


# PTZOptics SuperJoy

Product Manual

# SuperJoy G1 Manual




- Features
- Getting Started
- Power
- Connections
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- OSD
- Using the Web UI
- Networking
- Presets
- Firmware

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# SuperJoy G1 Getting Started

Use the guides below to power your SuperJoy controller, configure camera control, connect to your network, and update firmware.

POWER | PRESETS | NETWORKING | FIRMWARE

## Part Number

PT-SUPERJOY-G1

## Packing List

- PT-SUPERJOY-G1
- 12V 2A International Power Supply
- RS-232C / DB9 female to 8-pin
- Mini-din male cable
- Quick Start Guide
- Grounding Pin

# Features

**Hive Studio Integration:** Control Hive Studio. Achieve far-end camera control through a Hive Studio connection. Adjust & configure camera settings, and operate your cameras remotely from anywhere in the world with a Hive Studio connection using the SuperJoy.

**HTTP Authentication & Password Protection:** Define a custom password and enable basic HTTP authentication as an added measure of security.

**Custom Buttons:** Assign, save, or import custom commands to 10 customizable buttons—ability to save, export, and load custom setups onto the Superjoy. Custom buttons 1 through 6 can also be triggered through the web interface.

**Multiple Control Modes:** Basic Mode: Basic Mode allows you to disable most of the capabilities of the SuperJoy and limit the control to the joystick and/or calling presets. With this mode enabled, the button backlights on the joystick will illuminate only the buttons the operator needs

**Matrix Mode:** Matrix Mode allows you to disable most of the SuperJoy's capabilities and limit the controls to calling presets 1-3 of cameras 1-3. The illuminated buttons on the joystick will be the only buttons available while in matrix mode. Lock specific settings to prevent users from accessing them. Ideal for new users or volunteers.

**Camera Presets:** Save as many presets as your camera allows.

**Firmware Updates:** Let's you update the joystick’s firmware directly from the joystick itself. Firmware is the low-level software that controls the hardware of your joystick. Being able to update it directly on the joystick simplifies the process and ensures you can easily have the latest features and bug fixes.

**Simple Network Discovery:** Trouble-free discovery of any connected PTZOptics joystick on your network. PTZOptics joysticks can be found by entering `http://ptzoptics.local` into any web browser. You can then change your joystick’s IP address or set a custom ID. For example, you could set your joystick’s ID to “myjoystick.local”. Enter that into a web browser and you’re there.

**PTZ, Focus, and Preset Speed Adjustment Buttons:** Let you quickly adjust the camera settings without the need to enter the camera's on-screen display or Web UI.

**HDMI 1.3:** RTSP Decoder with HDMI Preview Output up to 1080p

**Camera OSD Control:** Control and operate any PTZOptics camera's on-screen display menu.

**Multiple Control Options:** Controllable cameras via network connection, RS-232, and RS-485.

# Power

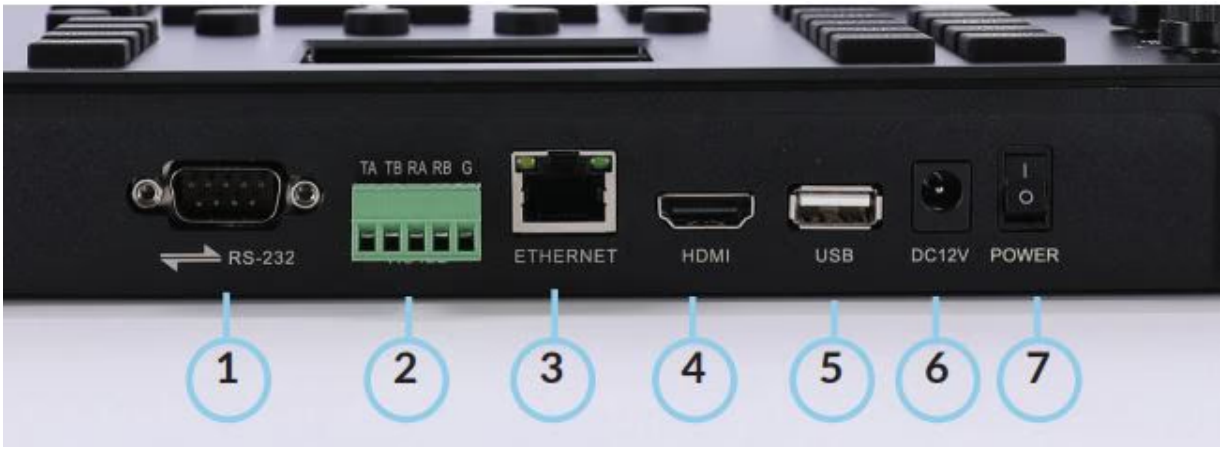
The **SuperJoy G1** can be powered using the included **power supply** or **Power over Ethernet**. Please make sure all connections are secure when using either method.

> **NOTE**
>
> Power over Ethernet, or PoE, provides power and network connection. To power your joystick over Ethernet, you will need a PoE source that supports PoE (802.3af). We recommend connecting your joystick to the switch for peak performance using Cat 6 cabling or better. See the example of a power over Ethernet connection below.

## Device Powering Options

| Product | Power Supply | Power Consumption | Power Over Ethernet Type |
|---|---|---|---|
| Move 4K | JEITA type (DC IN 12V) | Max 2.0A | PoE+ (802.3at) |
| Move SE | JEITA type (DC IN 12V) | Max 2.0A | PoE (802.3af) |
| Link 4K | JEITA type (DC IN 12V) | Max 2.0A | PoE+ (802.3at) |
| Studio Pro | JEITA type (DC IN 12V) | Max 2.0A | PoE (802.3af) |
| Studio 4K | JEITA type (DC IN 12V) | Max 2.0A | PoE (802.3at) |
| Studio SE | JEITA type (DC IN 12V) | Max 2.0A | PoE (802.3at) |
| SimplTrack3 | JEITA type (DC IN 12V) | Max 1.0A | PoE (802.3af) |
| PT-SUPERJOY-G1 | JEITA type (DC IN 12V) | Max 0.5A | PoE (802.3af) |
| PT-JOY-G4 | JEITA type (DC IN 12V) | Max 0.5A | PoE (802.3af) |

# Connections




## SuperJoy Connection List

1. RS-232 Output
2. RS-485 Interface
3. LAN
4. HDMI Display Output
5. USB Service Port
6. DC 12V Power
7. Power Switch

## Connect a Network Joystick

PTZOptics joysticks can control the Move 4K over the network using **VISCA over IP**, giving you physical joystick control without serial cables.

### Network: What You Need

- A PTZOptics joystick (PT-SUPERJOY-G1 or PT-JOY-G4)
- Camera and joystick on the same network
- Camera's IP address

## Network: Steps

1. **Connect the joystick** to your network via Ethernet.
2. **Power on the joystick** and wait for it to boot.
3. **Configure the joystick** with the camera's connection details:
   - Enter the camera's **IP address**.
   - Set the port to **5678** (TCP) or **1259** (UDP).
   - Set the protocol to **VISCA over IP**.
4. **Test control:** use the joystick to pan, tilt, and zoom the camera.

> **TIP**
>
> For multi-camera setups, assign each camera a unique address and configure the joystick to switch between them. The SuperJoy supports managing multiple cameras from a single interface.

This camera supports **RS232** and **RS485** serial control for direct, wired connection to PTZ joysticks, control systems, and automation platforms. This page walks you through connecting each type, explains when to choose one over the other, and provides full pin-out and parameter reference tables.

> **IMPORTANT**
>
> Control connections can be made while the camera is powered on, but we recommend making all connections **before** powering on for proper detection.

# When to Use RS232 vs RS485

Both **RS232** and **RS485** provide direct, wired control of a camera without requiring a network connection. They commonly support the same control protocols, such as VISCA, Pelco-D, and Pelco-P. The choice between them comes down to three factors: **distance, number of cameras, and installation environment.**

- **RS232** is the simpler option for small installations. It's primarily designed for a **point-to-point connection** between one controller and one camera, although PTZ cameras support daisy-chaining multiple cameras using their RS232 input and output ports. It works well when the controller is located near the camera, typically within about 98 ft (30 m). Because RS232 uses single-ended signaling, it is more susceptible to electrical noise over longer cable runs. For short distances, however, it provides reliable, straightforward control and remains a common option for single-camera systems.

- **RS485** is the better choice when you need to cover longer distances or control multiple cameras. It uses differential signaling, which transmits data as the voltage difference between two wires instead of referencing a single wire to ground. This makes RS485 much more resistant to electrical noise and interference, making it well suited for large venues, houses of worship, campus buildings, and industrial environments. RS485 supports cable runs of up to 3,937 ft (1,200 m) and allows **multi-drop configurations**, where multiple cameras share the same communication bus. Each camera is assigned a unique address, allowing a single controller to communicate with each device over the same pair of wires.

> **TIP**
>
> Tip: For most modern networked installations, **VISCA over IP** offers greater flexibility and eliminates many of the distance limitations of serial control. RS232 and RS485 remain valuable when working with legacy control systems, dedicated hardware controllers, or installations where network control isn't available.

# Connect RS232 to a Controller

RS232 provides a direct, point-to-point wired connection between your controller and the camera. No network configuration is needed.

## RS232: What You Need

- **RS232 cable** with **8-pin Mini DIN** connectors
- A **controller or joystick** that supports VISCA, Pelco-D, or Pelco-P
- **12V DC power supply** (included) or **PoE+ switch/injector** (RS232 does not provide power)

## Step 1: Connect the RS232 Cable

1. Connect an RS232 cable (8-pin Mini DIN) from your controller's **RS232 output** to the camera's **RS232 Input** port.
2. For daisy-chaining multiple cameras: connect the camera's **RS232 Output** to the next camera's **RS232 Input**.

> **WARNING**

RS232 pinouts vary between manufacturers. If your controller's pinout differs from the camera's, you may need a **null modem adapter** or a **custom cable**. See the RS232 Pin-Out Reference below for the Move 4K's pin assignments.

## RS232 Step 2: Power the Camera

Power the camera using one of the following methods:

- **12V DC**: Connect the included 12V DC adapter to the camera's DC input.
- **PoE+ (802.3at)**: Connect the camera's LAN port to a PoE+ switch or injector.

## RS232 Step 3: Configure Your Controller

1. Set your controller to match the camera's protocol: **VISCA** (default), **Pelco-D**, or **Pelco-P**.
2. Set the baud rate to match the camera (default: **9600**).
3. Assign each camera a unique address (default: **1**).

**TIP**

To change the camera's protocol from the IR remote, press **[Menu]**, navigate to **Communication Setup**, and select your protocol.

## RS232 Step 4: Test Control

Use your controller to pan, tilt, and zoom the camera. If the camera doesn't respond:

- Verify the RS232 cable is connected to the correct port (**Input**, not Output).
- Verify the protocol and baud rate match between controller and camera.
- Verify each camera in a daisy chain has a **unique address**.

# Connect RS485 to a Controller

RS485 supports long-distance cable runs and multi-drop configurations where multiple cameras share a single communication bus.

## RS485: What You Need

- **Twisted-pair cable** (Cat5e, Cat6, or dedicated RS485 cable) with **Phoenix connector** (terminal block)
- A **controller, joystick, or automation system** that supports VISCA, Pelco-D, or Pelco-P
- **12V DC power supply** (included) or **PoE+ switch/injector** (RS485 does not provide power)

## Step 1: Connect the RS485 Cable

1. Connect the **positive (red)** wire to the camera's **positive** Phoenix connector port (on the left).
2. Connect the **negative (black)** wire to the camera's **negative** Phoenix connector port (on the right).
3. Connect the positive and negative wires to the matching ports on your joystick controller.
4. For multi-drop: daisy-chain from the first camera's RS485 output to the next camera's RS485 input.

## RS485 Step 2: Power the Camera

Power the camera using one of the following methods:

- **12V DC**: Connect the included 12V DC adapter to the camera's DC input.
- **PoE+ (802.3at)**: Connect the camera's LAN port to a PoE+ switch or injector.

## RS485 Step 3: Configure Your Controller

1. Set your controller to match the camera's protocol: **VISCA** (default), **Pelco-D**, or **Pelco-P**.
2. Set the baud rate to match the camera (default: **9600**).
3. Assign each camera a **unique address**.

## RS485 Step 4: Test Control

Use your controller to pan, tilt, and zoom each camera. If a camera doesn't respond:

- Verify the twisted-pair cable is connected with the correct **polarity** (+ and -).
- Verify the protocol and baud rate match.
- Verify each camera has a **unique address**.

# Reference

## RS232 Pin-Out Reference

The Move 4K uses **8-pin Mini DIN** connectors for RS232. Pin assignments are as follows:

**RS232 Input Port (from Controller)**

| Pin | Signal | Description |
|---|---|---|
| 1 | DTR | Data Terminal Ready |
| 2 | DSR | Data Set Ready |
| 3 | TXD | Transmit Data |
| 4 | GND | Ground |
| 5 | GND | Ground |
| 6 | GND | Ground |
| 7 | IR Out | Infrared Output |
| 8 | NC | No Connection |

**RS232 Output Port (to Next Camera in Daisy Chain)**

| Pin | Signal | Description |
|---|---|---|
| 1 | DTR | Data Terminal Ready |
| 2 | DSR | Data Set Ready |
| 3 | TXD | Transmit Data |
| 4 | GND | Ground |
| 5 | GND | Ground |
| 6 | GND | Ground |

| Pin | Signal | Description |
|---|---|---|
| 7 | IR Out | Infrared Output |
| 8 | NC | No Connection |

> **NOTE**
>
> The RS232 Input and Output Mini DIN connectors use the same pin numbering and signal names for daisy-chain wiring.

