

BirdDog
O4 · User Guide

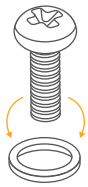
MAR · 2026

BirdDog

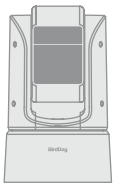
SAFETY PRECAUTIONS

- During the installation and operation, **all electrical safety regulations of the country and region of use must be strictly observed.**
- Please use the power adapter that comes standard with this product.
- **Do not rotate the camera by hand,** otherwise it may cause mechanical failure.
- When installing this product on a wall or ceiling, make sure the device is secured and there are no obstacles within the rotation range; **Do not power on until installation is complete.**
- To avoid overheating, **please ensure adequate ventilation is provided to the camera.**
- If the device malfunctions, makes unexpected noises or smells, turn off the power and unplug the power cord immediately. Contact your dealer for service.
- This product has no user serviceable parts, **damage caused by disassembly by the user is not covered by the warranty.**

WARNING
Silicone O-Rings MUST be installed with baseplate screws during camera installation.
Missing or improperly seated O-Rings may compromise the weatherproof seal and void the outdoor IP rating.



WHAT'S IN THE BOX



1 x **PTZ Camera**



1 x **DC 24V Power Supply**



1 x **Welcome Pack**

PRODUCT CONNECTIONS

Please check all connections before powering on.
Power on sequence of the camera involves rotating the lens body to the lower left limit, upper right limit, and finally settling in the HOME position.
Once initialisation is complete, the camera is ready for general operation.

Note: If Preset position 0 is stored, the PTZ will automatically recall this position when finalising the startup procedure).

ABOUT THE PRODUCT

4K UHD

O4 utilizes the latest generation High-Quality 1/1.8" UHD CMOS sensor delivering 4K UHD images (3840x2160), it is also compatible with 1080p and 720p formats.

AI Tracking

O4 supports 3 different tracking modes including: Framing Height Adjustment, Tilt Lock, Sensitivity Adjustment.

30x Optical Zoom + IR Laser

O4 has a high-quality 4K 30x lens. 60x in HD and up to 8x Digital Zoom. O4 has a built-in 500m illumination distance IR Laser.

NDI|HX3®

NDI® | HX3 is the next generation of NDI network transmission with ultra-low latency, high quality images, easy network deployment, and expansive ecosystem. The NDI® | HX3 protocol supports transmission of Video, Audio and Control Signals.

Multiple Control Method

You can control the O4 camera via multiple control protocols including RS232, RS422, Network (VISCA IP, NDI) Pelco, FreeD.

PRODUCT DESCRIPTION





No.	Name
1	IR Laser
2	Lens
3	PoE / LAN
4	RS232 / RS422
5	DC Power

No.	Name
6	Audio IN / OUT
7	12G-SDI
8	SFP+
9	Sealed Connectors

SETUP GUIDE

Step 1: Connect your camera directly to your network via PoE++ or with the included DC Power adapter and a regular network connection.

Step 2: Use NDI Tools to view IP Address and basic camera info.

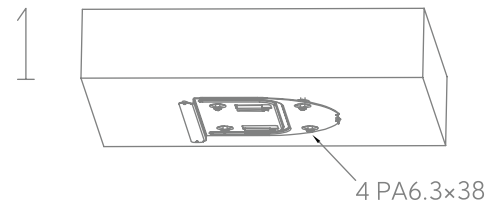
Step 3: For more settings, please visit the BirdUI Web Configuration page by typing the IP Address on a browser connected to the same network of the camera.

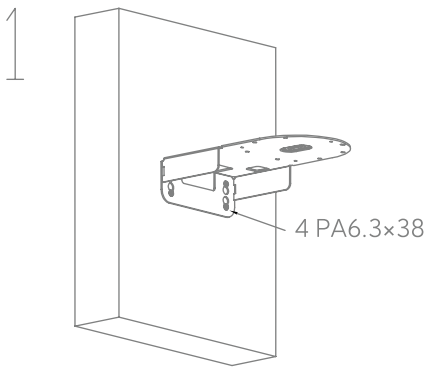
TECHNICAL SPECIFICATIONS PAGE

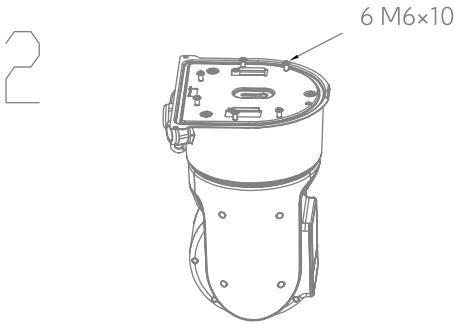
Feature	O4
IMAGING	
Image Sensor	Sony 1/1.8" CMOS UHD
Lens	f=6.9mm~215mm
Optical Zoom	Optical 30x (4k) – 60x (HD), 8x Digital
Video Format	2160p60
Additional Resolutions	2160p @ 60, 59.94, 50, 30, 29.97, 25fps 1080p @ 60, 59.94, 50, 30, 29.97, 25fps 1080i @ 60, 59.94, 50fps 720p @ 30, 29.97, 25fps
Horizontal Field of View	60° ~ 2°
Vertical Field of View	34° ~ 1.1°
Diagonal Field of View	67° ~ 2.3°
Apeture	f1.35~f4.6
Focus	Auto (Global/Centre/Upper/Lower/Left/Right), Manual
Exposure	Auto, Manual Shutter Priority, Iris Priority, Brightness Priority
Exposure Metering	Average, Centre, Top, Bottom, Left, Right
Backlight Compensation	Yes
Exposure Compensation	Yes
Flicker Reduction	Outdoor / 50Hz / 60Hz
White Balance	Auto / One Push / Indoor / Outdoor / Manual / Color Temperature
Digital Noise Reduction	2D/3D Noise Reduction
SNR	>50dB
Effective Pixels	8.4 MP
HDR	Supported, REC.2020 Colour Space
MECHANICAL	
Pan/Tilt Rotation	±175° / -30° ~ +90°
Pan Control Speed	0.05-90°/sec
Tilt Control Speed	0.05-90°/sec
Preset Number	255 Presets
IR Laser	Included, 500m illumination distance
FreeD Support	Included, UDP and Embedded in NDI Stream
Integrated Heater	Included
Glass Coating	High-strength Aerospace/Marine grade Hydrophobic, Anti-mildew, Anti-fouling coating.

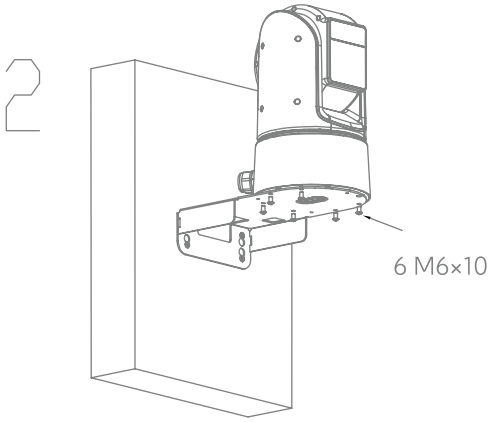
Feature	O4
I/O INTERFACE	
Video Output Interfaces	12G-SDI, RJ-45
Video Compression Formats	h.264, h.265, NDI High Bandwidth
Audio I/O	Stereo Unbalanced 3.5mm TRS Input/Output
Network Interfaces	SFP Fibre Optic, RJ45 1GbBaseT adaptive Ethernet port; PoE++
Encoder Network Protocols	NDI®|HX2, NDI®|HX3, High Bandwidth NDI, RTSP, RTMP, SRT
Control Interfaces	Ethernet, Serial
Control Protocols	NDI, VISCA-IP
FreeD Protocol	Supported - UDP / NDI® Embedded
WebUI Control	Integrated BirdDog BirdUI 2.0
API Control	BirdDog RESTful API 2.0
AI FEATURES	
AI Auto Tracking	Framing Height Adjustment, Tilt Lock, Sensitivity Adjustment
AI Gesture Control	Supported
GENERAL	
Environmental Operation	Outdoor
Input Voltage	DC 24V, PoE++
Input Current	2.1A
Power Consumption	40W (Max.)
Working Temperature	-40°C ~ +60°C (-40°F ~ +120°F)
IP Rating	IP66
Dimension (W*H*D)	200x330x226mm
Weight	7.6KG
Price in USD	$6495

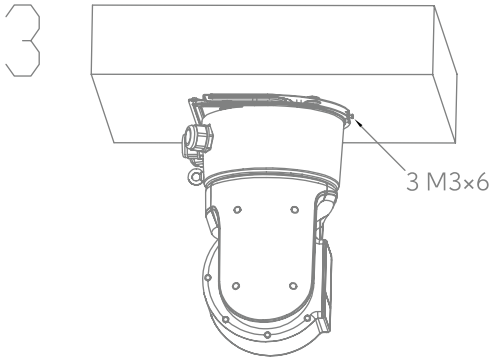
INSTALLATION

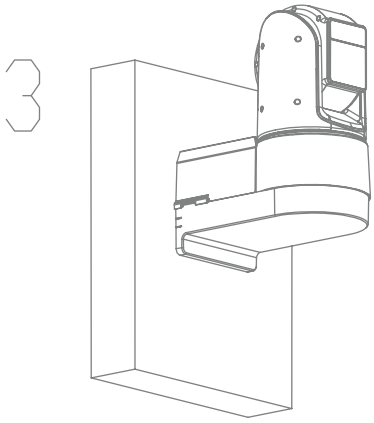












Ceiling mount bracket: 230*218.2*17.5 mm
Ceiling mount bracket screws:
4 PA6.3×38 (Ceiling section – not included)
6 M6×10 (Camera section – included)
3 M3×6 (Combining section – included)

Wall mount bracket: 317.5*185*75 mm
Wall mount bracket screws:
4 PA6.3×38 (Wall section – not included)
6 M6×10 (Camera section – included)

CONNECTIONS & CONFIGURATIONS

Power

First off, you'll have to decide on how you are going to power the camera. You have three choices. You can use PoE++ (Power over Ethernet) or, if your network doesn't support PoE++, you can use the included 24VDC power adaptor. Lastly, you can decide to opt for a POE++ Injector. If available, PoE++ is the easier choice, since you can use the same Ethernet cable to power and control the camera, as well as send the video, audio and data. For the purposes of this quick start guide, we'll assume your network offers PoE++ (IEEE 802.3bt).

