

SKAARHOJ Blue Pill

with

PTZ Pro v2 + PTZ Extreme v2

For Canon PTZ



USER GUIDE | March 2022

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Important Information

Legal Notice

Attention:

The content and instructions of this document are subject to change without prior notice. Updates will be added to the manual.

Best effort have been conducted to verify the correctness of the content in this manual, but no statement, information, or recommendation in this manual shall constitute formal guarantee of any kind, expressed or implied. We shall not be held responsible for any technical or typographical error in this manual.

The product and graphic appearance demonstrated in this manual is for reference only, and may differ from the actual appearance of your device and associated software applications.

Use of this manual and the subsequent result shall be entirely on the user's own responsibility.

Reference to product names of other companies in this manual are the trademark or registered trademark of the respective companies.

Warnings

- If the product does not work properly, please contact your dealer. Never attempt to disassemble the controller yourself (we will not assume any responsibility for problems caused by unauthorized repair or maintenance)
- This installation should be made by a qualified service person and should conform to all the local codes
- When shipping, the controller should be packed in its original packaging
- Make sure the power supply voltage is correct before using the controller
- Do not drop the controller or subject it to physical shock

Maintenance Precautions

- If there is dust on the controller and the displays, remove the dust gently using a oil-free brush or dust blowing apparatus

- Do not use organic solvents, such as benzene or ethanol when cleaning the surface of the controller

Regulatory Compliance

For private households: Information on Disposal for Users of WEEE

This symbol on the product(s) and / or accompanying documents means that used electrical and electronic equipment (WEEE) should not be mixed with general household waste. For proper treatment, recovery and recycling, please take this product(s) to designated collection points where it will be accepted free of charge.



Alternatively, in some countries, you may be able to return your products to your local retailer upon purchase of an equivalent new product.

Disposing of this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling.

Please contact your local authority for further details of your nearest designated collection point.

Penalties may be applicable for incorrect disposal of this waste, in accordance with your national legislation.

For professional users in the European Union

If you wish to discard electrical and electronic equipment (EEE), please contact your dealer or supplier for further information.

For disposal in countries outside of the European Union

This symbol is only valid in the European Union (EU). If you wish to discard this product please contact your local authorities or dealer and ask for the correct method of disposal.

Overview

This user guide is suitable for the following models

- PTZ Pro v2 and PTZ Extreme v2 using a Blue Pill with Canon CR-N300/N500 default configuration

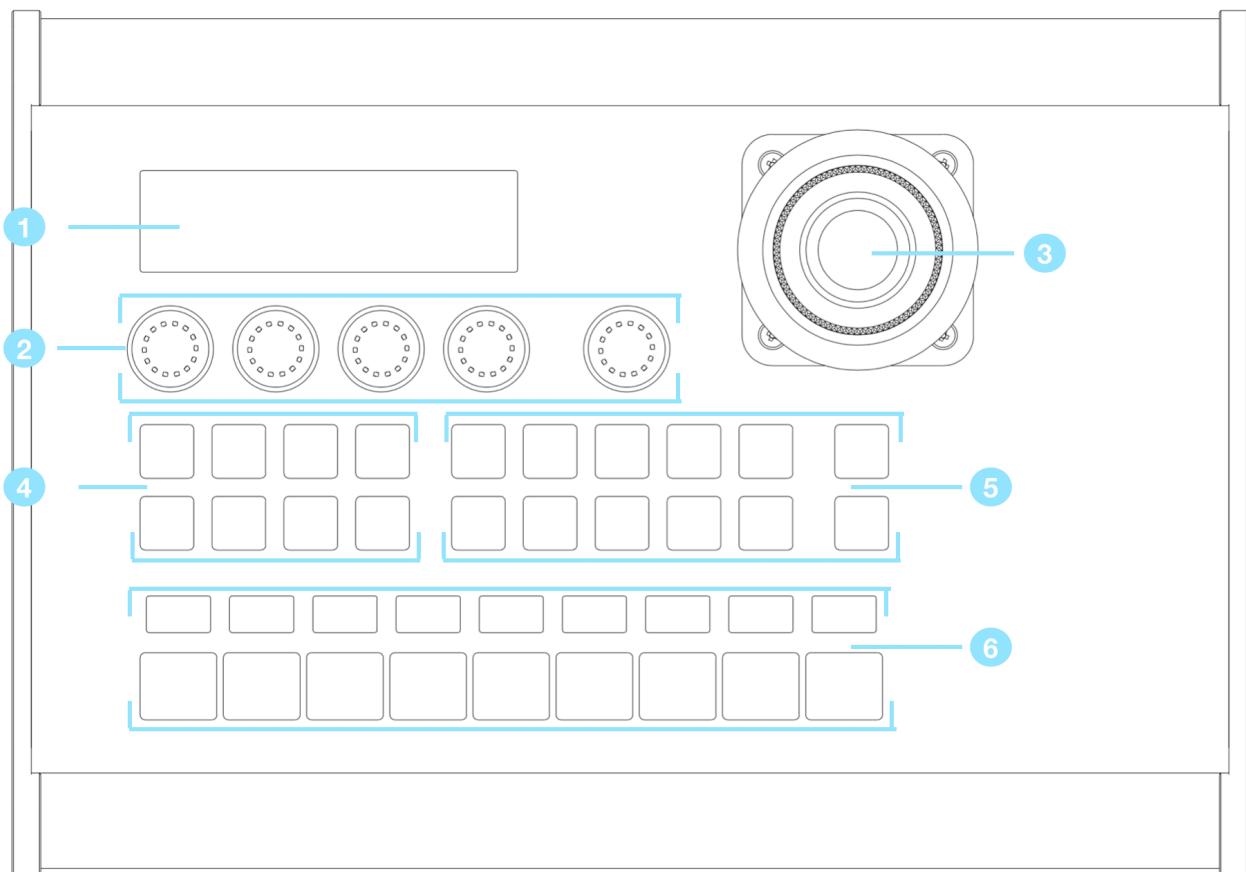
- Preset Speed
- Preset Time
- Preset Store Mode
- NR Mode
- Noise Reduction
- Super crisp display tiles for settings
- High-quality encoders with RGB backlight for function identification
- Four-way buttons with OLED legends for dynamic labelling and functionality
- Classic PTZ joystick with top button reset
- Option for changing configuration layout

Features

- Support for XC protocol including
 - Zoom
 - Zoom Mode
 - Focus
 - Auto Focus
 - MF Speed
 - Face Detection
 - Iris Absolute
 - Auto Iris
 - White Balance
 - Black Gain
 - Gain
 - Sharpness
 - Shutter
 - Shooting Mode
 - Joystick Sensitivity
 - Gain Mode
 - Image Stabilisation
 - Presets