## RS232 Communication Parameters

| Parameter | Value |
|---|---|
| **Baud Rate** | 2400, 4800, 9600 (default), 38400 |
| **Start Bit** | 1 |
| **Data Bits** | 8 |
| **Stop Bit** | 1 |
| **Parity** | None |

## RS485 Communication Parameters

| Parameter | Value |
|---|---|
| **Baud Rate** | 2400, 4800, 9600 (default), 38400 |
| **Start Bit** | 1 |
| **Data Bits** | 8 |
| **Stop Bit** | 1 |

| Parameter | Value |
|---|---|
| **Parity** | None |
| **Connector** | 2-pin Phoenix connector (terminal block) |
| **Max Cable Length** | ~3,937 ft (1,200 m) |

## Control Protocol Reference

| Protocol | Default | Address Range | Notes |
|---|---|---|---|
| **VISCA** | Yes (default) | 1–7 | Industry standard for PTZ cameras |
| **Pelco-D** | — | 0–254 | Common in security systems |
| **Pelco-P** | — | 0–31 | Older Pelco variant |

## Control Method Comparison

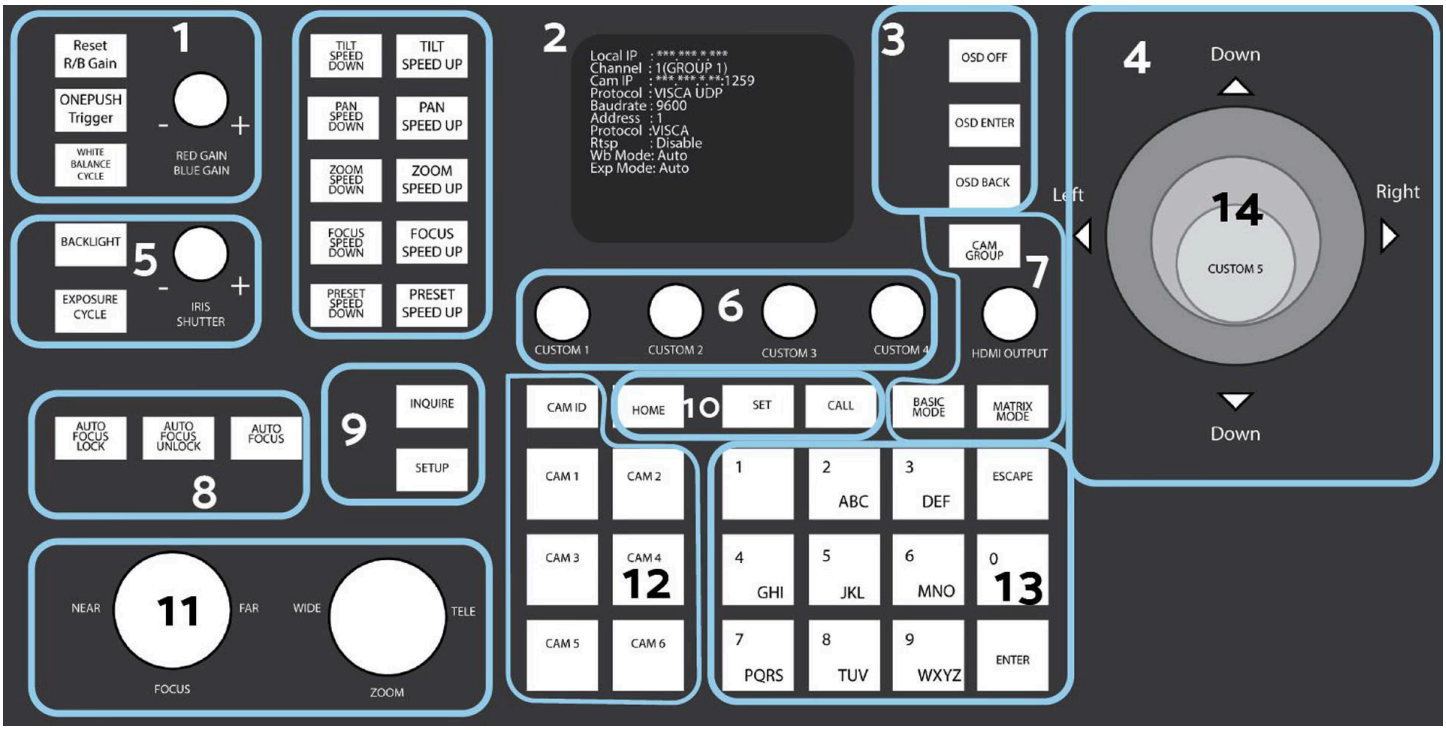
| Feature | RS232 | RS485 |
|---|---|---|
| **Max Distance** | ~98.5 ft (30 m) | ~3,937 ft (1,200 m) |
| **Connector** | 8-pin Mini DIN | 2-pin Phoenix (terminal block) |
| **Multi-Camera** | Daisy-chain | Multi-drop bus |
| **Signaling** | Single-ended | Differential (noise-resistant) |
| **Protocols** | VISCA, Pelco-D, Pelco-P | VISCA, Pelco-D, Pelco-P |
| **Provides Power** | No | No |

## Joystick Compatibility

| Joystick | Connection | Protocols |
| --- | --- | --- |
| **PT-SUPERJOY-G1** | Network (VISCA over IP) or RS232 | VISCA, ONVIF, NDI, Panasonic |
| **PT-JOY-G4** | Network (VISCA over IP) or RS232 | VISCA, ONVIF, Sony VISCA |

# Buttons

## Button Diagram




## SuperJoy-G1 Button Descriptions

| Number | Control | Number | Control |
|---|---|---|---|
| 1 | White Balance Control | 8 | Focus Mode Control |
| 2 | Speed Control | 9 | Controller Information |
| 3 | Camera OSD Control | 10 | Preset Control Buttons |
| 4 | Joystick Controller | 11 | Focus & Zoom Dials |
| 5 | Exposure Control | 12 | Camera Select Control |

| Number | Control | Number | Control |
|---|---|---|---|
| 6 | Custom Control Buttons | 13 | Alpha-Numeric Keypad |
| 7 | SuperJoy Unique | 14 | Custom Button Knob |

## White Balance Control

Allows you to adjust the white balance settings of the camera.

- **[RESET R/B GAIN] Button:** Press the [RESET R/B GAIN] button to reset the red & blue gain to default values.
- **[ONEPUSH TRIGGER] Button:** Press the [ONEPUSH TRIGGER] button to calibrate the white balance of the room.
- **[WHITE BALANCE CYCLE] Button:** Press the [WHITE BALANCE CYCLE] button to cycle through the White Balance Modes. Options include: Auto, Indoor, Outdoor, OnePush, & Manual.
- **[RED GAIN / BLUE GAIN] Knob:** The [RED GAIN / BLUE GAIN] knob can be used to adjust the red & blue gain values.

> **NOTE**
>
> Cameras must be in OnePush White Balance in order for the OnePush Trigger to function.

## Speed Control Buttons

- **[TILT SPEED UP / DOWN] Buttons:** Press the [TILT SPEED UP / DOWN] buttons to adjust the camera tilt speed.
- **[PAN SPEED UP / DOWN] Buttons:** Press the [PAN SPEED UP / DOWN] buttons to adjust the camera pan speed.
- **[ZOOM SPEED UP / DOWN] Buttons:** Press the [ZOOM SPEED UP / DOWN] buttons to adjust the camera zoom speed.
- **[FOCUS SPEED UP / DOWN] Buttons:** Press the [FOCUS SPEED UP / DOWN] buttons to adjust the camera focus speed.
- **[PRESET SPEED UP / DOWN] Buttons:** Press the [PRESET SPEED UP / DOWN] buttons to adjust the camera preset speed.

> **NOTE**
>
> Speed adjustments made via the joystick will be saved to the currently selected camera.

## Exposure Mode Controls

- **[BACKLIGHT] Button:** Press the [BACKLIGHT] button to toggle the camera's back light compensation.
- **[EXPOSURE CYCLE] Button:** Press the [EXPOSURE CYCLE] button to cycle through the Exposure Modes. Options include: Auto, Manual, Shutter Priority, Iris Priority, & Brightness Priority.
- **[IRIS / SHUTTER] Knob:** The [IRIS / SHUTTER] knob allows you to adjust the Iris and Shutter values of the camera.

## Joystick Controller

The joystick allows you to pan, tilt, and zoom (twist) the camera. The control speed is affected by the Speed Control dial.

## Exposure Control

The Exposure Control section allows you to adjust the exposure settings of the camera.

- **[BACKLIGHT] Button:** Press the [BACKLIGHT] button to toggle the camera's backlight compensation.
- **[EXPOSURE CYCLE] Button:** Press the [EXPOSURE CYCLE] button to cycle through the Exposure Modes. Options include: Auto, Manual, Shutter Priority, Iris Priority, & Brightness Priority.
- **[IRIS / SHUTTER] Knob:** The [IRIS / SHUTTER] knob allows you to adjust the Iris and Shutter values of the camera.

## Custom Control Buttons

Use the Custom Control buttons to set up custom commands typically not available to the SuperJoy.

- **[CUSTOM 1 - 4] Button:** The four (4) Custom buttons allow you to send custom commands to network based equipment. Options Include: HTTP Trigger, UART, TCP, UDP, & Super Presets.

## SuperJoy Unique Control

The SuperJoy includes unique buttons for use with

- **[CAM GROUP] Button:** Press the [CAM GROUP] button to cycle through the five (5) Camera Groups.
- **[HDMI OUTPUT] Button:** Press the [HDMI OUTPUT] button to enable the HDMI output of the connected camera.
- **[BASIC MODE] Button:** Press the [BASIC MODE] button to toggle between Basic Mode control and normal control. While in Basic Mode, only the P/T/Z and preset options will function.
- **[MATRIX MODE] Button:** Press the [MATRIX MODE] button to toggle between Matrix Mode control and normal control. While in Matrix Mode, only presets 1 - 3 can be called on cameras 1 - 3.

## Focus Mode Control

The Focus Mode section allows you to change the focus mode of the camera.

- **[AUTO FOCUS LOCK] Button:** Press the [AUTO FOCUS LOCK] button to lock the focus in its current position. Auto Focus is paused while Focus Lock is enabled.
- **[AUTO FOCUS UNLOCK] Button:** Press the [AUTO FOCUS UNLOCK] button to unlock the focus from its current position.
- **[AUTO FOCUS] Button:** Press the [AUTO FOCUS] button to set the camera to auto focus mode.

## Controller Information Button

The Controller Information section allows you to find and edit the parameters of the controller.

- **[INQUIRE] Button:** Press the [INQUIRE] button to open the controller's device list.
- **[SETUP] Button:** Press the [SETUP] button to open the controller's OSD menu. Refer to the Joystick OSD Menu Control section of this guide for more information.

## Preset Control Buttons

The Preset Control section allows you to set and call presets of the camera.

- **[HOME] Button:** Press the [HOME] button to send the camera to the home position (facing forward).
- **[SET] Button:** Press the [SET] button to set a camera preset. Use the alpha-numeric keypad to set a preset number.
- **[CALL] Button:** Press the [CALL] button to call a camera preset. Use the alpha-numeric keypad to call a preset number. Refer to the Setting and Recalling Presets section of this guide for more information.
- **Quick Set Preset Shortcut:** Press and hold a number on the alpha-numeric keypad for 3+ seconds to set a camera preset in the current location.

- **Quick Call Preset Shortcut:** Quickly press a number on the alpha-numeric keypad to call a camera preset.

## Focus & Zoom Control Dials

The Focus & Zoom Control section allows you to adjust the image based on the scene.

- **[FINE TUNE FOCUS] Dial:** The [FINE TUNE FOCUS] dial allows for precise manual control of a selected camera's focus.
- **[FINE TUNE ZOOM] Dial:** The [FINE TUNE ZOOM] dial allows you to finely zoom the camera in and out at the lowest speed (1).

## Camera Select Buttons

The Camera Select section allows you to select a camera to control.

- **[CAM ID] Button:** The [CAM ID] button allows you to select any camera on the controller using the alpha-numeric keypad.
- **[CAM #] Button:** The [CAM #] button allows you to quickly select a camera to control. Options include: 1 - 6.

## Alpha-Numeric Keypad

The alpha-numeric keypad allows you to use many of the controller features that require numbers and letters as well as input custom commands when selecting a camera.

## Custom Button Knob

5th customizable button, best utilized for the most frequently needed custom commands.

