

SKAARHOJ RCPv2

For

Sony BRC-X400



USER GUIDE | April 2020

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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 Sony BRC-X400 default configuration

Features

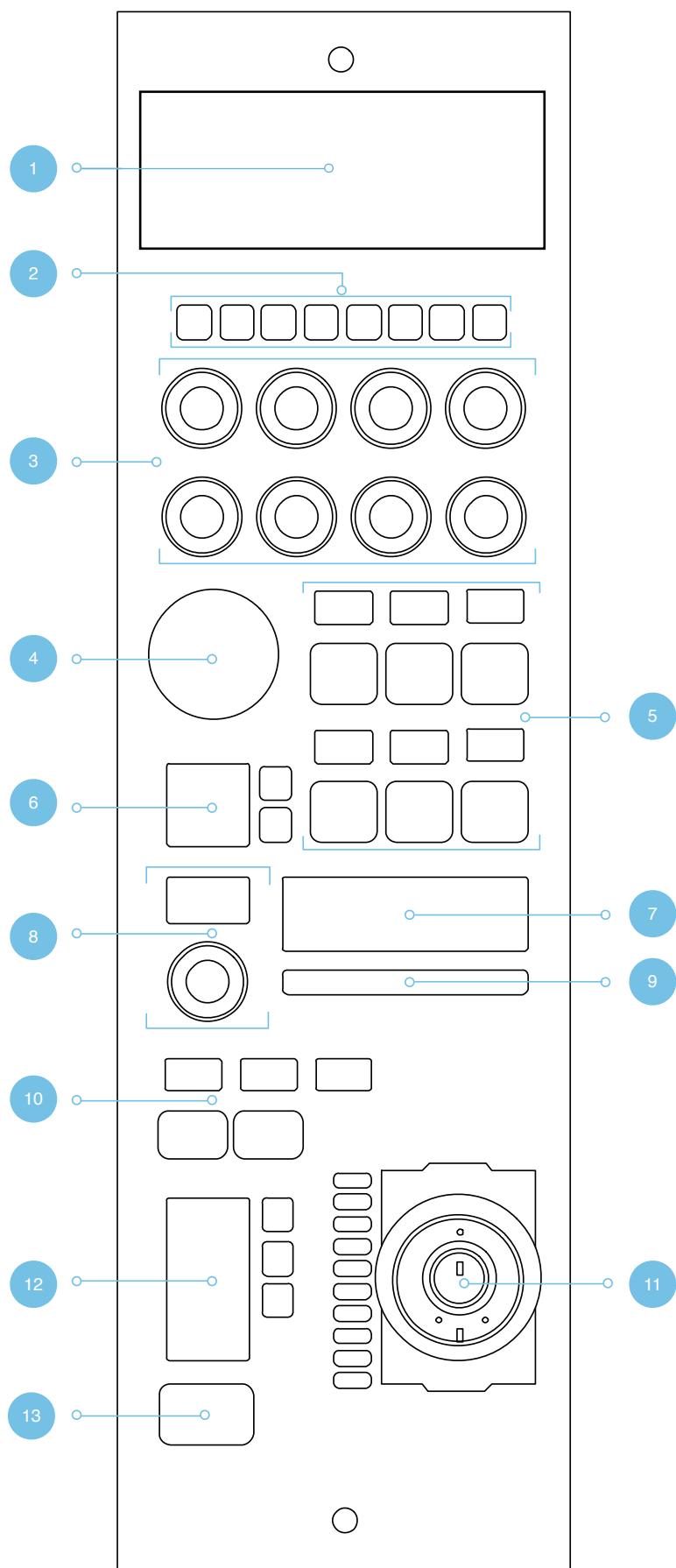
- Support for BRC-X400 including
 - Pan/Tilt/Zoom + Speed Control
 - Focus + Focus Settings
 - Exposure Mode + Exposure Control
 - Gain Settings
 - AE Levels
 - Shutter mode and speed
 - WB Mode, WB One Push and WB R/B Gain
 - Matrix + Matrix Color
 - Chroma Suppress
 - Detail
 - Knee
 - Noise Reduction
 - Gamma Settings
 - Presets
 - Tally
 - Image Flip
 - IR Receive
 - Flicker Reduction

