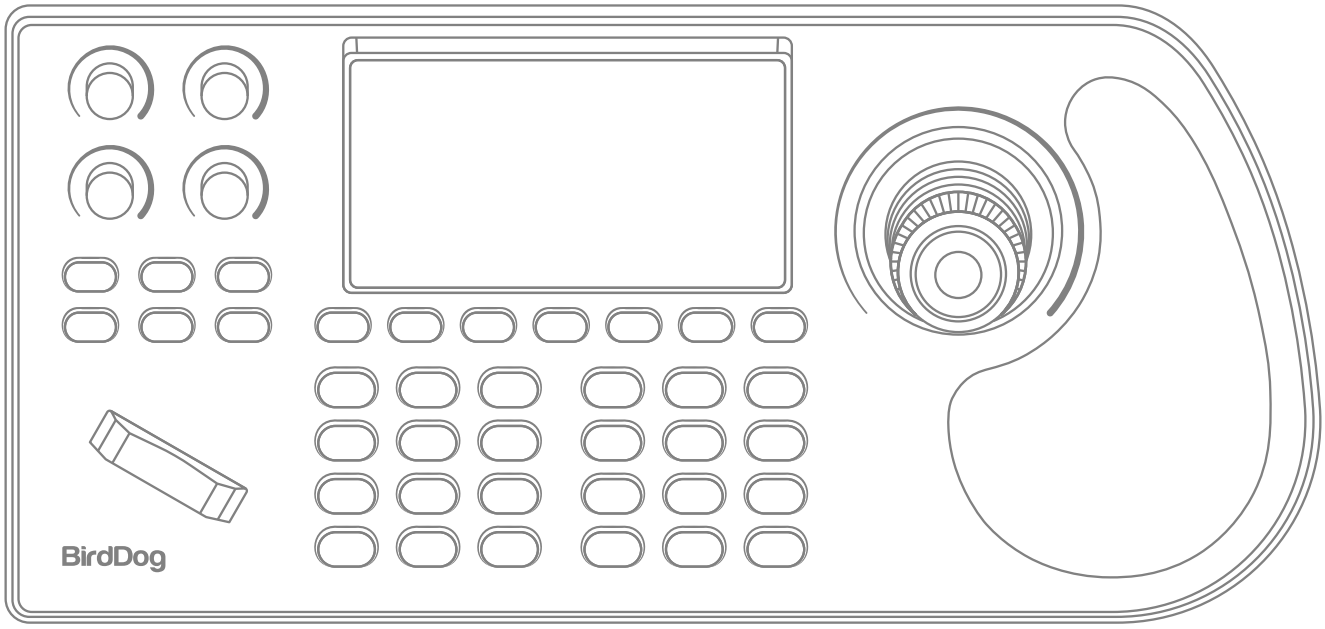
BirdDog

KBD



PTZ Controller

USER MANUAL

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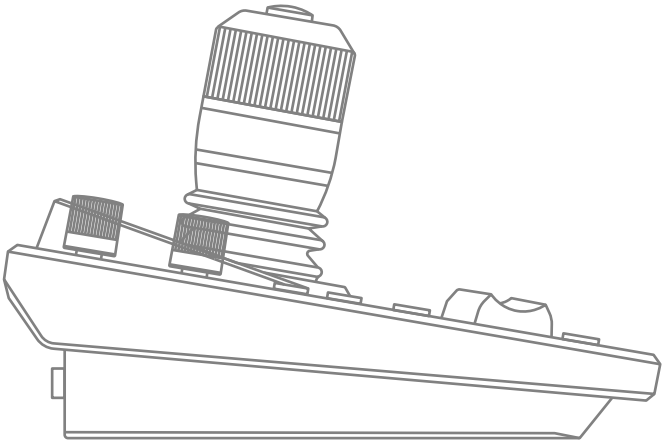
1. Product Overview



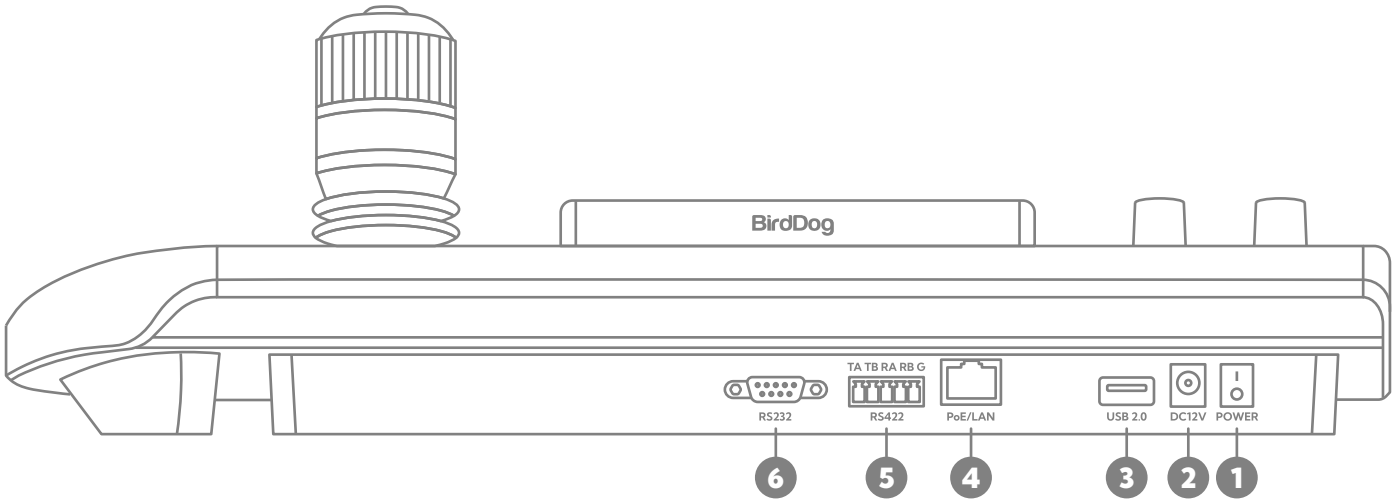
1.1 Product Description

BirdDog KBD Controller offers PTZ camera operators a rugged, ergonomic design, a large multi-camera display, and direct access to essential functions. With a built-in tally display and physical feedback for camera switching, it's intuitive and eco-friendly, made with Ocean-Bound Plastics and recyclable Aircraft-grade Aluminum. NDI, VISCA, ONVIF, RS-232, and RS-422 connectivity ensure versatility no matter what language you speak.

