

PTZ Extreme

User Manual

January 20, 2025

SKUs: PTZ-EXTREME-V2B

Language: English



I Disclaimer

Before using this product, please read and fully understand all instructions provided. This product is classified as Class A equipment and is intended for use by commercial customers only. It is not suitable for residential use and may cause interference in residential environments.

For the most up-to-date specifications, refer to the latest SKAARHOJ data sheets or publications. Availability of products and types may vary by country —please check with a SKAARHOJ sales representative for details.

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The source language of this manual is English. Translations into other languages are derived from the English version.

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III Document Legends

This section explains the meaning of various alert levels and informational notes used throughout this document. Each label serves as a guide to indicate the level of attention required and the type of risk involved. Please review these legends carefully to ensure a clear understanding of the warnings, cautions, and helpful tips provided.

Danger

DANGER indicates an imminent hazard. Failure to avoid it will result in death or serious injury. Always follow the recommended actions to prevent this danger.

Warning

WARNING indicates a potential hazard. Failure to avoid it may result in death or serious injury. Always follow the recommended actions to prevent this risk.

Caution

CAUTION indicates a possible hazard. Failure to avoid it may result in minor or moderate injuries. Always follow the recommended actions to prevent this hazard.

Notice

NOTICE indicates a potential risk of equipment or environmental damage. Always follow the recommended actions to avoid damage.

Hint

HINT provides additional information to clarify or simplify a procedure. It is not related to safety.

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1 About this Document

This operating manual is intended for all users of the SKAARHOJ PTZ Extreme. It provides essential guidelines for safe and proper operation of the device. All users must read this manual before using the device for the first time to ensure correct usage.

The manual is an important part of the PTZ Extreme and should be kept easily accessible, close to the device for reference at any time.

For more detailed information about the device's features and functionality, please refer to additional instructions available for download at www.skaarhoj.com or request them via support@skaarhoj.com.

Ensure that the operating manual, user manual, and any other relevant documentation are stored safely for future reference and for any potential future users of the device.

For more resources and helpful information, visit the SKAARHOJ website.

SKAARHOJ offers comprehensive training courses to provide deeper insights into maximizing the potential of SKAARHOJ products.

2 Safety Information

This safety information supplements the specific operating instructions and must be strictly followed. Before operating or installing the device, read and understand all safety and operating instructions. Keep these instructions for future reference. Always follow the guidelines in this and any other documentation provided to avoid injury or damage to the device and surrounding objects.

Assembly and operation should only be performed by trained personnel familiar with the device. Use only the recommended tools, materials, and procedures outlined in this document. For other equipment, refer to the manufacturer's instructions.

Safety instructions, warning symbols, and signal words in this document highlight different levels of risk.

Caution

Using PTZ Extreme in Humid Environments with Condensation

When moving the device and its accessories from a cool to a warm location, or when used in a damp environment, condensation may form inside the device and on electrical connections. Do not operate the device while condensation is present, as it poses a risk of electric shock and fire due to short circuits.

- Do not use the device or accessories if condensation occurs.
- After moving the device from a cool to a warm environment, allow time for the components to warm up.
- Store the device in a warmer location to reduce the risk of condensation.

Warning

Connected Cables on the Floor

Risk of injury from tripping, falling, or slipping over connected cables.

- Always secure cables connected to the device and accessories properly.
- Install cables in a way that prevents tripping.
- Use a cable duct or secure cables with adhesive tape if necessary.
- Always disconnect cables from the device and accessories before moving them.

3 About PTZ Extreme

The ultimate tactile controller for PTZ cameras and robotic systems of different brands such as Panasonic, Sony, Canon, BirdDog, JVC, PTZ Optics, Lumens, Bolin, AIDA, Vizrt...and more. The Unique SKAARHOJ Blue Pill operating system allows the detailed control of multiple cameras from different brands.

With PTZ Extreme you enjoy benefits such as

- **Advanced Ergonomics:** Custom controls designed for comfort and efficiency in long production hours.
- **Hall Effect Joystick:** Delivers enhanced precision, reliability, and ergonomic design for extended professional use.
- **OLED Displays:** Immediate visual feedback on labels and settings for precision adjustments and true flexibility.
- **Versatile Connectivity:** Ethernet with PoE for streamlined setup and operation in any environment.
- **Absolute Freedom in Control:** Tailor every aspect of your control surface to match your workflow perfectly.
- **Extensive Device Support:** Control a wide range of cameras and devices, maximizing your system's capabilities.
- **Durable Build Quality:** Engineered for reliability and longevity, ensuring consistent performance.
- **Innovative Design:** Incorporates cutting-edge technology like the Blue Pill Platform for enhanced performance.
- **Time Tested:** Adopted by professionals worldwide, signifying its effectiveness and reliability.

3.1 Feature Highlights

- Extensive list of supported devices
- Advanced ergonomics
- Versatile connectivity via IP
- Durable build quality
- 3-axis precision Hall Effect joystick for PTZ movement
- Custom designed aluminum zoom rocker
- Stepless, friction balanced focus wheel
- Large assignable iris knob for exposure control

- 3 rows of buttons for camera selection, preset recall and menu navigation
- 8 backlit encoders for parameter adjustments
- Widescreen OLED displays for each button and knob
- Universal control of multiple 3rd party devices
- User customization with Reactor Web UI
- 1G Ethernet w/Power over Ethernet (PoE IEEE802.3af/t)
- Designed and made in Denmark
- Time tested –adopted by professionals worldwide

3.2 Intended Use

Notice

Intended Use of PTZ Extreme

All versions of PTZ Extreme, and accessories are intended for professional use only and must be operated by skilled and trained personnel in non-domestic environments. They must not be used by inexperienced individuals without proper training.

Before use, carefully read and understand both the operating and user manuals. Use the product and its accessories solely for the purposes outlined in this document. Always follow the safety instructions and system requirements for all equipment involved.

SKAARHOJ assumes no liability for damages or modifications resulting from improper use. Modifying the product or its accessories is strictly prohibited.

3.3 Product Identification

The PTZ Extreme is identified by a label located on the bottom of the device. This label contains important information such as certification marks, product code, and the serial number. Ensure this label remains intact for future reference and support.