Network

Connect your camera to a network switch with a Cat5/6 cable. By default, the camera is configured to automatically obtain an IP address via DHCP. Some standalone or private networks may not have a DHCP server. After 30 seconds of waiting for an automatically assigned IP address, your camera will fall back to a default address of 192.168.100.100. To ensure that you can always reach your camera, it is recommended that you don't change this default.

Power Up

When first powered up, the camera will perform its initialization routine by rotating to the left and then centering again.

BASIC CONFIGURATION

NDI® Tools

NDI® Tools is a free suite of applications designed to introduce you to the world of IP video and is available at: https://ndi.video/tools/

Once installed, launch the Studio Monitor (Video Monitor, if using a Mac) application. This simple application allows you to view all NDI® sources on your network. Right click on the Studio Monitor window to view your camera as an NDI® source.

Tip

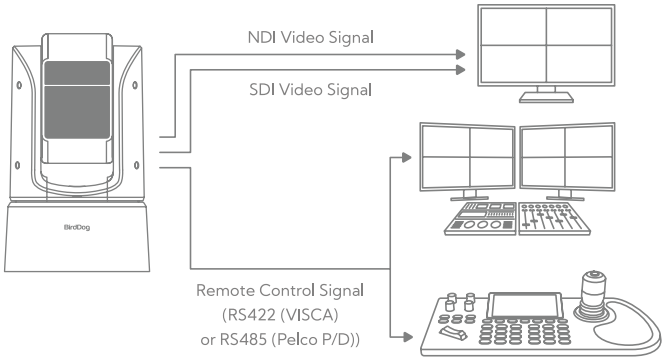
By default, the displayed sources have names that include the last five digits of your camera MAC address which is printed on the bottom of the camera.

Clicking on your camera in the source list will display the image from your camera with the default automatic settings.

USING RS232 / RS422 (VISCA)

You can use the RS232 / 442 port to connect to optional controllers, such as a joystick control keyboard, or control PC station, to operate the camera, perform pan, tilt and zoom operations and to use the Preset function using the control buttons.

An application software that supports this unit is needed if you use a PC station.

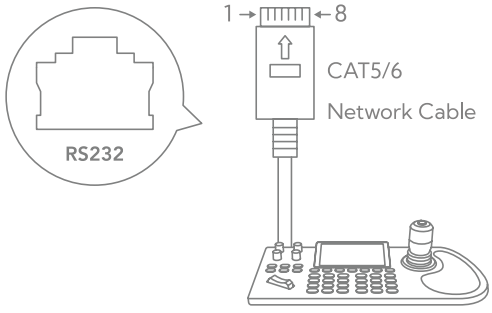


RS232 CONNECTION

In order to use a RJ45 to RS232 (VISCA) cable, the controller must be VISCA compatible.

You can use CAT5/6 cable (T-568B standard pinout) to make an RS232 connection by following the pin definition here on the right side.

You can use RS232 to daisy chain multiple camera connection with a standard RS232 serial port controller as on the right side.



RS232 PIN DEFINE	
1. ---	(Orange/White)
2. ---	(Orange)
3. GND	**(Green/White)**
4. TX	**(Blue)**
5. RX	**(Blue/White)**
6. ---	(Green)
7. ---	(Brown/White)
8. ---	(Brown)

RS422 PIN DEFINE	
1. RX-	**(Orange/White)**
2. RX+	(Orange)
3. GND	(Green/White)
4. ---	(Blue)
5. ---	(Blue/White)
6. ---	(Green)
7. TX-	(Brown/White)
8. TX+	**(Brown)**

WEB CONFIGURATION PANEL

BirdDog cameras have a web interface (also known as BirdUI) that is displayed by your computer browser and can be used to configure your camera remotely.

Please note that some features of the BirdUI interface are only available on some models. Please check System Specifications for camera capabilities.

The BirdUI interface can be accessed through a web browser by entering the correct IP address.

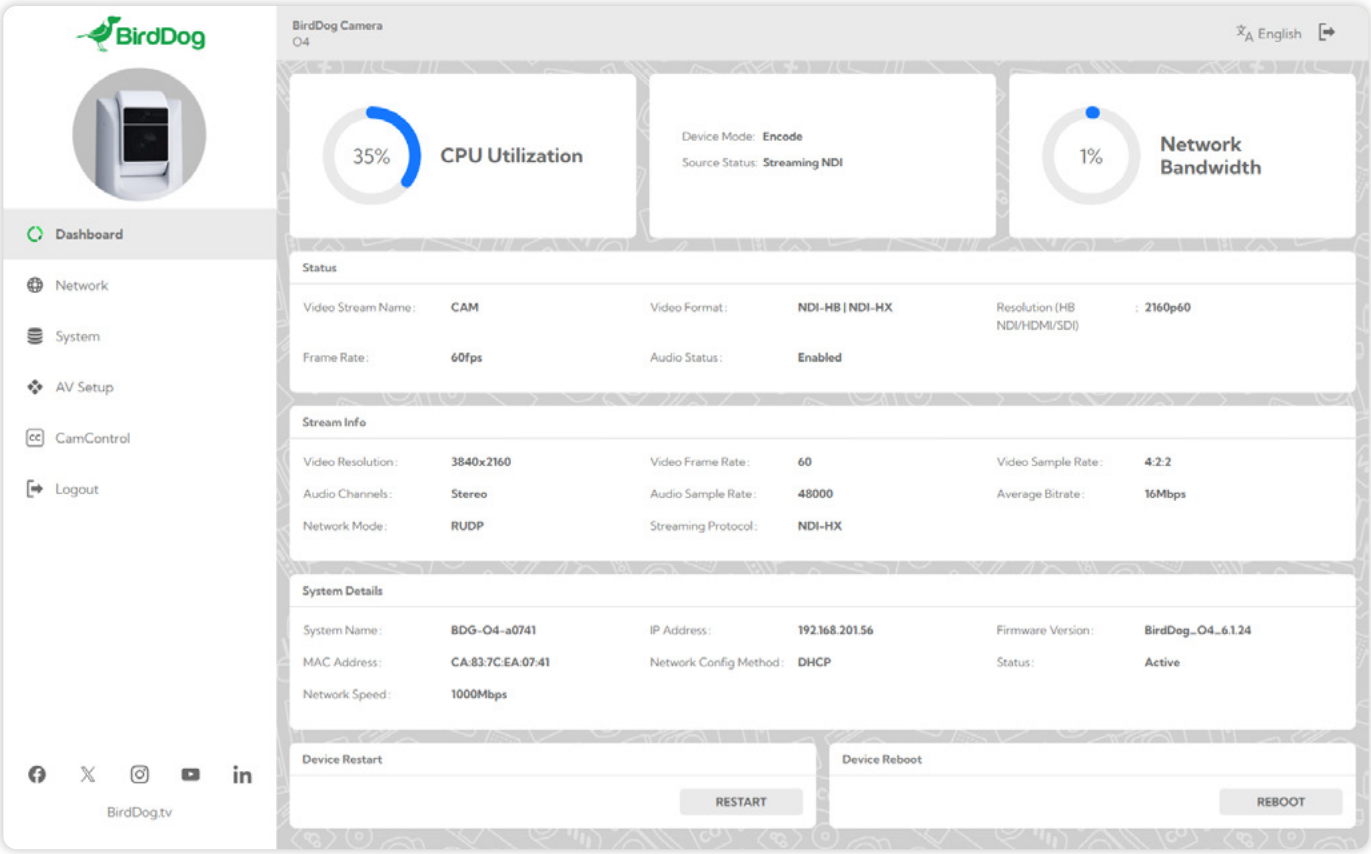
An alternative way to access the BirdUI is through NDI® Studio Monitor application:
1. Click on the gear icon on the bottom right of the Studio Monitor window.
2. In the displayed window, type the default password ' **birddog**' (all lower case) and click the OK button.

The dashboard window is displayed. When you first login, the system will prompt you to set your own password to maintain ongoing security.

The dashboard shows important basic camera settings. For now, check that the displayed Status is Active and take note of the frame rate that is currently output from the camera (displayed under NDI® connection info). This frame rate should be set identically for all cameras according to the requirements of your production.

Note: For more infomation about the BirdUI, please visit BirdDog.tv/downloads, or, BirdDog.tv/birdui-overview

BIRDUI WALKTHROUGH



DASHBOARD

CPU Utilization
Real-time current processor usage percentage for encoding and camera operations

Device Mode
Shows current operational mode (Encode) and source status if the Camera is outputting an NDI Stream.

Network Bandwidth
Real-time circular gauge showing current network utilization percentage.

Status Section

Video Stream Name
Identifies the NDI stream name.

Video Format
Displays overview of active streaming protocols (NDI-HB | NDI-HX, SRT, etc.).

Resolution (Current BirdUI title is wrong, showing HDMI)
Identifies the HB/SDI output resolution.

Frame Rate
Identifies the HB/SDI output frame rate.

Audio Status
Indicates whether embedded audio is “enabled” or “muted”.

Stream Info Section

Video Resolution
Current output resolution for NDI HX/IP protocol streams (e.g., 3840x2160) .

Video Frame Rate
Identifies the NDI HX/IP protocols output frame rate.

Video Sample Rate
Color sampling format for IP protocol stream (4:2:0, 4:2:2).

