**RGBCTL-PNDI-OL**
**PTZ Controller with Touch Screen**

**User Manual**

RGBlink

# Special Statement

Thank you for purchasing our products. If you have any questions or needs, please feel free to contact us. The purpose of this section is to ensure that users can correctly operate the product through this manual to avoid potential dangers or property losses. Please read the product manual carefully before using this product and keep it for future reference.

The content described in this manual may differ from the version you are currently using. If you encounter any questions while using this manual, please contact our technical support for assistance. The contents of this manual will be updated periodically, and the company reserves the right to do so without further notice.

# I . Product Overview

## 1.1 Brief Description

The PTZ Controller offers a diverse range of functions, making it ideal for multi-network PTZ camera systems in various settings such as medium to large events, schools, hospitals, hotels, residential areas, factories, and workshops. It enables rapid implementation of unified LAN ONVIF control for seamless monitoring and management of the entire camera network. The device features a 7-inch capacitive touchscreen with a resolution of 1024×600, allowing for real-time camera previews. With its diverse functionalities based on the Android 11 system, it supports H.264/H.265 decoding and offers various video wall layouts, supporting up to 9 camera feeds simultaneously. Through HDMI output, it can create 2×2, or single camera video wall combinations on display devices. The device fully supports control of presets, focus, zoom, and exposure.

## 1.2 Product Features

(1) Supports H.264 / H.265 decoding

(2) Supports 3×3 video wall

(3) Supports multiple protocols including Onvif 2.8 / IP Visca / Sony Visca

(4) Supports video recording and screen capture of camera feeds

(5) Supports adding up to 2048 devices

(6) Supports software upgrades via external storage

(7) Supports control via external keyboard or mouse

(8) Supports expanding storage space for recording and screen capture via TF card

(9) Supports PTZ control with the ability to set and call presets and other functions

(10) Supports finding IP cameras within a subnet via network scanning

(11) Supports standard ONVIF protocol with built-in search functionality, allowing for easy connection and control of any compatible network camera.

(12) Supports PoE 802.3af / 802.3at / 802.3bt standards, enabling power and network connectivity through a single cable.

(13) User-friendly interactive interface that is easy to understand and operate, allowing anyone to control cameras with minimal training.

(14) Equipped with a 7-inch touchscreen, providing a large display for real-time previews of multiple camera feeds, facilitating management.

(15) Supports up to four connection modes, including RS232/Rs422/Rs485 and network protocols.

(16) HDMI output allows video feeds to be transmitted from the keyboard to larger display devices such as monitors or TVs.

# II. Product Interface Description

## 2.1 Interface Description


| Number | Name | Interface Description. |
|---|---|---|
| 1 | Power Switch / Power Connector | Standard 5.5/2.1 power interface, DC 12V2A (±10%). |
| 2 | Network interface. | RJ45 network interface. |
| 3 | HDMI output | One HDMI output. |
| 4 | RS485/422/232 interface | One RS485/RS422 (RJ45), one RS232 (RJ45). |
| **5** | Micro SD/TF card slot | Micro SD card slot for expanding video storage capacity. |
| **6** | USB Interface | USB 2.0 port. |

# III. Button Function Description


## 3.1 Function Key Description

| | | | | |
|---|---|---|---|---|
| **Camera Function Area** | **BRIGHT +** | Backlight Brightness + | **BACKLIGHT OFF** | Backlight Compensation Off |
| | **BRIGHT -** | Backlight Brightness - | **SET SCENE** | Set Scene |
| | **PATROL** | Inspection | **CALL SCENE** | Call Scene |
| | **AUTO FOCUS** | Autofocus | **SET PRESET** | Set Preset Position |
| | **BACKLIGHT ON** | Backlight Compensation ON | **CALL PRESET** | Call Preset Position |

