BirdDog

CAM CONTROL

CC

NDI

v 3.2

Table of Contents

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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.

Welcome to BirdDog

Thank you for using Cam Control. We hope you enjoy the total camera control offered by this application.

Using This Guide

Cam Control is powerful and sophisticated software, so please read this guide before use and retain for future reference. You can also view an online [video](#) of this guide.

We're Invested In Your Success

At BirdDog, 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

Welcome to the Future

What is NDI®?

NDI® (Network Device Interface) is a high-quality, low-latency, frame-accurate standard that enables compatible devices to communicate, 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. Even fill and key alpha channel information, as well as Tally, can be sent over this same cable. 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 then converted back only at the neccessary endpoints.

BirdDog has been on the NDI® journey since the very beginning, and Cam Control 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.
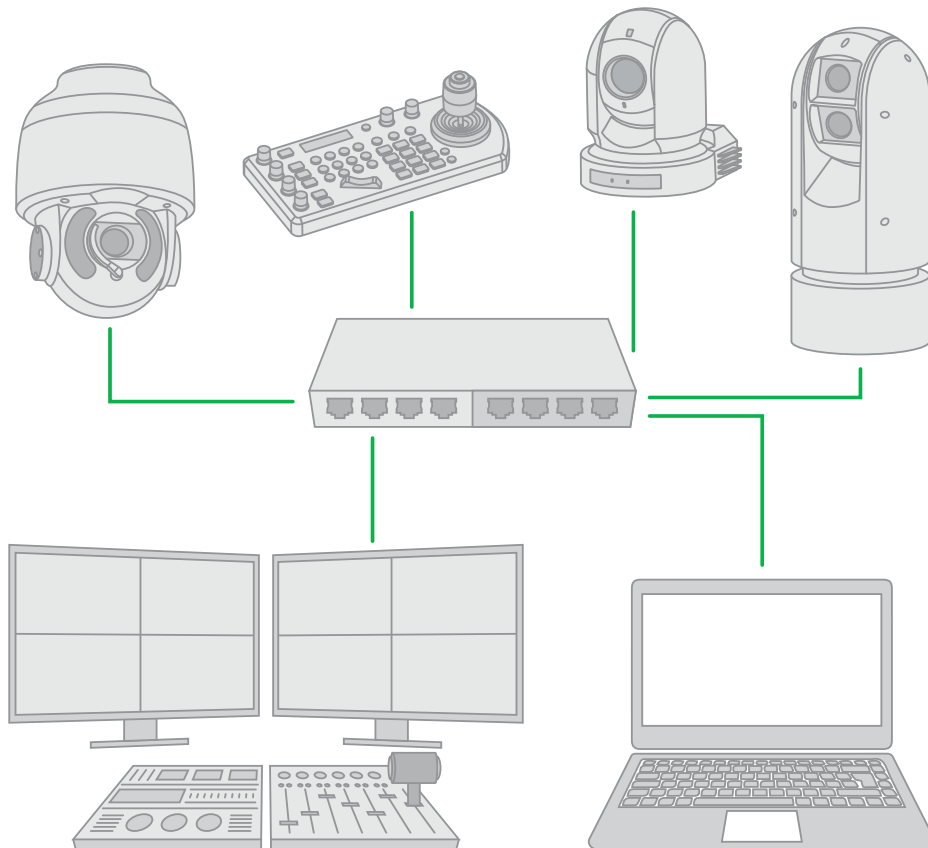
BirdDog Cam Control Overview

Total Camera Control

Cam Control is the easiest and most user–friendly way to dial in BirdDog cameras. Simply load the software onto a Windows 10 machine on the same network as your BirdDog cameras and access all functions of the camera from one interface.

Auto Tracking Using Facial and Body Recognition.

Cam Control features fully automated tracking with adjustable parameters to dial in the sensitivity of how you wish to track your talent. You can set to track via facial or body recognition, allowing maximum flexibility depending on the environment. Auto tracking is perfect for broadcast studios, lecturer/teacher applications, house of worship, or any time the on–air talent is moving.

Colour Match in Seconds

All BirdDog cameras feature a Colour Matrix offering a comprehensive set of tools for dialing in the look you want. With Cam Control you can match cameras quickly, easily, and all from within a single interface.

Four Cameras and Multiple Instances.

Cam Control allows loading of up to four cameras. If you need more than four, Cam Control supports multiple instances – you can load as many Cam Control windows as your computer can handle.

Access All of your Camera Controls

As well as adding talent Tracking, Cam Control also gives control over all settings found in each BirdDog camera.

Save and Recall Presets

You can also save and recall camera presets. Use the default Preset 1 to save your favourite camera settings – when you fire up your cameras on your next job, Cam Control will be set and ready to go.

Touch Responsive

Cam Control works perfectly on touch screen devices such as Microsoft Surface allowing fast and accurate tactile control of your cameras.

Cam Control Quickstart

You can also view an online <u>video</u> of this guide. Displayed features will vary according to the selected camera.

1. Ensure there is at least one BirdDog camera connected to your network. Cameras must have the latest firmware installed.

