



# KC50 User Manual

## Multifunctional PTZ Remote Controller



**Designed in Bavaria**  
Manufactured in China



**LEGIO** *AV*

®

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## Introduction

Thank you for using our products.

In order to enable you to operate this machine proficiently as soon as possible, please carefully read the instruction manual we provide for you, from which you can obtain product safety precautions, product introduction and product usage methods and other related knowledge.

After you have read the instruction manual, please keep it properly for future reference. If you find any problems during the use of the product, please contact our relevant service personnel, thank you for your cooperation.

## Precautions

1. Before connecting to the device, make sure the power supply voltage is correct. Only use the original uncut (unspliced) power supply that came with your keyboard.
2. If the product does not work properly, please contact your dealer. Never attempt to disassemble the device yourself. (We are not responsible for problems caused by unauthorized repair or maintenance.)
3. This product is an indoor device, please do not place this product in a place with water or humidity.
4. When transporting, the equipment should be packed in the original packaging.
5. Do not drop or subject the unit to physical impact.
6. Do not use strong detergent to clean the machine, when the dust is thick, wipe gently with a neutral detergent, and only for external cleaning.
7. Keep RJ-45 ports free of dust and moisture.
8. Avoid moving the machine between places that are too cold or too hot to avoid fogging inside the machine and affect its service life.

## Affirm

1. We have done our best to complete and correct the content of this manual, but there will inevitably be errors and omissions, and we will not be responsible for any technical or printing errors in this manual.
2. The appearance of the product shown in this manual is for reference only, and may differ from the actual appearance of the device you purchased.
3. This instruction manual guides multiple product models, so it is not intended to be used alone for any specific product.
4. The display interfaces in this manual, illustrations, parameters, drawings and model value ranges may be different. Please refer to the actual product for details.
5. The content of this manual is subject to change without prior notice.
6. If there is a discrepancy with this manual due to software version upgrades, please refer to the software as the standard.

## Keyfeatures

### **4D precise Joystick + 3D knobs + ergonomic zoom button**

Camera parameters control such as white balance, exposure, focus and zoom etc.

### **Built-in 5.5" full HD LCD display**

Supports real-time preview of the current camera feed via streaming protocols (NDI®/IHX2 and RTSP); streaming supports up to 4Kp30 ultra-high-definition video streams and camera preset position preview.

### **Support 7 cameras selection shortcuts**

7 camera shortcuts can be set quickly according to requirements; Up to 1000 cameras information can be saved.

### **Newly upgraded UI operation interface**

Display main parameters of cameras directly, personalize stylish interface casually.

### **Remote PTZ camera menu operation**

Quickly open the current camera menu, and achieve function operation in combination with joystick and preview screen or screen display, supporting the activation or deactivation of camera AI functions and switching AI tracking modes.

### **White and red backlight silicone buttons**

High-quality silicone, excellent touch, support white and red backlight so it can be operated smoothly in a low-light environment; support letters and common characters input and other operations such as editing camera's name and address.

### **Support buttons lock via one click**

Lock buttons via one click to avoid misoperation.

### **Multiple control protocols, apply to abundant venues**

Support VISCA VISCA Over IP VISCA TCP PELCO P/D Onvif and NDI, support automatic protocol recognition. Additional licenses are required to upgrade the NDI function, please consult the manufacturer for details.

### **Abundant interfaces, multiple connection methods**

External RS-232, RS422/485 serial port and RJ45 network interface. The network interface supports POE function, thereby reducing wiring trouble.

### **External tally interface**

Support up to 7 tally channels.

### **Support customized knobs Function**

Supports F1, F2, F3, F4 knob custom camera's image effect adjustment functions, with corresponding LCD screens displaying knob functions below each knob, allowing for optimal operation function settings according to user needs.

### **New upgrade supports WEB side background management**

Support accessing the WEB web page background through the PC network, and setting the main functions of the keyboard

### **Support HDMI output to large screen display**

Output the front camera image to the monitor for real-time preview through the HDMI interface, supporting up to 4Kp30 ultra-high definition resolution

## Accessories



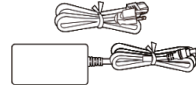
1 x KC50 controller



1 x HDMI Cable



1 x RS232 Cable



1 x Power cable

## The Frontboard Button Function (1-13)

### 1. White balance adjustment

„WB MODE“ white balance mode selection

„O.P.WB“ one push trigger, white balance is triggered

when the controller is in „ONE PUSH“ mode.

„R/B GAIN“ white balance adjustment

### 2. Exposure adjustment

„IRIS“ IRIS adjustment

„SHUTTER“ SHUTTER adjustment

„GAIN“ GAIN adjustment

### 3. Change the „NR“ mode level

### 4. AI control

„AI ON/OFF“ AI function on/off

„AI MODE“ change the mode (AI tracking, Region tracking, Auto framing)

### 5. „CAM1-CAM7“

shortcut buttons to select cameras

### 6. Custom Knob

Turn the knob left, Turn the knob right, Click knob all can enter the command to customize the function

„F1“ default function navigation, rotate and move the cursor to view the current white balance and exposure status of the camera

„F2“ default function gain limit, adjust the gain limit parameters

„F3“ default function maximum shutter speed, adjust the maximum shutter speed parameters „F4“ default function minimum shutter speed, adjust the minimum shutter speed parameters

### 7. „PT SPEED“

adjusts the speed level of the pan/tilt (1-7)

### 8. „ZOOM TELE WIDE“

control camera's optical zoom (Control speed is related to the pressing process)

### 9. „D-ZOOM“

digital zoom On/Off

### 10. „POWER ON/OFF“

control camera POWER ON/OFF

### 11. „Z/F SPEED“

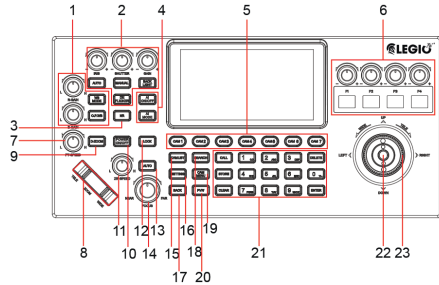
adjusts the speed level of the zoom/focus (1-7)

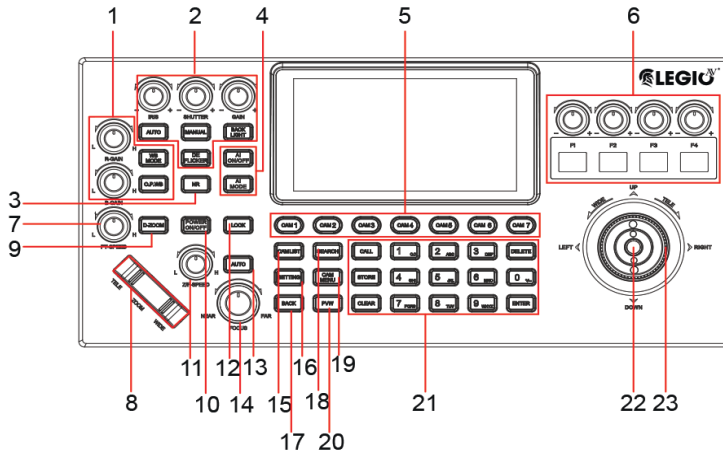
### 12. „LOCK“

lock keyboard

### 13. „AUTO“

auto focus mode





## Button Function (16-23)

14. „FOCUS“ Focus

adjustment(Single click „Trigger Focus“)

15. „CAM LIST“

IP List of devices added to the keyboard

16. „SETTING“

control keyboard settings

17 „BACK“

back button

18. „SEARCH“

for searching IP device; support VISCAOVER IP /ONVIF/NDI protocol search

19. „CAM MENU“

camera menu, turn on/off

20. „PVW“

Preview the video stream of the current control device (customizable)