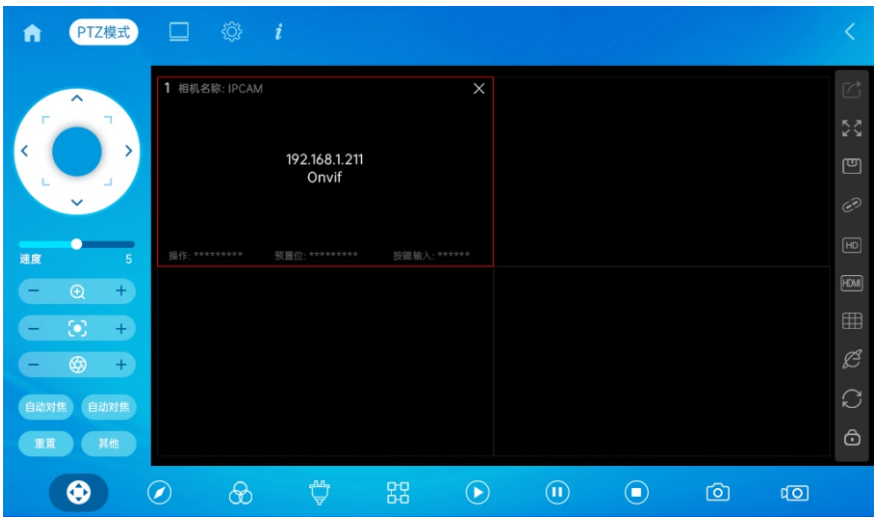
## 3.1 Function Key Description

### Camera Function Area

| | | | | | |
|---|---|---|---|---|---|
| **Self-returning knob** | Manual Focus | **CLEAR** | Rollback | **P/T SPEED** | Gimbal Speed |
| **NEAR** | Close focus | **SETUP** | Settings Page | **IRIS** | Aperture Adjustment |
| **FAR** | Long focus | **LOCK** | Lock Screen | **AUTO EXPOSURE** | Automatic Exposure |
| **SCENE 1-8** | Quick scene | **HOME** | Call HomePreset | **R/B GAIN** | Red/Blue Gain |
| **Numeric keys** | Number 1-9 | **HELP** | Help Page | **AUTO WB** | Auto White Balance |

### Knob Function Area

## 3.2 Gimbal Control Instructions



**Camera Function Area**

Start Playback

Pause Playback

End Playback

Screen Capture

Camera Recording

Frame Decoupling

Lock Frame

**Video Wall Function Area**

Save Video Wall

Full-screen Display

Bitrate Switching

HDMI Configuration

Video Wall Specifications

Camera Webpage

Reset Video Wall=

User Manual

**Camera Function Area**


Virtual Joystick

Gimbal Speed

Zoom + -

Focus + -

Aperture + -

## 3.2 Joystick Rotation Instructions

| Operation | Output Control | Operation | Output Control | Operation | Output Control |
|---|---|---|---|---|---|
|  | Up |  | Down |  | Left |
| Operation | Output Control | Operation | Output Control | Operation | Output Control |
|  | Right |  | Zoom In + |  | Zoom Out - |

Joystick [ Up Down Left Right ]: Controls the gimbal's pan and tilt movements.
Joystick [ Left Right Rotation ]: Rotating the joystick for zoom functionality; turn right to zoom in, enlarging the image, and turn left to zoom out, reducing the image.

# IV. Connection, Search, and Control

## >Add Camera via NDI Search

(1) **Login to the system:** Use the correct account and password to authenticate and access the network control keyboard system homepage.
(2) **Navigate to the settings page:** On the system homepage, click the "Settings" button to enter the settings page.
(3) **Select camera list:** Within the settings page, choose the "Camera List" option.
(4) **Choose search method:** On the camera list page, select the search method, picking "NDI Search" based on the camera’ s supported protocol.
(5) **NDI Search:** Click on "NDI Search," and the system will begin searching for available camera devices via the NDI protocol, displaying results in list form.
(6) **Check cameras:** From the search result list, check the cameras you wish to add, marking them for addition.
(7) **Add camera:** Click the plus (+) button on the list to initiate adding the selected cameras.
(8) **Obtain Ptsp URL:** The keyboard will automatically retrieve the IP address of the selected cameras and their corresponding Ptsp URL via the NDI protocol for subsequent control operations.
(9) **Enter camera alias:** Users may optionally enter a camera alias as a custom identifier; the alias can remain empty.
(10) **Confirm addition:** After entering the camera alias, click the "Confirm" button to complete the addition process.
(11) **Display addition results:** Upon successful addition, the camera information will be shown in the saved device list.