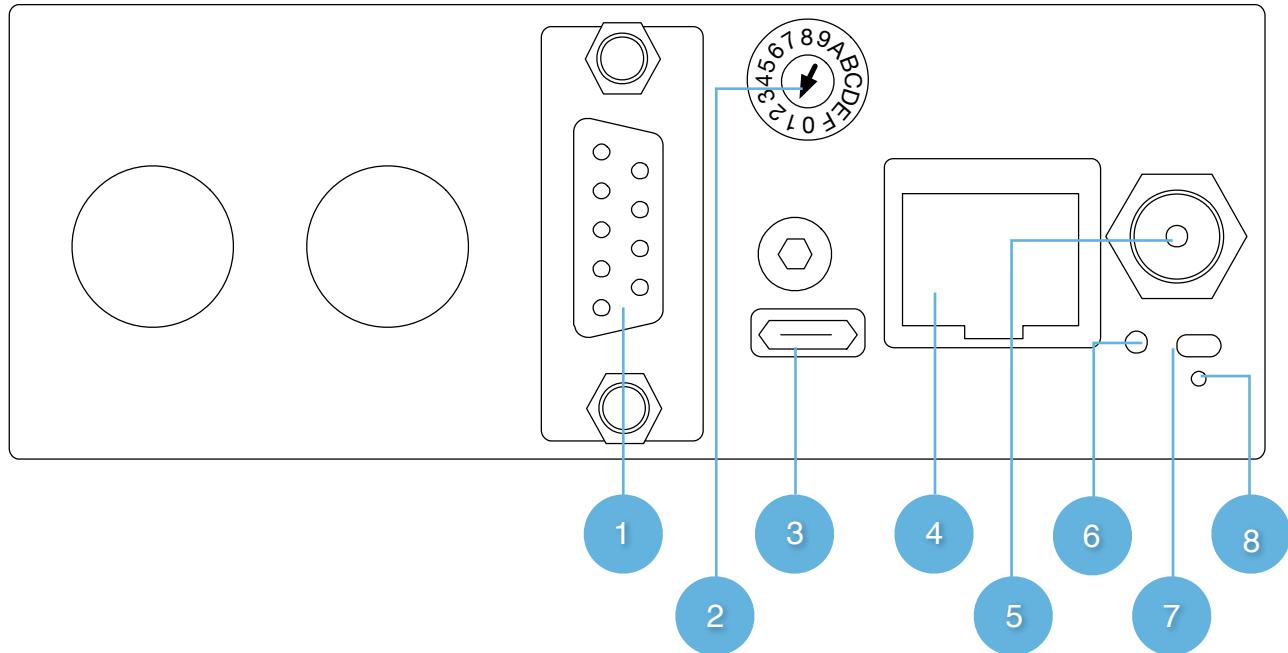
- Power
- Menu Display
- Super crisp window with large display tiles for settings
- High-quality encoders with RGB backlight for function identification
- Camera ID display with OLED technology
- RGB tally bar
- Preview button for GPI or control of video router
- Four-way buttons with OLED legends for 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 presets 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. Focus setting and one push focus
7. Camera ID display
8. Focus with associated display
9. Tally bar
10. Shift and Pan/Tilt Home
11. Joystick with master black ring and push button
12. Iris control 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