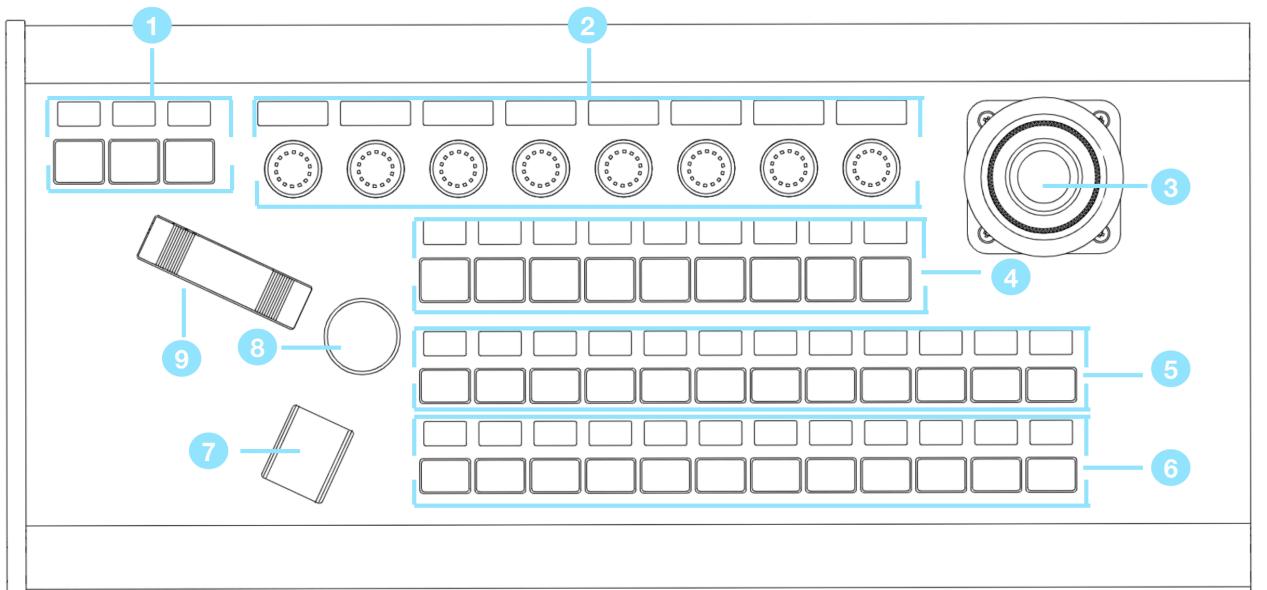
Controller Diagram

PTZ Pro v2 Top



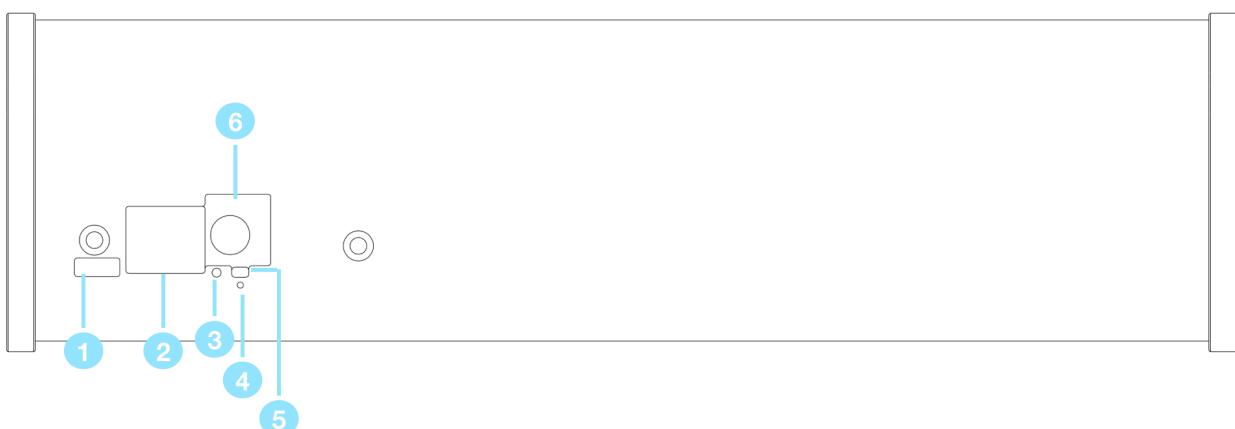
1. Large display with 8 tiles. Functions associated with encoders from group 2 and buttons in groups 4 and 5
2. 5 rotary encoders with RGB backlight for function identification
3. 3 point joystick for pan/tilt/zoom and top button home function
4. Menu navigation buttons
5. Camera preset buttons
6. Camera select buttons with associated displays

PTZ Extreme v2 Top



1. 3 quick access buttons with associated displays
2. 8 rotary encoders with RGB backlight for function identification
3. 3 point joystick for pan/tilt/zoom and top button home function
4. Menu navigation buttons with associated displays
5. Camera preset buttons with associated displays
6. Camera select buttons with associated displays
7. Roller Wheel
8. Focus Knob
9. Zoom Rocker

PTZ Pro v2 and PTZ Extreme v2 Backside



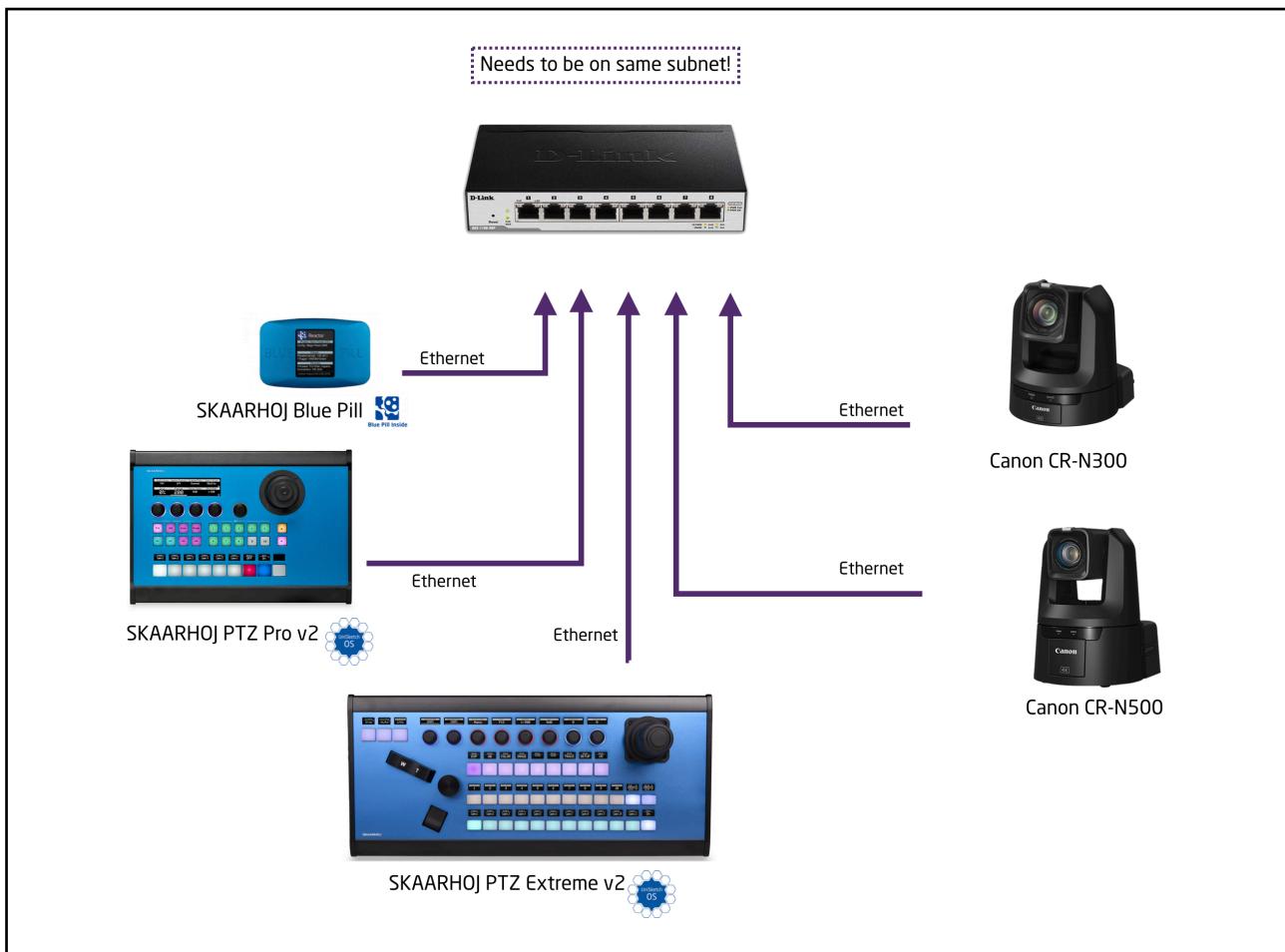
1. Micro USB Port for serial communication with SKAARHOJ Firmware Updater
2. IP Network RJ45 Port for IP Control and PoE Standard: IEEE 802.3af
3. Status LED for monitoring and debugging
4. Reset, use only under the guidance of SKAARHOJ support
5. Config Button, to enable WiFi Access Point
6. 12V DC Power Supply, connect the supplied DC Power adaptor