21. Preset operation area

characters,number keyboard

22. „HOME“

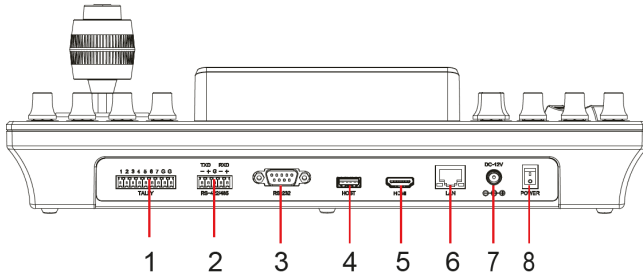
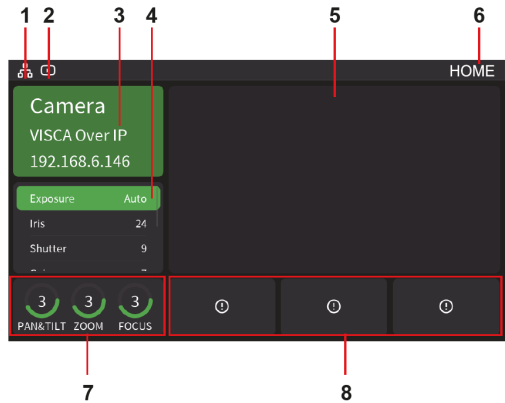
Click to reset the PTZ , press and hold for 5 seconds to reset the PTZ

23. PTZ joystick

The left and right direction of the joystick is panning, and the up and down is tilting. When you release the joystick, the camera will stop moving. Turn the knob on the joystick clockwise: ZOOM TELE; Turn the knob on the joystick anticlockwise: ZOOM WIDE.

## Screen

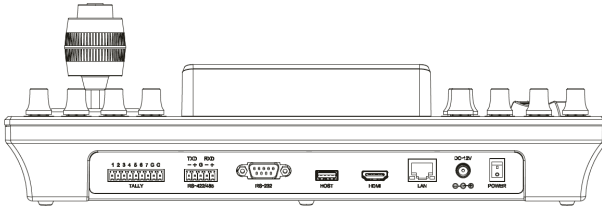
1. Network connection indicator icon indicates that the network has been connected successfully
2. Preview video indicator icon: indicates that current device you control has the preview video streaming
3. Control camera through network, it shows device name, control protocol, device IP address respectively
4. The camera's current exposure and white balance status display area
5. Video stream preview of the current control device (customizable)
6. Camera's current mode display area
7. „PAN&TILT“ corresponds to the current status of the „PT-SPEED“- knob „ZOOM/FOCUS“ corresponds to the current status of the „Z/F-SPEED“-knob
8. Preset previews for 1, 2, and 3 added to the shortcut key device



## Interface

1. Tally interface
2. RS-422/485 interface: Connect with RS-422 cable, up to 7 cameras can be controlled through ViSCA protocol; Connect with RS-485 cable, up to 7 cameras can be controlled through ViSCA protocol and up to 255 cameras through PELCO protocol.
3. RS-232 interface: Connect with RS-232 cable, up to 7pcs cameras can be controlled through ViSCA and up to 255pcs cameras through PELCO protocol.
4. USB interface: for upgrading
5. HDMI output interface: for external display devices
6. LAN port: connect the controller with network (save up to 1000 network cameras)
7. DC-12V power input interface
8. Power on/off

# Interface Pin definition



 TALLY		 RS-422/485		 RS-232		 LAN			
Pin NO	Function	Pin NO	RS-422 Function	RS-485 Function	Pin NO	Function	Pin NO	Function	Color
1	Tally1				1	NC	1	TXD+	Orange/White
2	Tally2	1	TXD-	B-	2	RXD	2	TXD-	Orange
3	Tally3	2	TXD+	A+	3	TXD	3	RXD+	Green/White
4	Tally4	3	GND	GND	4	NC	4	POE45	Blue
5	Tally5	4	RXD-	/	5	GND	5	POE45	Blue/White
6	Tally6	5	RXD+	/	6	NC	6	RXD-	Green
7	Tally7				7	NC	7	POE78	Brown/White
G	GND				8	NC	8	POE78	Brown
G	GND				9	NC			

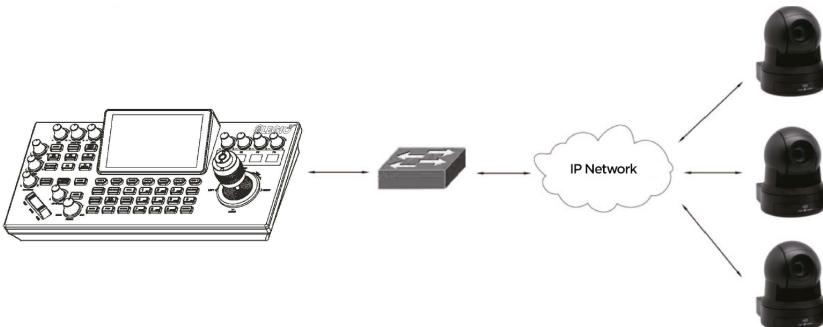
## Power Supply

Supply controller's power by the following methods

1. DC power adapter power supply (standard 12V)
2. POE power supply (connect the Ethernet IP port to the POE switch) Use CAT6 cable, the maximum distance is 100 meters (802.3af)