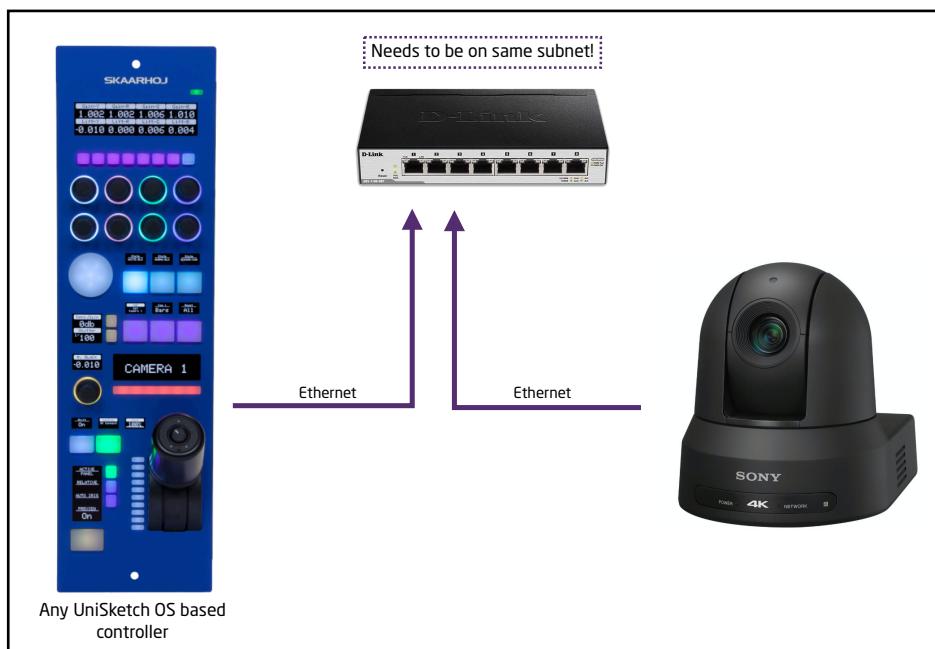
System Configuration

Connection

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

The controllers connects to the cameras and changes settings on the camera itself. No video signal processing are done on the SKAARHOJ RCPv2.

The layout of the configuration for the RCPv2 is done towards control of a single camera, but up to 7 cameras *can* be controlled from the same RCPv2 (or any other SKAARHOJ controller).



Power

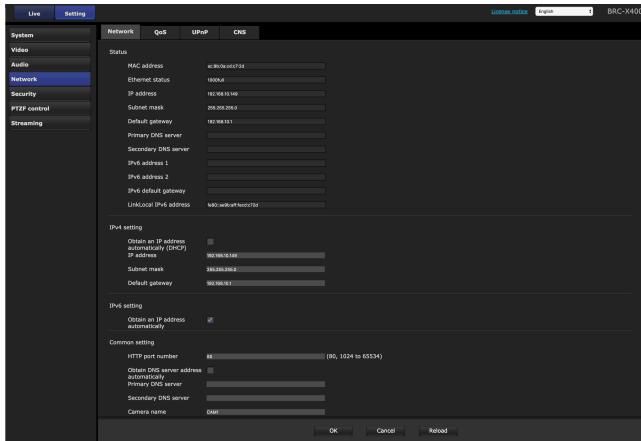
- Use only the DC power adapter supplied with the controller. Do not use any other DC power adaptor
- If using PoE to power the controller, make sure the network switch supports PoE (48V IEEE 802.3af)
- Ensure the PoE provider has sufficient power budget to power the controller. Otherwise it will not function properly
- Power Consumption: 6 Watts

Camera Settings

Network Interface

Initial set up of the Sony BRC-X400 needs to be done through the camera's network interface.

Please consult the camera manual for instructions.



IP settings

A static IP address must be set on the camera
Please consult the camera manual for instructions.

Firmware

This integration was done using Sony BRC-X400 software version 1.00

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.

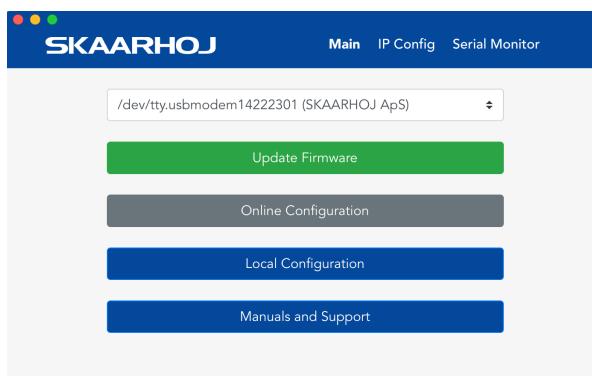
IP Settings

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.

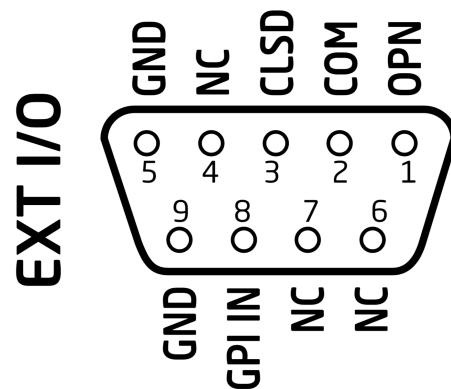


Firmware Update

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

Set and Recall camera presets. Holding down for 1 second will store the current camera information. A quick press will recall the setting stored to that preset.

Position UD

Pan on the outer left and right part of the pad. Tilt on the upper and lower part of the pad.