1.2 Product Features

- **Dual Control Modes**: Offers both network and analog control, with unique IP address assignment in network mode.
- **Protocol Compatibility**: Supports NDI, VISCA, ONVIF, RS-232, and RS-422 protocols, ensuring versatile connectivity across various camera systems.
- **Integrated Display**: Features a 1280x720 resolution screen capable of monitoring up to four cameras simultaneously or focusing on a single full-screen view.
- **High-Quality 4D Joystick**: Equipped with a 4D variable speed joystick with an integrated trigger button for smooth, omnidirectional camera control.
- **Zoom Rocker**: Includes a spring-loaded, adjustable zoom rocker for precise zoom adjustments.
- **Web-Based Configuration**: Allows camera configuration via BirdUI, accessible through web browsers.
- **Camera Control Capacity**: Supports control of up to 255 cameras, with six direct camera access keys and ten direct preset access keys, facilitating quick and efficient operation.
- **Power Options**: Supports standard PoE (802.3af) and DC12V power supply options.
- **Eco-Friendly Design**: Constructed using ocean-bound plastics and recyclable aircraft-grade aluminum, reflecting a commitment to sustainability.
- **Ergonomic Build**: Designed with a rugged, ergonomic structure featuring a hand-rest area and tactile controls for comfortable, all-day use.
- **Built-In Tally Borders**: Integrates with mixers like TriCaster or vMix, displaying live camera tally borders directly on the controller for enhanced workflow efficiency.

2. Product Interface Description

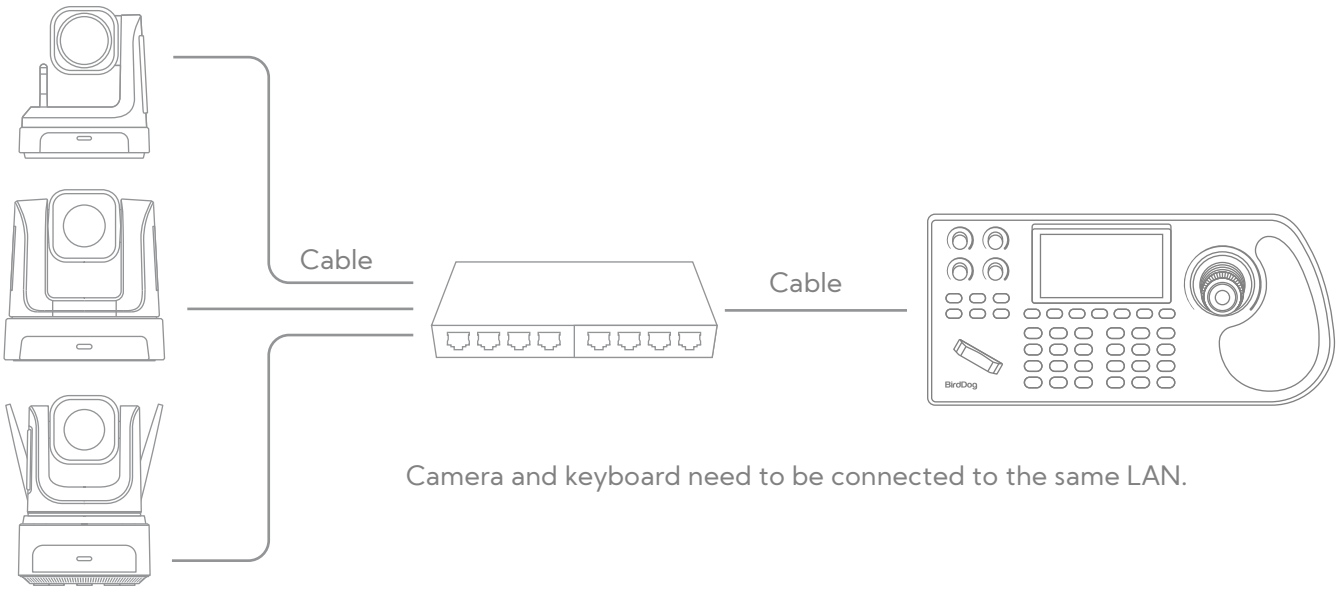


N.	Name	Function
1	Power	Power ON/OFF
2	DC12V	DC 12V Power Connection (Cable included in box)
3	USB	For updates only
4	Ethernet	Ethernet /NDI/ RJ-45 (PoE) Network Connection Supports 802.3af PoE power
5	RS485 / RS422	Supports VISCA/PELCO-D/PELCO-P with full compatibility
6	RS232	Supports VISCA/PELCO-D/PELCO-P

