BirdDog

PLAY

USER GUIDE

October 2022

NDI

Table of Contents

Copyright

Trademark Acknowledgement

BirdDog and other BirdDog trademarks and logos are the property of BirdDog Australia. Other trademarks, company names and product names contained in this manual are the property of their respective owners.

- Microsoft, Windows, ActiveX, and Internet Explorer are registered trademarks of Microsoft Corporation in the U.S. and/or other countries.
- HDMI, the HDMI logo and High-Definition Multimedia Interface are the trademarks or registered trademarks of HDMI Licensing, LLC in the United States and other countries.
- Other trademarks, company names and product names contained in this manual are the property of their respective owners.
- NDI® is a registered trademark of NewTek, Inc.

Important Information

Legal Notice

To ensure account security, please change the password after your first log in. You are recommended to set a strong password (no less than eight characters).

The contents of this document are subject to change without prior notice. Updates will be added to the new version of this manual. We will readily improve or update the products or procedures described in the manual.

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 formal guarantee of any kind, expressed or implied. We shall not be held responsible for any technical or typographical errors in this manual.

The product appearance shown in this manual is for reference only and may be different from the actual appearance of your device.

Due to uncertainties such as physical environment, discrepancy 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.

Regulatory Compliance

CE Maintenance

1. The product shall only be connected to a USB interface of version USB3.0.
2. EUT Operating temperature range: -10° C to 45°C.
3. When the device is used 20 miles away from the body, it complies with RF specifications.

Declaration of Conformity

Shenzhen VastDo Technology Co.,Ltd hereby declares that this BirdDog Play is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. In accordance with Article 10(2) and Article 10(10), This product is allowed to be used in all EU member states.

CE

FCC Caution.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Welcome to BirdDog!

Thank you for purchasing PLAY. If you have any questions regarding the unit, please contact your authorized dealer.

Using This Manual

PLAY is a sophisticated device, so please read this manual before use and retain for future reference.

Tip

When viewing the diagrams in this manual, use the zoom controls in your browser or PDF reader to reveal more detail.

First Step

Firmware Upgrade

Before you use your new converter, it's a good idea to upgrade to the latest firmware. 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, please follow the **Firmware Upgrade Instructions** located in your firmware download folder and perform upgrade process.

The latest firmware files are available for download here.

We're Invested in Your Success

We pride ourselves on being approachable and easily contactable. We'd love to hear from you.

Dan Miall

Co-Founder and CEO
dan@bird-dog.tv

Eamon Drew

Co-Founder and CMO
eamon@bird-dog.tv

Welcome to the Future

What is NDI®?

Your new PLAY has been designed to support the cutting edge NDI® video transmission standard.

NDI® (Network Device Interface) is a high-quality, low-latency, frame-accurate standard that enables compatible devices to communicate, and deliver and receive high definition video over your existing Gigabit Ethernet network.

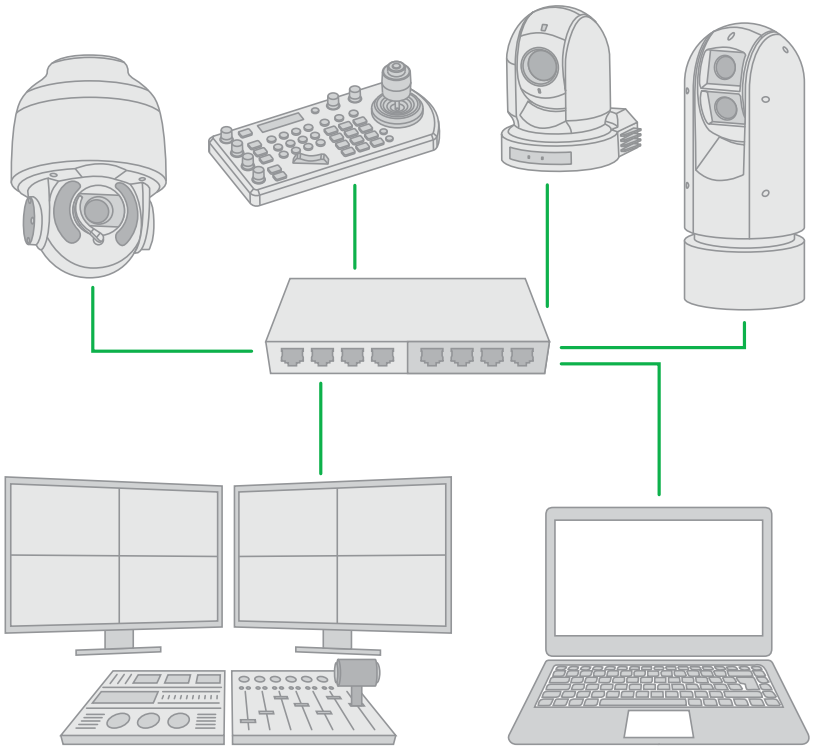
Operating bi-directionally, NDI® devices can be auto-detected, powered and controlled over the same Ethernet cable used to send the video and audio. If you have a Gigabit network, you have the potential for a streamlined, interconnected, video production environment.