Audio Channels
Number of embedded audio channels (Stereo, Mono) .

Audio Sample Rate
Audio sampling frequency in Hz.

Average Bitrate
Current streaming bitrate in Mbps.

Network Mode
Network protocol (RUDP, UDP, TCP).

Streaming Protocol
IP streams active (NDI-HX, SRT, RTSP, RTMP).

System Details Section

System Name
Device hostname/identifier.

IP Address
Current network IP assignment.

Firmware Version
Current camera firmware build number.

MAC Address
Hardware network interface identifier.

Network Config Method
IP assignment method (DHCP/Static).

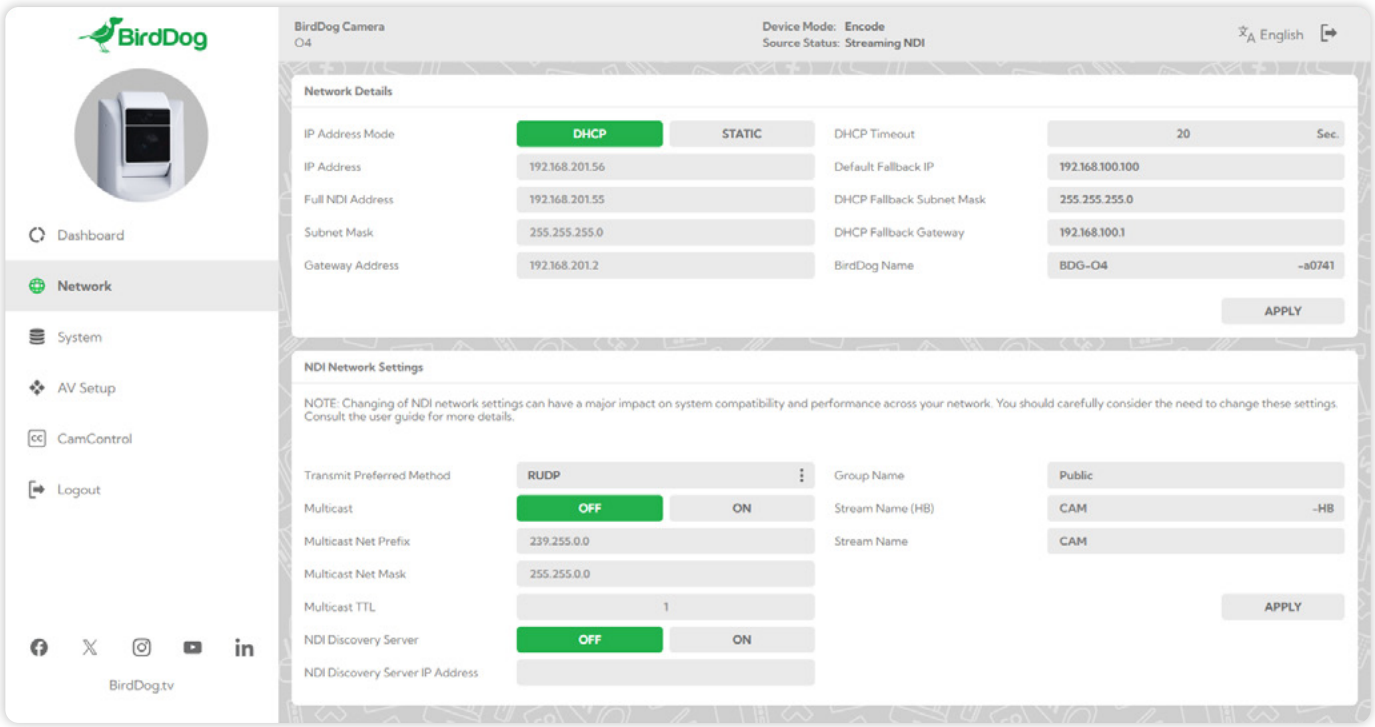
Status
Current operational status (Active/Inactive).

Network Speed
Connected ethernet speed capability.

Device Control Buttons
Device Restart
Restarts camera services without power cycle.

REBOOT
Full system power cycle and restart.

NETWORK TAB



NETWORK DETAILS SECTION

IP Address Mode
Toggle between DHCP (automatic) and STATIC (manual) IP address assignment.

IP Address
Current assigned IP address for BirdUI and O4's IP protocol streams.

Full NDI Address
Current assigned IP address for the O4's Full NDI HB Stream (BirdUI management will not work at this

address).

Subnet Mask
Network subnet mask defining IP address range scope.

Gateway Address
Router IP address for network traffic routing.

DHCP Timeout
Duration in seconds before reverting to fallback IP when DHCP fails (20 seconds is the default).

Default Fallback IP
Preconfigured IP address for BirdUI and used when DHCP assignment fails.

DHCP Fallback Subnet Mask
Subnet mask applied when using fallback IP configuration.

DHCP Fallback Gateway
Gateway applied when using fallback IP configuration.

BirdDog Name
Device hostname identifier visible on network and in NDI discovery (includes mac address identifier).

APPLY
Saves and implements network configuration changes.

NDI NETWORK SETTINGS SECTION

Transmit Preferred Method
Network transport protocol selection (RUDP for reliability, TCP for compatibility, UDP for low latency).

Multicast
Toggle to enable/disable multicast transmission for NDI streams (reduces bandwidth when multiple receivers present).

Multicast Net Prefix
First three octets of multicast IP address range (239.255.0.0 standard).

Multicast Net Mask
Subnet mask defining multicast address scope.

Multicast TTL
Time-to-live value controlling how many network hops multicast packets traverse (1-255).

NDI Discovery Server
Toggle to enable/disable custom NDI discovery server for cross-subnet stream visibility.

NDI Discovery Server IP Address
IP address of external NDI discovery server when enabled.

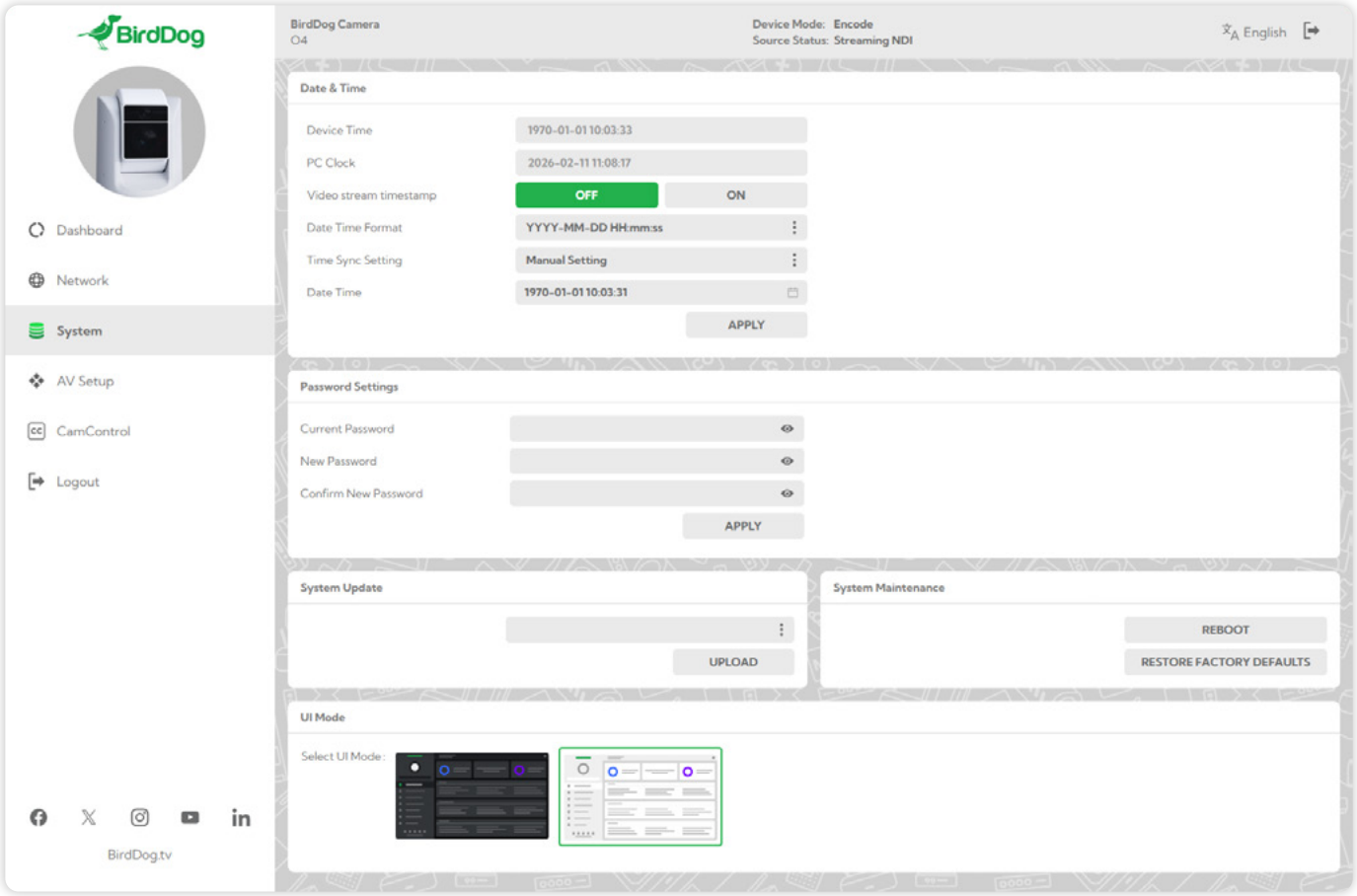
Group Name
NDI group assignment for stream organization and filtering in NDI workflows (Public by default).

Stream Name (HB)
High-bandwidth NDI stream identifier with hardcoded suffix (-HB).

Stream Name
Camera NDI stream identifier.