## > Add Camera via Onvif Search

(1) **Login to the system:** Use the correct account and password to authenticate and access the network control keyboard system homepage.
(2) **Navigate to the settings page:** On the system homepage, click the "Settings" button to enter the settings page.
(3) **Select camera list:** Within the settings page, choose the "Camera List" option.
(4) **Choose search method:** On the camera list page, select the search method, choosing "NDI Search / ONVIF Search / Visca Search" based on the camera’ s supported protocol.
(5) **Search for cameras:** After clicking "ONVIF Search," the system will begin scanning for cameras, displaying the results in the search result list.
(6) **Check cameras:** From the search result list, check the cameras you wish to add, marking them for addition.
(7) **Add camera:** Click the plus (+) button on the list to initiate adding the selected cameras.
(8) **Enter camera information:** In the add camera interface, input the camera's name, along with the camera's account and password (typically admin/admin).
(9) **Confirm addition:** After entering the camera information, click the "Confirm" button to complete the addition process.
(10) **Display addition results:** Upon successful addition, the information of the added cameras will be shown in the saved device list.

## > Add camera via Visca search.

(1) **Login to the system:** Use the correct account and password to authenticate and access the network control keyboard system homepage.
(2) **Navigate to the settings page:** On the system homepage, click the "Settings" button to enter the settings page.
(3) **Select camera list:** Within the settings page, choose the "Camera List" option.
(4) **Choose search method:** On the camera list page, select the search method, choosing "Visca Search," which is based on the Sony Visca protocol as it supports the search functionality.
(5) **Visca search:** Click on "Visca Search," and the system will begin scanning for available camera devices via the Sony Visca protocol, presenting results in a list format.
(6) **Check cameras:** From the search result list, check the cameras you wish to add, marking them for addition.
(7) **Add camera:** Click the plus (+) button on the list to initiate adding the selected cameras.
(8) **Obtain Ptsp URL:** The keyboard will automatically retrieve the IP address of the selected cameras and obtain the corresponding Ptsp URL via the Visca protocol for subsequent control operations.
(9) **Enter camera alias:** Users may optionally enter a camera alias as a custom identifier; the alias can remain empty.
(10) **Confirm addition:** After entering the camera alias, click the "Confirm" button to complete the addition process.
(11) **Display addition results:** Upon successful addition, the information of the added cameras will be shown in the saved device list.

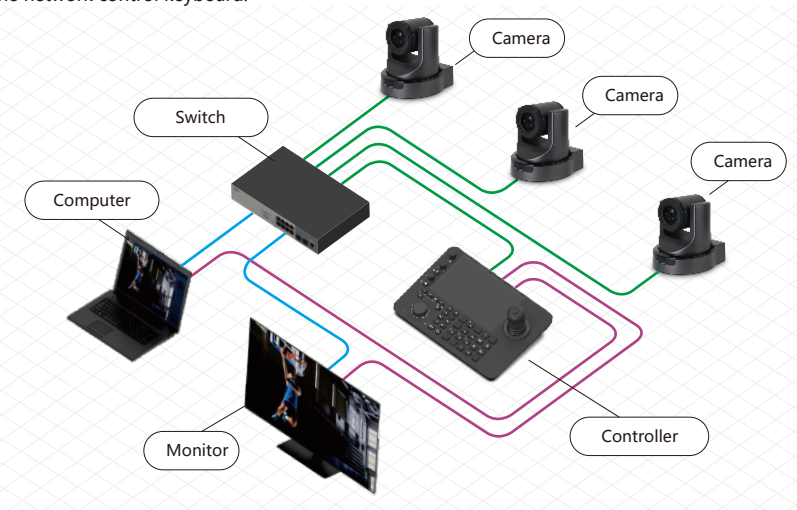
## >Add camera via Visca search.