With the introduction of NDI® 5, you can now securely share network sources between remote sites anywhere in the world - on a single network port. Even a smartphone can be a NDI® source.

Transitioning to NDI® can also occur gradually. Existing SDI or HDMI signals can easily be converted to an NDI® stream and piped where required on your network and converted back only at the necessary endpoints.

BirdDog has been on the NDI® journey since the very beginning, and PLAY is just one of our products designed to take advantage of the features and potential of NDI®.

For more information on NDI®, please refer to this page on our website.



Key Features

NDI® 5

PLAY supports new NDI® 5 functions including high bandwidth NDI®, NDI® HX2, NDI® Remote, and NDI® Bridge.

4K UHD

Receive NDI in resolutions up to 4Kp60.

Tiny footprint.

Play measures just 85mm x 85mm x 19mm, and weighs 97grams.

Magnetic Base

Attach PLAY behind your TV screen with the built-in magnet or sit in front of the TV with its non-slip rubberised grip ring.

USB Power

PLAY is powered by standard USB-C for maximum flexibility.

CEC control

The built-in CEC control lets you use your own remote to browse and play NDI sources.

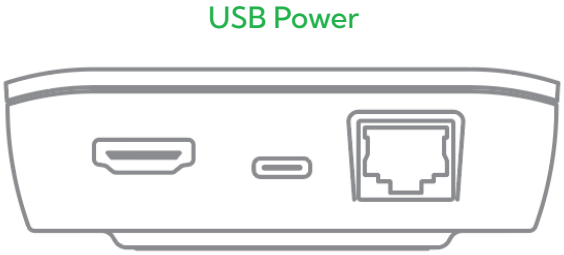
Comprehensive API support

RESTful API, Crestron control module, Zoom API, Q-SYS API.

Getting to Know PLAY

Physical Layout

On/Off Remote Sensor



HDMI Ethernet

Powering Your Converter

Located at the side of the PLAY is a USB-C connection port. This power input accepts 5V DC, 1.2A power.

Operating Your Converter

Web Configuration Panel

In this release, the web configuration panel (BirdUI) allows you to alter key settings of your converter, specifically A/V settings, and video frame rates, restarting the video processing engine, changing networking parameters and applying firmware updates.

Access via a Web Browser (URL)

To access the BirdUI please point your computer web browser to: http://birddog-xxxxx.local. Here "xxxxx" is the last five digits of the serial number of the converter, the serial number is printed on the box and on the main unit. Note the web address is case sensitive and all lower case. Your computer will need to have 'Bonjour' services loaded in order to access the unit as described above.

Apple devices come pre-installed with Bonjour, while Windows devices need a small plugin available here.

Access via IP Address

Your converter is configured to automatically receive a network IP address from the computer network via DHCP (Dynamic Host Configuration Protocol). Most corporate, education and home networks have a DHCP server present on the network to allow this to occur. Usually your Internet Router provides this.

If your device receives an IP address automatically from this server (DHCP) the IP address can be discovered in several ways, including BirdDog Central Lite available from here.

Access Without a Network DHCP Server

Some standalone or private networks may not have a DHCP server. After 30 seconds of waiting for an automatically assigned IP address, the device will fall back to a default address which is: **192.168.100.100.**

In order to access the BirdUI on a network which is configured to a different subnet, change your computers IP address to match the BirdDog unit's IP address range. Once you gain access to the BirdDog web configuration panel choose your IP address to match the rest of the devices on your network.