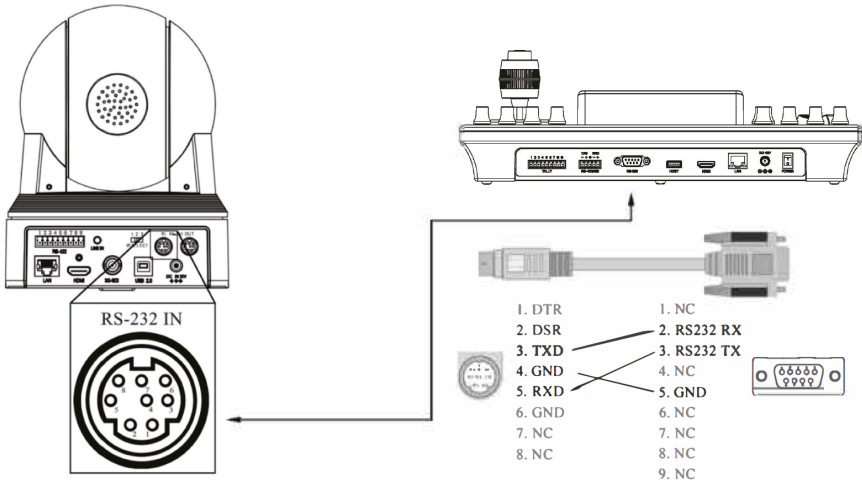
## IP Connection

Connect „LAN“ port of the controller to port on the Ethernet switch

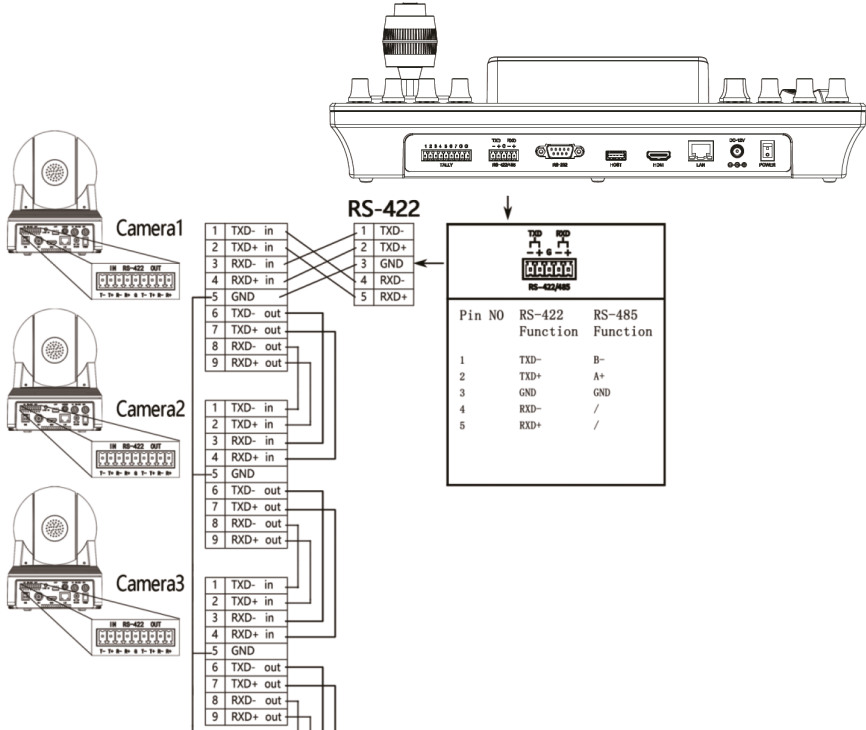


# Serial Connection

1. Connect DB9 to RS232 8pin mini port control cable for RS-232 connection S232 interface picture

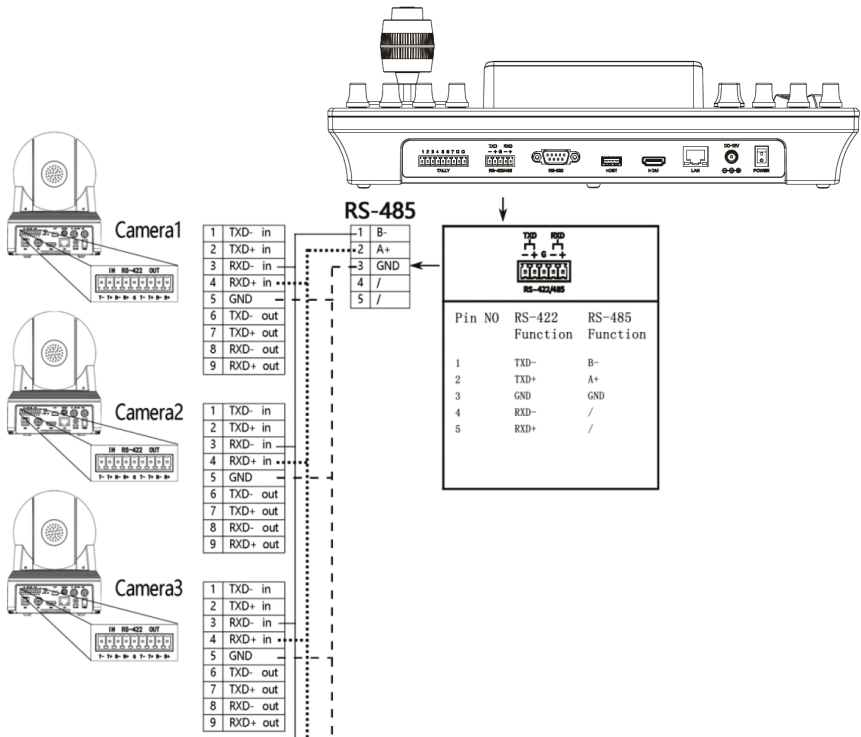


2. Phoenix connector for RS-422 connection



# Serial Connection

## 3. Phoenix connector for RS-485 connection



## Keyboard OSD menu settings

- Press the „SETTING“ button to open/exit the keyboard menu
- Use the joystick to operate the keyboard menu
  - a. Move the joystick cursor up and down
  - b. Move the joystick to the right to enter the next menu/switch parameters
  - c. Move the joystick to the left to return to the previous menu/switch parameters
  - d. „HOME“ button on the top of the joystick to enter the next menu/save and exit
- Use the „FOCUS“ knob to operate the keyboard menu
  - a. Rotate the cursor clockwise down
  - b. Rotate the cursor counterclockwise upc.
  - c. Click the „FOCUS“ knob to enter the next menu/save and exit
- Click the „BACK“ „AUTO“ to return to the previous menu/exit without saving

## Keyboard input

- Each button with number and letter or symbol input, select the character you want to input by clicking the button continuously
- Adjust the cursor position by rotating the joystick left or right or the „FOCUS“ knob
- Case switching
  - a. Click the button „1“ twice continuously to switch to uppercase English
  - b. Click the button „1“ three times continuously to switch to lowercase English
- „DELETE“: delete a single character
- „ENTER“, „HOME“: save and exit
- „BACK“, „AUTO“: do not save and exit

## Menu introduction Settings

Settings		
√ .Hot Key	>	<b>Hot Key:</b> It is used to set the device information of CAM1~CAM7 shortcut keys;
√ .Device Management	>	<b>Device Management:</b> Used to manage the keyboard neglect device and added device information;
√ .Protocol Settings	>	<b>Protocol Settings:</b> Authorization and information management for the corresponding protocol of the controller;
√ .Network	>	<b>Network:</b> Used to manage network setting;
√ .Knobs	>	<b>Knobs:</b> Used to set the functions of custom knobs F1, F2, F3, F4, and preset mode;
√ .Display	>	<b>Display:</b> Used for setting up the display of controller;
√ .Beep	>	<b>Beep:</b> Beep happens when operate the buttons;
√ .Joystick	>	<b>Rocker Switch:</b> Set the functions of boat switch;
√ .Rocker Switch	>	<b>Joystick:</b> Set up joystick related functions;
√ .Tally	>	<b>Tally:</b> The controller is used to send and receive tally signals; <b>Language:</b> Set the keyboard display language;
√ .Language	English >	<b>Security:</b> Set the control permissions of keyboard lock and keyboard docking camera function;
√ .Security	>	<b>About Device:</b> Display equipment information (the following information is given by the manufacturer and cannot be modified without permission. If you have any questions, please contact the manufacturer);
√ .About Device	>	
√ .Reset Device	>	<b>Reset Device:</b> Restore to factory default setting state.

## Hot Key

Hot Key	
√. CAM1	>
√. CAM2	>
√. CAM3	>
√. CAM4	>
√. CAM5	>
√. CAM6	>
√. CAM7	>

➔

Camera Information	
√. Device Name	Camera 1 >
√. Protocol	VISCA ∨
√. Address	1 ∨
√. Baudrate	9600 ∨
√. Compatible Mode	Normal ∨
√. Video Stream	RTSP ∨
√. Stream URL	rtsp://>
√. RTSP Authentication	<input type="checkbox"/>
√. RTSP User Name	admin>
√. RTSP User Name	*****
√. Reset Camera Address	>
⬇ Select from List	>

VISCA
Pelco D
Pelco P
VISCA Over IP
VISCA TCP
ONVIF
NDI
Matrix Control

Device Name: Modify the device name which is displayed on the home page;

Protocol: Select a protocol based on your needs, „VISCA“, „PELCO D“, „PELCO P“, „VISCA Over IP“, „VISCATCP“ can be manually input, „ONVIF“ and „NDI“ cannot be manually selected needs to be selected from the device list;

Matrix Control, which can perform preset-related operations on cameras in batches Address: match the camera address;

Baudrate: match the camera baud rate;

Compatible mode: When it has problem to use the standard mode to work with the camera. pls try to use other modes;

Video stream: A protocol that supports video streaming over a network;

Stream URL: Enter the camera stream address to pull the video signal of the camera, Reset camera address: When cascading multiple cameras and using the ViSCA protocol.

this function can assign corresponding addresses to the cameras according to the connection sequence (only valid under the ViSCA protocol );

Select from list: You can select a device from the „device list“ for quick control.

## Device Management

Device Management	
Device List	>
Add a New Device	>
Ignored Device List	>
Add an Ignored Device	>

**Device list:** You can delete the device that has been added to the keyboard or modify the device information that has been added to the keyboard;

**Add a new device:** Manually add devices to the keyboard;

**Ignored device list:** block specified devices in the search list;

**Add an ignored device:** Manually add devices that need to be blocked in the search list.

## Protocol settings

Protocol settings	
✓ . NDI	>
✓ . RTSP	>

**NDI:** Display NDI authorization status and edit NDI group. If not authorized, you can enter the manufacturer's activation code for authorization.

