

SKAARHOJ RCP Pro

For

Canon CR-N300/N500



USER GUIDE | June 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.

What's In the Box

- 1 x SKAARHOJ RCP Pro Controller
- 1 x Power Adaptor including power plug
- 1 x 2m CAT.5E Ethernet cable

Overview

This user guide is suitable for the following models

- RCP Pro with Canon XC Protocol default configuration

- Super crisp window with large display tiles for settings
- High-quality encoders with RGB backlight for function identification
- Camera ID display with OLED technology
- RGB tally bar
- Preview button for GPI or control of video router
- Four-way buttons with OLED legends for dynamic labelling and functionality
- Pressure and direction sensitive joystick pad
- Custom iris joystick with built in display and tally light
- Industry standard form factor (4"/102mm wide)
- Sits console style on table top or mountable in OB van rack
- Power: DC 12V, 5W-30W PoE (+)
- PoE Standard: IEEE 802.3af/t
- Firmware Upgrade via networked connection
- DB9 (EXT I/O) connector
- Option for changing configuration layout

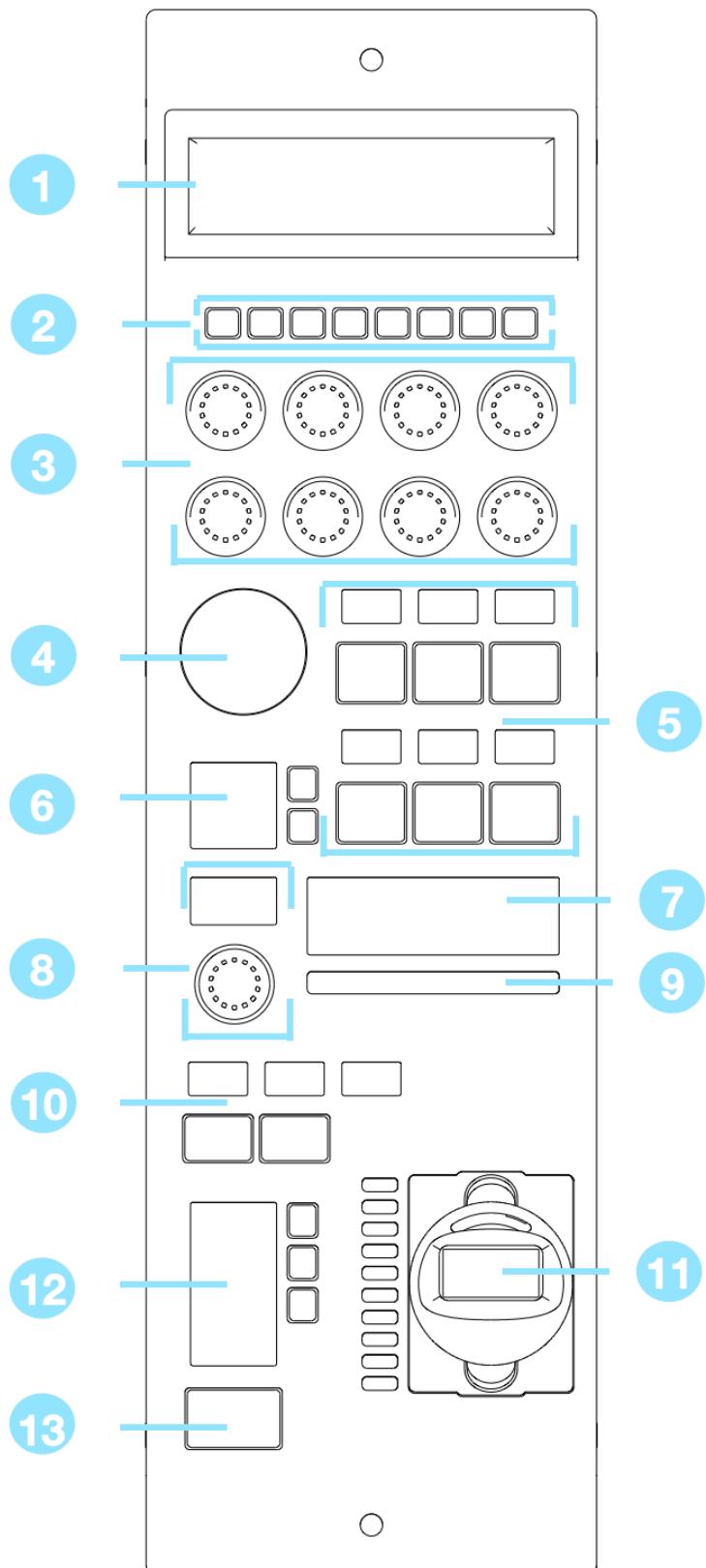
Features

- Support for XC Protocol including
 - Zoom + Speed Control
 - Focus
 - Iris (F-Stop)
 - Auto Iris
 - Master Pedestal
 - Paint: White/Black: Blue/Red
 - White Balance
 - Color Temperature
 - ISO/Gain
 - Shutter
 - ND
 - Knee Point
 - Knee Slope
 - Sharpness
 - Paint Preset
 - Matrix
 - Preset Variables
 - Tally