For instructions on setting your computers IP address please consult your computer operating system manual or IT support resources.

Password Management

Once you direct your web browser to the BirdUI, you will need to log in to change any settings.

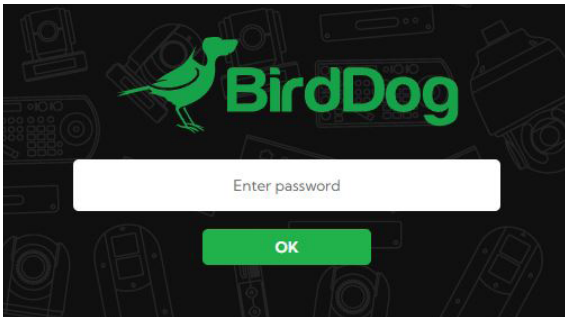
Default Password

The web configuration panel is secured by a user-selectable password. The default password is:

birddog (one word, lower case).

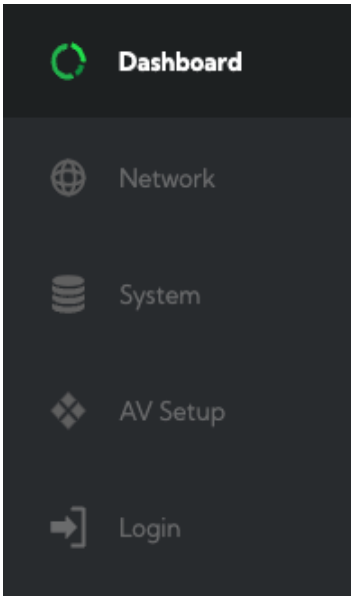
To change the password simply log in using the default password, navigate to the network tab in the web interface, and select change password.

It is recommended to change this password in a network environment where your device is shared with other users (e.g. not private), since this password grants full access to the configuration settings and could interrupt a live program.



BirdUI Layout

The BirdUI is organized into the following panels:



1. **Dashboard**

   Overall view of important information such as the network connection type and video stream format and resolution.

2. **Network**

   General network settings such as DHCP IP Address details, timeout fallback address and camera network name, as well as NDI® specific network settings

3. **System**

   System admin functions such as updates, password change, designation of group access and camera reboot.

4. **AV Setup**

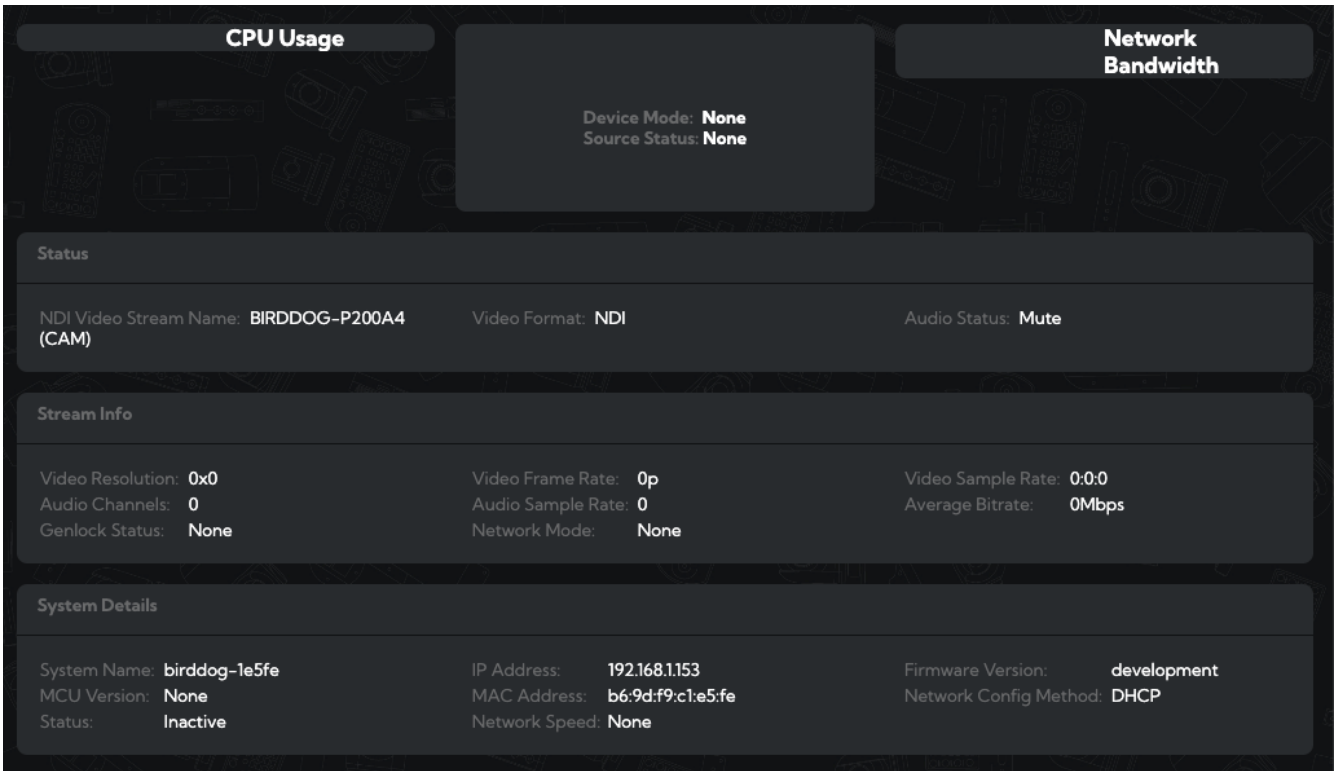
   Full NDI® encode management and audio settings.