APPLY
Saves and implements NDI network configuration changes.

SYSTEM TAB



DATE & TIME SECTION

Device Time
Displays the current system date and time on the camera. Note fir realtime streaming, there is no requirement for a specifc time to be set.

PC Clock
Displays your current computer clock to give you a reference between the cameras internal clock and the current computer.

Video Stream Timestamp
Enables a burn-in of the timestamp on the video output.

Date Time Format
Select the display format for the burn-in timestamp.

Time Sync Setting
You can choose to Synchronise the time of the camera to your PC, Manually enter your own time and date, or

Synchronise with an Internet NTP Server.

APPLY
Save and implements changes.

PASSWORD SETTINGS SECTION

Current Password
Input field for entering existing BirdUI password with show/hide toggle icon.

New Password
Input field for entering desired new password with show/hide toggle icon.

Confirm New Password
Input field for re-entering new password to verify accuracy with show/hide toggle icon.

APPLY
Saves and implements password change across O4 BirdUI Login.

SYSTEM UPDATE SECTION

File Upload Field
Click on the 3 dots to open file browser to find the update .bin file for O4 downloaded from the birddog.tv downloads page for O4.

UPLOAD
Initiates firmware update process after selecting valid update file
The update process can take several minutes, please do not power off or unplug O4 during update process.

SYSTEM MAINTENANCE SECTION

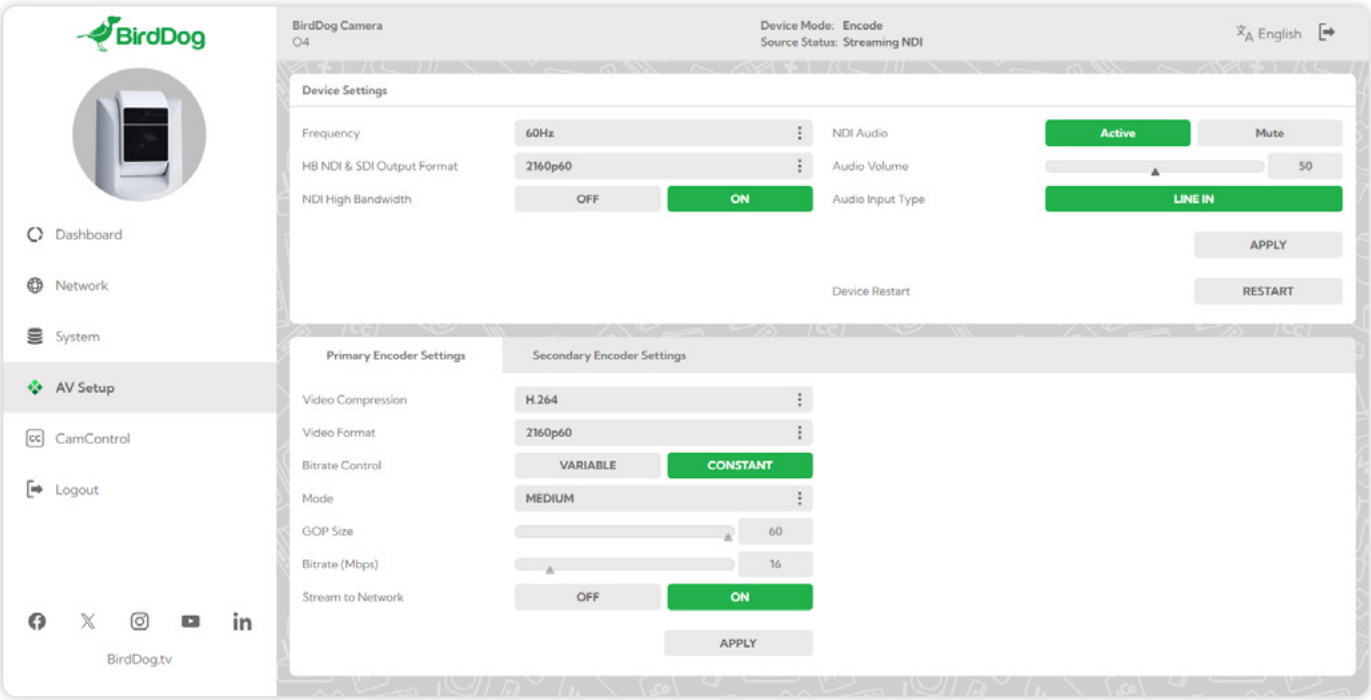
REBOOT
Performs full system power cycle restart, reinitializing all camera systems and network connections.

RESTORE FACTORY DEFAULTS
Resets all camera settings to original firmware configuration, erasing custom network settings, passwords, presets, and user configurations.

UI MODE SECTION

Select UI Mode
Visual toggle between Dark Mode (left, currently selected) and Light Mode (right) interface themes for BirdUI appearance preference.

AV SETUP TAB



DEVICE SETTINGS

Frequency
Dropdown selector for video frame rate (50Hz/59.94Hz/60Hz) determining output fps for the HDMI, SDI, and NDI high-bandwidth streams.

HB NDI & SDI Output Format
Dropdown selector for output resolution (1080p60, 2160p30, etc.) applied to SDI and NDI high-bandwidth streams (note – the frequency selected will determine which options are available).

NDI High Bandwidth
Toggle to enable/disable the NDI-HB (high bandwidth) stream on the network.

NDI Audio
Toggle between Active (audio embedded in NDI/Baseband streams) and Mute (no audio in NDI/Baseband streams).

Audio Volume
Slider control with numeric value (0–100) adjusting audio gain level for embedded audio.

Audio Input Type
Selector for audio source: LINE IN (line level).

APPLY
Saves and implements any configuration changes made in Device Settings.

Device Restart
Restarts camera services without full power cycle, applying settings changes.

PRIMARY ENCODER SETTINGS

Video Compression
Dropdown selector for codec format (H.264, H.265/HEVC).

Video Format
Dropdown selector for resolution and frame rate combination (2160p60, 2160p30, 1080p60, etc.) (Defined by Frequency selection in Device Settings).

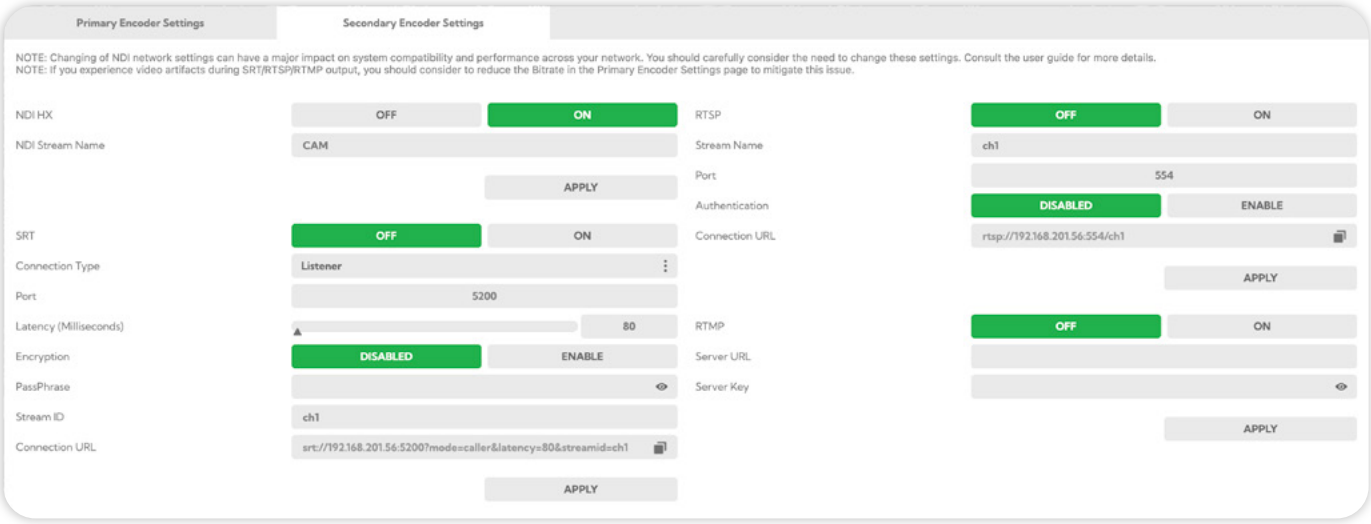
Bitrate Control
Toggle between VARIABLE (VBR for network challenged environments) and CONSTANT (CBR for consistent bandwidth).

Mode
Dropdown selector for encoding preset (CUSTOM for manual control, or predefined quality presets).

GOP Size
Slider control with numeric value setting Group of Pictures interval (keyframe frequency) for encoder, affecting compression efficiency and seeking performance.

Bitrate (Mbps)
Slider control with numeric value setting target bitrate in megabits per second for stream bandwidth allocation (only editable in Custom mode).

APPLY
Saves and implements video encoding configuration changes.



SECONDARY ENCODER SETTINGS

NDI HX
Activate / Deactivate NDI HX Stream.

NDI Stream Name
NDI stream identifier.

APPLY
Saves and activates NDI HX streaming configuration.

SRT
Activate / Deactivate SRT Stream (SRT – Secure Reliable Transport).

Connection Type
Dropdown selector for SRT connection mode: Listener (camera waits for incoming connections), Caller (camera initiates connection to server), or Rendezvous (bidirectional connection establishment).

Port
Numeric input field for UDP port number where SRT stream listens or connects (default 5200, range 1024–65535).

Latency (Milliseconds)
Slider control with numeric value setting buffer delay for packet recovery and network jitter compensation (typical range 20–8000ms, shown: 80ms).

Encryption
Toggle between DISABLED (unencrypted stream) and ENABLE (AES-encrypted transmission for secure delivery).

PassPhrase
Password input field with show/hide toggle for AES encryption key (10–79 characters, required when encryption enabled).