(1) **Login to the system:** Use the correct account and password to authenticate and access the network control keyboard system homepage.
(2) **Navigate to the settings page:** On the system homepage, click the "Settings" button to enter the settings page.
(3) **Select camera list:** Within the settings page, choose the "Camera List" option.
(4) **Choose search method:** On the camera list page, select the search method, choosing "Visca Search," which is based on the Sony Visca protocol as it is the only protocol that supports search functionality.
(5) **Visca search:** Click on "Visca Search," and the system will begin scanning for available camera devices via the Sony Visca protocol, presenting results in a list format.
(6) **Check cameras:** From the search result list, check the cameras you wish to add, marking them for addition.
(7) **Add camera:** Click the plus (+) button on the list to initiate adding the selected cameras.
(8) **Obtain Ptsp URL:** The keyboard will automatically retrieve the IP address of the selected cameras and obtain the corresponding Ptsp URL via the Visca protocol for subsequent control operations.
(9) **Enter camera alias:** Users may optionally enter a camera alias as a custom identifier; the alias can remain empty.
(10) **Confirm addition:** After entering the camera alias, click the "Confirm" button to complete the addition process.
(11) **Display addition results:** Upon successful addition, the information of the added cameras will be shown in the saved device list.

## > Network Mode Connection Diagram

The network control keyboard can connect to multiple cameras via the network, allowing users to control the movement, focus, and other functions of the cameras using the buttons or joystick on the keyboard. Simultaneously, the camera's footage is transmitted over the network to the keyboard, which outputs it via HDMI to monitors or displays, enabling users to monitor and view the feeds from multiple cameras in real time.

The process of connection and implementation is as follows:
1. Connect the network control keyboard: Use an Ethernet cable to connect the network control keyboard to the switch.
2. Connect the cameras: Connect multiple cameras to the available ports on the switch using Ethernet cables.
3. Configure network settings: Ensure that the network control keyboard, switch, and cameras are on the same local area network and can communicate with each other.
4. Add cameras: Set the IP address, control protocol, and other necessary information for each camera on the network control keyboard.

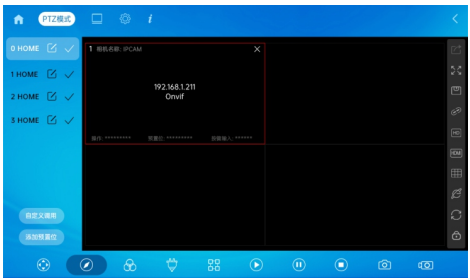


# V. Basic Operations

## 5.1 Setting / Calling Presets

By using the preset function, users can quickly position the camera to pre-set locations, facilitating monitoring and control of different scenes.

(1) **Login to the system:** Use the correct account and password to authenticate and access the network control keyboard system homepage.
(2) **Enter PTZ mode:** On the system homepage, click the "PTZ Mode" button to enter the PTZ control interface.
(3) **Add camera to the video wall:** In the PTZ control interface's left camera list, long press the camera and drag it to the corresponding area of the video wall to add the camera to a specific video wall.
(4) **Select camera:** Click on the video wall area of the added camera to select the camera you wish to control.
(5) **Start preview:** Click the play button to start previewing the selected camera’ s feed.
(6) **Access preset list:** Click the preset button to enter the preset list on the left side.
(7) **Add preset:** In the preset list interface, click the "Add Preset" button, enter the preset number and name, then click the save button to add the preset to the list.
(8) **Replace existing preset (optional):** If the preset already exists, clicking the replace button will overwrite the current position and save the new settings.
(9) **Call preset:** In the preset list, click the "Call" button to activate the specified preset, and the camera will automatically move to the preset position.
(10) **Edit preset:** In the preset list, click the "Edit" button to reconfigure the preset, such as modifying the preset name or adjusting its position.



## 5.2 Screen Capture

By clicking the snapshot button, users can quickly capture moments from the camera feed, recording important scenes or events. Captured images can briefly display in the preview interface, allowing users to confirm the snapshot results. Additionally, users can view all captured photos in the photo section under the camera recording settings menu for further reference and management.

(1) **Login to the system:** Use the correct account and password to authenticate and access the network control keyboard system homepage.

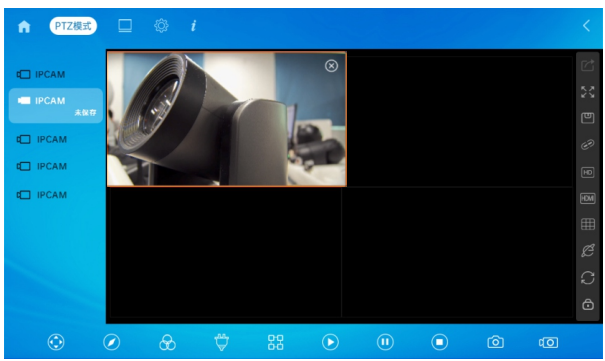
(2) **Enter PTZ mode:** On the system homepage, click the "PTZ Mode" button to enter the PTZ control interface.