**RTSP:** Displays the current URL suffix. The device streaming suffix can be modified, The default is 11 /h264major.

## Network

Network	
✓ . DHCP	<input checked="" type="checkbox"/>
✓ . IP Address	192. 168. 1. 119 >
✓ . Net Mask	255. 255. 255. 0 >
✓ . Gateway	192. 168. 1. 1 >
✓ . DNS1	192. 168. 1. 1 >
✓ . DNS2	8. 8. 8. 8 >
✓ . Extra IP1	OFF >
✓ . Extra IP2	OFF >
✓ . Extra IP3	OFF >

**DHCP:** DHCP ON means network-related IP address can be attained automatically (dynamic address),

DHCP OFF means network-related IP address need to be added manually (static address);

**Extra IP 1/2/3:** You can manually add the IP of other network segments, and after enabling it, it can be used to control cameras in other different network segments in the LAN (should be used when DHCP is off).

## Knobs

Knobs	
✓ . F1	>
✓ . F2	>
✓ . F3	>
✓ . F4	>
✓ . Preset Operation Mode	10 ∨

**F1:** Default function „NAV“

**F2:** Default function „Gain Limit“

**F3:** Default function „Max Shutter“

**F4:** Default function „Min Shutter“

[F1, F2, F3, F4 can be customized as „NAV“, „Gain Limit“, „Max Shutter“, „Min Shutter“, „AE Speed“, „Exp Comp“, „Back Light“, „IR Cut Filter“, „ND Filter“, „WB Speed“, „Gamma Mode“, „Gamma Offset“, „Gamma Pattern“, „NR Mode“, „NR Value“, „Custom Command“. The above functions are only effective under VISCA, VISCAOVERIP protocols]

**Preset Operation Mode:** Optional 10 or 255 mode

## Display

Display	
✓. Theme Color	Green ▾
✓. Brightness	High ▾
✓. Key Brightness	Medium ▾
✓. Auto Sleep	<input type="checkbox"/>
✓. HDMI Resolution	1920x1080p60

**Theme color:** Modify the display color of the controller theme (after the modification, power off and reboot to take effect);  
**Brightness:** Modify the screen brightness; Key brightness: modify the buttons brightness;  
**Auto sleep:** the controller will sleep after 30 minutes when you turn on the automatic sleep, and the buttons and screen brightness become low;  
**HDMI resolution:** selectable output display resolution

## Beep

Beep	
✓. Enable	<input type="checkbox"/>
✓. Style	Style1 ▾

**On:** the buzzer works when prompt tone is turned on, and there is sound feedback when the buttons are pressed;  
**Style:** select the prompt tone style.

## Joystick

Joystick	
✓. Key Enable	<input type="checkbox"/>
✓. Zoom Enable	<input type="checkbox"/>
✓. Pan Reverse	<input type="checkbox"/>
✓. Tilt Reverse	<input type="checkbox"/>
✓. Correction	>

**Key enable:** When turned on, the top button of the joystick can realize the camera pan/tilt reset function;  
**Zoom Function:** After turning on, rotate the joystick to control the zoom of the camera,  
**Pan Reverse:** Turn on, the left and right direction is reversed when you control the camera;  
**Tilt Reverse:** Turn on, the up and down direction is reversed when you control the camera;  
**Calibration:** When the joystick is abnormal, try to calibrate the joystick according to the prompts (click the „BACK“ button to back from the calibration mode).

## Rocker Switch

Rocker Switch	
✓. Correction	<input type="checkbox"/>

**Correction:** When the boat switch is abnormal, try to calibrate the switch according to the prompts (click the „BACK“ button to exit the calibration mode).

## Tally

Tally	
✓. Enable	<input type="checkbox"/>
✓. Mode	Input ▾
✓. Camera Link	<input type="checkbox"/>

Enable: Tally signals can be received and sent after being turned on;  
 Mode: The controller can be selected as tally signal output or input;  
 Camera Link: Turn it on, connect the camera with tally light, when the camera is connected with the protocol that supports tally signal, the tally light of the camera will receive the signal and respond.

## Language

Language	
✓. Language	English ▾
	<div style="border: 1px solid black; padding: 5px;"> <p><b>English</b></p> <p>简体中文</p> <p>한국어</p> <p>日本語</p> <p>Русскийязык</p> <p>Español</p> </div>

Set the keyboard language (Default is „English“)

## Security

Security	
✓. Set Lock	<input type="checkbox"/>
✓. Change Password	***** >
✓. Control Permission Settings	>

Set Lock: After opening, it need to enter the password to enter the keyboard menu;  
 Change Password: Password change for keyboard menu  
 Control Permission Settings: Keyboard docking camera function control permission settings.

## About Device

About Device	
✓. Brand	HDKATOV >
✓. Model	KC50
✓. Firmware Version	V0.0.15 >
✓. Authorization	Authorized
✓. Serial Number	788B9B404C
✓. MAC Address	54:87:62:20:B0:01
✓. Website	legioav.eu
✓. Contact Us	support@legioav.eu
✓. More Information	>
✓. USB Flash Drive	>

**Brand:** Display keyboard brand

**Model:** Display keyboard model

**Firmware Version:** Display keyboard current version

**Authorization:** Display the current authorization status of the keyboard (unauthorized keyboards can only be used for 1 minute and cannot be operated after 1 minute)

**Serial Number:** Display keyboard serial number

**MAC Address:** Display keyboard MAC address

**Website:** Keyboard manufacturer official website address

**Contact Us:** Keyboard manufacturer business contact number

**More Information:** Keyboard manufacturer official website QR code

**USB Flash Drive:** Upgrading the keyboard using a U flash drive

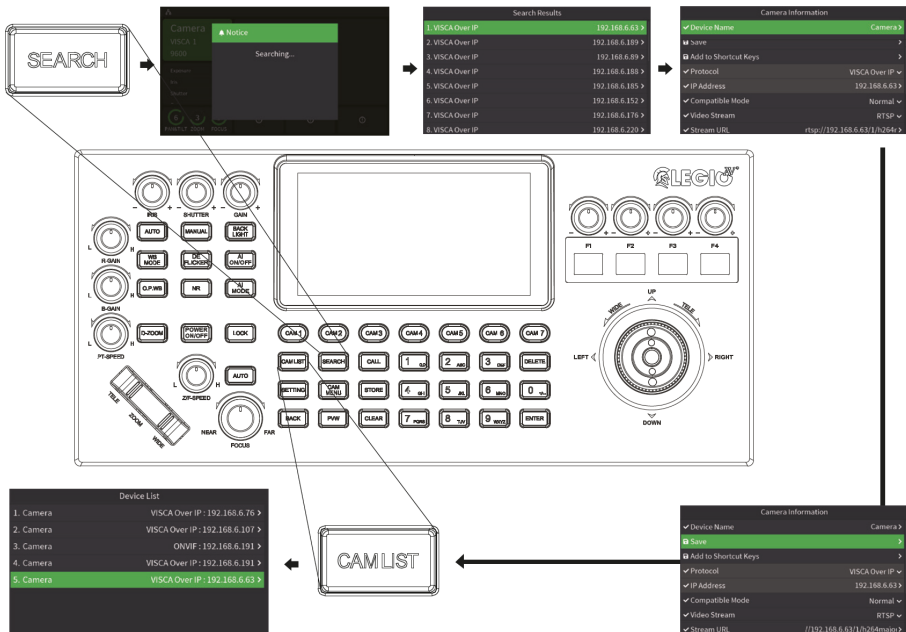


# Camera Assignment

## Add IP camera to keyboard

Search the local network and add the IP camera to the keyboard;

- Press „SEARCH“ button to search IP camera;
- The keyboard screen displays „Searching for devices, please wait“;
- Display the discovered ONVIF / VISCA\_IP / NDI cameras, use the joystick or „FOCUS“ knob to browse the discovered cameras; (For discovered cameras, camera parameters can be modified, added to the camera list, added to shortcut keys. and added to the ignore list);
- Edit discovered cameras and add cameras to the camera list (device that has been added to the camera list will no longer be displayed in the search list);
- Exit the search list;
- Press the „CAM LIST“ button to open the camera list, use the joystick or the „FOCUS“ knob to select the corresponding camera.