Controller Diagram

Top

1. Large tilted display with 8 tiles. Functions associated with encoders from group 3
2. Preset/Camera Select
3. 8 rotary encoders with RGB backlight for function identification
4. Elastomer joypad
5. Group of 6 4-way buttons with associated displays
6. 2 small buttons with associated display
7. Camera ID display
8. Pedestal
9. Tally bar
10. 2 4-way buttons with associated displays
11. Joystick with master black ring, push button, and large iris display
12. 3 small buttons with associated display
13. 4-way button for Preview



Backside

1. **DB9 (EXT I/O)**

For external routing/tally systems

2. **Camera Selector**

3. **Micro USB 2.0 Port**

4. **IP Network RJ45 Port**

For IP Control with PoE+ (5-30w IEEE 802.3at)

5. **Status LED**

For status and debugging

6. **12V DC Power Supply**

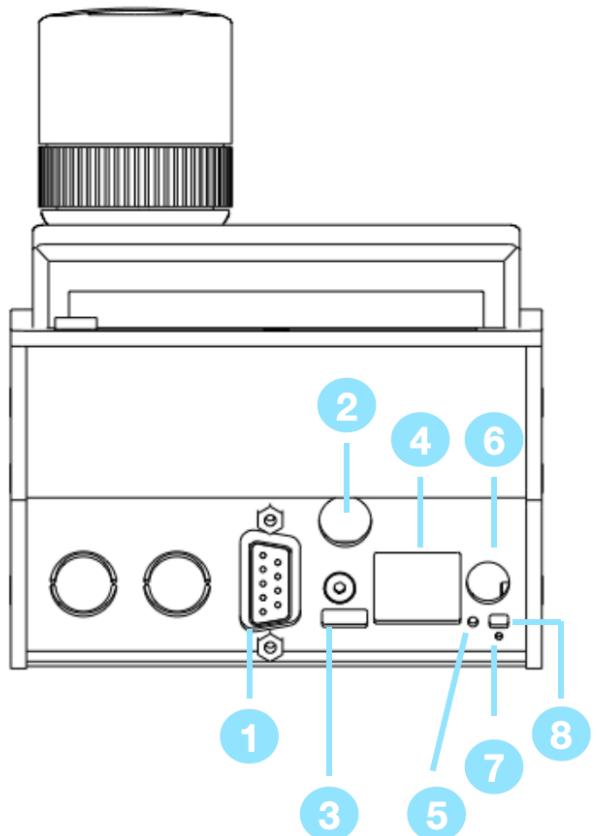
Connect the supplied DC Power adaptor

7. **Programming mode reset**

Only to be used if contact with support has been established

8. **Reset button**

Enables WiFi Access Point

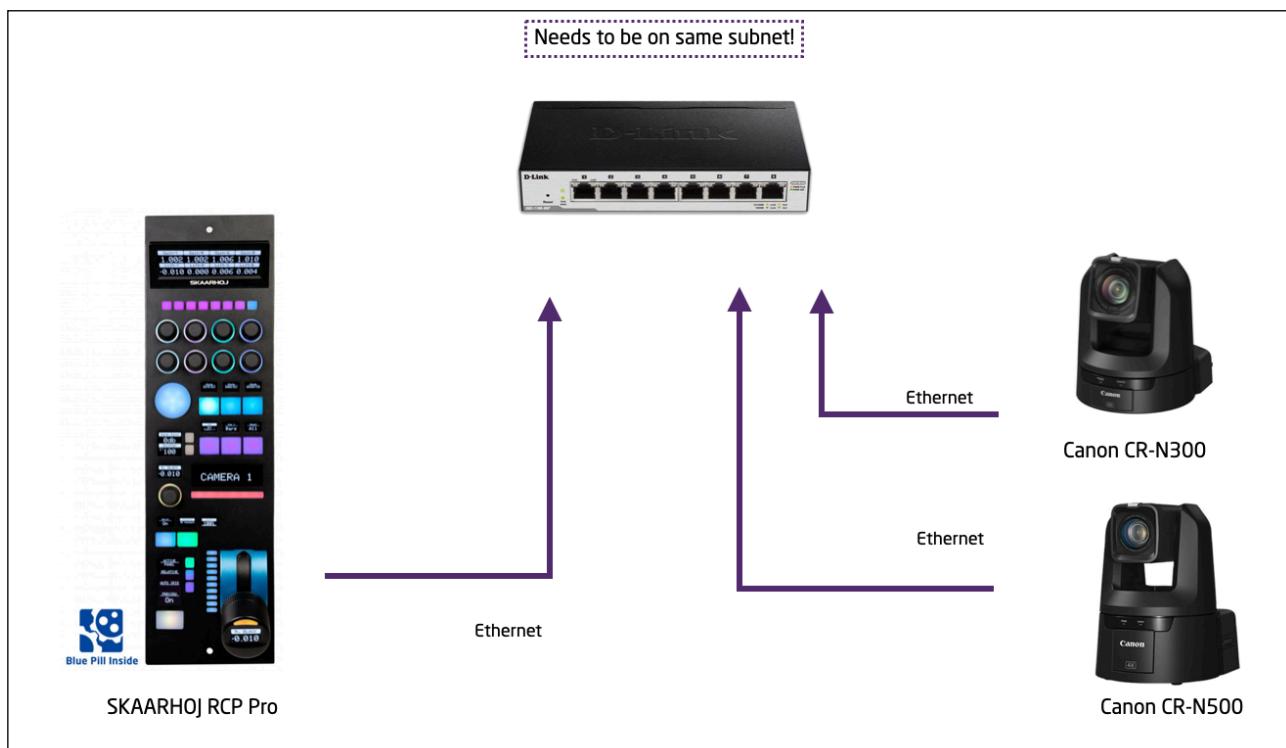


System Configuration

Connection

The SKAARHOJ RCP Pro communicates to camera(s) via a network. No video signal processing is done on the SKAARHOJ RCP Pro.

The layout of the configuration for the RCP Pro is done towards control of a single camera, but up more cameras *can* be controlled from the same RCP Pro (or any other SKAARHOJ controller).



Power

- Use only the DC power adapter supplied with the controller. Do not use any other DC power adaptor