5. **Logout**

   BirdUI logout.

Dashboard

The Dashboard summarizes important settings and system information in one convenient location.



1. **CPU Usage**

   Current computer system CPU utilization.

2. **Device mode**

   PLAY is always in Decode mode. Source Status indicates whether the selected source is available

3. **Network Bandwidth**

   Total network bandwidth consumption of the current device NDI® output.

4. **Status**

   a. NDI Video Stream Name.
   b. Selected video format.
   c. NDI audio status as configured.

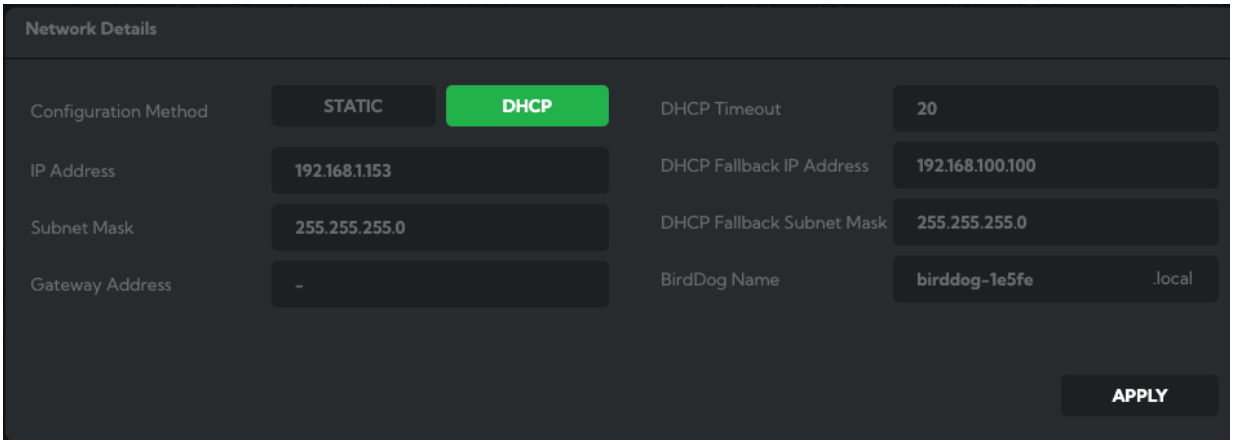
5. **Stream Info**

   a. Video resolution.
   b. Number of audio channels of the camera.
   c. Video frame rate.
   d. Number of Audio Channels.
   e. The audio output sample rate of the camera.
   f. Average bitrate.
   g. Genlock status.
   h. Network mode.

6. **System Details.**

   a. PLAY name.
   b. IP Address.
   c. Current PLAY Firmware version.
   d. MCU version.
   e. MAC address.
   f. Preferred network configuration method.
   g. Active Status
   h. Network speed.

