

SKAARHOJ RCPv2

For

Canon RC-V100



USER GUIDE | April 2021

Get the latest version of this User Guide at: <https://www.skaarhoj.com/support/manuals/>

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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 RCPv2 Controller
- 1 x Power Adaptor including power plug
- 1 x 2m CAT.5E Ethernet cable
- 1 x 1m USB 2.0 Type A/Type Micro B cable

Overview

This user guide is suitable for the following models

- RCPv2 with Canon RC-V100 default configuration

Features

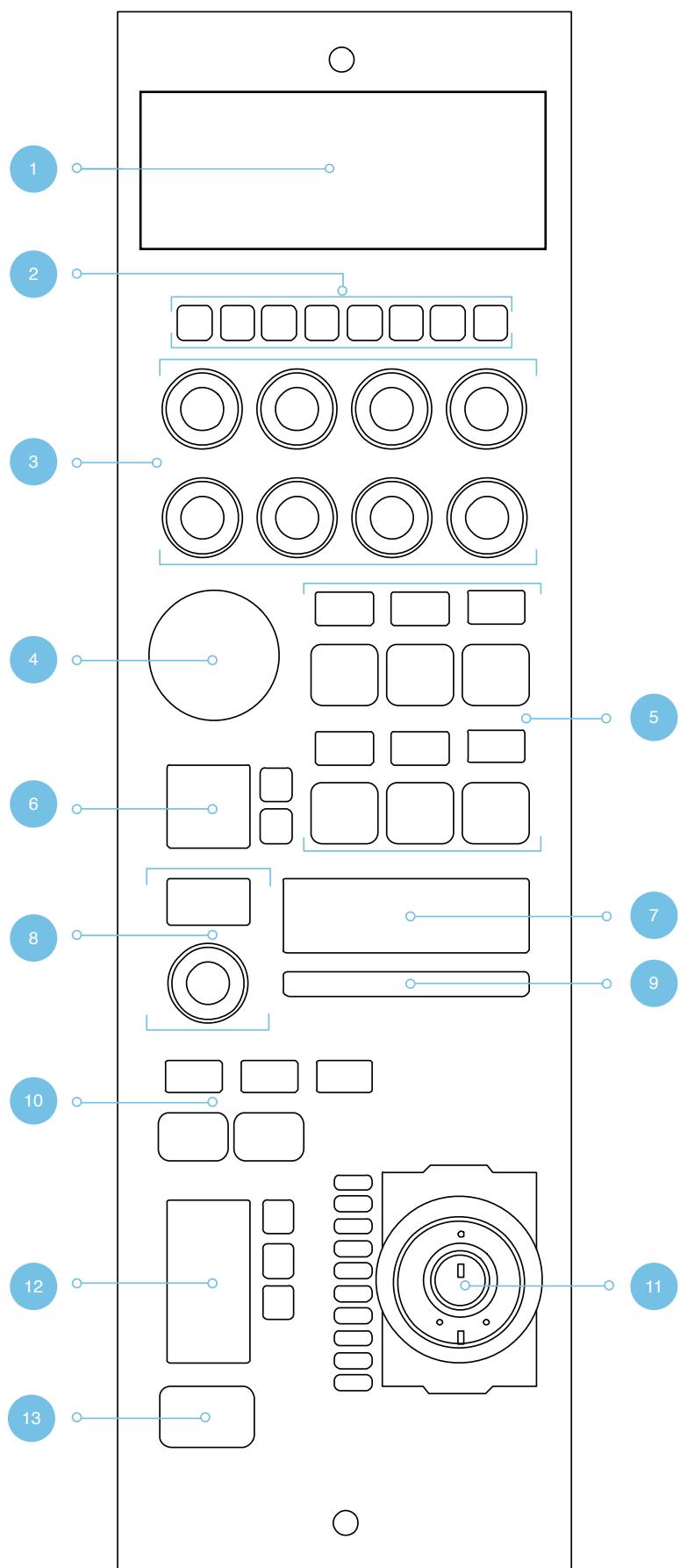
- Support for RC-V100 including
 - Zoom + Speed Control
 - Focus
 - Auto Focus
 - Iris / Iris Absolute (experimental)
 - Auto Iris
 - Master Pedestal
 - Paint: White/Black: Blue/Red
 - White Balance
 - ISO/Gain
 - Shutter
 - ND
 - Knee Point
 - Knee Slope
 - Auto Knee
 - Black Gamma
 - Sharpness
 - Start/Stop
 - Record Review
 - Assignable Button
 - Custom Picture

