

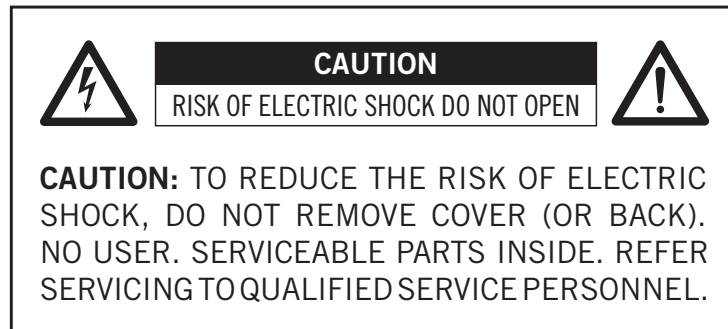
043



# RCP002

Universal Camera Operation Control Panel

## User Manual



This symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**INFORMATION** - This equipment has been tested and found to comply with limits for a Class A digital device, pursuant to part 15 of the FCC Rules & CE Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

**WARNING** - Changes or modifications not expressly approved by the manufacturer could void the user’s authority to operate the equipment.

**CAUTION** - To prevent electric shock and risk of fire hazards: Do NOT use power sources other than those specified.

## Before You Start

This manual should help you in the installation and set-up of the RCP; and we recommend that you carefully follow the instructions described. To ensure that your warranty remains valid, please read the manual carefully before using the RCP.

## Precautions

- Please DO NOT disassemble, modify or repair the RCP. There are no user serviceable parts inside and disassembling the RCP may void the warranty. For prevention of fire or electric shock, DO NOT remove screws or covers from the RCP.
- Operation in a wet environment is NOT recommended. The RCP SHOULD NOT be exposed to rain or moisture.
- For prolong life and the protection of the RCP's CCD, do not point the RCP directly at the sun or a strong spotlight which may result in CCD blooming and permanent damage.
- DO NOT operate the RCP beyond the operation temperature range stated and AVOID usage in conditions exceeding 90% humidity.
- DO NOT use an unregulated power supply source to prevent damage to the RCP's circuits. Use soft materials such as lens tissue or cotton tipped applicator with ethanol for CCD faceplate cleaning ONLY when necessary and AVOID contact with fingers or any hard object. Do not use solvent, abrasives or detergent when cleaning the RCP body.
- Warranty shall be voided for improper use of the RCP caused by the user; or damage caused by other equipment due to negligence.

## Warranty

O4S warrants the original components free of defects for one year from the purchase date. This warranty covers failures and damage due to defect, which may occur during normal use. It does not cover damages or failure resulting from mishandling, abuse, misuse or modification. An RMA number must be obtained in advance for every repair or replacement.

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# 1. Introduction

## 1.1. Application

RCP002 is a universal remote control panel for various modes of RCPs. The user interface is designed for convenience, with a menu with accessible functions on the touch screen for a detailed view and clear functions and values.

RCP002 operates based on Ethernet using TCP/IP or Serial communication protocol. RCP002 can control 8 different type of RCPs, directly from different manufacturers at the same time.

## 1.2. Features

- Uses IP connectivity: generic IT Network infrastructure via standard Ethernet 10/100 Mb/s
- Supports serial communication protocol connected to Omnicam4Sky RCP control unit.
- Provides a remote diagnosis of RCP and the operation of the transmission.
- Comfortable and ergonomic, with great flexibility and programmable buttons.
- Touch screen LCD with backlight and adjustable tilt to facilitate to the maximum reading
- Brightness control of LCD and led front panel.
- Easy configuration and selection of the RCP number.
- Support for multi-RCPs.
- Mini Joystick that, depending on the mode of the RCP selected, controls the Pan & Tilt movements or OSD navigation.

## 1.3. Use of this manual

The RCP002 can control multiple types of RCPs of various brands. This guide only includes general configuration functionalities.

Depending on the type of RCP that is connected to RCP002, not all elements and/or functionality may be available. The values available are also dependent on the RCP. The menu system only shows the relevant elements.

See the manual specific to the type of RCP that is connected with the RCP002. Are available for:

- BMD Teranex
- BMD RCP via ATEM
- OmniCam4Sky HD20/HD25/HDX1
- X5A OmniCam4Sky
- Panasonic AW-HE50
- Toshiba IK-HR1D
- Vision Research Phantom V64x/Miro

## Location of controls

### Touch Screen LCD Panel Menu

- Fully backlit LCD display. Adjustable sample menus, functions and values that depend on the type of installed camera.
- Use the buttons shown for browse through menus and submenus.
- Depending on the type of camera installed will present the functions available.