M1-M6

	Upper Press	Lower Press
M1	Sets "Menu: Exp"	Sets "Menu: WB"
M2	Sets "Menu: Color"	Sets "Menu: Detail"
M3	Sets "Menu: Gamma"	Sets "Menu: Knee/Pict."
Single Press		
M4	Zoom Out	
M5	Zoom In	
M6	Sets "Menu: System/OSD"	

B7

Toggles between Auto/Manual Focus

B8

Auto Focus One Push

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

Focus

Controls Focus when shifted, controls focus speed

M7

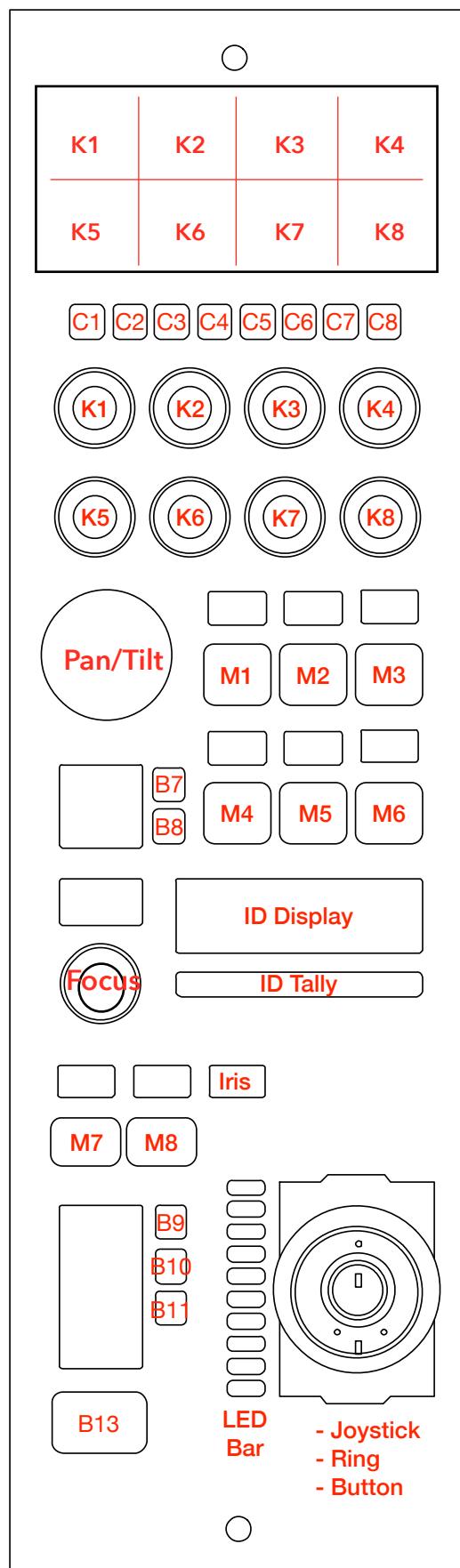
Shift level via toggle

M8

Pan/Tilt Home

Iris

Displays Iris value



B9

Active Panel. If enabled no hardware interface will respond

B10

Sets exposure mode to Auto

B11

Sets exposure mode to Iris

LED Bar

Indicates Iris value

Joystick

Controls iris value

Ring

Joystick Button

Activates "Preview" relay on DB9 connector

B13

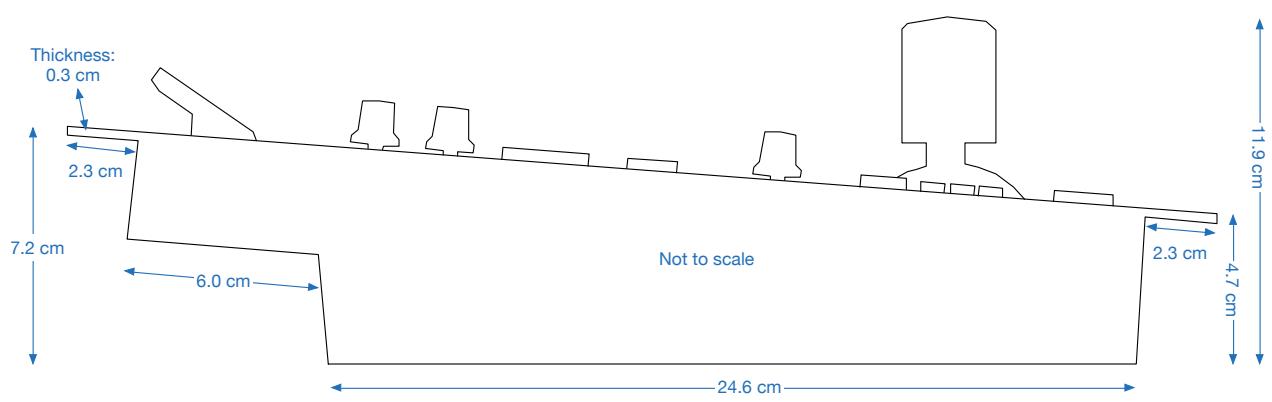
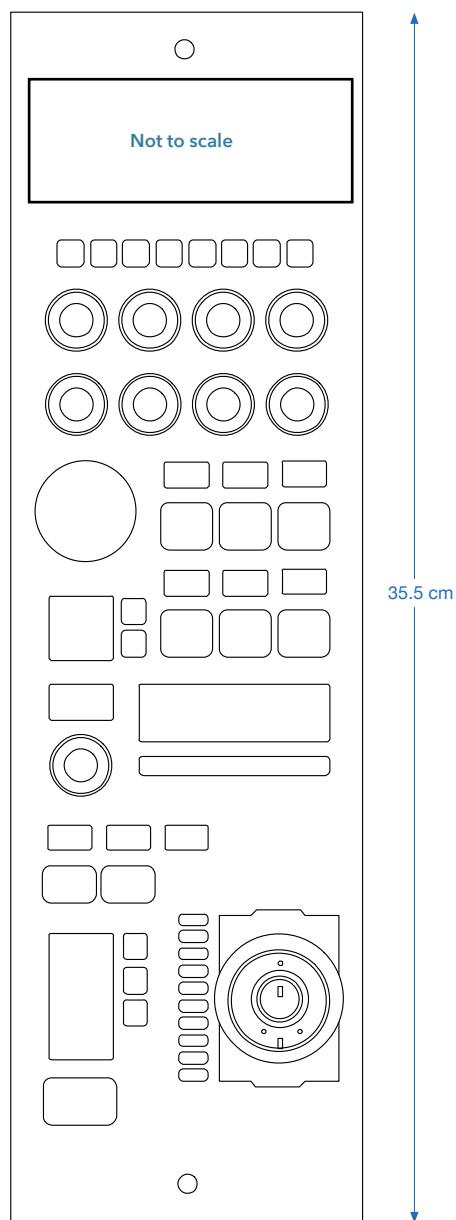
	Upper Press	Lower Press
B13	Hold down: Hijacks main display to show actions for C1-C8	Hold down: Activates "Preview" relay on DB9 connector

