

USER MANUAL

MODEL:

K-Cam4K
4K PTZ Camera



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Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis.

Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment.
- Review the contents of this user manual.



Go to www.kramerav.com/downloads/K-Cam4K to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

Achieving Best Performance

- Use only good quality connection cables (we recommend Kramer high-performance, high-resolution cables) to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables).
- Do not secure the cables in tight bundles or roll the slack into tight coils.
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality.
- Position your Kramer **K-Cam4K** away from moisture, excessive sunlight and dust.

Safety Instructions



Caution:

- This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.
- For products with relay terminals and GPIO ports, please refer to the permitted rating for an external connection, located next to the terminal or in the User Manual.
- There are no operator serviceable parts inside the unit.



Warning:

- Use only the power cord that is supplied with the unit.
- To ensure continuous risk protection, replace fuses only according to the rating specified on the product label which is located on the bottom of the unit.

Recycling Kramer Products

The Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC aims to reduce the amount of WEEE sent for disposal to landfill or incineration by requiring it to be collected and recycled. To comply with the WEEE Directive, Kramer Electronics has made arrangements with the European Advanced Recycling Network (EARN) and will cover any costs of treatment, recycling and recovery of waste Kramer Electronics branded equipment on arrival at the EARN facility. For details of Kramer's recycling arrangements in your particular country go to our recycling pages at www.kramerav.com/il/quality/environment.

Overview

Congratulations on purchasing your Kramer **K-Cam4K 4K PTZ Camera**. **K-Cam4K** incorporates an ultra-low, 8.51Mpixel CMOS image sensor together with 3D DNR technology, providing 4K ultra high definition, up to 4K@30fps image coding output, and downwards compatibility with 1080P, 720P resolution.

K-Cam4K provides exceptional quality, advanced and user-friendly operation, and flexible control.

- Smooth PTZ operation – featuring a horizontal field of view (HFoV), easy pan ($\pm 170^\circ$) and tilt ($\pm 30^\circ$) using a whisper-silent motor.
- High quality zoom – 12x optical zoom and 16x digital zoom providing a crystal-clear image and highly accurate close-ups.
- Multiple Interface Support – HDMI and 3G-SDI interface, effective transmission distance up to 150 meters (1080P30). HDMI, LAN or 3G-SDI, LAN can output 2 high-definition digital signals at the same time.
- Efficient power-saving features – supports low-power sleep/wake-up, consuming as little as 400mW.
- HDMI Support – 4K@30Hz as specified in HDMI 1.4.
- Built-in noise reduction – 3D noise reduction algorithm reduces image noise efficiently ($\text{SNR} \geq 55\text{dB}$), thus maintaining a clean and clear also under very low illumination conditions.
- Built-in OLED – displays HDMI and SDI frame rate and resolution as well as the IP address.
- AVT Port – supports RJ-45 over twisted pair and BNC coaxial connector.

Typical Applications

K-Cam4K is ideal for the following typical applications:

- Hybrid video conferencing in meeting rooms.
- Recording and broadcasting of classroom and auditorium sessions.

Controlling your K-Cam4K

Control your K-Cam4K:

- By RS-232 serial commands (VISCA protocol) transmitted by a touch screen system, PC, or other serial controller.
- Remotely, from the infrared remote control transmitter.
- Via OSD menu
- Via the Ethernet using built-in user-friendly Web pages.

Defining K-Cam4K 4K PTZ Camera

This section defines K-Cam4K.

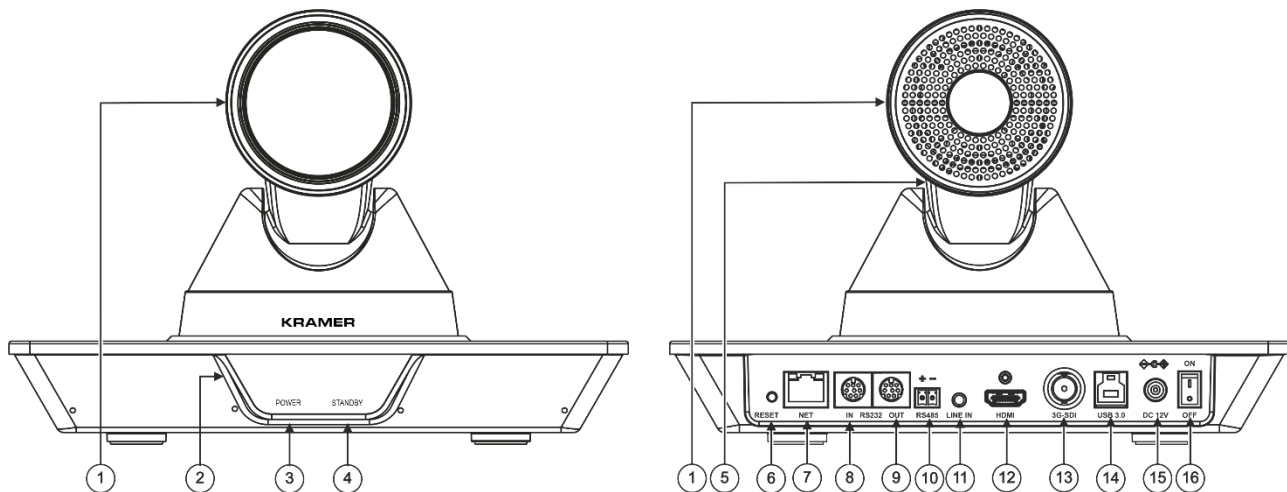


Figure 1: K-Cam4K 4K PTZ Camera

#	Feature		Function
①	Camera		Front and rear views.
②	Front Panel OLED		Displays frame rate and resolution for HDMI and SDI output signals, as well as the IP address.
③	POWER LED		Lights when powered.
④	STANDBY LED		Lights when in standby mode.
⑤	Tilting Mechanism		Can be set to any of 255 preset positions.
⑥	RESET		Press for 5 seconds to reset to factory default parameters.
⑦	NET RJ-45 Connector		Connect to your network or directly to a computer (supports PoE).
⑧	RS232 8-pin DIN Connector	IN	Connect to a camera controller using the included RS-232 VISCA (m) to 9-pin D-sub (f) cable.
⑨		OUT	
⑩	RS485 2-pin Terminal Block Connector		N/A
⑪	LINE IN 3.5mm Mini Jack		N/A
⑫	HDMI Out Connector		Connect to a recording/streaming device.
⑬	3G-SDI Out BNC Connector		Connect to a recording/streaming device.
⑭	USB 3.0 Type-B Connector		Connect to computer or collaboration device using the USB-3 cable (included).
⑮	DC 12V Power Connector		Connect to the 12V power adapter.
⑯	ON/OFF Switch		Turn the unit on and off.

Mounting K-Cam4K

This section provides instructions for mounting **K-Cam4K**. Before installing, verify that the environment is within the recommended range:



- Operation temperature – 0° to 40°C (32° to 104°F).
- Storage temperature – -40° to +60°C (-40° to +140°F).
- Humidity – 10% to 90%, RHL non-condensing.



Caution:

- Mount **K-Cam4K** before connecting any cables or power.



Warning:

- Ensure that the environment (e.g., maximum ambient temperature & air flow) is compatible for the device.
- Avoid uneven mechanical loading.
- Keep away from children – product includes small accessories and components.
- Appropriate consideration of equipment nameplate ratings should be used for avoiding overloading of the circuits.
- Reliable earthing of rack-mounted equipment should be maintained.
- Maximum mounting height for the device is 2 meters.