System Configuration

Connection

The SKAARHOJ Blue Pill communicates to camera(s) and the SKAARHOJ controllers via a networked IP connection. This is the supported case.

The layout of the configuration for the PTZ Pro v2 and PTZ Extreme v2 is set on the Blue Pill and is expandable to handle multiple connected cameras with a camera select row of buttons.



Power

- Use only the DC power adapter supplied with the controller. Do not use any other DC power adaptor
- The Blue Pill can be used with a PoE switch providing 5W-30W PoE (+)/PoE Standard: IEEE 802.3af/t
- The UniSketch controllers can be used with a PoE switch providing PoE Standard: IEEE 802.3af
- Ensure the PoE provider has sufficient power budget to power the controller. Otherwise it will not function properly

Network Recommendations

- SKAARHOJ controllers have a 100 mbps network interface
- Network switch must have Auto-MDI/MDIX
- Network switch must support 100 mbps
- PoE: IEEE 802.3af
- SKAARHOJ controllers only support Half Duplex mode without Auto-Negotiate

Remember a SKAARHOJ controller and client must be on the same subnet (192.168.10.* or one defined for the local network used by the controller). With multiple SKAARHOJ units connected to the same network they need to have different IP addresses!

Power over Ethernet (PoE) Specifications

We use the PoE industry standard 5W-30W PoE (+) IEEE802.3af7t. To power our controllers using PoE it is important the switch supports this standard. Please notice some manufactures such as Ubiquity have their own non-standard 24V type of PoE which is incompatible with our controllers. Especially pay attention to the standard when using a PoE injector.

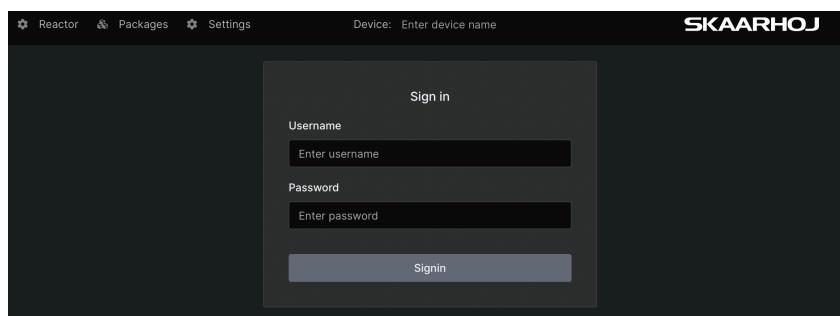
Accessing Blue Pill

DHCP or Static IP

The Blue Pill's user interface is accessed via the device's IP Address and any web browser. The IP address can be found on the display after it is plugged into a network connection with PoE or a network connection and a power supply (5V Micro USB).



Entering the IP address into the address bar of a search engine will bring up a prompt for username and password. The default is username: **admin** password: **skaarhoj**



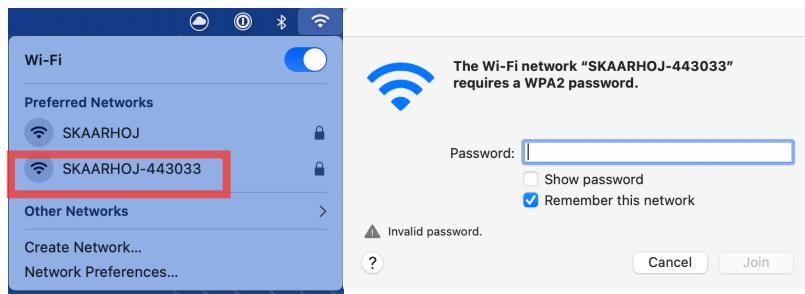
Wi-Fi Access Point

If the Blue Pill is not displaying an IP address, the web interface is accessible by enabling the internal Wi-Fi access point.

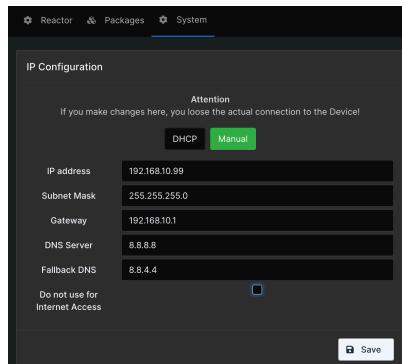
To enable the Wi-Fi access point, gently press and hold the config button on the side of the Blue Pill for about 3 seconds (Found next to the Ethernet jack. Use a flat screw driver, a paper clip or similar). When released, it will enable the internal Access Point and the LED will light up purple. It will show up in the Wi-Fi networks list as SKAARHOJ-XXXXXX (Blue Pill's serial number).

The default password is: **skaarhoj**

The web interface is then accessed at the IP address: **192.168.4.1**

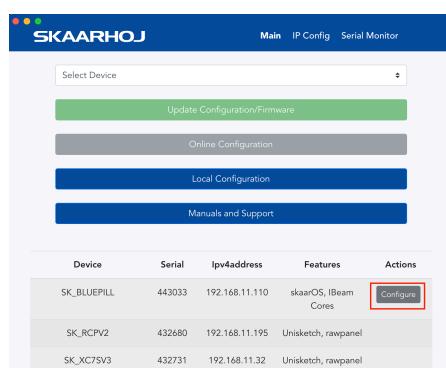


After accessing the Blue Pill it is best to navigate to the System Menu/System page to set a static IP address. Once saved, the new IP address will appear on the Blue Pill's display, it may be necessary to reboot or power cycle the device afterwards.



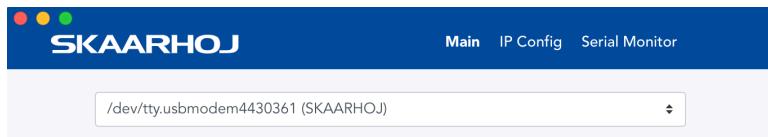
Link from SKAARHOJ Firmware Updater

If the SKAARHOJ Firmware Updater open on a computer running on the same subnet as the Blue Pill, the Blue Pill should appear below the main controller access buttons of the updater. Clicking on Configure next to the panel's information will open the web interface directly. The Blue Pill does not need to be connected to the computer via USB.