- Bars
- Power
- Menu
- 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
- Classic iris joystick, slider, or encoder wheel with display and LED bar
- Industry standard form factor (4"/102mm wide)
- Sits console style on table top or mountable in OB van rack
- Power: DC 12V, PoE (48V IEEE 802.3af)
- Firmware Upgrade via USB2.0
- DB9 (EXT I/O) connector
- Option for changing configuration layout

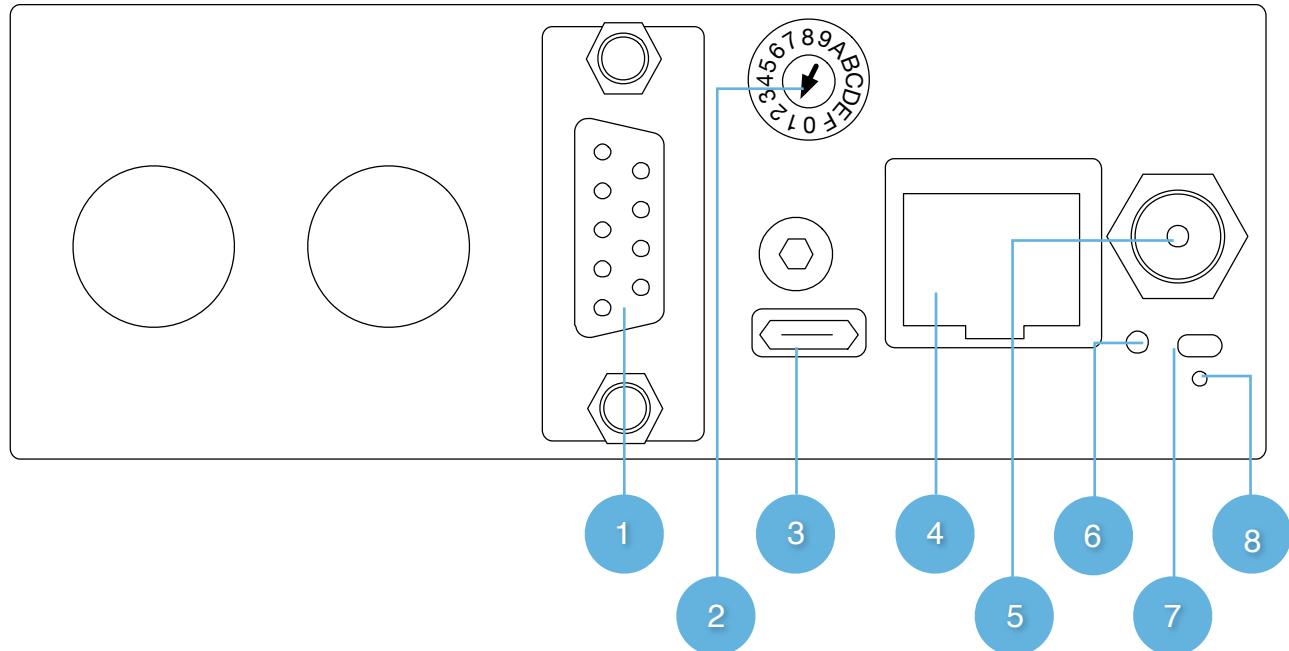
Controller Diagram

Top

1. Large display with 8 tiles. Functions associated with encoders from group 3
2. 8 assignable and user defined buttons
3. 8 rotary encoders with RGB backlight for function identification
4. Elastomer joypad
5. Group of 6 4-way buttons with associated displays
6. Record Review and Custom Picture
7. Camera ID display
8. Iris and Camera Select
9. Tally bar
10. Shift and ND
11. Joystick with master black ring and push button
12. Auto parameters
13. 4-way button for Preview