Stream ID
Text input field for custom SRT stream identifier used for routing and authentication on SRT servers.

Connection URL
Auto-generated read-only field displaying complete SRT connection string with all parameters (format: srt://ip:port?mode=caller&latency=80&streamid=ch1) – includes copy button for easy sharing.

APPLY
Saves and activates SRT streaming configuration.

RTSP CONFIGURATION FIELDS

RTSP
Activate / Deactivate RTSP (RTSP – Real-Time Streaming Protocol).

Stream Name
Text input field for custom RTSP stream path identifier (default: live/av0, appears after rtsp://ip:port/ in URL).

Port
Numeric input field for TCP port number where RTSP stream is accessible (default 554, standard RTSP port, range 1024–65535).

Authentication
Toggle between DISABLED (open access without credentials) and ENABLE (requires username/password for stream access).

Connection URL
Auto-generated read-only field displaying complete RTSP playback address (format: rtsp://camera-ip:port/stream-name) – includes copy button for easy sharing with media players or video management systems.

APPLY
Saves and activates RTSP streaming configuration.

RTMP CONFIGURATION SECTION

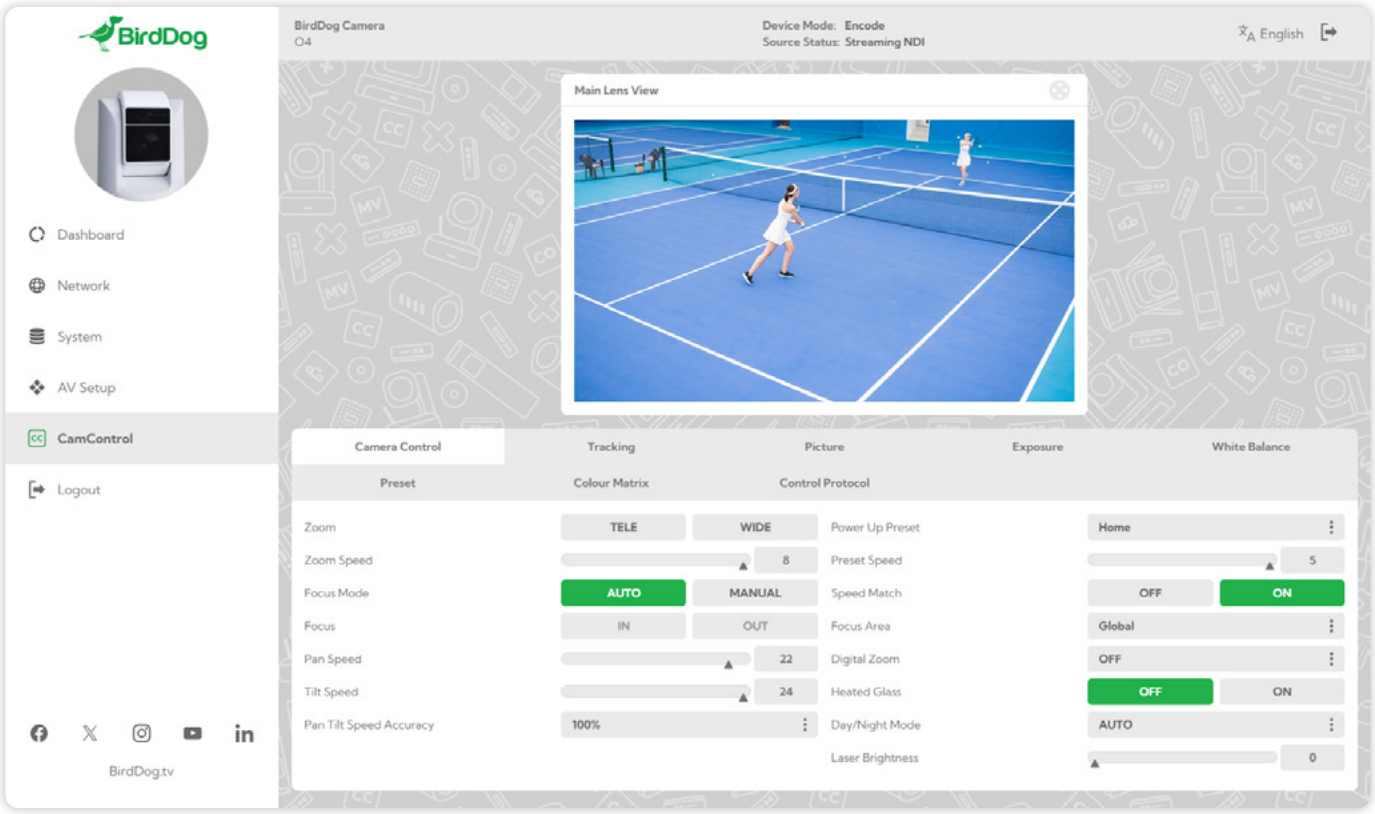
RTMP
Activate / Deactivate RTMP (RTSP – Real-Time Messaging Protocol).

Server URL
Text input field for RTMP ingest endpoint (format: rtmp://a.rtmp.youtube.com/live2 or rtmps://server.domain/application).

Server Key
Text input field for stream key or authentication token required by RTMP server (platform-specific, provided by streaming service).

APPLY
Saves and activates RTMP streaming configuration.

CAMCONTROL TAB



In the CamControl tab you will find all of your image settings and PTZ control.

LIVE PREVIEW PANELS

Main Lens View
Real-time preview window displaying main PTZ camera output.

Show / Hide PT Control
On the Main Lens View preview, click on the top right icon to activate webUI PT controls.

CAMCONTROL TAB NAVIGATION

Camera Control
Primary tab for PTZ movement, zoom, focus, and other settings.

Tracking
Tab for auto-tracking configuration and target following settings.

Picture
Tab for picture quality adjustments (brightness, contrast, saturation, sharpness, etc.).

Exposure
Tab for exposure control settings (iris, gain, shutter speed, exposure compensation).

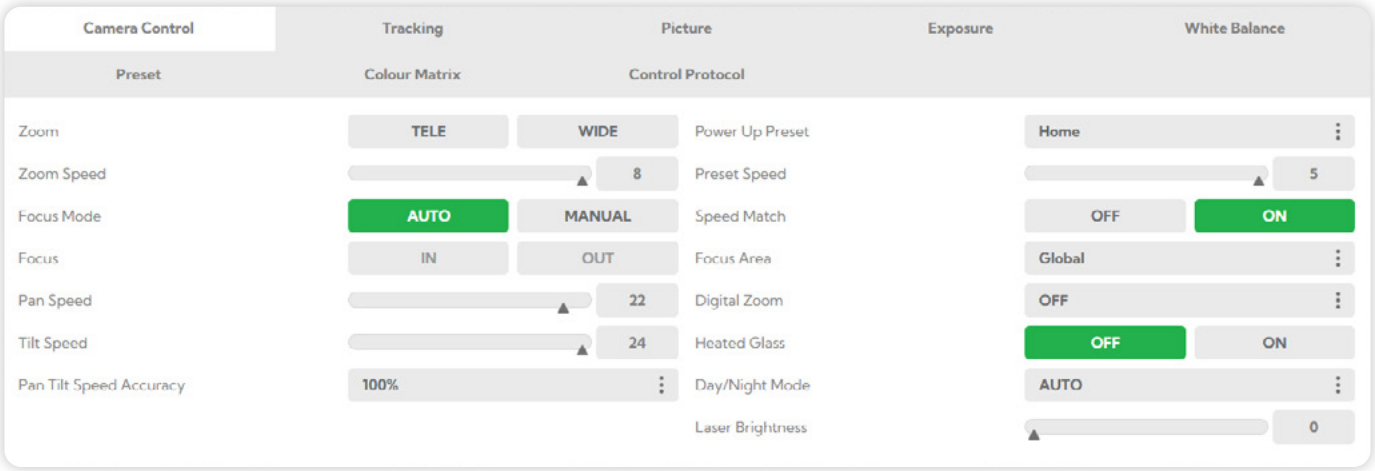
White Balance
Tab for color temperature and white balance configuration.

Preset
Sub-section for saving and recalling camera position presets, as well as Camera ISP preset styles (Sony, Blackmagic, Panasonic).

Colour Matrix
Sub-section for advanced color science adjustments.

Control Protocol
Sub-section for selecting camera control protocol (VISCA, Pelco, etc.).

CAMERA CONTROL TAB



ZOOM CONTROLS

Zoom (TELE/WIDE)
Toggle buttons for zoom direction control: TELE (telephoto) zooms IN WIDE zooms OUT.

Zoom Speed
Slider control with numeric value (1–8) adjusting how quickly the camera zooms in or out.

FOCUS CONTROLS

Focus Mode
Toggle between AUTO (camera automatically maintains focus) and MANUAL (user controls focus manually).

Focus (IN/OUT)
Toggle buttons for manual focus adjustment: IN focuses closer to camera, OUT focuses farther from camera (active only in MANUAL mode).

MOVEMENT SPEED CONTROLS

Pan Speed
Slider control with numeric value (1–24) setting horizontal pan movement speed for camera rotation.

Tilt Speed
Slider control with numeric value (1–24) setting vertical tilt movement speed for camera angle adjustment.

Pan Tilt Speed Accuracy
Percentage indicator (100%) displaying calibration precision of pan/tilt speed settings, with dropdown menu for 10% and 1% speed multiplier to drastically slow down control for precision movements.

POSITION AND PRESET CONTROLS

Power Up
Dropdown selector defining camera behavior on power-on (options: return to home, specific preset 1-9).

Preset Speed
Slider control with numeric value (1-5) determining movement speed when recalling saved camera positions.

Speed Match
Toggle between OFF and ON to choose whether the PTZ scales the PT speed with how far you are zoomed in. When ON is selected, the PTZ PT will slow down according to how far you are zoomed in for smoother control.