2.1 Product Connection Diagram

2.1.1 Network Connection

Network Mode: Connection diagram of controlling PTZ camera via VISCA, NDI, ONVIF

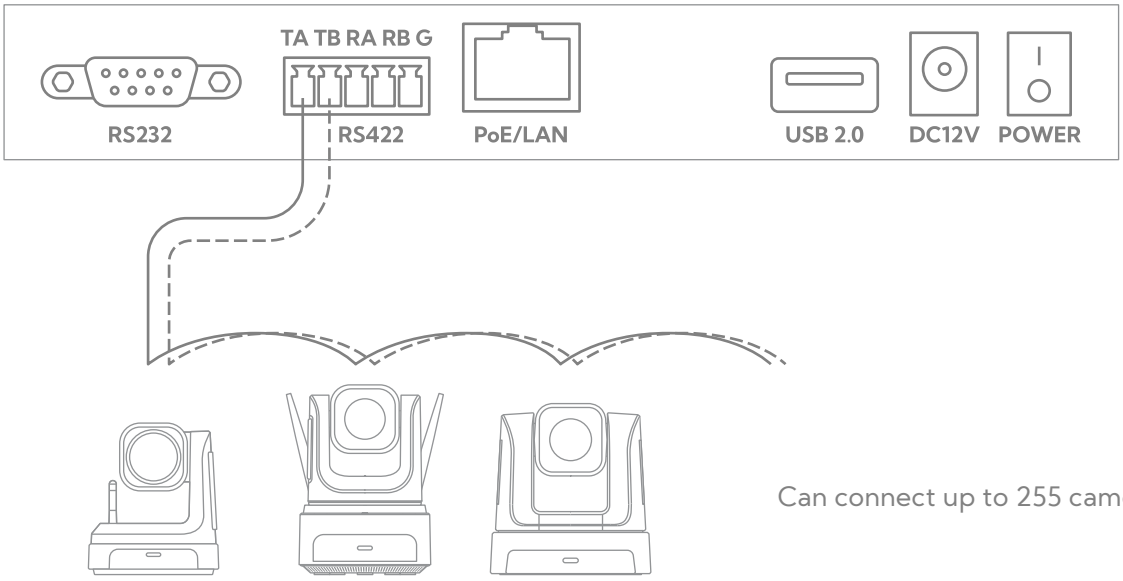


Camera and keyboard need to be connected to the same LAN.

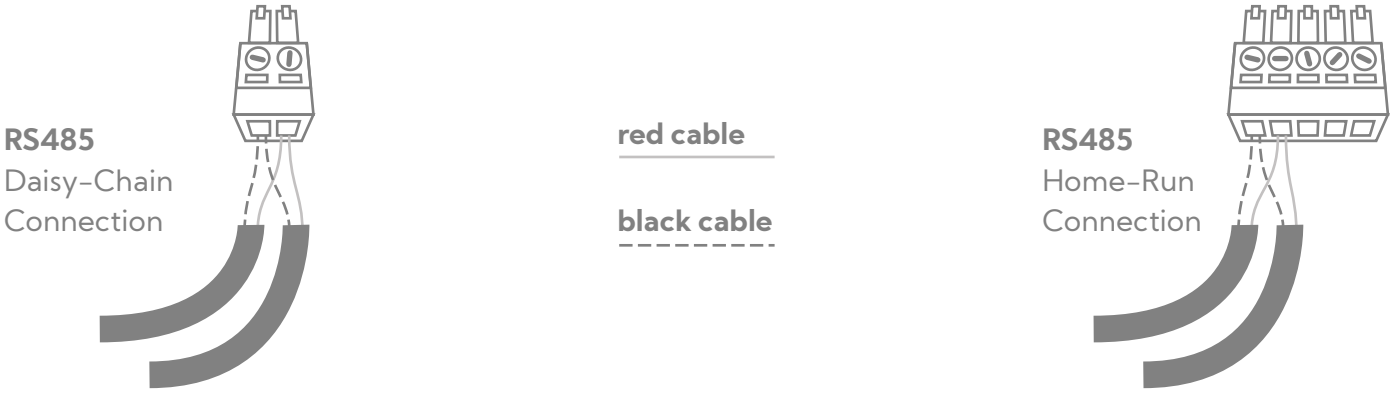
Connect the camera and the KBD to the same LAN and ensure both devices are assigned IP addresses within the same network segment. For example, IP addresses like 192.168.1.123 and 192.168.1.111 are in the same segment, while 192.168.1.123 and 192.168.0.125 are not. If they are not in the same segment, adjust the IP address of either the KBD or the PTZ camera accordingly. By default, the KBD obtains its IP address dynamically via DHCP.

2.1.2 RS485 Connection

Analog Mode: Connection diagram of controlling PTZ camera Via RS485



Can connect up to 255 cameras



RS485 Control Output: RS485+ of PTZ camera connects to TA of RS422 on the KBD and RS485 – of PTZ camera connects to TB of RS422 on the KBD.

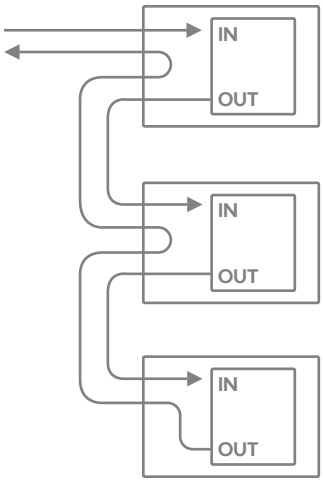
2.1.3 RS232 Connection

Connect the first pin (RXD) of the KBD's 10-pin terminal to the camera's TXD input. Connect the second pin (TXD) of the KBD to the camera's RXD input. The third pin of the KBD should be connected to the camera's GND. Alternatively, you can use the standard RS-232 interface (DB9) on the KBD to connect to the camera.

2.1.4 Connection Between Cameras

Use the RS485 bus cascade connection method. Connect the output of Camera #1 to the input of Camera #2, then connect the output of Camera #2 to the input of Camera #3, and continue this pattern for additional cameras, as illustrated in the diagram below.

