BOLİN TECHNOLOGY

KBD-1020N PTZ Camera Controller

User Guide

Contents

Important Information

Thank you for purchasing our product. If there are any questions, please contact the authorized dealer. Before operating the unit, please read this manual thoroughly and retain it for future reference.

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Attention:

To ensure account security, the user should change the password after their first login. The user is recommended to set a strong password (no less than eight characters). Password login does not apply to certain models that do not need password login.
The contents of this document are subject to change without prior notice. Updates will be added to the new version of this manual. Improvements or updates to the products or procedures described in the manual will be made readily.
The best effort has been made to verify the integrity and correctness of the contents in this document, but no statement, information, or recommendation in this manual shall constitute a formal guarantee of any kind, expressed or implied. Responsibility for any technical or typographical errors in this manual will not be held.
The product appearance shown in this manual is for reference only and may be different from the actual appearance of the user's device.
This manual is a guide for multiple product models and so it is not intended for any specific product.
In this manual, the illustrations of the displayed interface, parameters displayed, drawings, and value ranges may vary with models. The user should refer to the actual product for details.
Due to uncertainties such as the physical environment, discrepancies may exist between the actual values and reference values provided in this manual.
Use of this document and the subsequent results shall be entirely on the user's own responsibility.
Before operating the unit, the user should read this manual thoroughly and retain it for future reference.

Symbols

Symbol	Description
	**WARNING** Contains important safety instructions and indicates situations that may cause bodily injury.
	**CAUTION** Users must be careful. Improper operations may cause damage or malfunction of product.
	**NOTE** Indicates useful or supplemental information about the use of the product.

Safety Information

WARNING:

Installation and removal of the unit and its accessories must be carried out by qualified personnel. You must read all of the Safety Instructions supplied with your equipment before installation and operation.
• If the product does not work properly, please contact your dealer. Never attempt to disassemble the camera yourself. (We will not assume any responsibility for problems caused by unauthorized repair or maintenance.)
• This installation should be made by a qualified service person and should conform to all the local codes.
• When shipping, the camera should be packed in its original packaging.
• Make sure the power supply voltage is correct before using the camera.
• Do not drop the camera or subject it to physical shock.
• Do not touch sensor modules with fingers. If cleaning is necessary, use a clean cloth with a bit of ethanol and wipe it gently. If the camera will not be used for an extended period of time, put on the lens cap to protect the sensor from dirt.
• Do not aim the camera lens at the strong light such as sun or incandescent lamp. The strong light can cause fatal damage to the camera.

Maintenance Precautions:

• If there is dust on the front glass surface, remove the dust gently using an oil-free brush or a rubber dust blowing ball.
• If there is grease or a dust stain on the front glass surface, clean the glass surface gently from the center outward using anti-static gloves or an oil-free cloth. If the grease or the stain still cannot be removed, use anti-static gloves or an oil-free cloth dipped with detergent and clean the glass surface gently until it is removed.
• Do not use organic solvents, such as benzene or ethanol, when cleaning the front glass surface.

Regulatory Compliance

FCC Part 15

This equipment has been tested and found to comply with the limits for digital devices, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
This device may not cause harmful interference.
This device must accept any interference received, including interference that may cause undesired operation.

CE	**LVD/EMC Directive** This product complies with the European Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC.
	WEEE Directive–2002/96/EC The product this manual refers to is covered by the Waste Electrical & Electronic Equipment (WEEE) Directive and must be disposed of in a responsible manner.

What's In The Box

	IP PTZ Camera Controller (KBD-1020N)
	Junction Box for Keyboard (KBD-JB01)
	12VDC 2A, Power Supply Adapter (VCC-P12-2)
	RJ45 Control Cable for Keyboard Controller (KBD-NC45)
	RJ-45 Coupler

	Junction Box
	Tally Light Terminal Contact
	Assign Keys Label Sheet

Optional Accessories

	RS232 - 8 Pin Mini Din to Phoenix Terminal Block

Overview

The newly upgraded Bolin's KBD-1020N NDI-enabled controller is ergonomically designed to make critical PTZ camera functions easy to find and use. Details like dedicated knobs for PTZ variable speed control and for fine control over iris/shutter, red and blue adjustment, and focus, with auto/manual toggle. It has illuminated push buttons for camera selection and a three-axis joystick for smooth, precise camera movements.

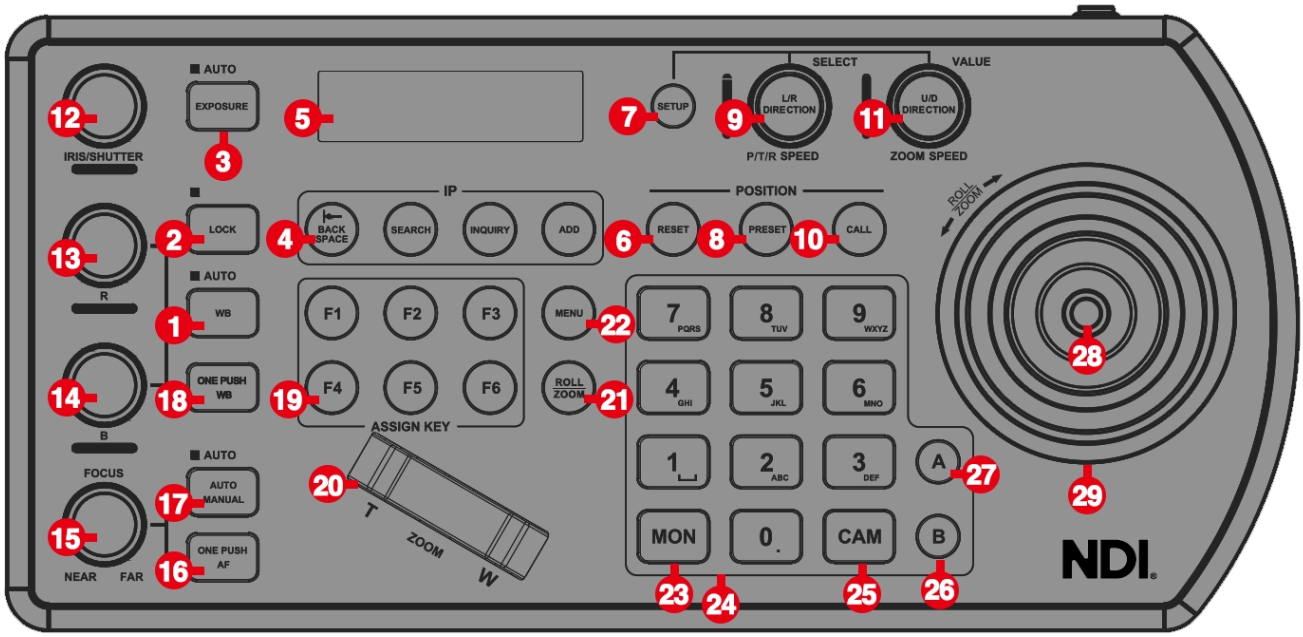
The KBD-1020N is a universal PTZ controller capable of camera discovery and transmitting serial and IP network control commands, including serial Pelco P/D and VISCA, as well as IP control protocols like VISCA over IP, ONVIF and NDI simultaneously within the same network.

The power, flexibility, and intuitive, precise camera controls of the KBD-1020N make it an ideal partner for multiple PTZ camera setups in live NDI production environments such as broadcast studios, education and video conferencing spaces, concerts, and Houses of Worship.

Features

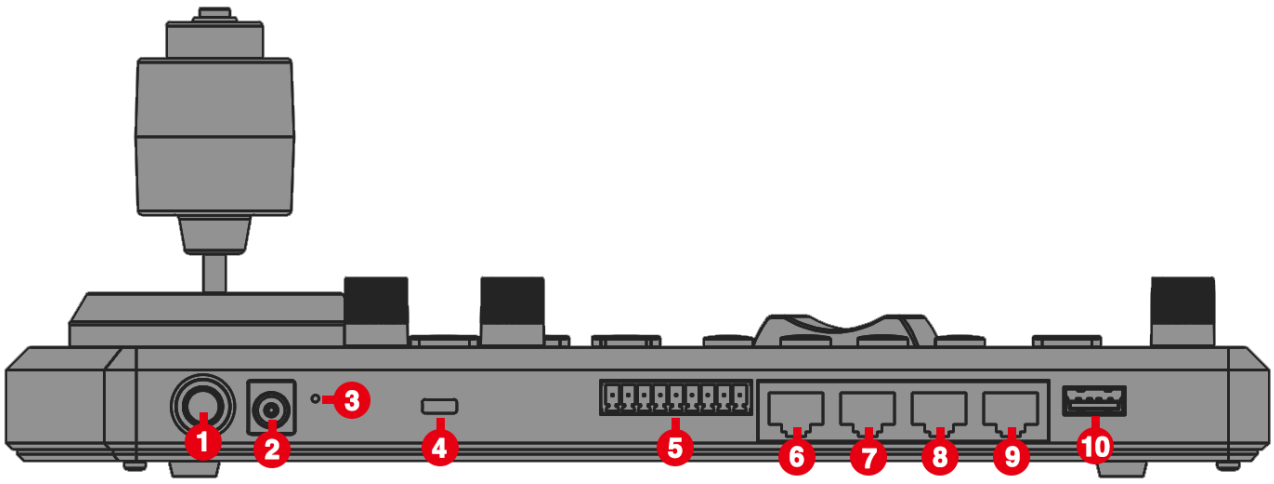
- NDI certified, full functional NDI PTZ camera controller.
- Cross Protocol Mix-control, VISCA, VISCA-Over-IP, PELCO P/D, ONVIF IP, and NDI control.
- Serial RS232/422/485 control and IP network control.
- Supports any brand of VISCA Over IP cameras in one system.

Keyboard Diagrams



1. **White Balance (Auto, Manual):** Press once for Auto, press again to activate manual adjustments.
2. **Lock** - Locks all image adjustment buttons and dials.
3. **Exposure** (Full Auto, Iris Priority, Shutter Priority, Manual Iris Gain, Black Level.)
4. **IP Interface Buttons** - Used to interact with IP cameras.
5. **LCD Screen** - Display for navigating keyboard settings.
6. **Reset** - Used for clearing presets; Setup - used for keyboard menu setting; Preset - used for saving camera presets; Pan Tilt Speed knob.
7. **Setup** - used for keyboard menu setting.
8. **Preset** - used for saving camera presets.
9. **Pan Tilt Speed knob**:
    - Rotate: Speed adjustment/ Navigate (in menu)
    - Press: Select (from menu)
    - Long press: Invert L/R direction
10. **Call** - Used for calling camera presets.
11. **Zoom Speed knob:**
    - Rotate: Zoom speed adjustment/ Adjust value (in menu)
    - Press: Select (from menu)
    - Long press: Invert U/D Direction
12. **Manuel Adjustment for Exposure** - Iris Priority, Shutter Priority, Manual Iris Gain, Manual Shutter Gain, Black Level.
13. **Manual Red Adjustment for White Balance.**
14. **Manual Blue Adjustment for White Balance.**

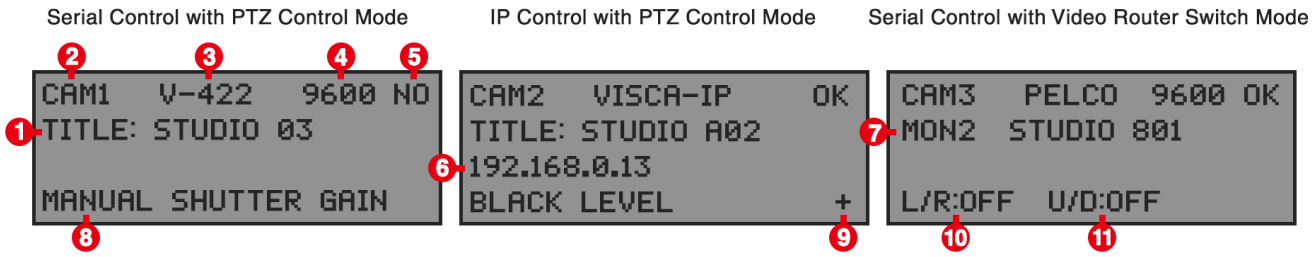
15. **Manual Focus.**
16. **One-Push Focus.**
17. **Focus Auto/ Manual Toggle.**
18. **OPW (One Push WB)** for White Balance.
19. **Assign Keys** - used to assign quick access to commands.
20. **Zoom Seesaw** - for zoom in / zoom out.
21. **Roll/ Zoom:** press to adjust the camera's roll angle for precise tilt and rotation control. It also functions to zoom in and out, seamlessly transitioning between angle adjustment and focal length changes.
22. **Menu** for pulling out camera OSD menu.
23. **MON:** For calling monitor number.
24. **Alphanumeric Keypad** - used for camera call, preset cal, entering data (in menu).
25. **CAM:** for calling camera number.
26. **RS422 Group B Selection.**
27. **RS422 Group A Selection.**
28. **Enter Button** for manu setting to Enter/ Confirm data.
29. **PTZ Joystick.**



1. **Power Button.**
2. **12V DC Power Port, wide range input tolerance from 5V-48VDC.**
3. **Reset Button.**
4. **Kensington Security Slot.**
5. **Tally / Contact (GPI I/O connector).**
6. **RS232 interface / RJ-45 port.**
7. **IP Interface / RJ-45 port.**

8. **RS422 (B) interface, used for RS485 as well / RJ-45 port.**
9. **RS422 (A) interface, used for RS485 as well / RJ-45 port.**
10. **Firmware Upgrade USB port.**

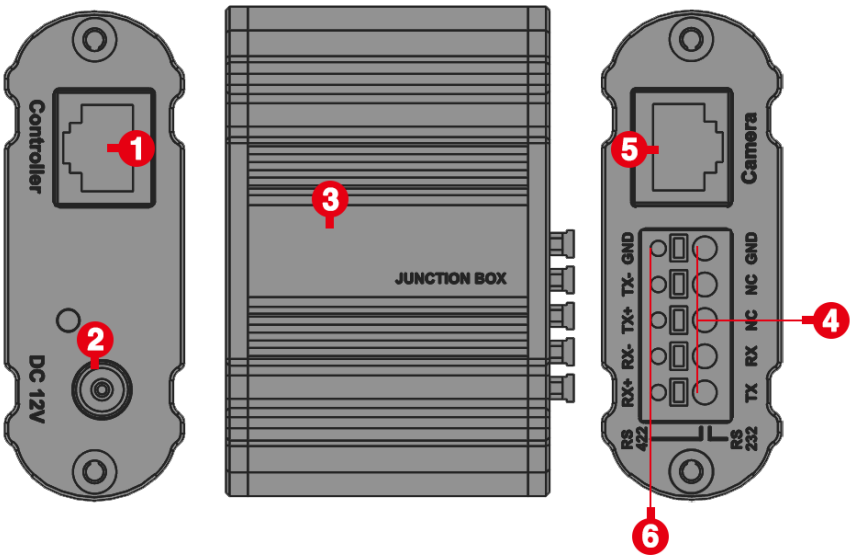
LED Screen Display



Control Information LED Display

1. **Camera Title -** Displays the title set for the camera being controlled.
2. **Camera Identifier -** Camera ID, identifies which camera is being controlled, and the protocol being used
3. **Protocol -** The control protocol that the camera being controlled is using.
4. **Baud Rate -** The serial control baud rate that the camera being controlled is using.
5. **Control Status:**
   - Showing OK when the connection between the camera and the keyboard are built, and the communication is working properly.
   - Showing NO when the connection or the communication between the camera and the keyboard is not working properly.
6. **IP address -** Of the IP camera is being controlled.
7. **Monitor Identifier -** When VIDEO ROUTER SWITCH mode is selected, it identifies which monitor is being used for displaying the selected camera video image.
8. **Exposure Control Mode -** Uses Auto Exposure knob to select an exposure control mode between Full Auto, Iris Priority, Shutter Priority, Manual Iris Gain, Manual Shutter Gain, Black Level.
9. **Network Connectivity indicator**
   - If the “+” appears, this means that the network is successfully connected.
   - If the “+” does not appear, this means that the network is not connected.
10. **Tilt Reversal Indicator.**
11. **Pan Reversal Indicator.**

Junction Box

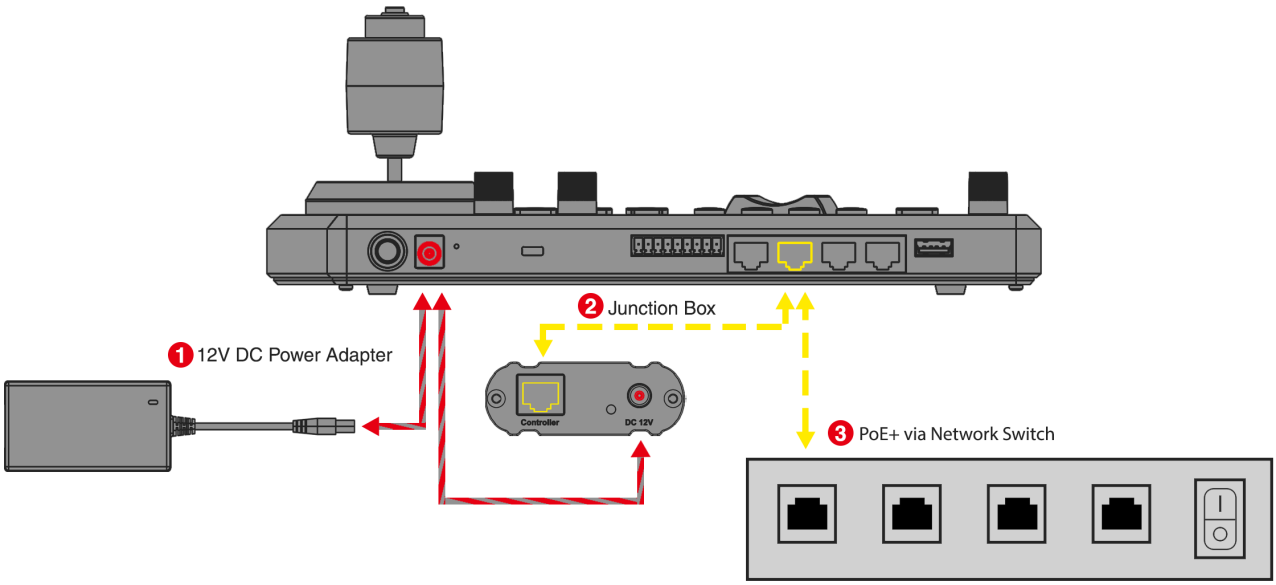


1. **RJ45 port -** connection between Junction Box and The Keyboard Controller.
2. **12V DC Power Port -** Connect the supplied DC power adapter and cord.
3. **Junction Box body.**
4. **Terminal Contact connection for RS422 or RS232.**
5. **RJ45 port -** connection between Junction Box and the camera (Use a network cable to connect directly).
6. **NOTE:** Do not use the top row of holes, as these are not contact ports. All labels apply to the bottom row (Item #4 in the chart).