Mounting K-Cam4K

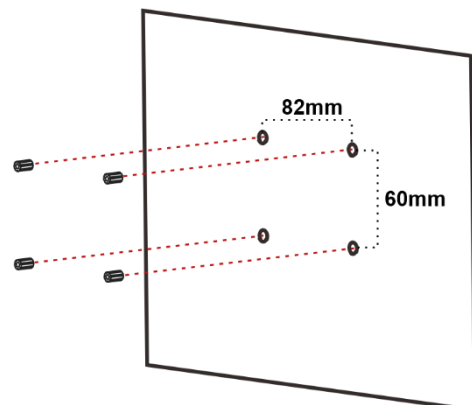
You can mount your camera to a wall, ceiling, or place it on a surface. A built-in gravity sensor automatically corrects the image orientation enabling mounting **K-Cam4K** straight or upside-down.



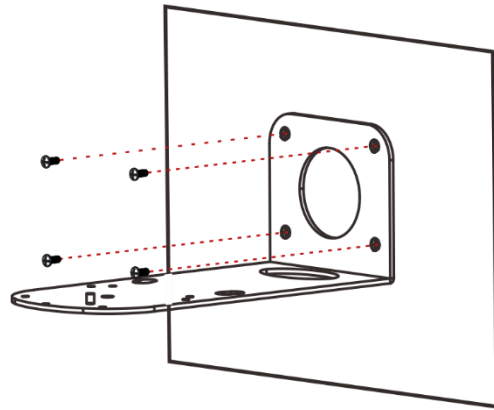
Note that you can also attach the device upside down, from under the bracket.

To mount K-Cam4K on a wall:

1. find the correct location on the wall.
2. in the desired location, drill 4 holes 82mm and 60mm apart (using a 6mm drill-bit) to fit the 4 holes of the wall-mounting bracket.
3. Insert the four expansion plugs into the holes.

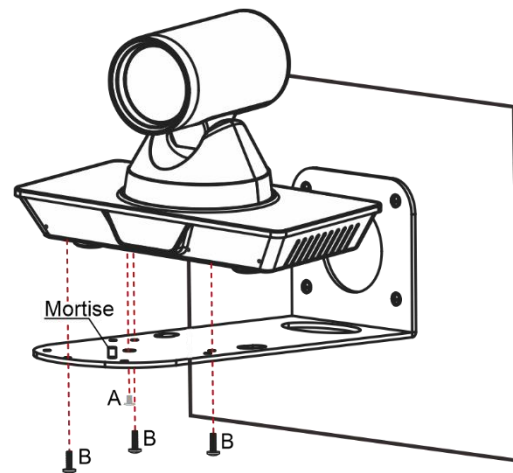


4. Attach the wall bracket to the wall, using the four wall-bracket screws.
You can place the bracket upside-down to mount the camera the other way around.



5. Attach the device to the wall bracket by fitting the mortise (on the bracket) into the tenon (on the camera).
6. Fix the camera by screwing (A) Nickel screw to the center and (B) then tighten with 3 black screws.

K-Cam4K is mounted on the wall.



Connecting K-Cam4K



Always switch off the power to each device before connecting it to your **K-Cam4K**. After connecting your **K-Cam4K**, connect its power and then switch on the power to each device.

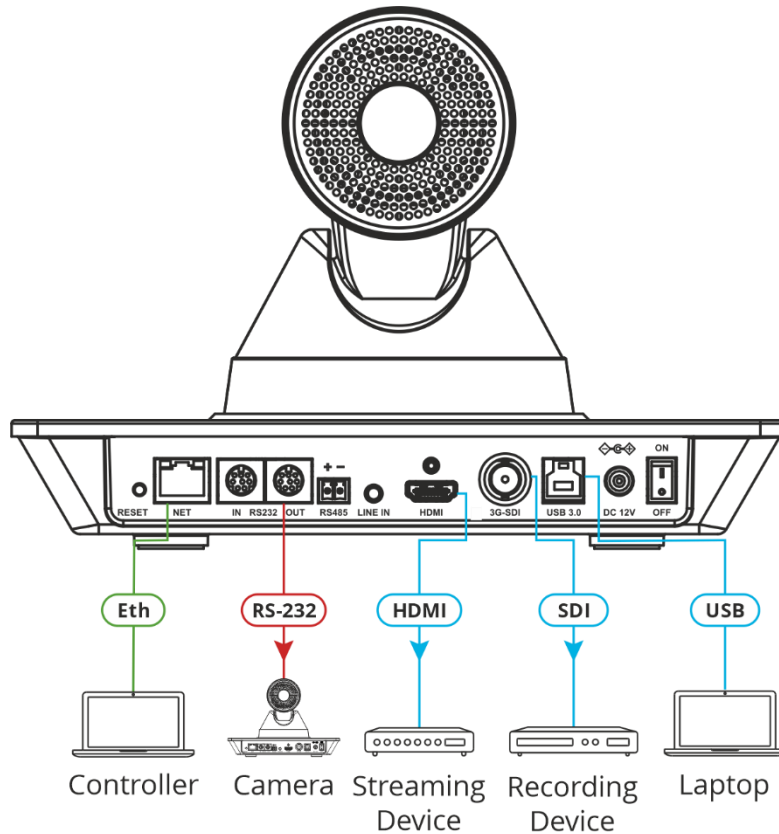


Figure 2: Connecting to the K-Cam4K Rear Panel

To connect K-Cam4K as illustrated in the example in [Figure 2](#):

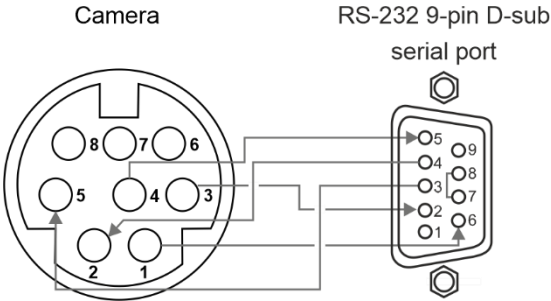
1. Connect a laptop to the NET RJ-45 connector (5) directly or via the network.
2. Connect the RS232 OUT 8-pin DIN Connector (7) to an additional Camera.
3. Connect the HDMI connector (10) to a streaming device.
4. Connect the 3G-SDI connector (11) to a recording device.
5. Connect the USB 3.0 port (12) to a laptop.
6. Connect the power adapter to **K-Cam4K** and to the mains electricity (not shown in [Figure 2](#)).

Connecting to K-Cam4K via RS-232

You can connect to **K-Cam4K** via an RS-232 connection ⑥ / ⑦ using, for example, a PC or an additional camera.

Connect the **K-Cam4K** RS-232 8-pin Min DIN connector to an RS-232 9-pin D-sub serial port, as follows:

Camera Pin	RS-232 9-Pin D-Sub Serial Pin
1 (DTR)	6 (DSR)
2 (DSR)	4 (DTR)
3 (TXD)	2 (RXD)
4 (GND)	5 (GND)
	7 (RTS) shorted to 8 (CTS)



Operating and Controlling K-Cam4K

After connecting the K-Cam4K (see [Connecting K-Cam4K](#) on page 7), switch the device ON ⑦. The device initializes the front panel displays “Starting”, the connection indicator light (green), the IR indication light (blue) flash and the data indicator (orange) flashes. Following initialization, the LCD displays the IP address and the HDMI and SDI resolutions and refresh rates. The camera is ready for operation.