MISCELLANEOUS

Focus Area
Dropdown selector (Global/Center/Foreground/Up/Down) specifying which screen region has autofocus priority.

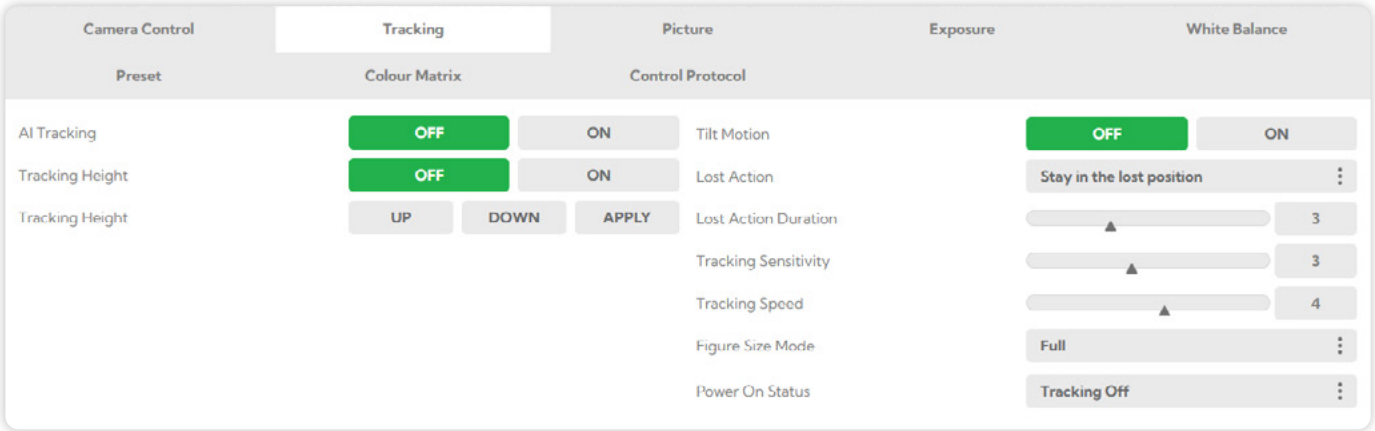
Digital Zoom
Toggle between OFF and ON to enable up to 8x Digital Zoom at the top of the Optical zoom range.

Heated Glass
Toggle between OFF and ON to turn on/off the defogging heating function.

Day/Night Mode
Toggle between AUTO, DAY MODE and NIGHT MODE.

Laser Brightness
Adjust Laser Brightness from 0 (OFF) to 255.

TRACKING SETTINGS



AI Tracking
Master toggle between OFF and ON to enable/disable auto tracking.

Tracking Height
Enables setting a specific target framing height for the middle of a detected face/body.

Tracking Height Adjustment
Press Up or Down to adjust the on-screen target framing, press Apply to enable.

TRACKING BEHAVIOR SETTINGS

Tilt Motion
Toggle berween OFF and ON to enable or disable vertical movement when tracking subjects walking on a stage.

Lost Action
Dropdown selector defining camera behavior when tracked subject is lost (Move to PTZ Home, Preset 0, 1, or stay in lost position).

Lost Action Duration
Range slider selector with time delay from 1 to 7 seconds before executing lost action.

Tracking Sensitivity
Range slider selector (0–7) adjusting how quickly camera responds to subject movement, Medium balances responsiveness with stability.

Tracking Speed
Range slider selector (0–7) controlling pan/tilt speed during active tracking.

Figure Size Mode
Dropdown selector defining how much frame space the tracked subject occupies during AI tracking:

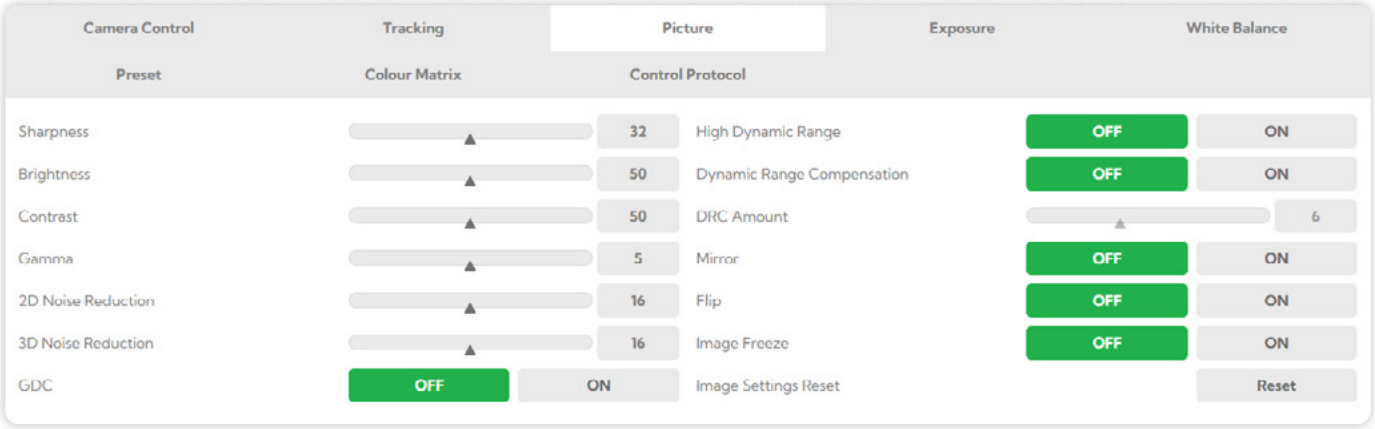
Full
Frames the entire subject from head to toe with minimal additional space.

Half Body
Frames subject from waist up, providing tighter framing for presentation scenarios.

CloseUp
Tight framing focused on head and shoulders, ideal for interview or keynote speaking situations.

Power On Status
Toggle between Tracking OFF and Tracking ON to be enabled when the camera powers up.

PICTURE TAB



Sharpness
Slider control with numeric value (0–64, default:40) adjusting edge definition and detail enhancement in the image.

Brightness
Slider control with numeric value (0–100, default: 51) adjusting overall image luminance level without affecting exposure settings.

Contrast
Slider control with numeric value (0–100, default: 50) adjusting the difference between light and dark areas of the image.

Gamma
Slider control with numeric value adjusting midtone brightness response curve range (0–6 default: 2).

2DNR (2D Noise Reduction)
Slider control with numeric value (0–32, default: 24) setting 2D spatial noise reduction strength for cleaner images in low light. 2DNR processes each frame independently, making it faster than 3DNR but less effective at eliminating temporal noise like video grain or compression artifacts.

Best for: Fast-moving content, sports, dynamic scenes where motion clarity is critical.

3DNR (3D Noise Reduction)
Slider control with numeric value (0–32, default: 24) setting 3D temporal noise reduction strength combining multiple frames for superior noise reduction. Higher values produce exceptionally clean, broadcast-quality video but may introduce motion blur, ghosting artifacts, or "trailing" effects on fast-moving subjects. Lower values preserve motion sharpness and responsiveness but retain more visible noise.

Best for: Static or slow-moving scenes, interviews, presentations, controlled environments.

GDC (Global Distortion Correction)
to adjust the lens correction algorithm. Turning on will reduce lend 'barrel' effect, while leaving off will slightly

increase the cameras field of view.

High Dynamic Range (HDR)
Toggle between OFF and ON to enable shadow/highlight recovery for high-contrast scenes.
This is achieved by exposing the same frame twice in the camera head. As such the maximum video frame rate is 30fps with HDR Enabled.

Dynamic Range Compression (DRC)
Toggle between OFF and ON to enable shadow/highlight recovery for high-contrast scenes.

DRC Amount
Slider control with numeric value (0–16, default: 2) adjusting intensity of dynamic range compression when DRC is enabled.

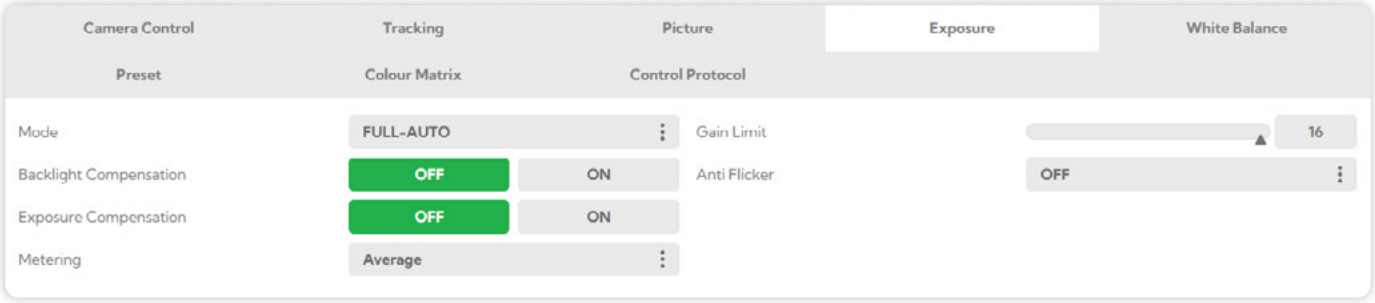
Mirror
Toggle between OFF and ON to horizontally flip the image (left becomes right, right becomes left).

Flip
Toggle between OFF and ON to vertically flip the image (upside down).

Image Freeze
Toggle between OFF and ON to freeze current frame on output (useful for troubleshooting or holding a static image).

Image Settings Reset
Button to restore all image parameters to factory default values.