Backside



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

For external routing/tally systems

2. **Camera Selector**

3. **USB 2.0 Port**

Used for firmware upgrade and IP settings only

4. **IP Network RJ45 Port**

For IP Control with PoE (48V IEEE 802.3af)

5. **12V DC Power Supply**

Connect the supplied DC Power adaptor

6. **Status LED**

For monitoring and debugging

7. **Reset button**

Controller reset - same as taking the power of the controller

8. **Programming mode reset**

Only to be used if contact with support have been established

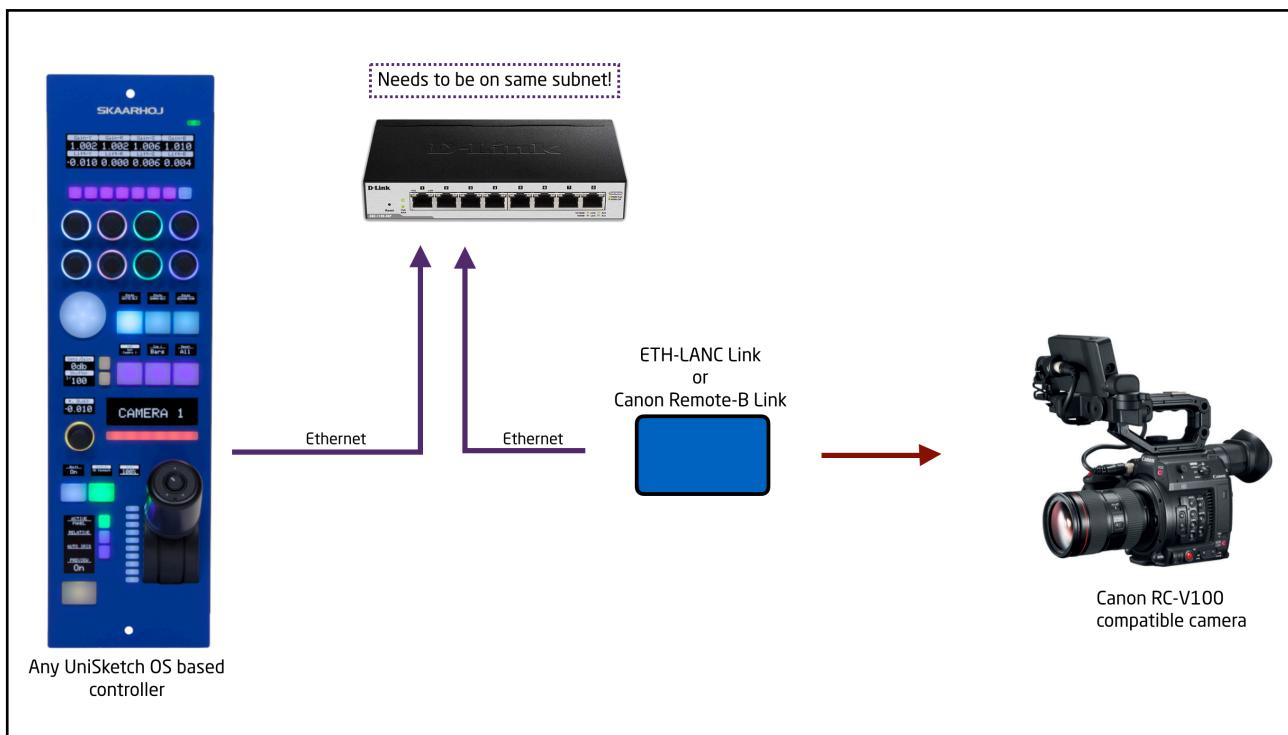
System Configuration

Connection

The SKAARHOJ RCPv2 communicates to camera(s) via wired ethernet communication to our Link IO box. This is the supported case.