### Iris / Black Master / Preview

- Move the joystick up and towards below to change the iris opening.
- Turn the bottom of the command to vary the level of black.
- Up the part top of the knob  
Down to activate the output GPI



### Camera Selection buttons

- With one press to select camera 1 to 4 with the GPI output.
- Press twice to select camera from 5 to 8.

### Controls of RGB (Red, Green Blue) for gain, gamma and skin (LED indication)

### Assignable control

It varies the value of selected function on the menu. Pushing to select.

### Pan tilt and joystick Control Assignable

- 1 to 4:** Indicate buttons that serve to select the RCP about what we're going to act. With a touch are selected RCPs 1 to 4. To select 5 to 8 RCPs has to do a double tap. Only the first four feature a physical link to Tally and GPI output to activate the array (see diagram in the following point DB15 connector).
- 5 to 7:** Are rotating commands that allow you to act on the values of R, G, B, gamma and Skin when menu selection.
- 8:** Indicates a slider control with three features:
- Moving from top to bottom it acts on the iris.
  - Turning to the bottom of the command modifies the black level
  - Pressing the command activates the corresponding GPI output.
- 9:** Indicates a rotary Commander with coach that allows us, as the screen:
- Turning the command, slide the cursor through the menu options.
  - Turning the command, increase or decrease the numeric value of the selected value.  
This rotation is sensitive to speed, so that the higher speed, greater increment or decrement.
  - Pulsing accepts the selection or validates the value.
- 10:** Indicates a mini joystick configurable depending on the type of webcam. So, for example, can move the pan and tilt, move the zoom or move the RCP OSD options.

## 2. Operation

### 2.1. Content submission

- Universal Remote Control Panel RCP 002
- AC/DC; Input 100-240VAC 50/60 Hz; 12 VDC output 2000mA
- Mini 4Pin XLR

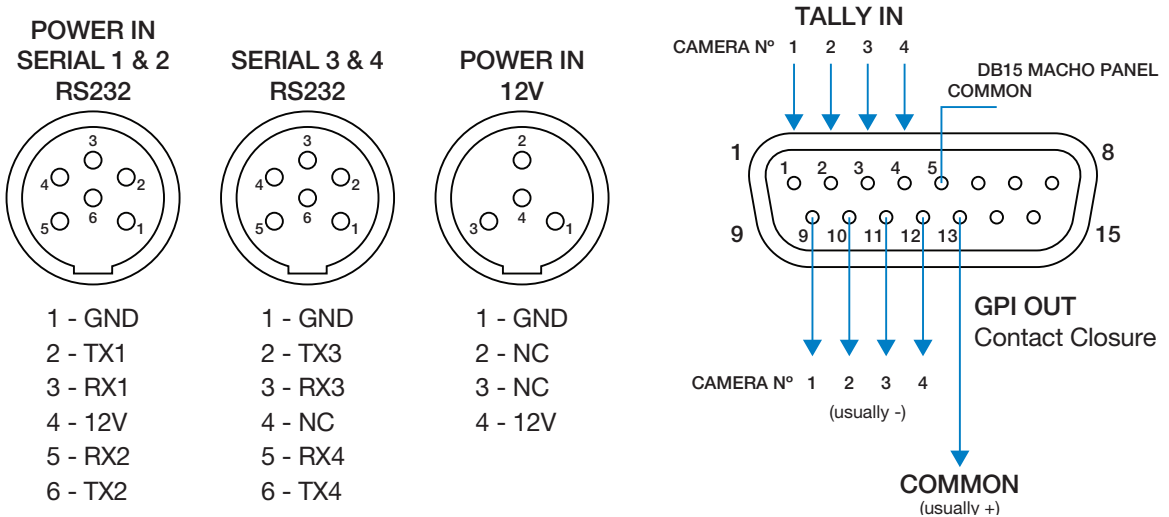
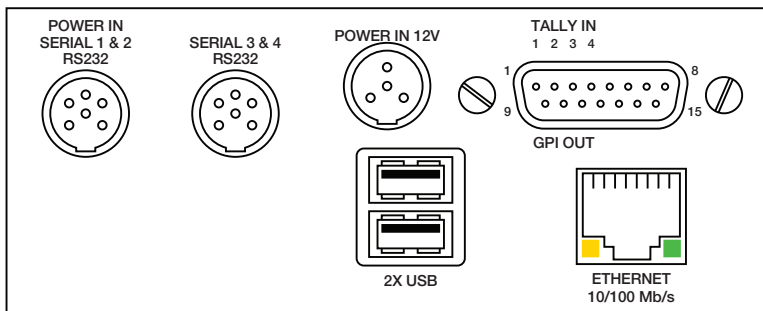
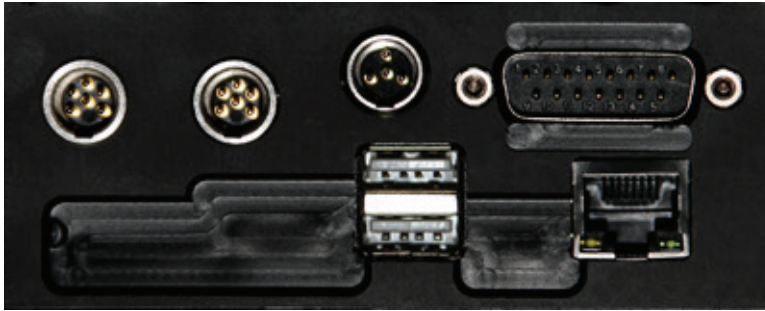
### 2.2. Preparation of the installation