3.4 Environmental Conditions

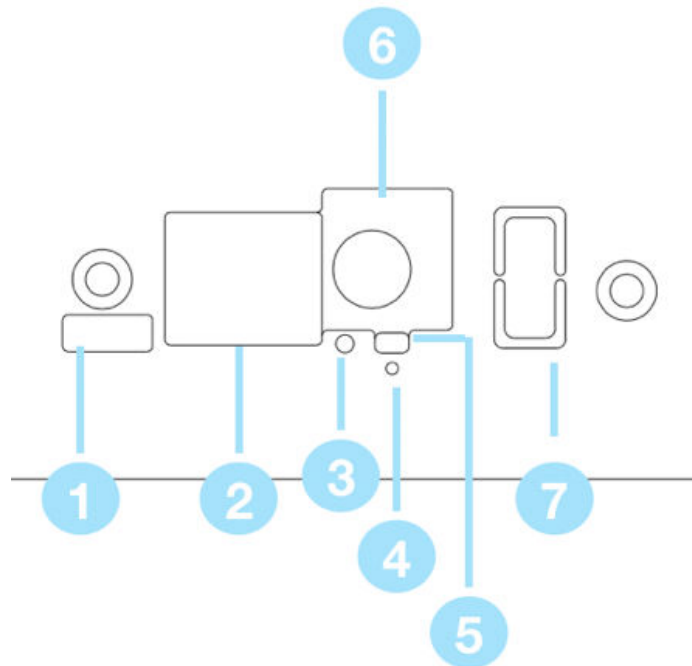
The PTZ Extreme must be used and stored under specific environmental conditions. Before commissioning and operation, ensure the following conditions are met:

Operating Temperature	0° C to +40° C / +32° F to +104° F
Storage Temperature	-20° C to +45° C / -4° F to +113° F
Humidity	90% RH, non-condensing, from -20° C to +45° C

3.5 Technical Data and Dimensions

3.5.1 Standard Connections

On most SKAARHOJ products, you will find the following cable connections on the backside:



- **1:** Micro USB Port for serial communication with SKAARHOJ Firmware Updater
- **2:** IP Network RJ45 Port for IP control and 5W-30W PoE (+)/PoE Standard: IEEE 802.3af/t
- **3:** Status LED for monitoring and debugging
- **4:** Not used on Blue Pill Inside products.
- **5:** Config Button to enable WiFi Access Point. See [WiFi Access Point](#) section
- **6:** 12V DC Power Supply for connection to the supplied DC power adaptor. Center is positive.
- **7:** USB-A Port. Only available on some models for attachment of accessories.

Notice

- Use only shielded Cat6 (STP) cables for Ethernet connections.
- Ensure that your Ethernet switch is properly connected to a protective earth ground.
- All cables, except Ethernet and GPI cables, must be shorter than 3 meters.
- If applicable: The USB-A port's power is not included in the product's maximum power rating. If near maximum load, use a powered USB hub to prevent the USB-A port from impacting the overall power budget.

3.5.2 Protective Earth

Proper grounding of the device in its installation space is highly recommended. In most cases, grounding the unit through a shielded Ethernet cable connected to a properly grounded switch will suffice. However, to fully comply with all immunity standards, more direct grounding may be necessary. If required, attach a protective earth ground wire to the screw located just above the Micro USB port.

3.5.3 Technical Drawing

Figure 1 presents a detailed technical drawing of PTZ Extreme, highlighting key dimensions and design elements.

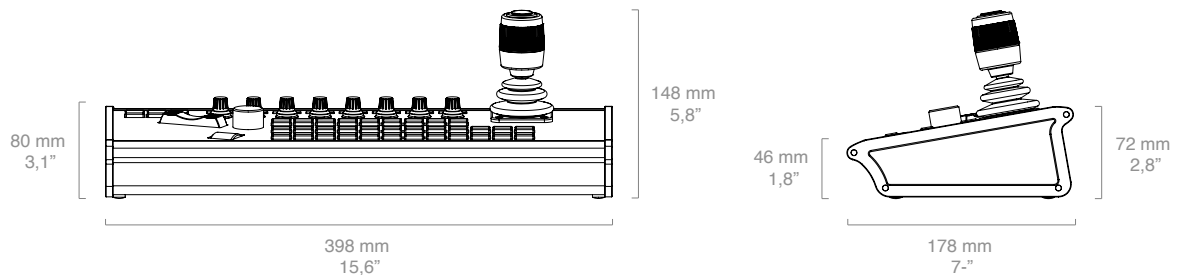


Figure 1: Technical drawing of PTZ Extreme with key dimensions and layout details.

3.5.4 Technical Data

Technical data for PTZ Extreme are presented in Table 1.

3.5.5 Hardware Components

The hardware components of PTZ Extreme, along with their component IDs (HWc ID), are shown in Figure 2.

Hardware Specifications	
Component Highlights	Custom Aluminum Zoom Rocker Friction Balanced Focus Knob Detentless Iris Encoder 3-axis precision Hall Effect joystick
Buttons	Elastomer Four-Way Button w/Display (x36); 4-Axis Hall Effect Joystick, Top button (x1)
Encoders	Focus roller (x1); Encoder (x8); Large encoder (x1)
Analog Components	Large Aluminum Zoom Rocker, no labels (x1); 4-Axis Hall Effect Joystick, Left-Right (x1); 4-Axis Hall Effect Joystick, Up-Down (x1); 4-Axis Hall Effect Joystick, Rotate (x1)
Programmable OLED Tiles	64x32 pixels (x24); 64x32 pixels, gray (x12); 112x32 pixels (x8)
Power Consumption	Typ. 3.4? Watt, Max 6.9? Watt (excl. USB-A)
Connectivity	
Networking	1G Ethernet w/Power over Ethernet (PoE IEEE802.3af/t)
Power Supply	12V DC Jack 5.5mm x 2.1mm x 10mm Center Positive PoE IEEE802.3af/t
Service Port	Micro USB for setting manual IP
Peripherals	USB-A 2.0 (500 mA) for Stream Deck, X-keys, additional networking adapters, frame grabbers etc.
Software	
Platform	Blue Pill (Reactor, Device Cores, skaarOS Linux)
Licenses	Full Reactor and Device Core licenses included
Physical and Shipping	
Product Weight	1868 g
Shipping Box Weight	2952 g
Country of Origin	Denmark

Table 1: Detailed specifications and technical characteristics for PTZ Extreme

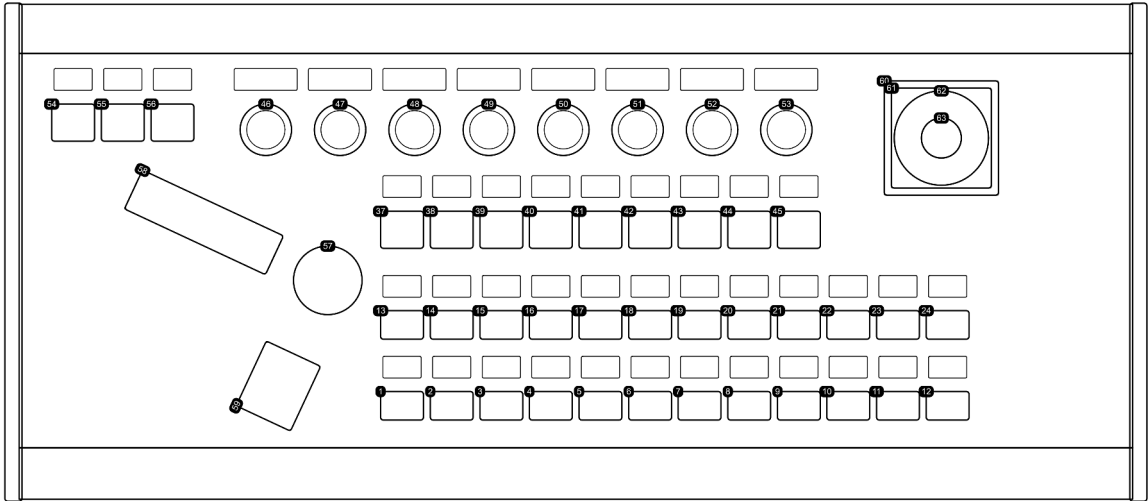


Figure 2: Diagram of hardware components for PTZ Extreme with component IDs (HWc ID)