2. Press the camera selection dropdown to reveal connected cameras and select one. To remove a camera, select NONE from the dropdown.
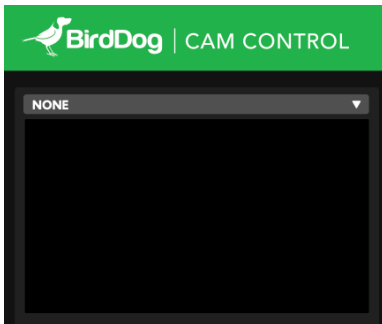
3. The available features for your selected camera are displayed.
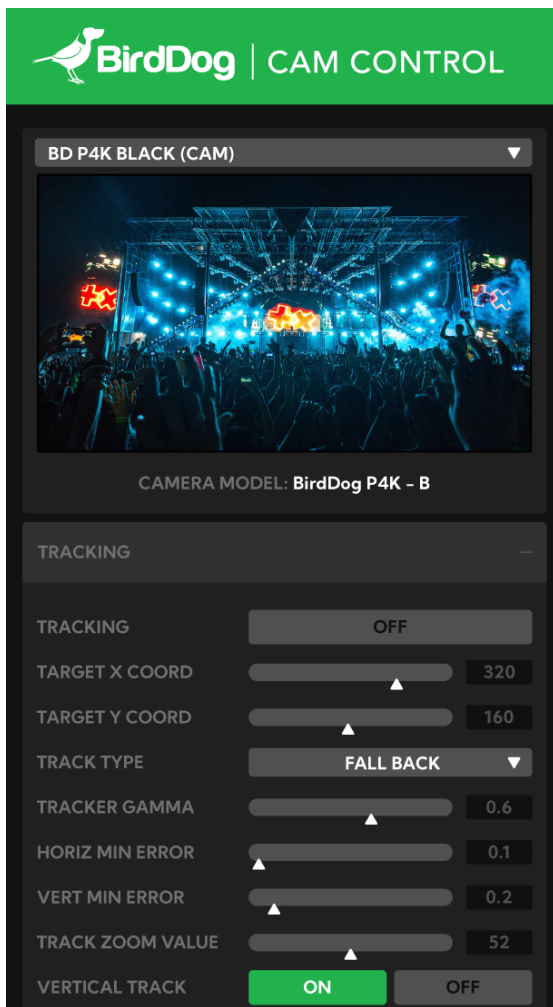
Tracking

Tracking

Turn tracking on or off.

Target X/Y Coord

Set the X and Y position where the tracker will place the target in reference to the frame. By default, the tracker will place the target in the CENTER of the frame. Default = 0.1

Track Type

Track type sets the fallback sequence of detection. For example, if a face is not detected, the body will be tracked.

Fall Back: If the tracking of the talent face fails, tracking will switch its focus to the body. This is the default setting.

Face: Track face only.

Body: Track body only.

Tracker (Gamma)

Controls how fast the camera reacts to target movement. Default = 0.6.

Horizontal Min Error

The horizontal deviation of the target from the set tracking position (Target X Coord). If the percentage is above the set threshold, horizontal camera tracking will start. Default = 0.1

Vertical Min Error

The vertical deviation of the target from the set tracking position (Target Y Coord). If the distance is above the set threshold, vertical camera tracking will start.

Track Auto Zoom

If tracking of the target has been lost for 5 seconds, the camera will zoom out and attempt to re-acquire the target. Default = ON
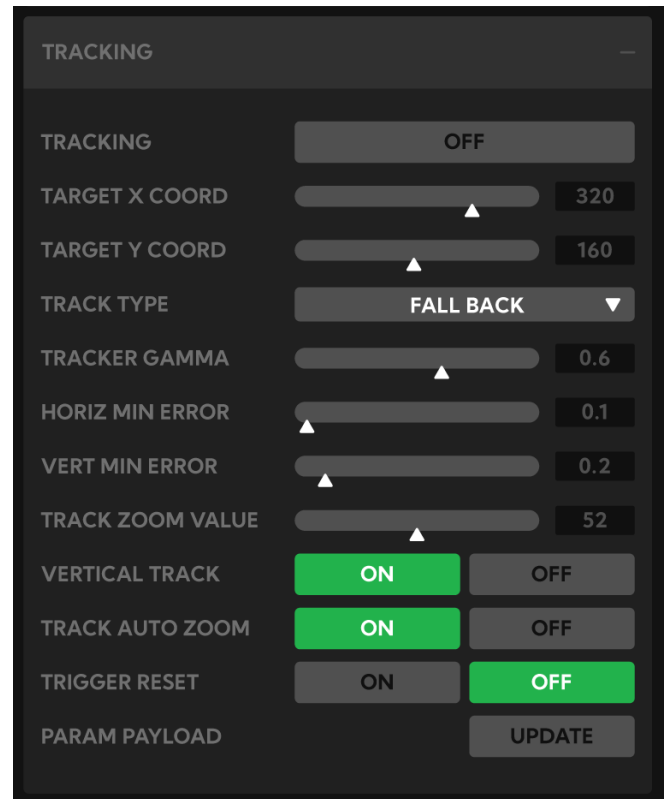
Vertical Track

Set to OFF if you wish the camera to only track horizontally.

Trigger Reset

Resets all of the tracking settings.

Param (parameter) Payload

Press the UPDATE button to save your changes.

TRACKING		
TRACKING	OFF	
TARGET X COORD		320
TARGET Y COORD		160
TRACK TYPE	FALL BACK ▼	
TRACKER GAMMA		0.6
HORIZ MIN ERROR		0.1
VERT MIN ERROR		0.2
TRACK ZOOM VALUE		52
VERTICAL TRACK	ON	OFF
TRACK AUTO ZOOM	ON	OFF
TRIGGER RESET	ON	OFF
PARAM PAYLOAD		UPDATE

Camera Control

Focus Mode

A (Auto)

Press the **A** button for auto focus.

M (Manual)

Press the **M** button for manual focus.

The S, – and + button are not used in this release.

Pan Speed

Set a value for the pan speed.

Tilt Speed

Set a value for the tilt speed.