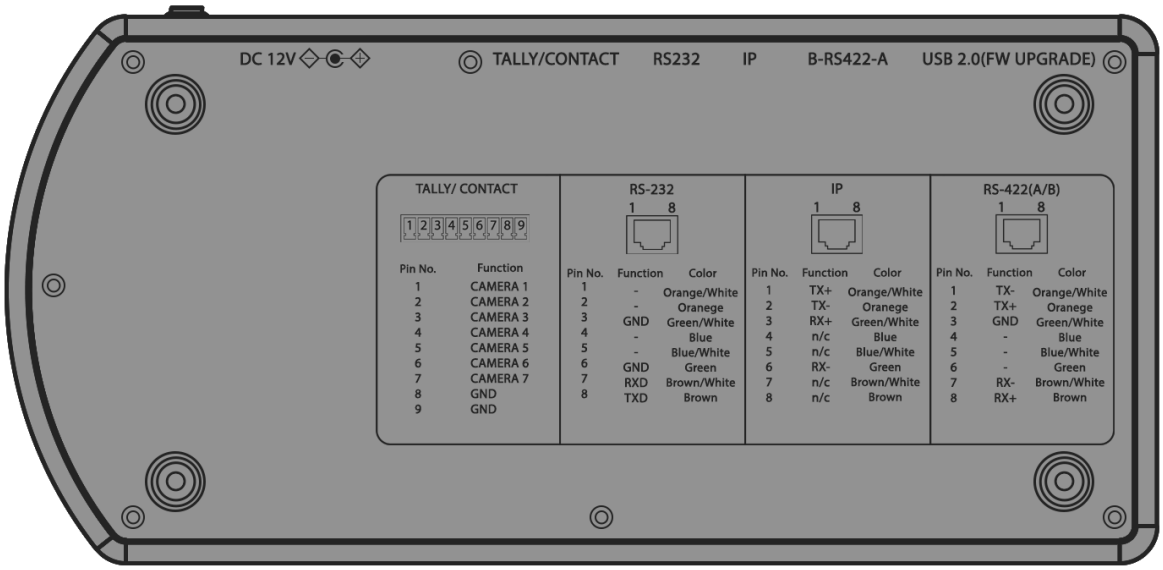
Powering the PTZ Keyboard

The keyboard can be powered in three ways:

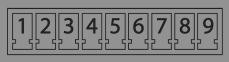
1. **Direct Power Supply (Included):**
   - **Power Voltage Tolerance:** 6V – 48V.
   - The keyboard can operate at a minimum of 6VDC, allowing for longer power runs between the power source and the keyboard.
   - It can also tolerate up to 48VDC, making it suitable for use in vehicles such as broadcast vans and commercial vehicles.
2. **POE+ (IEEE802.3at):**
   - Supports power via POE+.
   - Connect the Ethernet IP port to a POE switch using a CAT5/6 network cable.
   - **POE Standard:** IEEE802.3at.
   - **Maximum Distance:** 80 meters using a CAT6 Plus cable.
3. **Using the Included Junction Box:**
   - Connect the power supply to the junction box.
   - Connect an Ethernet cable from the "Controller" port on the junction box to the RS422 or RS232 port on the keyboard (KBD-1010).
   - When using the junction box to provide power to the keyboard via the RS422 or RS232 port, no additional power supply is needed for the keyboard.



Connector Pinout Specifications

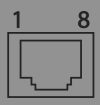


TALLY/ CONTACT



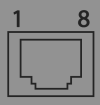
Pin No.	Function
1	CAMERA 1
2	CAMERA 2
3	CAMERA 3
4	CAMERA 4
5	CAMERA 5
6	CAMERA 6
7	CAMERA 7
8	GND
9	GND

RS-232



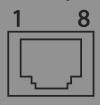
Pin No.	Function	Color
1	-	Orange/White
2	-	Oranege
3	GND	Green/White
4	-	Blue
5	-	Blue/White
6	GND	Green
7	RXD	Brown/White
8	TXD	Brown

IP



Pin No.	Function	Color
1	TX+	Orange/White
2	TX-	Oranege
3	RX+	Green/White
4	n/c	Blue
5	n/c	Blue/White
6	RX-	Green
7	n/c	Brown/White
8	n/c	Brown

RS-422(A/B)

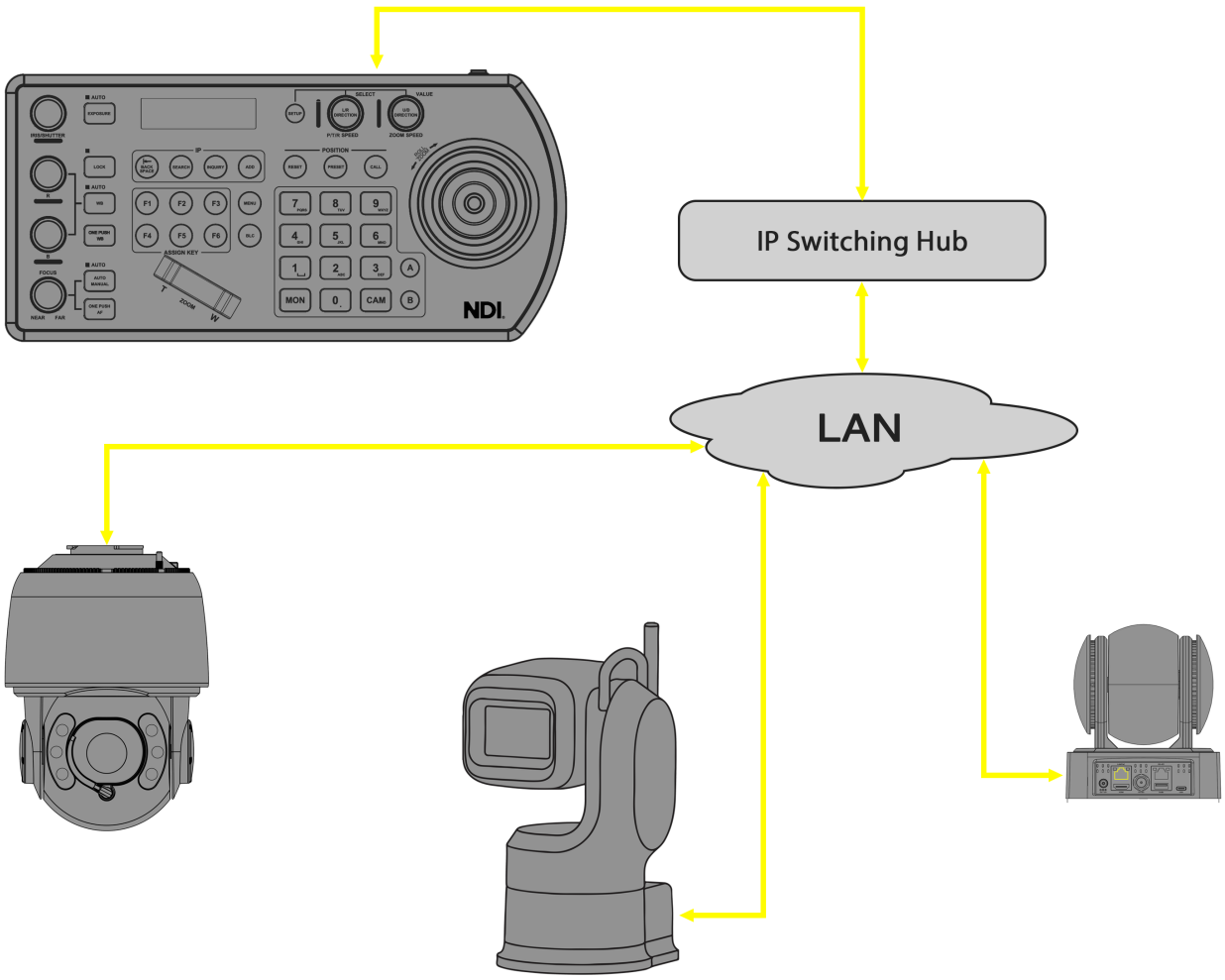


Pin No.	Function	Color
1	TX-	Orange/White
2	TX+	Oranege
3	GND	Green/White
4	-	Blue
5	-	Blue/White
6	-	Green
7	RX-	Brown/White
8	RX+	Brown

IP connection

Connect the “IP” port of the keyboard to a port on the Ethernet switch.

IP Connection with IP Switch Hub



Establishing a Serial Port Connection

The controller offers support for serial RS232/RS422 and IP cross-protocol mix-control. This functionality

allows you to utilize RS232/RS422/IP control on a single controller to manage cameras within one system. It supports multiple protocols, including VISCA, PELCO D/P, ONVIF, and VISCA over IP.

Depending on the protocol used to control the cameras, it may be necessary to connect to one or more of the following:

IP port to network switch

- Used for logging in to the web interface of KBD-1020N
- Used to control the following PTZ protocols:
  -VISCA over IP
  -ONVIF IP
  -NDI

RS232 Connection

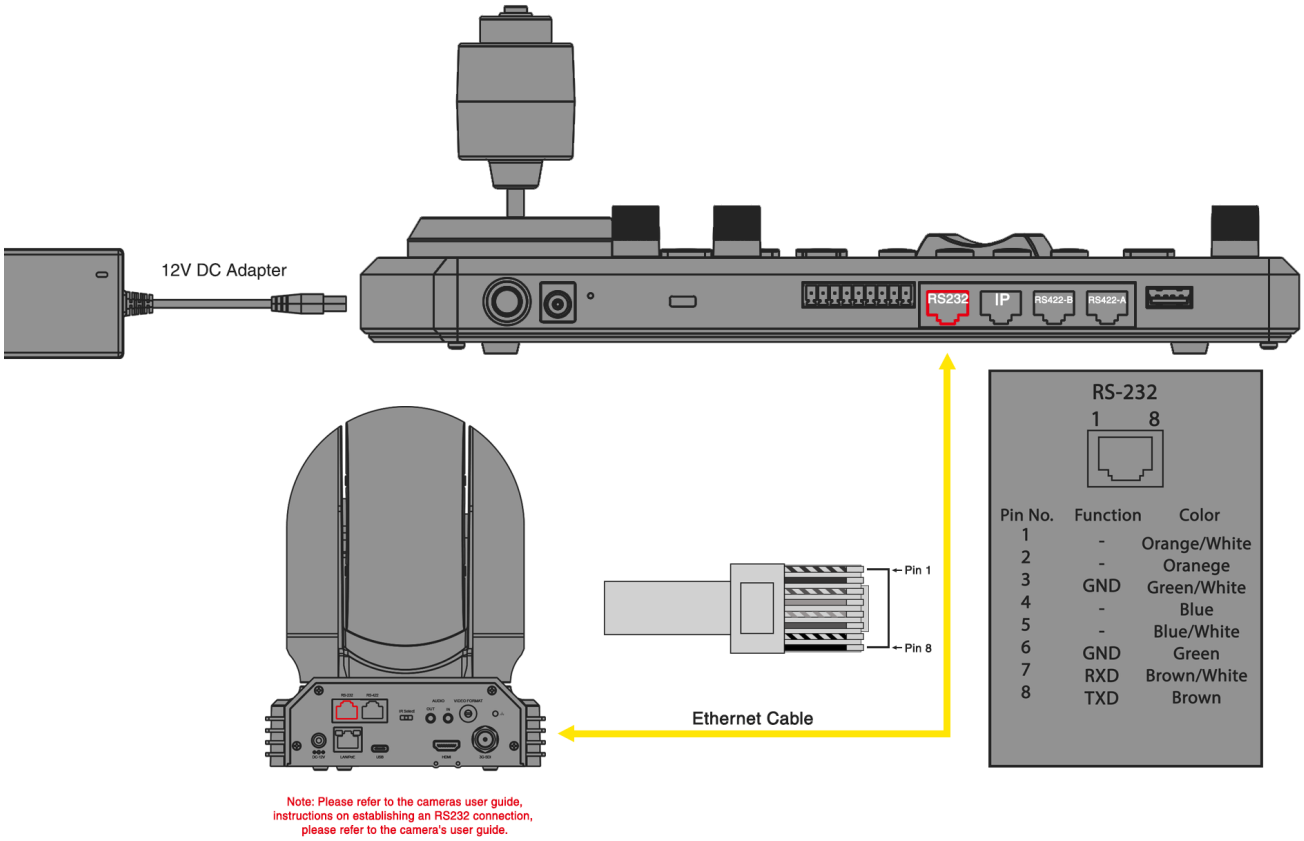
- RS232 Connection1 to 1 connection with keyboard and camera
- Keyboard connection to RS232 daisy chain

RS232 Connection

1. RS232 Connection Using Network Cable (Follow T-568B Standard Pinout at Keyboard End).

a. 1 to 1 Connection: Follow the pinout for the RS232 port on the keyboard. Use a CAT5/6 cable to create a connection suitable for controlling your camera.

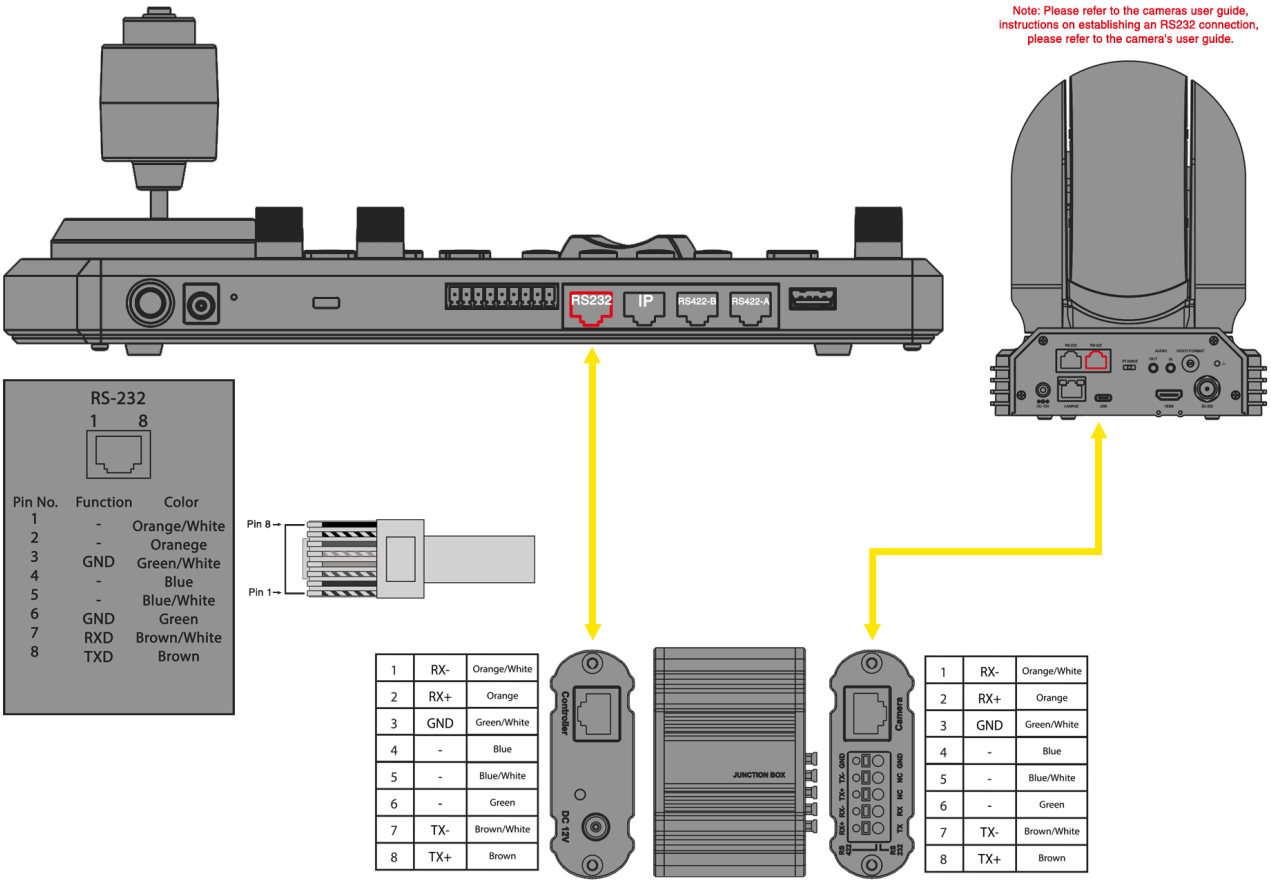
RS232 Connection: Creating a Network Cable for a Camera with an RS232 Serial Port Connector



b. Follow the pinout for the RS232 port on both the keyboard and the Junction Box to utilize a CAT5/6 cable adhering to the T-568B standard pinout. This will create a 1 to 1 connection between the keyboard and the Junction Box, ensuring the cable is suitable for controlling your camera via the Junction Box.

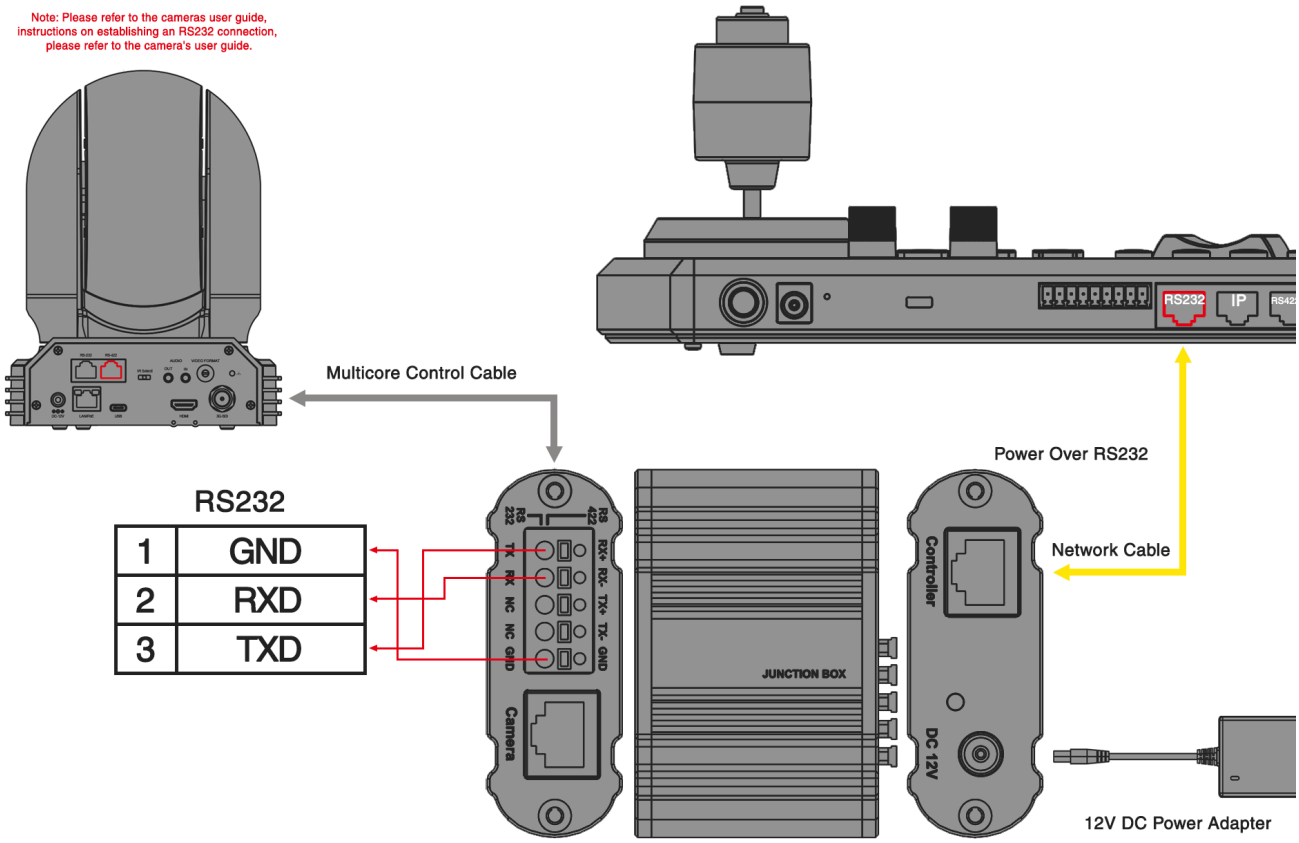
RS232 Connection: Utilizing a Junction Box to Create a Network Cable for a Camera with an RS232 Serial