3.6 Important Notes on Product Usage

3.6.1 Joystick Auto Calibration

Caution

During the boot process of your PTZ Extreme, the joystick's position will be measured and set as the center reference for subsequent use of the control panel. Therefore, DO NOT touch the joystick during boot-up. Ensure it is in its default fallback position when released.

3.6.2 Joystick Tuning

Hint

The joystick can be fine-tuned across several parameters:

- **Axis Limits:** Define the maximum values when the joystick is moved to either extreme.
- **Tolerance:** Adjust how far the joystick must move from the center towards the extremes to register a new value.
- **Dead Zone:** Set the area around the center where movement does not trigger any value change.

The default settings are safe and suitable for most users. However, if you wish to optimize these parameters for your specific use case, a dedicated tuning process is available. Please contact our support team for assistance.

3.7 Scope of Delivery and Warranty

Notice

Important Information:

The packaging materials are recyclable. To contribute to environmental sustainability, please dispose of the packaging at a certified recycling facility. Ensure that all storage, shipping, and disposal comply with local regulations. SKAARHOJ assumes no responsibility for any consequences arising from improper storage, shipping, or disposal of the product.

Upon receiving the delivery, carefully inspect the package and its contents for any signs of damage or missing components. Do not accept the delivery if the package is damaged or incomplete. The package should contain the following items:

- (This Product)
- 12V Power Supply: Manufacturer: PHIHONG, Model Name: PSA15R-120P, Output: 12V/1.25A, Cable Length: 1.5m, Adapter type: EU, GB, US, AU depending on shipping country, DC Output

Connector: 5.5mm x 2.1mm x 10mm Center Positive

- Getting Started Guide

For details regarding the warranty, please contact your local SKAARHOJ Service Partner. SKAARHOJ is not liable for any issues arising from improper shipping, misuse, or the use of unauthorized third-party products.

3.7.1 Recommended Accessories

- Ethernet Cable: Cat 6 S/FTP or better

3.8 Certification and Safety Standards

3.8.1 EU Declaration of Conformity



Brand Name	SKAARHOJ
Product Description	Universal Control Panel PTZ Extreme

This product conforms to the following European directives:

- Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to electromagnetic compatibility.
- Directive 2011/65/EU of the European Parliament and the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, including Commission Delegated Directive (EU) 2015/863 of 31 March 2015.

Compliance with these directives has been verified or inferred by applying the following standards:

- **EN 55032:2015, EN 55032:2015/A11:2020** —Electromagnetic compatibility of multimedia equipment —Emission requirements
- **EN 61000-3-2:2014** — Electromagnetic compatibility (EMC) — Part 3-2: Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
- **EN 61000-3-3:2013** — Electromagnetic compatibility (EMC) — Part 3-3: Limits for voltage changes, fluctuations, and flicker in public low-voltage supply systems for equipment with rated current ≤ 16 A per phase and not subject to conditional connection
- **EN 55035:2017+A11:2020** —Information technology equipment —Immunity characteristics —Limits and methods of measurement

- **EN 301 489** — Electromagnetic compatibility (EMC) standard for radio equipment and services; Part 1 and specific standards for particular types of radio equipment
- **EN IEC 63000:2018** — Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Year of affixed CE-marking:

3.8.2 Module Compliance Inheritance Statement

This product incorporates a Raspberry Pi Compute Module 4 (CM4) containing a WiFi/Bluetooth radio module that has been independently tested and certified in accordance with FCC ID: 2ABCB-RPIRM0 and IC: 20953-RPIRM0. Compliance with relevant radio and EMC standards, including FCC Part 15 and Industry Canada RSS-247, is inherited under these certifications, provided that the module is integrated without modifications affecting its RF performance.

3.8.3 Industry Canada Compliance Statement

Complies with CAN ICES-003(A)/NMB-003(A). This device complies with Industry Canada license-exempt RSS standards. Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. l'appareil ne doit pas produire de brouillage, et
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

3.8.4 FCC Class A Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

4 Getting Started

This chapter provides a basic guide for setting up the PTZ Extreme. The steps apply to most SKAARHOJ controllers and are therefore described in general terms.

The basic setup involves:

- Powering on the PTZ Extreme and accessing it via its IP address
- Discovering and adding devices to be controlled
- Selecting a default configuration

The SKAARHOJ Blue Pill platform enables efficient configuration and control, storing all settings locally within the device. Online communication is only required for software updates or installation of new device cores. All configuration changes can be made over the local network with a web browser.

4.1 Network Requirements

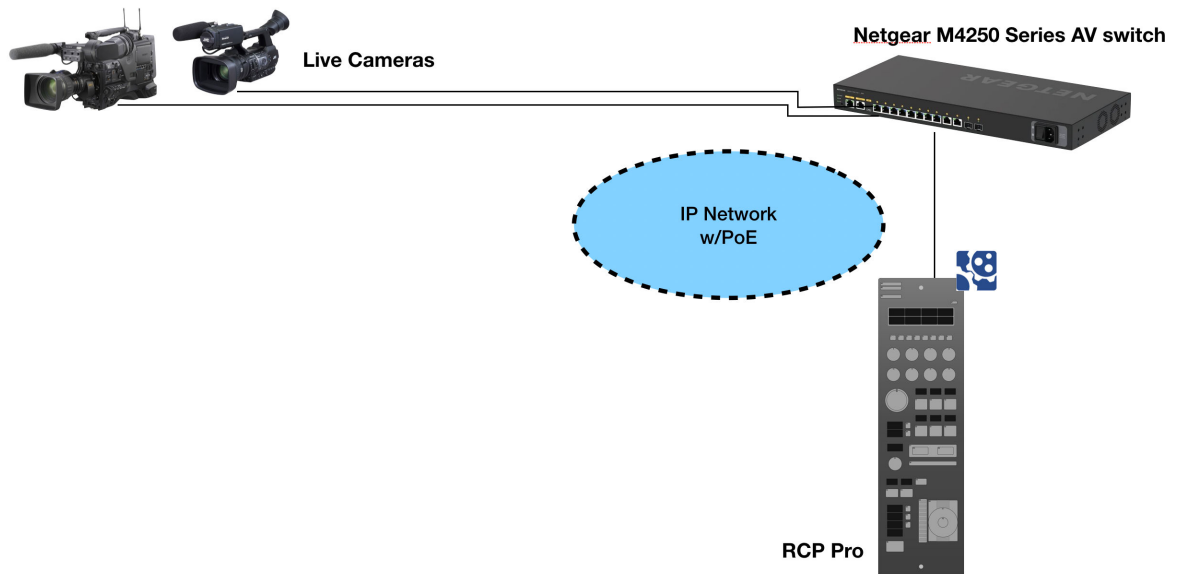
PTZ Extreme is equipped with a 1 GBit network interface and support 5W-30W PoE (IEEE 802.3af/t) or 12V DC power. Ensure the PTZ Extreme and client device are on the same subnet (e.g., 192.168.10.*). If multiple SKAARHOJ units are connected to the network, each device should have a unique IP address.