SKAARHOJ Firmware Updater and Micro USB

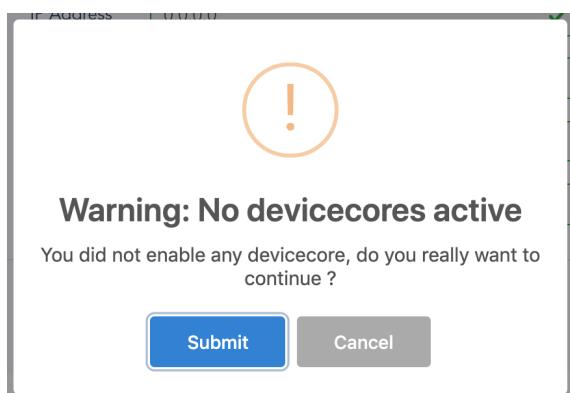
If a network connection to the Blue Pill is not available, the IP address can be set using a Micro USB cable. In this case the Blue Pill will appear in the "Select Device" dropdown and the "IP Config" tab in the Firmware Updater can be used to set the IP address (same procedure from UniSketch):



In this case it was identified as "/dev/tty.usbmodem4430361" (on MacOS) and pressing IP Config will open the IP set up page:

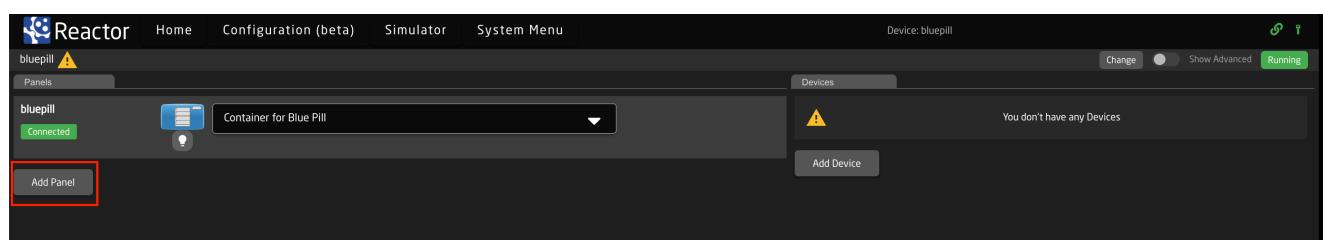


If/When the warning below appears, press "Submit" and reboot the Blue Pill:



Adding Panels

There are two ways a panel can be added, Auto Discover and Manually.



Auto Discover

Panels can easily be discovered by mDNS look ups on the same subnet the Blue Pill is on. This makes it very easy to discover and include a panel in the configuration. mDNS will usually search the current subnet, but with a correctly configured Blue Pill, panels on other subnets can easily be included too as long as the IP and port is known to the user.

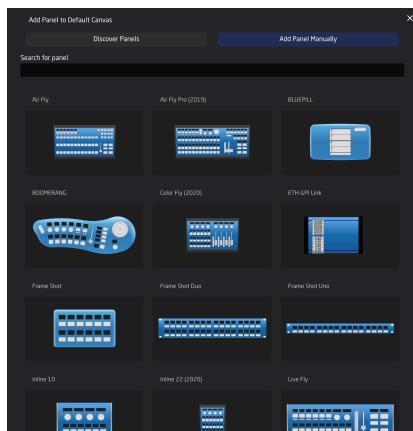
The screenshot shows a dialog box titled 'Add Panel to Default Canvas'. It has two tabs at the top: 'Discover Panels' (which is selected) and 'Add Panel Manually'. Below the tabs is a search bar labeled 'Search...'. A table lists 'Panels found on the network' with columns: Model, Serial, IP and Port, and Actions (a green 'Select' button). The table contains 11 rows of data. At the bottom of the dialog are buttons for 'Rows per page' (set to 10), a page number indicator (1-10 of 41), and navigation arrows.

Model	Serial	IP and Port	Actions
SK_BLUEPILL	443033	127.0.0.1:9923	Select
SK_FRAMESHOTDUD	434972	192.168.11.44:9923	Select
SK_RCPRO	443148	192.168.11.50:9923	Select
SK_RACKFLYTRIO	443475	192.168.11.45:9923	Select
SK_PTZPRO	440715	192.168.11.11:8000	Select
SK_MKA2	443110	192.168.11.12:9923	Select
SK_BLUEPILL	443042	192.168.11.13:8000	Select
SK_PTZFLY	443130	192.168.11.18:9923	Select
SK_PTZEXTREMEV2	440614	192.168.11.10:8000	Select
SK_RACKFUSION2	434971	192.168.11.16:9923	Select

Pressing SHIFT + the green Select button will allow for multiple panel selection.

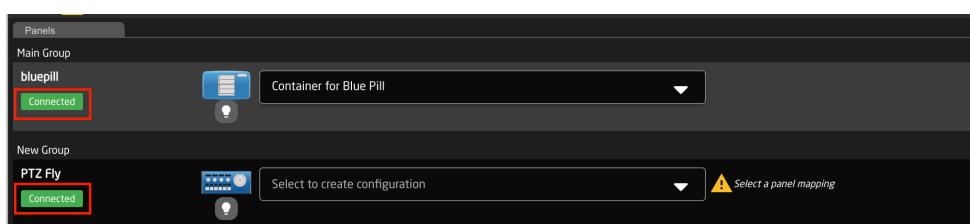
Manually Added

Panels can be picked from SKAARHOJs included library of products. Following a manual choice of panel, the user will have to enter the IP address himself including any constraints desired. See the Panel Details section for set up.



Panel Details

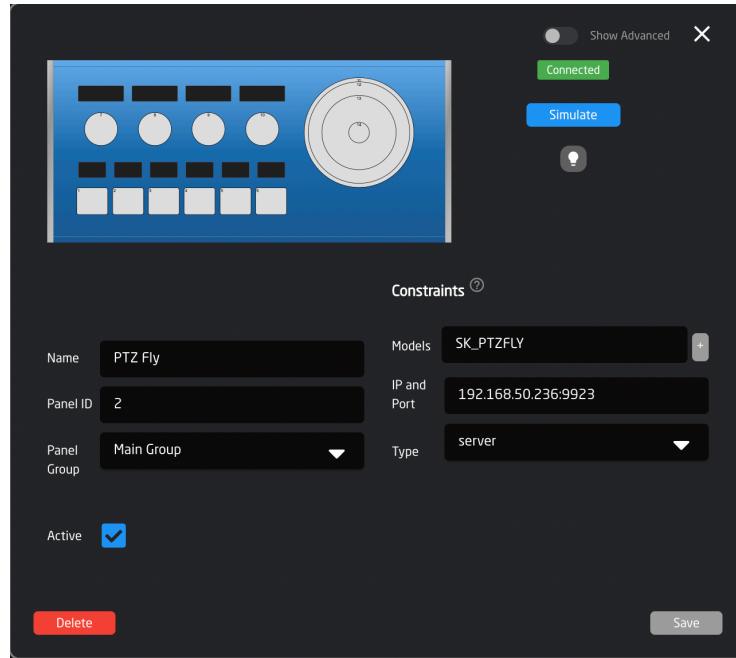
Panels have their status displayed clearly in the overviews on the Home screen.



There is a button for panel identification which can be used to light up the panel temporarily. This is very useful with large collections of panels.

Clicking on a panel name in the Panels section will open up the details. Here the name, ID number, and Active status of the panel can be changed. By default the controller name will be the same as the model name, the ID will be auto generated in order, and the status will be active. A controller's status needs to be active for use.