Connector



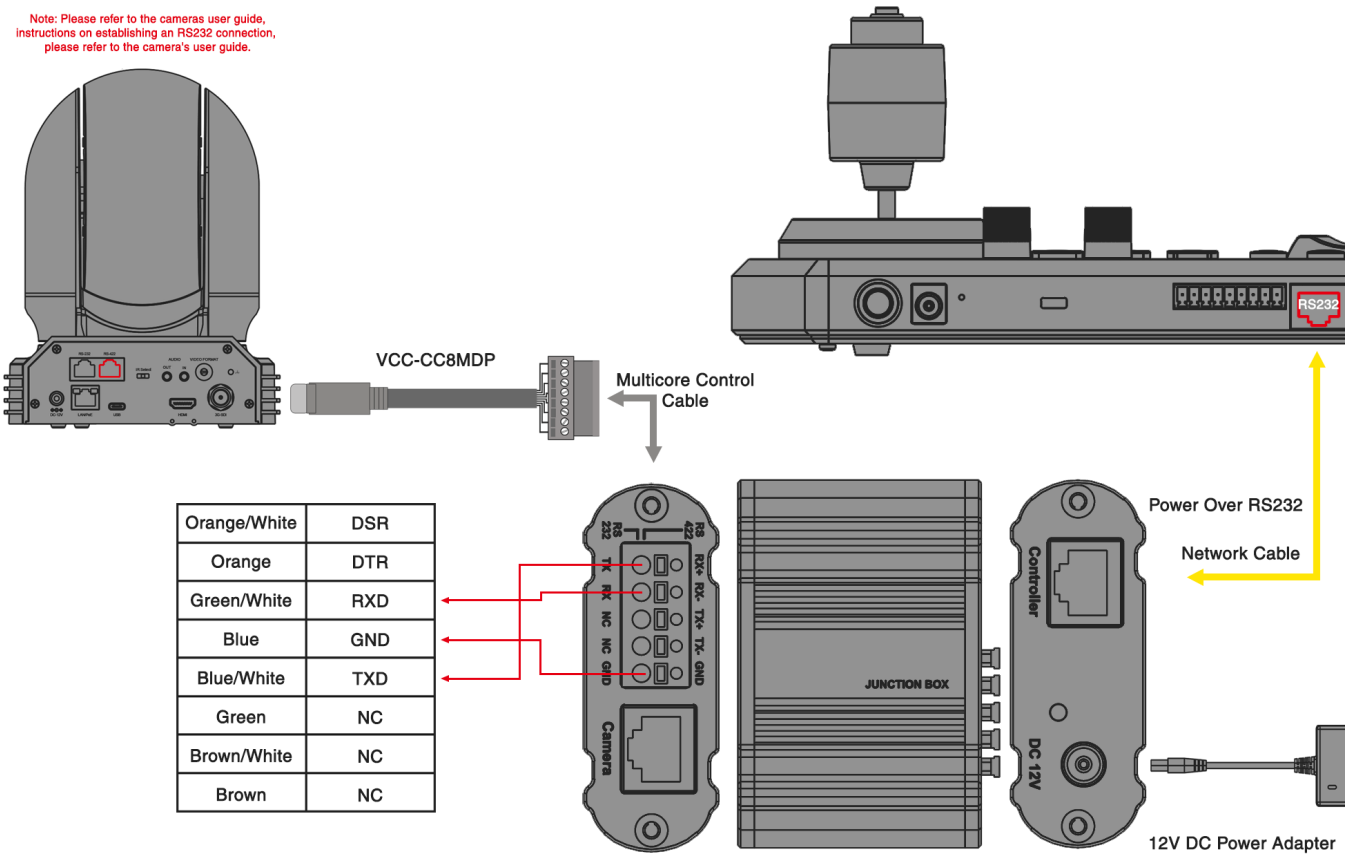
2. RS232 Connection Using Multicore Control Cable.

RS232 Connection: Via Junction Box for a Camera with RS232 Serial Connector



3. RS232 Connection: For Cameras with an 8-Pin Mini Din RS232 Connector.

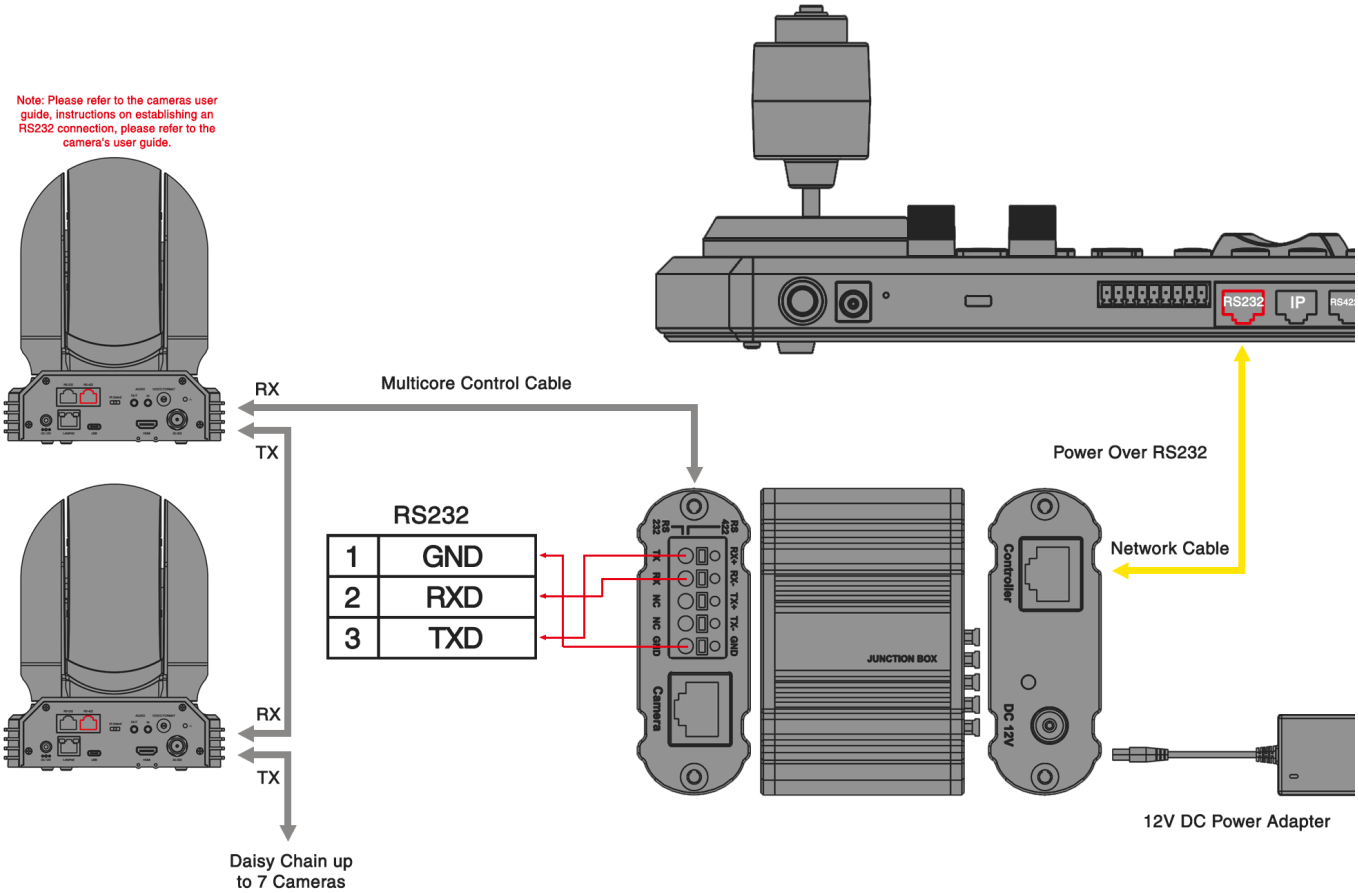
RS232 Connection: Via Junction Box for a Camera with an 8-Pin Mini Din RS232 Serial Connector



Orange/White	DSR
Orange	DTR
Green/White	RXD
Blue	GND
Blue/White	TXD
Green	NC
Brown/White	NC
Brown	NC

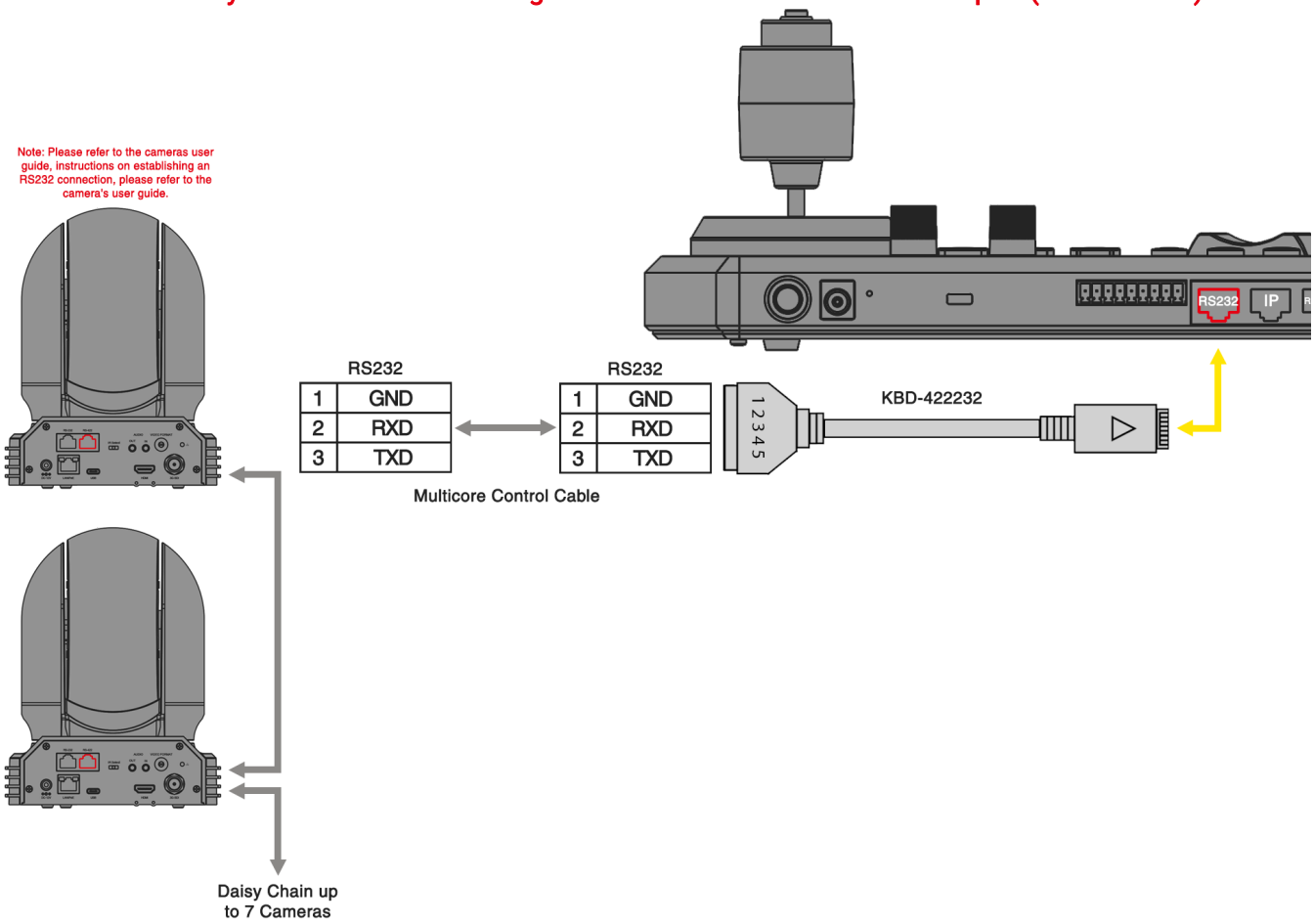
4. RS232 Daisy Chain Connection for Multiple Cameras via Junction Box.

RS232 Daisy Chain Connection: Via Junction Box for a Camera with an RS232 Serial Connector



5. RS232 Connection: Using an RJ45 to Phoenix Connector Adapter (Sold Separately).

RS232 Daisy Chain Connection: Using an RJ45 to Phoenix Connector Adapter (Not Included)



RS422 Connection

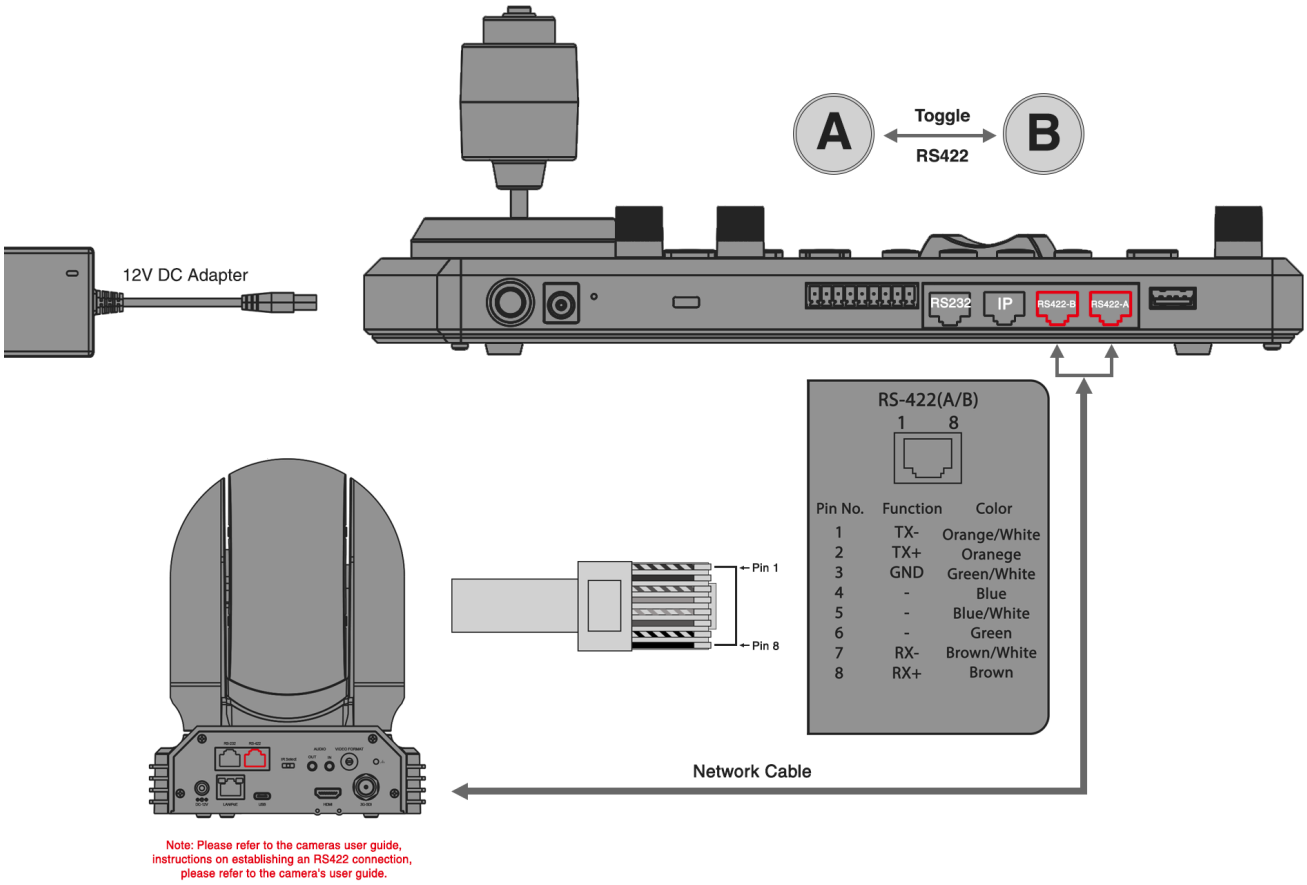
There are two methods for connecting to the RS422 ports on the rear panel of the keyboard:

1. **When Control Mode is Set to PTZ Controller in Keyboard Settings:**
   - The RS422 (A or B) RJ-45 port on the keyboard is used for RS422 camera control.
   - The RS422 (A or B) RJ-45 port on the keyboard is used for RS485 camera control.
2. **When Control Mode is Set to Video Router Switch in Keyboard Settings:**
   - The RS422 (A) RJ-45 port on the keyboard is used to connect with the Video Router/Matrix for video switching control.
   - The RS422 (B) RJ-45 port on the keyboard is used to connect to RS422 or RS485 cameras for control.

1. RS422 connection using network cable (follow T-568B standard pinout at keyboard end):

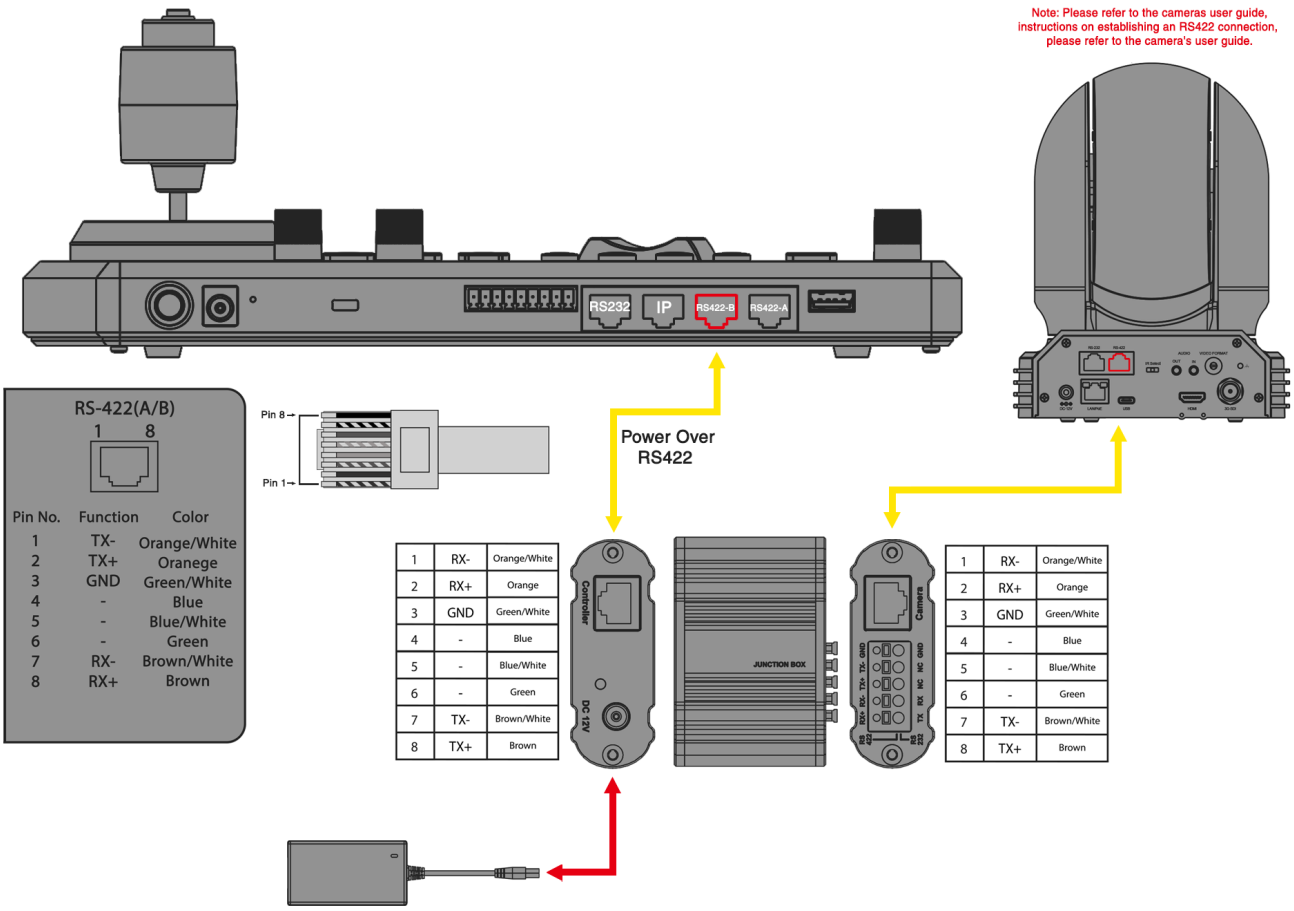
a. 1 to 1 connection – Follow the pinout for the RS422 port on the keyboard to use CAT5/6 cable to make a cable suitable for controlling your camera.