Zoom Speed

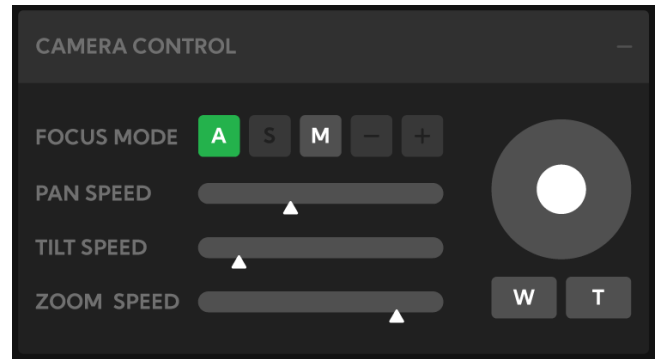Set a value for the zoom speed.

Joystick

Move the central white spot for east/west for panning and north/south for tilting.

W (Wide)

Press the **W** button to zoom out.

T (Telephoto)
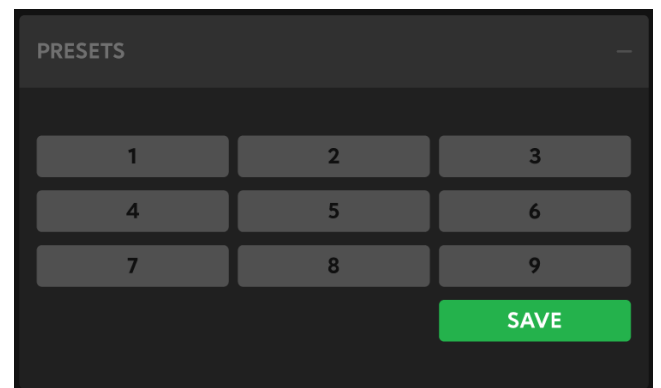
Press the **T** button to zoom in.

Presets

Creating Presets

1. Move the camera to the desired position.
2. Press the SAVE button.
3. Press the desired preset number.

Calling Presets

1. Press the preset number.

Exposure

Mode

Full Auto

Iris, Gain and Shutter Speed can be set automatically. The exposure is adjusted automatically using the values set for SLOW SHUTTER, S. SHUTTER LIMIT, AE SPEED, GAIN LIMIT, GAIN POINT, HIGH SENSITIVITY, MAX SPEED, MIN SPEED, BACK LIGHT, SPOT LIGHT and EX–COMP.

Manual

Allows manual adjustment of the GAIN, GAIN LIMIT, electronic shutter speed (SPEED), iris (IRIS), and HIGH SENSITIVITY.

Iris Priority

The iris can be set freely by the user. The gain and shutter speed are set automatically according to the brightness of the subject. The exposure is adjusted automatically using the values manually set for iris (IRIS), GAIN LIMIT, GAIN POINT, AE SPEED, MAX SPEED, MIN SPEED, BACK LIGHT, SPOT LIGHT and EX–COMP.

Shutter Priority

The shutter speed can be set freely by the user, and the iris and gain are set automatically, according to the brightness of the subject. The exposure is adjusted automatically using the values manually set for electronic shutter speed (SPEED), GAIN LIMIT, AE SPEED, BACK LIGHT, SPOT LIGHT and EX–COMP.

Bright

Bright mode. The bright control function adjusts both gain and iris using an internal algorithm, according to a brightness level freely set by the user. Exposure is controlled by gain when dark, and by iris when bright. As both gain and iris are fixed, this mode is used when exposing at a fixed camera sensitivity. When switching from Full Auto or Shutter Priority Mode to Bright Mode, the current status will be retained for a short period of time. The exposure is adjusted automatically using the values manually set for the bright level (LEVEL) and HIGH SENSITIVITY.

Gain Priority

Gain Priority mode. Adjust with Variable Gain, Auto Iris and Shutter speed. Adjust the GAIN, GAIN POINT, AE SPEED, HIGH SENSITIVITY, MAX SPEED, MIN SPEED, BACK LIGHT, SPOT LIGHT and EX–COMP.
Depending on the mode selected, the following parameters my be displayed.

Slow Shutter

When set to ON, the Slow Shutter functions automatically in low light conditions. This setting is available only when the AE mode is set to FULL AUTO. The default setting is OFF.

S. Shutter Limit

With certain settings in low light conditions, the shutter speed slows and the gain is increased. This function allows you to limit the shutter speed reduction. This helps prevent image shake when shooting a moving subject in low light conditions.
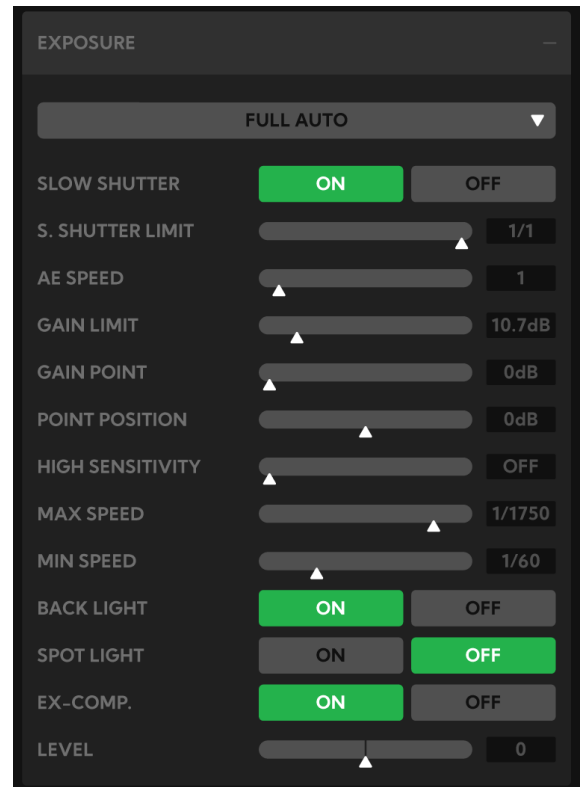
AE Speed

The slow AE Response function allows you to reduce the exposure response speed. By default, optimum exposure can be obtained automatically within approx. 1 second. The slow AE response function allows you to lengthen this response time.