The controller connects to the Link IO box which connects to the cameras and changes settings on the camera itself. No video signal processing is done on the SKAARHOJ RCPv2.

The layout of the configuration for the RCPv2 is done towards control of a single camera, but up to 8 cameras *can* be controlled from the same RCPv2 (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 PoE (48V IEEE 802.3af)
- Ensure the PoE provider has sufficient power budget to power the controller. Otherwise it will not function properly
- Power Consumption: 6 Watts

Controller Settings

In order to change IP or to update the Firmware on the controller the Firmware Updater Application is used: <https://www.skaarhoj.com/support/firmware-updater/>

The application is available for PC, Mac and Linux.

IP Settings

1. Download and install the Firmware Updater Application
2. Connect the USB cable to the controller and to the computer. Power the controller
3. Press "IP Configuration"
4. Change IP address and press "Save Settings"

The controller reboots and will look for cameras on the provided IP addresses.

The controller and the camera must be on the same subnet.

Avoid having Device Cores activated which do *not* connect to an actual camera.

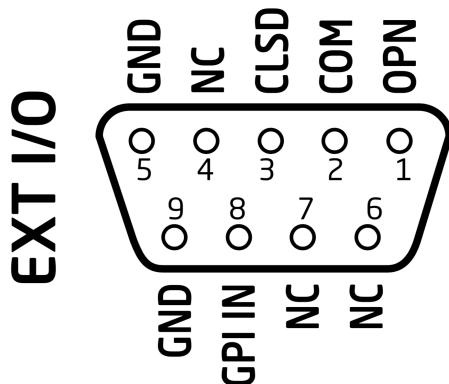
The screenshots illustrate the SKAARHOJ Firmware Updater Application interface. The top part shows the main menu with four primary options: "Update Firmware", "Online Configuration", "Local Configuration", and "Manuals and Support". The bottom part shows the "IP Configuration" screen, which includes fields for IP Address, Subnet Mask, Gateway, and DNS Server, all set to 192.168.10.99. It also shows the "Device Cores" section, which lists "RC-V100" with its IP set to 192.168.10.100 and an "Enable" checkbox checked. At the bottom of the configuration screen are "Cancel" and "Save Settings" buttons.

Firmware Update

1. Download and install the Firmware Updater Application
2. Connect the USB cable to the controller and to the computer. Power the controller
3. Press "Update Firmware"
This generates a new firmware file and downloads it to the controller. It will reboot once completed.

DB9 (EXT I/O)

This is the pinout for the DB9 connector



- When the joystick top button or the "Prev" button is pressed, a relay is shorting pin 1 and 2
- If pin 8 is shorted to GND (pin 5 or 9) the Tally bar will light red and tally on the camera is activated

Network Interface Details

- The controller have a 100 mbps network interface
- Network switch must have Auto-MDI/MDIX
- Network switch must support 100 mbps
- PoE: IEEE 802.3af

Power over Ethernet (PoE) Specifications

The PoE industry standard 48V IEEE 802.3af is used. If powering the controller using PoE it is important the network switch supports this standard. Please notice some manufactures such as Ubiquity have their own non-standard 24V type of PoE which is incompatible with the controller. Especially pay attention to the standard if using a PoE injector.

Troubleshooting

If experiencing no network activity at all, try one or more of the following suggestions:

- Use a managed network switch
- Force network switch port to 100 mbps
- Try a different network switch

Controller Use

Overall the controller have seven Menus. To change between the menus press M1, M2, M3, or M6 on either the top edge or bottom edge of the button. The controller have 1 shift level. To activate this press M7.

C1-C8

C1-C4 set as Assignable Buttons while C5-C8 are left open for user defined.