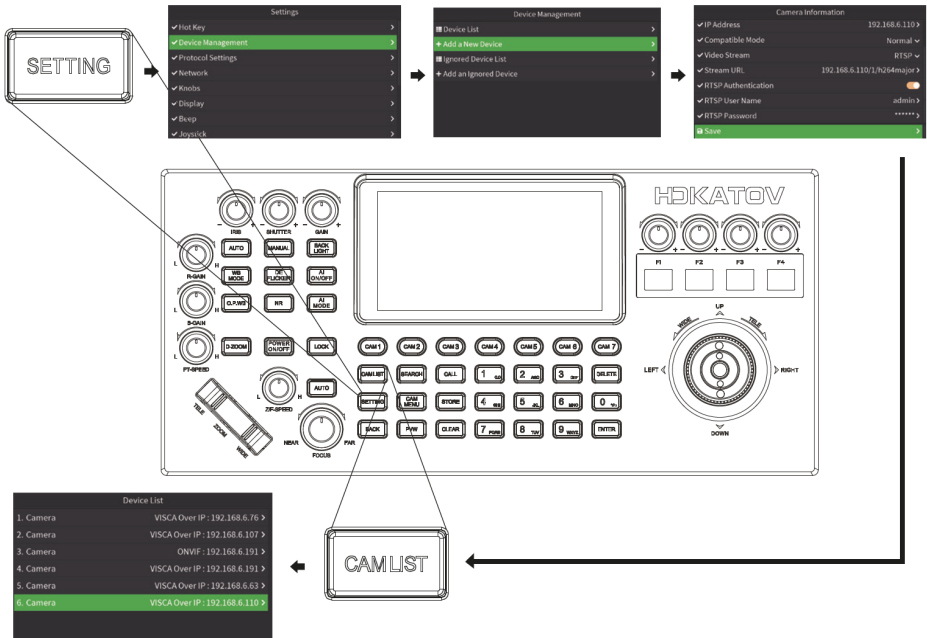


## Camera Assignment

# Add Visca camera to keyboard

Manually add VISCA\_IP, VISCA\_TCP cameras to the keyboard:

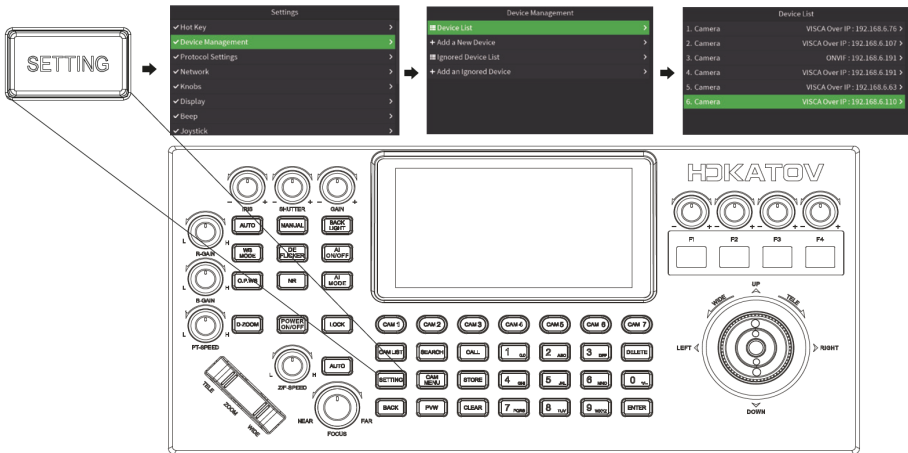
- Click „SETTING“ to open the keyboard menu, select the „Device List“ column, select the „Add Device“ column, modify the corresponding camera parameters and click „SAVE“ (when the IP address needs to fill in an odd number, add 00 before the odd number, such as 005);
- Exit keyboard menu;
- Short press the „CAM LIST“ button to open the camera list, use the joystick to select the added custom camera (IP control).



## Camera Assignment

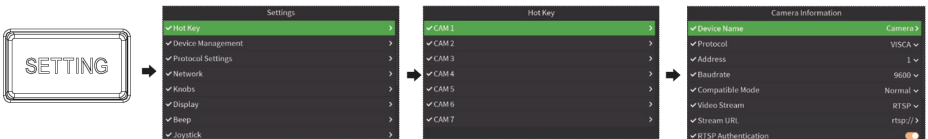
### Edit Camera list

- Click „SETTING“ to enter the menu, select „Device Management“ column, select „Device List“
- It can edit the devices added to the camera list from the „search list“ and „add list“; (You can edit camera name, protocol (ONVIF and NDI device list does not allow manual selection), IP address, compatibility mode, video stream address, delete device, ONVIF device settings can also edit user name and password) Short press the „CAM LIST“ button to open the camera list, use the joystick to select the added custom camera (IP control).

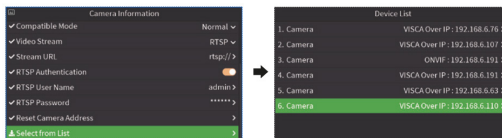


### Edit hot key

Click „SETTING“ to enter the menu, select the „Hot Key“ column, you can edit 7 hot keys, take the hot key CAM1 as an example, you can manually modify the parameters;



You can select the „Select from List“ column to select a device from the „Device List“; for devices searched by „SEARCH“, you can set the to shortcut keys through „Add to shortcut keys“;



On the main page, when you have selected the hot key, press and hold for three seconds to quickly enter the hot key device editing, which is equivalent to the hot key device information editing in the menu.

## Interact with the camera

- Click „CAM LIST“ to open the device list, and then select the device through the joystick of „FOCUS“ knob;
- Press the shortcut key „CAM1~CAM7“ to select camera to be controlled; (When it's VISCA protocol, there are multiple cameras, in protocol for VISCA shortcut editing, click „Reset Camera Address“ to assign the address).

## Camera menu control

### Set Camera OSD menu

- Press the „CAM MENU“ button to send a command to open the camera OSD menu;
- Use the joystick to navigate the menu;
  - a. Move the joystick up and down to browse the menu options;
  - b. move left and right to adjust the value;
  - c. Press the button of the joystick and „ENTER“ button to send the command.

### Manual Movement

- Horizontal, vertical and zoom can be executed simultaneously;
- joystick can be used to move horizontally and vertically in any direction;
- The joystick can quickly return the gimbal and lens to the initial position through the top button;
- The „PT-SPEED“ knob adjusts the pan/tilt speed level, and the „Z/F-SPEED“ knob adjusts the zoom/focus speed level;
- Rotate the joystick and press the boat switch to adjust Zoom in/out.

## Set, recall and delete preset position

### • set preset Position

- a. Move the camera to the desired position;
- b. (!) The preset position mode is 10: first press the „STORE“ key, and then press the number „1“ key to set the No. 1 preset position; ® The preset mode is 255: first press the „STORE“ key, and then press the number „1“ key, and then press the „ENTER“ key to set the No. 1 preset position;
- c. the upper right corner of the keyboard screen displays „Save Preset 1“;

### • Call preset

- a. (!) The preset position mode is 10: first press the „CALL“ key, then press the number „1“ key, and then press the „ENTER“ key to call the No. 1 preset position; ® the preset position mode is 255: first press the „CALL“ key, then press the number „1“ key, and then press the „ENTER“ key to call the No. 1 preset position;
- b. The upper right corner of the keyboard screen displays „Recall Preset 1“;

### • Delete preset

- a. (!) The preset position mode is 10: first press the „CLEAR“ key, and then press the number „1“ key, to delete the No. 1 preset position; ® The preset position mode is 255: first press the „CLEAR“ key, the press the number „1“ key, and then press the „ENTER“ key to delete the No. 1 preset position;
- b. The upper right corner of the keyboard screen displays „Delete Preset 1“.