# OSD

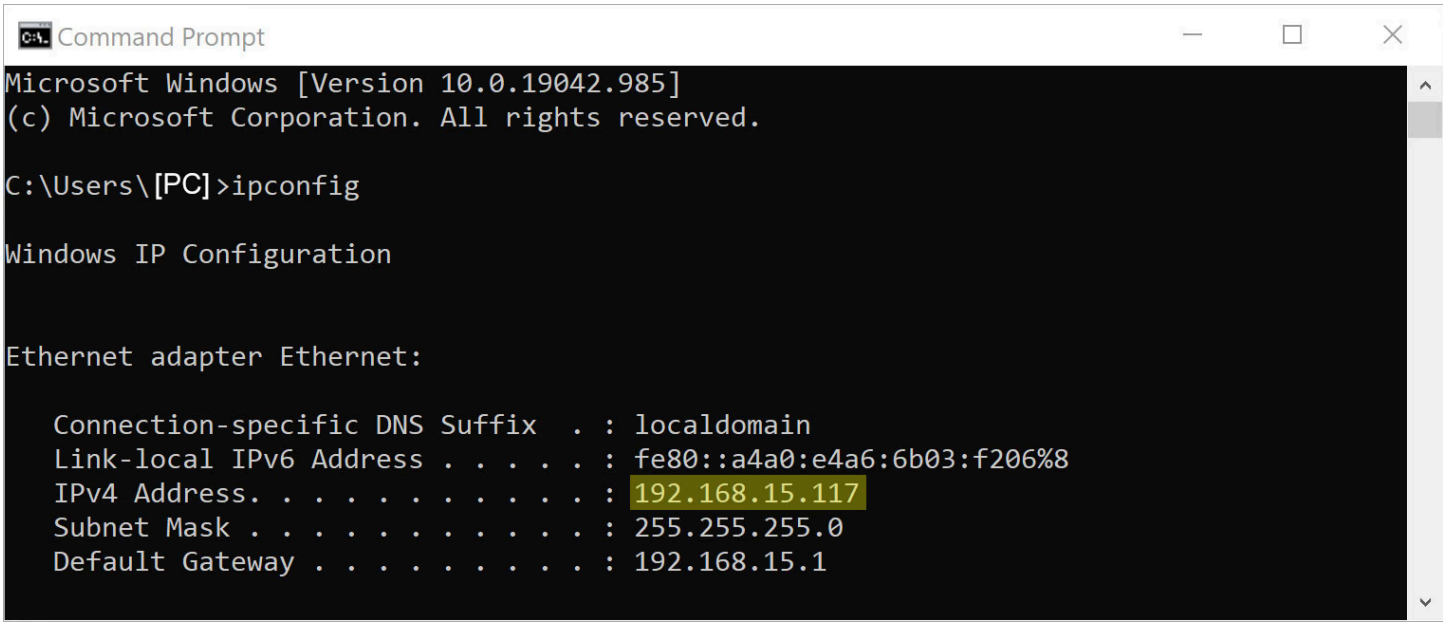
1. **Local IP:** Displays the Joystick’s IP address. Type this into a web browser to reach the web UI.
2. **Channel:** Shows the currently selected camera ID and the group it’s assigned to.
3. **Cam IP:** Shows the IP address of the currently selected camera.
4. **Protocol:** Shows the protocol the joystick and the currently selected camera use to communicate for control.
5. **Baudrate:** The communication speed between the joystick and the currently selected camera.
6. **Address:** Shows the camera control address.
7. **RTSP:** The selected camera can send it’s RTSP feed to the joystick,to be sent out by joystick using the HDMI display output. This can be enabled or disabled.
8. **WB Mode:** Shows the white balance mode being used by the currently selected camera.
9. **Exp Mode:** Shows the exposure mode being used by the currently selected camera.

# Networking

## Discovering Your Network

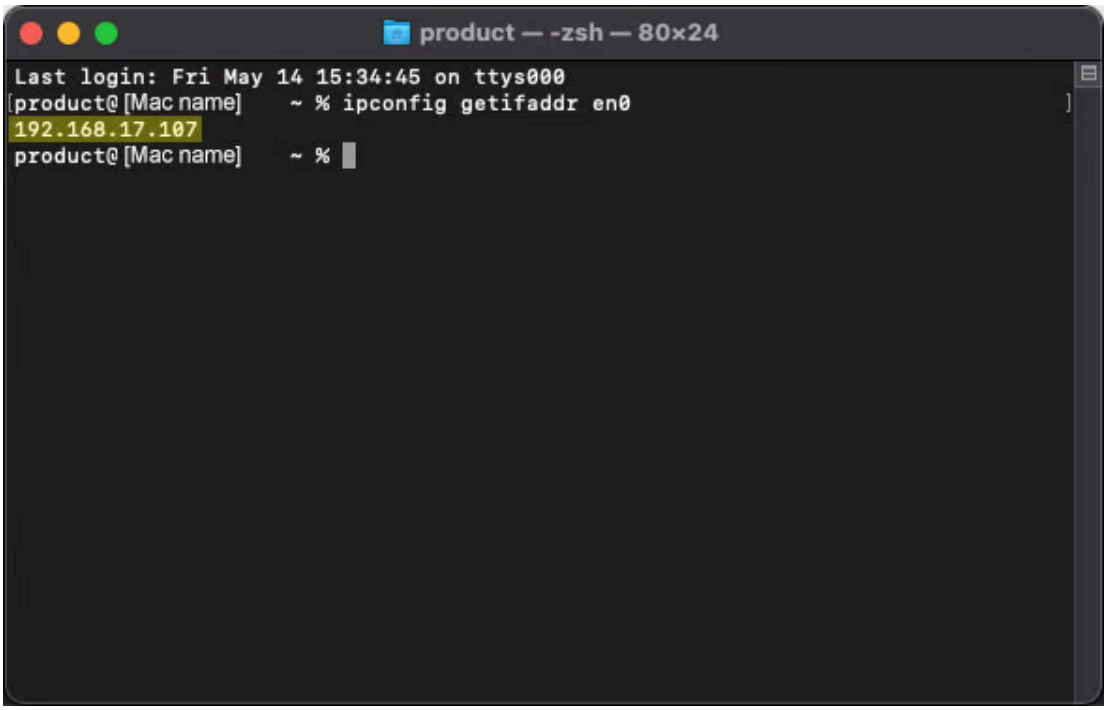
### Windows

1. Open the Start menu and type “CMD” into the search bar.
2. Once the Command Prompt is open, type in “ipconfig” and press the Enter key.
3. Scroll down to the section titled “Ethernet adapter Ethernet” or “Ethernet adapter Wireless Network Connection”.
4. Locate the “IPv4 Address” in that section. This is your computers local IP address.
5. In the example below, the PC’s local address is “192.168.15.117”, making the network range “192.168.15.xxx”.




### Mac

1. Open a new Finder window and go to the Applications folder.
2. Open the Utilities folder and select the Terminal program.
3. Once the Terminal program is open, type in “ipconfig getifaddr en0” and press the Enter key.




# Network Joystick Connection

PTZOptics carries multiple joysticks including the **PT-SUPERJOY-G1**, and **PT-JOY-G4**, that can be used to control a camera via a network connection.

## Steps

1. Ensure the camera and the PTZOptics IP joystick are connected to the same network.
2. Press the **[SETUP]** button on your joystick, and select option one (1) “Network Device” for IP.
3. Fill in the Network Device field to connect the camera. The fields are as follows:
    - **Channel**: (For SuperJoy users enter 1 ~ 9 in the **Group** field) Joystick Camera Address [CAM ID]. Options include 1 - 255.
    - **Protocol Select**:
        - **PT-JOY-G4 Protocol Options**: VISCA (UDP), VISCA (TCP), Sony VISCA (UDP), ONVIF.
        - **HC-JOY-G4 Protocol Options**: VISCA (UDP), VISCA (TCP), Sony VISCA (UDP), ONVIF.
        - **PT-SUPERJOY-G1 Protocol Options**: VISCA (UDP), VISCA (TCP), Sony VISCA (UDP), ONVIF, NDI, & Panasonic Control
    - **IP**: Enter the Camera IP Address Here
    - **Ctrl Port**: Enter the camera control port.
4. Once the above fields are filled, press the **[ENTER]** button to save the camera to the controller.

## Control Port Numbers

- **UDP** `1259`
- **TCP** `5678`
- **Sony VISCA Protocol** `52381`

> **TIP**
>
> One way to find the camera's control port number is to go to its web user interface.
>
> Type the camera's IP address into a web browser and log in using your credentials.
>
> Click the Control tab, then click the Ports tab below. Here, you can see the available control protocols.

# Using the Web UI

Getting Started

Login

Control

Customization

Device Management

Search

Matrix Mode

Settings

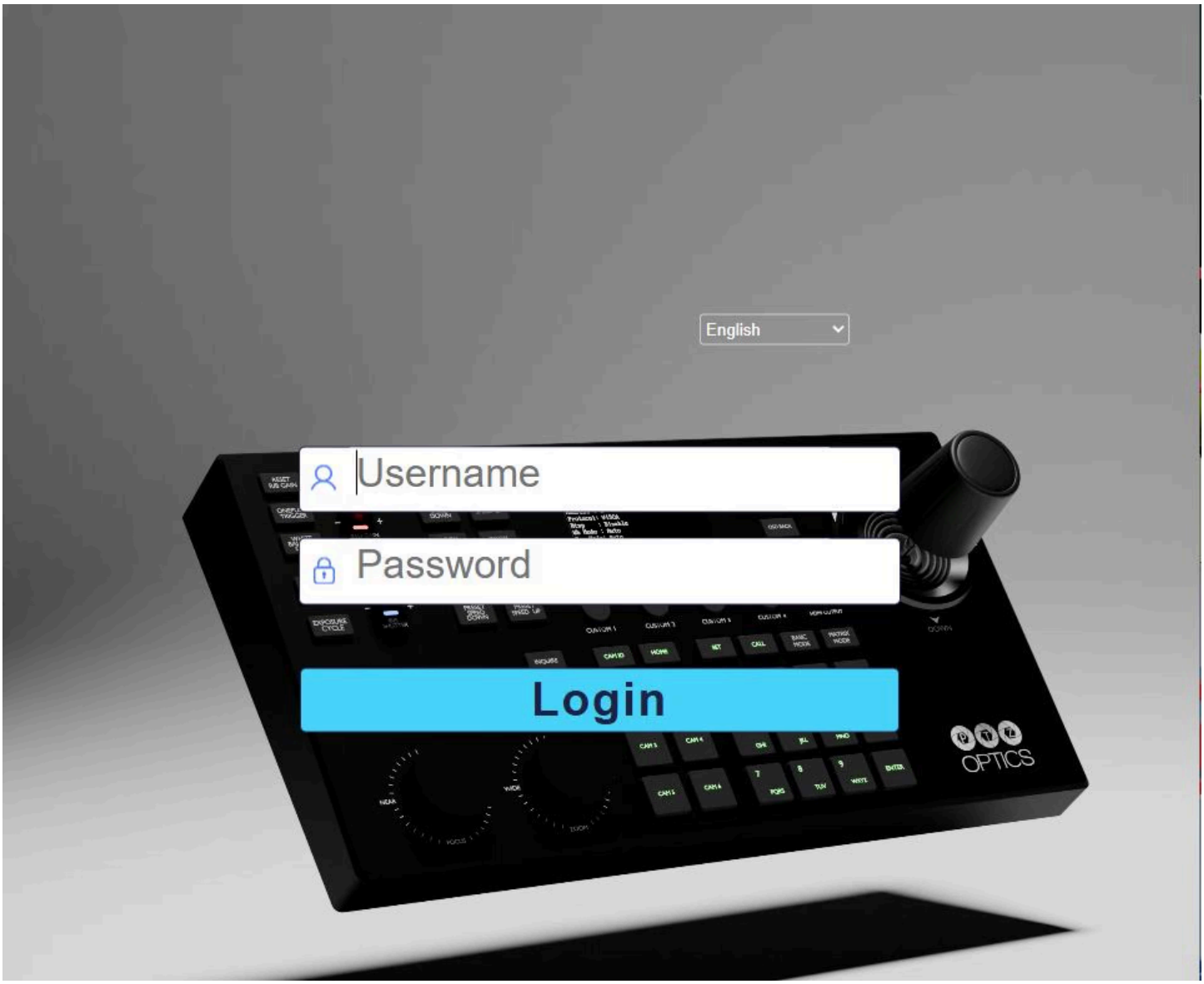
# Getting Started

## SuperJoy G1 Web UI

The SuperJoy G1 Web UI is the centralized management interface for your PTZOptics production environment. It provides everything needed to configure cameras, build and organize Super Presets, and discover connected PTZOptics and NDI® devices on your network — all from a single, browser-based platform.