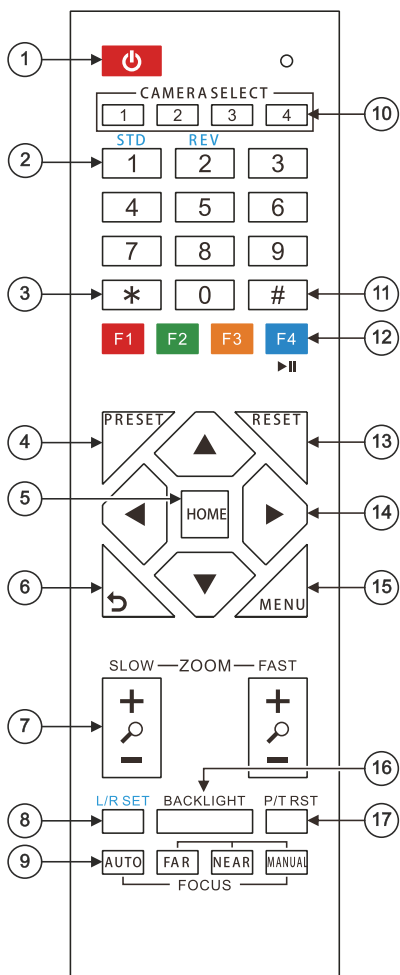
Control K-Cam4K via:

- [Controlling Via IR Remote Control Transmitter](#) on page 10.
- [Operating via the OSD Menu](#) on page 12.
- [Operating via Ethernet](#) on page 16.

Controlling Via IR Remote Control Transmitter

Use the IR remote control to control K-Cam4K and the OSD to configure it. Use shortcut keys for quick settings (see [Shortcut Keys](#) on page 11)

#	Key	Function
1	Power	Press once to enter standby mode. Press again to enter normal operation mode.
2	Number (0 to 9)	Configure or edit a preset.
3	* Key	Use together with other keys for various functions.
4	PRESET	Press PRESET + a numerical key (0 to 9) to save the current configuration to that preset number.
5	HOME	Press to return K-Cam4K to its default position. When in the OSD, press to enter a submenu or confirm menu.
6	Return	Return to previous item on the menu.
7	ZOOM	SLOW Press for slow zoom in (+) or out (-). FAST Press for quick zoom in (+) or out (-).
8	L/R Set	STD (1) Press L/R + STD (1) keys to set Pan-Tilt to same direction as L/R setting. REV (2) Press L/R + REV (2) keys to set Pan-Tilt to the direction opposite to the L/R setting.
9	FOCUS	AUTO Press to automatically set the focus to the center of the image. MANUAL Press to enter manual focus mode. Then press FAR or NEAR. FAR When in MANUAL mode, press to focus on a far object NEAR When in MANUAL mode, press to focus on a near object.
10	CAMERA SELECT	Select the camera to configure and control (1 to 4), see Assigning up to 4 K-Cam4K Units to the IR Remote Controller on page 11.
11	# Key	Use together with other keys for various functions.
12	IR RC	Press * + # + (F1 to F4) to assign a camera address to the remote. For example, point the remote to a camera, press *+#+F1. The remote assigns CAMERA SELECT 1 key to this camera. To use the remote to control camera 1 press the CAMERA SELECT 1 key (see Assigning up to 4 K-Cam4K Units to the IR Remote Controller on page 11). Press F4 to freeze the image (see Freezing an Image on page 11)
13	RESET	Press RESET+ a key number (0 to 9) to delete a preset configuration. Press *+#+RESET to delete all preset configurations.
14	PTZ Control	Control camera panning and tilting using arrow keys (left, right, up, and down).
15	MENU	Enter/exit OSD menu (see Operating via the OSD Menu on page 12).
16	BACKLIGHT	Press to turn backlight compensation on or off. Available when exposure mode is set to Auto (via the OSD menu).
17	P/T RST	Press to self-check preset Pan/Tilt on camera.



Assigning up to 4 K-Cam4K Units to the IR Remote Controller

You can use one IR remote controller to control several cameras. To do so, you need to assign each device to the remote controller via IR learning.

To assign a device to the IR remote controller:

1. Turn the camera on.
2. Point the IR controller towards the front panel of the camera and press the following keys:
 - To assign Camera 1 – Press *, # and **F1** simultaneously to set IR address to "CAMERA SELECT 1".
 - To assign Camera 2 – Press *, # and **F2** simultaneously to set IR address to "CAMERA SELECT 2".
 - To assign Camera 3 – Press *, # and **F3** simultaneously to set IR address to "CAMERA SELECT 3".
 - To assign Camera 4 – Press *, # and **F4** simultaneously to set IR address to "CAMERA SELECT 4".



When assigning a camera to the remote, make sure you point directly to that camera and check that the other cameras in the area are powered down.

Cameras are assigned to IR remote controller.

Freezing an Image

You can freeze/unfreeze an image manually:

- To freeze an image, press **F4** on the remote controller. The image freezes and the display shows "Freeze" on the top left side for 5 seconds.
- To Unfreeze the image, press **F4** (once again) on the remote controller. The image unfreezes and the display shows "Unfreeze" on the top left side for 5 seconds.

Shortcut Keys

Use the following shortcut keys to set the following:

- ***+#+1**: OSD default (English).
- ***+#+3**: OSD default (Chinese).
- ***+#+4**: Display current IP address.
- ***+#+6**: Quickly recover the default.
- ***+#+8**: View the camera version.
- ***+#+9**: Quickly set up inversion.
- ***+#+MANUAL**: Restore default IP address.

Operating via the OSD Menu

K-Cam4K enables controlling and defining the device parameters via the OSD, using the IR remote control MENU buttons (see [Controlling Via IR Remote Control Transmitter](#) on page [10](#)) or via the embedded webpages (see [Controlling via the OSD Menu](#) on page [22](#)).

To enter and use the OSD menu buttons:

1. Press MENU.
2. Press:
 - **Arrow buttons** to move through the OSD menu, which is displayed on the video output.
 - **HOME** to enter a submenu and accept changes.

Use the OSD menu to perform the following operations:

- [Configuring Camera Exposure](#) on page [13](#).
- [Configuring Color Settings](#) on page [13](#).
- [Setting Image Parameters](#) on page [14](#).
- [Setting P/T/Z Parameters](#) on page [14](#).
- [Setting Digital Noise Reduction Level](#) on page [15](#).
- [Defining Setup Parameters](#) on page [15](#).
- [Configuring Communication Parameters](#) on page [16](#).
- [Restoring to Default Settings](#) on page [16](#).

Configuring Camera Exposure

K-Cam4K enables configuring exposure parameters:

To adjust the image parameters:

1. On the IR remote press **MENU**. The menu appears.
2. Use the arrows to select **Exposure**.
3. Click **HOME** to enter Exposure menu. Adjust the following:

Menu Item	Function	
Mode	Set the exposure mode: Auto, Manual, SAE, AAE or Bright. Each exposure mode includes the relevant sub-menu settings.	
	Auto	Automatic exposure settings.
	Manual	Control exposure settings manually.
	SAE	Shutter Automatic Exposure.
	AAE	Aperture Automatic Exposure.
	Bright	Adjusts the brightness level manually
Sub-Menu	Function	Enabled in:
ExpCompMode	Select On to allow changes to the automatically-set exposure. Select Off to keep auto settings.	Auto mode
ExpComp	Adjust the exposure compensation from -7 to 7.	Auto mode and ExpCompMode=On
Backlight	Select On to allow backlight compensation. Select Off to keep auto settings.	Auto mode
Bright	Control brightness level from 0 to 17.	Bright mode
Gain Limit	Set maximum gain limit from 0 to 15.	Auto, SAE, AAE and Bright modes
Anti-Flicker	Set anti flicker to Off, 50Hz or 60Hz.	Auto, AAE and Bright modes
Meter	Select the exposure meter to Average, Center, Smart or Top.	All modes
Iris	Set the aperture value to F1.8, F2.0, F2.4, F2.8, F3.4, F4.0, F4.8, F5.6, F6.8, F8.0, F9.6, F11.0 or Close.	Manual and AAE modes
Shutter	1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000 or 1/10000.	Manual and SAE modes
Gain	Set gain from 0 to 7.	Manual mode
DRC	Set Dynamic Range Compression strength from 0 to 8.	All modes

Exposure is configured.

Configuring Color Settings

K-Cam4K enables configuring color parameters.