- If using PoE to power the controller, make sure the network switch supports 5W-30W PoE (+)/PoE Standard: IEEE 802.3af/t
- Ensure the PoE provider has sufficient power budget to power the controller. Otherwise it will not function properly
- Power Consumption: 6 Watts

Network Interface Details

- SKAARHOJ Blue Pill controllers have a 1 GBit network interface
- 5W-30W PoE (+)
- PoE Standard: IEEE 802.3af/t

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 (+) IEEE802.3af/t. 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.

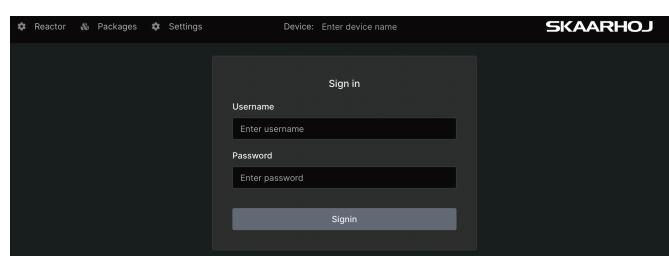
Accessing Blue Pill

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**



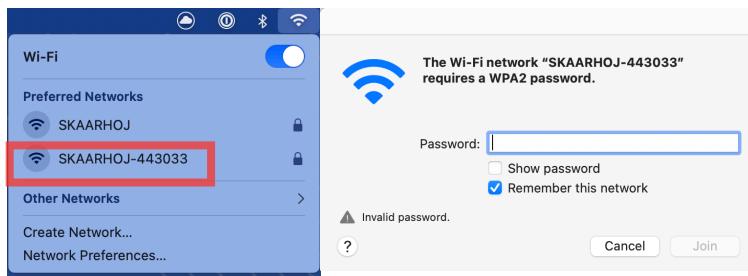
Wi-Fi Access Point

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

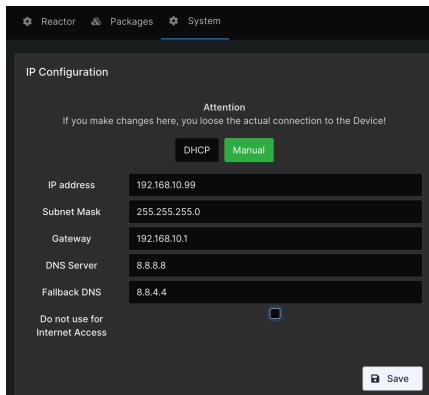
To enable the Wi-Fi access point, gently press and hold the config button on the side of the Blue Pill for about 3 seconds (Found next to the Ethernet jack. Use a flat screw driver, a paper clip or similar). When released, it will enable the internal Access Point and the LED will light up purple. It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

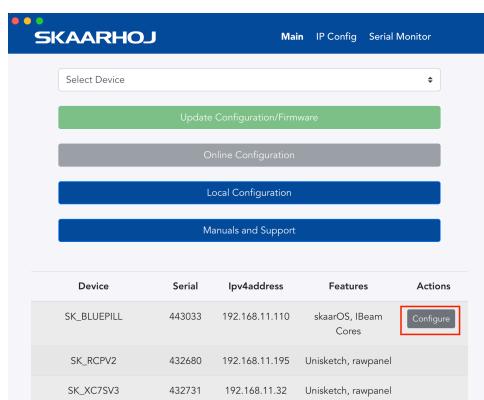


After accessing the Blue Pill it is best to navigate to the System Menu/System page to set a static IP address. Once saved, the new IP address will appear on the Blue Pill's display, it may be necessary to reboot or power cycle the device afterwards.