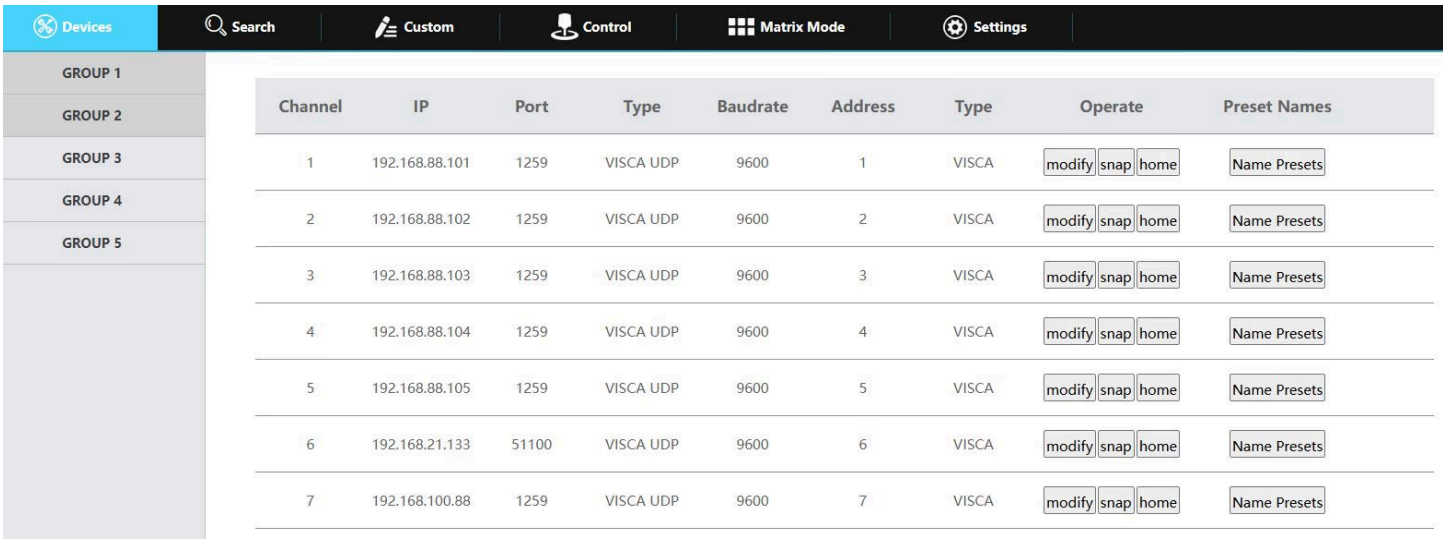
From initial setup through ongoing maintenance, the Web UI gives you precise control over every aspect of your system. Fine-tune individual camera settings, push firmware updates without leaving the interface, and have your entire production environment ready before your first shot. Whether you're running a live broadcast, a house of worship service, or a corporate event, the SuperJoy G1 Web UI is designed to keep setup efficient and operations smooth.

# Logging In




1. Open up a web browser.
2. Enter the joystick's IP address into the search bar and press enter.
3. This will bring you to the Login screen.
4. If this is your first time logging in, you will be prompted to enter a new custom password.
    - The default username is admin.
5. Once logged in, you will be brought to the home screen.

# Device Management




The **Devices** page provides an overview of all cameras configured in the system. From here you can organize cameras into groups, view connection details at a glance, and access controls to modify, preview, or manage each device.

## Device List

The device list displays all cameras configured in the currently selected group. Each row represents one channel slot and shows the following information:

| Column | Description |
|---|---|
| **Channel** | The channel number for this slot within the group |
| **IP** | The IP address of the configured camera |
| **Port** | The control port used to communicate with the camera |
| **Type** | The control protocol (e.g., VISCA UDP, NDI, ONVIF) |
| **Baudrate** | The baud rate used for serial communication |
| **Address** | The device address identifier |

| Column | Description |
| --- | --- |
| **Type** | The camera communication type (e.g., VISCA, Pelco P, or Pelco D) |
| **Operate** | Action buttons for managing the device (see below) |
| **Preset Names** | Opens the preset naming editor for that channel |

# Groups

The left panel displays five groups: **GROUP 1** through **GROUP 5**. Each group is an independent set of seven channel slots (channels 1–7), functioning like a **scene**, with the exception of **Group 5**. **Group 5** supports up to 255 channel slots.

Each group maintains its own complete camera configuration, separate from all other groups. This allows you to define multiple distinct camera setups — for example, GROUP 1 configured for one studio layout and GROUP 2 configured for another — and switch between them as needed.

> **NOTE**
>
> Groups are not organizational folders. Each group contains its own independent channel slots. The same physical camera can be configured in multiple groups with different settings.

## Assigning a Camera to a Specific Group and Channel

The group and channel a camera belongs to is set at the time it is added, either through the **Search** page or manually. Once saved, these assignments are fixed and cannot be changed through the modify editor. To assign a camera to a different group or channel:

1. Navigate to **Search** and locate the camera.
2. Click **Add**.
3. In the Add dialog, select the desired **Group** and enter the desired **Channel** number.
4. Configure the remaining settings and click **Save**.

> **NOTE**

> The original group/channel slot will retain its previous configuration. If it is no longer needed, open it via **modify** and update or clear the connection settings.

# Operate Buttons

Each camera row includes three action buttons in the Operate column.

| Button | Description |
|---|---|
| **modify** | Opens the Editor panel to update the camera's connection settings |
| **snap** | Captures a snapshot from the camera's current video output |
| **home** | Sends the camera to its home position |

## Name

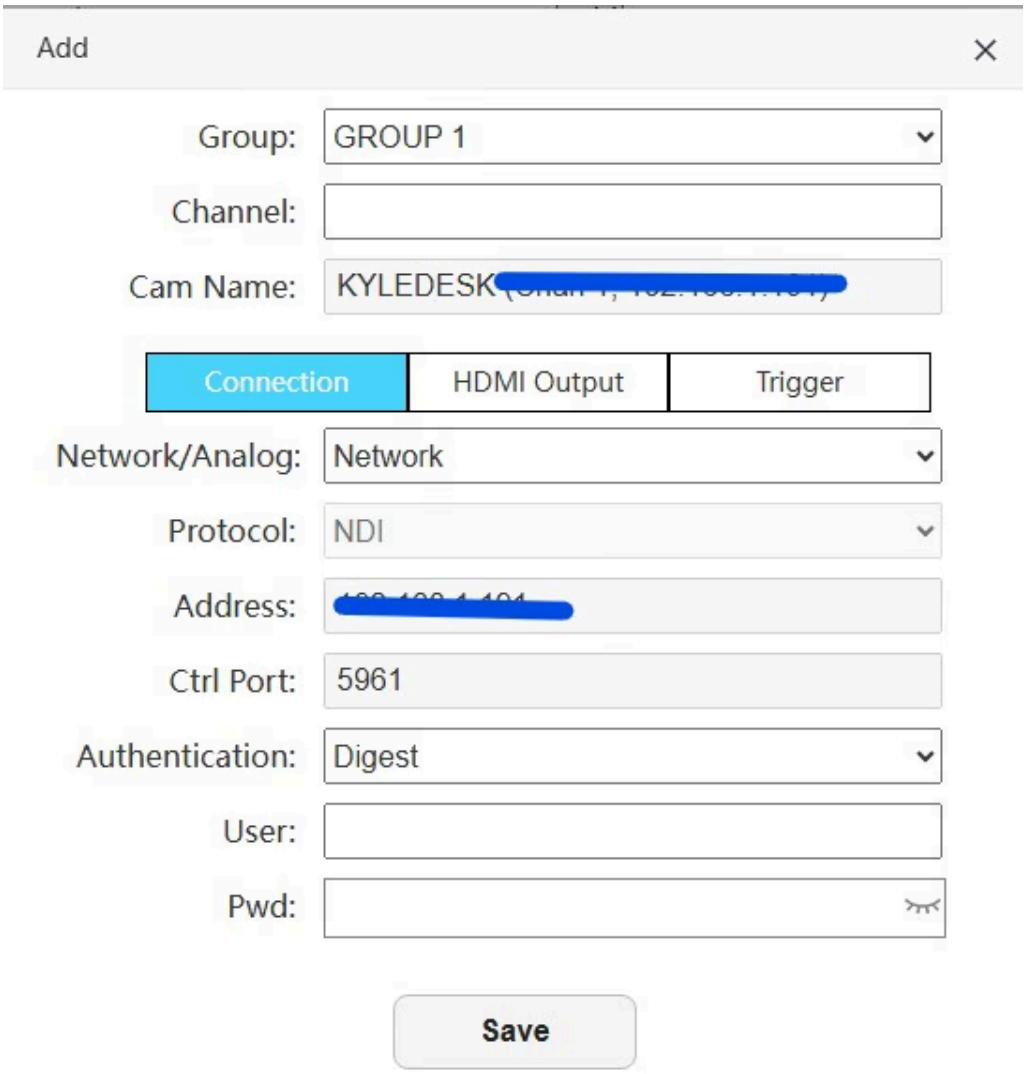
The **Name Presets** button opens the preset naming editor for that camera, allowing you to assign descriptive labels to each saved preset position.

# Modifying a Camera

Clicking **modify** opens the Editor panel with the current settings for that camera. The Editor contains three tabs: **Connection**, **HDMI Output**, and **Trigger**.

> **NOTE**
>
> The Group and Channel fields are locked in the Editor and cannot be changed after a camera has been added. All other fields are editable.

# Connection Tab




The Connection tab controls how the system communicates with the camera and how it authenticates.

| Field | Description |
|---|---|
| **Network/Analog** | Select whether the camera connects over the network or via an analog signal |
| **Protocol** | The control protocol used to communicate with the camera |
| **Address** | The IP address of the camera |

| Field | Description |
| --- | --- |
| **Ctrl Port** | The port used for camera control communication |
| **Authentication** | The method used to verify credentials when connecting to the camera |
| **User** | The username used for authentication |
| **Pwd** | The password used for authentication |

## Protocol Options

| Protocol | Description |
| --- | --- |
| **VISCA UDP** | VISCA control over UDP — common for PTZ cameras |
| **VISCA TCP** | VISCA control over TCP — more reliable delivery than UDP |
| **VISCA UDP SONY** | VISCA UDP variant for Sony protocol compatibility |
| **VISCA WEBSOCKET** | VISCA tunneled over WebSocket |
| **PANASONIC** | Panasonic proprietary camera control protocol |
| **ONVIF** | Open standard for IP-based security and PTZ cameras |
| **NDI** | NewTek NDI protocol for network video and control |

# Authentication

## Authentication Types

PTZ cameras secure access to their control interfaces and video streams using HTTP authentication. Two methods are supported: **Basic** and **Digest**.

#### Basic Authentication

Basic authentication transmits credentials with every HTTP request.

**Basic Authentication Characteristics**

- Credentials are transmitted with every request
- Compatible with virtually all clients and systems
- Minimal processing overhead
- Must be paired with HTTPS/TLS to be considered secure

**Digest Authentication**

Digest authentication uses a challenge-response mechanism to verify credentials without transmitting the password over the network.

**Digest Authentication Characteristics**

- Password is never transmitted over the network
- Nonce-based challenge prevents replay attacks
- Provides meaningful security over unencrypted HTTP
- Supported by most modern PTZ cameras and NVR systems
- Low processing overhead

**Comparison**

| Feature | Basic | Digest |
|---|---|---|
| Password transmitted | Yes (Base64) | No (MD5 hash only) |
| Replay attack protection | No | Yes |
| Requires HTTPS to be secure | Yes | No (recommended) |
| Compatibility | Universal | Broad |
| Processing overhead | Minimal | Low |

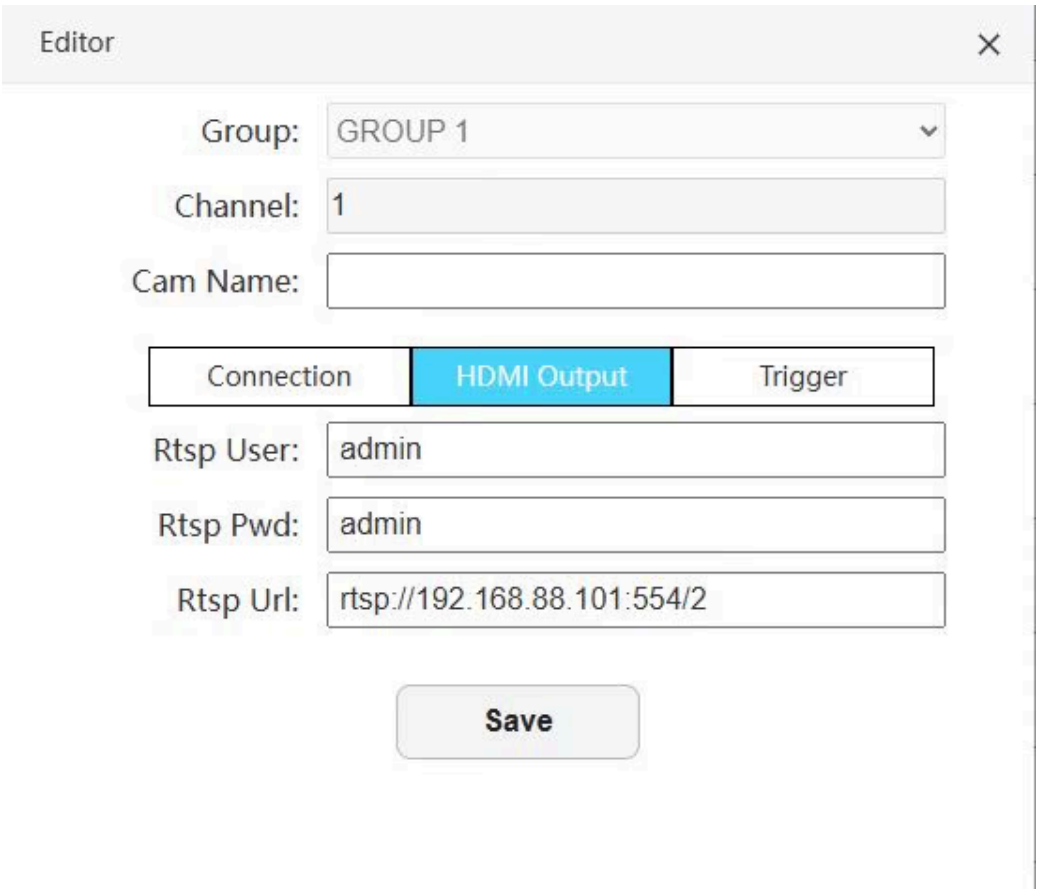
# Recommendation

Use **Digest** authentication whenever it is supported by your camera and integration. If Digest is unavailable and Basic authentication must be used, the connection **must** be secured with HTTPS/TLS to protect credentials in transit.