Gain

Set the gain from the following values: 0dB, 3dB, 6dB, 9dB, 12dB, 15dB, 18dB, 21dB, 24dB, 27dB, 30dB, 33dB, 36dB

Gain Limit

The gain limit can be set at Full Auto, Iris Priority and Shutter Priority mode. Use this setting when image signal–to–noise ratio is particularly important. Select the gain limit from the following: 9dB, 12dB, 15dB, 18dB, 21dB, 24dB, 27dB, 30dB, 33dB, 36dB

Gain Point/Position

Sets the Gain Point between 0dB and gain limit. The shutter speed can be changed from the point when the set gain value is reached. When you want to obtain the motion–priority image, use this setting.

High Sensitivity

In this mode, the maximum gain increases, enabling to obtain a brighter output even in a darker en–vironment. However, if the gain reaches high level, the image could exhibit noise.

Max Speed/Min Speed

Sets the range of shutter speeds that will be set in automatic modes.

Backlight

Compensates for strong scene backlighting that can otherwise lead to the subject being too dimly exposed when shooting in auto exposure mode.

Spotlight

Adjusts AE and AF to compensate for high intensity spot lights aimed toward the camera lens.

Ex–Comp (Exposure Compensation)/Level

When MODE is set to FULL AUTO, SHUTTER PRI or IRIS PRI, setting EX–COMP to ON allows exposure compensation levels to be set from the following LEVEL values: –10.5, –9, –7.5, –6, –4.5, –3, –1.5, 0, +1.5, +3, +4.5, +6, +7.5, +9, +10.5.

Setting the level to 0 disables exposure compensation. Values range from –10.5 to +10.5 in ascending brightness. When EX–COMP is set to OFF, exposure compensation is disabled.

Iris

Select the iris from the following: F11, F10, F9.6, F8.7, F8.0, F7.3, F6.8, F6.2, F5.6, F5.2, F4.8, F4.4, F4.0, F3.7, F3.4, F3.1, F2.8

White Balance

Mode

Auto

This mode computes the white balance value output using color information from the entire screen. This is the default setting.

User

This mode enables you to manually set the control of Red and Blue gain in 256 step increments.

NOTE: When USER is selected, R. GAIN (red gain) and B. GAIN (blue gain) are displayed, allowing you to select a value from 0 to 255.

Matrix (Color Matrix)

You can emphasize or weaken a specific color region while keeping the white convergence point unchanged. When turn ed ON, the following items are displayed for adjustment.

Select

Sets an internal preset matrix for matrix calculation. Choose from STD, HIGH SAT, FL LIGHT, MOVIE, STILL, CINEMA, PRO, ITU709, and B/W. This becomes disabled when MATRIX is turned OFF.

Level (Color Level)

Adjusts the color density of the picture. Choose a value in the range from 0 to 14. The greater the number, the denser the colors. This becomes disabled when MATRIX is turned OFF.

Phase

Adjusts the color tone of the entire picture. Choose a value from –7 to +7. This becomes disabled when MATRIX is turned OFF.

R–G, R–B, G–R, G–B, B–R, B–G

Sets a coefficient for each combination of RGB individually, to adjust the hue of the entire picture. Choose a value from –99 to +99. This becomes disabled when MATRIX is turned OFF.
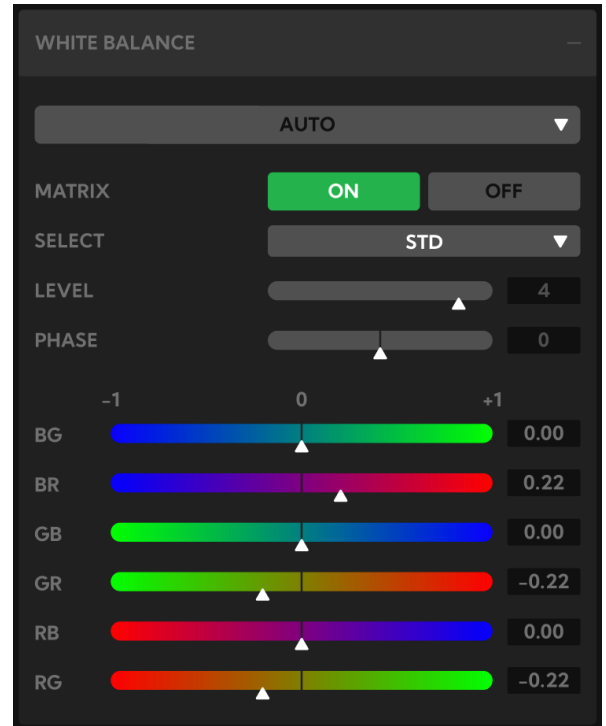
Detail

Mode

Auto

A contour correction signal is automatically added. You can set the volume of the correction signal. Choose a LEVEL value from 0 to 15. The greater the value, the stronger the contour correction signal.

Manual

Allows manual configuration of the settings.

Bandwidth

Sets the bandwidth for signals undergoing contour emphasis. You can choose from DEFAULT, LOW, MIDDLE, HIGH, and WIDE. For example, when you choose MIDDLE, the middle range of the signals is elevated, and contours in that middle range are emphasized.

Crispening

Selects the fineness of the added contour correction. Choose a value from 0 to 7. With higher values, minute contour correction signal elements are removed, and only the high level contour correction signals are left, which reduces noise. When you choose a lower value, minute contour correction signal elements are added to the picture, increasing noise.