Constraints are requirements regarding the panel. Here it is determined which specific controller is connected, based on model and IP/Port.



By default our controllers connect using port 9923. It is important to include the port number, separated from the IP address by a colon (:), for example 192.168.50.236:9923

Confirm Connection

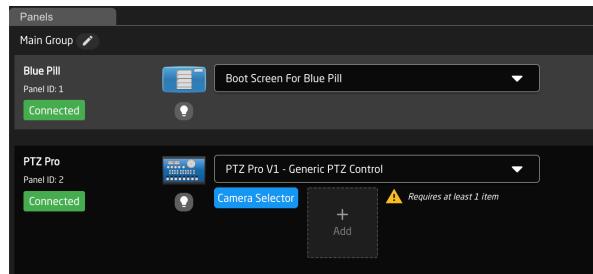
A panel that has established a connection with a blue pill will no longer display "Waiting for Blue Pill" or "Waiting for Raw Panel".



Select Mapping

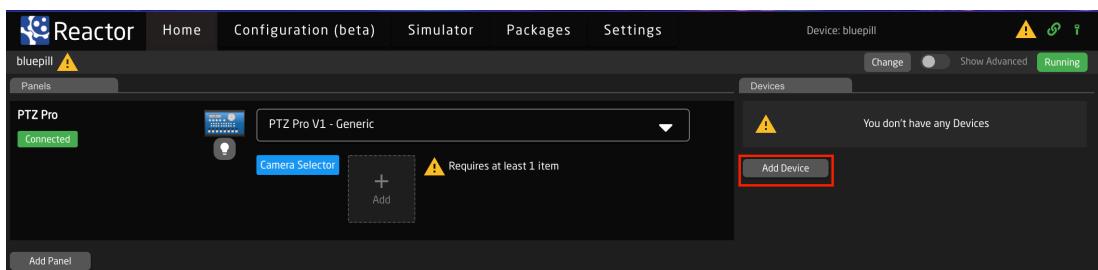
The controller's layout is determined by the Mapping. For the Canon PTZ integration, the Generic mapping is all that is needed, though for some combinations of panel and device, there are specific mappings.

The mapping is chosen in the drop down next to the panel.



Adding Devices

There are two main ways a device can be added to a new Blue Pill, Auto Discover and Manually.



Auto Discover

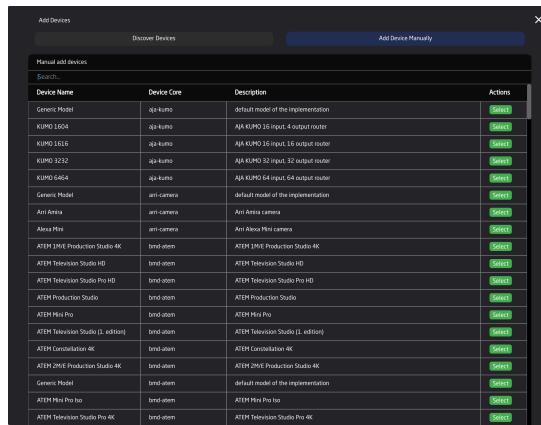
Searching on the network for devices will find many types by a combination of mDNS look-ups and other methods. However, not all devices can be discovered easily, but with those that can, it's a simple click of a button to add it to the Blue Pill device collection. Following an Auto Discover some device details may still be needed to establish connectivity. See Device Details section for set up.

Device Name	Device Core	IP	Actions
JVC PTZ KY-PZ400	core-protocol-visca:29	192.168.10.85	<button>Select</button>
Blackmagic ATEM Production Studio 4K	core-bmd-atem:12	192.168.10.57	<button>Select</button>
RoboSHOT 30E NDI	core-vaddio-ptz:1	192.168.10.138	<button>Select</button>
Blackmagic Smart Videohub	core-bmd-videohub:2	192.168.10.61	<button>Select</button>
CR-N500	core-canon-xc:1	192.168.10.223	<button>Select</button>
AIDA PTZ	core-protocol-visca:6	192.168.10.143	<button>Select</button>

Pressing SHIFT + the green Select button will allow for multiple device selection

Manually Added

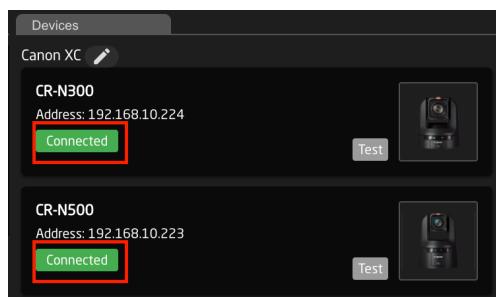
If a device must be added manually, it's easy to look it up in the list of supported models. Following a manual choice of device, the user will have to enter the IP address and other possible device detail information. See the Device Details section for set up.



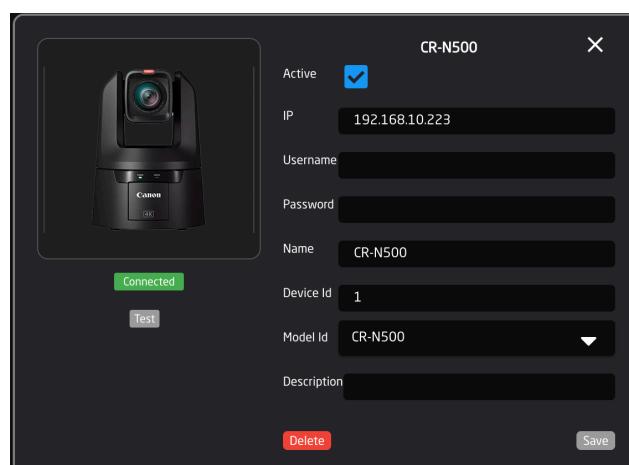
Pressing SHIFT + the green Add Device button will allow for multiple device selection.

Device Details

Devices have their status displayed clearly in the overviews on the Home screen.

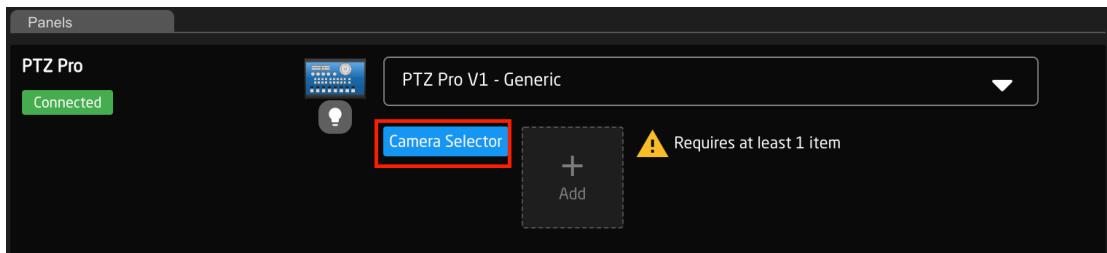


Clicking on a device name in the Devices section will open up the details. Here the name, ID number, and Active status of the devices can be changed. By default the controller name will be the same as the model name, the ID will be auto generated in order, and the status will be active. A controller's status needs to be active for use. When applicable to the device, the option for connecting is a specific Username and Password will also be available. Without setting a specific username and password, in most cases the core will try to connect to the device's default username and password.