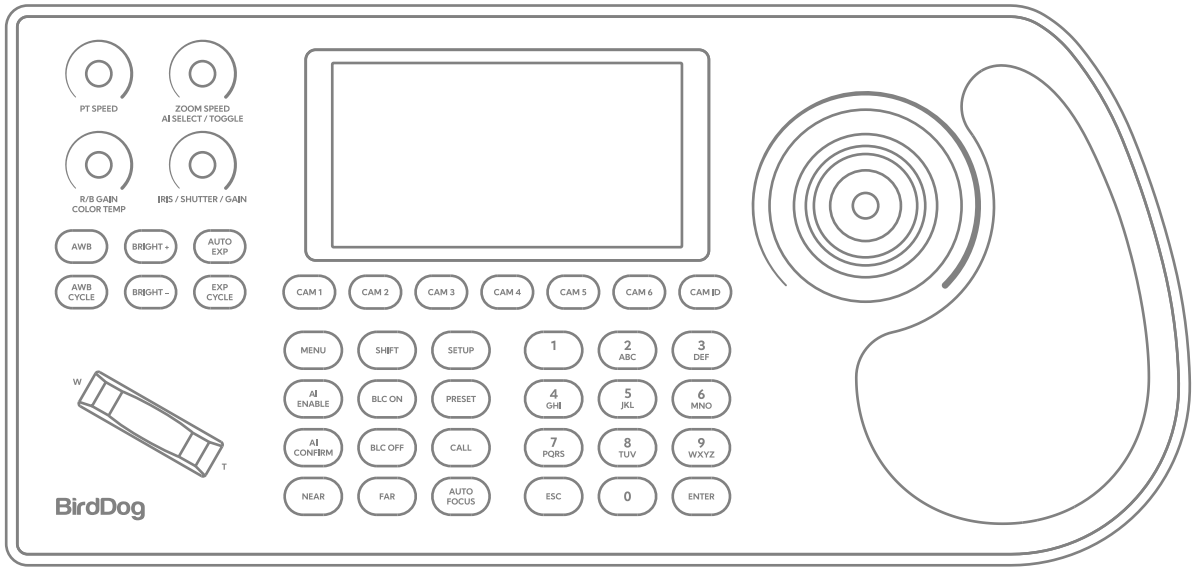
VISCA Equipment



CAMERA 1		CAMERA 2	CAMERA 3
TXD OUT+	⟷	RXD IN+	...
TXD OUT-	⟷	RXD IN-	...
RXD OUT+	⟷	TXD IN+	...
RXD OUT-	⟷	TXD IN-	...

3. Button Function Description

3.1 Button Descriptions



[PT Speed]: Twist the Speed Control knob in to cycle to increase or decrease the PT Speed. PT Speed Range: 1-8.
[Zoom Speed]: Twist the Speed Control knob in to cycle to increase or decrease the Zoom Speed. Zoom Speed Range: 1-8.
[Iris+Shutter+Gain]: Turn the knob to the right + or to the left -, and press the knob to switch the Shutter and Gain functions.
[RGAIN/BGAIN]: Red-Blue Gain: Turn the knob to the right+ or to the left -. Press the knob to switch the gain type.
[AWB CYCLE]: White Balance Mode Cycle: Single click to switch between white balance modes. Mode Options: Indoor White Balance/ Outdoor White Balance/ One-push White Balance/ Manual White Balance/ Auto White Balance.
[AUTO AWB]: Auto White Balance: Single click to enter auto exposure mode.
[EXP CYCLE]: Exposure Mode Cycle: Single click to switch between exposure modes. Mode options: Brightness Priority/ Shutter Priority/ Aperture Priority/ Manual Exposure/ Auto Exposure.

[AUTO EXP]: Auto Exposure: Single click to enter auto exposure mode.
[BRIGHT+]: Brightness Increase: Click to increase the brightness setting of the image.
[BRIGHT-]: Brightness Decrease: Click to decrease the brightness setting of the image.
[MENU]: Camera Menu: Press this button to access the camera menu settings for the PTZ camera.
[AI ENABLE]: Toggle AI Tracking ON / OFF

[AI CONFIRM]: Confirm the human target for AI Tracking. When target is confirmed AI Tracking box will change from BLUE to GREEN.
[NEAR]: Near Focus: Pressing the [NEAR] button makes objects closer to the camera and appear clearer. Long pressing will continuously adjust the focus to near.
[FAR]: Far Focus: Pressing the [FAR] button makes objects farther from the camera and appear clearer. Long pressing will continuously adjust the focus to far.
[AUTO FOCUS]: Auto Focus: Click to enable auto focus for the camera.
[BACKLIGHT ON]: Backlight On: Single click to automatically adjust the exposure of the camera, allowing the subject to be displayed clearly even in backlight conditions.
[BACKLIGHT OFF]: Backlight Off: Single click to restore the camera to its initial exposure state.
[SETUP]: Menu Setup: Click to enter keyboard parameter settings and add devices.
[PRESET]: Set Preset: Click to set a preset position. Enter the number and press [Enter] button to save the preset.
[CALL]: Call Preset: Click to call a preset position. Enter the number and press [Enter] button to call the preset. For cameras assigned an ID of 7 or higher, call the command twice to initiate the video preview when applicable.

[HOME]: This button function is to get back to the original position of the camera.
[1-9]: Numeric key presets: Long press for preset setting while short press for preset calling.

For Example: Set Preset #1: First move the camera to the position where you want to set the preset, long press the number [1], "PRESET 1" will appear at the bottom of the screen, then move the camera to another position, short press the number [1] to call and it will turn to preset#1 position which you set.

[ESC]: Escape
[ENTER]: Confirmation

Click the button to enter the corresponding camera.
Mark: 1.Click the address code to switch the camera quickly.
2. Press a second time to access Multiview display.
3. Long hold to access text-based details.