To adjust the color parameters:

1. On the IR remote press **MENU**. The menu appears.
2. Use the arrows to select **Color**.

3. Click **HOME** to enter Color menu. Adjust the following:

Menu Item	Function
WB Mode	Set white balance mode to Auto, Indoor, Outdoor, One Push, Manual.
RG Tuning	Fine tune red gain from -10 to 10 (enabled in Auto mode).
BG Tuning	Fine tune blue gain from -10 to 10 (enabled in Auto mode).
Saturation	Set the color saturation from 60% to 200%.
Hue	Set the color hue from -10 to 10.
RG	Set red gain from 0 to 255 (enabled in Manual mode).
BG	Set blue gain from 0 to 255 (enabled in Manual mode).

Color parameters are adjusted.

Setting Image Parameters

K-Cam4K enables configuring image parameters.

To adjust the image parameters:

1. On the IR remote press **MENU**. The menu appears.
2. Use the arrows to select **Image**.
3. Click **HOME** to enter Image menu. Adjust the following:

Menu Item	Function
Luminance	Adjust luminance from 0 to 14.
Contrast	Adjust contrast from 0 to 14.
Sharpness	Adjust sharpness from 0 to 14.
Flip-H	Define horizontal flip to On or Off.
Flip-V	Define vertical flip On or Off.
B&W Mode	Set black and white mode to On or Off.
Style	Set the image style to Norm, Bright or PC.

Image parameters are adjusted.

Setting P/T/Z Parameters

K-Cam4K enables configuring pan tilt and zoom parameters.

To adjust the P/T/Z parameters:

1. On the IR remote press **MENU**. The menu appears.
2. Use the arrows to select **P/T/Z**.

3. Click **HOME** to enter P/T/Z menu. Adjust the following:

Menu Item	Function
SpeedByZoom	Set to On, to control pan and tilt speed as a function of zoom.
AF-Zone	Set auto focus to front, center top or bottom area.
AF Sense	Set auto focus sensitivity to low, normal or high.
L/R Set	Set pan direction to STD (Standard) or REV (Reverse).
Display Info	Set to On, to display information or set to Off.
Image Freeze	Set to On, to freeze the image before recalling a preset. Once the camera points to the recalled preset position, the camera returns to normal operation.
Digital Zoom	Set digital zoom to 2x, 4x, 8x or 16x.
Call Preset Speed	Adjust the pan and tilt movement speed from 1 (lowest) to 24 (highest).
Pre Zoom Speed	Adjust the preset zoom speed from 0 to 7.

Pan tilt and zoom parameters are adjusted.

Setting Digital Noise Reduction Level

Set 3D noise reduction for a clearer picture when light conditions are low.

To set noise reduction level:

1. On the IR remote press **MENU**. The menu appears.
2. Use the arrows to select **NR3D-Level**.
3. Click **HOME** to enter NR3D-Level menu.
4. Set the noise reduction level from 1 to 9, or set to Off.

Noise reduction level is set.

Defining Setup Parameters

Define general setup parameters.

To define setup parameters:

1. On the IR remote press **MENU**. The menu appears.
2. Use the arrows to select **SETUP**.
3. Click **HOME** to enter SETUP menu. Define the following:

Menu Item	Function
Language	Define the user language: English, Chinese or Russian.
DVI Mode	Set to HDMI, or DVI, depending on the connection type.
Video Format	Set the output video format: 1080P60, 1080P50, 1080I60, 1080I50, 1080P30, 1080P25, 720P60, 720P50, 1080P29.97, 1080I59.94, 1080P59.94, 720P59.94, 4KP29.97, 4KP25, 4KP30.
Auto Scan	Set to On or Off.
SDI-3G Mode	Set to LEVEL-A or LEVEL-B mapping.
Video Output	HDMI or SDI.
Auto Flip	Set to On, for automatic flip of the view.
USB Audio	Set to On or Off.
OSD Flip	Set flipping the OSD to On or Off.

Setup parameters are defined.

Configuring Communication Parameters

Define communication parameters.

To define communication parameters:

1. On the IR remote press **MENU**. The menu appears.
2. Use the arrows to select **COMMUNICATION SETUP**.
3. Click **HOME** to enter SETUP menu. Define the following:

Menu Item	Function
Protocol	Select the control protocol to VISCA, PELCO-D or PELCO-P.
V_Address	Set the number of a camera in a daisy-chain setting (1 to 7). Set the first camera to 1 the second in the chain to 2, and so on (enabled in Auto mode, when VISCA protocol is selected).  To daisy-chain cameras you need to use the VISCA protocol, Net Mode to Serial and set the baud rate to 9600 (default).
V_AddrFix	Set to On or Off.
P_D_Address	Set from 0 to 254 (enabled in Auto mode, when PELCO-D protocol is selected).
P_P_Address	Set from 0 to 31 (enabled in Auto mode, when PELCO-P protocol is selected).
Net Mode	Set to serial port Network control to Serial or Paral.
Baudrate	Select 2400, 4800, 9600 or 38400.

Setup parameters are defined.

Restoring to Default Settings

To restore default settings:

1. On the IR remote press **MENU**. The menu appears.
2. Use the arrows to select **RESTORE DEFAULT**.
3. Click **HOME** to enter RESTORE DEFAULT menu.
4. Select Restore and then select **Yes**.

Default settings are restored.

Operating via Ethernet

You can connect to K-Cam4K via Ethernet using either of the following methods:

- Directly to the PC using a crossover cable (see [Connecting Ethernet Port Directly to a PC](#) on page 17)
- Via a network hub, switch, or router, using a straight-through cable (see [Connecting Ethernet Port via a Network Hub](#) on page 19)

Note: If you want to connect via a router and your IT system is based on IPv6, speak to your IT department for specific installation instructions.

Connecting Ethernet Port Directly to a PC

You can connect the Ethernet port of **K-Cam4K** directly to the Ethernet port on your PC using a crossover cable with RJ-45 connectors.



This type of connection is recommended for identifying **K-Cam4K** with the factory configured default IP address.

After connecting **K-Cam4K** to the Ethernet port, configure your PC as follows:

1. Click **Start > Control Panel > Network and Sharing Center**.
2. Click **Change Adapter Settings**.
3. Highlight the network adapter you want to use to connect to the device and click **Change settings of this connection**.

The Local Area Connection Properties window for the selected network adapter appears as shown in [Figure 3](#).

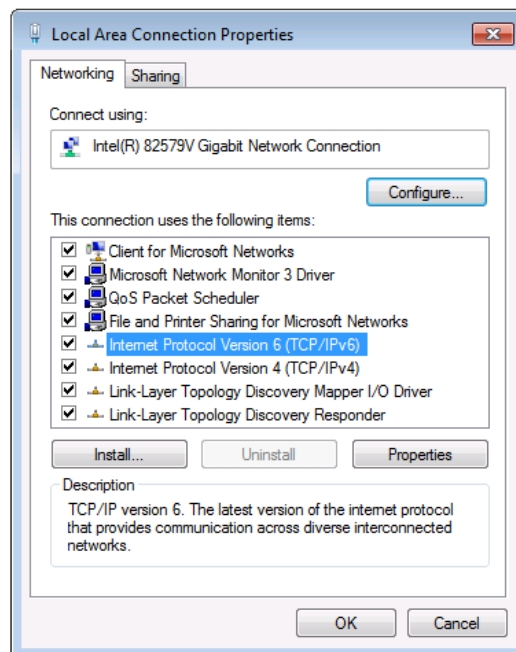


Figure 3: Local Area Connection Properties Window

4. Highlight either **Internet Protocol Version 6 (TCP/IPv6)** or **Internet Protocol Version 4 (TCP/IPv4)** depending on the requirements of your IT system.
5. Click **Properties**.

The Internet Protocol Properties window relevant to your IT system appears as shown in [Figure 4](#) or [Figure 5](#).