Caution

Power over Ethernet (PoE) Specifications SKAARHOJ controllers use the industry standard PoE (5W-30W, IEEE 802.3af/t). Note that non-standard PoE types, such as certain 24V Ubiquiti models, are incompatible with SKAARHOJ devices. Make sure the PoE switch or injector supports this standard to ensure reliable operation.

4.1.1 Network Layout

We recommend connecting SKAARHOJ Blue Pill controllers to professional PoE network switches, such as the NetGear M4250-series, which efficiently handle AV network traffic. An example network layout for a SKAARHOJ control panel and connected devices, such as a camera, is shown below.



4.2 Accessing PTZ Extreme

4.2.1 DHCP or Static IP

You can access the PTZ Extreme's user interface through its IP address using any web browser. The IP address is shown on one of the displays after it is connected to the network via Power over Ethernet (PoE) or through a network connection and a power supply (5V Micro USB).

By default, the PTZ Extreme will attempt to obtain an IP address via DHCP. If DHCP is unavailable, the device will automatically use the fallback IP address 192.168.10.99 after some time.

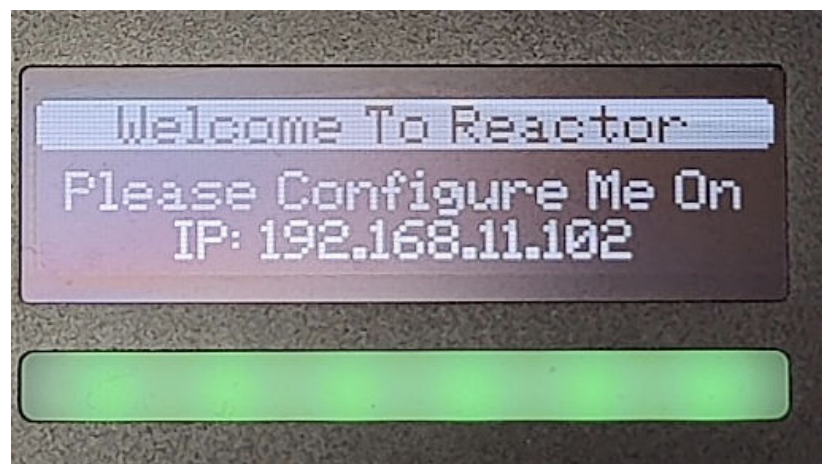
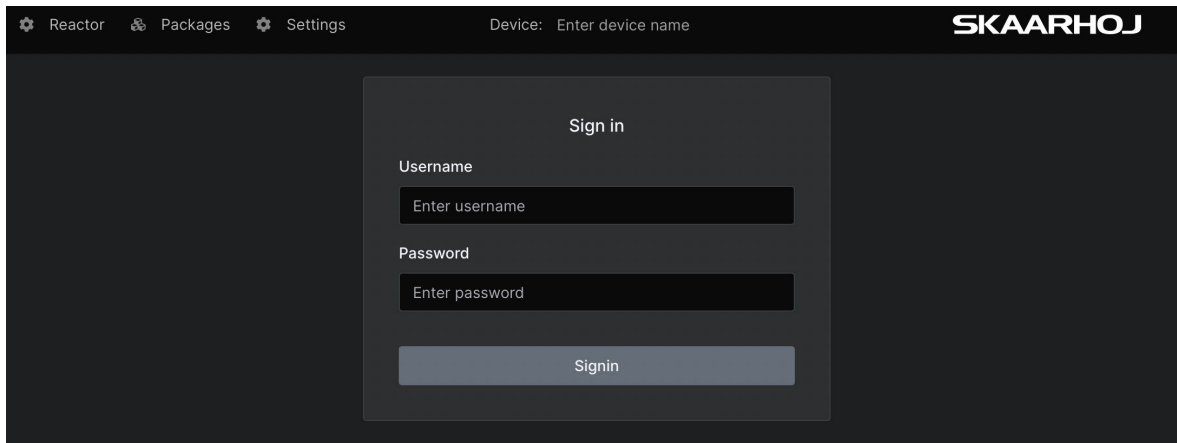


Figure 3: IP address shown for a SKAARHOJ controller.

To access the interface, enter the IP address into the browser's address bar. You will be prompted to enter a username and password. The default credentials are:

- **Username:** admin
- **Password:** skaarhoj



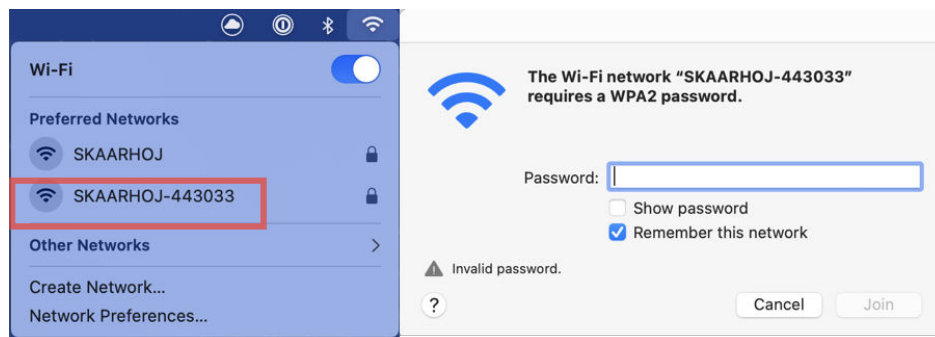
4.2.2 Wi-Fi Access Point

If the PTZ Extreme does not display an IP address, you can access its web interface by enabling the internal Wi-Fi access point.

To activate the Wi-Fi access point, press and hold the config button (located next to the Ethernet port) for approximately 3 seconds. Use a flat tool, such as a paperclip or small screwdriver. When released, the access point will activate, and the LED will turn purple. The PTZ Extreme's Wi-Fi network will then appear in your Wi-Fi list as SKAARHOJ-XXXXXX, where "XXXXXX" is the PTZ Extreme's serial number.