> **WARNING**
>
> **Using Basic authentication over an unencrypted HTTP connection exposes credentials to interception and is not recommended in any production environment.**

> **NOTE**
>
> The authentication method is also used by features that target the currently selected camera via HTTP, including the **Current_Cam** device in HTTP Trigger custom buttons and the **Snap** and **Home** buttons. If the authentication method does not match what the camera actually requires, those features will fail to communicate with the camera. **Make sure this field is set correctly for each camera.**

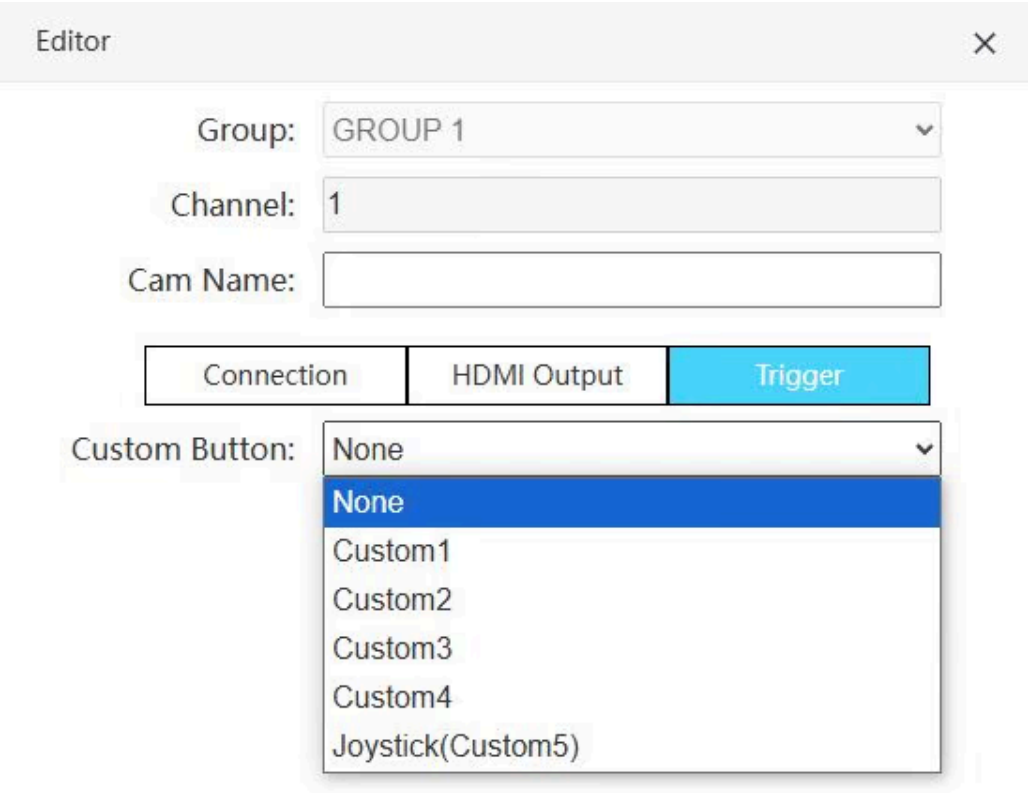
# HDMI Output Tab



The HDMI Output tab configures the RTSP stream credentials and URL for receiving the camera's video output.

| Field | Description |
| --- | --- |
| **Rtsp User** | Username for accessing the camera's RTSP video stream |
| **Rtsp Pwd** | Password for accessing the camera's RTSP video stream |
| **Rtsp Url** | The full RTSP stream URL (e.g., `rtsp://192.168.1.100:554/1`) |

# Trigger Tab




The Trigger tab allows you to associate a custom button action with this camera.

| Field | Description |
| --- | --- |
| **Custom Button** | Assign a previously configured custom button to this camera |

When a custom button is assigned, it will be sent **automatically whenever this camera (channel) is selected** on the controller.

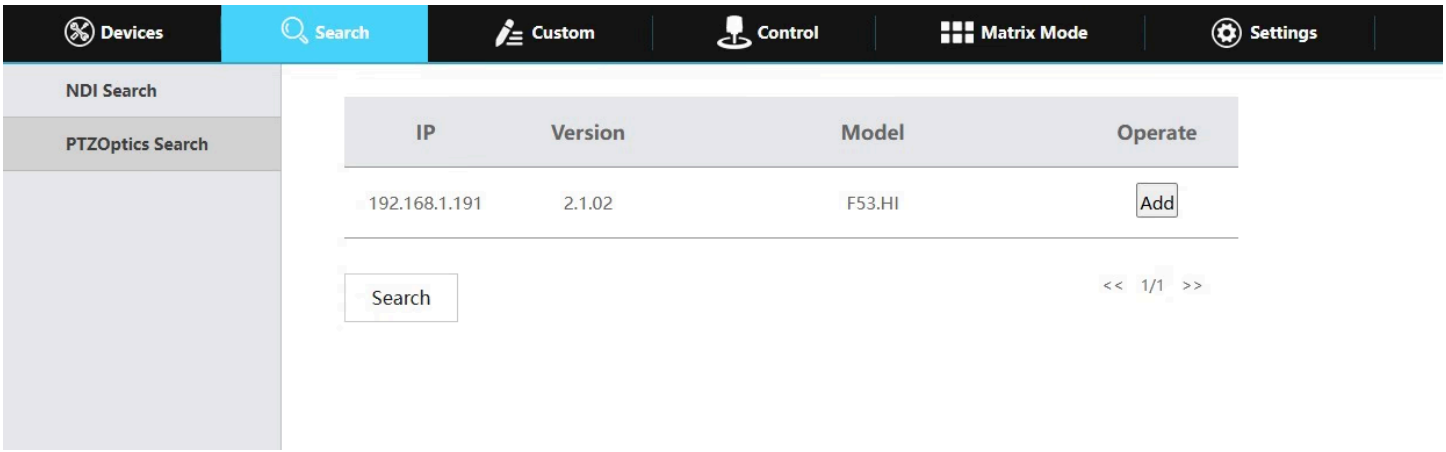
> **NOTE**
>
> **Custom buttons must be created under the Custom tab before they can be assigned here.**

# Saving Changes

Click **Save** to apply any changes made in the Editor. The device list will reflect the updated settings immediately.

# Search

The **Search** tab lets you locate available cameras on your network and add them to a device slot.




## Search Types

Two search buttons are available, each targeting a different camera type:

| Search Type | What It Finds |
|---|---|
| **NDI Search** | Cameras broadcasting over the NDI® protocol on your network |
| **PTZOptics Search** | PTZOptics cameras on your local network |

Click the corresponding search button to run a scan. Discovered cameras will appear in a results list.

## Adding a Camera from Search Results

After a search completes, click **Add** in the Operate column next to the device you want to add. The Add dialog will appear with three configuration tabs: **Connection**, **HDMI Output**, and **Trigger**.

### General Settings

The following fields appear at the top of the Add dialog.

| Field | Description |
|---|---|
| **Group** | Assigns the camera to a group (GROUP 1–5) |
| **Channel** | Specifies the channel number for this camera |
| **Cam Name** | Pre-populated from NDI search results. Not pre-populated for PTZOptics search. |

## Connection Tab

The Connection tab defines how the system communicates with and authenticates to the camera.

| Field | Description |
|---|---|
| **Network/Analog** | Select whether the camera connects over the network or via an analog signal |
| **Protocol** | The control protocol used to communicate with the camera (e.g., NDI, VISCA UDP, ONVIF). Pre-populated and locked for NDI search results; editable for PTZOptics search. |
| **Address** | The IP address of the camera. Pre-populated from NDI search results. |
| **Ctrl Port** | The control port used for camera communication. Pre-populated and locked for NDI search results; editable for PTZOptics search. |
| **Authentication** | The authentication method |
| **User** | Username for authentication |
| **Pwd** | Password for authentication |

#### Authentication Options

| Option | Description |
|---|---|
| **Digest** | Recommended. Credentials are verified via a cryptographic hash. |

| Option | Description |
| --- | --- |
| **Basic** | Credentials are Base64-encoded and included in each request. |
| **Off** | No authentication. Use only on isolated or fully trusted networks. |

## HDMI Output Tab

The HDMI Output tab configures the RTSP stream credentials and URL used to receive the camera's video output.

| Field | Description |
| --- | --- |
| **Rtsp User** | Username for accessing the RTSP video stream |
| **Rtsp Pwd** | Password for accessing the RTSP video stream |
| **Rtsp Url** | The RTSP stream URL of the camera (e.g., `rtsp://192.168.1.191:554/1`) |

## Trigger Tab

The Trigger tab allows you to associate a **Custom Button** with this camera.

| Field | Description |
| --- | --- |
| **Custom Button** | Select a previously configured custom button to associate with this camera |

## Saving the Camera

Once all settings are configured across the relevant tabs, click **Save** to add the camera to the system. The camera will then appear in the **Device list** and be available for control.

# Customization

The **Custom** tab lets you program the joystick's buttons to perform network commands, serial commands, HTTP requests, or camera preset recalls.

## Overview

The Custom page displays the custom buttons available for configuration. Each button has its own tab, and you can switch between them to configure different sets of commands.

| Button Tab | Notes |
|---|---|
| Custom1 | General-purpose custom button |
| Custom2 | General-purpose custom button |
| Custom3 | General-purpose custom button |
| Custom4 | General-purpose custom button |
| Joystick (Custom5) | Mapped to the physical trigger/button on a hardware joystick controller |

Each button tab is configured independently with its own command type and command list.

## Adding and Deleting Custom Buttons

### Adding a Button

Click the **Custom Add** button (displayed alongside the existing button tabs) to create a new custom button. New buttons are appended in sequence: **Custom6**, **Custom7**, and so on.

### Deleting a Button

Each user-added button (Custom6 and above) displays a **Delete** button in its tab. Click it to permanently remove that button and all its configured commands.

> ⚠ **WARNING**
>
> **Deleting a custom button is permanent and cannot be undone. All commands configured on that button will be lost.**

# Command Types

Each button has a **Type** selector. The available types are:

- TCP
- UDP
- UART
- HTTP Trigger
- Super Preset

> ⚠ **WARNING**
>
> **Only one command type can be selected per custom button.** Once you configure a button with a given type, all commands on that button must use that same type.

# TCP Commands

**TCP** sends one or more raw TCP socket commands to a network device when the button is pressed. Commands are sent in order from top to bottom.

## TCP Configuration Fields

| Field | Description |
|---|---|
| **IP Address** | IPv4 address of the target device |
| **Port** | TCP port number on the target device |
| **Command Type** | `HEX Command` — bytes entered as hexadecimal values<br>`ASCII Command` — plain text string |

| Field | Description |
| --- | --- |
| **Command** | The command payload to send |
| **Delay** | Time in seconds to wait **after** sending this command before sending the next (minimum: 0) |

### Managing Command Rows

- Click `+` to add a new command row below the last row.
- Click `-` on a row to remove that individual command.
- Rows are numbered sequentially (1, 2, 3 …) and execute in that order.

## UDP Commands

**UDP** is functionally identical to TCP in its configuration interface but sends commands over the UDP (connectionless) transport instead.

### UDP Configuration Fields

| Field | Description |
| --- | --- |
| **IP Address** | IPv4 address of the target device |
| **Port** | UDP port number on the target device |
| **Command Type** | `HEX Command` or `ASCII Command` |
| **Command** | The command payload to send |
| **Delay** | Seconds to wait after sending before proceeding to the next command (minimum: 0) |

Use `+` / `-` to add or remove rows. Rows execute top to bottom.

## UART (Serial) Commands

**UART** sends commands over the system's serial interface. This is useful for controlling devices connected via RS-232/RS-485 rather than over a network.

## Baud Rate

A **Baud Rate** selector at the top of the UART configuration applies to all commands on this button:

| Available Baud Rates |
|---|
| 1200 |
| 2400 |
| 4800 |
| 9600 |
| 19200 |
| 38400 |
| 115200 |

## UART Configuration Fields

| Field | Description |
|---|---|
| **Command Type** | `HEX Command` or `ASCII Command` |
| **Command** | The serial command payload |
| **Delay** | Seconds to wait after sending before proceeding to the next command (minimum: 0) |

> **NOTE**
>
> **UART commands have no IP Address or Port fields — the serial interface is a direct hardware connection, not a network connection.**

Use `+` / `-` to add or remove rows. Rows execute top to bottom in the configured baud rate.

# HTTP Trigger Commands

**HTTP Trigger** is the most advanced command type. It sends HTTP GET or POST requests to defined network devices and supports **toggle behavior** (different commands on first press vs. second press).

## Step 1: Define HTTP Devices

Before configuring commands, you must define the HTTP devices (targets) this button will communicate with. The **HTTP Devices** table at the top of the HTTP Trigger configuration is a shared pool of devices available to all commands on this button.