- The installation of this appliance must be performed by qualified staff.
- Do not modify this equipment.
- Do not subject the unit to strong shocks or vibrations.
- To avoid risk of overheating, el ventilate properly the product.
- Do not expose the unit to extreme temperatures.
- To prevent fire or electrical shock, do not expose the unit to rain or moisture.

## 2.3. Setting

### 2.3.1. Installation

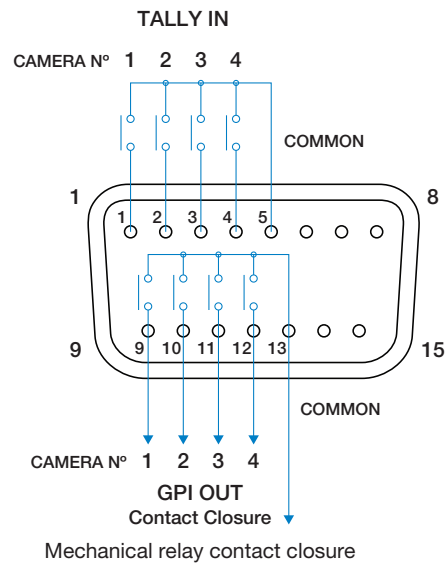
### 2.3.2. View of rear panel connectors:



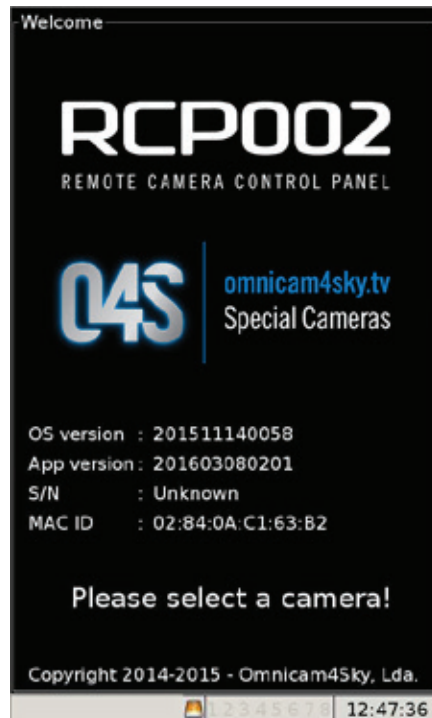
- The serial ports cannot be use with the X5A RCP.
- So if you enable tally signal on the touch screen to select a RCP number, must be closed the contact between the tab corresponding to the number (1, 2, 3 or 4) with the lever 5 DB15 connector.



- To switch the video to select a RCP number, the RCP002 closes a potential-free contact between the handle 9, 10, 11 or 12 and the common set the tab connector 13 DB15.



- Connect a power supply unit to the power input jack (12 VDC)
- Connect the Ethernet cable from the network of RCP control to Ethernet connector.
- Initial image appears in the RCP Panel 002. It appears the version number of the Operating System and the version number of the application. The version numbers are formed by the chain of information composed by year-month-day and date of compilation.



- You must press one RCP button select key to continue.