(3) **Select camera:** In the PTZ control interface, click on the camera to select the one you wish to control.

(4) **Start preview:** Click the play button to begin previewing the selected camera's feed.

(5) **Capture snapshot:** Click the snapshot button on the preview screen to capture the image. The captured image will briefly display on the screen for preview.

(6) **View snapshot results:** Users can go to the photo page under the camera recording section in the settings menu to view captured images. This page will display a list of all captured photos.



## 5.3 Screen Recording

By clicking the record button, users can quickly start recording the camera feed, stopping the recording and saving the video upon clicking the button again. Recorded videos can be viewed and managed in the recording section under the camera recording settings menu. The recording operation enables users to capture important surveillance footage, facilitating subsequent playback and review.

(1) **Login to the system:** Use the correct account and password to authenticate and access the network control keyboard system homepage.

(2) **Enter PTZ mode:** On the system homepage, click the "PTZ Mode" button to enter the PTZ control interface.

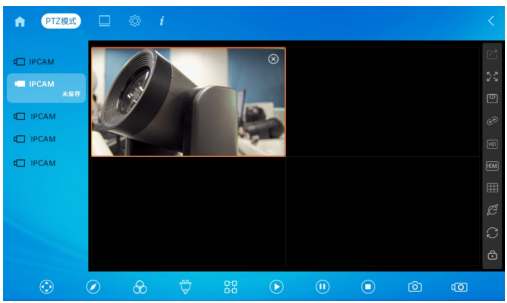
(3) **Select camera:** In the PTZ control interface, click on the camera to select the one you wish to control.

(4) **Start preview:** Click the play button to begin previewing the selected camera's feed.

(5) **Start recording:** On the preview screen, click the record button to initiate recording. The button status will change during recording to indicate that it is in progress.

(6) **Stop recording:** Clicking the record button again will stop the recording and save the recorded video. The button status will revert to indicate stopped recording.

(7) **View recordings:** Users can go to the recording page under the camera recording section in the settings menu to view recorded videos. This page will display a list of all recorded videos.



## 5.4 Upgrade

Users can conveniently upgrade the keyboard software to a new version by saving the APK upgrade file in external storage and executing the upgrade operation on the keyboard. The upgrade process helps users keep the keyboard up to date while enhancing functionality and performance, resulting in an improved user experience.

(1) **Prepare External Storage:** First, prepare an external storage device formatted in FAT32. Save the APK file intended for the upgrade in the root directory of the external storage.

(2) **Insert External Storage:** Insert the prepared external storage into the USB port on the back of the keyboard. This allows the keyboard to read the upgrade files from the external storage.

(3) **Switch to Version Information Page:** Navigate to the settings page on the keyboard and enter the version information page. This page typically displays the current software and hardware version of the keyboard.

(4) **Begin Upgrade:** In the version information page, click the "APP Upgrade" button to start the keyboard's reading of the upgrade files from the external storage.

(5) **Read Upgrade File:** The keyboard reads the APK upgrade file from the external storage. If the reading is successful, the keyboard will be prepared to start the installation process.

(6) **Install Upgrade:** The keyboard initiates the installation program for the upgrade file. During this process, the keyboard may restart several times to complete the upgrade.

(7) **Complete Installation:** Once the installation process is complete, the keyboard will restart. At this point, the upgrade operation is finished, and the keyboard will run using the new APK version.

## 5.5 Serial Port Addition

By selecting the appropriate serial port protocol, entering the address code, and providing the RTSP URL, users can successfully configure and add serial port cameras, enabling PTZ control and monitoring of the camera.