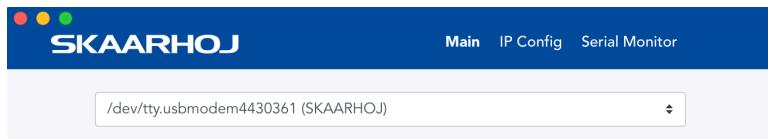
Link from SKAARHOJ Firmware Updater

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

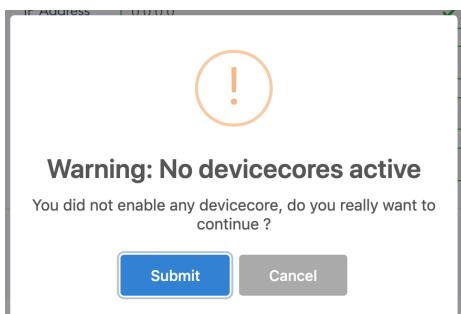
If a network connection to the Blue Pill is not available, the IP address can be set using a Micro USB cable. In this case the Blue Pill will appear in the "Select Device" dropdown and the "IP Config" tab in the Firmware Updater can be used to set the IP address (same procedure from UniSketch):



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



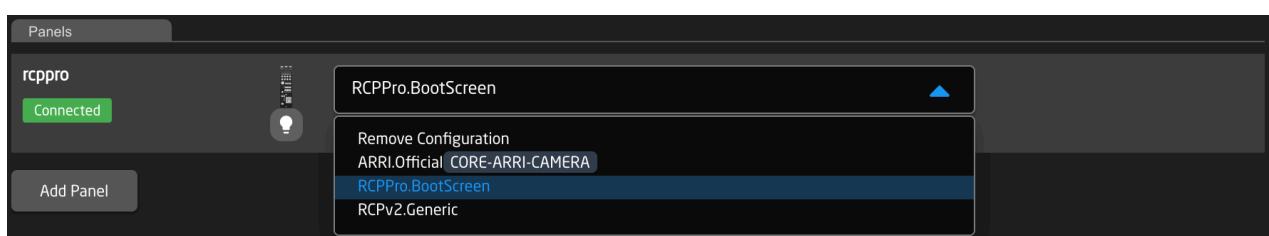
If/When the warning below appears, press "Submit" and reboot the Blue Pill:



Select Mapping

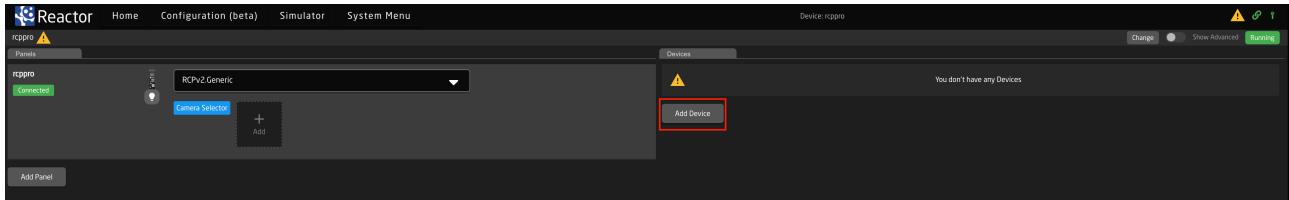
The controller's layout is determined by the Mapping. For our Can integration, RCPv2.Generic is the needed mapping.