H/V Balance

Selects the ratio for horizontal and vertical contour correction signal elements. Choose a value from –2 to 0 to +2. When you choose a higher value, the horizontal contour correction elements become greater compared to the vertical elements.

B/W Balance

Adjusts the balance between contours in black on the low brightness side of the spectrum and contours in white on the high brightness side. Choose from TYPE 1 to TYPE 5. The ratio of contours in black is higher for TYPE1 while the ratio of contours in white is higher for TYPE 5.

Limit

Sets the maximum value for the amount of contour emphasis in black on the low brightness side of the spectrum and in white on the high brightness side. Choose a value from 0 to 7.

Highlight Detail

Adjusts the level of contour added to brightly lit objects. Choose a value from 0 to 4. This can be effective when you want to emphasize the contour of a brightly lit object in a bright background.

Super Low

Emphasizes contours in the super low range. Choose a value from 0 to 7. The greater the value, the greater the contour emphasis. Contrast and resolution increase.
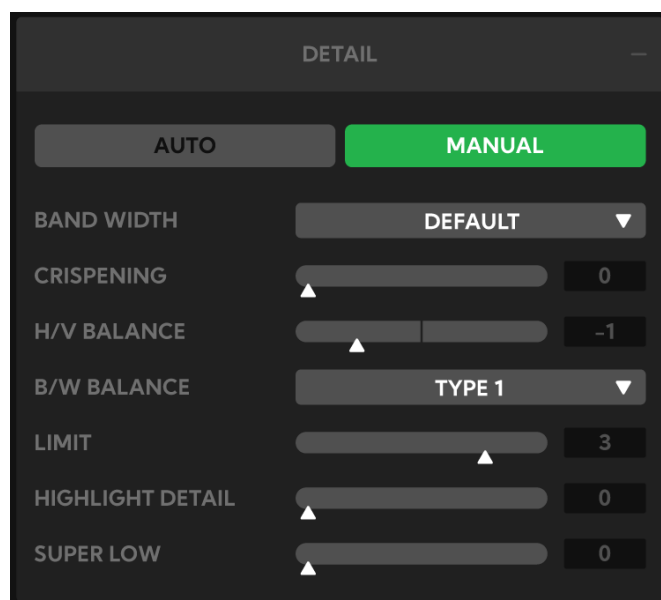
Picture

2D /3D NR

2D Noise Reduction is a method of reducing noise within an image by comparing the image from frame to frame, removing variations that do not appear in each frame. 3D Noise Reduction is a method of reducing noise by comparing variances within the same frame, as well as comparing frame to frame. This will often reduce noise without leaving trails behind a moving object.

Flip

Flips the image upside down for ceiling mounted cameras. Select from upright mode (OFF) or ceiling mount (ON).

Mirror

Displays a mirror image of the video image.

Color

Adjusts the intensity of colours in the image from a range of 1–15.

Hue

Adjusts the color phase from 1–15.

ND Filter

The ND Filter installed in front of the image sensor can be engaged or disengaged by the mechanical structure. The adjustable range of iris and shutter speed are increased by using the ND Filter. There are 2 types of ND Filters, and by combining them, the light quantity can be reduced. Values are 1× (Filter Off), 1/4×, 1/16×, or 1/64×.

IR Cut Filter

An IR (infrared) cut filter can be disengaged for increased image sensitivity in low light conditions. The filter will automatically engage depending on the ambient light. When the mode is set to NIGHT, a monochrome (black and white) image will be displayed.

Chroma Suppress

The chroma suppress mode can be engaged for low light conditions when color noise may be particularly noticeable. You can set the brightness from OFF, LOW, MID, HIGH in each mode of the variable gamma modes.

HLC Mode

HLC (Highlight Light Compensation) attempts to adjust AE and AF to compensate for when high intensity spot lights are detected.

Stabilizer (Available on 30X zoom)

This function can reduce image blur caused by camera movement. The correction effect works best at vibration frequencies of less than 10 Hz and may not be as effective in conditions of high frequency vibration. In such high frequency vibration conditions, turn the image stabilizer function off. The image stabilizer function uses the digital zoom methodology and may result reduced angle of view and resolution.
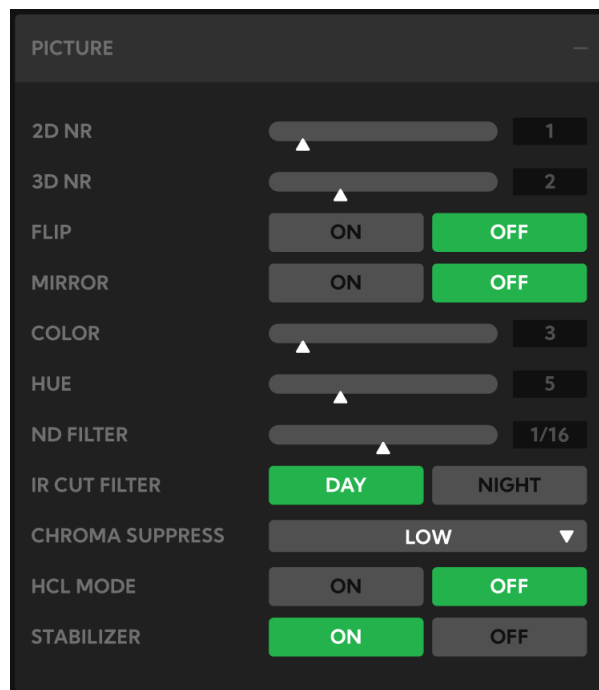
Gamma

Gamma Mode

Standard

Standard setting (same as the MOVIE setting on the camera).

Straight

This selects a straight gamma curve.