The default Wi-Fi password is **skaarhoj**

After connecting to the Wi-Fi network, access the PTZ Extreme web interface by entering the IP address 192.168.4.1 into the browser's address bar.



Once you access the PTZ Extreme interface, navigate to **System Menu > System** to set a static IP address. After saving, the new IP address will display on the PTZ Extreme's screen. You may need to reboot or power cycle the PTZ Extreme to apply the new IP address.

Reactor Packages System

IP Configuration

Attention
If you make changes here, you loose the actual connection to the Device!

DHCP Manual

IP address 192.168.10.99

Subnet Mask 255.255.255.0

Gateway 192.168.10.1

DNS Server 8.8.8.8

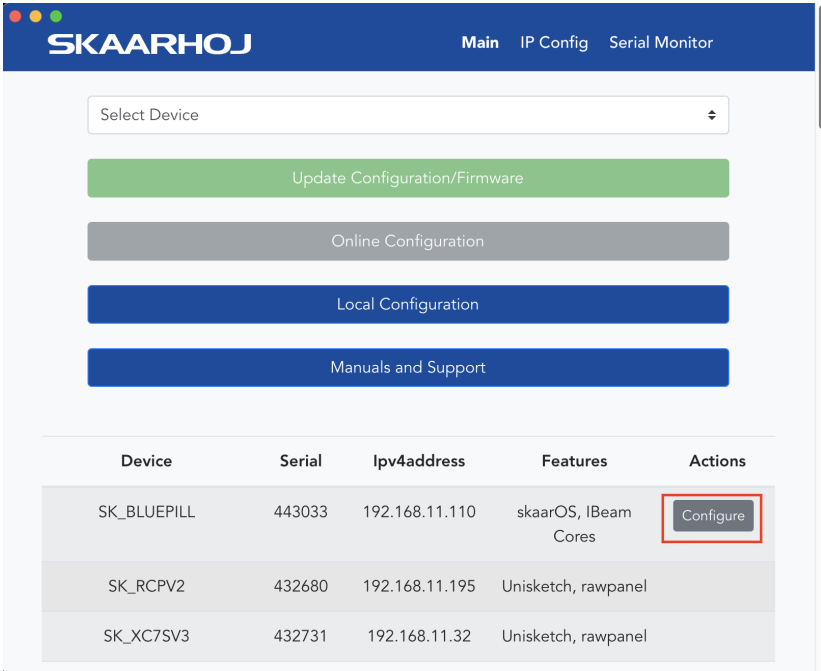
Fallback DNS 8.8.4.4

Do not use for Internet Access ☐

Save

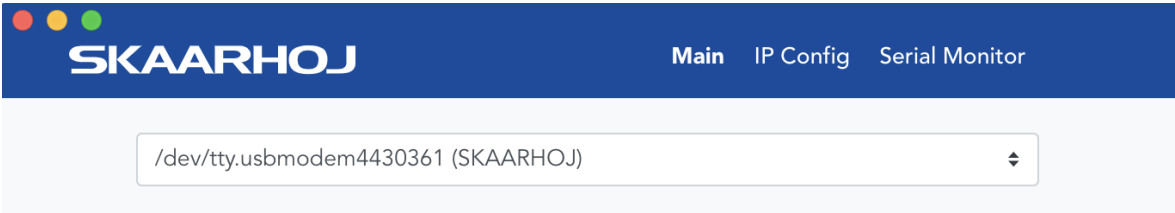
4.2.3 Link from SKAARHOJ Firmware Updater

If the SKAARHOJ Firmware Updater is open on a computer on the same subnet as the PTZ Extreme, the device should appear in the updater's device list. To open the web interface directly, click on "Configure" next to the panel's information. The PTZ Extreme does not need to be connected via USB for this feature.



4.2.4 SKAARHOJ Firmware Updater and Micro USB

If the network is not available, you can set the IP address using a Micro USB cable. Connect the PTZ Extreme to your computer, where it will appear in the “Select Device” dropdown of the Firmware Updater. From there, go to the “IP Config” tab to set the IP address.

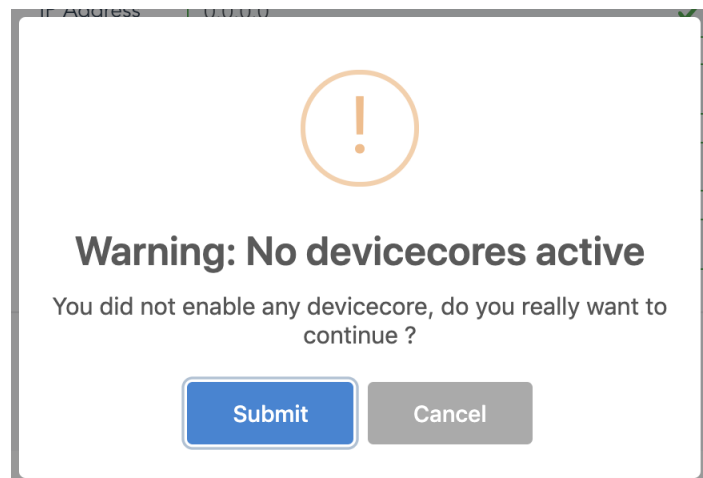


For example, on MacOS, the PTZ Extreme might appear as “/dev/tty.usbmodem4430361” . Clicking “IP Config” opens the IP setup page.



The screenshot shows the SKAARHOJ web interface with the 'IP Config' tab selected. The 'IP Configuration' section includes a 'Use DHCP' checkbox (disabled) and several input fields for network settings, each with a green checkmark indicating successful input: IP Address (10.11.12.13), Subnet Mask (255.255.255.0), Gateway (10.11.12.0), and DNS Server (8.8.8.8). Below this is a 'Device Cores' section with 'Cancel' and 'Save Settings' buttons.

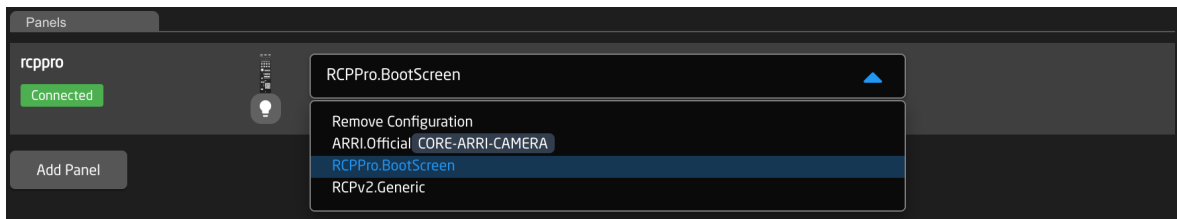
If a warning appears, click “Submit” and reboot the PTZ Extreme to apply the settings.