K1-K8

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

	EXP	WB	Color	Detail	Gamma	Knee/Pict	System/OSD
K1	Exp. Mode Or/Shift Gain Point	Mode	Matrix Mode	Detail Auto	Gamma Mode	Knee Enable	Digital Zoom
K2	Shutter Or/Shift Gain Point Pos	WB One Push	Matrix Color Level	Detail Level	Gamma Offset	Knee Auto/ Manual	Tele Convert
K3	Gain Or/Shift Max Shutter	WB Red Gain	Matrix Color Hue	Bandwidth Or/Shift Superlow	Gama Level	Knee Slope	PT Slow Mode
K4	Gain Limit Or/Shift Min Shutter	WB Blue Gain	-	Crispening	Black Gamma Level	Knee Point	Menu Display
K5	Ex-Comp Enable Or/Shift AE Speed	WB Offset	Matrix Color R-G Or/Shift Matrix Color B-R	H/V Balance	Black Gamma Range	Noise Reduction Off	Image Flip
K6	Ex-Comp Level	WB Speed	Matrix Color R-B Or/Shift Matrix Color B-G	B/W Balance	Black Level	NR Settings 2D	Tally
K7	Backlight	-	Matrix Color G-R	Limit	-	NR Setting 3D	PT Speed Limit
K8	Spotlight	-	Matrix Color G-B	Hightlight Detail	-	-	Camera Select 1-7