RS422 Connection: Creating a Network Cable for a Camera with an RS422 Serial Connector



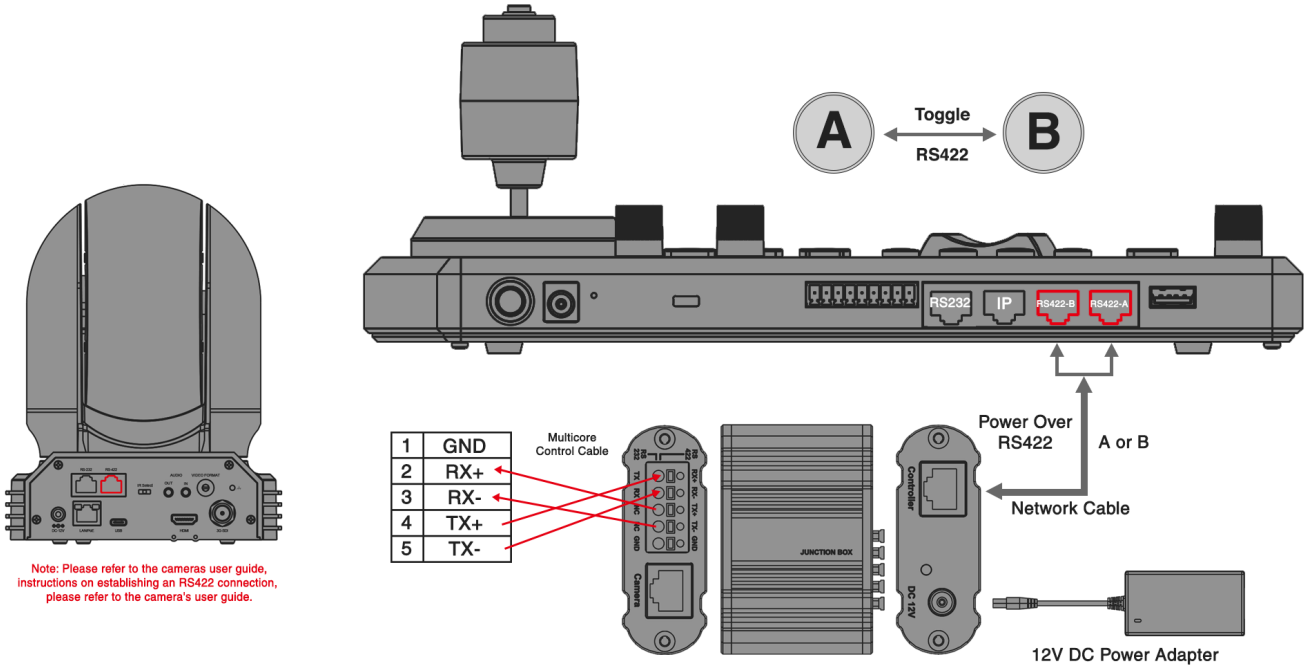
b. For a 1 to 1 connection using a Junction Box, follow the pinout for the RS422 port on both the keyboard and the Junction Box. Use a CAT5/6 cable, ensuring it adheres to the T-568B standard pinout between the keyboard and the Junction Box, to create a connection suitable for controlling your camera via the Junction Box.

RS422 Connection: Via Junction Box to Create a Network Cable for a Camera with an RS422 Serial Connector



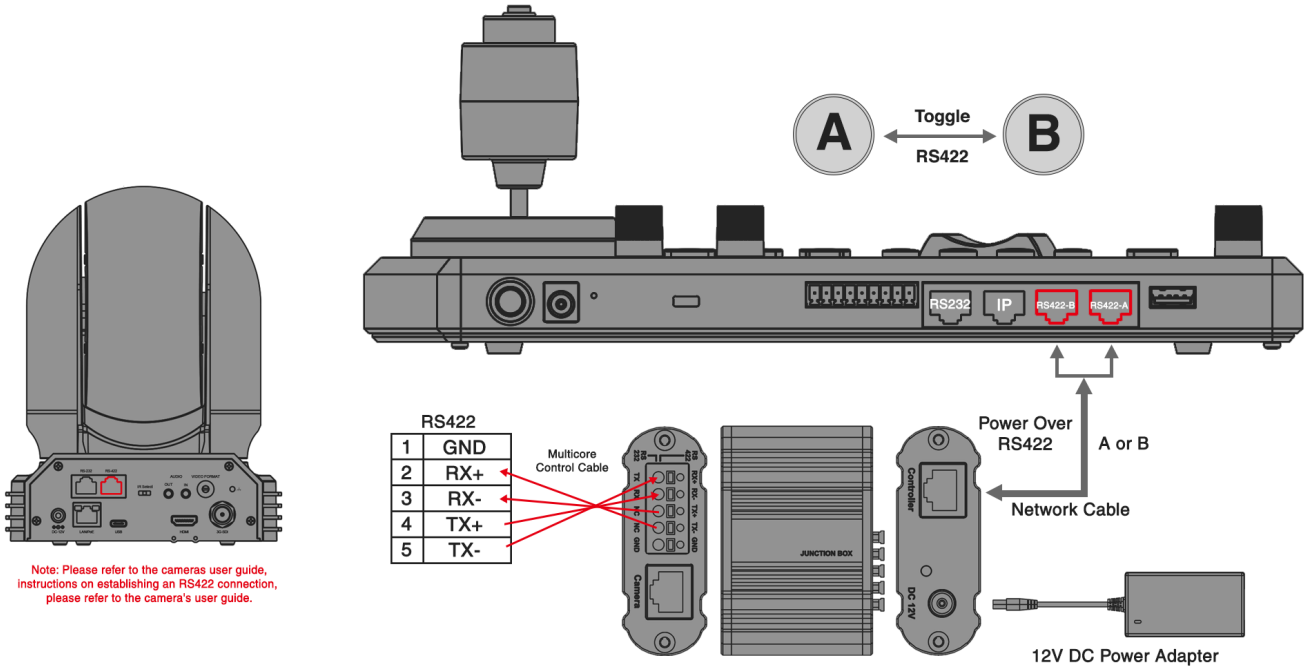
2. RS422 Connection Using Multicore Control Cable (Non-Bolin or SONY Camera).

RS422 Connection: Via Junction Box for a Camera with an RS422 Serial Connector - (Non-Bolin or SONY Camera)



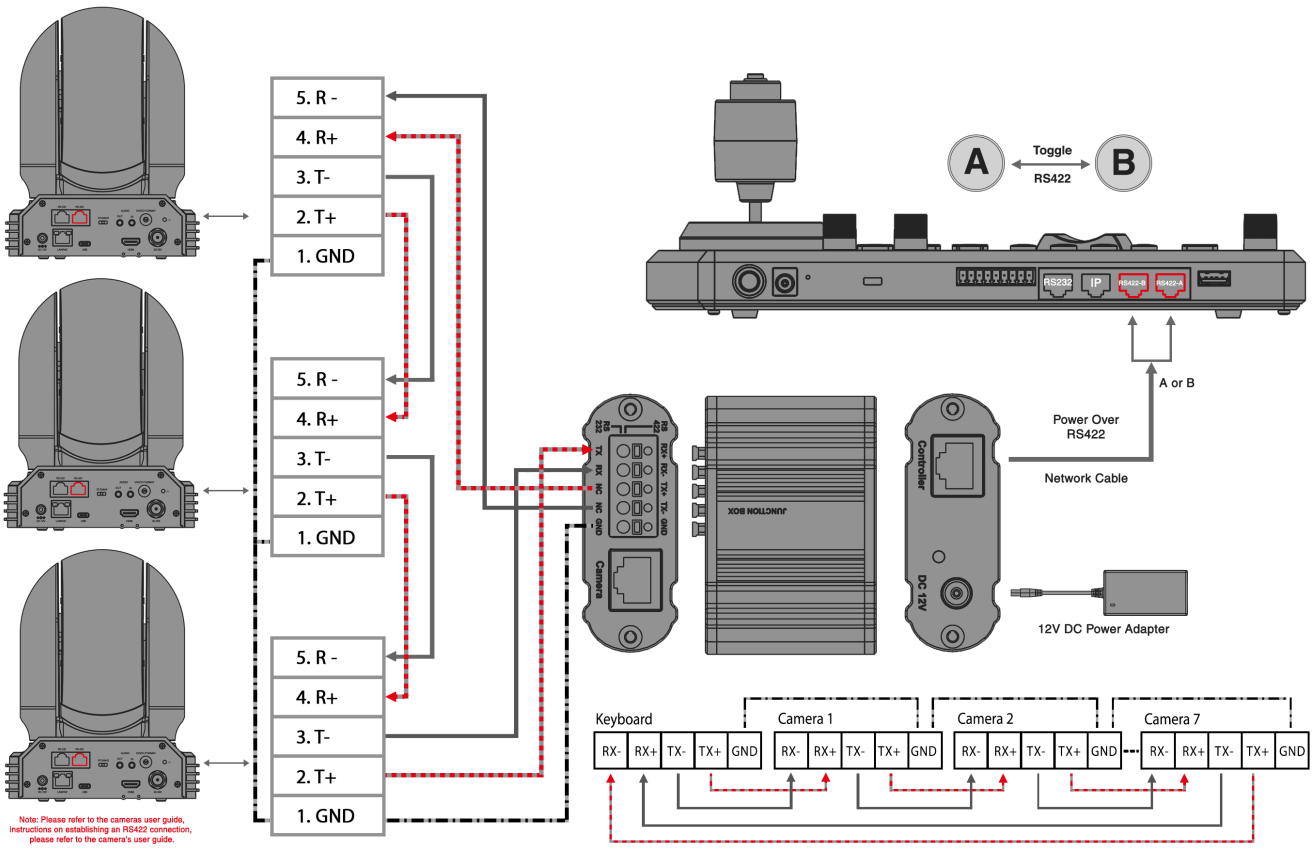
3. RS422 Connection Using Multicore Control Cable (Bolin or SONY Camera).

RS422 Connection: Via Junction Box for a Camera with an RS422 Serial Connector - (Bolin or SONY Camera)



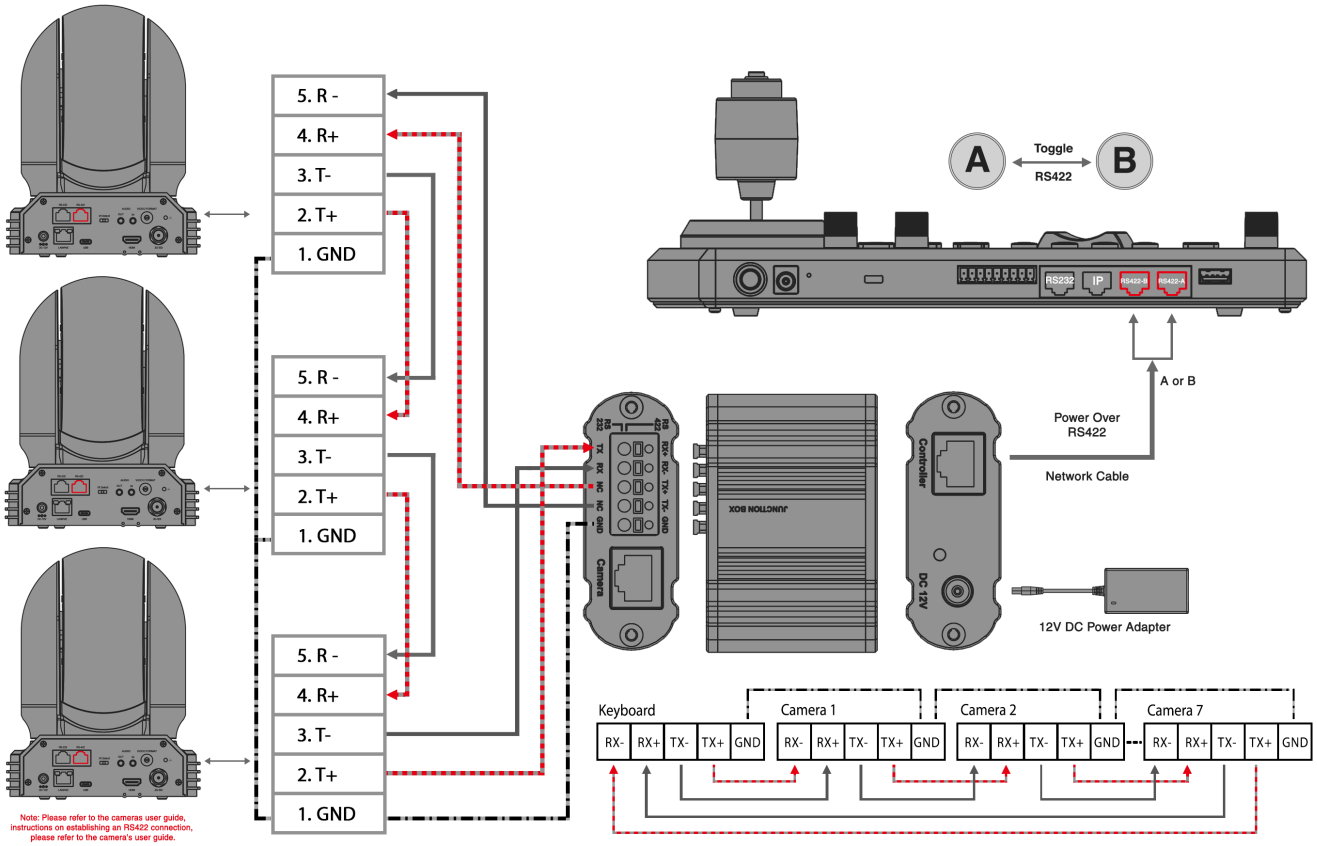
4. RS422 Daisy Chain Multiple Cameras connection (Non-Bolin or Sony Camera).

RS422 Daisy Chain Connection: Via Junction Box for a Camera with an RS422 Serial Port (Non-Bolin or Sony Camera)



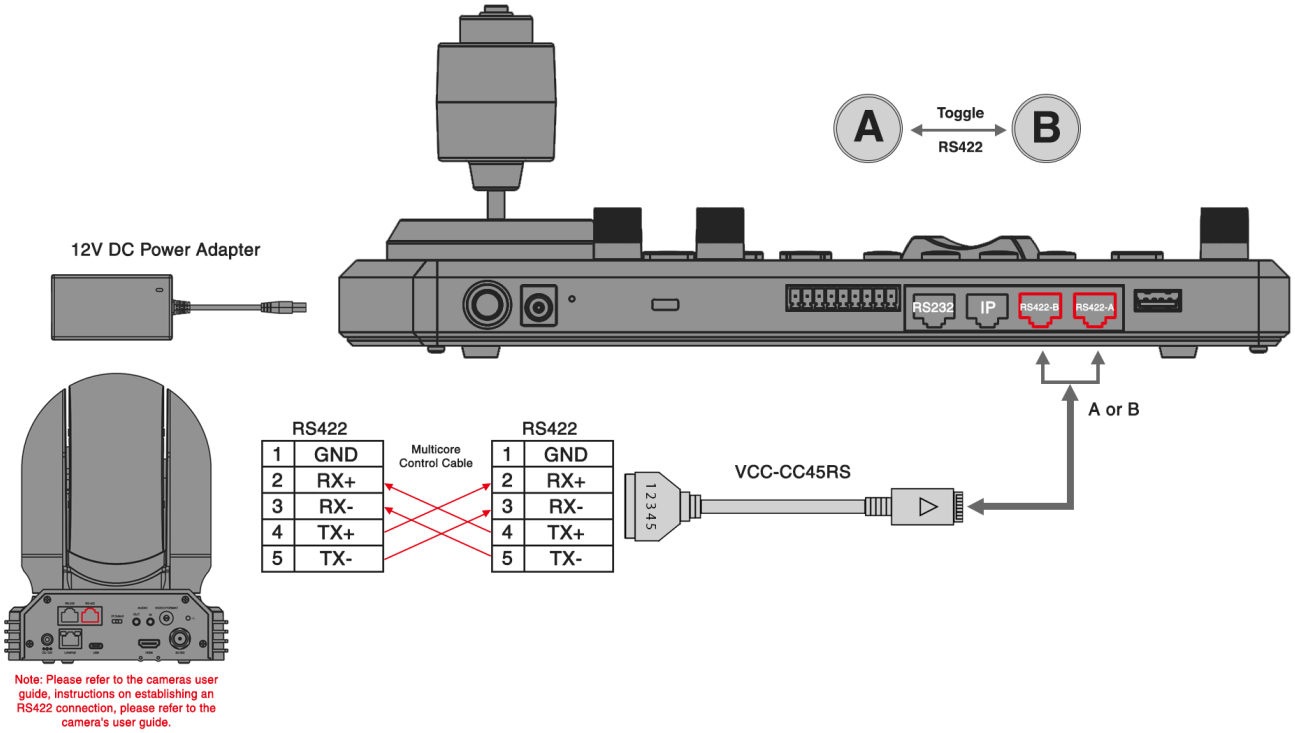
5. RS422 Daisy Chain Multiple Cameras connection (Bolin or Sony Camera).