4.3 Selecting Default Configuration

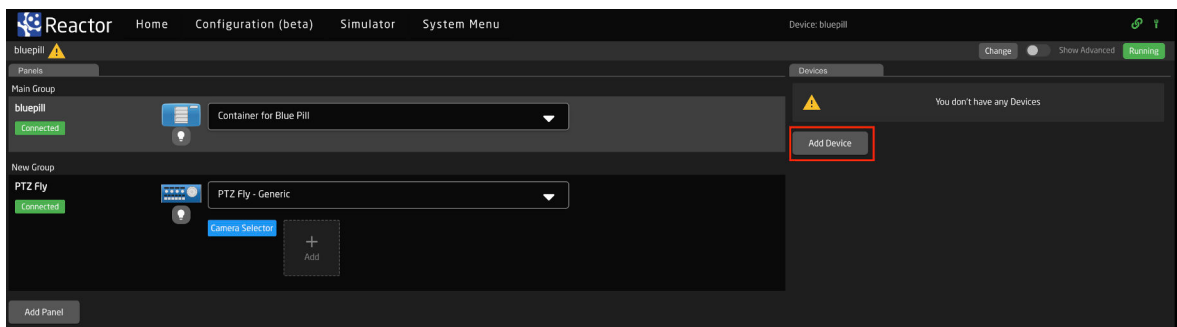
The PTZ Extreme’s function is determined by its configuration, which is selected through a drop down on the Home Screen. In most cases, the **Generic** configuration is sufficient. However, for specific panel and device combinations, dedicated configurations may be available.

To select the default configuration, use the dropdown menu next to the panel.



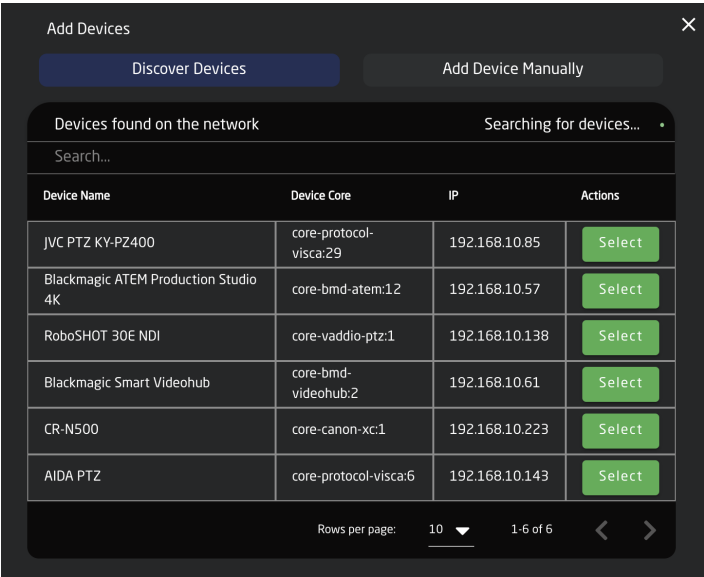
4.4 Adding Devices

There are two main ways to add devices to a new PTZ Extreme setup: **Auto Discover** and **Manual Add**.



4.4.1 Auto Discover

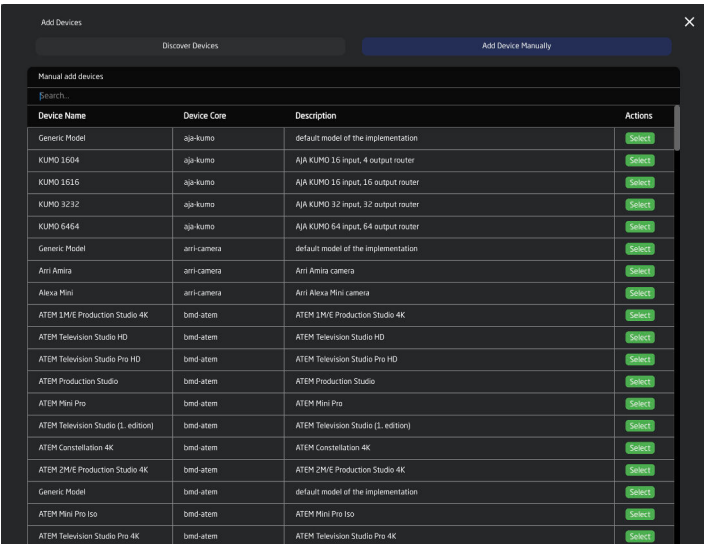
The Auto Discover feature scans the network for compatible devices using mDNS and other discovery methods. While not all devices are discoverable this way, those that are can be added to the PTZ Extreme's device list with a single click. After adding a device via Auto Discover, you may still need to input certain details to establish connectivity. See Section [4.4.3](#) for further setup information.



To select multiple devices, hold **SHIFT** and click the green **Select** button.

4.4.2 Manual Add

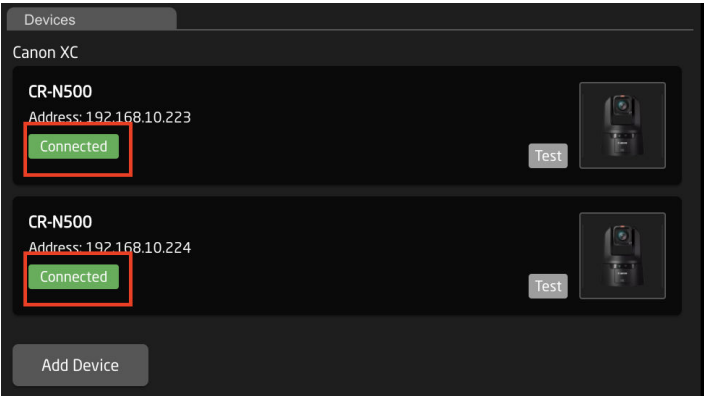
If a device is not discoverable, it can be added manually. Simply look up the device model in the list of supported devices and enter the IP address along with any other required details. See Section 4.4.3 for further setup.



To add multiple devices manually, hold **SHIFT** and click the green **Add Device** button.

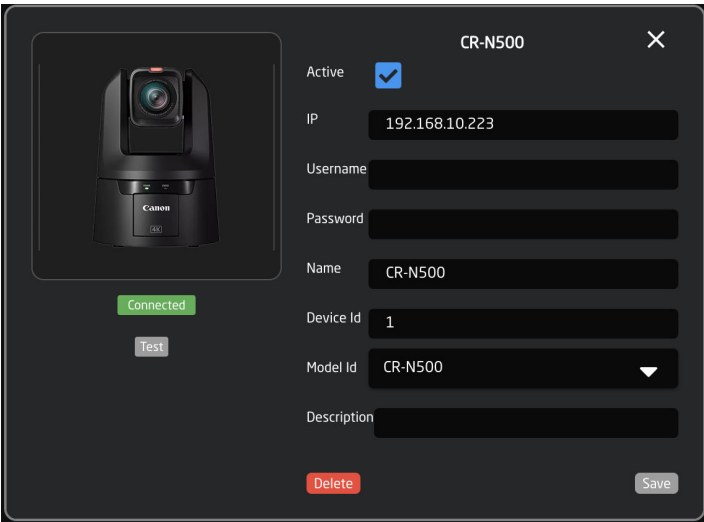
4.4.3 Device Details

Each device’ s status is displayed in the overview on the Home screen.