Pattern

Choose a gamma curve from 512 patterns stored in the camera. You can specify the a pattern from 512 patterns using PATTERN and PATTERN FINE. PATTERN defines the upper two digits of the pattern, and PATTERN FINE defines the last digit.

Pattern

Choose a value from 0 to 51. This can be chosen when SELECT is PATTERN.

Pattern Fine

Choose a value from 0 to 9. When PATTERN is 0 (zero), zero cannot be chosen for PATTERN FINE. When PATTERN is 51, a value larger than 2 cannot be chosen for PATTERN FINE. This can be chosen when SELECT is PATTERN.

Offset

Choose the offset of the output level of gamma curves. Choose a value from −64 to +64.

Level

Choose a gamma level from –7 to +7.

Black Gamma

Adjusts the black gamma level to recreate gradation in the dark areas of the picture or to suppress noise with blackout. Choose a value from –7 to +7.

Black Gamma Range

Adjusts the brightness range for which BLACK GAMMA becomes effective. Choose from LOW, MIDDLE, and HIGH. The range becomes small when LOW is chosen, and it becomes large when HIGH is chosen.

Black Level

Adjusts the master BLACK LEVEL. Choose a value from −48 to +48.

Visibility Enhancer

Depending on the imaging scene, the Visibility Enhancer function makes the darker part of a camera image brighter, and automatically correct brightness and contrast to show bright parts clearly. The Effect slider controls the strength of the Visibility Enhancer.
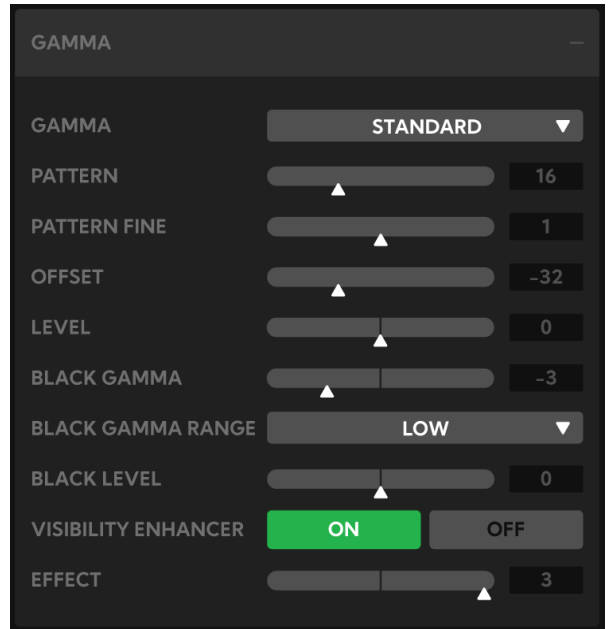
Cam Control Plugin for Loupedeck (beta)

This beta release plugin is an application profile for Loupedeck. Our plugin provides actions for Loupedeck buttons, and adjustments for Loupedeck dials, that map directly to the controls in BirdDog Cam Control.

Installation

1. If you don't have it already installed, download the Loupedeck software from the following location:
   https://loupedeck.com/get-started

2. After the installation of the Loupedeck software, the main window is displayed.
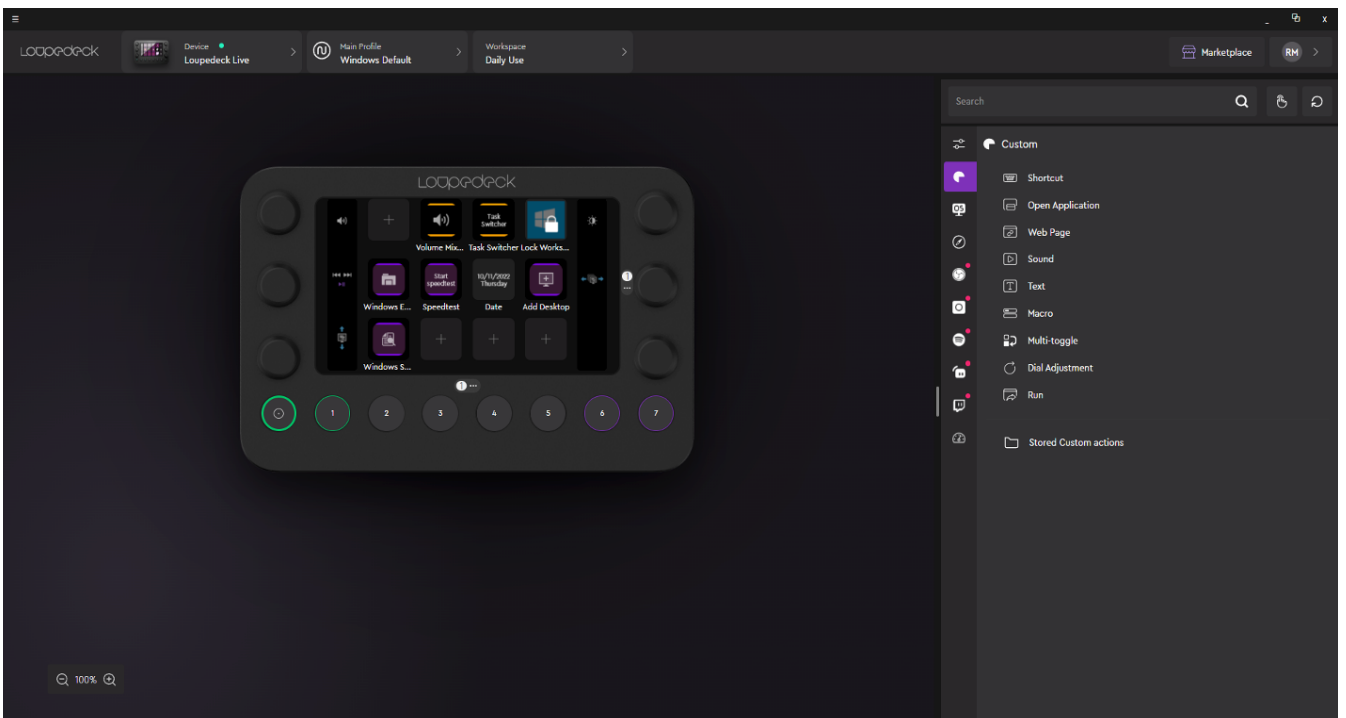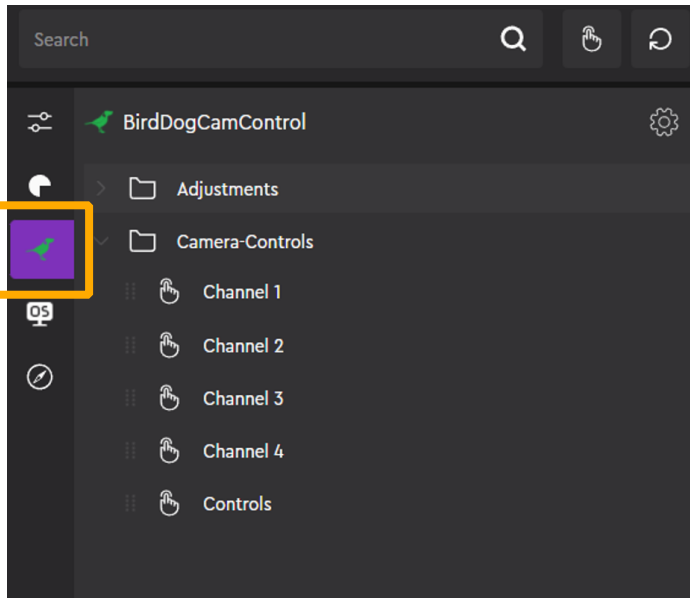