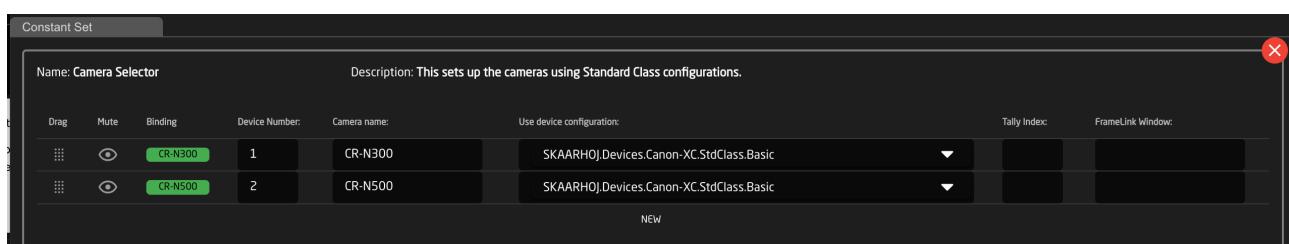
Populate Constant Sets

The final step is to fill in any constant sets. The constant sets are available based on the chosen configuration and should contain entries such as specific cameras for a PTZ controller, or the inputs for a video switcher etc. They are most common when working with PTZ cameras and routing panels, though may be available for additional device configurations.



The setup tables will auto save and quickly appear on displays and enable the function.

An example of a setup table would be a camera selector and can be seen below. These can be different depending on the selected configuration. From here the order on the camera selector row of the panel will be set as well as the desired name on the displays.



Column	Description
Drag	Allows for quick rearranging of camera order. Right clicking on drag will allow for deleting the row.
Mute	Allows for removing access to a specific camera or to leave a blank spot on the panel
Binding	Allows for the selecting of a specific connected camera
Camera Name	Customizable name to appear on the displays. Character limit is determined by size of display and can vary.
Device Number	Ties the camera selector to the specific device. This is found in the Devices section. Each device will have a unique device number per device core. This box should auto-populate when a camera is selected in binding
Use Device Configuration	Selects the protocol based configuration associated with camera. Needed protocol can be seen in the Devices section, each device is grouped into their native protocols. Double check the correct configuration is selected. Improper selection will effect camera control.
Configuration for Iris/Master Black Channel	Selects the needed protocol for Iris/Master Black control. For cameras without a variable lens this will follow the same protocol as the device. For cameras with a variable lens, select the protocol for the attached lens. Not available on all configuration classes.
Tally Index	Tally Index number is set in advanced configuration tool. See Blue Pill/Reactor Manual for more information. This column does not need to be filled out for standard operation.
FrameLink Window	Sets the FrameLink Window value associated with the FrameLink device core for use with FrameLink compatible devices. See Blue Pill/Reactor Manual for more information. This column does not need to be filled out for standard operation.

Connecting UniSketch Controllers

The Blue Pill works as a wonderful add-on to connect and control UniSketch controllers like never before. There are three ways to set a UniSketch controller to allow for connection to the Blue Pill. Two of the methods will involve using the SKAARHOJ Firmware Updater available [here](https://www.skaarhoj.com/support/firmware-updater): (<https://www.skaarhoj.com/support/firmware-updater>). The controller will need to be connected to the computer by USB cable. After the controller is set to Blue Pill Mode, it will no longer need USB connection for programming. This will be done through the Blue Pill web interface.

Blue Pill Mode - Via Serial monitor

Starting with UniSketch v2.5.14, it is possible to put the panel into Blue Pill Mode with a command in the serial monitor. Using this method the controller will be assigned an IP address only via DHCP.

To enter Blue Pill mode, type in: **TakeTheBluePill** in the serial monitor. The mode will be confirmed:

```
|.Blue Pill Mode enabled! (Raw Panel Server Mode), resetting..
```

The IP address of the controller will now be confirmed in the boot up information for the controller:

The IP address will also be displayed on the panel along with "Waiting for Blue Pill"

```
*****
SKAARHOJ Controller Booting
*****
SK VERSION: v2.5.14
SK MODEL: SK-AUTOMATYOUNO
SK SERIAL: 123769
PERFORM Size: 8192
Blue Pill DIRECT MODE enabled
I2C 400 kHz mode activated
Init LEDs and buttons
Preset 1 loaded
MAC Address: 02:bb:43:00:00:71:4A
Requesting DHCP address... OK
IP address: 192.168.11.222
Subnet Mask: 255.255.255.0
Gateway: 192.168.10.1
DNS: 192.168.10.1
mDNP Service started, announced for port 80
Boots Count: 191
Uptime: 250 hours, 12 minutes
Screen Saver: 99 hours, 41 minutes
Usage Stats Flags: 01
*****
Blue Pill DIRECT MODE enabled (DHCP + Raw Panel Server Mode on port 9923)
*****
DeviceCores #1: UniSketch TCP Client0, IP = 0.0.0.0:9923
Title: Encoder Button Action: 1
UNISKETCHTCPCLIENT: Server Mode = ON
Compiled: Dec 1 2021 09:14:53
setup() Done
-----
59
|UNISKETCHTCPCLIENT: Reset sleep timer last trigger
```

An advantage of Blue Pill Mode is, that it will not destroy any existing configuration on the panel and can



easily be exited from again by writing "**reset**" or pressing the reset button in the serial monitor. Blue Pill Mode is meant as a quick way to get in and out of Blue Pill Mode when using UniSketch panels in both ways regularly.

Blue Pill Mode - Via Special Key

Blue Pill Mode can be enabled and disabled without the serial monitor on most UniSketch panels running firmware version 2.5.14 and above.

- *Enter Blue Pill Mode:* During power-up, when the color animation first appears across the buttons, press the button in the lower left corner of the controller twice. When the color animation completes, it should sweep across the controller with just blue color - and it will reboot Blue Pill Mode
- *Exit Blue Pill Mode:* Same procedure as above. When Blue Pill Mode is exited, the color sweep to confirm it will be white instead of blue.

The IP address will also be displayed on the panel along with "Waiting for Blue Pill" the same as when using the serial monitor to enter Blue Pill Mode.

Fixed Configuration

If a static IP is needed it is possible to do so by selecting the default configuration called Blue Pill Mode and loading it onto the controller. This uses our SKAARHOJ Raw Panel integration with the needed device core options already selected. We recommend this type of configuration for any static or long term installation.



Once it has been selected the IP address can be set either in the Network Configurations section in the Simple Configuration page before the firmware is loaded onto the controller via the Update Configuration/Firmware button on the updater.

The screenshot shows the "Network configuration" section. It includes a table for static IP settings with fields for IP (192.168.10.99), Subnet (255.255.255.0), Gateway (192.168.10.1), and DNS (192.168.10.1). Below this is a "Devices" section with a table for UniSketch Raw Panel, showing an IP of 192.168.10.250. A green "Save Network Configuration" button is at the bottom.

Or it can be set in the IP Config tab of the SKAARHOJ Firmware Updater.

The screenshot shows the "IP Configuration" tab. It has sections for "IP Configuration" (using IP 192.168.10.99, Subnet Mask 255.255.255.0, Gateway 192.168.10.1, and DNS Server 192.168.10.1) and "Device Cores" (UniSketch Raw Panel with IP 192.168.10.250). A "Save Settings" button is at the bottom.

Please note, in both methods, the IP address for the UniSketch Raw Panel device core does not need to be set to a specific IP as it has been set to Server Mode and is being connected to and not connecting to anything. Having it Enabled is enough.