3.2 Joystick Overview

Operating	Output Control	Operating	Output Control	Operating	Output Control
	Upward		**Downward**		**Left**

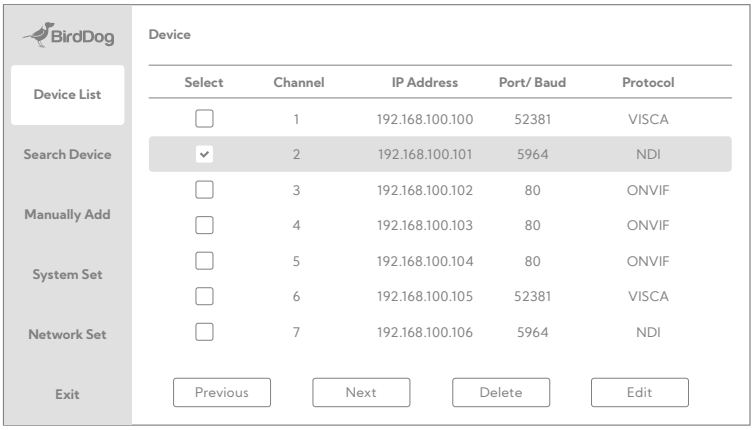
Operating	Output Control	Operating	Output Control	Operating	Output Control
	Right		**Zoom +**		**Zoom -**

Press the button on top of the Knob to confirm.
ZOOM SPEED/PT SPEED: Zoom speed/Control speed: Turn the joystick to the right (+) and to the left (–). Press the joystick to switch the speed type.
IRIS: Turn the joystick to the right (+) and to the left (–); Press the joystick: no function.
RGAIN/BGAIN: Red-blue gain: Turn the joystick to the right (+) and to the left (–). Press the joystick to switch the gain type.
NAR/FAR Focus: Turn the joystick to the right (+) and to the left (–). Press the joystick: no function.
Joystick clockwise/Joystick counterclockwise: Zoom +/Zoom –.
Addable seesaw: T = Zoom In; W = Zoom Out.
Joystick top button: Confirmation button (also configurable in the Control tab of the KBD BirdUI.)

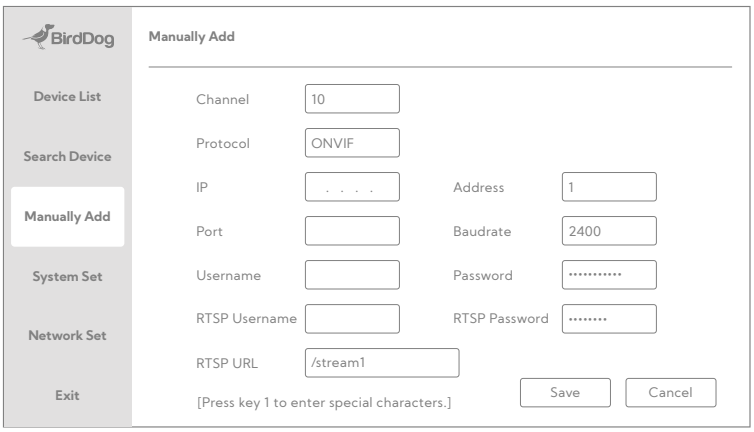
4. Installation & Setup

4.1 Add Analogue Device

Adding a analogue device directly from the KBD display.
1) Click the [SETUP] button to enter the following menu:



2) Manually add the analog devices,select the channel and protocol corresponding to the camera, select the address and baud rate, Add the username and password of the camera, press [Enter] button to confirm addition once [Save] icon is selected.

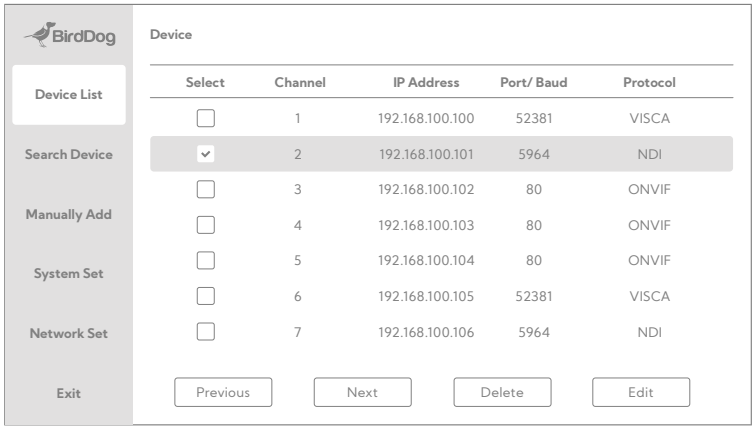


3) Press [ESC], Press the [CAM 1], The screen shows:

Note: Video preview is available from cameras with NDI|HX2, NDI|HX3, or with a camera with a RTSP stream configured.

4.2 Add Network device

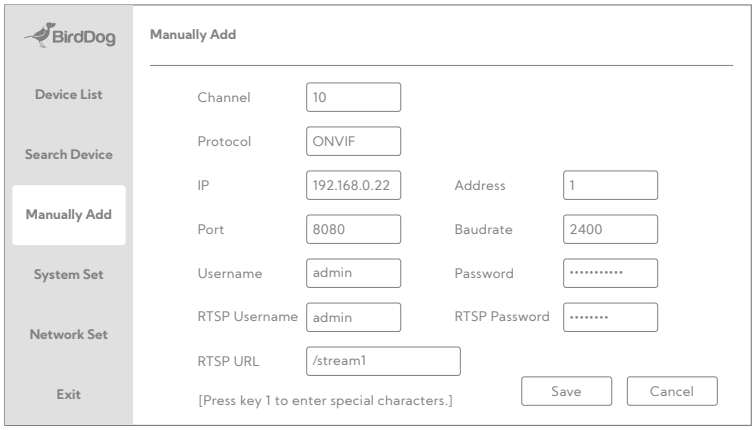
Use the KBD to add LAN devices as follows:
1) Click the [SETUP] button to enter the main menu