3. To install the plugin, double click the provided plugin file and click the **Install** button.
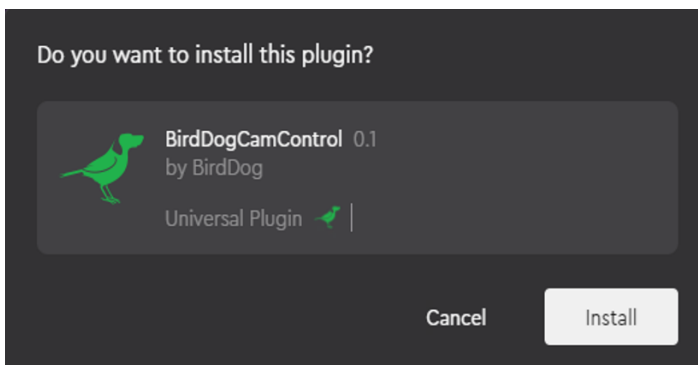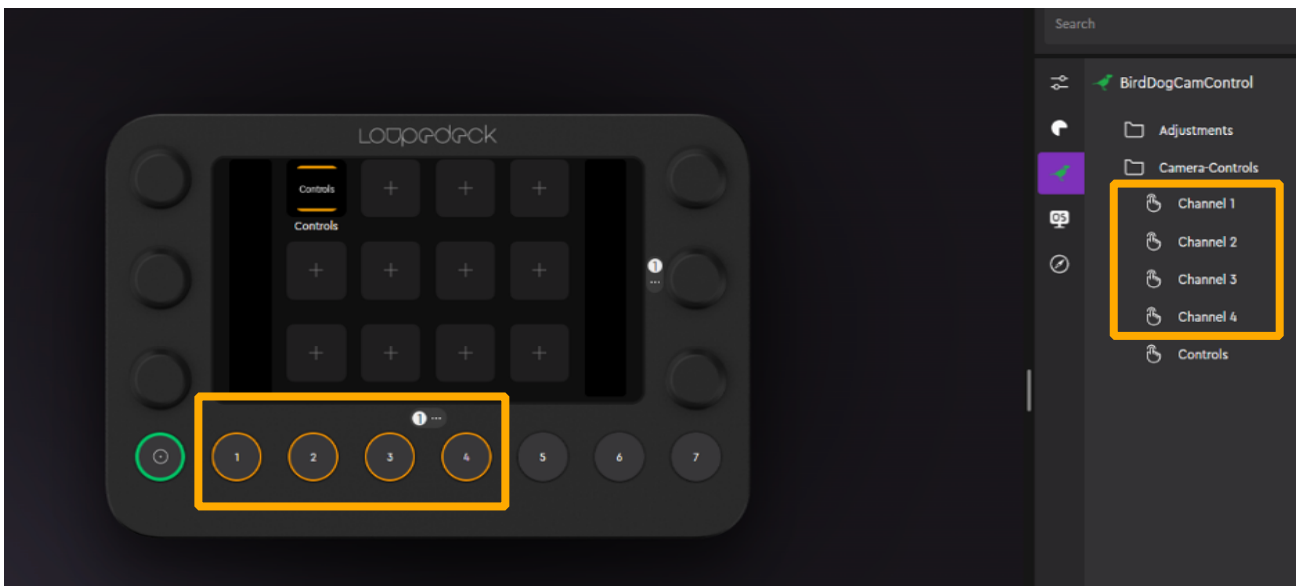
4. After the plugin is installed, the side menu of the Loupedeck software is loaded with the plugin.