## Adjust image parameters

When using a keyboard to connect to the camera, it is recommended to use VISCA and VISCA OVER IP protocols first, because some functions of PELCO/ONVIF/NDI cannot be triggered due to incomplete instructions of the Protocol itself.

### Exposure

„IRIS“ knob: Click/rotate to switch to iris priority mode, rotate to adjust iris parameters

„SHUTTER“ knob: Click/rotate to switch to shutter priority mode, rotate to adjust shutter parameters

„GAIN“ knob: Click/rotate to switch to gain priority mode, rotate to adjust gain parameters

„AUTO“ button: Switch to auto exposure mode

„MANUAL“ button: Switch to manual exposure mode

„BACKLIGHT“ button: Click to turn backlight on/off

„DE FLICKER“ button: Click to change de-flicker mode (ON, 50HZ, 60HZ, OFF)

### White Balance

„R-GAIN“ knob: Rotate to switch to manual mode, rotate to adjust the red gain parameter

„B-GAIN“ knob: Rotate to switch to manual mode, rotate to adjust the blue gain parameter

„WB MODE“ button: Click to switch white balance mode

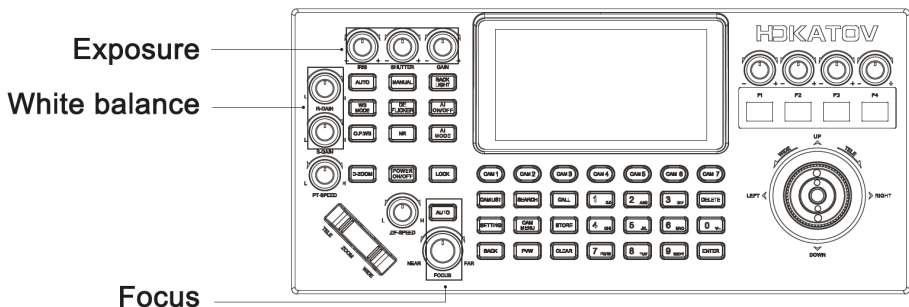
„O.P.WB“ button: Click the button to trigger white balance, which takes effect when white balance is in „one push“ mode

„NR“ button: Click to switch the NR mode level

### Focus

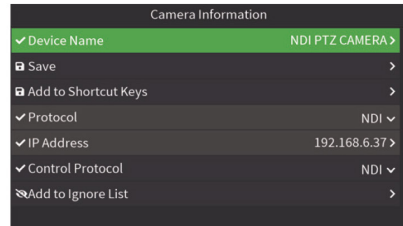
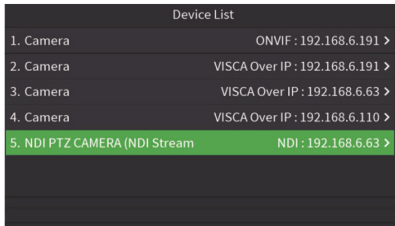
„FOCUS“ knob: Rotate to switch to manual focus mode and adjust focus parameters, click once to „trigger focus“ („NEAR“ adjusts near focus, „FAR“ adjusts far focus)

„AUTO“ button: Click to switch focus mode to automatic



## NDI protocol control

The NDI devices added to the keyboard have been searched. It can switch the „control protocol“ of NDI through the „Device List“. After switching to the VISCA OVER IP/TCP/NDI protocol, the image output is transmitted by the NDI protocol and the control is controlled by the VISCAOVER IP/TCP/NDI protocol



## WEB side background management

### Connection method

Direct connection mode: connect the keyboard directly to the computer with a network cable. Network connection mode: connect the keyboard to the internet network, and access the network through a router or switch. Users can 109 in to the device through the browser.

The computer must have the network segment where the keyboard IP is located. If the network segment is not added, you will not be able to log in. If the default IP address of the keyboard is 192.168.1.119, you need to add 1 network segment to the computer. The specific method is as follows :

Firstly open the computer network local connection properties window, select „Internet Protocol Version 4 (TCP/IPV4)“ double click or click the property“Internet Protocol Version 4 (TCP/IPV4)“ enter the properties window, click „Advanced“ to enter advanced TCP/IP Set the IP address and subnet mask in the IP address field. After the addition is completed, click OK to complete the IP network segment addition. Users can add corresponding network segments according to the modified keyboard IP address.

### Web login

Enter the device IP address in the browser address bar to default to 192.168.1.119, and press Enter to enter the web client login interface. Enter „admin“ in the [Username] field, „admin“ in the [Password] field, and pass the verification to enter the background preview interface. Language selection: The selected language can be displayed at the bottom of the login interface.

# WEB management

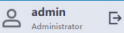
The following is the web management interface after logging in

## Shortcut keys

used to edit device information of keyboard CAM1~CAM7 shortcut cannel keys

**PTZ Controller**

- Hot Key
- Device Management
- Protocol
- Knobs
- Network
- Security
- System
- Firmware
- Device Information



% English

### Hot Key

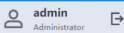
<b>CAM 1</b>	Camera Ⓞ Protocol: VISCA Over IP    📍 IP: 192.168.6.76	>
<b>CAM 2</b>	Camera Ⓞ Protocol: VISCA Over IP    📍 IP: 192.168.6.107	>
<b>CAM 3</b>	Camera Ⓞ Protocol: VISCA Over IP    📍 IP: 192.168.6.191	>
<b>CAM 4</b>	Camera 4 Ⓞ Protocol: VISCA    ⚙ Address: 4    Ⓞ Baudrate: 9600	>
<b>CAM 5</b>	Camera 5 Ⓞ Protocol: VISCA    ⚙ Address: 5    Ⓞ Baudrate: 9600	>
<b>CAM 6</b>	Camera 6 Ⓞ Protocol: VISCA    ⚙ Address: 6    Ⓞ Baudrate: 9600	>
<b>CAM 7</b>	Camera 7 Ⓞ Protocol: VISCA    ⚙ Address: 7    Ⓞ Baudrate: 9600	>

## Device Management

used to edit keyboard „device list“ and „blacklist“ related information

**PTZ Controller**

- Hot Key
- Device Management
- Protocol
- Knobs
- Network
- Security
- System
- Firmware
- Device Information



% English

### Device Management

Device List    Ignored List

Number	name	Protocol	IP Address
1	Camera	VISCA Over IP	192.168.6.76
2	Camera	VISCA Over IP	192.168.6.107
3	Camera	ONVIF	192.168.6.191
4	Camera	VISCA Over IP	192.168.6.191

Refresh
+ Add

## Protocol

used for keyboard NDI protocol authorization and RTSP streaming suffix management

The screenshot shows the 'Protocol' configuration page in the PTZ Controller interface. The left sidebar contains navigation options: Hot Key, Device Management, Protocol (selected), Knobs, Network, Security, System, Firmware, and Device Information. The main content area is titled 'Protocol' and includes a language selector for 'English'. It is divided into two sections: 'NDI' and 'RTSP'. Under 'NDI', there are fields for 'Authorization' (set to 'Authorized') and 'Group' (set to 'public'). Under 'RTSP', there is a field for 'URL Suffixes' (set to '/1/h264major'). A 'Confirm' button is located at the bottom right. At the bottom left of the sidebar, the user is identified as 'admin Administrator'.