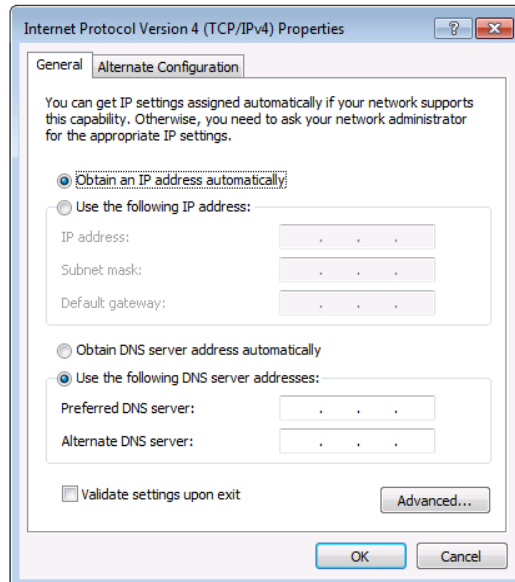


Figure 4: Internet Protocol Version 4 Properties Window

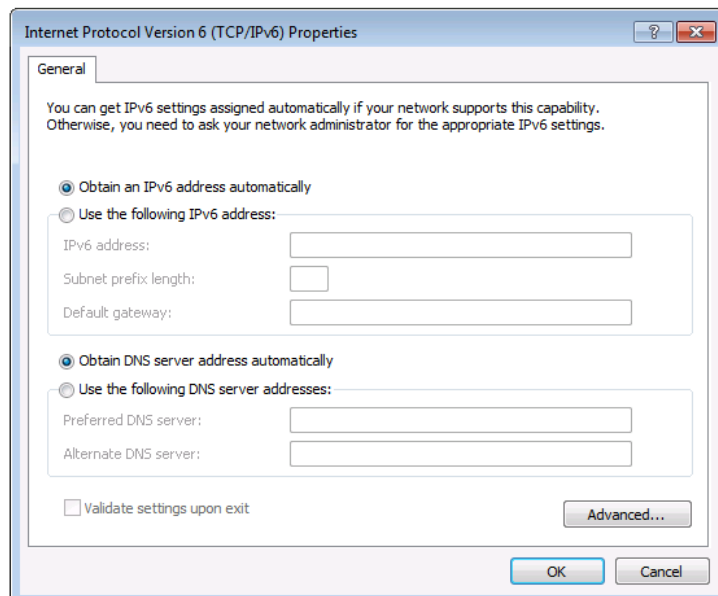


Figure 5: Internet Protocol Version 6 Properties Window

6. Select **Use the following IP Address** for static IP addressing and fill in the details as shown in [Figure 6](#).

For TCP/IPv4 you can use any IP address in the range 192.168.100.1 to 192.168.100.255 (excluding 192.168.100.88) that is provided by your IT department.

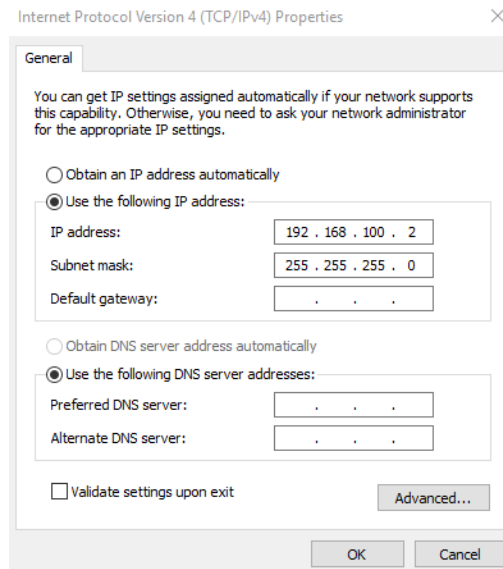


Figure 6: Internet Protocol Properties Window

7. Click **OK**.
8. Click **Close**.

Connecting Ethernet Port via a Network Hub or Switch

You can connect the Ethernet port of **K-Cam4K** to the Ethernet port on a network hub or using a straight-through cable with RJ-45 connectors.

Configuring Ethernet Port

You can set the Ethernet parameters via the embedded Web pages.

Using Embedded Web Pages

K-Cam4K can be operated remotely using the embedded Web pages. The Web pages are accessed using a Web browser and an Ethernet connection.

When connecting to a Network, do the following

1. Connect **K-Cam4K** camera to your internet or to your PC via network cable.
2. Turn on 12V DC power.
3. If the network connection is normal, the connection light (green) at the network interface will light up within 5 seconds, and the data indicator (orange) will flash, indicating that the physical connection of the camera has been completed. To

Each page includes two menu areas:

- Real time monitoring, on the left side.
- Device configuration on the right side.

Before attempting to connect:

- Perform the procedures in [Operating via Ethernet](#) on page [16](#).
- Ensure that your browser is supported.

Operating Environment

K-Cam4K supports the following Network settings:

- **Operating System:** Windows 7/8/10, Mac OS X, Linux and Android.
- **Network Protocol:** TCP/IP.
- **Client PC:** P4/128M RAM/40G HDD/ supports scaled graphics card, supports DirectX 8.0 or higher version.



Some features might not be supported by some mobile device operating systems.

K-Cam4K enables performing the following:

- [Changing Interface Language](#) on page [21](#).
- [Navigating K-Cam4K in Real Time](#) on page [22](#).
- [Controlling via the OSD Menu](#) on page [22](#).
- [Viewing Live Preview](#) on page [23](#).
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Browsing the K-Cam4K Webpages

To Browse the K-Cam4K Webpages

1. Open your Internet browser.
2. Type the IP address of the device in the Address bar of your browser. For example, the default IP number:

192.168.100.88

The Controller application page appears.

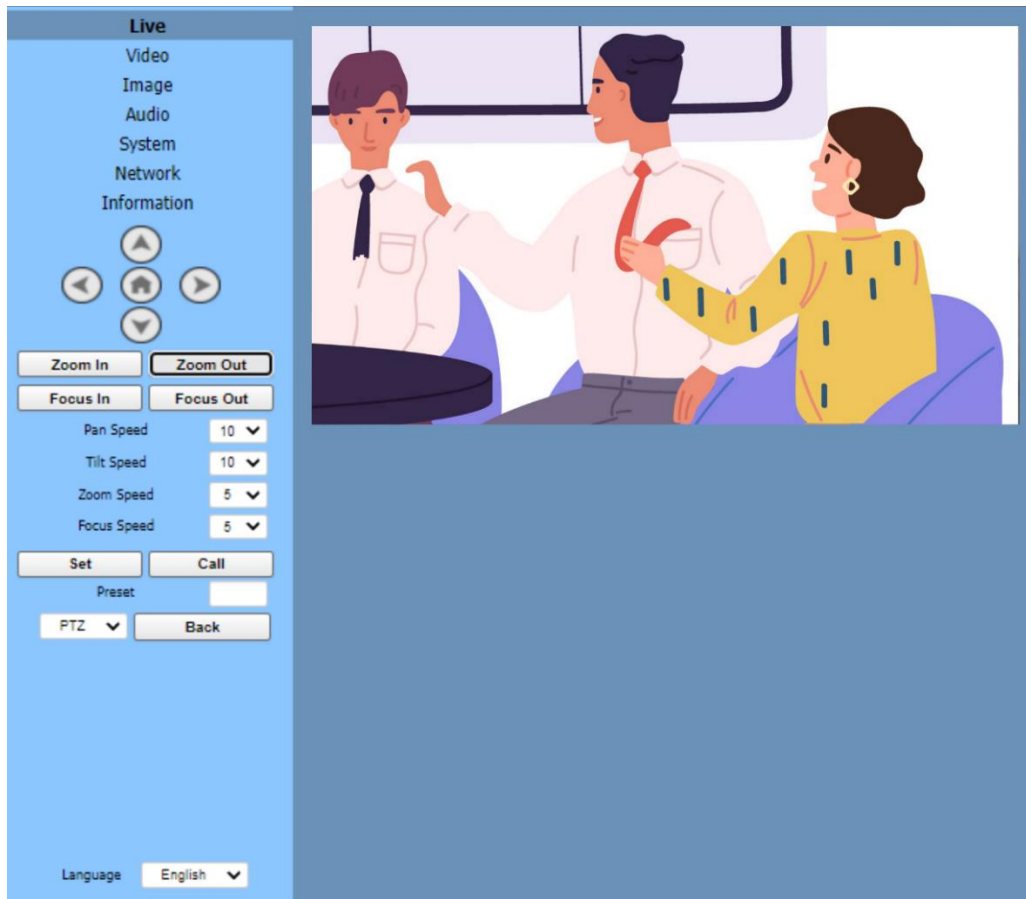


Figure 7: Live Page

3. Click the menu items on the top left side of the screen to access the relevant web page.

Changing Interface Language

K-Cam4K enables you to change the interface language.