### 2.3.3. General indications

In the following pages we will use the following conventions:

<1> <2> <3> <4> Indicates a physical panel button

<5> <6> <7> Indicates a panel swivel

<8> Indicates the sliding joystick

<9> indicates the rotary control with pushbutton

<10> Indicates the mini joystick

[NAME] Indicates a button on the LCD touch screen

⊙ [NAME] Indicates a selection control on the LCD touch screen

“SELECT” Indicates an option of a on-screen menu.

### 2.3.4. Setting up the OCP

When entering the <SETUP> the screen connects:

On this screen pops up a menu with options. The first one should always set network configuration “Network”.



### Network setting

Before any device can start working on a network must be configured so that it can participate in the same. Most devices enabled for the network concede a method called DHCP auto-configuration that consists in obtaining a good configuration of a server on the local network. CPR 002 is no exception and if supports this method of configuration.

Also for networks that do not have a DHCP server or if you need a more advanced configuration, has a manual configuration mode. This mode features a main block of configuration, in addition to four additional network segments, which can be superimposed or not.

## Configuration using DHCP

1. Press [SETUP].
  2. Select turning <9> the option “Network”.
  3. Press <9>
  4. In the window that appears, select ☒ [DHCP].
  5. Press [OK].
- While the RCP002 resets the network and receives the DHCP Server Setup takes just a few seconds. If you can't reach the server, the delay may be longer and the RCP002 will have no IP address, but will continue to request until the server responds. When DHCP is enabled in the boot, the boot time may be extended due to the lack of availability of a DHCP server; If this is the case, please contact your network administrator or change the network configuration type ☐ [Static].
  - When it is configured for DHCP, you cannot define additional network segments, for that would have to manually set the RCP002..
  - This mode is used to connect the RCP002 to a network with Internet access and be able to update the application or the operating system (see the corresponding point)

## Manual configuration

This is the normal configuration mode to communicate with multiple RCPs.

The RCP002 can set up to 5 different network segments. There is no problem if any of the segments overlaps with another.

1. Press [SETUP].
2. Select turning <9> the option “Network”.
3. Press <9>
4. In the window that appears, select ☐ [STATIC].

The screenshot shows a network configuration window titled "General". At the top, "Config type:" has two radio buttons: "DHCP" (unselected) and "Static" (selected). Below this, there are five sections for "Network segment 1" through "Network segment 5". Each segment has an "Enabled" checkbox and an "IP address" field. Segment 1 is enabled and has the IP address "0.0.0.0 / 0". Segments 2 through 5 are disabled (checkboxes are unchecked) and have the IP address "0.0.0.0 / 0". At the bottom of the window are "OK" and "Cancel" buttons.

5. Enter the "Network segment 1"
6. Go back to calling the IP address (this is the IP of their own RCP002)
7. Enter the netmask. To save space on the screen, the netmask is introduced in form "a number" instead of "number of points" (see explanation in section below). The numbers used are the 16 (equal to 255.255.0.0) and 24 (255.255.255.0).
8. Enter the gateway. Typically, the same value as the IP but with the final value 1
9. Enter the DNS server. In small networks, this makes the router. It is only possible to an option. If there is more than one DNS on your network, you can enter the IP address of any of them, since everyone must give the same answer to DNS queries.
10. If you need more local network segments, for example, for the RCPs in different segments of the network, enable the necessary additional segments and enter the IP address of RCP002 and corresponding network mask. See the following example.
11. Press [OK].

It takes a few seconds while RCP002 reconfigures the network. Please ask at your local network administrator configuration settings before attempting to configure any network device in the dark, or even can reach disturbing the local network instead of connecting to this.

- There are several changes to the assignment of the network, you may want to turn off (turn off power supply) the RCP002 and connect again a few seconds later, to allow the system to correctly assign the segments.

### Example of manual configuration

We have a RCP002 that will connect with three mini RCPs with the following IP:

- Mini 1 with IP: 10.28.57.62
- Mini 2 with IP: 10.28.57.73
- Mini 3 with IP: 172.20.20.14

As we see, they're in two totally different networks.

First we configure the "Network segment 1". This is RCP002 's own IP and can be any one who didn't come in and conflict with the existing IP. We can, for example, take an IP within the thread of one of the minis, assigning the value:

IP address: 10.28.57.10/24

Gateway: 10.28.57.1 (same IP but with 1 in last place)

DNS: 10.28.57.200 (only matter if we connect through a router, and in this case we need to get to your direction).