Network



Most computer networks provide for both automatic and manual configuration of network devices and PLAY can accommodate both.

Configuration Method

Here you can set the network configuration to either DHCP (default) or Static. DHCP simplifies the management of IP addresses on networks. No two hosts can have the same IP address, so assigning them manually can potentially lead to errors. If your network is set up for DHCP, this is generally the best configuration to choose.

If you do choose to go with a Static IP address, you'll need to add the IP Address, Subnet Mask and Gateway Address information according to the requirements of your network.

DHCP Timeout, Fallback IP address, Fallback Subnet Mask

You can set the timeout period during which PLAY will look for a DHCP IP address. After this period, the camera will default to the designated fallback IP address.

This can be useful if you use your camera in other network environments. For example, if a DHCP server is available in your normal office or studio application, PLAY will use the DHCP supplied IP address. If you then use the camera in another application without a DHCP server, your device will always default to the known fallback IP address.

NOTE: Do not set the fallback IP address the same as the device IP address. It is recommended to keep the default fallback IP address.

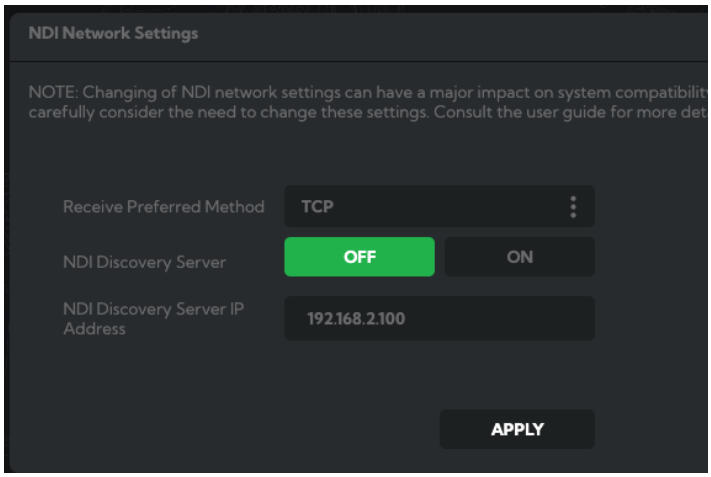
BirdDog Name

You can give your device a meaningful name to make identification easier when viewing NDI® sources on a receiver such as a TriCaster, vMix or Studio Monitor. Be sure to make the name unique, as no two devices on the network should have the same name. The name can be any combination of a–z, 0–9, and –.

After renaming your device, navigate back to the System menu and click the REBOOT button. The camera will re-initialize and you'll be good to go.

NDI Network Settings

PLAY operates with the latest NDI® Libraries. There are several options to configure it's behavior in an NDI® network. Each configuration has its benefits, however it is recommended to utilize the default TCP transmit method unless you have reason to change.



Receive Preferred Method

TCP

TCP is the default method of transmission for NDI®. It operates well within local networks with predictable latency and limited jitter. BirdDog recommends that TCP be used for typical applications, and only using alternative transports for specific reasons.

UDP

UDP is recommended for networks where there is extended latency from one end to the other. The nature of UDP means that it does not receive a confirmation of each packet being successfully received – vastly improving performance on busy networks. UDP can have some consequences if there are other issues on the network such as jitter or lost packets as it will not inherently re-sent a lost packet.

R-UDP (Reliable UDP)

This protocol bridges the performance of TCP and UDP. Compared to TCP, it reduces overall network load (allowing more NDI® streams) by not requiring every packet to be 'acknowledged' by every receiver – has error correction built in for smoothness and reliability.

Multicast

Multicast is especially useful for use-cases that require a single source to be received on multiple receivers simultaneously. Utilizing Multicast offloads the distribution of the NDI® A/V packets to the network infrastructure. You should take care to ensure your network is specifically configured to support Multicast as using it on an ill-prepared network can create unintended network problems.