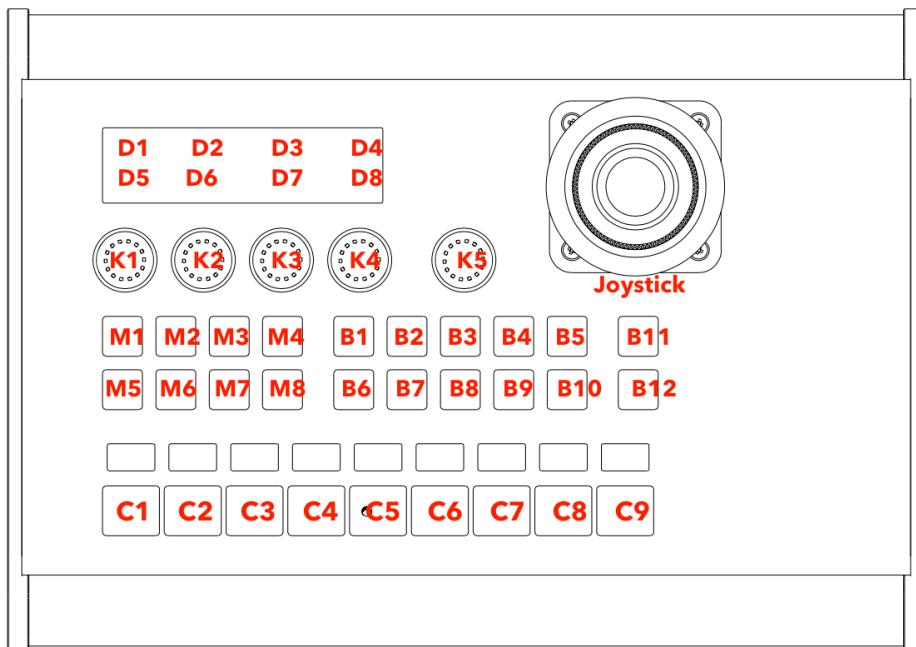
The IP address will also be displayed on the panel along with "Waiting for Raw Panel"



Controller Use

PTZ Pro v2

Overall the controller have eight menus. To change between the menus press M1-M8. The camera select row is dynamic to the number of cameras connected



Joystick

UD	Tilt
LR	Pan
Rotate	Zoom
Top Button	Home

M1-M8

M1	Exposure
M2	White Balance
M3	Black
M4	Focus
M5	Home
M6	Modes
M7	Presets
M8	Various

D1-D8

D1	Selected Menu
D2	-
D3	Preset/Camera Page (B1-10)
D4	Focus Position (K5)
D5	K1
D6	K2
D7	K3
D8	K4

B1-B12

	Preset Select	Camera Select
B1-10	Preset Select	Camera Select
B11	Preset Page Up	Camera Page Up
B12	Preset Page Down	Camera Page Down

C1-C9

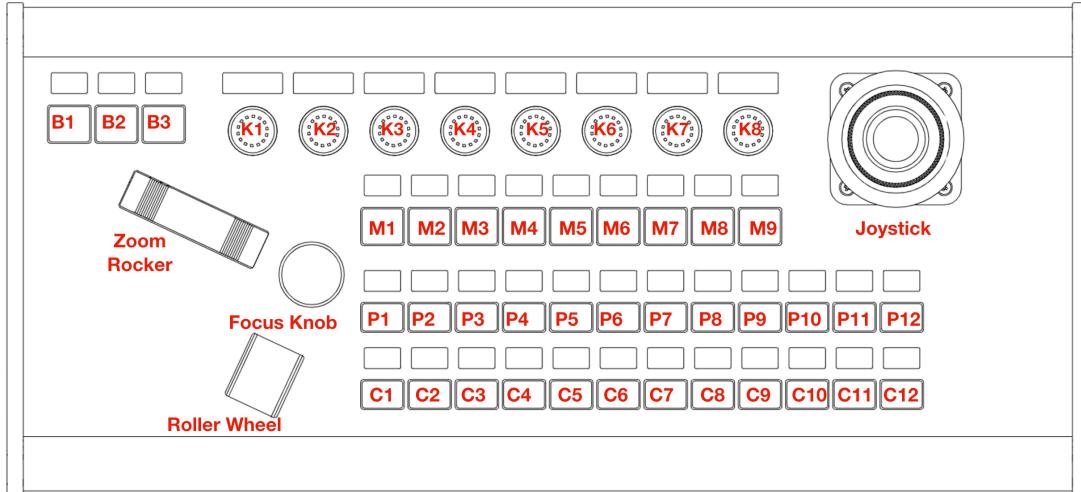
	Camera Select	Preset Select
C1-7	Camera Selects	Preset Selects
C8	Camera Page Selects	Preset Page Selects
C9	Camera/Preset Position Toggle	Camera/Preset Position Toggle

K1-K5

	Exposure	White Balance	Black	Focus	Home	Modes	Preset	Various
K1	Auto Iris	WB Mode	Sharpness Level	Focus Mode	Shooting Mode	Shutter Mode	Speed Mode	Joystick Sensitivity
K2	Iris (F-Stop)	WB Kelvin	BG Level	Face Detect	Joystick Sensitivity	Gain Mode	Preset Speed	Zoom Mode
K3	Shutter Speed	Red Gain	BG Point	F. Track	MF Speed	ND Filter	Preset Time	NR Mode
K4	AE G. Limit	Blue Gain	BG Range	AF Speed	Focus	Image Stabilization	Store Mode	NR
K5	Focus	Focus	Focus	Focus	Focus	Focus	Focus	Focus

PTZ Extreme v2

Overall the controller have eight Menus. To change between the menus press M1-M8. The camera select row is dynamic to the number of cameras connected. All displays are associated with the buttons below them.



B1-B3

B1	Tally
B2	Connection Status
B3	Focus One Push

P1-P12

P10	Preset Selects
P11	Preset Page Select
P12	Preset Page Home

C1-C12

C1-10	Camera Selects
C11	Camera Page Selects
C12	Camera Page Home

Analog Components

Zoom Rocker	Zoom
Focus Knob	Focus
Roller Wheel	Iris

M1-M9

	Default	Shifted
M1	Home	Presets
M2	Exposure	System
M3	Color	-
M4	Details	-
M5	Matrix	-
M6	Focus	-
M7	Exec WB A	Exec WB A
M8	Exec WB B	Exec WB B
M9	Shift	Shift