1. **Login to the system:** Use the correct account and password to authenticate and access the network control keyboard system homepage.
2. **Enter PTZ mode:** On the system homepage, click the "PTZ Mode" button to enter the PTZ control interface.
3. **Set up serial port camera:** In the PTZ control interface, click the "Serial Port" button to expand the left serial port editing page.
4. **Select serial port protocol:** In the serial port editing page, select the serial port protocol, with options including Pelco-D, Pelco-P, and Visca.
5. **Input address code:** Enter the camera's address code based on the selected serial port protocol to uniquely identify each serial port camera.
6. **Input RTSP URL:** Enter the camera's RTSP URL for RTSP streaming access and control.
7. **Save settings:** Click the save button to complete the configuration and addition of the serial port camera.

## 5.6 Other Features

**[Unlink]:** Clicking the unlink button will disconnect the camera from the video wall zone, making the camera no longer associated with that video wall area.

**[Specifications] :** Clicking the specifications button allows you to switch the number of windows on the video wall, supporting configurations of 1×1, 2×2, and 3×3, with the default layout set to 2×2.

**[Save]:** Clicking the save button will permanently save the binding relationship between all current camera feeds and the video wall area, ensuring that the previous associations are automatically restored after device power cycling.

**[HDMI Settings]:** Clicking the HDMI settings button allows the current video wall or camera feed to be output via the HDMI OUT interface, projecting the image to external display devices.

**[Settings] >** Clicking the settings button will navigate to the settings page for configuring device parameters and system settings.

**[Reset]:** Clicking the reset button will restore the last saved data on the video wall, undoing any temporary changes and returning it to its previous saved state.

**[Lock]:** Clicking the lock button will put the program into screen saver mode, requiring a long press to unlock before any operations can be performed. The external display devices for HDMI casting will remain unaffected.

**[Help]:** Clicking the help button will display helpful hints or navigate to the help interface, providing user guidance and operation instructions.

## 5.7 Other Functions

**[Play]:** Click the play button to display the adapted image of the selected video wall window; the camera must support RTSP protocol and relevant adaptation.
**[Pause]:** Click the pause button to freeze the current image, maintaining its state without closing the display.
**[Stop]:** Click the stop button to halt the current image playback, resulting in the closure of the display.
**[Resolution]:** Click the resolution button to switch the playback stream of the current window; main stream is for HD quality, and sub-stream is for SD quality.
**[Auto Focus]:** In the sidebar under the PTZ button, click the auto focus button to toggle the camera's focus mode and activate the auto focus functionality.
**[Auto Exposure]:** In the sidebar under the PTZ button, click the auto exposure button to switch the camera's exposure mode and enable automatic exposure.
**[Reset]:** In the sidebar under the PTZ button, click the reset button to restore the camera's focus, exposure, and other settings to their defaults, canceling previous adjustments.
**[Others]:** In the sidebar under the PTZ button, switch to the [Others] function page.
**[Scan / Stop Scan]:** Click the scan button to enable the camera's cruising mode, allowing automatic horizontal or vertical scanning along a designated path; click the stop scan button to halt the cruising mode and keep the camera in its current position.
**[Cruise / Stop Cruise]:** Click the cruise button to initiate the camera's cruising mode, enabling automatic cruising along a preset path; click the stop cruise button to cease cruising and retain the current position.
**[Restart]:** Click the restart button to reboot the camera, restoring normal operational status.
**[++]** :Custom command button; clicking the ++ button allows users to add custom commands for executing uncommon operations on the camera or device.
**[Zoom]:** Click the zoom button for full-screen playback of the current window's image, allowing zoom in and zoom out operations.
**[Color]:** Click the color button to adjust the image parameters of the current video wall window, including brightness, gain, exposure, etc., enabling users to modify color effects and lighting parameters.
**[Channel]:** Click the channel button to access and switch the device channels of the current video wall window, applicable only to multi-channel IP cameras and NVRs, allowing users to view different images by changing channels.
**[Web Page]:** Click the web page button to enter the device's web management platform, accessible via the device's IP address and default port 80.

# VI.FAQ

(1) When the screen displays "Connection Failed," please check whether the device corresponding to this IP is properly connected to the local area network.

(2) When the screen displays "Username or Password Incorrect," please verify that the username and password for the added device are correct.

(3) If adding devices from other brands via ONVIF protocol fails, check if the camera has enabled the ONVIF protocol.

Note:

(1) Manually add the device.
(2) Enter the correct port number and device connection protocol when adding the device.

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