Clicking on a device’ s name in the **Devices** section opens the device details. Here, you can modify the device’ s **Name**, **ID**, and **Active Status**. By default, the device name matches the model, the ID is assigned in sequence, and the status is set to active. A device must be active to function.

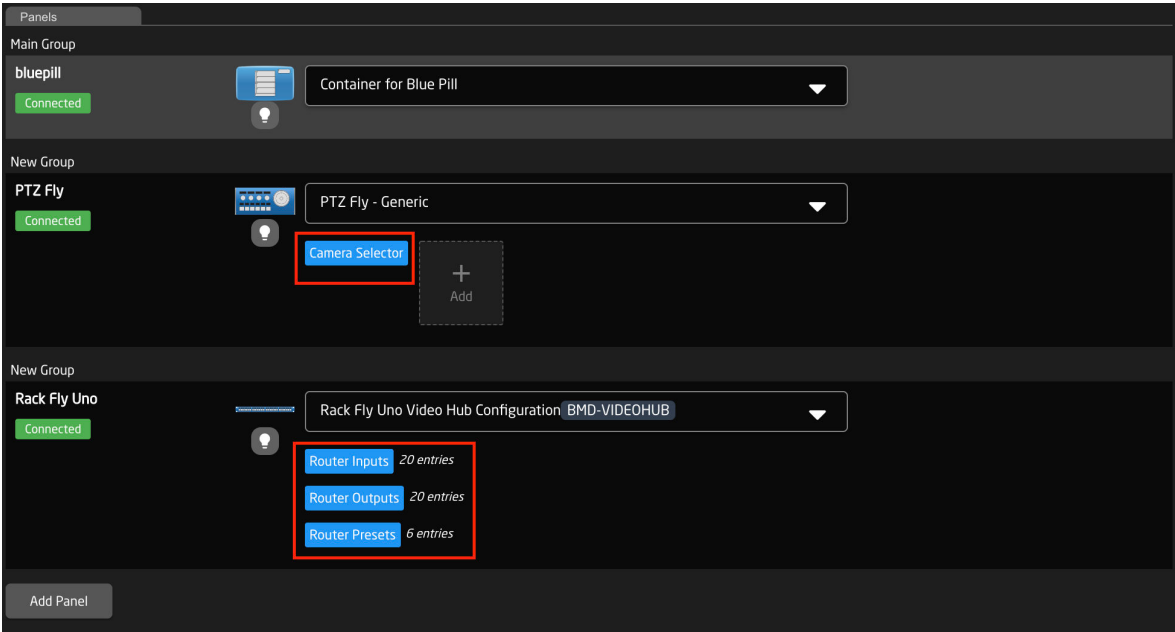
When applicable, you can enter a specific username and password for device connectivity. If these fields are left blank, the PTZ Extreme will attempt to connect using the device’ s default credentials.



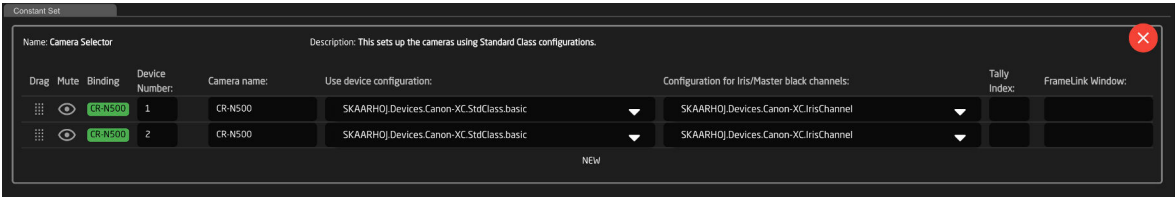
4.4.4 Populating Settings Tables

The final step in configuring the PTZ Extreme is filling in any **Settings Tables**. These tables are available based on the selected configuration and allow you to specify details such as specific cameras for a PTZ controller or input/output settings for a video switcher. Settings tables are most commonly used for PTZ cameras and routing panels, though they may also apply to other configurations.

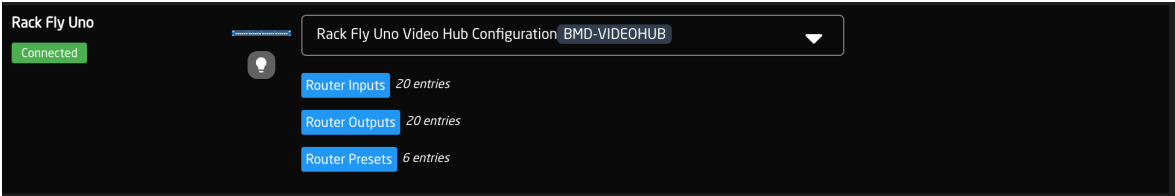
Once populated, the settings will auto-save and instantly appear on the panel’ s displays, enabling functionality.



For example, the Camera Selector table enables you to configure specific cameras, adjust their order on the selector row, and assign display names. The columns are described in Table 2.



The Router Input and Output tables allow configuration of input/output settings, custom display names, and button colors. The columns are described in Table 3.

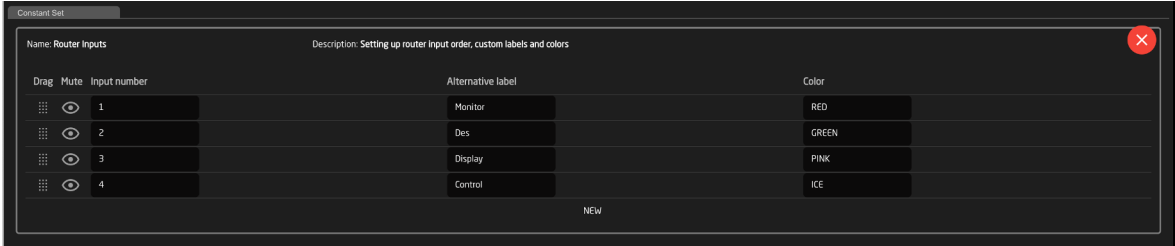


Column	Description
Drag	Rearranges camera order; right-clicking allows row deletion.
Mute	Disables access to specific cameras or leaves a blank spot.
Binding	Selects a connected camera.
Camera Name	Customizable display name, character limit varies by display size.
Device Number	Links to the specific device; auto-populates with camera selection in Binding.
Link Selector	Assigns protocol configuration for the camera.
Channel Link	Selects protocol for Iris/Master Black control (not available in all classes).
Tally Index	Connects to the corresponding tally source device (optional).
Route Index	Connects with a routing device (optional).
FrameLink Window	Associates with FrameLink device core (optional).

Table 2: Columns in the Camera Selector settings table.