Joystick

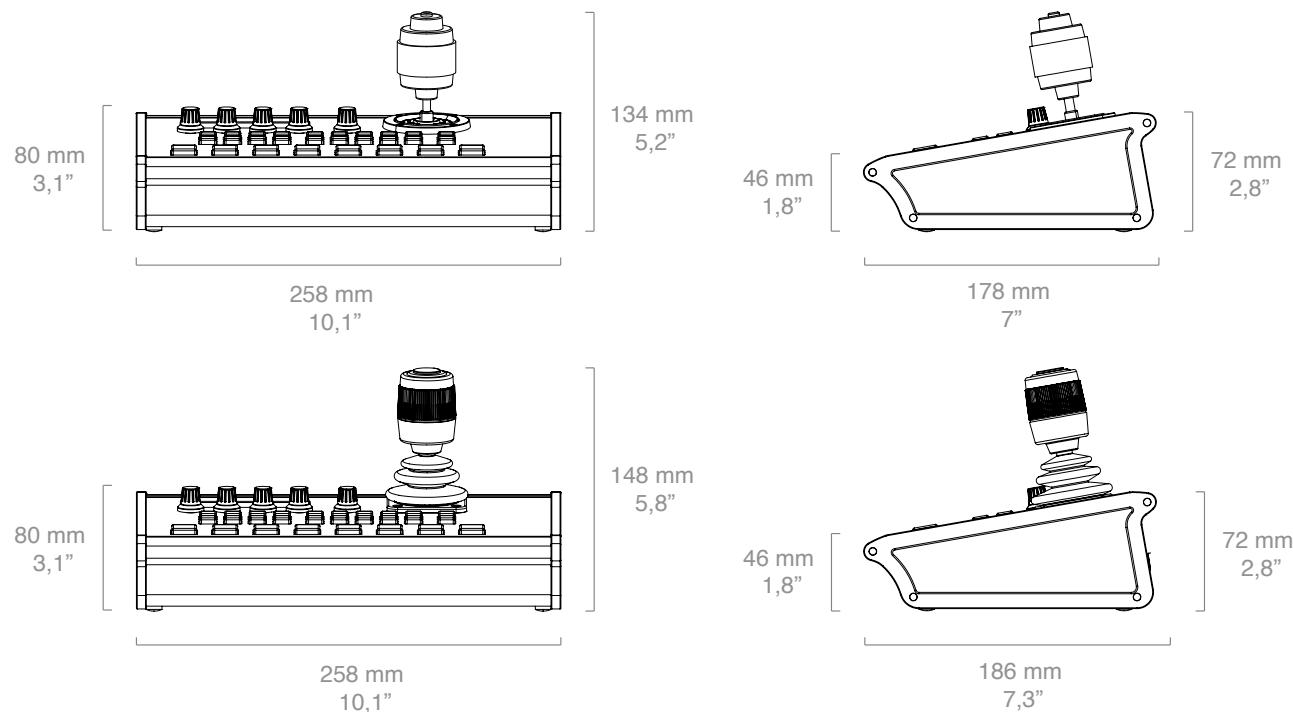
UD	Tilt
LR	Pan
Rotate	Zoom
Top Button	Home

K1-K5

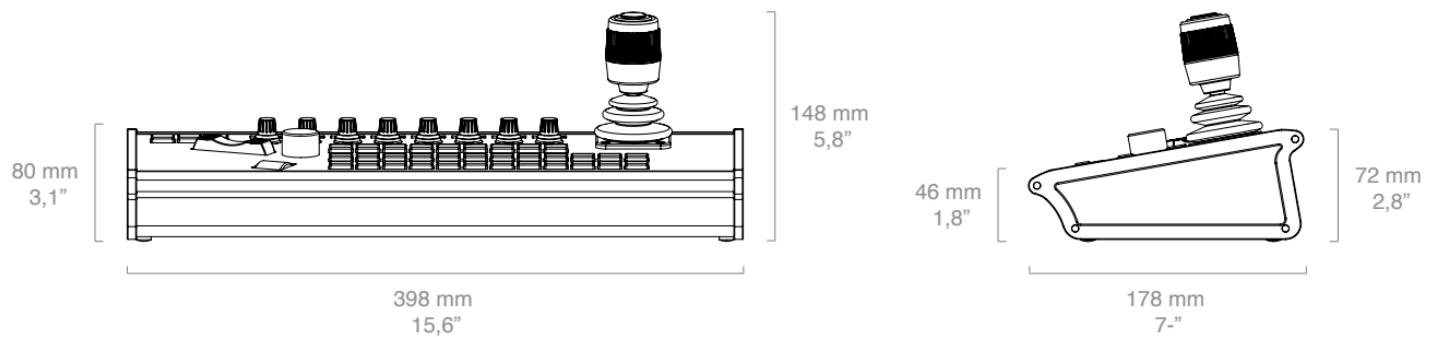
	Home	Exposure	Exposure /Shifted	Color	Color/ Shifted	Details	Matrix	Focus	Focus/ Shifted	Preset	System
K1	WB Mode	Auto Iris	Flicker Reduction	WB Mode	Matrix	Sharpness Level	Matrix Phase	Focus Mode	F. Track Mode	Speed Mode	Joystick Sensativity
K2	Red Gain	Iris (Abstract)	Exposure Response	Red Gain	Color Space	Sharpness Limit	Matrix Gain	Face Detect	F. Track	Preset Speed	P. Speed Mode
K3	Blue Gain	Gain Mode	AE Shift	Blue Gain	Image Q. Mode	BG Level	Matrix R-G	F. Limit	Face Detect	Store Mode	T. Speed Mode
K4	Shooting Mode	Gain	-	WB Kelvin	Gamma	BG Point	Matrix R-B	AF Mode	AFT X Cord	Store PTZ	Z. Mode
K5	Gain	Shutter Mode	Image Stabilization	Exec WB A	-	BG Range	Matrix G-R	AF Response	AFT Y Cord	Store Focus	Z. Mag
K6	Iris (F-Stop)	Shutter Speed	NR Mode	Exec WB B	NR Mode	NR Mode	Matrix G-B	AF Speed	AF Frame Size	Store Exposure	-
K7	MF Speed	ND Filter	NR	Pedestal	NR	NR	Matrix B-R	MF Soeed	AF X Cord	Store WB	Tally Color
K8	Focus	Shooting Mode	Shooting Mode	BG Level	Image Stabilization	Image Stabilization	Matrix B-G	Focus	AF Y Cord	Store IS	Tally

Dimensions

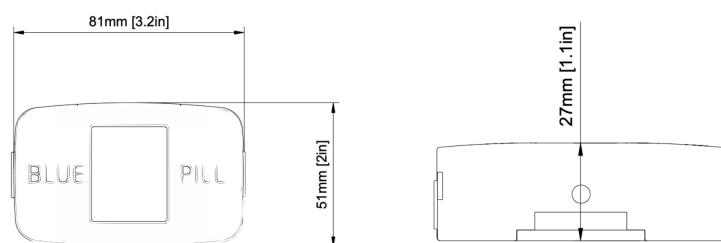
PTZ Pro v2



PTZ Extreme v2



Blue Pill



Troubleshooting

Home Screen disappeared from web interface	-Check that Reactor is running in the Packages section. If it is not, restart it.
Can't find IP address	-Connect the controller to the computer via USB and use the Skaarhoj Firmware Updater to identify the IP address or set a static IP address. https://www.skaarhoj.com/support/firmware-updater
Controller not connected	-Check the IP address is correct -For Blue Pill Inside units the IP should be: host and the type should be: server
Cameras not connected	-Check their IP addresses are correct -Check the username and password are correct
Other Questions	Check out the full Blue Pill/Reactor manual available at www.skaarhoj.com/support

Contact Support

You are always welcome to contact us for support questions - write an email to support@skaarhoj.com and we will do our best to accommodate your request.

In order for us to provide the best support please state:

- Which SKAARHOJ unit it is about
- The serial number of your device (small silver label with 6 digits)
- The nature of the problem
- Which hardware device(s) you are controlling and their firmware version
- If you have successfully installed the Firmware Updater Application and made contact with your device through the Serial Monitor (you need the USB programming cable)
- Your operating system



Additional Resources

For additional information, tips, and tricks please visit our YouTube page at:

www.youtube.com/SKAARHOJ

For additional manuals, please visit our website:

<https://www.skaarhoj.com/support/manuals>

For additional manuals, check out our GitHub repository:

<https://github.com/SKAARHOJ/Support/tree/master/Manuals/Blue%20Pill>