RS422 Daisy Chain Connection: Via Junction Box for a Camera with an RS422 Serial Port (Bolin or Sony Camera)



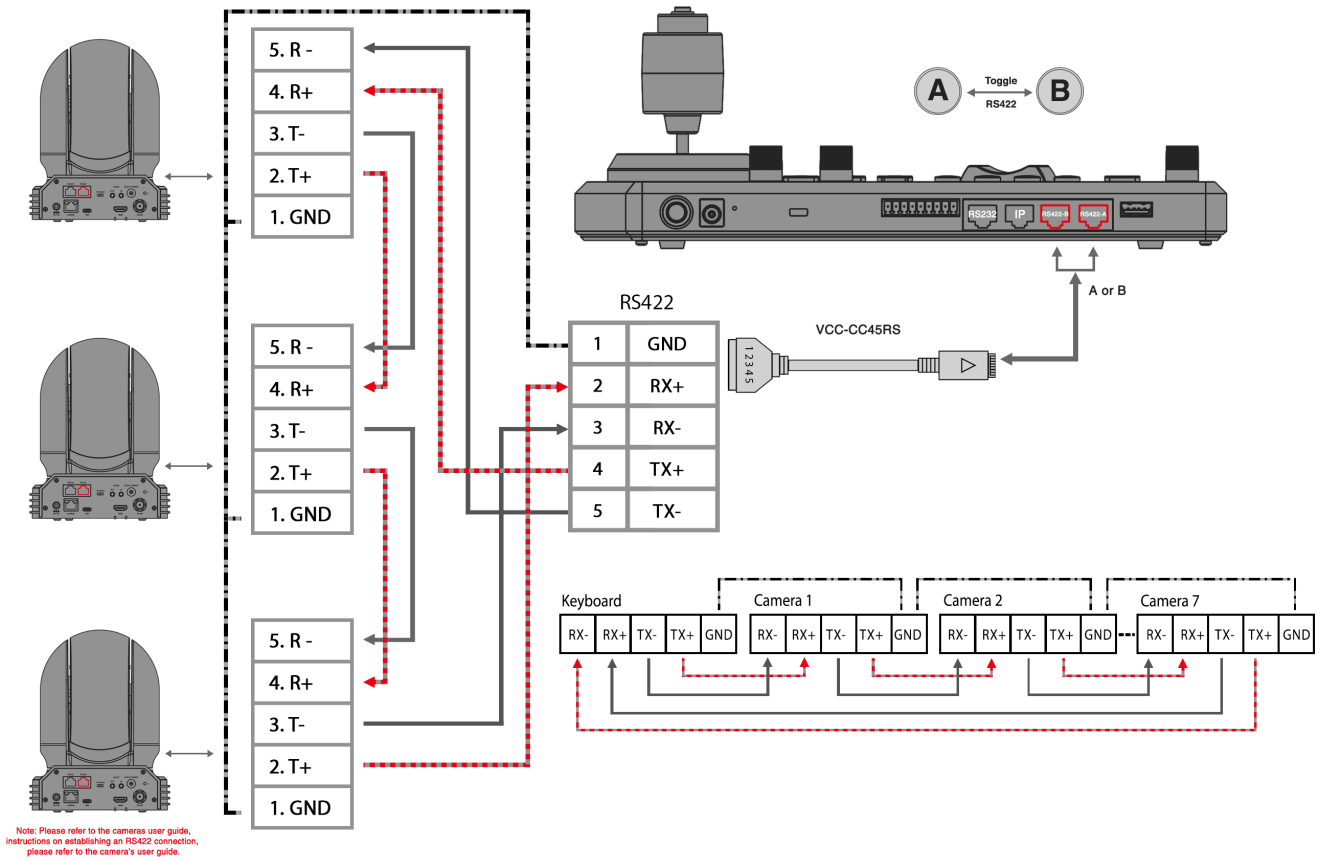
6. RS422 1-to-1 Connection Using RJ45 to Phoenix Connector Adapter (Sold Separately).

RS422 Connection: Using an RJ45-RS422 Adapter for a Camera with an RS422 Serial Connector



7. RS422 Daisy Chain Connection: Using an RJ45 to Phoenix Connector Adapter (Sold Separately).

RS422 Daisy Chain Connection: Via RJ45 to RS422/232 Adapter for a Camera with an RS422 Serial Port



RS485 Connection

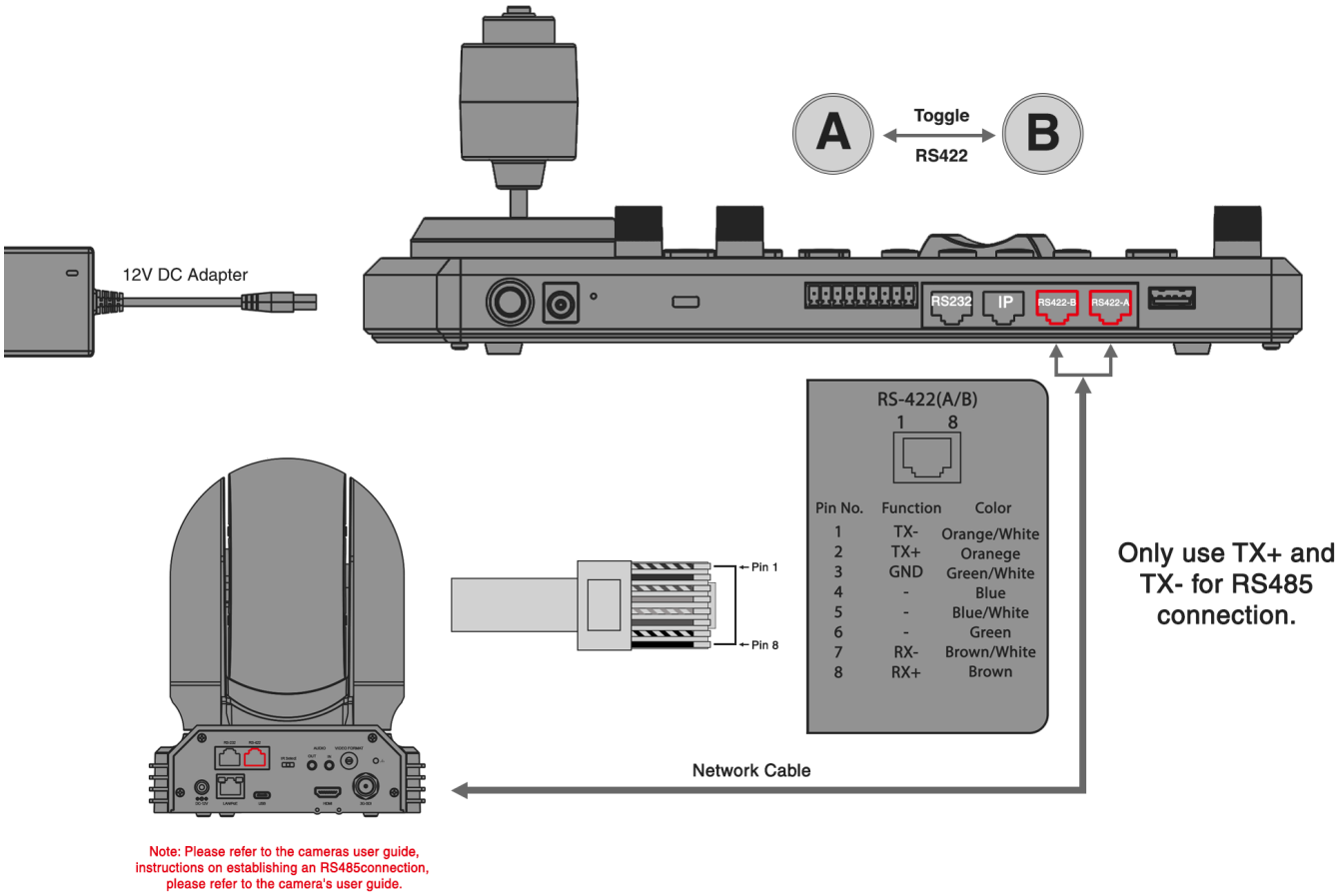
NOTE:

- Use **RS422** ports for **RS485** connection.
- Only use **TX+** and **TX-** for **RS485** connection.

1. RS485 Connection Using Network Cable:

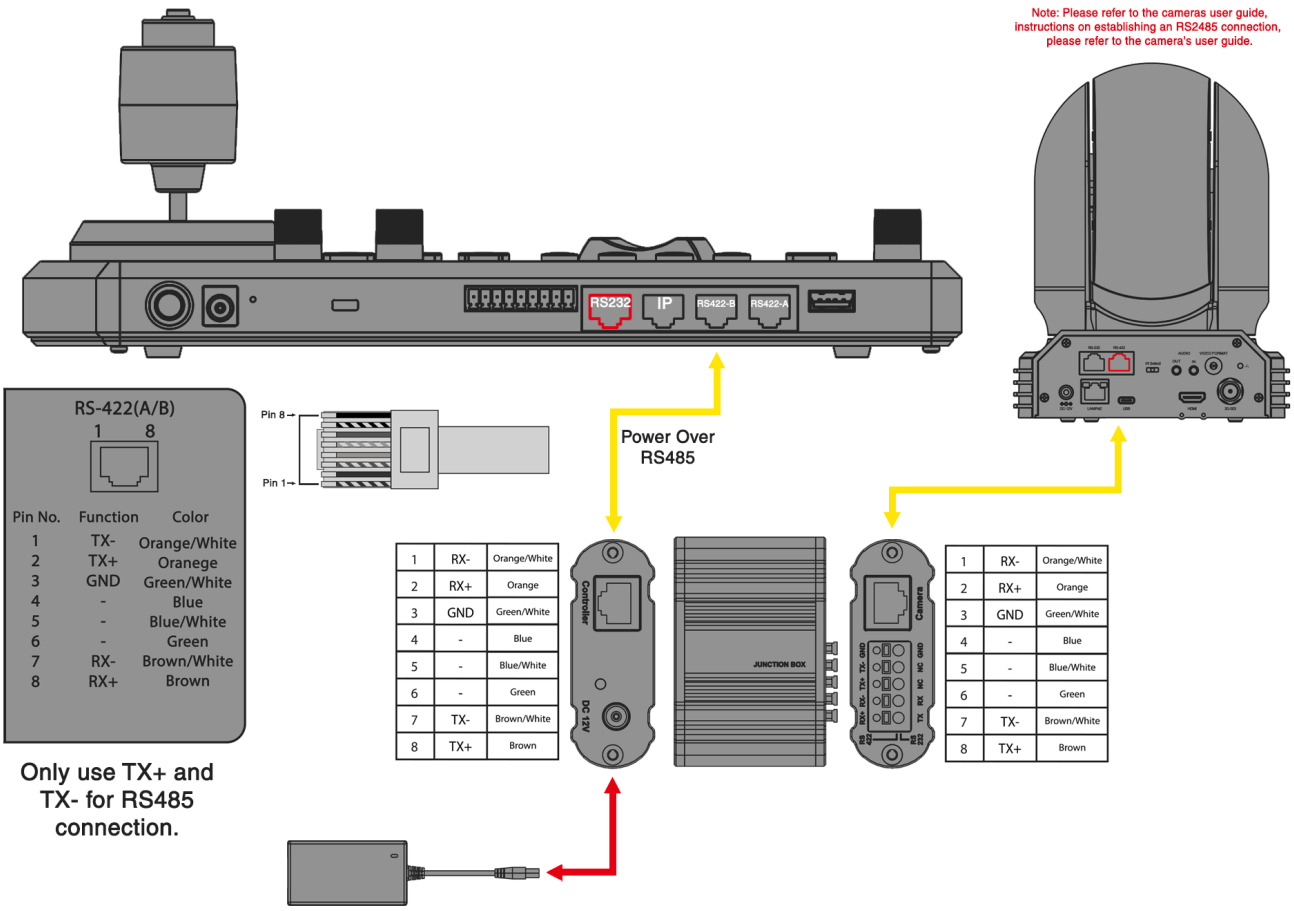
a. 1 to 1 Connection: Follow the pinout for the RS485 port on the keyboard. Use a CAT5/6 cable (follow T-568B standard pinout at keyboard end) to make a cable suitable for controlling your camera.

RS485 Connection: Creating a Network Cable for a Camera with an RS485 Serial Connector



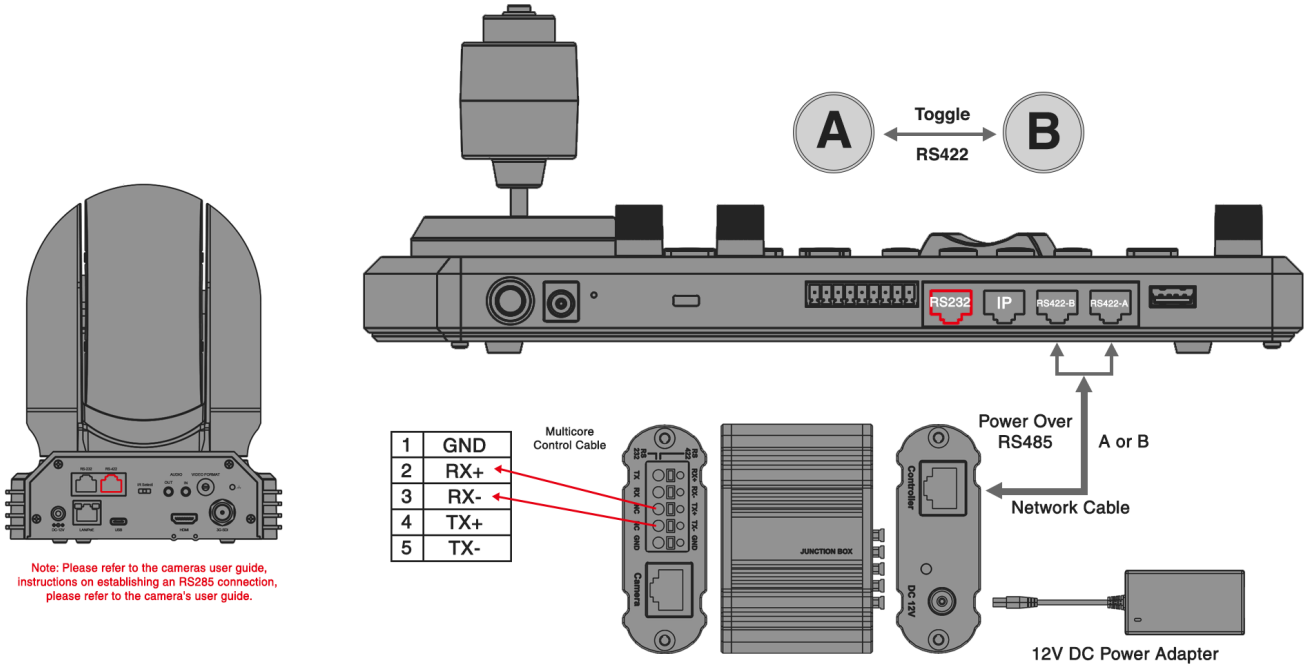
b. Follow the pinout for the RS485 port on both the keyboard and the Junction Box. Use a CAT5/6 cable, ensuring it adheres to the T-568B standard pinout between the keyboard and the Junction Box, to create a suitable cable for controlling your camera via the Junction Box.

RS485 Connection: Via Junction Box to Create a Network Cable for a Camera with an RS485 Serial Connector



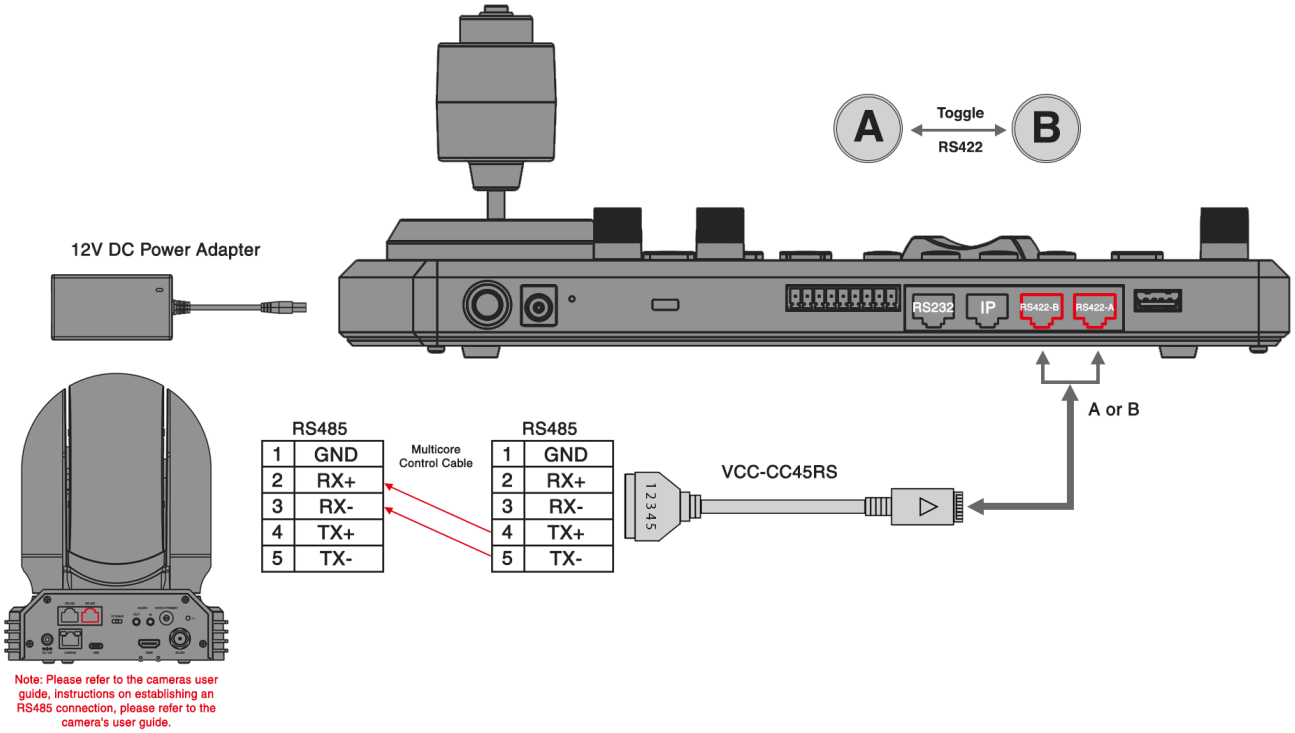
2. RS485 Connection: Using Multicore Control Cable via Junction Box.