EXPOSURE TAB



Mode

Dropdown selector for exposure control mode determining how the camera manages light sensitivity:

- **Full-Auto**
  Fully automatic exposure with camera controlling gain, shutter, and iris simultaneously for optimal brightness.
- **Manual**
  Complete manual control over all exposure parameters (gain, shutter speed, iris). Note: Disables backlight and exposure comp and metering.
- **Shutter Priority**
  User sets shutter speed, camera automatically adjusts gain and iris to maintain proper exposure. Note: Disables backlight and exposure comp and metering.
- **Iris Priority**
  User sets iris/aperture, camera automatically adjusts gain and shutter to maintain proper exposure. Note: Disables backlight and exposure comp and metering.
- **Bright**
  Automatic mode optimized for well-lit environments, prioritizing faster shutter speeds and lower gain. Allows user to just adjust the Brightness setting to set image exposure.

Backlight Comp.
Toggle between OFF and ON to enable backlight compensation, brightening subjects that are silhouetted against bright backgrounds.

Exposure Comp.
Toggle between OFF and ON to enable manual exposure compensation adjustment.

Exposure Comp. Level
Slider control with numeric value (-32 to +32, default: 0) for fine-tuning overall exposure brightness when Exposure Comp is enabled, positive values brighten the image, negative values darken it.

Metering
Dropdown selector for exposure metering pattern determining which area of the frame the camera analyzes to calculate proper exposure:

- **Average**
  Evaluates light across the entire frame with equal weighting for balanced overall exposure

- **Center**
  Prioritizes the center portion of the frame for exposure calculation, ideal for centered subjects
- **Top**
  Meters primarily from the upper portion of the frame
- **Bottom**
  Meters primarily from the lower portion of the frame
- **Left**
  Meters primarily from the left side of the frame
- **Right**
  Meters primarily from the right side of the frame

GAIN (ISO SENSITIVITY) CONTROLS

Gain
Slider control with numeric value (1–27 dB, default: 3) adjusting sensor gain/ISO sensitivity, higher values brighten the image in low light but increase noise.

Gain Limit
Slider control with numeric value (1–14, default: 9) setting maximum allowable automatic gain in auto exposure modes to prevent excessive noise.

SHUTTER SPEED CONTROLS

Shutter Speed
Dropdown selector for shutter speed/exposure time (1/25,1/60, 1/120, 1/4000, etc.) controlling motion blur and light capture duration, shown as fractional seconds.

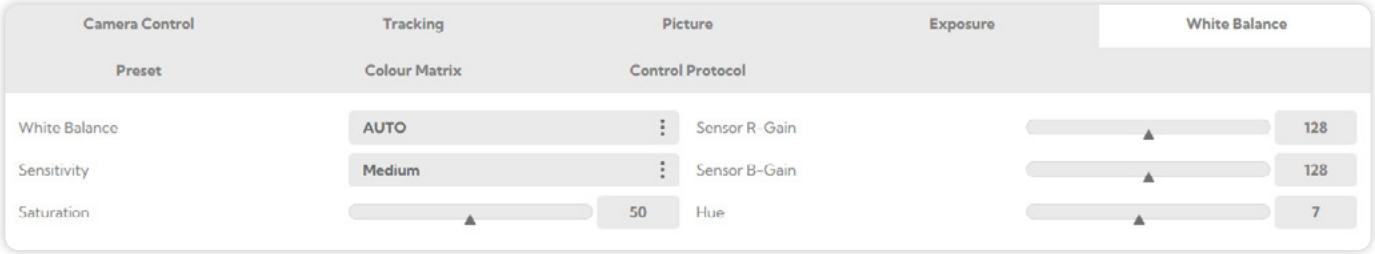
IRIS (APERTURE) CONTROLS

Iris
Dropdown selector showing current f-stop value (F1.6, F2.4, F2.8, F4.0, F5.6, F8.0, F11, F14, etc.) controlling lens aperture opening and depth of field.

Brightness
Slider control with numeric value (0–27, default: 15) for digital brightness boost independent of exposure settings, useful for fine-tuning image luminance without affecting camera exposure parameters in Bright exposure mode.

Anti Flicker
Dropdown selector (OFF/50Hz/60Hz) to synchronize shutter speed with AC power line frequency, eliminating visible flicker from artificial lighting in video.

WHITE BALANCE TAB



WHITE BALANCE MODE CONTROL

White Balance
Dropdown selector for color temperature correction mode determining how the camera adjusts color balance:

AUTO
Continuous automatic white balance tracking that adapts to changing lighting conditions in real-time.

MANUAL
User-defined custom white balance using manual RGB gain adjustments for precise color control.

INDOOR
Preset optimized for tungsten/incandescent lighting (approximately 3200K).

OUTDOOR
Preset optimized for daylight conditions (approximately 5600K).

STATIC
Allows for Kelvin Color Temp adjustment.

One Push WB
Semi-automatic mode that sets white balance based on a reference white object when triggered.

WHITE BALANCE ADJUSTMENT CONTROLS

R-Gain
Slider control with numeric value (0-255, default: 64) for manual red channel gain adjustment, increasing values adds warmth/red cast to the image.

G-Gain
Slider control with numeric value (0-255, default: 64) for manual green channel gain adjustment, affecting green color balance.

B-Gain
Slider control with numeric value (0-255, default: 64) for manual blue channel gain adjustment, increasing

values adds coolness/blue cast to the image.

Sensitivity
Dropdown selector (Low/Medium/High) controlling how aggressively AUTO white balance mode responds to color temperature changes, Medium provides balanced responsiveness.

INDIVIDUAL SENSOR R/B GAIN CONTROLS (AUTO ONLY)

These are **hardware-level color channel gain adjustments** that operate at the image sensor level, before any digital signal processing occurs. They provide the most fundamental level of color correction in the camera's imaging pipeline.

These controls are typically adjusted during initial camera setup or calibration rather than on a per-scene basis, as they affect the fundamental color character of the entire imaging system.

Sensor R-Gain
Slider control with numeric value (0-255, default: 128) for hardware-level red channel gain adjustment at the sensor level.

Sensor B-Gain
Slider control with numeric value (0-255, default: 128) for hardware-level blue channel gain adjustment at the sensor level.

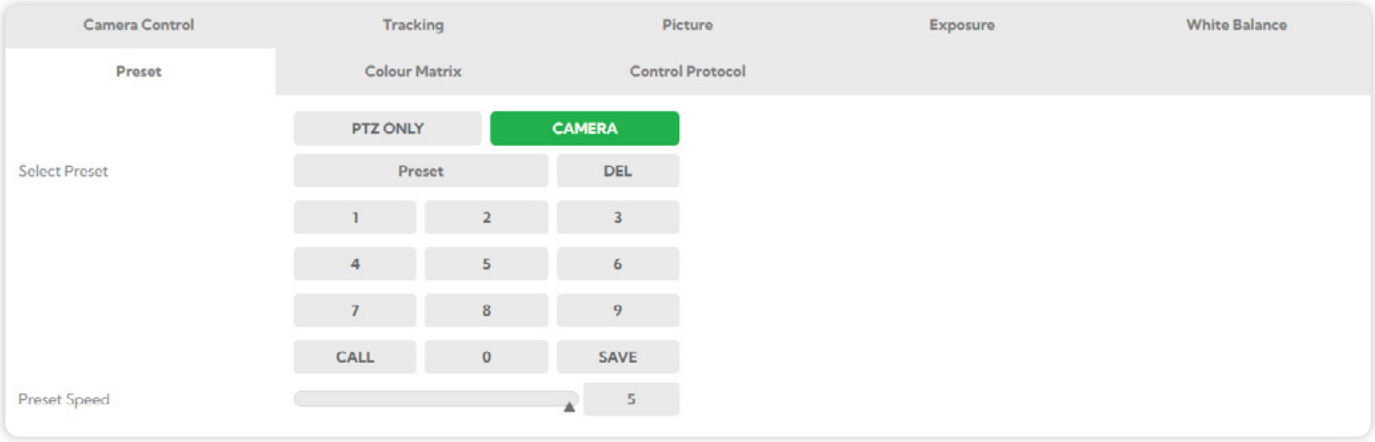
COLOR FINE-TUNING

Hue
Slider control with numeric value (1 to 14, default: 7) for global hue rotation, shifting overall color palette toward warmer (lower number) or cooler (higher number) tones.

Color TEMP
Slider control with numeric value (2600-7400K, default: 5000) for precise color temperature selection in Kelvin when using STATIC white balance mode.

One Push WB
Button to trigger one-time white balance calibration when pointing camera at a white or neutral gray reference surface (18% gray card or white balance card).

PRESET TAB



PTZ ONLY
Toggle button to set presets to store only Pan/Tilt/Zoom position data.

CAMERA
Toggle button to set presets to store complete camera state including PTZ position plus all image settings (exposure, white balance, focus, etc.).

PRESET MANAGEMENT INTERFACE

Select Preset
Label indicating the preset number selection area.

Preset
Text field or dropdown showing currently selected preset number for operations.

DEL
Button to delete the currently selected preset from memory.

PRESET NUMBER PAD

To set a preset type the number you want, then click ‘save’ .

To call a preset type the number you want, then click ‘call’.

To overwrite simply click save over the preset number again.

1-9
Numeric buttons for selecting preset numbers 1 through 9 for save, recall, or delete operations.

CALL
Button to recall/execute the selected preset, moving the camera to the stored position (and settings if CAMERA mode is active).

SAVE
Button to store current camera position (and settings if CAMERA mode is active) to the selected preset number.

PRESET SPEED CONTROL

Preset Speed
Slider control with numeric value (1–5) setting the movement speed when recalling presets, lower values produce slower, smoother transitions while higher values enable faster repositioning.

COLOUR MATRIX TAB



To set slider back to default state, simply double click the slider.

Saturation
The Color Matrix features 200 levels of adjustment of Hue across six color sections, Red, Green, Blue, Cyan, Magenta and Yellow, and allows individual fine-tuning of each of these without affecting the response of other color components.