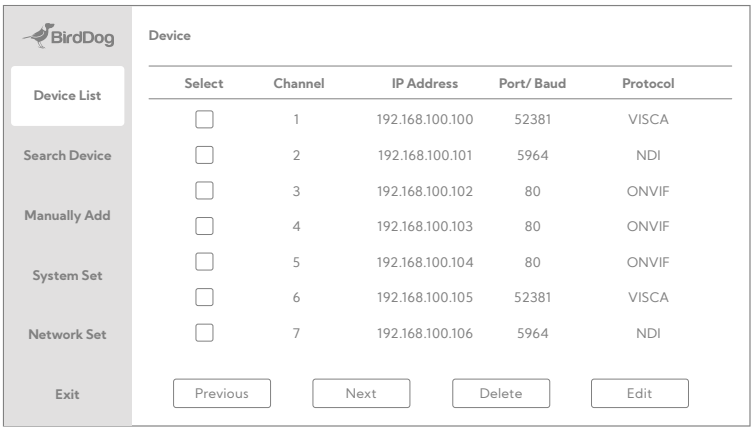
2) Manually add the device
Note: Ensure that the camera and KBD are in the same IP address segment. For example:

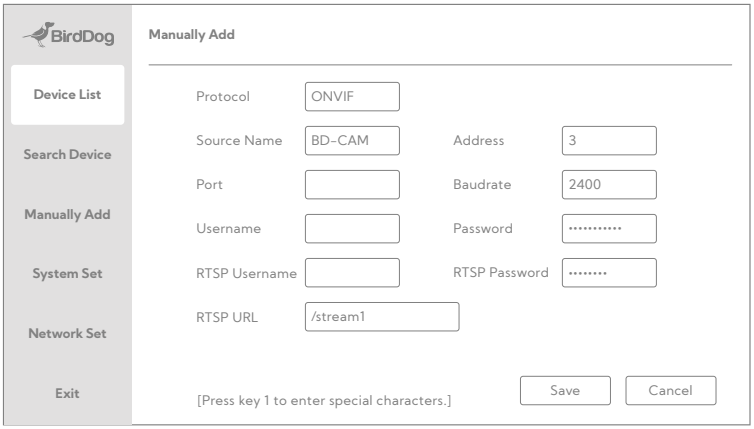
- Camera IP address: 192.168.0.22
- KBD address: 192.168.0.180

Input the channel, protocol, camera IP address, port, and the camera's username and password.
Press [SAVE] to successfully add the devices.



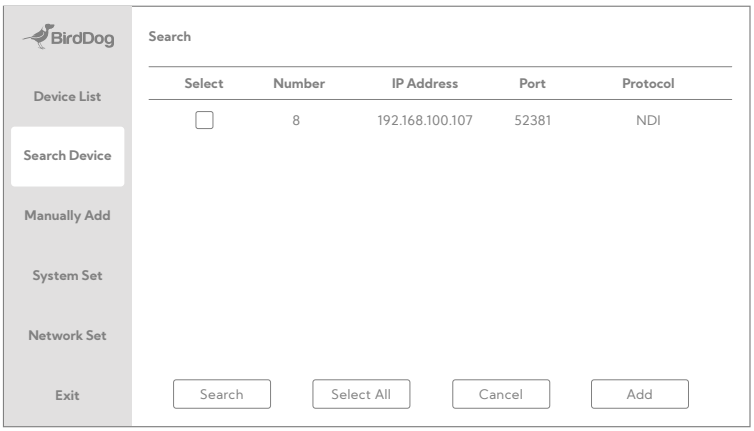
3) Device List – Modify
Enter Device List and select the device which you want to add through joystick 'UP' and 'DOWN', press the [EDIT] button to modify the camera information.





4.3 Search Device

When several cameras are in the same segment of the KBD, you can use Search Device to add cameras. Use joystick to move to the right and highlight [Search] and press [Enter] to initiate the search. Select the cameras you want to add, and press [ADD], input the camera username and Password, the channel you want to add, confirm.
Note: Default Protocol is ONVIF, use the joystick to move down to highlight NDI.



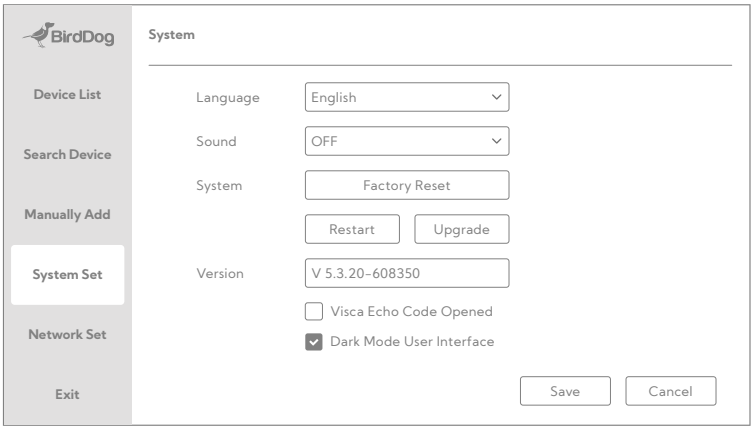
5. System & Network Settings

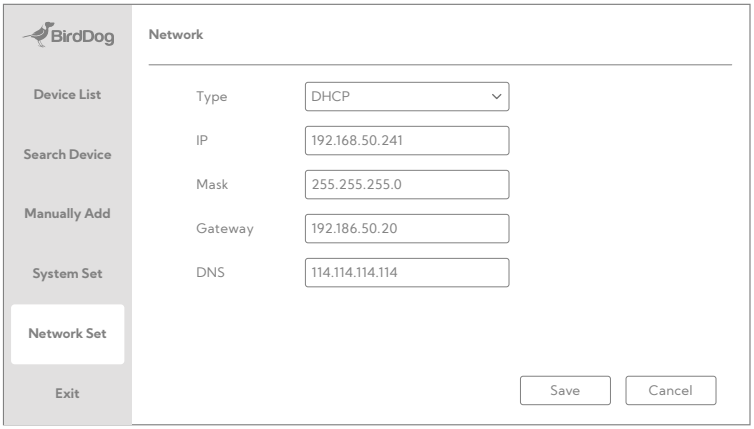
System Set

- In the **System Set** menu, the current firmware version of the KBD will be displayed in the [Version] field.
- Selecting **Factory Reset** will restore the KBD to its default settings, including deleting all added devices.
- You can toggle the **Sound** for MENU commands ON or OFF.