Changing the Language

To change the interface language:

1. On the lower left side open the drop-down box.
2. Select the required language (English, Chinese or Russian).
The window refreshes.

Language interface has changed.

Navigating K-Cam4K in Real Time

The real-time navigation buttons on the window left side enable the user to control **K-Cam4K** in real time. All real-time navigation buttons can be accessed from each of the embedded webpages.

To navigate K-Cam4K via embedded webpages:

1. Access the embedded webpages (see [Browsing the K-Cam4K Webpages](#) on page 21). The Live page appears (see [Figure 7](#)).
2. Perform the following actions:
 - Use the up, down to the left or the right arrows to manually move the camera to the desired position.
 - Click  to move the camera to its default position.
 - Click Zoom In (narrow view) or Zoom Out (wide view) for manual zoom, as required.
 - Click Focus In, or Focus Out, for manual focusing, as required.
 - Select the Pan Speed, Tilt Speed, Zoom Speed and Focus speed, via the relevant drop-down boxes.

Saving and Recalling a Preset

You can save up to 255 presets (0 to 254) from any one of the embedded webpages. Note that preset 0 is always the power on position.

To save/recall a preset:

1. Access the embedded webpages (see [Browsing the K-Cam4K Webpages](#) on page 21). The Live page appears (see [Figure 7](#)).
2. Configure the camera position and settings, as desired. Settings include the camera positions.
3. Enter a preset number (0 to 254) to the Preset text box.
4. Click **Set**.
5. Click **Call** to recall the preset.

Preset is saved/recalled.

Controlling via the OSD Menu

To control K-Cam4K via the OSD, from the embedded webpages:

1. Access the embedded webpages (see [Browsing the K-Cam4K Webpages](#) on page 21). The Live page appears (see [Figure 7](#)).
2. Click the PTZ drop-down box and select **OSD**.
3. Use the arrow buttons select menu items.

OSD is accessed via embedded webpages.

Viewing Live Preview

View a live preview via the Live page. The size of the preview window corresponds to the resolution of the video. The higher the resolution, the larger the image is.

To perform live preview actions:

1. Access the embedded webpages (see [Browsing the K-Cam4K Webpages](#) on page 21). The Live page appears (see [Figure 7](#)).
2. Hover over the camera view. The view controls appear.

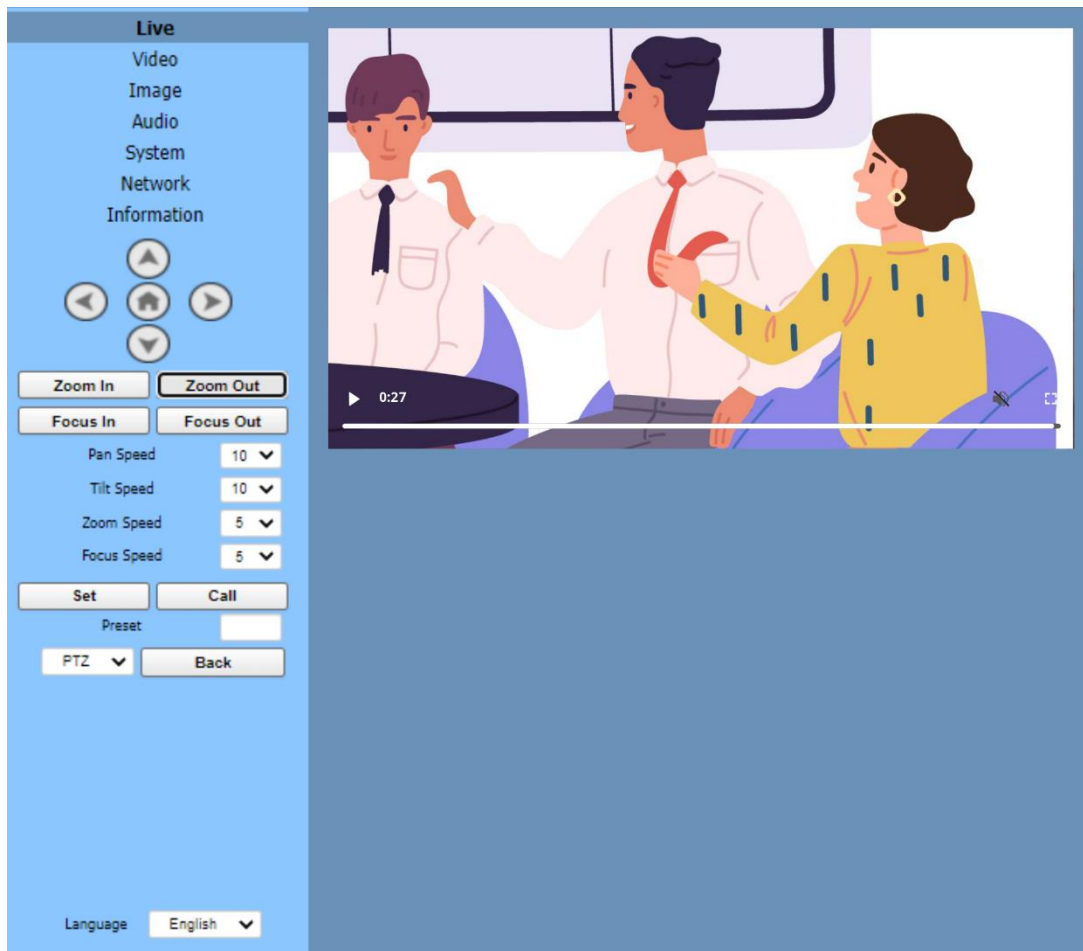


Figure 8: Live View

3. Perform the following actions:
 - Double-click the viewing pane to toggle between full-screen view and normal view.
 - Click play or pause buttons to pause or play live view.
 - Click square brackets on the right for full view.
 - Click mute/unmute icon to mute or unmute the audio.

Configure Video Settings

Configure the **K-Cam4K** video and streaming settings. The Video page enables performing the following functions:

To configure video settings:

1. Access the embedded webpages (see [Browsing the K-Cam4K Webpages](#) on page 21). The Live page appears (see [Figure 7](#)).
2. Select the **Video** page. The video page appears.

The screenshot displays the 'Video Settings' interface. On the left, a sidebar lists navigation options: Live, Video (highlighted), Image, Audio, System, Network, and Information. Below the sidebar are PTZ controls: Zoom In, Zoom Out, Focus In, Focus Out, and speed settings for Pan (10), Tilt (10), Zoom (5), and Focus (5). The main content area is titled 'Video Settings' and is divided into two sections: 'First stream' and 'Second stream'. Each section contains the following settings:

- HDMI/SDI Output: HDMI
- Video Format: OSD
- Encode Level: mainprofile
- Encode Codec: H264
- Resolution: 3840x2160 (First stream) / 640x360 (Second stream)
- Bit Rate: 16384 (First stream) / 2048 (Second stream)
- Frame Rate: 30 fps
- I Key Frame Interval: 30
- Bit Rate Control: CBR

At the bottom of the main area are 'Submit' and 'Cancel' buttons.