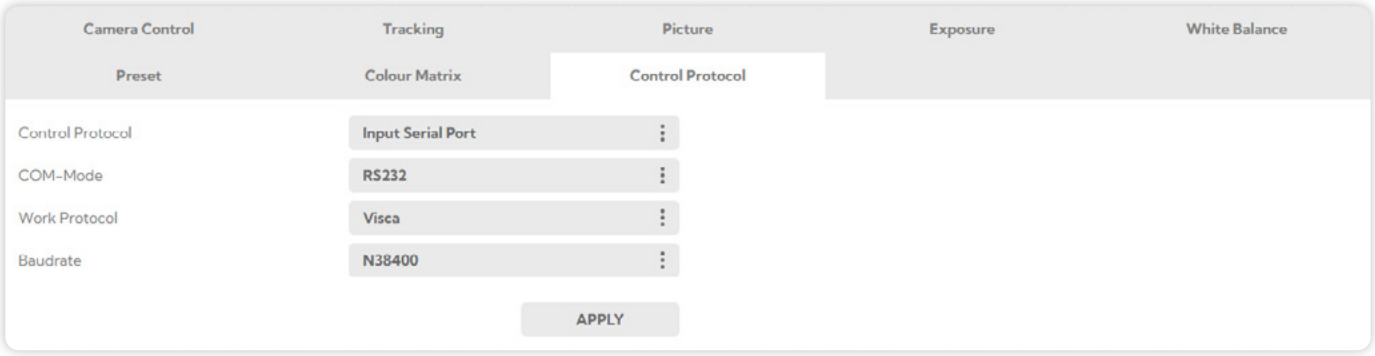
Saturation
The Color Matrix features 200 levels of adjustment of Saturation (Intensity) across six color sections, Red,

Green, Blue, Cyan, Magenta and Yellow, and allows individual fine-tuning of each of these without affecting the response of other color components.

The Colour Matrix provides professional-grade six-vector color correction, allowing independent adjustment of each primary (Red, Green, Blue) and secondary (Cyan, Magenta, Yellow) color in the image. This enables precise color grading for:

- Matching multiple cameras in multi-camera productions.
- Correcting color casts from specific lighting conditions.
- Creative color styling without affecting overall white balance.
- Fine-tuning skin tones by adjusting red/yellow/magenta independently.
- Enhancing or suppressing specific colors (e.g., grass, sky, wardrobe) for broadcast standards or aesthetic preferences.

CONTROL PROTOCOL TAB



SERIAL CONTROL PROTOCOL CONFIGURATION

Input Serial Port
Dropdown selector for physical serial connection type used for camera control commands.

COM-Mode
Dropdown selector (RS232/RS422) defining serial communication standard and wiring configuration.

Work Protocol
Dropdown selector (Visca/Pelco-P/Pelco-D/FreeD) choosing camera control protocol language.

Baudrate
Dropdown selector (2400/4800/960038400) setting serial communication speed in bits per second.

APPLY
Saves and implements control protocol configuration changes.

VISCA PROTOCOL CONFIGURATION

VISCA GENERAL CONFIG

VISCA Address
Numeric input field (1–7, shown: 1) setting camera address on VISCA daisy chain, allowing up to 7 cameras on single serial connection.

VISCA OVER IP

Enable
Toggle between OFF and ON to activate VISCA over IP network control.

Port
Numeric input field (default 52381) specifying UDP port for VISCA over IP commands
Visca Passthrough.

Enable
Toggle between OFF and ON to activate VISCA command passthrough/forwarding to downstream devices.

Protocol
Dropdown selector (TCP/UDP) choosing network transport protocol for passthrough connections.

Work Mode
Server/Client IP address input field (shown: 192.168.1.155) specifying destination server or Client for forwarded VISCA commands.

Port
Numeric input field (default 52381) specifying destination port for forwarded VISCA commands

APPLY
Saves and implements VISCA protocol settings.

PELCO-P/D PROTOCOL CONFIGURATION

PelcoP Address
Numeric input field (1–255, default: 1) setting camera address for Pelco-P protocol communication.

PelcoD Address
Numeric input field (1–255, default: 1) setting camera address for Pelco-D protocol communication.

APPLY
Saves and implements Pelco protocol address settings.

FREED PROTOCOL CONFIGURATION

FreeD
Toggle between OFF and ON to enable FreeD camera tracking data output protocol.

Camera ID
Numeric input field (0–255, default: 1) setting unique FreeD camera identifier for virtual production and tracking systems.

IP Address
IP address input field (shown: 192.168.1.181) specifying destination for FreeD tracking data packets.

Port
Numeric input field (default 40000) specifying UDP port for FreeD data transmission.

APPLY
Saves and implements FreeD protocol settings.

TROUBLESHOOTING

IMAGE

The monitor shows no image.

1. Ensure that the camera power supply is connected, the voltage is normal, and the power indicator is always on.
2. Turn off the power switch to check that the camera is self-testing.
3. Ensure the cable of video platform and TV that in correct connection.

Image jitters after the camera is properly connected.

1. Ensure that the camera installation is in stable position.
2. Check that any vibrating machinery or object near the camera.

There is no video image in browser.

It is recommended to use a modern Internet browser such as Google Chrome, Firefox, or Safari to interact successfully with the camera. Other browsers may have unexpected issues.

Unable to access camera through the browser

1. Using PC to access the network, test that other network tasks like internet browsing are working correctly.
2. Reset the network connectors at the camera and your computer, and reboot your camera
3. Ensure that the IP address, subnet mask and gateway settings match your network configuration.
4. Check that there are no IP address conflicts.

Forgotten IP address or login password

The default IP address is: 192.168.100.100; The default password is: 'birddog'. If you forget the camera IP address or password, please reach out to support at help@birddog.tv

CONTROL

Cannot control camera over the serial port

1. Ensure that the protocol, address and bit rate of the camera are consistent.
2. Ensure that the control cable is properly connected.

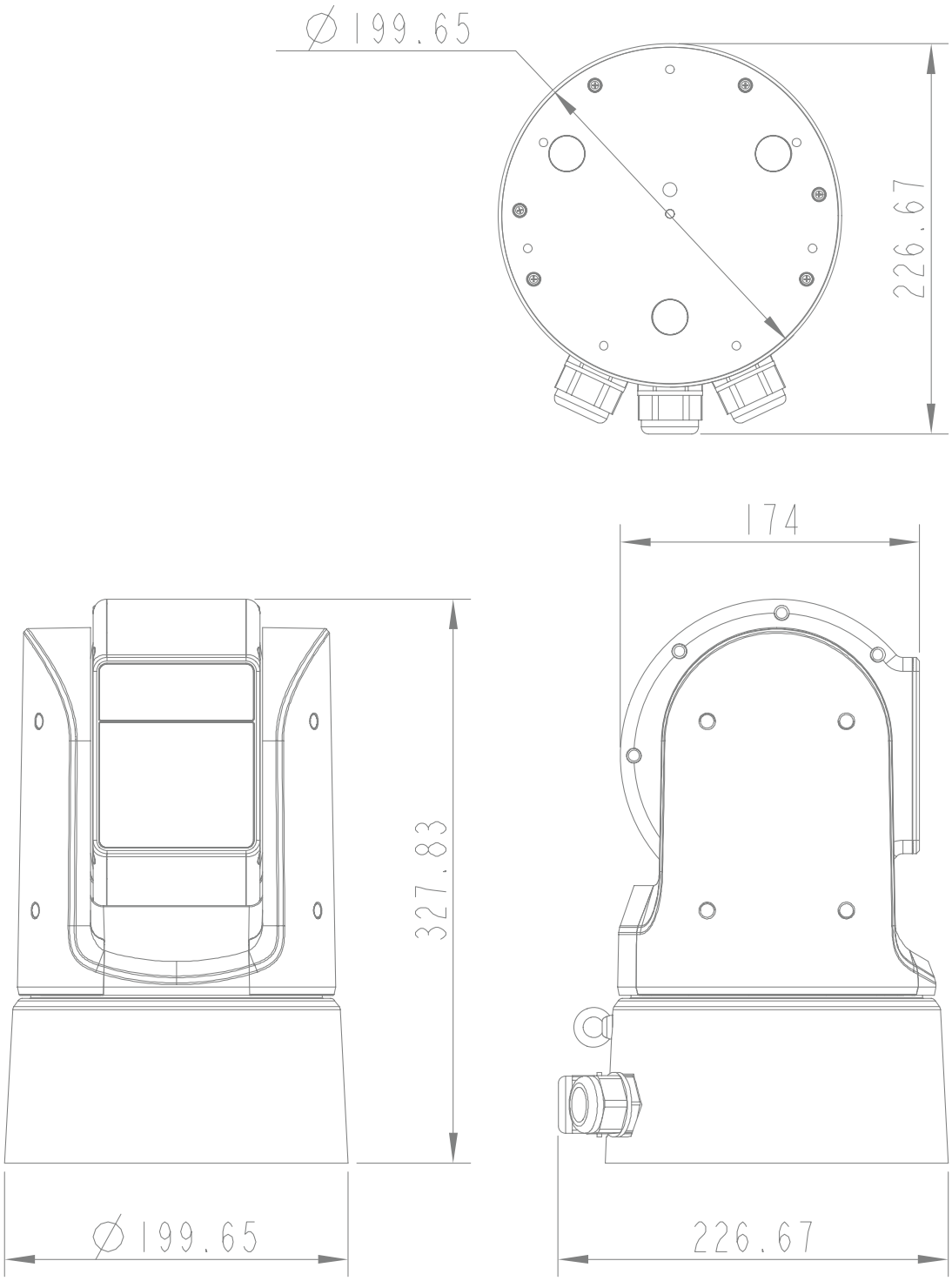
WARRANTY

1 Year Warranty

BirdDog O4 camera features a 1 year, global warranty. BirdDog prides itself on delivering the best possible products to customers, but if something was to go wrong, you can rest assured knowing that no matter where in the world you are, BirdDog has your back.

Read more at BirdDog.tv/warranty-terms

CAMERA DIMENSIONS





BirdDog.tv