NDI Discovery

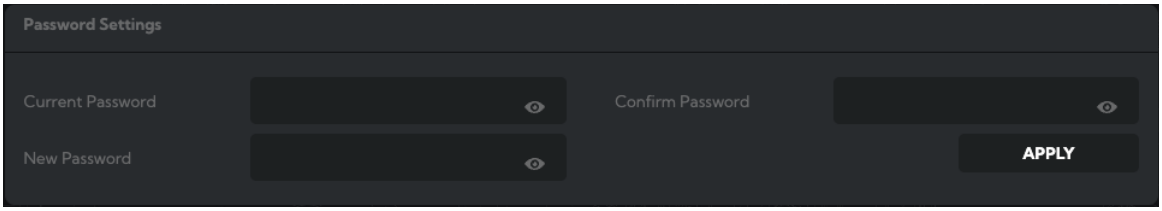
If you choose to use a NDI® discovery server, you can configure it in this tab. By default, NDI® utilizes mDNS (multicast Domain Name System) to create the zero configuration environment for discovery. Unless the network is specifically configured to not allow mDNS, NDI® sources will be discovered.

The NDI® discovery service is designed to replace the automatic discovery NDI® uses with a server that operates as an efficient centralized registry of NDI® sources that requires much less bandwidth. Multiple servers can be specified for failover reduntancy. NDI® discovery server also helps with location of devices that reside on different subnets. The NDI® Discovery Server is available in the NDI 5.5 version of the free NDI Tools (C:\Program Files\NDI\NDI 5 Tools\Discovery\NDI Discovery Service.exe).

1. If you are using one or more NDI® Discovery Servers, click the ON button.
2. Enter a comma delimited list of the IP address(es) of your NDI® Discovery Server(s).
3. Click the APPLY button to save your changes.

System

Password Settings

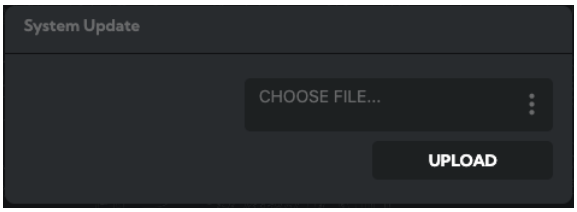


The BirdUI is secured by a user-selectable password. To make changes to any settings, you'll need to log in. The default password is **birddog** (one word, lower case). It is recommended that the default password be changed, since the BirdUI grants full access to the camera configuration settings.

You can change the password in the Password Settings tab.

1. Enter the current password.
2. Enter the new password. It is recommended that you change this password to prevent unauthorized changes in a network environment where the device is shared with other users (e.g. not private). Confirm the new password and click the APPLY button.

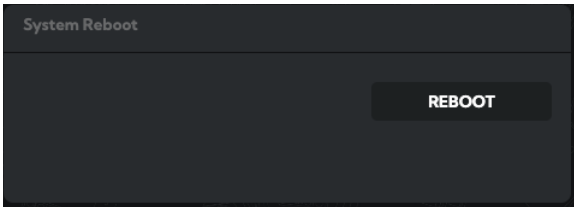
System Update



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.

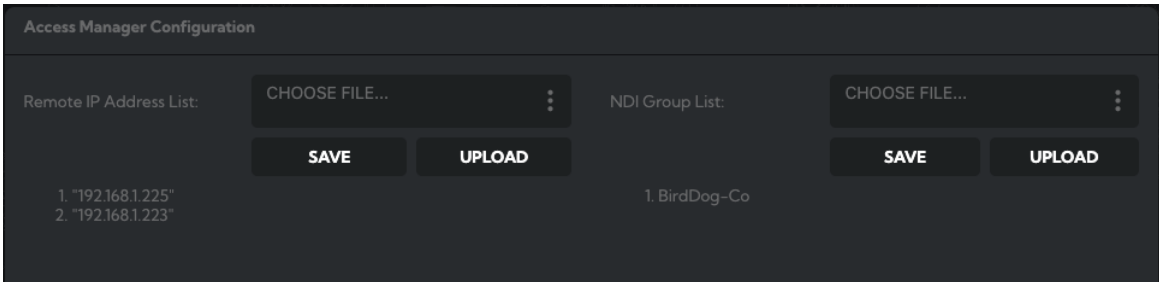
To upgrade the firmware, download the firmware and follow the **Firmware Upgrade Instructions** located in the download folder.

System Reboot



Click this button to reboot the unit after changing key network settings or the BirdDog name.