Figure 9: Video Page

3. Define video settings:
 - Select HDMI or SDI.
 - Set video format to OSD (meaning that you can set the video HDMI output format, such as 4K30, via the OSD menu settings of the camera), 50Hz (PAL) or 60Hz (NTSC).
 - Set encoding level to mainprofile or highprofile.

4. Configure the first and second streams:

Set	First Stream	Second Stream
Encode Codec	H.264, H.265 or MJPEG	
Resolution	3840x2160, 1920x1080, 1280x720, 1024x576, 720x480, 720x408, 640x480, 640x360	720x480, 720x408, 640x480, 640x360, 480x320, 320x240
Bit Rate	Enter the bit rate value.  The higher the bit rate the clearer the image, depending on the bandwidth. A narrow bandwidth and a high bit rate may result in a low-quality transmission.	
Frame Rate	Enter the frame rate. Set a high frame rate for a smoother image.	
I Key Frame Interval	The higher the interval the lower the response.	
Bit Rate Control	CBR (Constant Bit Rate): Video coder is coding according to preset speed. VBR (Variable Bit Rate): Video coder adjusts the speed based on preset speed to gain the best image quality.	

5. Click **Submit**.

Video settings are defined.

Defining Audio Parameters

Set the image parameters.

To set audio parameters:

1. Access the embedded webpages (see [Browsing the K-Cam4K Webpages](#) on page 21). The Live page appears (see [Figure 7](#)).
2. Select the **Audio** page. The Audio page appears.

Figure 10: Audio Page

3. Set the following parameters:
 - Audio Switch: On or Off.
 - Audio Type: AAC or G711A.
 - Sample Rate: 44.1K or 48K.
 - Bit Rate: 96K or 128K.
 - Input Type: LINE IN.
 - Input Vol: select the volume from the drop-down box.
 - ADTS Options (Audio Data Transport Stream): On or Off.
4. Click **Submit**.

Audio parameters are set.

Defining General System Parameters

Set the general system parameters.

To set image parameters:

1. Access the embedded webpages (see [Browsing the K-Cam4K Webpages](#) on page 21).
The Live page appears (see [Figure 7](#)).
2. Select the **System** page. The System page appears.

Figure 11: System Page

3. Click **Reboot** to reboot the camera.
4. Define User Name and password (default admin/admin).
5. Define Guest name and guest password (default guest/guest).



Note that when accessing as guest, you can view the local preview, select the presets and control camera motion and so on, access is denied to audio and video settings, as well as Network settings.

6. Click **Submit**.

System settings are defined.

Configure Network Settings

Set the Network parameters.

To set Network parameters:

1. Access the embedded webpages (see [Browsing the K-Cam4K Webpages](#) on page 21). The Live page appears (see [Figure 7](#)).
2. Select the **Network** page. The Network page appears.

Network

Information

Zoom In Zoom Out

Focus In Focus Out

Pan Speed 10

Tilt Speed 10

Zoom Speed 5

Focus Speed 5

Set Call

Preset

PTZ Back

Lan Settings

IP Configuration Type Fixed IP Address

IP Address 192.168.1.40

Subnet Mask 255.255.255.0

Gateway 192.168.1.1

DNS Address 8.8.8.8

MAC Address D4:E0:8E:AE:BD:16

Submit Cancel

Port Settings

HTTP Port 80

RTSP Port 554

TCP Port 5678

UDP Port 1259

Sony Visca 52381

RTMP(S) Settings

First Stream On Off Video Audio

MRL rtmp://192.168.100.138/live/stream0

Second Stream On Off Video Audio

MRL rtmp://192.168.100.138/live/stream1

SRT Settings

SRT On Off

SRT Port 4578

SRT Encryption None

SRT Password 1234564913131

RTSP Settings

RTSP Auth On Off

ONVIF Settings

ONVIF On Off

ONVIF Auth On Off

Multicast Settings

Multicast On Off

Address 224.1.2.3

Port 8888

Figure 12: Network Page

3. Define LAN settings.
 - Define a fixed IP address (static IP) or a Dynamic IP address (DHCP).
 - Set the IP Address (default: 192.168.100.88), Gateway, Subnet Mask and DNS address.
 - View the MAC Address

4. Click **Submit** to save LAN settings.
5. Define Port Settings (default settings are displayed in [Figure 11](#)).
6. Set RTSP authorization On or Off.
7. Set ONVIF (Open Network Video Interface Forum) On or Off and ONVIF authorization On or Off.
8. Set Multicast settings to On or Off. Setting the multicast address (default value is 224.1.2.3) and port (default value is 6688, and is the multicast port of the first stream; 6690 is the multicast port of the second stream).
9. Set NTP (Network Time Protocol) time sync to On or Off as well as time zone, server address and so on.
10. Click **Submit**.

Network settings are defined.

Viewing Device Information

To view device information:

1. Access the embedded webpages (see [Browsing the K-Cam4K Webpages](#) on page 21). The Live page appears (see [Figure 7](#)).
2. Select the **Information** page. The Information page appears.

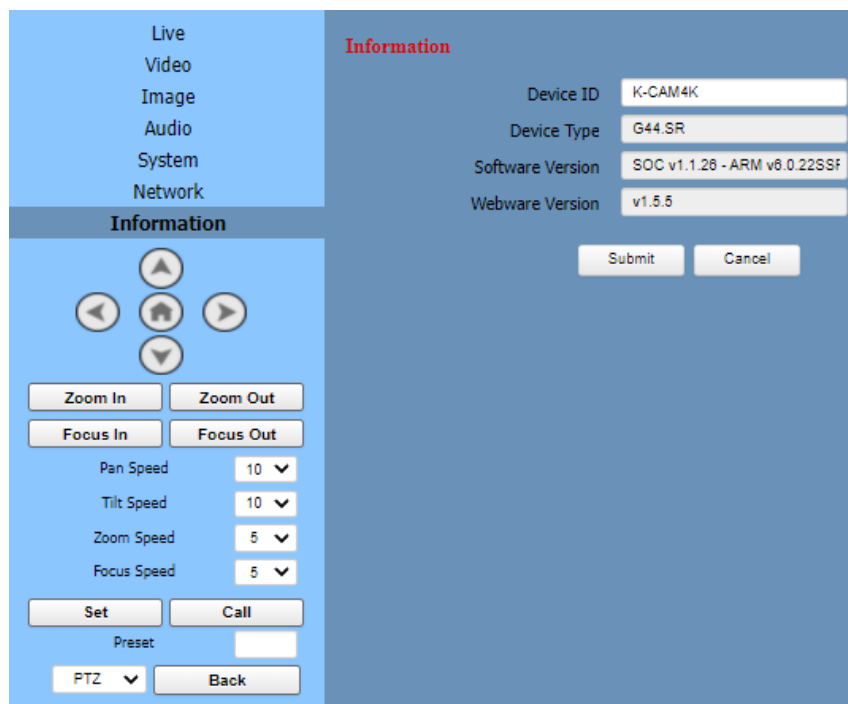


Figure 13: Information Page

3. View the Information.
4. If requires change the device ID.
5. Click **Submit**.

Upgrading Firmware

Contact Tech support if you need to upgrade the firmware (support@kramerav.com).