Network Options

- In the **Network Set** menu, you can view the DHCP-assigned IP address of your KBD.
- Alternatively, change the **[Type]** to **[Static]** and manually configure the IP address, network mask, gateway, and DNS settings.





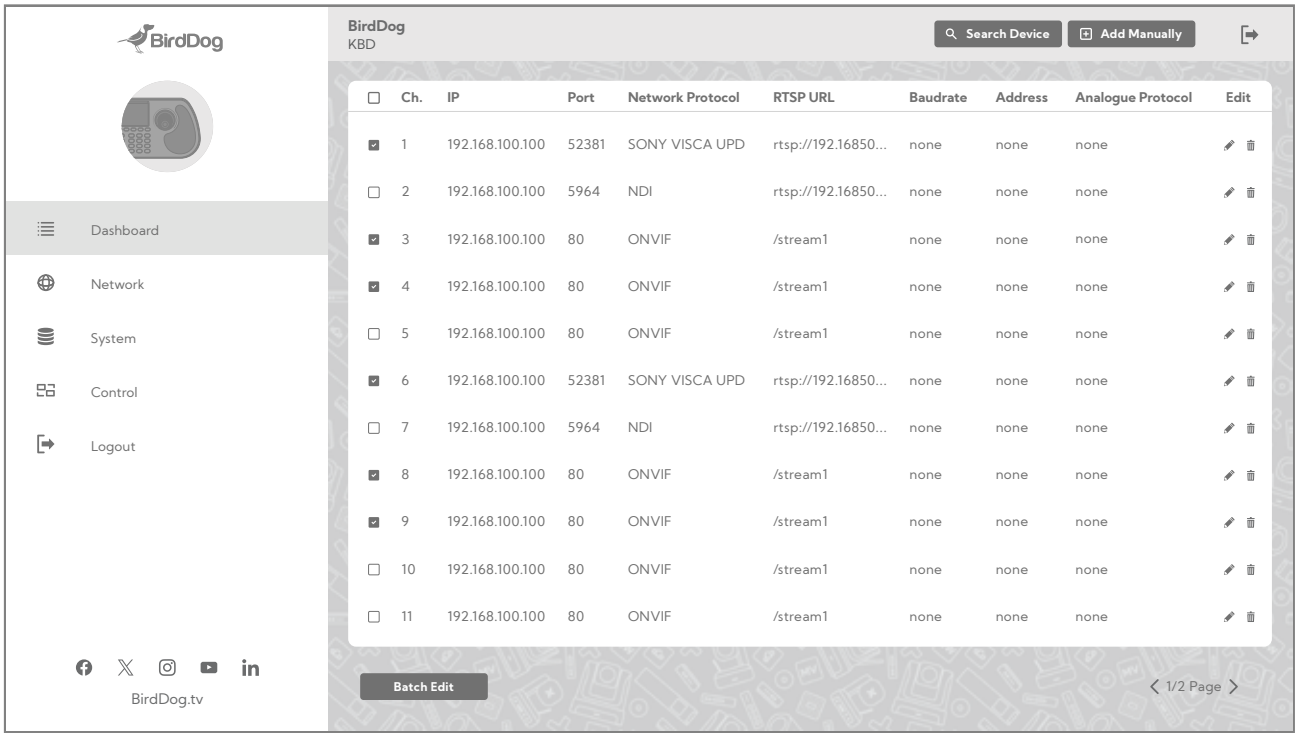
6. Network Configuration

6. 1 Access & Configure BirdUI

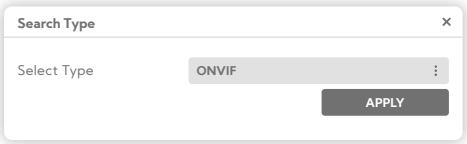
1) Connect the power cable and network cable to the KBD. Once the KBD startup is complete, if you don't already know the IP address, navigate to the **Network Set** tab in the **Setup** menu on the KBD. Enter the IP address into a browser to access the BirdUI.

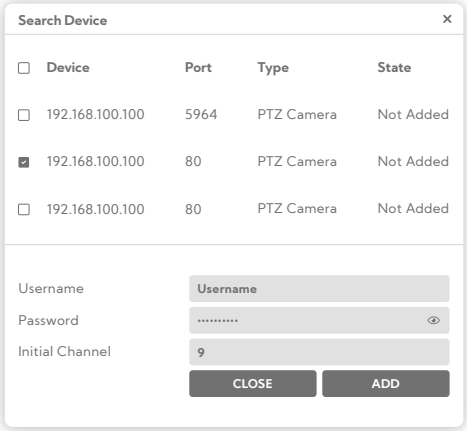
- **Default password**: birddog

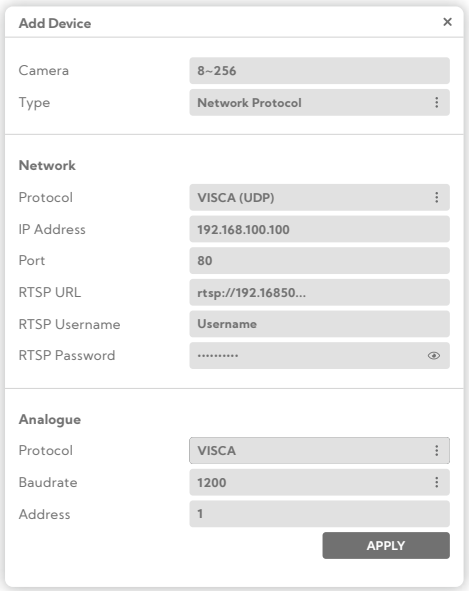
2) Once logged in to BirdUI the Dashboard will look similar to the image below. Note: the image below has example devices added.



