Note: Only effective in auto exposure mode.
Note: If there is light behind the subject, they may appear darker. In this case, use Backlight Compensation to enhance image.

17. P / T RST Button
Perform camera self-calibrate pan and tilt movement. (PTZ Cameras Only)

18. Shortcut Functions

[*] > [#] > [1]: Display OSD menu in English

[*] > [#] > [3]: Display OSD menu in Chinese

[*] > [#] > [4]: Show IP address

[*] > [#] > [6]: Quickly restore the default settings

[*] > [#] > [8]: Show the camera version

[*] > [#] > [9]: Quickly set mount mode (flip / normal)

[#] > [*] > [7]: OnePush White Balance Trigger (Camera must be in OnePush White Balance)

[*] > [#] > [AUTO] Performs the "Startup Dance" on repeat

Resetting the IP address of your camera from the remote:

[*] > [#] > [MANUAL]: Resets IP information to default

[#] > [*] > [4]: Enable Dynamic IP address

[#] > [*] > [#] > [1]: Sets IP address to	192.168.100.81
[#] > [*] > [#] > [2]: Sets IP address to	192.168.100.82
[#] > [*] > [#] > [3]: Sets IP address to	192.168.100.83
[#] > [*] > [#] > [4]: Sets IP address to	192.168.100.84
[#] > [*] > [#] > [5]: Sets IP address to	192.168.100.85
[#] > [*] > [#] > [6]: Sets IP address to	192.168.100.86
[#] > [*] > [#] > [7]: Sets IP address to	192.168.100.87
[#] > [*] > [#] > [8]: Sets IP address to	192.168.100.88
[#] > [*] > [#] > [9]: Sets IP address to	192.168.100.89
[#] > [*] > [#] > [0]: Sets IP address to	192.168.100.80

Dante AV-H™

When a Dante-enabled device is connected to an Dante enabled network, it will automatically:

- Configure it's IP address (Network must have a DHCP server)
- Enable automatic discovery, advertising the Device Name, Channel Names, Number of Channels, Sample Rates, and Bit Depths to other Dante devices and software, such as Dante Controller.

Within seconds, this information can be seen via Dante Controller, Dante devices can then confirm compatibility with other devices and you can choose how you would like to configure channels and route media.

Additional information can be found here: https://www.audinate.com/meet-dante

Dante AV-H™
Audio and Video Output Diagram

3.5mm Audio Input

3.5mm Audio Ouput

(1) Channel of Video up to 4K
(2) Channels of Audio

Web UI

To access the Web UI
1. Enter "http://ptzoptics.local/" or the camera's IP address into a web browser.
2. Enter the username and password into the login fields. Both the username and password are "admin" by default. You can change the login credentials on the System Settings page.

• **Navigation panel:** allows you to quickly and easily select the various control options for the camera. It can be collapsed to make more room on the user interface.

• **Camera Settings:** gives you access to the **Camera's Video Feed, PTZ Control, OSD Menu, Preset Control, Speed Settings, Image Settings & Control Settings.**

• **Audio & Video Settings**: gives you access to the **Video Encoding Settings, IP Video Stream 1 / Stream 2 Encoding Settings & Audio Encoding Settings** sections of the network video feeds.

• **Streaming Settings:** gives you access to the **RTMP(S) Settings, SRT Settings, RTSP Settings, Multicast Settings & ONVIF Settings** sections.

• **Profile Settings:** page gives you access to the **Logo Upload, Profile Configuration, Quick Profiles, Custom CSS & Tutorial Mode** sections.

• **Network Settings:** page grants access to the **LAN Settings & NTP Settings** sections.

• **MIDI Control:** grants access to the **PTZOptics MIDI Control, Control Mapping, Mass Command Edit & Information** sections**.** The MIDI Control page can be reached by accessing the HTTPS version of the camera's web interface. (https://[Camera IP]/). The page must remain open for MIDI Control to function.

• **Device Information:** gives access to the **Device Information** section.

• **System Settings** gives access to the **HTTPS Settings, IR Remote Channel Selection, Access Settings, Firmware Check, Restore Default & Firmware Upload** sections.