Position UD

Undefined

M1-M6

	Exp + WB	Color
M1	ISO/Gain Select	
M2	Shutter Select	
M3	On Screen	
M4	Start/Stop	
M5	Camera Power	
M6	State Change: Color	State Change: Exp+WB

B7

Record Review

B8

Custom Picture

ID Display

Displays "CAMERA X" where X is set via K8 in State: Menu:System/OSD

ID Tally

Lights up white by default and red when pins on DB9 connector is set

Iris/Cam Select

Iris control, when shifted, Camera select

M7

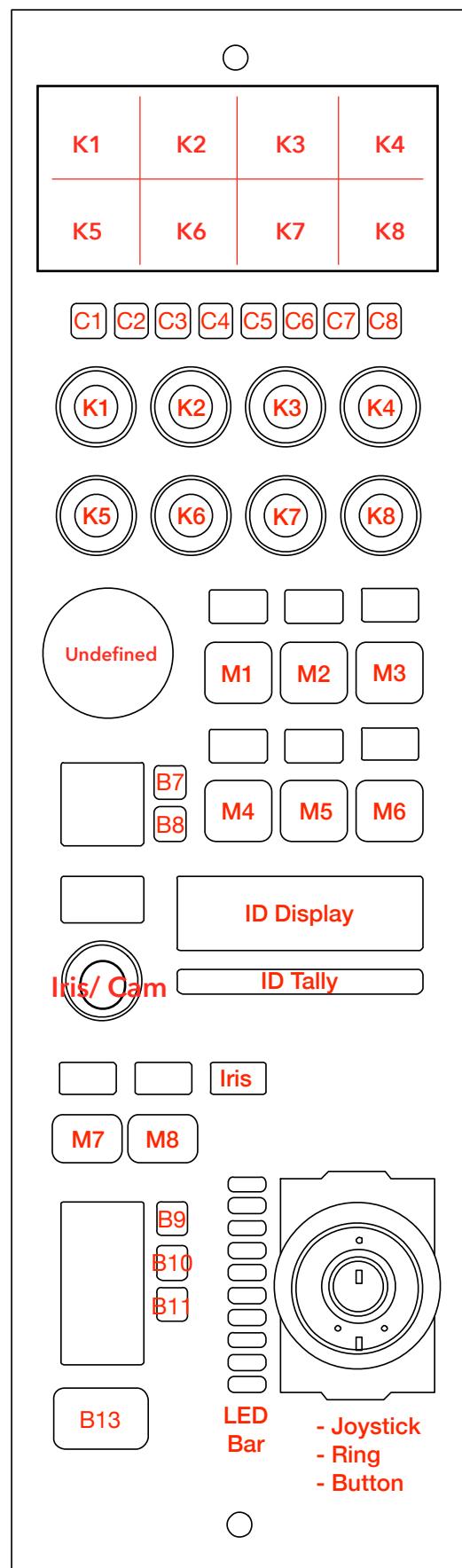
Shift level via toggle

M8

ND Filter

Iris

Displays Iris value



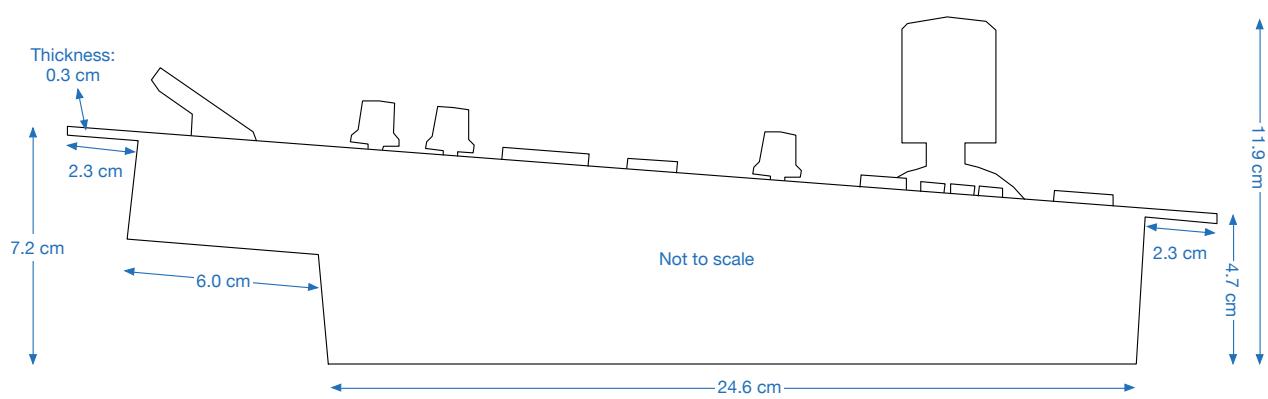
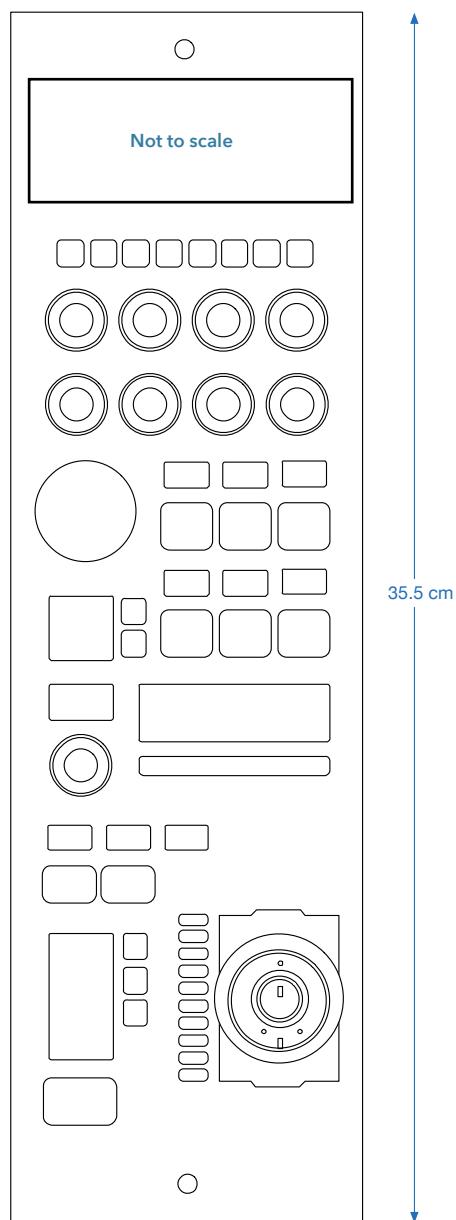
B9	Auto Iris	Joystick	Controls iris value						
B10	Auto Focus	Ring	Master Pedestal						
B11	Auto Knee	Joystick Button	Activates "Preview" relay on DB9 connector						
LED Bar	Indicates Iris value	B13							
			<table border="1"> <thead> <tr> <th></th><th>Upper Press</th><th>Lower Press</th></tr> </thead> <tbody> <tr> <td>B13</td><td>Hold down: Hijacks main display to show actions for C1-C8</td><td>Hold down: Activates "Preview" relay on DB9 connector</td></tr> </tbody> </table>		Upper Press	Lower Press	B13	Hold down: Hijacks main display to show actions for C1-C8	Hold down: Activates "Preview" relay on DB9 connector
	Upper Press	Lower Press							
B13	Hold down: Hijacks main display to show actions for C1-C8	Hold down: Activates "Preview" relay on DB9 connector							

K1-K8

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

	EXP + WB	Color
K1	Menu Move Up	Menu Move Up
K2	Shutter	Master Pedestal
K3	Zoom	Paint/Black/Blue
K4	Focus	Paint/Black/Red
K5	ISO/Gain	Sharpness
K6	White Balance Preset	Knee Point
K7	Paint/White/Blue	Knee Slope
K8	Paint/White/Red	Black Gamma