3) In the Dashboard you can view details of added devices, edit the devices, and delete them if desired.
4) Click ✎ to modify the device parameters.
Input the device number, corresponding IP address, port number and user name and click save.
Note: When entering the KBD BirdUI to add a device successfully, which will be displayed on the display of the KBD. After adding the device on the web interface successfully, click the corresponding [CAMx] button on the KBD, or by selecting [CAM ID] and the corresponding number to gain control of desired camera.

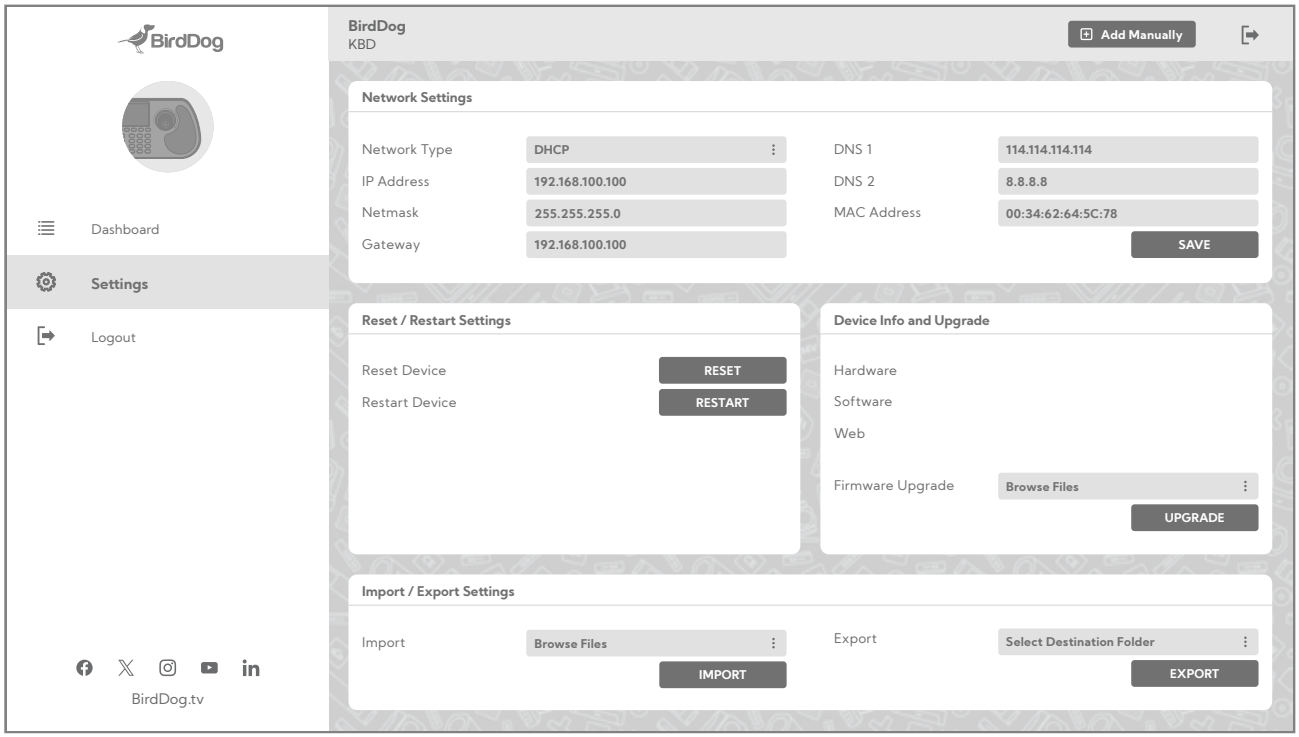






6.2 BirdUI Network

Network settings can modify the device's IP acquisition method and port parameters, as shown below:



Dynamic Address (DHCP) (Default Acquisition Method)
The KBD will automatically request an IP address from the router. Once the request is successful, the assigned IP address will be displayed on the KBD screen in the format: **"Local IP: 192.168.x.xxx".**

Static Address (STATIC)
To manually set the network segment, change the network type to Static and enter the required network segment information.

6.2.1 System upgrade

We are always adding new features and improving the performance of our products, so installing the latest firmware will provide you with the best user experience. To upgrade the firmware, download the firmware from birddog.tv/downloads, click [choose file] and select the firmware file you down-loaded, and press [UPDATE] the KBD will reboot on its own.

Note: Do not perform any operations on the KBD during the upgrade process, and ensure that the power remains on and the network connection is stable.

6.2.2 Reset System Default

When clicking the device to reset, the joystick controller will remove all data, and the network will automatically default to a static IP. Recommended caution operation.

6.2.3 Restart & Version

Pressing [RESTART] will reboot the KBD.

The Firmware Version will display the current firmware applied to the KBD, matching the name of the firmware file used.

7. Troubleshooting

KBD Display shows red text.

This can occur when the controller doesn't receive a response from the camera.

1) Check that the network ports you are using are active.
2) Check that the network cable you are using is not failing.
3) Check that the camera is sending and receiving data over the network as expected.

The KBD isn't controlling any cameras at all

This can occur when the camera(s) and/or KBD aren't properly set up.

1) Check that the network ports you are using are active.
2) Check that the network or serial cables you are using are not failing.
3) Check that the camera control address matches the KBD control address.
4) Check that you are in the correct control mode.

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