**HTTP Devices Table**

| Column | Description |
|---|---|
| **ID** | Auto-assigned identifier. Read-only. |
| **Name** | A friendly label for the device (e.g., `Camera_1`) |
| **IP** | IPv4 address of the device |
| **Port** | HTTP port (typically `80` for HTTP, `443` for HTTPS) |
| **Authentication** | Authentication method |
| **Username** | Credential username (if authentication is enabled) |
| **Password** | Credential password (if authentication is enabled) |
| **Secure (HTTPS)** | Whether to use HTTPS for all requests to this device |
| **Delete** | Removes the device from the pool |
| **Edit** | Opens the device editor dialog |

**Adding an HTTP Device**

Click **Add** to open the device editor. Fill in the following fields:

| Field | Description |
|---|---|
| **ID** | Auto-assigned. Read-only. |
| **Name** | Friendly label for the device |
| **IP Address** | IPv4 address |
| **Port** | Port number |
| **Authentication** | `Basic`, `Digest`, or `Off` |
| **Username** | Required if Authentication is not `Off` |
| **Password** | Required if Authentication is not `Off` |
| **Secure (HTTPS)** | Check to use HTTPS |

> NOTE
>
> **PTZOptics cameras use Digest authentication by default. The interface's default Authentication method in the Add Device dialog is Basic. For better security, select Digest unless the target device requires Basic.**

**Current_Cam**

**Current_Cam** is a permanent entry that is always present in the HTTP Devices table. Unlike manually added devices, it does not use a static IP address or authentication configuration. Instead, it dynamically pulls the IP address and credentials from whichever device is currently selected on the **Devices page**.

This makes **Current_Cam** useful when you want a custom button to always target the active camera, regardless of which camera is selected at the time the button is pressed. If the active camera changes on the Devices page, any command pointed at **Current_Cam** will automatically target the new selection.

> NOTE

> **Current_Cam** will appear as ID **1** in the HTTP Devices table. It can be selected as the **Device** in any command row just like a manually added device.

Click **Save** to add the device to the pool. It will appear in the HTTP Devices table and become available in the **Device** dropdown when configuring commands.

## Step 2: Configure Commands

Commands are organized into one or two press sections depending on whether toggle mode is enabled.

#### Single Press (Default)

By default, one **FIRST PRESS** section is shown. All commands in this section fire when the button is pressed.

#### Toggle Mode (Enable Two-Press Behavior)

Check the **Enable** toggle checkbox to activate toggle mode. A **SECOND PRESS** section appears alongside the FIRST PRESS section.

| Press | Behavior |
|---|---|
| **First Press** | Executes all commands in the FIRST PRESS section |
| **Second Press** | Executes all commands in the SECOND PRESS section |
| **Third Press** | Reverts to First Press behavior, and so on |

This is useful for on/off toggles — for example, turning auto-tracking on with the first press and off with the second press. Each press can have its own independent set of commands.

#### Command Table (FIRST PRESS / SECOND PRESS)

Each press section has a command table with the following columns:

| Column | Description |
|---|---|
| **Type** | The kind of command: `GET`, `POST`, or `Delay` |
| **Device** | The HTTP device from the pool to send this command to |

| Column | Description |
|---|---|
| **Command** | The URL path or query string for GET/POST requests |
| **Delete** | Removes this command row |
| **Modify** | Opens the command editor dialog |

Click **Add** within a press section to open the command editor.

#### Command Editor — GET

| Field | Description |
|---|---|
| **Type** | `GET` |
| **Device** | Select from defined HTTP devices |
| **Command** | URL path and query string e.g., `/cgi-bin/ptzctrl.cgi?ptzcmd&recallpos&1` |

The full request URL is composed as: `http[s]://<device IP>:<device Port><Command>`

#### Command Editor — POST

| Field | Description |
|---|---|
| **Type** | `POST` |
| **Device** | Select from defined HTTP devices |
| **Command** | URL path (endpoint) |
| **Content-Type** | `Text/HTML`, `JSON`, or `URL Encoded` |
| **Body** | The POST request body |

#### Command Editor — Delay

| Field | Description |
| --- | --- |
| **Type** | `Delay` |
| **Delay Length** | Time in seconds to wait before executing the next command |

Use Delay rows to insert a pause between commands — for example, waiting for a device to process a command before sending the next one.

# Super Preset

**Super Preset** allows a single button press to simultaneously recall presets on up to **8 cameras** across different groups, plus an optional HTTP-CGI command.

## Camera Preset Rows (Rows 1–8)

Each of the 8 rows represents one camera preset to recall. Enable a row by checking its checkbox.

| Field | Description |
| --- | --- |
| **Checkbox** | Enable this row. Disabled rows are ignored when the button is pressed. |
| **Group** | The camera group — **GROUP1 through GROUP4** |
| **Camera ID** | The camera slot within the group — **1 through 7** |
| **Preset** | The preset number to recall — **0 through 253** |

> NOTE
>
> **Super Preset supports Groups 1–4 only. Group 5 is not available in this view.**

## Row 9: HTTP-CGI Command

Row 9 is a special row for sending a single HTTP-CGI string command alongside the preset recalls.

| Field | Description |
| --- | --- |
| **Checkbox** | Enable this row |
| **HTTP-CGI String** | A full URL to call e.g., `http://ip:port/cgi-bin/ptzctrl.cgi?ptzcmd&zoomin&7` |

> NOTE
>
> **The HTTP-CGI string is a complete URL including protocol, host, port, and query parameters. It is sent as a simple HTTP GET request.**

## Use Case Example

You can use Super Preset to create a "scene" button that simultaneously:

- Recalls preset 5 on Camera 1 in Group 1 (a wide shot)
- Recalls preset 2 on Camera 3 in Group 2 (a close-up on a second camera)
- Sends an HTTP-CGI command to trigger an external device (e.g., a video switcher)

All actions fire simultaneously when the button is pressed.

# Control

The **Control** tab is for recalling camera presets and triggering custom buttons during a live session. It provides quick access to the currently active group's cameras and their presets, without requiring any configuration changes.

## Page Layout

The Control page is divided into two panels:

| Panel | Contents |
|---|---|
| **Left** | Group selector, Camera ID buttons, Position Preset section |
| **Right** | Custom Buttons |

## Group

The **Group** dropdown at the top of the left panel sets the active camera group. All camera selection and preset recall operations apply to cameras within the selected group.

| Available Options |
|---|
| GROUP 1 |
| GROUP 2 |
| GROUP 3 |
| GROUP 4 |

> **NOTE**

> The Control page shows Groups 1–4. This matches the group scope available for live control operations. Camera groups are configured on the **Devices** page.

Changing the group immediately makes that group's cameras available for selection.

# Camera ID

The **Camera ID** section displays numbered buttons for each camera slot in the active group. Click a camera button to select it as the active camera. The selected camera button is highlighted.

| Camera ID | Description |
|---|---|
| 1–6 | Camera slots within the active group |

> **NOTE**
>
> The Control page displays 6 camera slots (1–6). Camera slot 7 is not accessible from this view.
>
> Only one camera can be active at a time. All preset recalls apply to the currently selected camera.

# Position Preset

The **Position Preset** section provides two methods for recalling a camera preset — moving the selected camera to a previously saved position.

## Quick-Access Preset Buttons

Nine preset buttons (Preset1 through Preset9) provide single-click recall for presets 1–9.

| Button | Preset Recalled |
|---|---|
| Preset1 | Preset 1 |
| Preset2 | Preset 2 |

| Button | Preset Recalled |
|---|---|
| Preset3 | Preset 3 |
| Preset4 | Preset 4 |
| Preset5 | Preset 5 |
| Preset6 | Preset 6 |
| Preset7 | Preset 7 |
| Preset8 | Preset 8 |
| Preset9 | Preset 9 |

Click any preset button to immediately send the recall command to the active camera.

## Manual Preset Entry

To recall a preset number outside the 1–9 quick-access range, use the **Input preset** text field:

1. Type a preset number into the **Input preset** field.
2. Press the **Enter** button (↵) to the right of the field, or press **Enter** on your keyboard.
3. The controller sends the recall command for that preset number to the active camera.

> **NOTE**
>
> Preset numbers outside the 1–9 range (e.g., preset 10, preset 50, preset 200) can only be recalled via manual entry. Camera presets are numbered 0–253 depending on the camera model.

# Custom Buttons

The **Custom Buttons** panel on the right side of the Control page displays all configured custom buttons as clickable tiles. This provides a live-operation shortcut to the same buttons defined on the **Custom** page.

Each tile is labeled with its button name (e.g., **Custom Button 1**, **Custom Button 2**). Clicking a tile fires all commands configured for that button.

> **NOTE**
>
> The number of Custom Button tiles shown matches the total number of buttons configured on the **Custom** page — including any user-added buttons beyond the default five.

> **NOTE**
>
> Clicking a Custom Button tile here is identical to pressing the button on the Custom page. All configured commands (TCP, UDP, UART, HTTP Trigger, or Super Preset) fire immediately.

# Matrix Mode

The **Matrix Mode** tab provides a visual grid of preset shortcuts organized by camera. Matrix Mode lets you jump directly to any camera/preset recalling the preset for the camera associated with that tile.

Matrix Mode (a mirror of the SuperJoy's button enabled Matrix Mode) displays a **3×3 grid of 9 tiles**. Each tile represents a specific camera and preset pairing within the active group. Clicking a tile simultaneously selects that camera and recalls the associated preset.

> **NOTE**
>
> This does not select the camera for control — it only recalls the preset for that camera. The active camera selection is still determined by the **Control** page.

## Group Selector

The **Group** dropdown at the top of the page sets the active group. The 9 tiles update to reflect the camera names and preset names configured for that group.

| Available Options |
| --- |
| GROUP 1 |
| GROUP 2 |
| GROUP 3 |
| GROUP 4 |

Changing the group re-loads the tile labels from the device configuration for the selected group.

## Tile Layout

The 3x3 grid of tiles is arranged as follows:

| | Column 1 | Column 2 | Column 3 |
|---|---|---|---|
| **Row 1** | Tile 1 | Tile 2 | Tile 3 |
| **Row 2** | Tile 4 | Tile 5 | Tile 6 |
| **Row 3** | Tile 7 | Tile 8 | Tile 9 |

## Tile Contents

Each tile displays:

| Element | Description |
|---|---|
| **Number** (large) | The tile's sequence number (1–9) |
| **Camera Name** | The name of the camera associated with this tile (e.g., `Camera 01`) |
| **Preset Name** | The preset associated with this tile (e.g., `Preset 01`) |

The camera names and preset names shown on the tiles are drawn from the camera configuration defined on the **Devices** page.

## Default Tile Mapping

The default mapping groups cameras into sets of 3 presets each:

| Tile | Camera | Preset |
|---|---|---|
| 1 | Camera 01 | Preset 01 |
| 2 | Camera 01 | Preset 02 |
| 3 | Camera 01 | Preset 03 |
| 4 | Camera 02 | Preset 01 |

| Tile | Camera | Preset |
|---|---|---|
| 5 | Camera 02 | Preset 02 |
| 6 | Camera 02 | Preset 03 |
| 7 | Camera 03 | Preset 01 |
| 8 | Camera 03 | Preset 02 |
| 9 | Camera 03 | Preset 03 |

> NOTE
>
> **The tile mapping reflects the camera and preset names configured in your system. Names like "Camera 01" are defaults and will show the actual configured names for your cameras once devices are set up on the Devices page.**

# Recalling a Preset

Click any tile to immediately recall the preset associated with that tile.

The selected tile is highlighted to indicate the currently active camera/preset combination.

> NOTE
>
> **Matrix Mode is designed for fast, single-click preset recall during live operation. It is most effective when cameras and presets have been set up and named meaningfully on the Devices page. For example, "Stage Left Wide" or "Podium Close-Up."**

# Comparison: Matrix Mode vs. Control Page

| Feature | Matrix Mode | Control Page |
| --- | --- | --- |
| Camera selection + preset recall | Single click | Two separate steps |
| Number of accessible presets | 9 (fixed tiles) | 9 quick-access + unlimited via manual entry |
| Camera visibility | 3 cameras per group (tiles 1-9) | 6 camera slots |
| Custom buttons | Not available | Available |
| Best for | Fast live switching | Flexible control + custom buttons |

# Settings

The **Settings** tab provides system-level configuration for the SUPERJOY controller.

## Settings Sub-Sections

| Sub-Section | Description |
|---|---|
| Network | IP address, netmask, gateway, DNS, and HTTP port |
| DDNS | Dynamic DNS configuration |
| NTP | Network time synchronization |
| Firmware Check & Upload | Firmware update via URL or local file |
| Factory Restore | Reset all settings to factory defaults |
| Restart | Reboot the controller |
| Import | Restore configuration from a saved file |
| Export | Save device and custom configuration to file |
| User | Manage login accounts |
| System settings | Joystick axis inversion, HDMI frequency, and action lock controls |
| Version | Hardware, software, web, and serial number information |
| NDI® | NDI receive group and discovery server configuration |

---

## Network

Configure the controller's network interface.

| Field | Description |
|---|---|
| **Network Type** | `STATIC`:manually assigned IP address `DHCP`:address assigned automatically by the network |
| **IP Address** | The controller's static IPv4 address (editable in Static mode only) |
| **Netmask** | Subnet mask (editable in Static mode only) |
| **Gateway** | Default gateway address (editable in Static mode only) |
| **DNS1** | Primary DNS server address (editable in Static mode only) |
| **DNS2** | Secondary DNS server address (editable in Static mode only) |
| **MAC** | The controller's MAC address. Read-only. |
| **HTTP Port** | The port the web interface listens on (default: `80`) |

Click **Save** to apply changes.