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



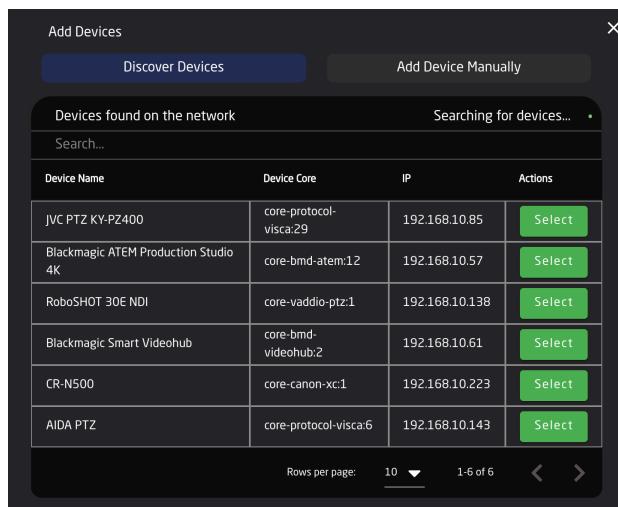
Adding Devices

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



Auto Discover

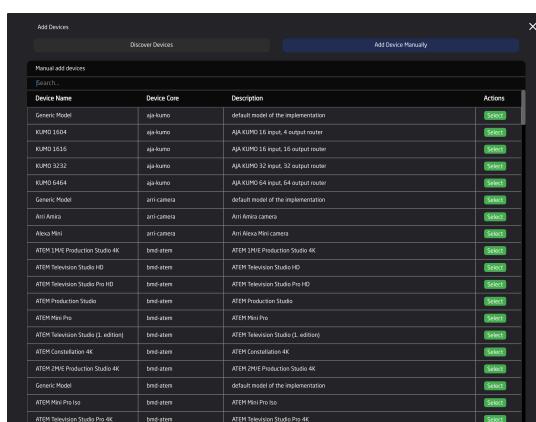
Searching on the network for devices will find many types by a combination of mDNS look-ups and other methods. However, not all devices can be discovered easily, but with those that can, it's a simple click of a button to add it to the Blue Pill device collection. Following an Auto Discover some device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



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

Manually Added

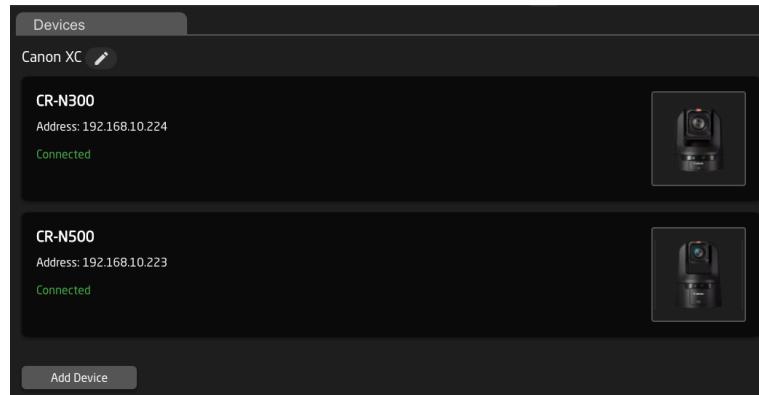
If a device must be added manually, it's easy to look it up in the list of supported models. Following a manual choice of device, the user will have to enter the IP address and other possible device detail information. See the Panel Details section for set up.



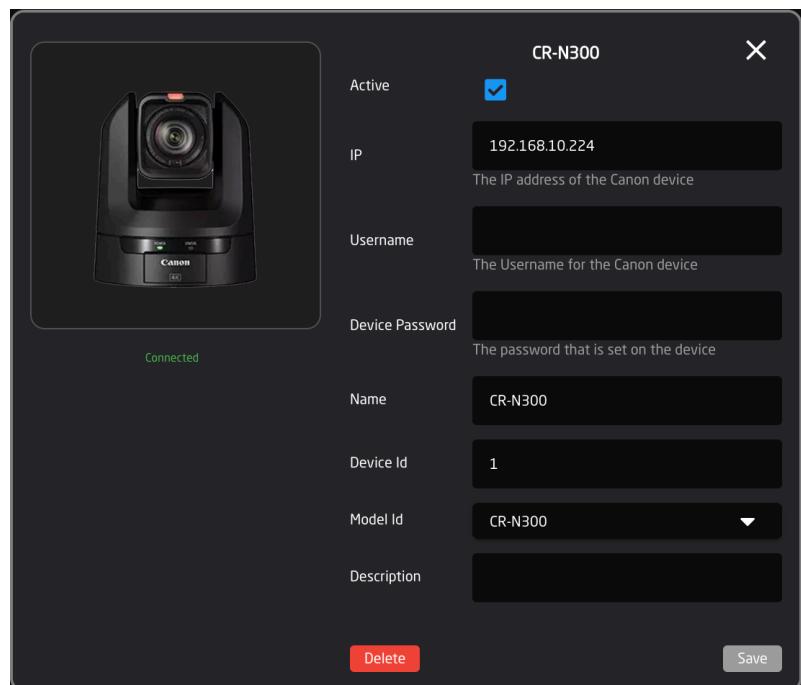
Pressing SHIFT + the green Add Device button will allow for multiple panel selection.