Dimensions

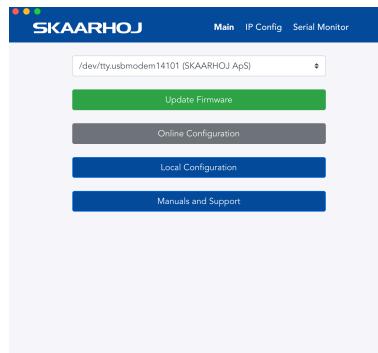


Changing Default Configuration

In some cases it can be desirable to change mapping of functionality on the different hardware components on the controller. This is presented in the following section.

To access the internal configuration in the firmware updater click on Online Configuration.

Please note, you need to be connected to the internet to access the online configuration.



Different Mapping of Functions

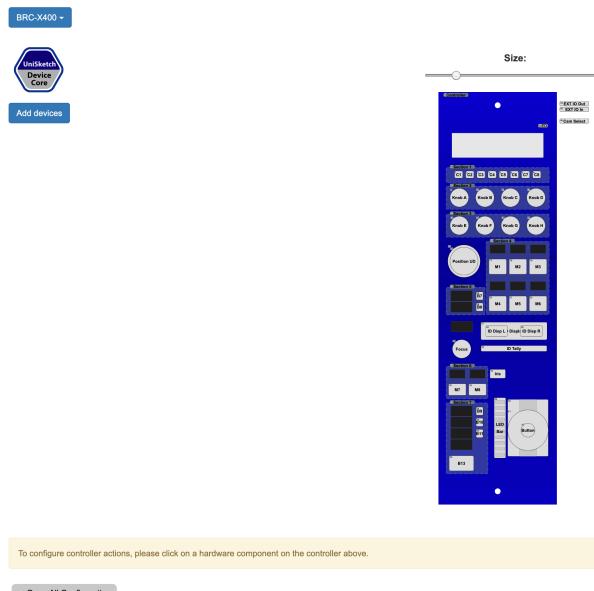
Once you have entered the online configuration you will be taken to the simple configuration page. Press the red Advanced button to access the full configuration.

Configuration of your RCPV2 with S/N

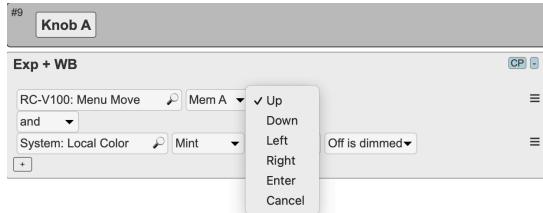
The following default configurations are available for your controller:

[Advanced](#)

Select the specific knob or button you would like to reconfigure by selecting in the controller diagram or select Open All Configuration the full overview.



Reconfigure your selected input via the drop down menu for each key. Please note that some functions might only work with specific inputs, i.e. a function labeled Binary will not work on an encoder knob.



If you have previously changed your IP information in the Firmware Updater without going to the Online Configuration, double check your IP settings information at the bottom of the configuration page as this might be set to default shipping configuration.

A screenshot of the "Controller IP Settings" configuration page. It includes fields for "DHCP" (unchecked), "IP" (192.168.10.99), "Subnet Mask" (255.255.255.0), "Gateway" (192.168.10.1), and "DNS" (192.168.10.1). At the bottom, there is a "RC-V100" section with a "Save Settings" button containing the IP address "192.168.10.100" and a checked checkbox next to it.

When you have finished setting reconfiguring your controller press the green Save Settings button in the bottom right corner.

A green rectangular button with the text "Save Settings" in white.

Once you have saved, go back to SKAARHOJ firmware updater and press Update Firmware. This load a new firmware file onto your controller with your new configuration.

This step may take a few minutes to finish.

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



See the YouTube video for a detailed walkthrough of the configuration

https://www.youtube.com/watch?v=wJQ7jFOat_o&t=15s