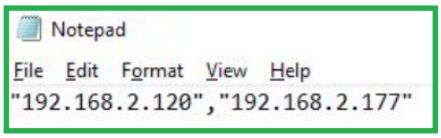
Configuration Update



Remote IP List

By default, NDI® devices are visible to each other only when they're on the same subnet. If you want visibility or control of a device on a different subnet, you can add it's address manually as a Remote IP. You can upload and download Remote IP Lists for sharing with other cameras. To upload a list:

1. Click the CHOOSE FILE button to load your Remote IP List in UTF-8 encoded string format.
2. Click the UPDATE button. Do not upload a blank list.

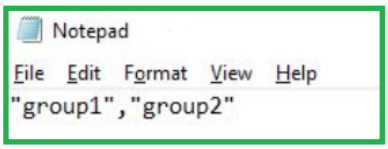


NDI Group List

Set the NDI® Group list. NDI® groups allow you to restrict communication to only devices that belong to the same NDI® Group. NDI® Groups can be very useful to control visibility and access in larger environments. You can upload and download Group lists for sharing with other cameras. Groups also need setting up in NDI Access Manager, available in NDI Tools.

To upload a list:

1. Click the CHOOSE FILE button to load your NDI® Group List in UTF-8 encoded string format.
2. Click the UPDATE button. Do not upload a blank list.

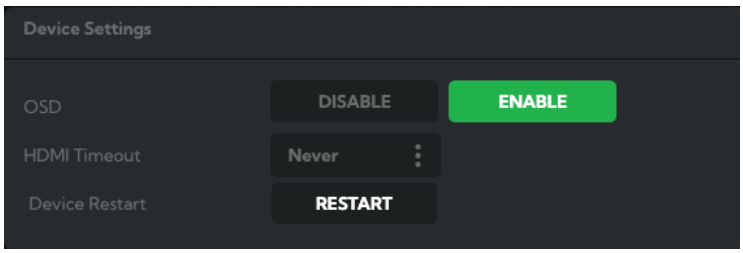


AV Setup

Device Settings

OSD

You can choose to disable the On Screen Display (OSD) to help avoid setting changes by unauthorised persons.



HDMI Timeout

You can set the HDMI signal timeout to match your source device such as a laptop. The timeout can be choosen from 1 second to 45 minutes.

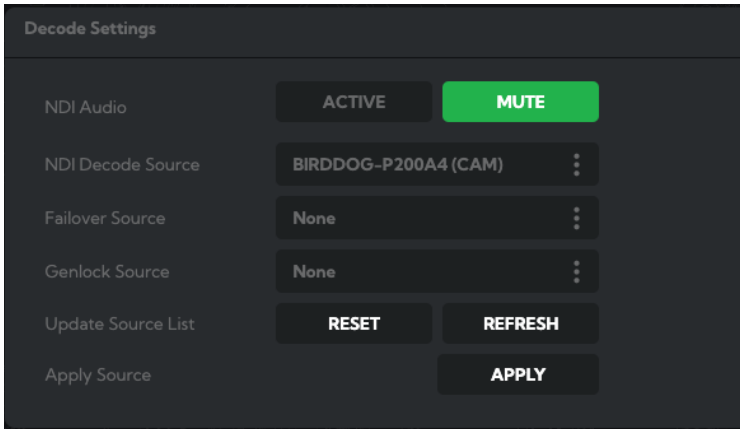
Device Restart

Click this button to restart the decode engine. This may be necessary after changing key image settings e.g., resolution.

Decode Settings

NDI Audio

Click the Mute button to disable the incoming NDI stream audio.



NDI Decode Source

Select an available NDI source from the Available NDI Sources dropdown list and Click the Apply button to apply the change. You can update this list by clicking the Refresh button.

Failover Source

If the generated NDI stream is interrupted for any reason the receiver can automatically switch to a nominated alternative NDI stream. This is particularly useful for live productions where there can be no risk of black being broadcast should any source no longer be available. Select an available NDI source for the failover function from the Available NDI Sources dropdown list. Click the Reset button to reset this list to display only active streams, or click the Refresh button to add new streams to the current list.

Genlock Source

Click the dropdown to choose your genlock source.

Apply Source

Click the Apply button to save your changes.