> **WARNING**
> Changing the IP address or HTTP port will disconnect your browser session. Reconnect using the new address and port.

> **WARNING**
> Switching from STATIC to DHCP means the controller's IP address may change after rebooting. It's recommended to note the current IP address before switching. Check the current IP displayed at the top of the screen in the Local IP field.

---

# DDNS

Configure Dynamic DNS to keep a domain name pointing to the controller when its public IP address changes.

| Field | Description |
|---|---|
| **Enable DDNS** | Checkbox to enable/disable DDNS |
| **DDNS Type** | `DynDNS` or `NO-IP` |
| **Server Address** | The DDNS provider's server (auto-filled based on type; read-only for DynDNS: `members.dyndns.org`) |
| **Domain** | Your registered DDNS hostname |
| **User Name** | Your DDNS account username |
| **Password** | Your DDNS account password |
| **Confirm** | Re-enter password to confirm |

Click **Save** to apply changes.

---

# NTP

Synchronize the controller's clock with a network time server.

| Field | Description |
|---|---|
| **Enable NTP** | Checkbox to enable/disable NTP synchronization |
| **NTP Server** | Hostname or IP address of the NTP server (e.g., `pool.ntp.org`) |
| **Time Zone** | Select your local time zone from the dropdown (GMT-12:00 through GMT+13:00) |

| Button | Action |
|---|---|
| **Save** | Save NTP configuration |
| **Sync** | Immediately trigger a time synchronization with the configured NTP server |

---

# Upgrade

Update the controller's firmware.

## Online Upgrade (via URL)

| Field / Button | Description |
|---|---|
| **URL field** | URL of the firmware update server (default: `https://firmware.ptzoptics.com`) |
| **Check Firmware** | Query the server to check if a newer firmware version is available |
| **Download** | Download the firmware from the configured URL |

## Local Upgrade (via File)

| Field / Button | Description |
|---|---|
| **File path field** | Displays the selected file path |
| **Browse / Choose File** | Open a file picker to select a local firmware file |
| **Apply** | Upload and apply the selected firmware file |

> ⚠ **WARNING**
>
> Do not power off the controller during a firmware upgrade. An interrupted upgrade may leave the device in an unbootable state.

# Factory Restore

Reset the controller to its factory default configuration. All device configurations, custom buttons, network settings, and user credentials will be erased.

Click **Restore** to initiate a factory reset.

> ⚠ **WARNING**
>
> Factory Restore is **permanent and irreversible**. The full SUPERJOY device configuration will be deleted. Export your configuration first if you want to preserve it: see Export.

---

# Restart

Reboot the controller.

Click **Restart** to reboot the device. The web interface will be temporarily unavailable during the restart. Refresh your browser after a few seconds to reconnect.

> ⓘ **NOTE**
>
> A restart does not erase any settings. Use Factory Restore if you need to reset configuration.

---

# Import

Restore a previously exported configuration from a file.

| Field / Button | Description |
| --- | --- |
| **File path field** | Displays the selected file path |
| **Browse / Choose File** | Open a file picker to select a configuration file |

| Field / Button | Description |
| --- | --- |
| **Import** | Upload and apply the configuration from the selected file |

> **WARNING**
>
> Importing a configuration will overwrite the current settings. Ensure the file was exported from a compatible device before importing.

> **NOTE**
>
> Use Export to create a backup before importing, in case you need to revert.

---

# Export

Save the current configuration to a file for backup or transfer to another controller.

Two separate configuration sets can be exported:

| Export Button | What It Saves |
| --- | --- |
| **Export Device Settings** | All camera device configurations (groups, slots, IP addresses, credentials, protocols, & custom buttons) |
| **Export the custom configuration** | A full system export; it includes everything. |

Click the appropriate **Export** button. The browser will prompt you to save a file.

> **NOTE**
>
> It is good practice to export both configuration files before performing a Factory Restore.

---

# User

Manage the accounts that can log in to the SUPERJOY web interface.

The User page displays a table of existing accounts with the following columns:

| Column | Description |
|---|---|
| **Checkbox** | Select a user for deletion |
| **ID** | Auto-assigned user identifier |
| **UserName** | The login username |
| **Password** | The login password (masked) |
| **Type** | User role/permission level |
| **Operate** | Edit options for the account |

## Adding a User

Click **Add** to create a new user account.

## Deleting a User

Check the checkbox next to one or more users and click **Delete** to remove them.

> ⚠ **WARNING**
>
> Deleting the only administrator account will lock you out of the web interface. Always maintain at least one active admin account.

---

# System Settings

Configure joystick hardware behavior and lock specific controller functions.

## Hardware Settings

| Setting | Description |
|---|---|
| **Invert Tilt** | Toggle to reverse the tilt axis direction on the joystick. When enabled, pushing the joystick forward tilts the camera down instead of up. |
| **Invert Pan** | Toggle to reverse the pan axis direction on the joystick. When enabled, moving the joystick right pans the camera left instead of right. |
| **HDMI** | Set the HDMI output frequency: `50Hz` (PAL/European standard) or `60Hz` (NTSC/US standard) |

## Lock Settings

Lock Settings allow you to **disable specific controller actions** to prevent accidental use.

*Select which actions you would like to have disabled while operating the SuperJoy. By default, all actions are enabled.*

Actions are organized into four collapsible groups. Each group has a master toggle and individual controls.

This can also be performed on the controller itself.

- **To lock settings:** Press and hold the Joystick button for about 5 seconds.
- **To unlock settings:** Press and hold the Joystick button for about 5 seconds.
- Then enter the admin password using the controller keypad.

**Exposure & White Balance**

| Lockable Action | Description |
|---|---|
| **Backlight** | Backlight compensation toggle |
| **Iris / Shutter / Gain Knob** | Physical knob for exposure control |
| **Exposure Cycle** | Cycle through exposure modes |

| Lockable Action | Description |
| --- | --- |
| **White Balance Cycle** | Cycle through white balance modes |

**Control**

| Lockable Action | Description |
| --- | --- |
| **Zoom Knob** | Physical zoom control knob |
| **Joystick Zoom** | Zoom via joystick axis |
| **Joystick Pan** | Pan via joystick axis |
| **Joystick Tilt** | Tilt via joystick axis |
| **Auto Focus Lock / Unlock** | Auto focus toggle button |
| **Focus Knob** | Physical focus control knob |
| **Speed** | Pan/tilt speed control |

**Preset & Cam Select**

| Lockable Action | Description |
| --- | --- |
| **Set Presets** | Saving new preset positions |
| **Camera Selection** | Switching between camera slots |
| **Call Presets** | Recalling saved presets |
| **Modes** | Switching operational modes |

**System**

| Lockable Action | Description |
| --- | --- |
| **OSD Buttons** | On-screen display menu buttons |
| **Setup** | Access to setup/configuration menus |
| **HTTP-CGI API** | Sending HTTP-CGI commands |
| **All Custom Buttons** | Firing any configured custom button |

> NOTE
>
> **Enabling a group-level toggle locks all actions within that group. Individual items within a group can also be locked independently by expanding the group (click +) and toggling each item separately.**

> NOTE
>
> **Lock Settings are useful in shared or public environments to prevent operators from accidentally changing camera settings or accessing configuration menus.**

---

# Version

Displays read-only device information. No configuration is available on this page.

| Field | Description |
| --- | --- |
| **Hardware** | Hardware revision of the controller |
| **Software** | Current firmware version |
| **Web** | Current web interface version |
| **Serial Number** | Unique device serial number |

---

# NDI®

Configure NDI® network discovery settings for the controller.

| Field / Control | Description |
| --- | --- |
| **NDI® Receive Group** | The NDI group name this controller will subscribe to for receiving NDI video streams. Leave blank to use the default group. |
| **NDI® Discovery Server** | Checkbox to enable a custom NDI discovery server (instead of mDNS/broadcast discovery) |
| **Discovery Server Address** | IP address or hostname of the NDI discovery server (enabled only when the checkbox above is checked) |

Click **Save** to apply changes.

> NOTE
>
> **NDI® Receive Groups allow you to segment NDI sources on larger networks. Only sources broadcasting in the same group will be visible to the controller.**

> NOTE
>
> **A dedicated NDI Discovery Server is typically used on networks where mDNS/UDP broadcast is blocked or unreliable (e.g., routed networks spanning multiple subnets).**

# Presets

## Setting and Calling Presets

Presets let you save commonly used camera shots and recall them when needed. On supported PTZOptics cameras, each preset stores the camera's pan, tilt, and zoom position along with the image settings active when the preset is saved.

> **AUTOMATIC MODES REMAIN ACTIVE**
>
> If auto exposure, auto white balance, or auto focus is enabled, the camera may continue adjusting the corresponding settings after the preset is recalled. These settings will need to be disabled manually before saving a preset if you want the preset to retain specific settings.

### Before You Begin

Set the room lighting to the conditions you expect to use during production. Changing the lighting after creating your presets may affect exposure, white balance, and the consistency between shots.

> **TIP**
>
> Evenly distributed lighting is generally easier to work with because it reduces large differences in brightness and color across the room.

Starting from the camera's default image settings can provide a useful baseline, but it is not required. If the camera is already producing the desired image, you can use the current settings as your starting point.

## Step 1: Save Your First Preset

### Save Preset 1 with the Web Interface (Recommended)

1. Open the **Horizon Web UI** and locate the live preview and PTZ controls.
2. Zoom out to a wide view of the room.

3. Pan and tilt the camera toward the center of the primary shooting area.
4. Adjust the exposure, white balance, focus, and other image settings until you are satisfied with the image.
5. Locate the **Preset Control** section and select Set.
6. Type `1` as the preset number and press Enter on your keyboard to confirm the selection.
7. Select **Call**, enter `1`, and confirm that the camera returns to the expected position and image settings.

**Saving Preset 1 with the IR Remote**

If you do not have access to the **Horizon Web UI**, you can establish Preset 1 with the IR remote:

1. Use the arrow and zoom buttons to create a wide, centered view of the primary shooting area.
2. Adjust the camera's image settings through the on-screen display as needed.
3. Press **[PRESET]**, followed by **[1]**, to save the position and image settings.
4. Press **[HOME]** to recall **Preset 1** and confirm that the camera returns to the expected position and image settings.

> **MATCH THE IMAGE, NOT NECESSARILY THE SETTINGS**
>
> Different areas of a room may require different exposure or color settings. The settings do not need to be identical across every preset. The resulting images should look consistent when switching between shots.
>
> For easier comparison, monitor every shot on the same display. You can also capture a reference image of Preset 0 or compare the shots in production software such as OBS or vMix.

> **WARNING**
>
> Saving a preset to an occupied number replaces the previously stored shot.

# Step 2: Calling Presets

## Call Presets with the Web Interface

1. Locate the **Preset Control** section.
2. Select **Call**.
3. Enter the preset number and confirm the selection.

#### Calling Presets with the IR Remote

Press the desired number button to recall **Presets 0–9**.

#### Using a PTZ Controller

Select the preset number and use the controller's preset-call command. The exact procedure varies by controller, so refer to the controller's documentation for the correct button sequence.

> **NOTE**
>
> The **Horizon Web UI** and compatible PTZ controllers can access preset numbers beyond the ten presets available directly from the IR remote.

> **AUTOMATIC MODES AND PRESET INTERACTION**
>
> If **Image Presets are disabled**, when the camera recalls the start location, stop location, or target-lost preset, it will only move to the saved position. The camera will continue using the current image settings and will not recall any image parameters from the preset.
>
> If **Image Presets are enabled**, when one of those presets is recalled, the camera will restore both the saved camera position and the image settings stored with that preset.

# Clearing Presets

## Clear Presets with the Web Interface

Click the **Pencil** icon in the bottom right corner of the **Preset Control** section to open the **Edit Presets** dialog. From there, you can click the **Trash** icon next to a preset to clear it.

#### Clearing Presets with the IR Remote

#### Clearing an Individual Preset

1. Press **[RESET]**.
2. Press the number of the preset you want to clear.

#### Clear All Presets

1. Press **[RESET]**.

2. Press **[RESET]** again.

> **WARNING**
>
> Clearing all presets cannot be undone. Confirm that you no longer need any of the saved camera positions before clearing them.

# Firmware

Firmware Instructions

Firmware Changelog

## Latest Firmware Files

SuperJoy Firmware

# Instructions

## Checking Your SuperJoy-G1 Firmware

There are two ways to view the firmware currently running on your joystick.

### Method 1

Visit your joystick's Web UI.

#### Web UI Steps

1. Enter the joystick's IP address into a web browser and log in using your credentials.

   > **IMPORTANT**
   >
   > If this is your first time logging in, you will be prompted to create a username and password.

2. Once logged in, click the **Settings** menu button, then click on the **Version** tab.

3. The firmware version will be displayed in the software field.

### Method 2

The Joystick's Display menu

#### Display Menu Steps

1. Press the **Setup** button on your joystick.
2. Using the joystick, scroll down to **System Info** and press the **Enter** button.
3. The firmware version will be displayed in the software field.

## Upgrading Your SuperJoy-G1 Firmware

### Upgrade Steps

1. To upgrade your firmware, navigate to our Downloads page.
2. Scroll down the page and click **SuperJoy-G1** then click **Download Firmware**.
3. Return to the joystick's Web UI and go to the **Settings** menu.
4. Click **Browse**. Then, select the firmware file and click **Open**.