5. Channel commands are assigned to Round buttons 1–4 in the Home workspace.
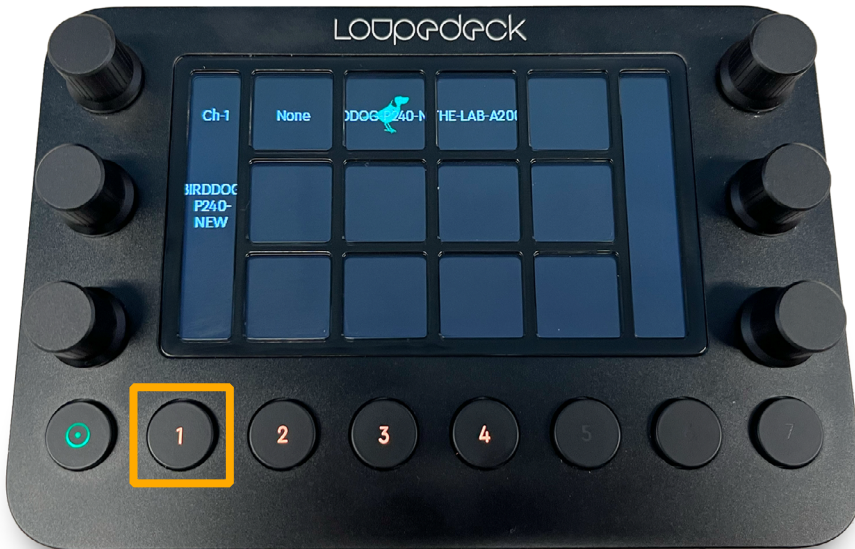
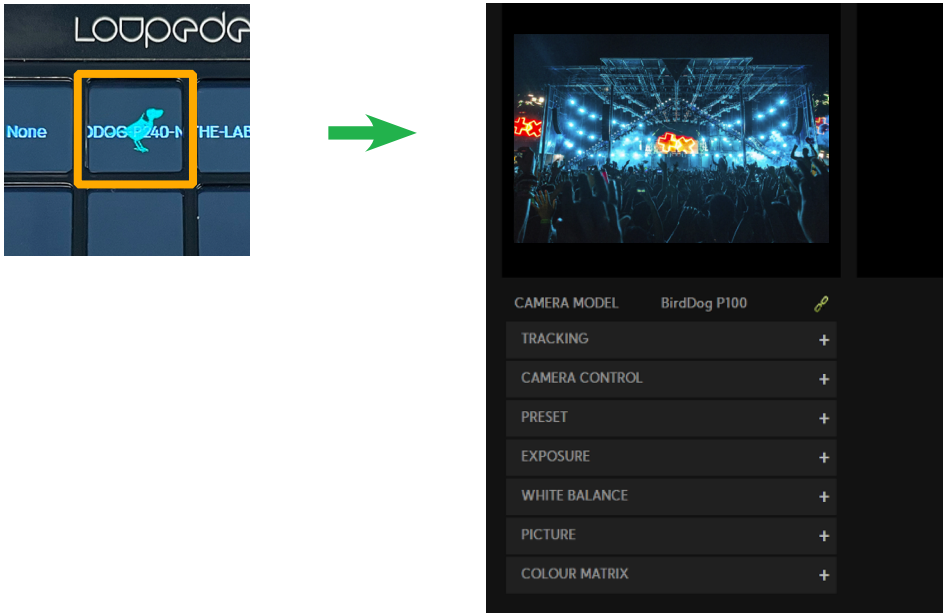6. The Channel controls button is placed in the top row of Touch buttons in the Home workspace.

Using the Plugin

1. Open BirdDog Cam Control.
2. Click **Round button 1** to populate the Touch buttons with the available cameras in Cam Control Channel 1.
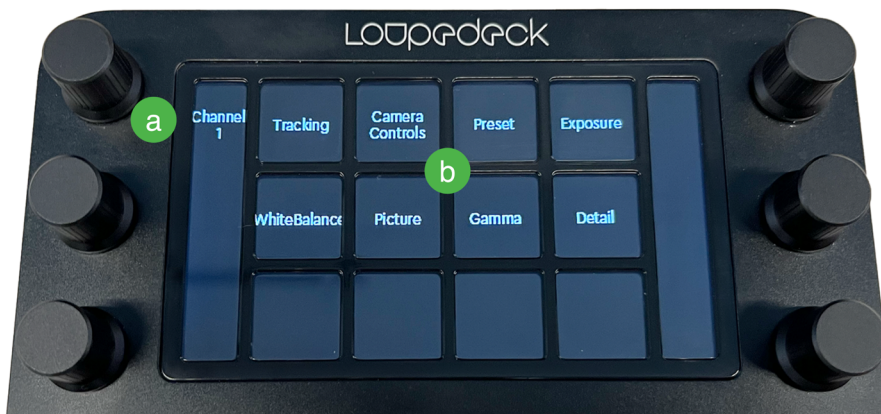
3. Selecting a camera Touch button loads the selected camera into Cam Control.

4. Press the Controls Touch button.

5. The Loupedeck panel is populated with the following information and controls.
   a. Channel Number.
   b. The Touch buttons are populated with the Cam Control controls for the loaded camera.

6. Click one of the Touch buttons to open the controls for that category. For example, on selecting the **Camera Controls** Touch button, the corresponding camera controls are displayed.

a. Then, selecting the **PTZ** Touch button displays the camera PTZ controls.

- Pan Speed, Tilt Speed and Zoom Speed are assigned to the Dials.

- Camera movement controls are assigned to the Touch buttons.

Other control behaviours of note are:

- If the Touch button references a dropdown list, the list will be loaded and displayed on a separate page. On selecting the required dropdown list value, the panel will revert to the previous page.

- If the Touch button references an On/Off toggle control, selecting the Touch button will toggle the selection.

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.

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.

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BirdDog

WELCOME TO THE FUTURE.