Device Details

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

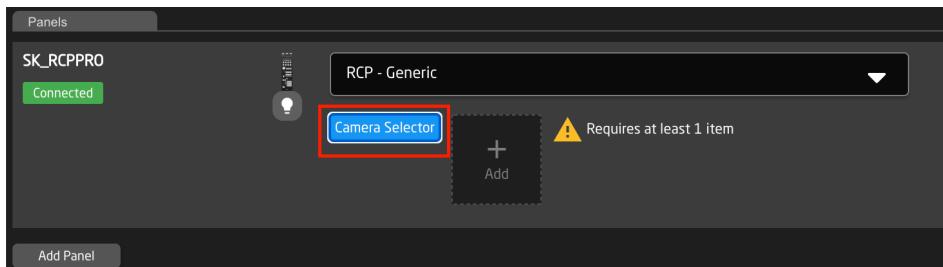


Clicking on a device name in the Devices section will open up the details. Here the name, ID number, Active status, and IP address of the device can be changed. By default the device name will be the same as the model name, the ID will be auto generated in order, and the status will be active. A device's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



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.

A screenshot of the Constant Set table for "Camera Selector". The table has columns for Drag, Mute, Binding, Device Number, Camera Name, Use device configuration, Configuration for Iris/Master black channels, Tally Index, Route Index, and FrameLink Window. There are two rows in the table. Row 1: Binding is set to "CR-N500", Camera Name is "CR-N500", Use device configuration is "Canon PTZ - Pro Class", Configuration for Iris/Master black channels is "Canon XC protocol Iris and Masterblack controls". Row 2: Binding is set to "CR-N500", Camera Name is "CR-N500", Use device configuration is "Canon PTZ - Pro Class", Configuration for Iris/Master black channels is "Canon XC protocol Iris and Masterblack controls". A "NEW" button is located at the bottom left of the table.

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
Link Selector	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.
Channel Link	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 sets the input number to be reflected on the buttons. This is associated with the Tally Forwarding constant set, see https://wiki.skaarhoj.com/ for more information. This column does not need to be filled out for standard operation.
Route Index	Route Index number sets the input number to be reflected in the desired simultaneous route. This is associated with the Routing Trigger constant set, see https://wiki.skaarhoj.com/ 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 see https://wiki.skaarhoj.com/ for more information. This column does not need to be filled out for standard operation.

Since the selected mapping is the same when using the cinema cameras and the PTZ cameras, it is important to check that the Use Device Configuration and Configuration for Iris/Master Black Channels are assigned correctly in the Constant Set table.

A screenshot of the "Use device configuration" and "Configuration for Iris/Master black channels" sections. There are two rows. Row 1: "Use device configuration" is "Canon PTZ - Pro Class", "Configuration for Iris/Master black channels" is "Canon XC protocol Iris and Masterblack controls". Row 2: "Use device configuration" is "Canon PTZ - Pro Class", "Configuration for Iris/Master black channels" is "Canon XC protocol Iris and Masterblack controls".

Controller Use

Overall the controller has seven Menus. To change between the menus press M1- M6 and a shift accessible ENG menu. It is necessary to press SHIFT then select a camera for use, by default no camera is selected.

C1-C8

	Default	Shifted
C1-C8	Paint Preset	Camera Select

UD/LR

Pan/Tilt

M1-M6

	Menu 1	Menu 2
M1	Home	Focus
M2	Exposure	Zoom
M3	Color	Preset
M4	Details	System
M5	Matrix	-
M6	Menu Pages	Menu Pages
M7	Exec WB A	Exec WB A
M8	Exec WB B	Exec WB B

B1-5

	Default	Shifted	Eng. Menu
B1	Connection Status	Connection Status	Reset Sleep
B2	OS Focus	OS Focus	Sleep Now
B3	Panel Lock	Eng. Menu On	Eng. Menu Off
B4	Tally	Tally	-
B5	Shift	Shift	Shift