RS485 Connection: Via Junction Box for a Camera with an RS485 Serial Connector



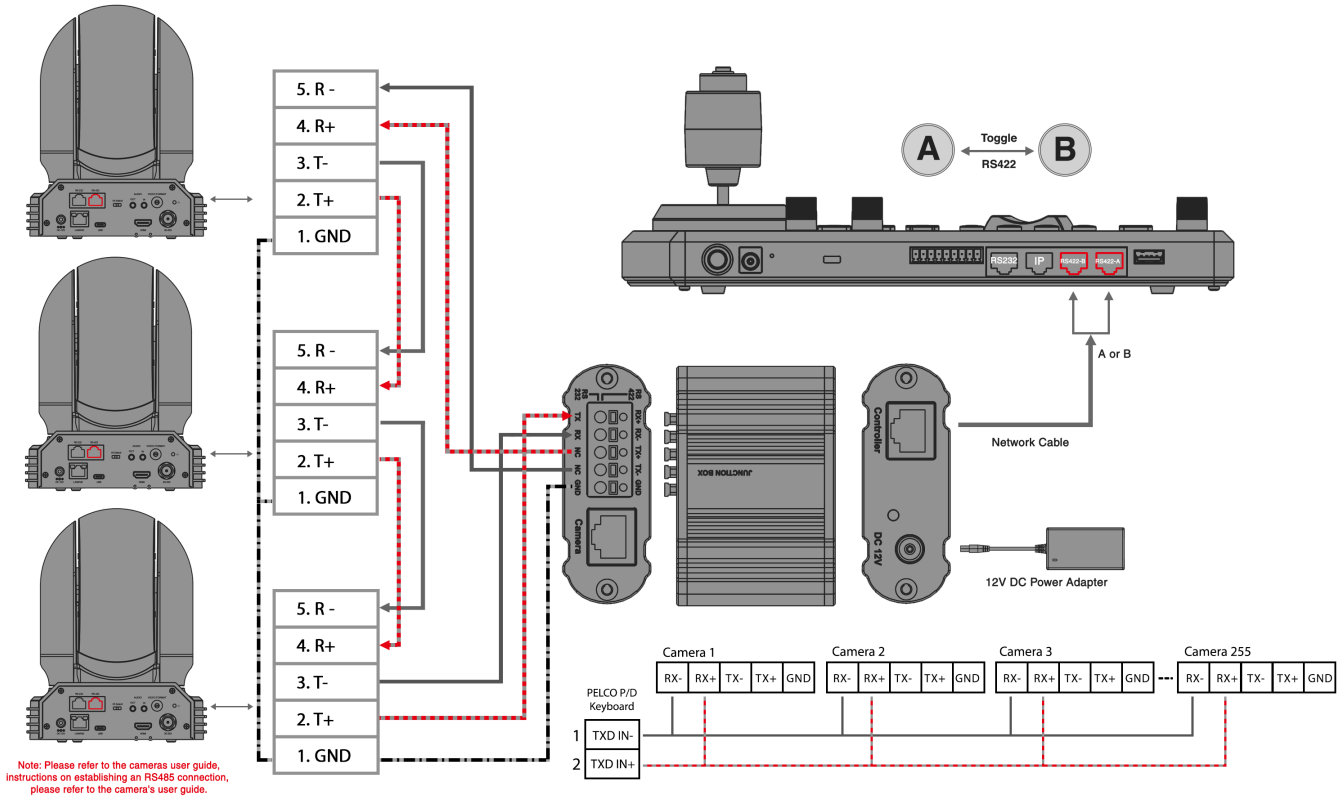
3. RS485 Connection: Using Multicore Control Cable via RJ45 to Phoenix Connector Adapter (Sold Separately).

RS485 Connection: Via Junction Box for a Camera with an RS485 Serial Connector



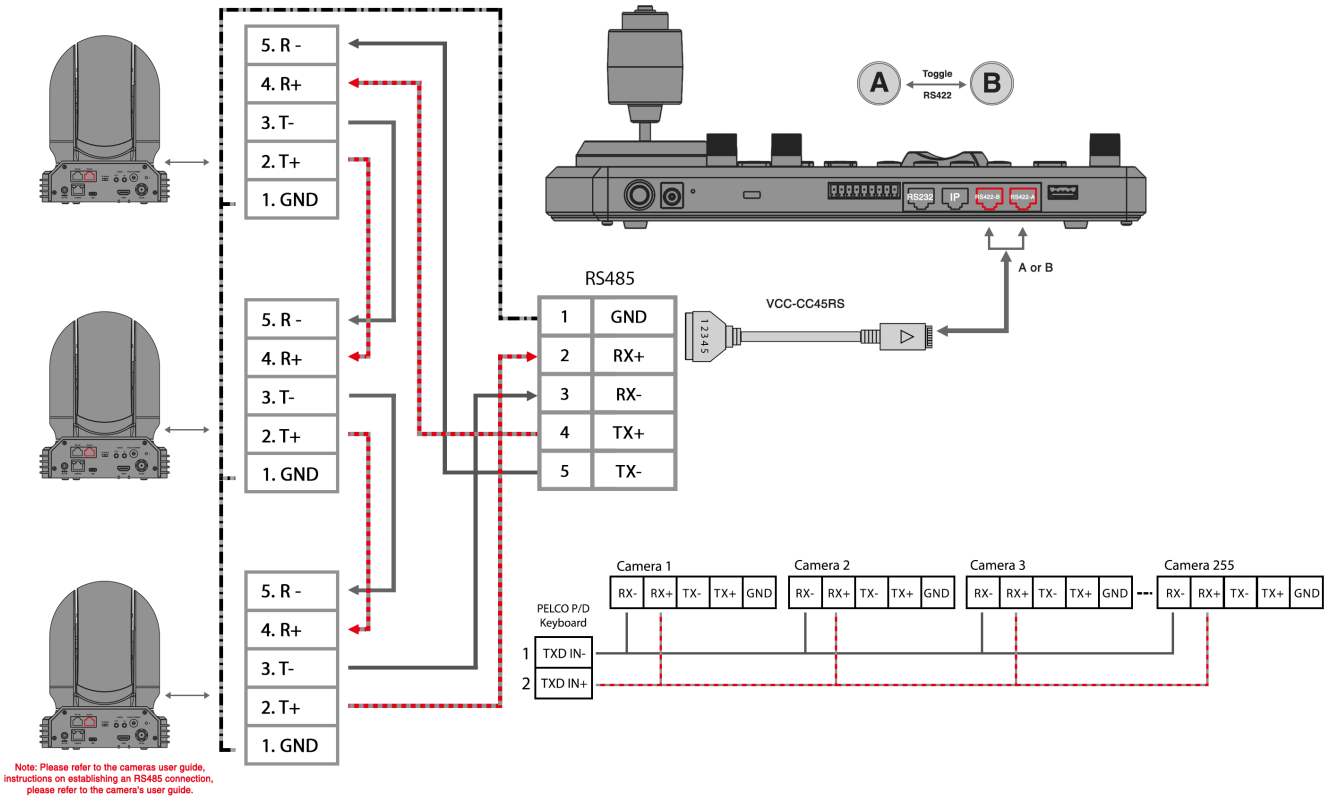
4. RS485 Daisy Chain Connection for Multiple Cameras

RS485 Daisy Chain Connection: Via Junction Box for a Camera with an RS485 Serial Port



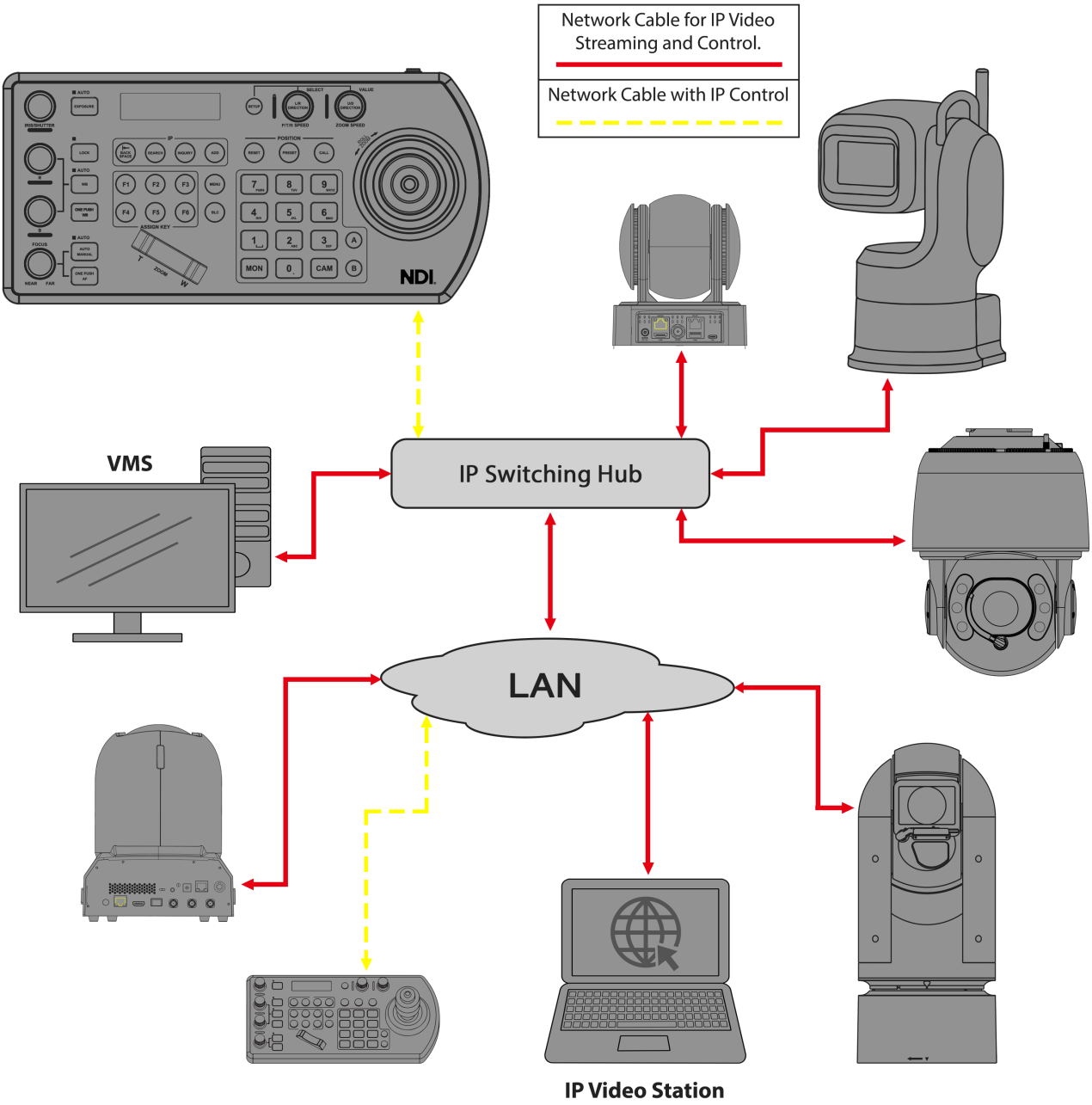
5. RS485 Daisy Chain Connection: Using RJ45 to Phoenix Connector Adapter (Sold Separately).

RS485 Daisy Chain Connection: Via RJ45 to RS422 Adapter for a Camera with an RS485 Serial Port

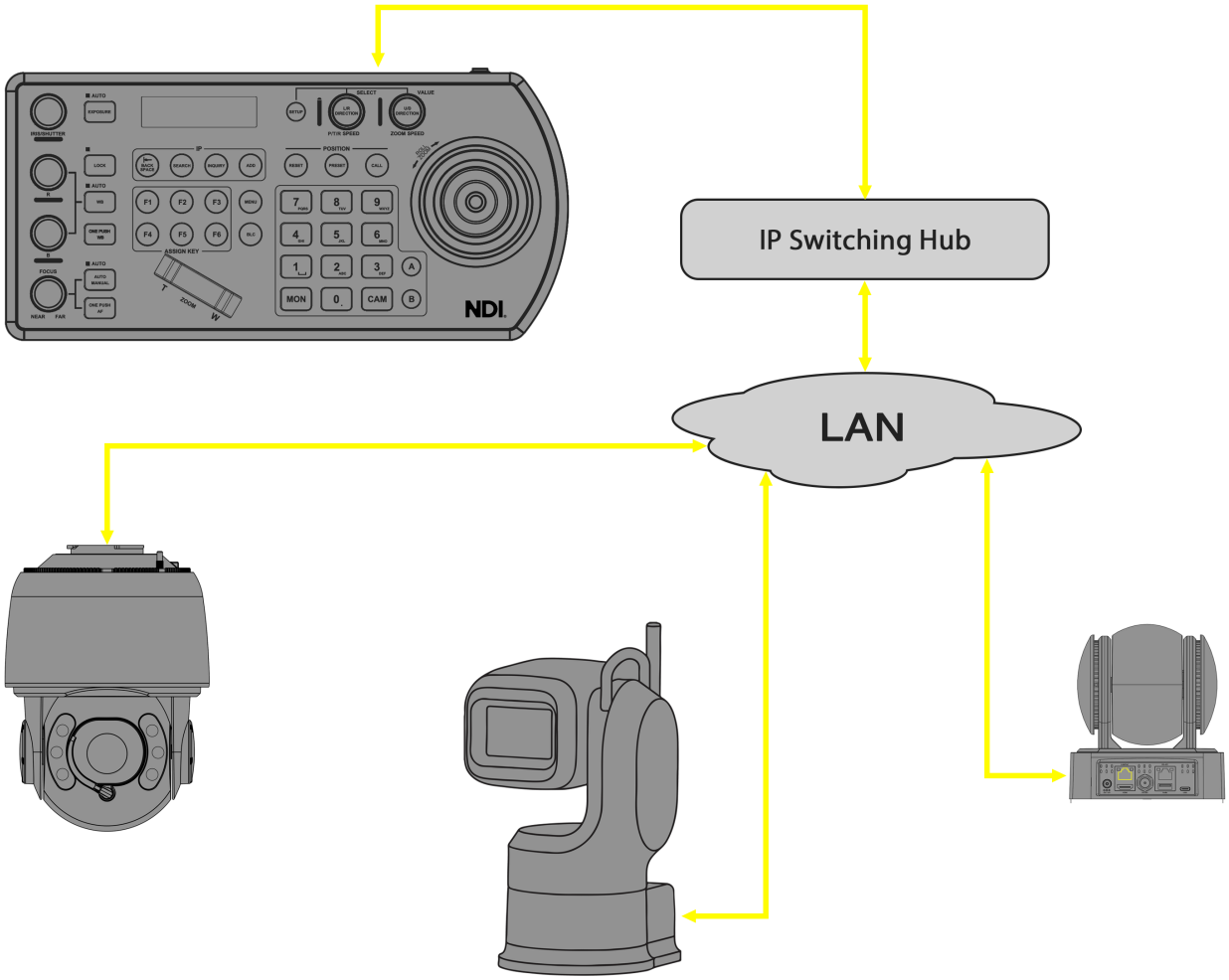


IP Control

IP Connection: Using ONVIF IP Control Protocol with an IP Streaming Camera



VISCA Over IP Control



Web Interface Configuration

Login Preparation Checklist

- Ensure the keyboard controller is powered on and connected to a network switch.
- Verify that the keyboard's IP address is within the same subnet as the PC/ laptop.
- Connect the PC/ laptop to the same network switch as the keyboard controller.
- Confirm the PC/ laptop's IP address is within the same subnet as the keyboard.

Log In

Factory-Default Network Settings for Keyboard:
IP Address: **DHCP**

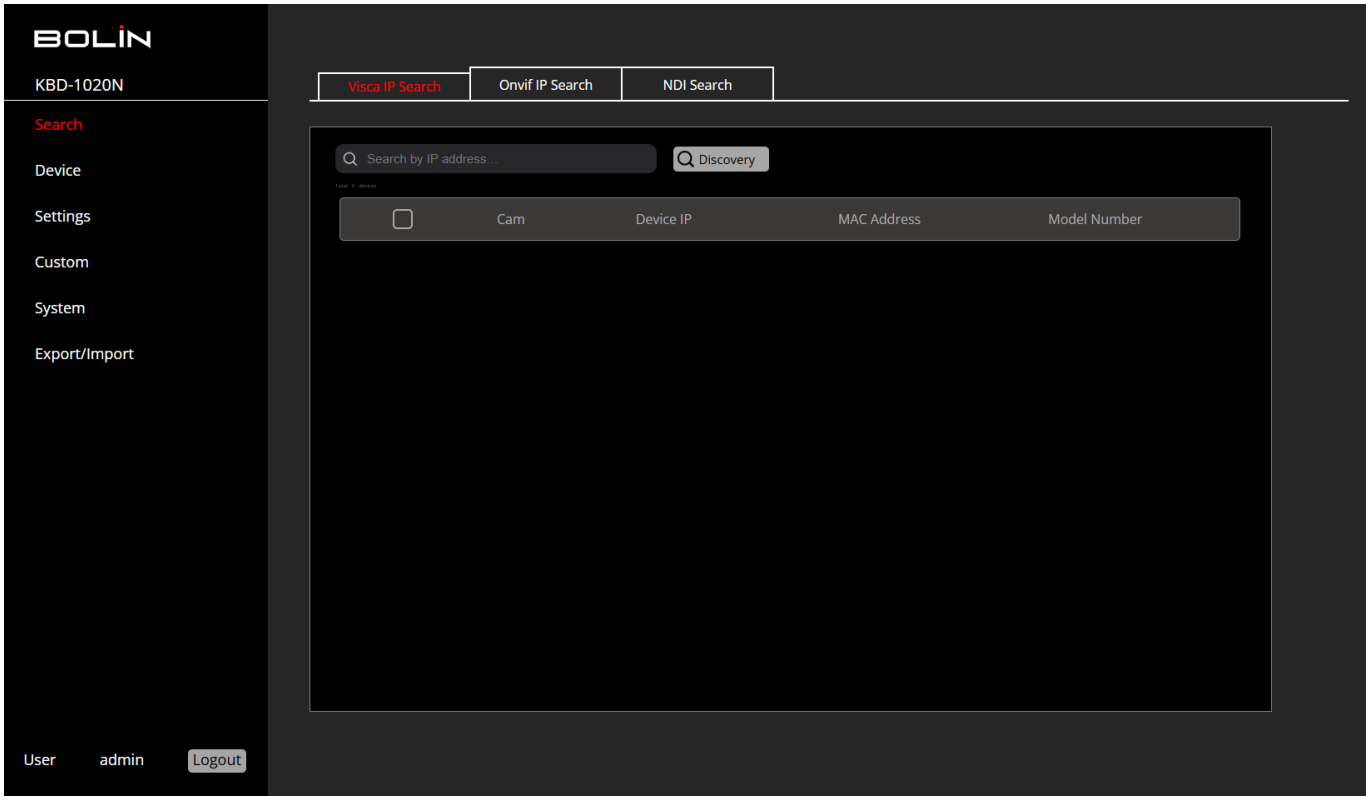
> NOTE: To obtain the IP address, go back to the keyboard: **SETUP > PASSWORD: 0000 > KEYBOARD SETTINGS > IP CONFIGURATION > IP ADDRESS.**

- Enter the keyboard's IP address on your web browser
- Users will be prompted to enter a username and password. By default, the credentials are:
  - Username: **admin**
  - Password: **admin**

> NOTE: To reset the login password, perform a factory default directly on the keyboard: **SETUP > PASSWORD: 0000 > KEYBOARD SETTINGS > FACTORY DEFAULT > YES?**

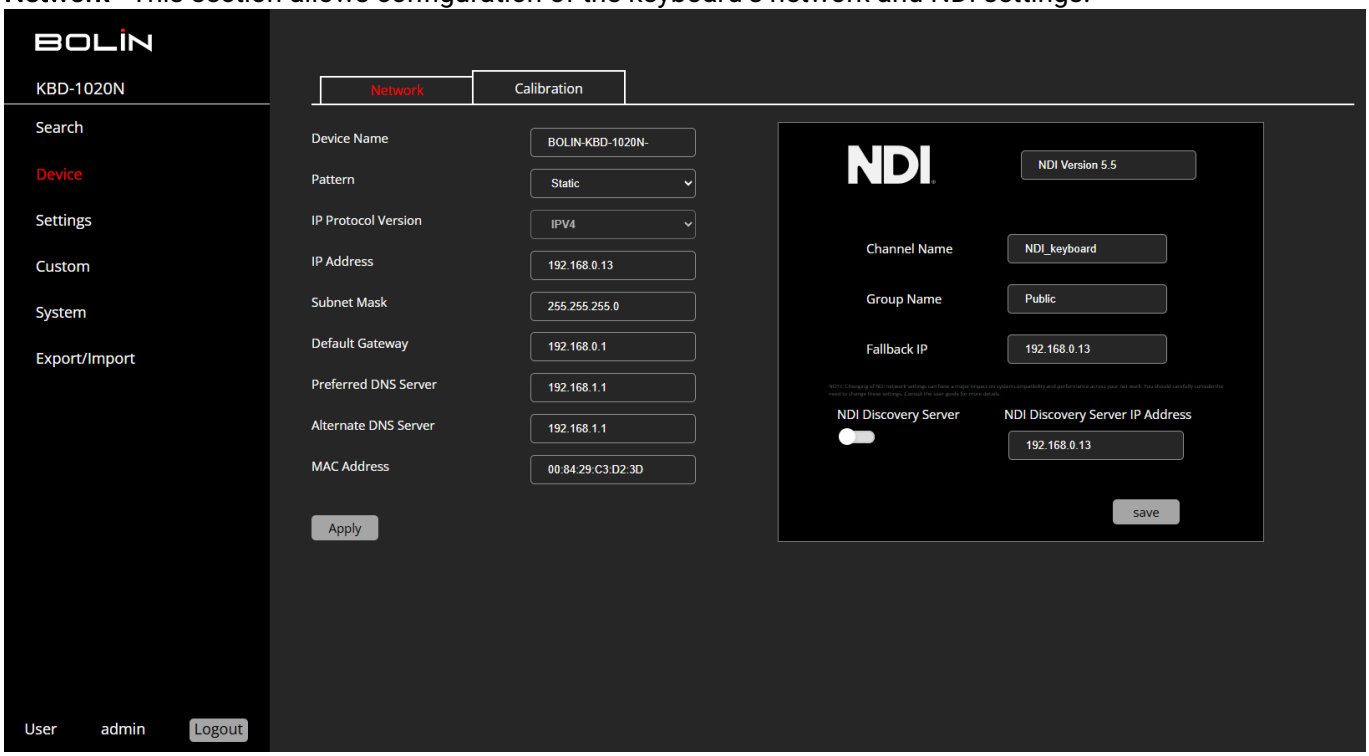
Search

Search for and manage cameras on the same network via different protocols such as VISCA, ONVIF, and NDI.