> **NOTE**
>
> You may need to extract the files from the zip file you downloaded earlier.

5. Click **Upgrade**.
6. A pop-up will appear stating that the file is uploading. Upon completion, another pop-up will appear, indicating that the upload was successful. Click the **Upgrade and Restart** button.
    - The joystick's display will state that it is **"Initializing"**
7. The page will automatically refresh and redirect you to the login screen.
8. Click the joystick's "**Setup**" button, then scroll down to the factory reset option. Perform the reset by pressing enter. This will properly load the new features.
9. Congratulations! You can now log back in with the latest firmware.

# SuperJoy Firmware Changelog

Select a release date from the **On this page** menu on the right to jump directly to that version's release notes, or press `Ctrl+F` (`Cmd+F` on Mac) to search across all firmware updates.

---

## 04/16/2025

SuperJoy - v2.4.5

### New Features

- Increased the Hex Custom Command length from `16bit` to `32bit`.
- Allows Matrix Mode to utilize the Camera Name and Preset Name instead of `Cam 1 Preset 1 | Cam 1 Preset 2 | etc.`
- The Devices > Modify > Trigger Command List size has been increased.
- The SuperJoy now remembers if HDMI was enabled or disabled when last powered and will return to that state.

### Bug Fixes

- Fixed a bug that prevented certain ASCII characters such as `\r` (carriage return) from being sent along with Custom Commands.
- Fixed a bug that caused all saved Preset Names saved to Group 1, Device 1 to be saved to all devices.
- Fixed a bug that caused the SuperJoy to exit Matrix Mode when the Group is changed.
- Fixed a bug that prevented the SuperJoy from sending Custom commands to port `8088` on a closed network without internet access.
- Corrected the buttons names on the Settings > Upgrade page in the web interface.
- Improved Panasonic control performance.
- Improved the performance of exporting and importing configuration files.

### Known Bugs

- When saving a TCP ASCII Custom Command, certain characters such as `\r` (carriage return) are visually removed from the web interface. The command that is sent is unaffected.
- Device and Custom export files produced from older firmware (for example, `2.3.6` or `2.3.8`) are not compatible with `2.4.5`.

---

# 10/11/2024

SuperJoy - v2.3.6

## New Features

- Increased web security by prompting the user to define a password upon first accessing the web interface.
- Added the ability to toggle all of the button lights on and off by long pressing the Setup button.
- Added the ability to lock certain settings to prevent users from using them. You can configure these locked settings in the web interface, and toggle Lock Mode on and off by long pressing the joystick Custom Button. To disable Lock mode, you will need to enter the password used to login to the web interface.
- The button lights and Lock Mode will function in tandem. If a button has been disabled from use, that button will not illuminate when the button light and Lock Mode are both enabled.
- Reordered the web interface to make setup more fluid.
- Added the ability to save more than 10 Custom Buttons.
- Added the ability to export and import Custom Buttons.
- Added the ability to use the joystick top button as a 5th Custom Button when short pressed.
- Added the ability to trigger Custom Buttons 1 - 6 from the web interface.
- Added the ability to query the PTZOptics Firmware Server for new firmware updates.
- Added the preview feature that allows naming presets for device 1, channel 1. When a preset is called, that name will show up on the SuperJoy's LCD screen. Named presets will be implemented for all channels in the future.
- Added the ability to define an NDI Receive Group.
- Added the ability to define an NDI Discovery Server.
- Added the option for Basic HTTP Authentication for connected devices.

## Bug Fixes

- Resolved the bug that prevented control of Sony cameras.
- Resolved the bug that prevented the RTSP URL from being changed.
- Resolved the bug where opening the On Screen Display Menu on a camera then switching to a different camera caused unreliable PTZ control.
- Improved reliability in applying firmware updates.
- Resolved the bug that was causing a `recv timeout` error when using the HDMI Output with a PTZOptics Move SE.
- Changed the default Panasonic control port to `80`.
- Resolved a bug where the RTSP didn't auto populate when adding a camera from NDI Search.

---

# 11/16/2023

SuperJoy - v2.2.9

## New Features

- The SuperJoy now saves the Pan, Tilt, Zoom, and Focus speed per camera.
- The SuperJoy now allows you to use non-alphanumeric characters in the password field when adding the RTSP feed to the HDMI output.
- The SuperJoy now allows you to send out a Custom Command when changing cameras.
- The SuperJoy now displays the Exposure and White Balance mode on the LCD.
- Added a setting to prevent the joystick from sending the Pan, Tilt, and/or Zoom commands when moved.
- Added the ability to use a PTZOptics camera's `.local` address instead of the IP address. You can also type in `ptzoptics.local` in the Address field in the SuperJoy's web interface when adding a camera.
- Added Panasonic control.
- Added support for a Camera Stub when sending Custom Commands via TCP, UDP, and HTTP-CGI, for example:

```
http://{{CURRENT_CAM}}/cgi-bin/ptzctrl.cgi?ptzcmd&home
```

- Added support for VISCA WebSockets.

## Bug Fixes

- Removed the address offset associated with Pelco-D.
- Fixed an issue where the SuperJoy couldn't send commands to itself using the Custom Buttons.
- Fixed an issue where diagonal movement through ONVIF was always performed at maximum speed.
- Fixed an issue where ONVIF and serial VISCA didn't set or call presets.
- Fixed an issue that prevented an HTTP-CGI command to be saved to a custom button if it included a question mark.
- Fixed an issue that prevented the joystick from calling any presets above `24` when using the SuperJoy's HTTP-CGI API.
- Changed the field order when assigning a static IP address.

---

# 08/03/2022

SuperJoy - v2.1.7

## New Features and Bug Fixes

- Added Network Time Protocol (NTP) to web interface.
- Added ability to send HTTP-CGI Custom Button toggles.

```
First press sends one string of commands. Second press sends a second string of
commands.
```

- Bugfix: USB port didn't allow for firmware updates every time.

---

# 01/05/2022

SuperJoy - v2.0.7-211217

## New Features and Bug Fixes

- Added the MAC address to the Settings > Network page.

- Added the ability to use special characters in the password (`!@#$%^&*`).
- Added the ability to NDI Search for multiple sources under a single IP address.
- Added the ability to assign Pan/Tilt/Zoom/Focus speeds per camera.
- Added the ability to disable Pan/Tilt/Zoom/Focus.
- Fixed issue with Focus dial not being affected by Focus Speed buttons.
- Fixed issue with HTTP-CGI Custom Buttons requiring certain characters.

---

# 10/29/2021

SuperJoy - v2.0.6-211022

## New Features and Bug Fixes

- Added the ability to send HTTP-CGI commands to the SuperJoy.
- Added the ability to change the anti-flicker of the HDMI output (`50Hz / 60Hz`).
- Added Gain control to the Iris/Shutter dial. (Now Iris/Shutter/Gain)

```
Iris = Blue
Shutter = Red
Gain = Purple
```

- Current models only have the text `Iris/Shutter`. Future models will have the full `Iris/Shutter/Gain`.
- Added Dynamic DNS function to the web interface.
- Added the ability to search for PTZOptics and NDI cameras on the network from the web interface.
- Added the ability to change the web port of the SuperJoy in the web interface.

---

# 09/03/2021

SuperJoy - v2.0.5-210902

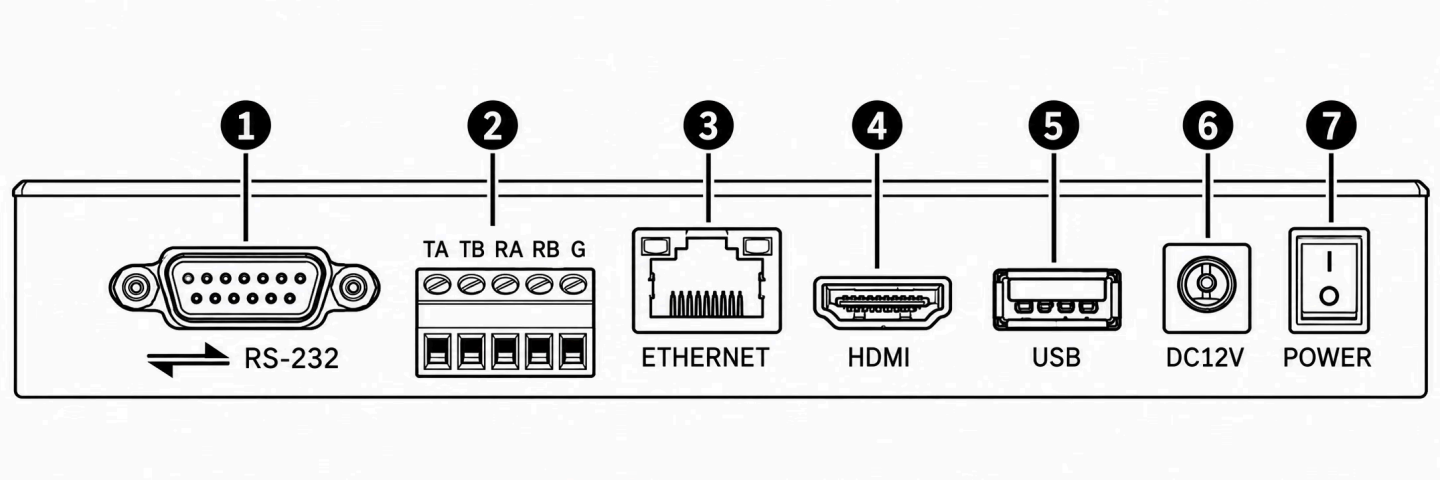
## New Features and Bug Fixes

- HDMI Output bugfix: SuperJoys with Serial Number `20210601####` and beyond would lose the HDMI Output functionality after applying the `2.0.4-210430` firmware. The `2.0.5-210902` firmware restores the HDMI Output functionality.

# Technical Specs

## Model Information

| Feature | Value |
| --- | --- |
| **Official SKU** | `PT-SUPERJOY-G1` |
| **Model Name** | `SuperJoy G1` |




## SuperJoy Connection List

1. RS-232 Output
2. RS-485 Interface
3. LAN
4. HDMI Display Output
5. USB Service Port
6. DC 12V Power
7. Power Switch

## General Specifications

| Feature | Specification |
| --- | --- |
| **Protocol** | - **PTZOptics VISCA** and **VISCA over IP**<br>- **PELCO-D** and **PELCO-P** via Serial Ports |

| Feature | Specification |
| --- | --- |
| | - Limited **Sony VISCA** and **VISCA over IP** support<br>- **Limited ONVIF** support<br>- **Limited NDI** support<br>- **Limited Panasonic Support (HTTP)**<br>- **WebSockets** |
| **Baud Rate** | 1200 to 19200 bps |
| **Maximum Cameras** | 253 channels / cameras; Groups 1-4: 7 channels / cameras; Group 5: 225 channels / cameras |
| **Maximum Recommended Distance** | Ethernet: 328 feet / 100 Meters |
| **Maximum Recommended Distance** | RS-232: 50 feet / 15 Meters |
| **Maximum Recommended Distance** | RS-485: 3,937 feet / 1200 Meters |
| **Maximum Recommended Distance** | RS-422: 50 feet / 15 Meters |

## Connections

| Feature | Specification |
| --- | --- |
| **Power Connector** | 12DC Power Connection |
| **Power Requirements** | 12V DC |
| **Power Consumption** | 6 Watts |
| **HD Video Output** | HDMI 1.3 (Up to 1080p) |

### Communication Interface

- RS-232 Control Connection
- RS-422 / RS-485 Control Connection
- Ethernet / RJ-45 (PoE) Network Connection
- Supports 802.3af PoE power
- Network: NIC (TCP and UDP)

- Serial/Analog: RS-232 Full Duplex, RS-485 Semi Duplex, RS-422 Full Duplex

## Physical Specifications

| Feature | Specification |
|---|---|
| **USB 2.0 Interface** | USB 2.0 Service Port (Update Firmware, Import Config, Export Config) DC12V Power required to activate. |
| **Product Material** | Aluminum |
| **Dimensions (L x W x H)** | 7.09” L x 13.94” W x 3.98” H; 180mm L x 354mm W x 101mm H |
| **Weight** | 3.75 lbs, 1.70 kg |
| **Box Dimensions (L x W x H)** | 8.46” L x 14.57” W x 4.61” H; 215mm L x 370mm W x 117mm H |
| **Box Weight** | 5.80 lbs, 2.63 kg |
| **Operating Environment** | Indoor |
| **Operating Temperature** | 14° F ~ 122° F (-10° C ~ +50° C) |
| **Operating Humidity** | 10% ~ 90% (non condensation) |
| **Warranty** | 2 Year Manufacturer Warranty |

Covered by one or more claims of the HEVC patents listed at patentlist.accessadvance.com



## Certifications

This joystick has been tested and certified for the standards shown below:

- FCC Class B - Tested under FCC 47 CFR Part 15 Subpart B, Class (sDoC), ANSI C63.4 -2014
- CE - Tested under EMC Directive 2014/30/EU
- EN 55032: 2015+A11:2020
- EN 55035:2017+A11:2020
- EN IEC 61000-3-2:2019
- EN 61000-3-3:2013/A1:2019
- RoHS - Tested under RoHS Directive 2011/65/EU