ID Display

Displays camera name set in the Reactor UI Camera Selector

ID Tally

Lights white by default, red when pins on DB9 connector

is set

Displays

Hold down

LED Bar

Indicate

indicates its value

Joystick Controls

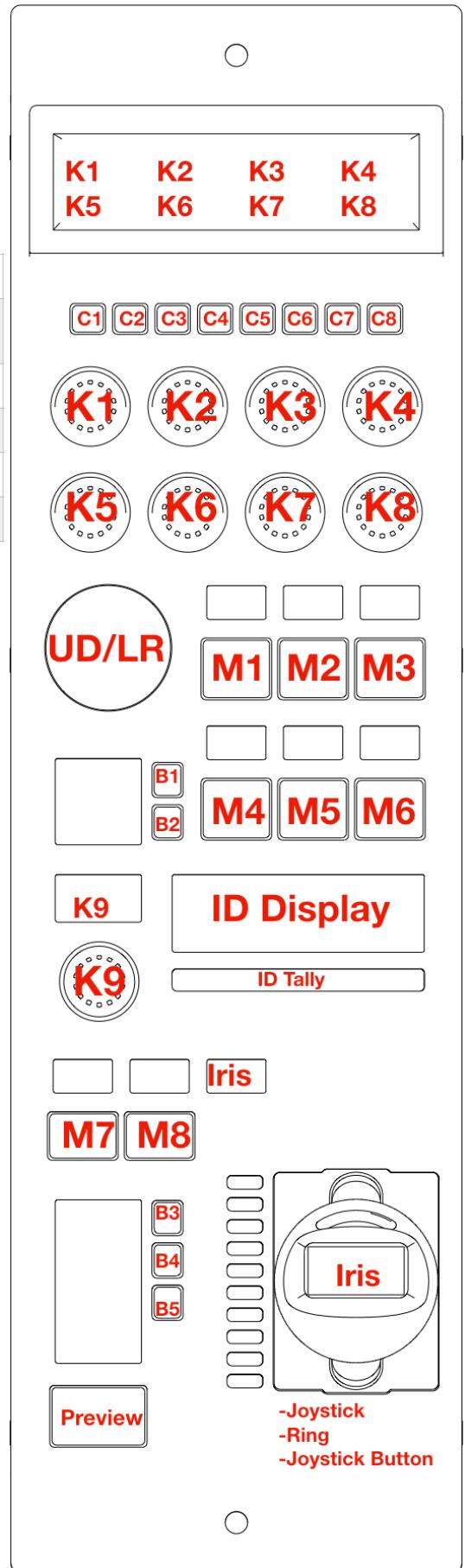
Controls its value

Ring
Master

Master Pedestal

Joystick Button

Activates "Preview" relay on DB9 connector

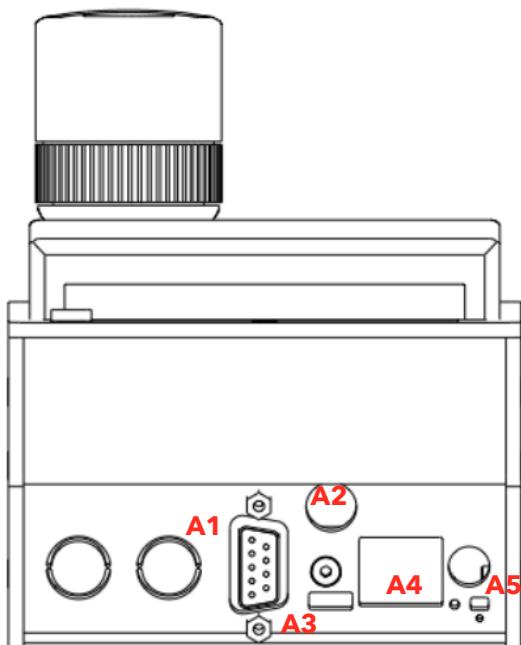


K1-K9

The tiles in the main display are associated with Knob 1-8

	Home	Exposure	Exposure-Shifted	Color	Color-Shifted	Details	Matrix
K1	WB Mode	Auto Iris	Flicker Reduction	WB Mode	Matrix	Sharpness Level	Matrix Phase
K2	Red Gain	Iris (Abstract)	Exposure Response	Red Gain	Color Space	Sharpness Limit	Matrix Gain
K3	Blue Gain	Gain Mode	AE Shift	Blue Gain	Image Q. Mode	BG level	Matrix R-G
K4	Shooting Mode	Gain	-	WB Kelvin	Gamma	BG Point	Matrix R-B
K5	Gain	Shutter Mode	Image Stabilizer	Exec WB A	-	BG Range	Matrix G-R
K6	Iris (F-Stop)	Shutter Speed	NR Mode	Exec WB B	NR Mode	NR Mode	Matrix G-B
K7	MF Speed	ND Filter	NR	Pedestal	NR	NR	Matrix B-R
K8	Focus Position	Shooting Mode	Shooting Mode	BG Level	Image Stabilizer	Image Stabilizer	Matrix B-G
K9	Pedestal	Pedestal	Pedestal	Pedestal	Pedestal	Pedestal	Pedestal

	Focus	Focus-Shifted	Zoom	Preset	System	Eng. Menu
K1	Focus Mode	F. Track Mode	Zoom Speed	Speed Mode	Joystick Sensativity	Pan Direction
K2	Face Detect	F. Track	Zoom Position	Preset Speed	P. Speed Mode	Tilt Direction
K3	Focus Limit	Face Detect	Zoom Mode	Store Mode	T. Speed Mode	-
K4	AF Mode	AFT X Cord	Zoom Magnification	Store PTZ	-	-
K5	AF Response	AFT Y Cord	-	Store Focus	Tally Color	Sleep Time
K6	AF Speed	AF Frame Size	-	Store Exp	Tally	Dim Time
K7	MF Speed	AF X Cord	-	Store WB	-	Display Brightness
K8	Focus Position	AF Y Cord	-	Store IS	-	LED Brightness
K9	Pedestal	Pedestal		Pedestal	Pedestal	-