Dimensions

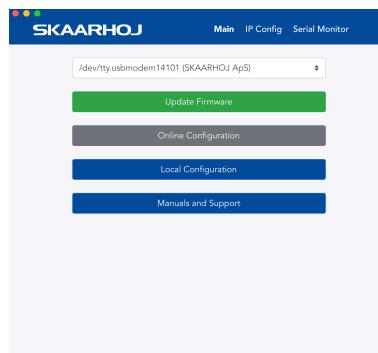


Changing Default Configuration

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

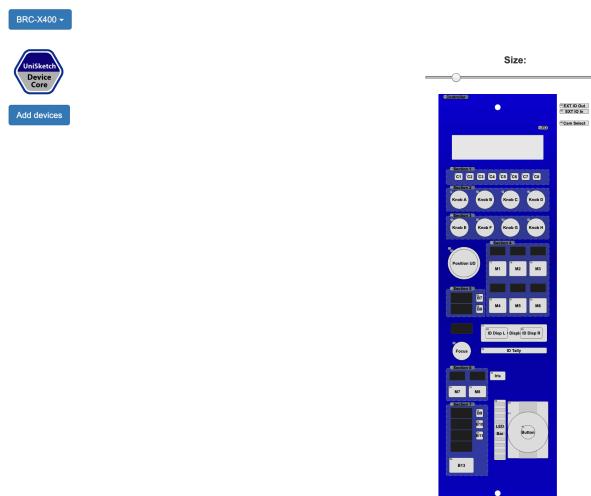
Once you have entered the online configuration you will be taken to the simple configuration page. Press the red Advanced button to access the full configuration.

Configuration of your RCPV2 with S/N

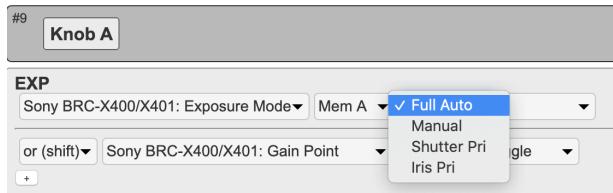
The following default configurations are available for your controller:

[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.

Controller IP Settings

IP: 192 . 168 . 10 . 99

Subnet Mask: 255 . 255 . 255 . 0

Gateway: 192 . 168 . 10 . 1

DNS: 192 . 168 . 10 . 1

Sony BRC-X400/X401

192 . 168 . 10 . 149

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

Save Settings

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.

Serial Connection Option

Instead of connection via IP you are able to establish a serial connection by way of a Device Core Options:

Setting VISCA over serial would be set by this configuration under "Manage Media" on the configuration page for your controller. Access this by pressing "Online Configuration" in the Firmware Application. Remember to save on the configuration page and press "Check for updates" in the Firmware Application.

Device Core Options

Some device cores support additional options that can be defined through this text field. Please refer to the manual for the particular device core for details.

D0:0=1

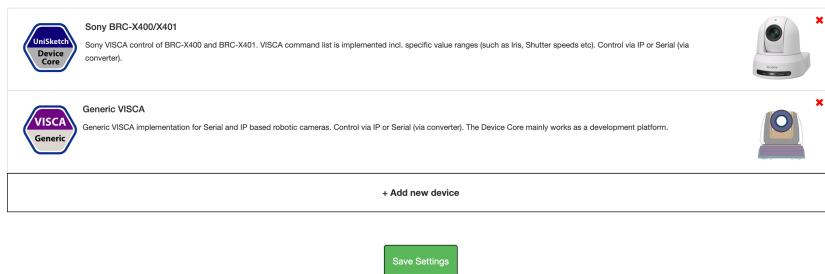
Device Core options:

- Index 0: **VISCA over IP/Serial**
 - If "1" = VISCA over Serial

Example:

Enabling VISCA over serial could look like this device configuration code: "D0:0=1" where the general form would be "Dx:y=z" where "x" is the number of the device core as installed on the controller (starting with zero for the first device core), "y" the index number and "z" the value for that index.

If the Sony BRC-400X Device Core is the first like below:



To confirm that a device configuration is in fact detected by the controller, please check it out on the serial monitor where it will be mentioned:

```
Memory A-D restored
Compiled: Mar 12 2020 14:41:54
D0[0] = 1
DeviceCore #0: SONYBRCX4000, IP = 192.168.10.149
SONYBRCX400: Option serial
ClientVISCAserialIP: __deviceIdx: 0
ClientVISCAserialIP::begin()
setup() Done
```

For proper serial connection settings please see your Sony BRC-X400/X401 camera manual.

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://youtu.be/IPRFugh2RLO>