Technical Specifications

Ports	USB-C 2.0	On a USB-C connector
	RS-232 IN	On an 8-pin Min DIN, Max Distance: 30m Protocol: VISCA / Pelco-D / Pelco-P
	RS-232 OUT	On an 8-pin Min DIN, Max Distance: 30m Protocol: VISCA / Pelco-D / Pelco-P
	RJ-45	10/100/1000M Adaptive Ethernet Port
	RS-485	On a 2-pin phoenix connector, Max Distance: 1200m, Protocol: VISCA / Pelco-D / Pelco-P
	Audio Line In	On a 3.5mm mini jack
	HDMI	On an HDMI connector
	3G-SDI	On a BNC connector, 800mVp-p, 75Ω. Along to SMPTE 424M standard
	USB	On a USB type B connector Up to 4K@30fps compressed video and 1080P original video can be output
Camera	Video System	HDMI: 1080P60, 1080P50, 1080I60, 1080I50, 1080P30, 1080P25, 720P60, 720P50, 1080P29.97, 1080I59.94, 1080P59.94, 720P59.94, 4KP29.97, 4KP25, 4KP30
		3G-SDI: 1080P60, 1080P50, 1080I60, 1080P59.94, 1080I59.94, 1080I50, 1080P30, 1080P29.97, 1080P29.97, 1080P25, 720P60, 720P59.94, 720P50
	Sensor	1/2.5 inch, CMOS, Max Effective Pixel: 8.51M
	Scanning Mode	Progressive
	Lens	12x, f = 4.4mm ~ 52.8mm, F1.8 ~ F2.6
	Digital Zoom	16x
	Minimal Illumination	0.5 Lux @ (F1.8, AGC ON)
	Shutter	1/30s ~ 1/10000s
	White Balance	Auto, Indoor, Outdoor, One Push, Manual
	Backlight Compensation	Support
	Digital Noise Reduction	3D Digital Noise Reduction
	Video S/N	≥55dB
	Horizontal Angle of View	71° ~ 8.2°
	Vertical Angle of View	42.7° ~ 4.5°
	Horizontal Rotation Range	±170°
	Vertical Rotation Range	±30°
	Pan Speed Range	1.6°/s ~ 76°/s
	Tilt Speed Range	0.5°/s ~ 15°/s
	H & V Flip	Support
	Image Freeze	Support
	Number of Presets	255
	Preset Accuracy	0.1°
USB Features	Video Format	YUY2: max to 1080P@30fps
		H.264 AVC/SVC: max to 2160P@30fps
		MJPEG: max to 4K@30fps
	Operating System	Windows 7, Windows 8, Windows 10, Mac OS X, Linux, Android
	Color System / Compression	YUY2 / MJPEG / H.264 / H.265
	USB Audio	Support
	USB Video Communication Protocol	UVC 1.1~1.5
	UVC PTZ	Support

Network Features	Video Compression	H.264/H.265/MJPEG
	Video Stream	First Stream, Second Stream
	First Stream Resolution	3840x2160, 1920x1080, 1280x720, 1024x576, 720x480, 720x408, 640x480, 640x360
	Second Stream Resolution	720x480, 720x408, 640x480, 640x360, 480x320, 320x240
	Video Bit Rate	H264: ~60Mbps MJPEG: ~200Mbps
	Bit Rate Type	Variable Rate, Fixed Rate
	Frame Rate	50hz: 4K max to 30fps, 1080P max to 50fps 60hz: 4K max to 30fps, 1080P max to 60fps
	Audio Compression	G711A, AAC
	Audio Bit Rate	96K, 128K
	Protocols	TCP/IP, HTTP, RTSP, RTMP/RTMPS, ONVIF, DHCP, SRT, Multicast
Controls	IR Remote Control Transmitter	OSD
	Embedded web pages	
Power	Source	12V DC, 2A max.
	Consumption	12W max.
Environmental Conditions	Operating Temperature	0° to +40°C (32° to 104°F)
	Storage Temperature	-40° to +60°C (-40° to 140°F)
	Humidity	10% to 90%, RHL non-condensing
	Altitude	Below 5000 meters
Regulatory Compliance	Safety	CE, FCC
	Environmental	RoHS, REACH
Enclosure	Type	Aluminum and plastic
General	Net Dimensions (W, D, H)	23.5cm x 14.5cm x 17cm (9.2" x 5.7" x 6.7")
	Shipping Dimensions (W, D, H)	30cm x 24.5cm x 24.5cm (11.8" x 9.6" x 9.6")
	Net Weight	1.42kg (3.1lbs) approx.
	Shipping Weight	3.35kg (7.4lbs) approx.
Accessories	Included	Power adapter and cord, IR remote control transmitter, 1 USB 3.0 cable, wall bracket kit, lens cover

Specifications are subject to change without notice at www.kramerav.com

Default Communication Parameters

RS-232	
Baud Rate:	9600
Data Bits:	8
Stop Bits:	1
Parity:	None
Command Format:	ASCII
To reset the IP settings to the factory reset values go to: Menu->Setup -> Factory Reset-> press Enter to confirm	
IP Address:	192.168.100.88
Subnet mask:	255.255.0.0
Default gateway:	192.168.1.2
Default username:	admin
Default password:	admin
Full Factory Reset	
OSD	Go to: Menu-> RESTORE DEFAULT -> confirm
Reset button	Press the RESET button for 5 seconds to reset the machine

The warranty obligations of Kramer Electronics Inc. ("Kramer Electronics") for this product are limited to the terms set forth below:

What is Covered

This limited warranty covers defects in materials and workmanship in this product.

What is Not Covered

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

How Long this Coverage Lasts

The standard limited warranty for Kramer products is seven (7) years from the date of original purchase, with the following exceptions:

1. All Kramer VIA hardware products are covered by a standard three (3) year warranty for the VIA hardware and a standard three (3) year warranty for firmware and software updates; all Kramer VIA accessories, adapters, tags, and dongles are covered by a standard one (1) year warranty.
2. Kramer fiber optic cables, adapter-size fiber optic extenders, pluggable optical modules, active cables, cable retractors, ring mounted adapters, portable power chargers, Kramer speakers, and Kramer touch panels are covered by a standard one (1) year warranty. Kramer 7-inch touch panels purchased on or after April 1st, 2020 are covered by a standard two (2) year warranty.
3. All Kramer Calibre products, all Kramer Minicom digital signage products, all HighSecLabs products, all streaming, and all wireless products are covered by a standard three (3) year warranty.
4. All Sierra Video MultiViewers are covered by a standard five (5) year warranty.
5. Sierra switchers & control panels are covered by a standard seven (7) year warranty (excluding power supplies and fans that are covered for three (3) years).
6. K-Touch software is covered by a standard one (1) year warranty for software updates.
7. All Kramer passive cables are covered by a lifetime warranty.

Who is Covered

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

What Kramer Electronics Will Do

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product. If a direct or similar replacement product is supplied, the original product's end warranty date remains unchanged and is transferred to the replacement product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

What Kramer Electronics Will Not Do Under This Limited Warranty

If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

How to Obtain a Remedy Under This Limited Warranty

To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, visit our web site at www.kramerav.com or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required (RMA number).

You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

Limitation of Liability

THE MAXIMUM LIABILITY OF KRAMER ELECTRONICS UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY. Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

Exclusive Remedy

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Other Conditions

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

This limited warranty is void if (i) the label bearing the serial number of this product has been removed or defaced, (ii) the product is not distributed by Kramer Electronics or (iii) this product is not purchased from an authorized Kramer Electronics reseller. If you are unsure whether a reseller is an authorized Kramer Electronics reseller, visit our web site at www.kramerav.com or contact a Kramer Electronics office from the list at the end of this document.

Your rights under this limited warranty are not diminished if you do not complete and return the product registration form or complete and submit the online product registration form. Kramer Electronics thanks you for purchasing a Kramer Electronics product. We hope it will give you years of satisfaction.

KRAMER



HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE



P/N:



2900-301541

Rev:



1



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing

For the latest information on our products and a list of Kramer distributors, visit our website where updates to this user manual may be found.

We welcome your questions, comments, and feedback.

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