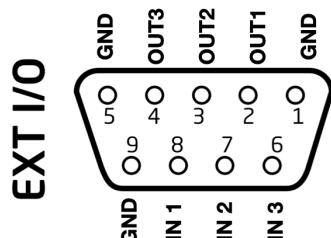


A1-A4

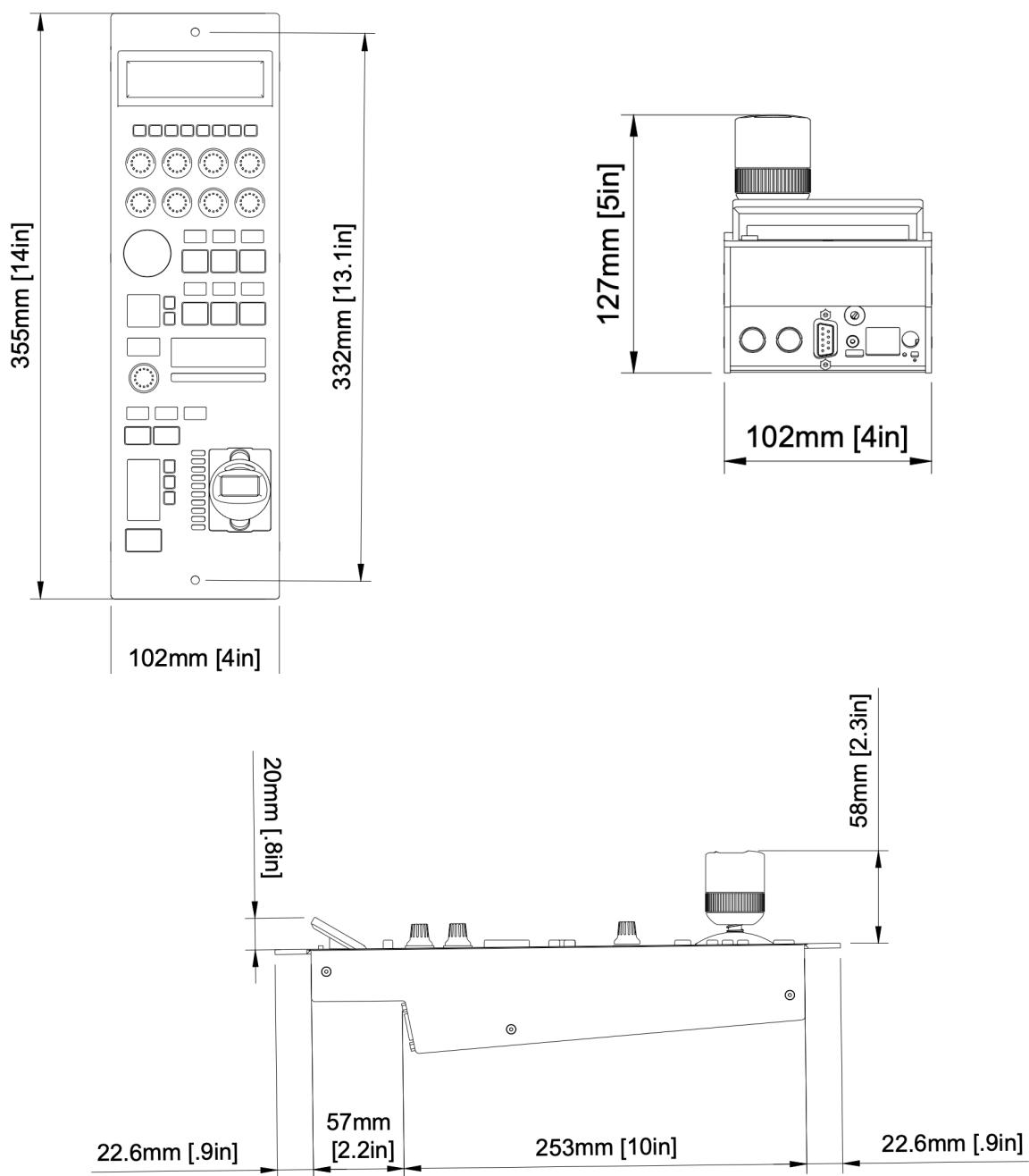
A1	DB9 (EXT I/O)
A2	USB 2.0 Port
A3	IP Network RJ45 Port
A4	12V DC Power

DB9 (EXT I/O)

This is the pinout for the DB9 connector on the RCP Pro.



Dimensions



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 made contact with your device though the web interface
- 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 or wiki:

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

<https://wiki.skaarhoj.com/>

For additional manuals, check out our GitHub repository:

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