Device

Network - This section allows configuration of the keyboard's network and NDI settings.



- **Device Name**: Set a unique name for the keyboard.
- **Pattern**: Select **Static** for a fixed IP or **DHCP** for automatic IP assignment.
- **IP Address**: Keyboard's IP address (e.g., `192.168.0.13`).
- **Subnet Mask**: Typically `255.255.255.0`.
- **Default Gateway**: Enter the router's IP (e.g., `192.168.0.1`).

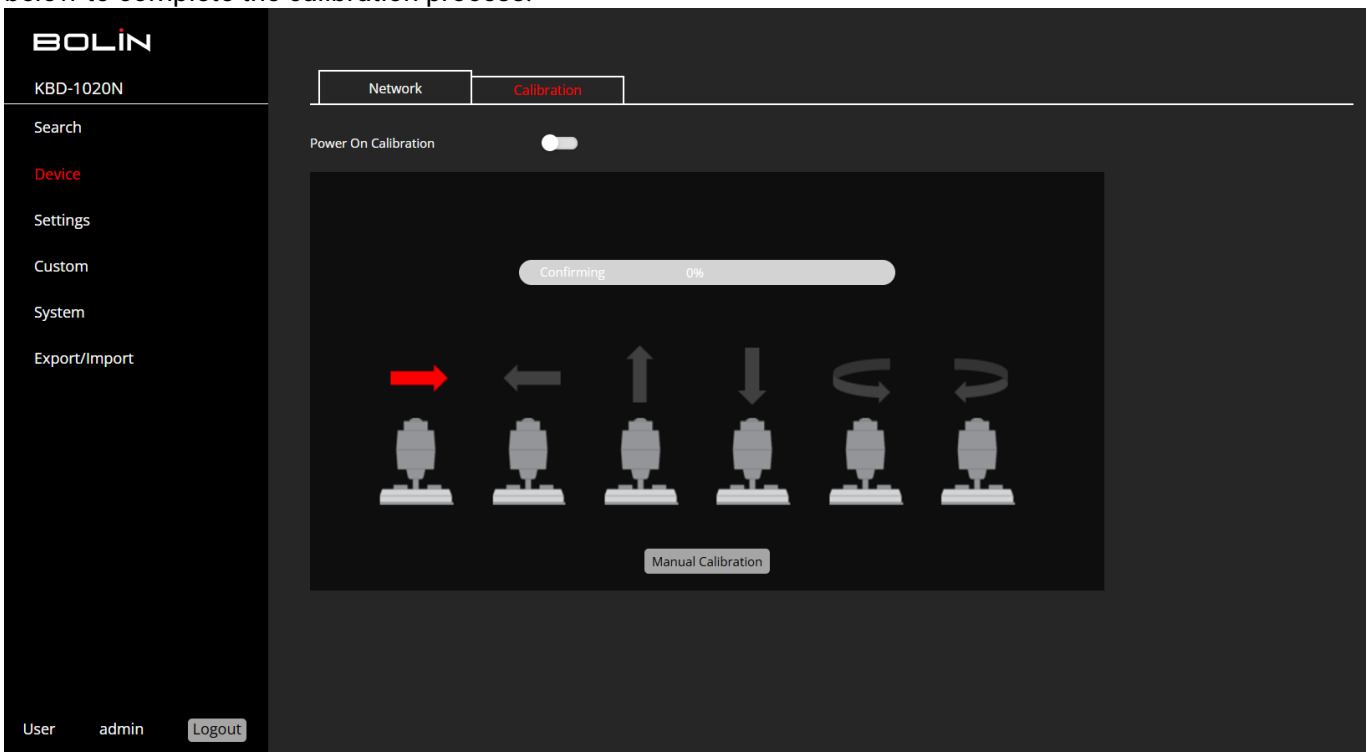
- **DNS Servers**: Enter the preferred and alternate DNS server IPs (e.g., `192.168.1.1`).
- **MAC Address**: Displays the keyboard's network hardware address.

NDI Settings

- **NDI Version**: Displays the current version (e.g., `NDI Version 5.5`).
- **Channel Name**: Set a name for the NDI stream (e.g., `NDI_keyboard`).
- **Group Name**: Set the group name (e.g., `Public`).
- **Fallback IP**: Enter a backup IP address (e.g., `192.168.0.13`).
- **NDI Discovery Server**: Toggle to enable or disable NDI Discovery.
- **NDI Discovery Server IP Address**: Set the NDI server IP (e.g., `192.168.0.13`).

Keyboard Calibration

The Calibration tab is designed to calibrate the keyboard for accurate key input recognition. Follow the steps below to complete the calibration process.



Power On Calibration: Toggle enables or disables automatic calibration each time the keyboard is powered on.

Calibration Process: The main window displays an animation of the keyboard, showing movements corresponding to keypress actions (e.g., arrows indicating direction or rotation). The **Confirming** progress bar indicates the status of the calibration. The progress bar will fill as the calibration continues.

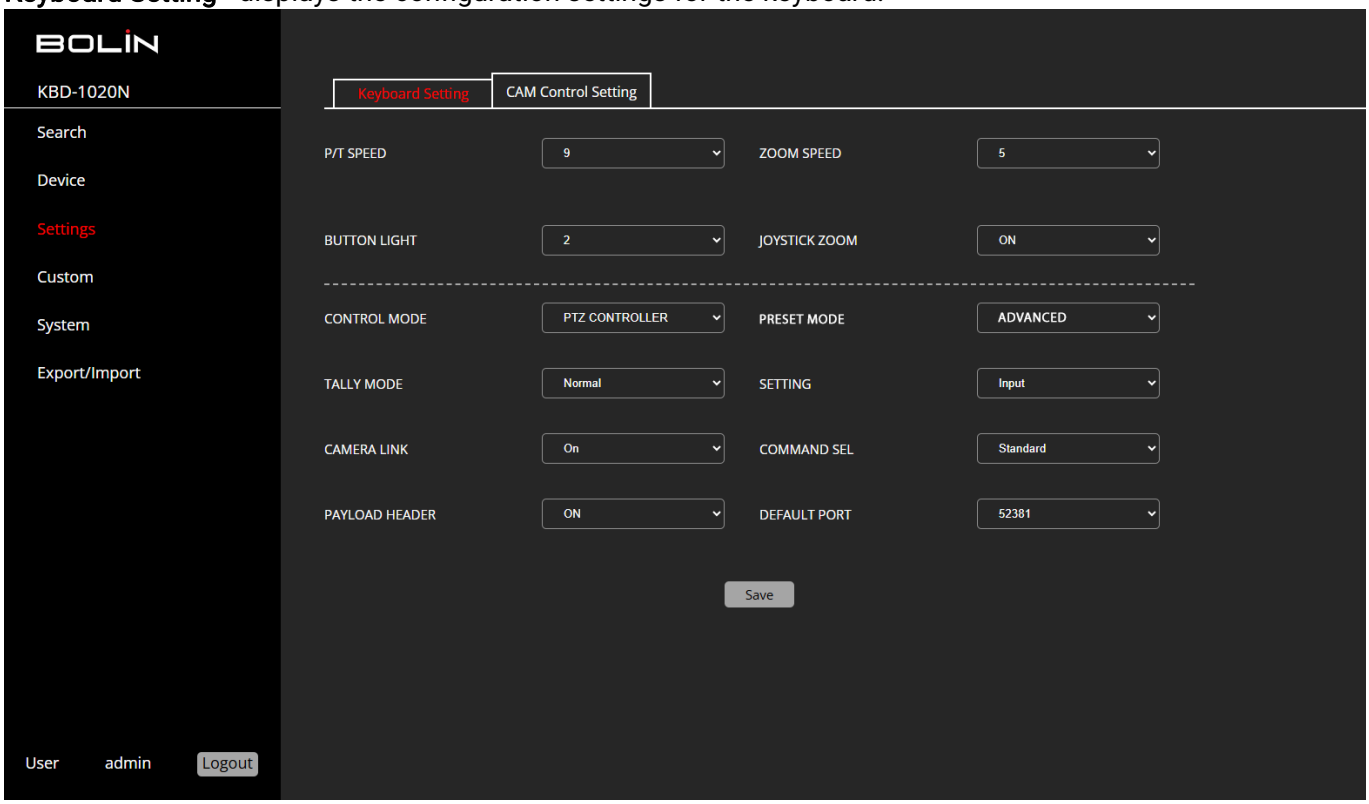
To calibrate the keyboard, hold the joystick in the indicated direction until the animation prompts to move to the next step:

- **Hold Left**: Keep the joystick held to the left to test the left-side keys until the animation signals to proceed.
- **Hold Right**: Keep the joystick held to the right to test the right-side keys until the animation signals to proceed.
- **Hold Up**: Keep the joystick held up to test the top row keys until the animation signals to proceed.
- **Hold Down**: Keep the joystick held down to test the bottom row keys until the animation signals to proceed.

- **Circular Arrows**: Hold the joystick in the indicated direction to test the key mapping, ensuring every key registers correctly, until the animation signals to proceed.

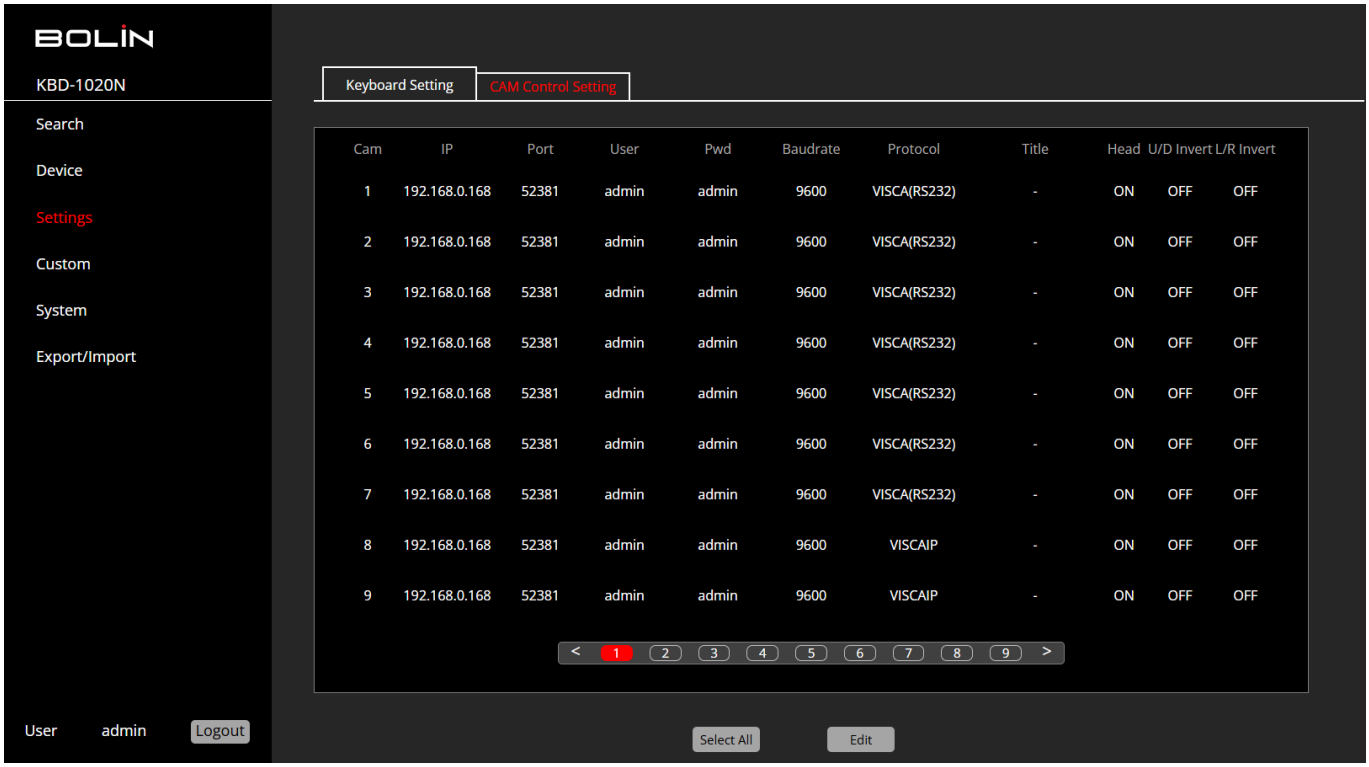
Settings

Keyboard Setting - displays the configuration settings for the keyboard.



- **P/T Speed**: Configures the pan and tilt speed for controlling connected PTZ cameras.
- **Zoom Speed**: Sets the speed at which the camera zooms in or out.
- **Button Light**: Adjusts the brightness level of the keyboard's buttons backlight.
- **Joystick Zoom**: Enables or disables the ability to control zoom using the joystick.
- **Control Mode**: Determines the operational mode of the keyboard, such as "PTZ Controller."
- **Preset Mode**: Selects the preset configuration mode, with options like "Advanced" for more detailed control.
- **Tally Mode**: Sets the tally light behavior to indicate the camera's active status (e.g., "Normal").
- **Setting**: Configures specific input or operational preferences for the keyboard.
- **Camera Link**: Activates or deactivates the camera link feature for communication with cameras.
- **Command Sel**: Defines the communication protocol used by the keyboard, such as "Standard."
- **Payload Header**: Toggles the inclusion of the payload header in command transmissions.
- **Default Port**: Specifies the default port number for VISCA over ip communication (e.g., 52381).

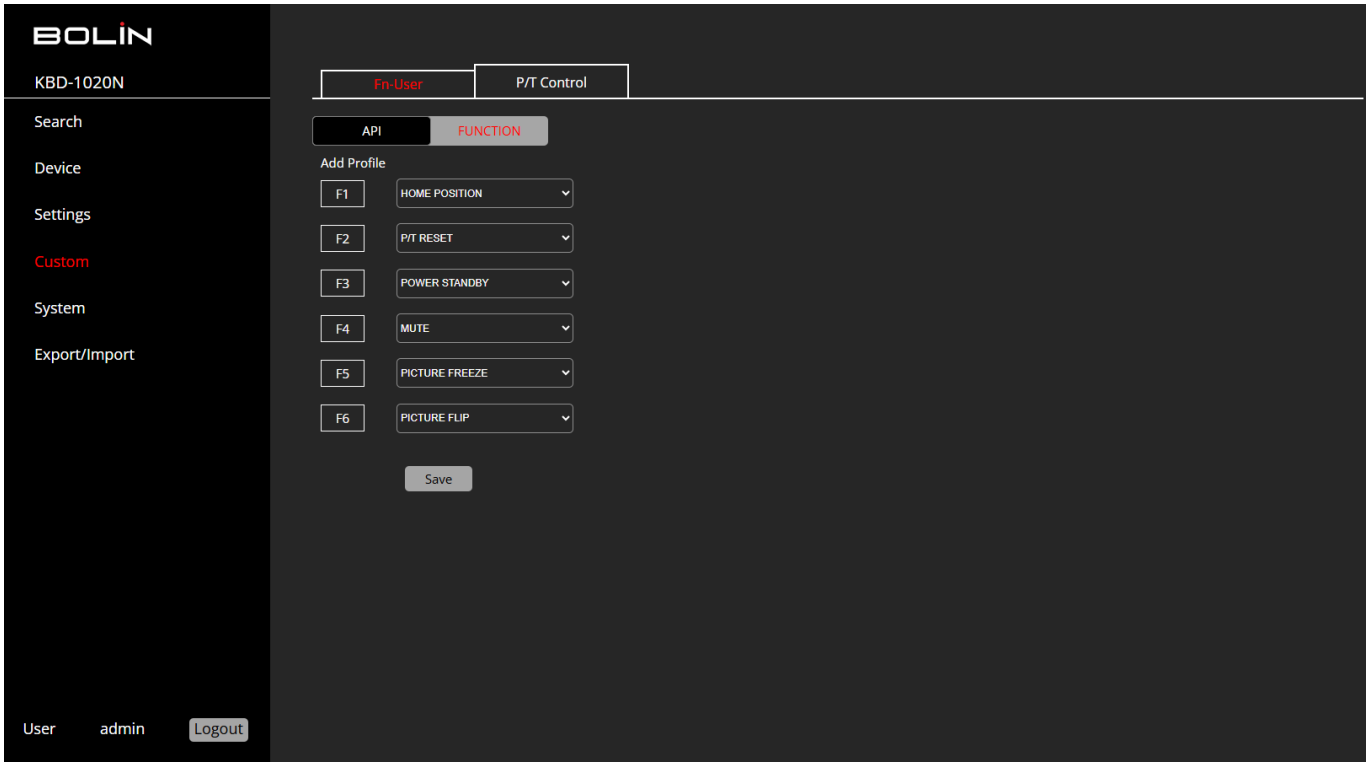
CAM Control Setting - for configuring and controlling multiple cameras.