Column	Description
Drag	Rearranges input/output order; right-clicking allows row deletion.
Mute	Disables access to specific inputs/outputs or leaves a blank spot.
Output Number/Input Number	Connects to a specific input/output, determined by the router.
Alternative Label	Customizable display name; character limit varies by display size.
Color	Sets button feedback color; options include OFF, WHITE, WARM, RED, ROSE, PINK, PURPLE, AMBER, YELLOW, DARKBLUE, BLUE, ICE, CYAN, SPRING, GREEN, MINT. Use uppercase format with no spaces.

Table 3: Columns in the Router Input and Output settings tables.



4.5 Beyond Default Configurations

SKAARHOJ controllers are versatile across models, allowing for default configurations and additional device integration.

Given the wide range of configurations possible, documenting each is impractical. For setup guidance with specific devices on your SKAARHOJ panel, please refer to the resources available on our [wiki pages](#).

To further customize your PTZ Extreme, explore the advanced options in the **Configuration Tab** in Reactor. For detailed guidance, we recommend our online tutorials and additional resources at [wiki.skaarhoj.com](#).

5 Service

5.1 Troubleshooting

For troubleshooting tips, please refer to our online Wiki:

<https://wiki.skaarhoj.com/books/blue-pill-reactor/chapter/troubleshooting>

5.2 Cleaning

Proper cleaning and maintenance of your PTZ Extreme are critical to ensuring its durability and optimal performance. Regular cleaning, when done with care and the right materials, will help maintain the device in excellent working condition. On the other hand, improper cleaning techniques or the use of harsh chemicals can lead to permanent damage to surfaces, connectors, and labels. To prevent wear and tear, it is important to adhere to the cleaning recommendations outlined in this section.

Notice

Proper Cleaning of PTZ Extreme

To avoid surface damage, follow these guidelines:

- **Disconnect all accessories and cables** before cleaning.
- **Only use the recommended cleaning agents** listed in this section.
- **Avoid harsh chemicals** like Methanol, Acetone, Benzine, or acids. These substances may damage labels, paint, and polished surfaces.
- **Keep connectors dry** —do not moisten connectors or expose them to cleaning liquids.
- **Avoid touching connector pins** directly while cleaning.
- **Air-blow dust from connectors** before wiping them. Use deionized air if static charge is present.
- **Do not use compressed air** on the housing, as it can push dust into the device.

Recommended Cleaning Agents:

- Water
- Glass Cleaner
- Isopropyl Alcohol

To maintain the longevity and optimal performance of your PTZ Extreme, it is essential to follow proper cleaning guidelines. Different areas of the device require specific cleaning methods to avoid damage

to sensitive components. The following table outlines the recommended cleaning procedures for key areas of the device.

Area	Recommended Cleaning Procedure
Housing	Wipe the housing and external accessories with a soft, lint-free cloth and a mild cleaner like water or glass cleaner. When necessary, use isopropyl alcohol to remove tough residues, such as adhesive or dirt buildup.
Narrow spaces and gaps	Use a manual air blower or a soft brush to gently remove dust from gaps and tight spaces. For delicate areas, cotton swabs may also be used.

Table 4: Proper cleaning methods for PTZ Extreme

By following these cleaning instructions, you can avoid damaging your device and its components. Routine maintenance will keep your PTZ Extreme in top condition and reduce the likelihood of damage that could lead to costly repairs or replacements.

5.3 Repair

In addition to proper cleaning, it is also important to be cautious when it comes to repairs. Performing repairs without the necessary expertise can result in personal injury and may further damage the device.

Warning

Repairs by Untrained Personnel

Attempting to repair the device without proper training can lead to injury and product damage:

- **Only perform maintenance tasks** described in this manual.
- **Do not attempt repairs yourself** —all repairs must be carried out by authorized SKAARHOJ service partners.
- **Warranty is void** if unauthorized repairs are attempted.

Repairs and maintenance should always be conducted by professionals trained to handle the PTZ Extreme. If you encounter any issues requiring repair, we highly recommend contacting SKAARHOJ’s authorized service partners. Unauthorized repairs may void the warranty, cause further damage, and pose significant safety risks.

To keep your PTZ Extreme functioning optimally, always refer to this manual for proper cleaning and repair procedures. For any work beyond the scope of this manual, please contact SKAARHOJ Support team for assistance.

5.4 Disposal

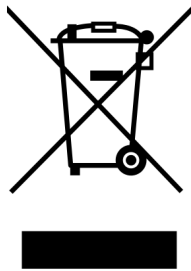
Notice

Disposal of the Product

You can return the product at your own expense to the manufacturer, SKAARHOJ ApS, for disposal. Always follow local guidelines and laws for proper disposal.

Proper disposal of electronic equipment is essential to reduce environmental impact and ensure that hazardous materials are handled safely. Different countries may have specific laws and guidelines regarding electronic waste disposal. It is important to familiarize yourself with these rules to ensure compliance and minimize risks to both health and the environment.

When disposing of third-party accessories, always consult the instructions provided by the relevant manufacturers to ensure safe and compliant disposal practices.



This product falls within the scope of Directive 2012/19 / EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of June 4, 2012 on waste electrical and electronic equipment (WEEE II).

Accordingly, this product must not be disposed of with household waste. Always adhere to country-specific disposal rules and ensure proper recycling or disposal through authorized facilities.

In addition to the general guidelines provided above, the product must always be disposed of in accordance with local electronic waste regulations. The WEEE Directive sets the framework for the handling of waste electrical and electronic equipment across EU member states. It ensures that electronics are collected and treated separately from household waste to minimize environmental harm.

5.5 Transportation and Storage

Notice

Proper Handling of PTZ Extreme

To avoid the risk of product damage:

- Follow the recommended environmental conditions at all times.
- Use an appropriate case for transporting the product and its accessories.
- Adhere to the transport and storage guidelines outlined in this section.

Ensuring proper transportation and storage of your PTZ Extreme is critical to maintaining its performance and longevity. Mishandling the device or its accessories can lead to damage. Please follow these guidelines to protect your equipment during transportation and storage.

Transportation Guidelines:

- Detach all accessories from the product before transport.
- Always transport the product in a protective case designed for its dimensions.
- Avoid exposing the product to strong shocks or impacts during transport.
- Keep the product within the recommended temperature range.

Storage Guidelines:

- Remove all accessories before storing.
- Disconnect all cables and power sources from the product.
- Store the product in a protective case.
- Keep the product within the recommended temperature range.
- Avoid storing the product in environments exposed to extreme temperatures, direct sunlight, high humidity, excessive vibration, dust, or strong magnetic fields.

5.6 SKAARHOJ Service Contacts

For any inquiries, technical support, or service requests regarding your PTZ Extreme, please reach out to our support team. Our dedicated professionals are ready to assist you with troubleshooting, repairs, and general product information. You can find the contact details for SKAARHOJ below.

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6 Notes