## Knobs

used to edit information related to the custom commands of knobs F1, F2, F3 and PWV

The screenshot shows the 'Knobs' configuration page in the PTZ Controller interface. The left sidebar is the same as in the previous screenshot. The main content area is titled 'Knobs' and shows a list of four knobs: F1 (NR Mode), F2 (NR Value), F3 (Back Light), and F4 (Exp Comp). The 'F4' knob is selected, and its configuration details are shown in a modal window. The modal window has a title 'F4' and a language selector for 'English'. It contains a 'Function' dropdown set to 'Custom Command'. Below this are fields for 'Command Name' (set to 'Custom Command'), 'Press Command', 'Clockwise Command', and 'Anticlockwise Command'. A tooltip message says 'Please enter commands, for example: 81 01 06 04 FF'. At the bottom of the modal are 'Cancel' and 'Confirm' buttons. The user 'admin Administrator' is visible in the sidebar.

# Network

used for keyboard network related settings

**PTZ Controller**

- Hot Key
- Device Management
- Protocol
- Knobs
- Network
- Security
- System
- Firmware
- Device Information

admin Administrator

**Network** English

---

DHCP

IP Address: 192.168.6.77

Mask: 255.255.255.0

Gateway: 192.168.6.1

DNS1: 192.168.6.5

DNS2: 192.168.6.6

**Confirm**

**PTZ Controller**

- Hot Key
- Device Management
- Protocol
- Knobs
- Network
- Security
- System
- Firmware
- Device Information

admin Administrator

**Network** English

---

**Advanced**

**EXT IP1**

Enable:

IP Address: 0.0.0.0

Mask: 0.0.0.0

**EXT IP2**

Enable:

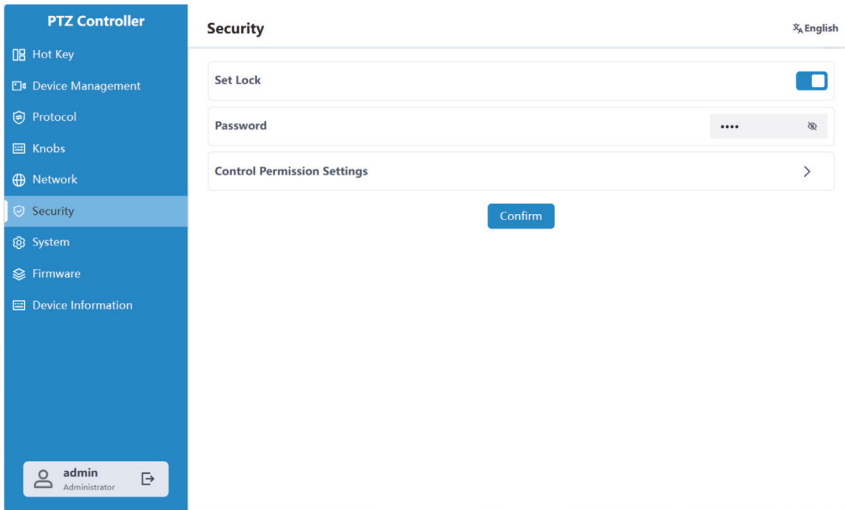
IP Address: 0.0.0.0

Mask: 0.0.0.0

**Confirm**

## Security

used to set the menu lock and control permissions for camera functions



**PTZ Controller**

- Hot Key
- Device Management
- Protocol
- Knobs
- Network
- Security**
- System
- Firmware
- Device Information

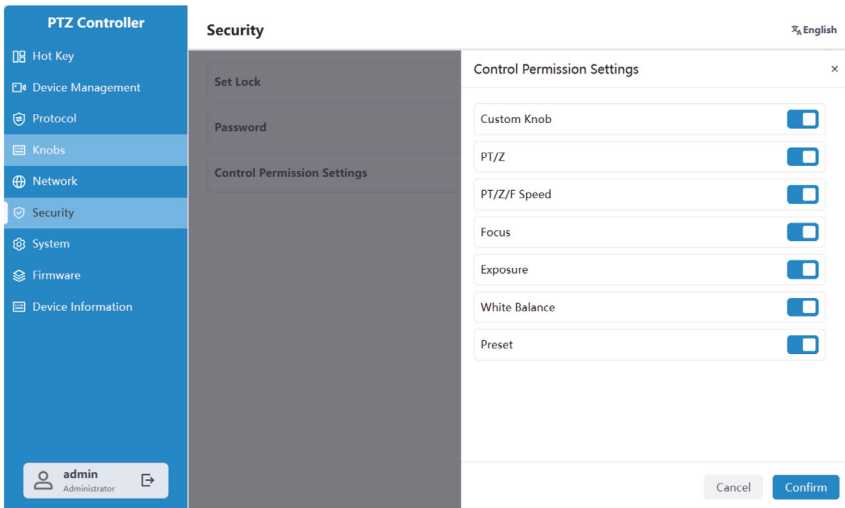
admin Administrator

**Security** English

Set Lock

Password

Control Permission Settings



**PTZ Controller**

- Hot Key
- Device Management
- Protocol
- Knobs
- Network
- Security**
- System
- Firmware
- Device Information

admin Administrator

**Security** English

Set Lock

Password

Control Permission Settings

**Control Permission Settings**

Custom Knob

PT/Z

PT/Z/F Speed

Focus

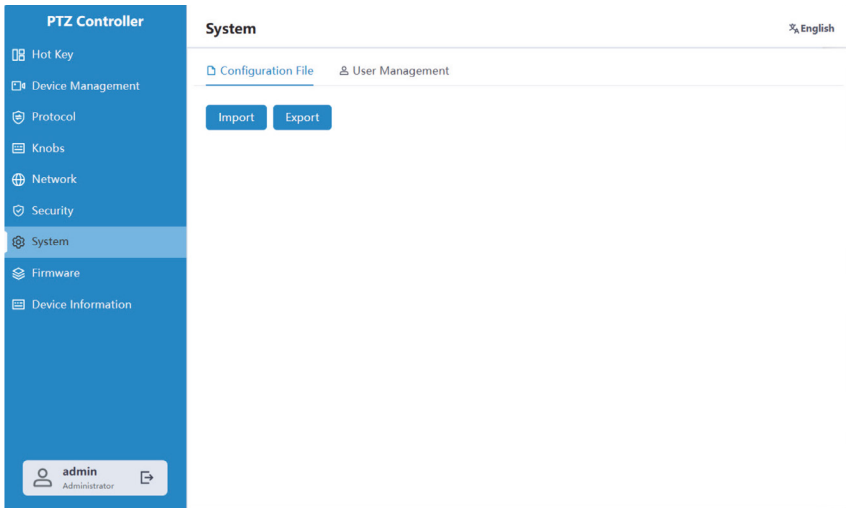
Exposure

White Balance

Preset

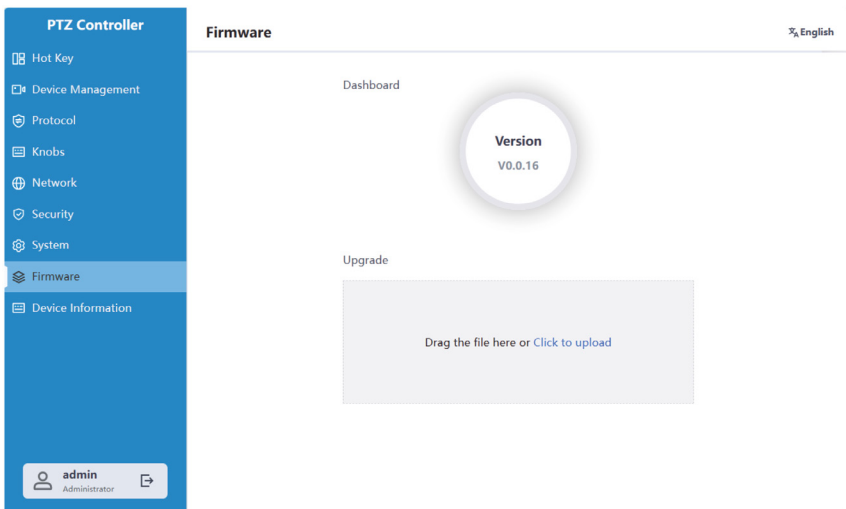
## System

used for keyboard import, export of configuration files and login account management