For complete information regarding the Web UI, please refer to the User Manual found at https://ptzoptics.com/documentation/

Using Auto Tracking

• The PTZOptics Link 4K Cameras feature built-in auto-tracking capabilities. You can turn on Auto-Tracking by pressing the auto-track button on the IR remote control **[F3]**. Pressing **[F4]** will disable auto Tracking. You can also turn auto-tracking on and off using the web user interface. To do this, go to the camera mode section under the control tab. Toggle auto-tracking on or off using the drop down option.

• When auto-tracking is turned on, a green selection box will breifly appear on the camera's video feed, highlighting the foremost presenter.

• To select and lock onto a presenter, press the left and right arrow keys to move the green selection box between participants and then press the **[Home]** button to confirm your selection, after which the green selection box will briefly flash red.

• The Link 4K's auto-tracking leverages a feature called Presenter Lock. This allows the Link 4K to lock onto a specific presenter and track them even with other participants in the background.

• Auto Tracking Distance Limitations:

Camera Model	Auto-Tracking Distance Limitation
12X Link 4K	200 feet (60 Meters)
20X Link 4K	250 feet (76 Meters)
30X Link 4K	300 feet (91 Meters)

RTSP Streaming, RTMP Streaming

- **RTSP Streaming**

  Your camera is able to send two (2) RTSP streams for viewing video through your LAN. You can view these streams typically through live streaming software and typing in the following strings:

  o **Stream 1 (HD):** rtsp://(Camera IP):554/1
  o **Stream 2 (SD):** rtsp://(Camera IP):554/2

- **RTMP Streaming**

  Your camera can send two (2) RTMP(S) streams. To send the camera's video feed through an RTMP stream, you will need a Stream URL & Stream Key, which you can receive from a CDN (Content Delivery Network) or from the social network to which you want to stream.

  Once the Stream URL & Stream Key are acquired, login to the camera's Web UI and head to the Streaming Settings page. Enter the information into the corresponding fields, then toggle the Enable Stream dropdown to On for the desired stream, and finally, click the Apply button at the bottom of the page.

  Note: Stream 1 has a maximum resolution of 3840x2160 @ 60 FPS. Stream 2 has a maximum resolution of 720x480 @ 60 FPS

SRT Streaming

o Your camera can output an SRT stream. It can be set up as a Caller or Listener. You can configure the SRT settings from the Streaming Settings page of the camera's Web UI.

Control Page

PTZOptics offers a wide range of methods for controlling your cameras. Check out the list below, or visit https://ptzoptics.com/applications/ for available tools:

- **Web UI**
  The updated Web UI offers just about everything you'll need. You have access to PTZ & Preset control, video tuning, streaming settings, and much more.

- **IR Remote Controller**
  The camera includes a free IR remote controller for standard PTZ and Preset control, as well as access to numerous shortcuts to enhance your experience with the IR remote.

- **Joystick Controllers**
  Your camera supports a plethora of control protocols, allowing for use with IP & Serial joystick controllers. The PTZOptics SuperJoy offers the most synergy when it comes to controlling the PTZOptics cameras. You can find more information on the SuperJoy here:
  https://ptzoptics.com/superjoy/

- **iOS Apps**
  The PTZOptics Control Pro 2 iOS app offers standard PTZ & Preset control right from your iPhone! Find more information here: https://ptzoptics.com/ptzcontrol-pro-2

- **CMP (Beta)**
  The Camera Management Platform, or CMP for short, is a computer software designed to make your life easier. It includes many tools built in for camera control, color matching, auto tracking, and more! https://ptzoptics.com/cmp/

- **OBS Plugin**
  The Dockable OBS Plugin offers intuitive control for up to 8 cameras. Give it a try! Find information here: https://ptzoptics.com/obs-plugin/

- **Control API**
  Need something we currently don't offer? We have control APIs online so you can make something of your own. You can find our control APIs here:
  https://ptzoptics.com/developer-portal/

- **Documentation**

  Need more information about your specific camera? Read the camera's User Manual at

  https://ptzoptics.com/product-documentation/