- **Cam**: The camera number or index for quick identification.
- **IP**: The IP address assigned to each camera for network communication.
- **Port**: The port number through which the camera communicates (e.g., 52381).
- **User**: The username for accessing each camera (e.g., "admin").
- **Pwd**: The password for the associated user account (e.g., "admin").
- **Baudrate**: The baud rate for communication, which defines the speed of data transfer (e.g., 9600 bps).
- **Protocol**: The communication protocol used by the camera.
- **Title**: A placeholder for labeling or assigning custom names to cameras (currently empty in this screenshot).
- **Head**: Toggles to enable or disable camera movement controls (e.g., ON).
- **U/D Invert (Up/Down Invert)**: Toggles for vertically flipping the camera feed (e.g., OFF).
- **L/R Invert (Left/Right Invert)**: Toggles for horizontally flipping the camera feed (e.g., OFF).

Custom

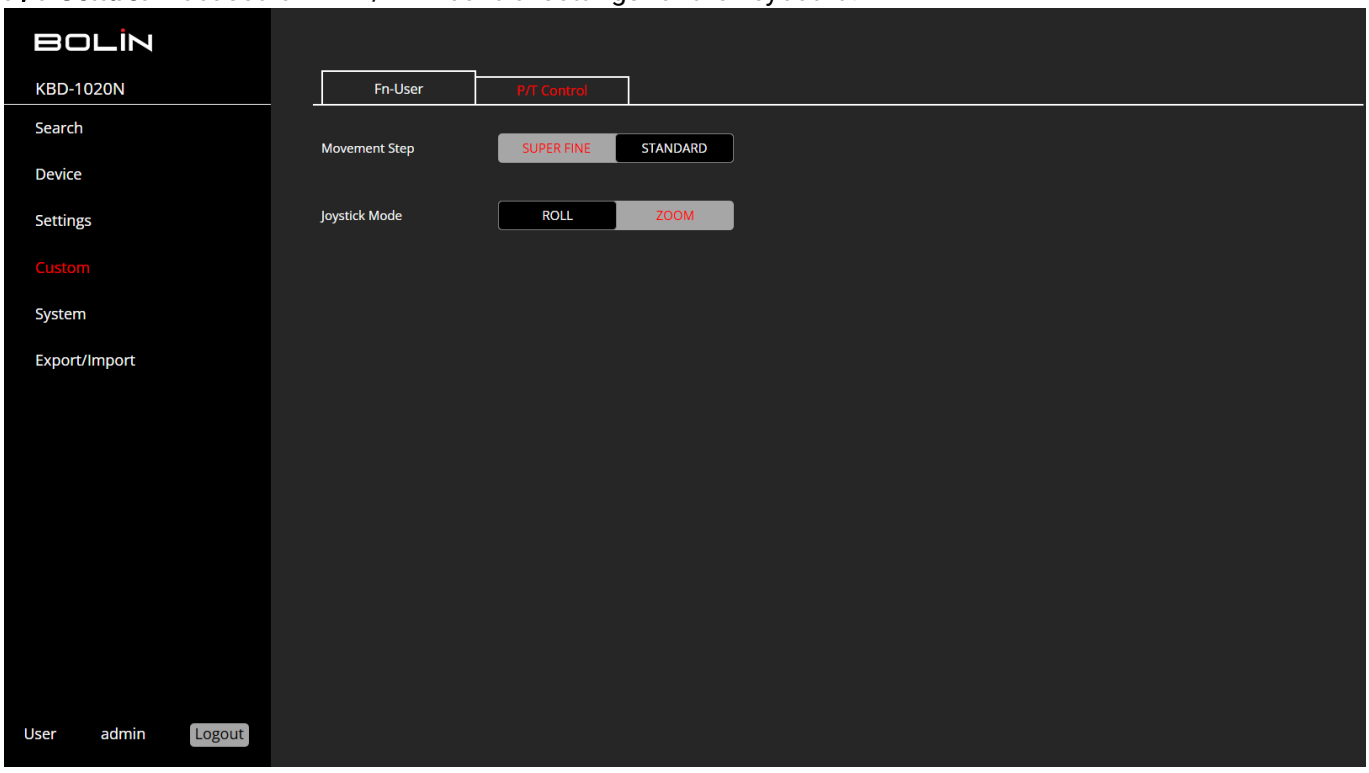
Fn-User - for assigning specific commands or actions to function keys (F1 through F6) within a camera control or management system. This feature allows users to customize shortcuts for frequently used camera operations.



Command options:

HOME POSITION	TALLY MODE ENABLE	WIPER ON	CAMERA2
P/T RESET	TALLY MODE DISABLE	WIPER OFF	CAMERA3
POWER STANDBY	IMAGE STABILIZER	HEATER ON	CAMERA4
MUTE	HL COMPENSATION	HEATER OFF	CAMERA5
PICTURE FREEZE	TRACE MEMORY SET	DEFOG ON	CAMERA6
PICTURE FLIP	TRACE MEMORY CALL	DEFOG OFF	CAMERA7
PICTURE LR_REVERSE	TRACE MEMORY CANCEL	CAMERA1	NONE

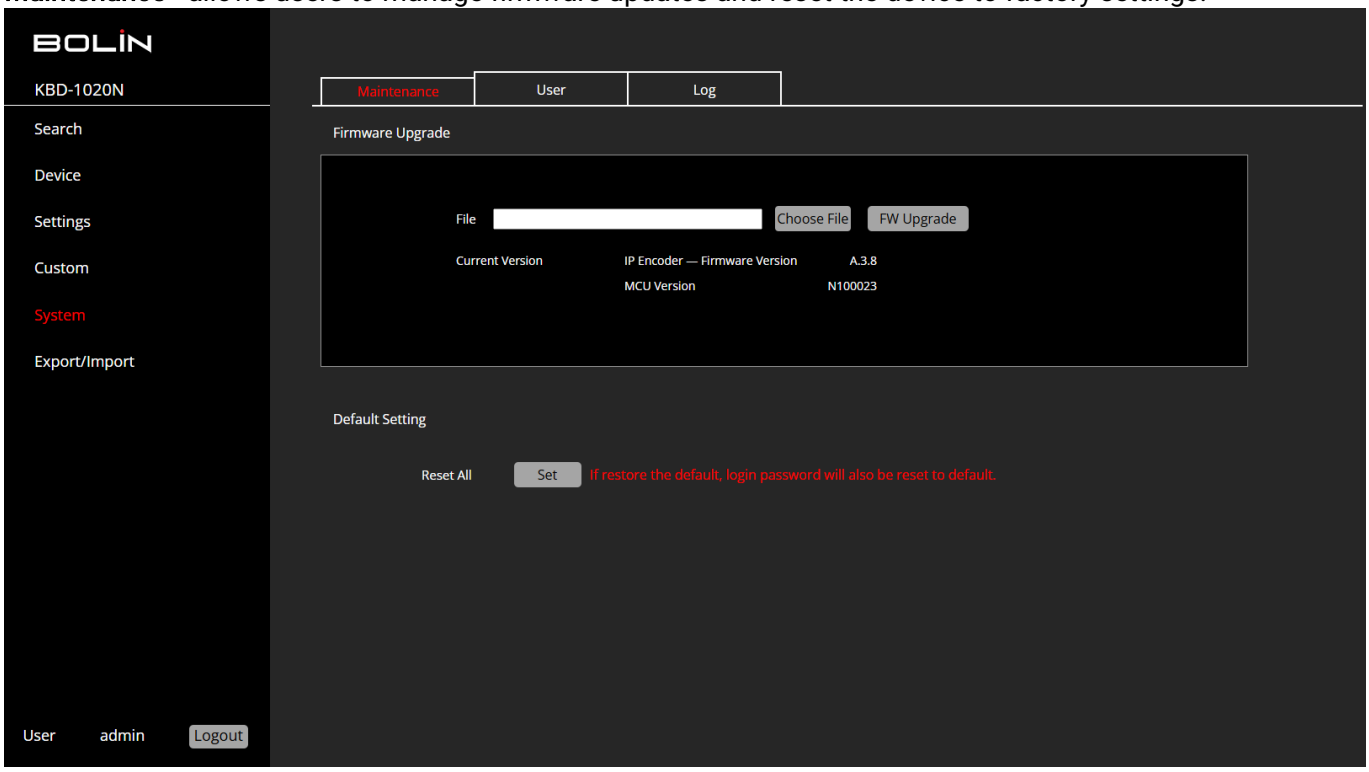
P/T Control - focused on PAN/TILT control settings for the keyboard.



- **Movement Step -** This setting offers two options: "**SUPER FINE**" and "**STANDARD**."
- **Joystick Mode -** This setting provides two options: "**ROLL**" and "**ZOOM**."

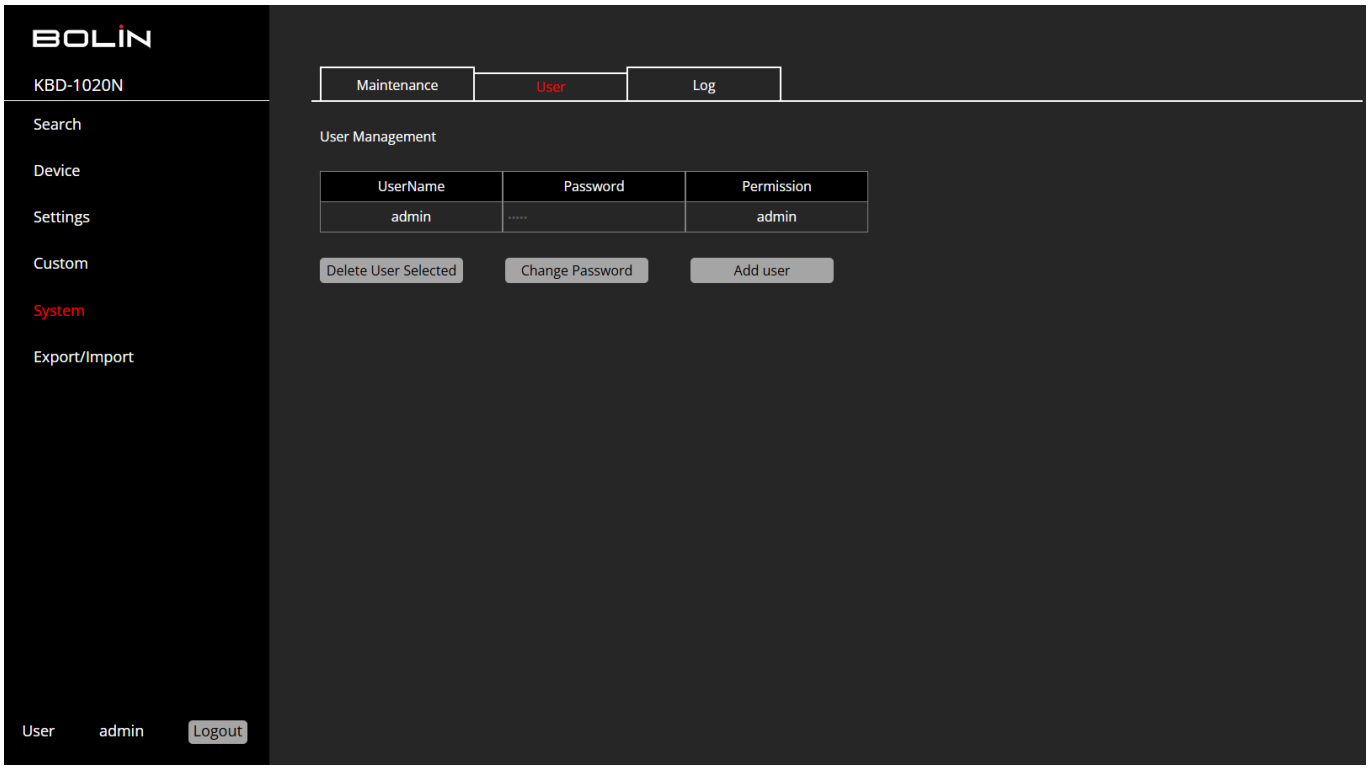
System

Maintenance - allows users to manage firmware updates and reset the device to factory settings.

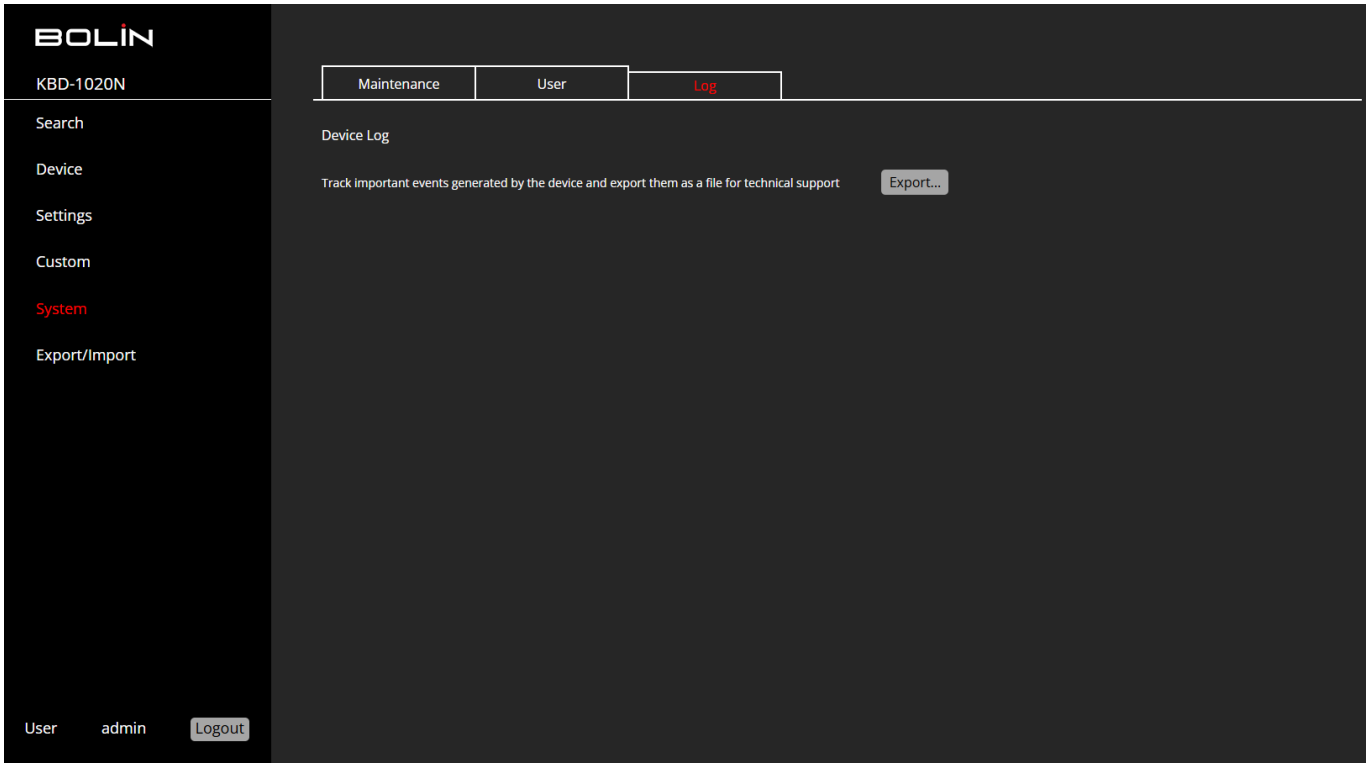


Firmware Upgrade section allows you to update the device's firmware to the latest version.

User - for managing user accounts, including adding new users, changing passwords, and deleting selected users.

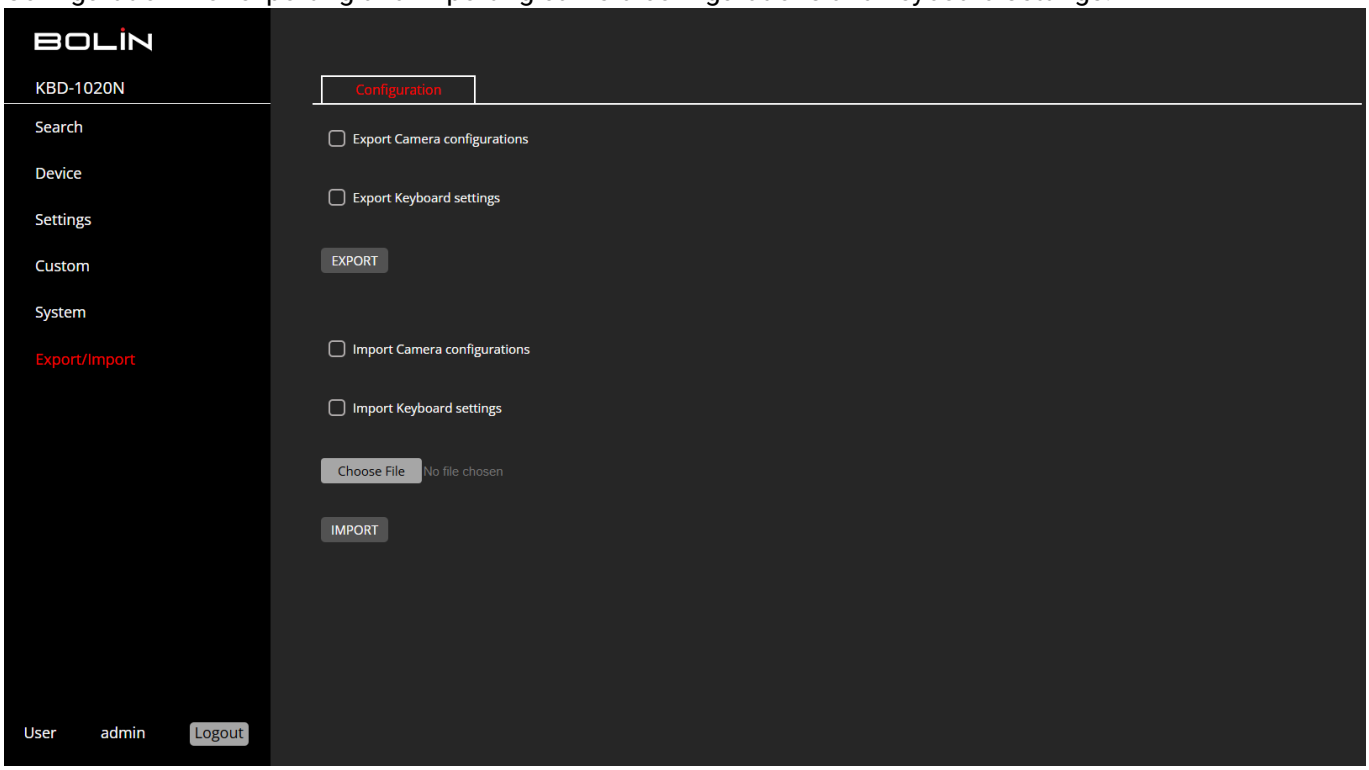


Log - This section is designed to help users track important events generated by the device, providing detailed logs to support teams for diagnosing issues.



Export/ Import

Configuration - for exporting and importing camera configurations and keyboard settings.



Password Reset Help

To reset passwords for the PTZ Controller, including login credentials for the web interface and the physical keypad:

1. **Ensure the controller is powered on.**
2. **Locate the pinhole reset button** on the back of the controller, next to the power button and DC power port.

3. **Use a paperclip or thumbtack** to press and hold the reset button.
4. **Keep holding the button** until you see "Factory Reset..." on the screen.
5. **When the "+" symbol appears** at the bottom right corner, release the button.
6. The reset process will complete, restoring all settings—including passwords—to factory defaults.

This will reset both the web interface and physical keypad passwords.

Helpful How To Videos

How to add multiple cameras to the Bolin KBD-1020N