Key Specifications

1. SUPPORTED VIDEO FORMATS

- UHD 2160p – 25, 29.97, 30, 50, 59.94, 60
- HD 1080p – 25, 29.97, 30, 50, 59.94, 60
- HD 720p – 50, 59.94, 60

2. VIDEO I/O CONNECTIVITY

- 1x HDMI 2.0 – Full size connector

3. AUDIO I/O CONNECTIVITY

- HDMI 2.0 – Audio output (Stereo)
- 3.5mm Analog – Audio output (Stereo)

4. VIDEO CODEC SUPPORT

- NDI® – High Bandwidth i-frame, low latency
- NDI® HX2 – h.264/HEVC long-GOP

5. NETWORK CONNECTIVITY

- Ethernet RJ45 1000baseT

6. WEIGHTS AND DIMENSIONS

- Dimensions – 85mm x 85mm x 19mm
- Weights – 97g
- Mounting Integrated magnetic base and rubber feet

7. POWER

- Power Input – USB-C
- Voltage – 5V DC
- Current – 1.2A

For full specs, please visit the webpage.

Glossary

Domain

A domain contains a group of computers that can be accessed and administered with a common set of rules. Domain can also refer to the IP address of a website on the Internet.

DNS

DNS (Domain Name System) is a system used by the Internet and private networks to translate domain names into IP addresses.

mDNS

mDNS (Multicast DNS) refers to the use of IP multicast with DNS to translate domain names into IP addresses and provide service discovery in a network that does not have access to a DNS server.

Ethernet

Ethernet, standardized as IEEE 802.3, refers to a series of technologies used to connect computers and other devices to a LAN (Local Area Network) or wide area network (WAN).

Firmware

Firmware is a class of software held in non-volatile memory that provides the low-level control for a device's hardware.

Gigabit Ethernet (GigE)

An Ethernet capable of transmitting frames at a rate of a gigabit per second. A Gigabit capable Ethernet network is recommended for NDI production workflows.

IP

IP (Internet Protocol) is the communications protocol for the Internet, many wide area networks (WANs), and most local area networks (LANs) that defines the rules, formats, and address scheme for exchanging datagrams or packets between a source computer or device and a destination computer or device.

LAN

LAN (Local Area Network) is a network that connects computers and devices in a room, building, or group of buildings. A system of LANs can also be connected to form a WAN (Wide Area Network).

Mbps

Mbps (Megabits per second) is a unit of measurement for data transfer speed, with one megabit equal to one million bits. Network transmissions are commonly measured in Mbps.

NDI

NDI (Network Device Interface) is a standard allowing for transmission of video using standard LAN networking. NDI® comes in two flavours, NDI® and NDI|HX. NDI® is a variable bit rate, I-Frame codec that reaches rates of around 140Mbps at 1080p60 and is visually lossless. NDI|HX is a compressed, long-GOP, H.264 variant that achieves rates around 12Mbps at 1080p60.

Packet (Frame)

A packet s a unit of data transmitted over a packet-switched network, such as a LAN, WAN, or the Internet.

PELCO

PELCO is a camera control protocol used with PTZ cameras. See also VISCA.

PoE

Power over Ethernet

Port

A port is a communications channel for data transmission to and from a computer on a network. Each port is identified by a 16-bit number between 0 and 65535, with each process, application, or service using a specific port (or multiple ports) for data transmission. Port can also refer to a hardware socket used to physically connect a device or device cable to your computer or network.

PTZ

Pan, tilt and zoom.

RJ45

A form of standard interface commonly used to connect computers onto Ethernet-based local area networks (LAN).

RS422, RS485, RS232

Physical layer, serial communication protocols.

Subnet

Subnet or subnetwork is a segmented piece of a larger network.

Tally

A system that indicates the on-air status of video signals usually by the use of a red illuminated lamp.

TCP

TCP (Transmission Control Protocol) is a network communications protocol.

UDP

UDP (User Datagram Protocol) is an alternative protocol to TCP that is used when reliable delivery of data packets in not required.

VISCA

VISCA is a camera control protocol used with PTZ cameras. See also PELCO.

WAN

WAN (Wide Area Network) is a network that spans a relatively broad geographical area, such as a state, region, or nation.

White Balance

White balance (WB) is the process of ensuring that white objects and by extension, all colour, in your video are rendered accurately. Without correct white balance, objects in your video display unrealistic color casts.

WELCOME TO THE FUTURE.

birddog.tv
hello@birddog.tv