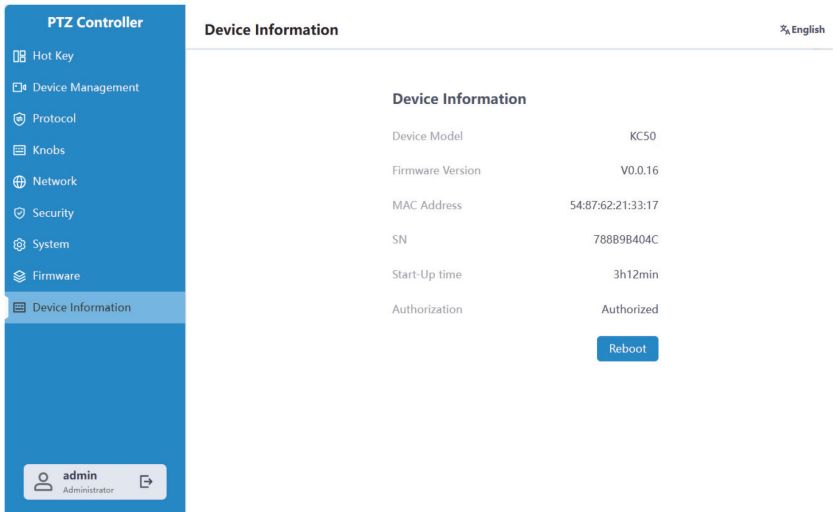
## Firmware upgrade

for keyboard upgrade



## Device Information

used to view basic keyboard information and restart the device



**PTZ Controller**

- Hot Key
- Device Management
- Protocol
- Knobs
- Network
- Security
- System
- Firmware
- Device Information**

admin Administrator

**Device Information** English

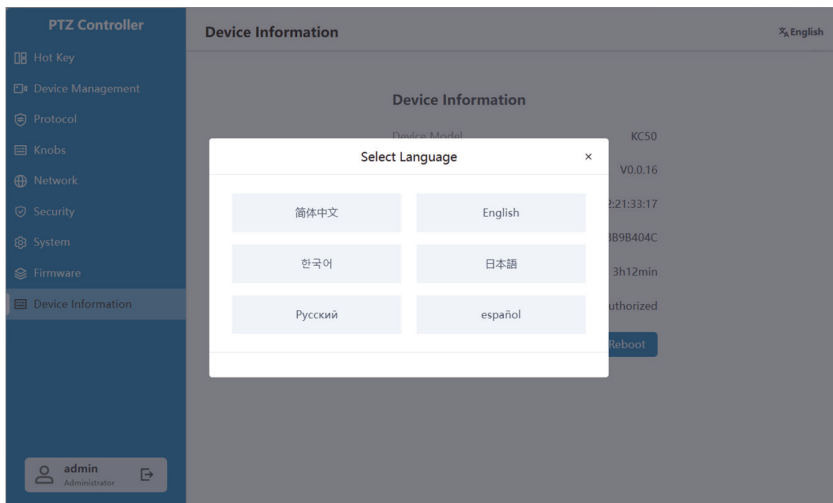
**Device Information**

Device Model	KC50
Firmware Version	V0.0.16
MAC Address	54:87:62:21:33:17
SN	76089B404C
Start-Up time	3h12min
Authorization	Authorized

[Reboot](#)

## Language bar

used to switch languages (the keyboard will be synchronized when switching languages)



**PTZ Controller**

- Hot Key
- Device Management
- Protocol
- Knobs
- Network
- Security
- System
- Firmware
- Device Information**

admin Administrator

**Device Information** English

**Device Information**

Device Model KC50

Firmware Version V0.0.16

MAC Address 54:87:62:21:33:17

SN 76089B404C

Start-Up time 3h12min

Authorization Authorized

[Reboot](#)

**Select Language**

- 简体中文
- 한국어
- Русский
- English
- 日本語
- español

# Specifications

Specifications	
Joystick	4D precision joystick
Knob	3D knob, support scale rotation to adjust the parameters, support customized functions
Preview	Supports real-time preview of the camera feed and preview of preset position images.
Silicone Buttons	High-quality silicone buttons support white and red two-color backlight
Screen	5.5" LCD color display
Display	The HDMI interface supports displaying output at 4Kp30 Ultra HD resolution
Shortcuts	Support 7 camera shortcut settings
Sound	The sound of the button prompts on/off
Lock	Support one-click locking function
Max. No. of cameras can be saved	1000
Max. No. of preset positions can be saved	255
Customized Knob	
Navigation	Support
Gain Limit	Support
Max. shutter speed	Support
Min. shutter speed	Support
Auto exposure speed	Support
Exposure compensation	Support
BLC	Support
IR switch filter	Support
ND filter	Support
WBC speed	Support
Gama curve	Support
Gama offset	Support
Gama Pattern	Support
Anti-flicker	Support
Noise reduction mode	Support
Noise reduction value	Support
User instructions	Support
Control	
Control interface	RJ45(Support POE and NDI@  HX2 (Optional)), RS-232, RS-422/485
IP control protocol	Onvif, VISCA Over IP, VISCA TCP, NDI@ ( Optional )
Serial port control protocol	VISCA, Pelco D, Pelco P
Power Supply	
Input Voltage	12V
Input Current	0.7A
POE	802.3af
Rated power	8.4W
Other	
Tally	Support up to 7 channels
HDMI Interface	External Display Device
USB Interface	Upgrade using an external USB flash drive
Usage Environment	Indoor
Working Temperature	-10℃-40℃
Storage Temperature	-20℃-60℃
External Dimensions	354*165*121mm (including joystick height)
Weight	1.5kg



# Certificate

شهادة – 증명서 – Certificat – 證明書 – Сертификат – Certificate



## CERTIFICATE OF CONFORMITY

**Certificate No.** : DACE241011007RL  
**Applicant's Name** : Shenzhen JinJiutianshi Industry Co.,Ltd  
**Address** : 3/F, Block A, Building 9, Baoneng Science and TechnologyPark, Qinghu Village, Qinghu Community, Longhua District, 518109, Shenzhen, China  
**Manufacturer** : Shenzhen JinJiutianshi Industry Co.,Ltd  
**Address** : 3/F, Block A, Building 9, Baoneng Science and TechnologyPark, Qinghu Village, Qinghu Community, Longhua District, 518109, Shenzhen, China  
**Product Name** : Joystick controller  
**Trade Mark** : HDKATOV  
**Model(s)** : KC10, KC20 PRO, KC20N PRO, KC510C, KC510CN, KC610, KC610CN, KC10N, KC30, KC30N, KC40, KC40N, KC50, KC50N  
**Test Report No.** : DACE241011007RL002  
**Test Standards** : IEC 62321-1:2013; IEC 62321-3-1:2013; IEC 62321-4:2013+A1:2017; IEC 62321-5:2013; IEC 62321-6:2015; IEC 62321-7-1:2015; IEC 62321-7-2:2017; IEC 62321-8:2017; IEC 62321-2:2021

The EUT described above has been tested by us with the listed standards and found in compliance with the council **RoHS Directive(EU) 2015/863 amending Annex II to Directive 2011/65/EU**. It is possible to use CE marking to demonstrate the compliance with this **RoHS** Directive.



For Contact: **Exokun / Michael Mo**  
 Date: Oct. 18, 2024

This certificate of conformity is based on a single evaluation of the submitted sample(s) of the above mentioned product. It does not imply an assessment of the whole production and other relevant directives have to be observed.  
 Shenzhen DACE Testing Technology Co., Ltd.  
 102 Building H1 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyuan, Bao'an District, Shenzhen, Guangdong, China



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