With this segment, configured could access to a RCP that has a direction any located between:

10.28.57.2 and 10.28.57.254

(exceptuando a 10.28.57.10 que é a que ocupa a própria RCP002)

Therefore, with these values, the RCP002 already could connect with the Mini 1 and the Mini 2.

As Mini 3 is another different network, we configure other thread on RCP002 that can connect to it simultaneously.

Select the “Network segment 2” 2 (we could do it in any of the other free threads) and set an IP that is within the same scope as that of the Mini 3, e.g. to 10:

IP address: 172.20.20.10 / 24

Once accepted by pressing “OK” we could already access to a RCP that has any direction situated between:

172.20.20.2 e 172.20.20.254

(except for 172.20.20.10 which is what occupies his own RCP002)

Lack indicate that the IP addresses of the boards alone, are also to be introduced, but this is done in [SETUP], “RCP”, “RCP & iris connections” as indicated in detail in the previous point (2.3.4).

### **Network mask format**

As indicated earlier, in RCP002 the network mask is represented as the number of ones in the shade, not in the usual format of numbers and dots. If you’re used to this format, it may not be easy at first to adapt to the amount of bits, but as soon as you understand you will not be able to live without it.

The values of the most common network mask is 255.255.255.0 and 255.255.0.0 in General. The first represents a network routing in space that fixate the first three bytes and the fourth byte and is different on each node. The other, represented a network in which only the first two bytes are fixed and the third and fourth are different for each node as a set, it means, may have more nodes in this direction because it has 65,536 combinations (256 x 256) instead of just 256.

Internally to the TCP / IP stack the addressing space is represented as a bit mask that defines whether a direction belongs to a targeting space or not. In binary, 255.255.255.0 is represented as 11111111.11111111.11111111.00000000, or simply the first 24 bits are 1 and the remainder are 0.

Similarly, 255.255.0.0 has the first 16 bits as 1 (11111111.11111111.00000000.00000000). All network masks have a series of 1 at the beginning, the rest is all of 0, so we can represent them as the number of 1s.


For the most common network mask values that were previously shown, the number of bits is 24 and 16 respectively.

Other numbers represent other sizes of address space and can be represented in the number of points format, but the first time you come across a 255.255.224.0 network mask, for example you will feel easier to memorize the number 19.

This format is easier to write, easier to say, and requires less screen space.

### 2.3.5. Software licenses

The RCP002 can control various RCP models of different brands, but not all of them may be available to you. Those available are determined by the licenses you may have purchased or your organization. These licenses are not fixed, and can be updated at any time via the Internet.

- Disconnect all RCP cables except power.
- Press [SETUP].
- Select by turning <9> the “Network”.
- Press <9>
- In the window that appears, select  [DHCP].Pulsar [OK].  
Connect a network cable to the RCP002 and connect to a network that has Internet access.
- Press [SETUP].
- Select by turning <9> the “Software license” option.
- Press <9>
- On the next window are shown the licenses purchased for this particular equipment.



- Select “Update now”
- RCP002 automatically downloads the license from the Omnicam4Sky server and can be used immediately.

### 2.3.6. RCP and Lens Connections

Once the network is configured, let's indicate to the RCP which RCP you have connected.

1. Select [SETUP]
2. Turning the <9> knob select "RCP" and accept pressing <9>



3. Turning the <9> command select "RCP & iris connections" and accept pressing <9>

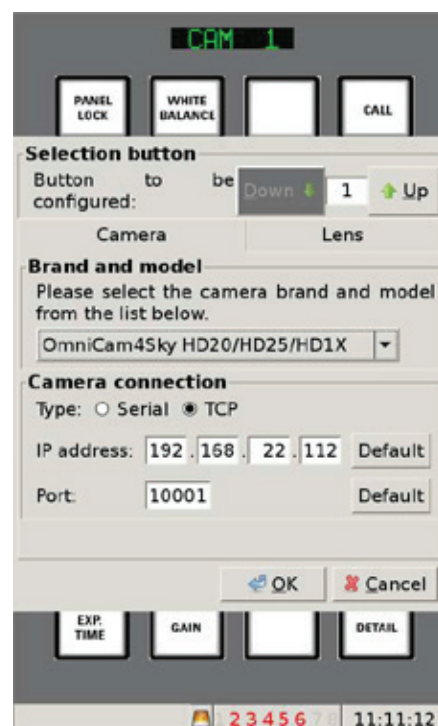
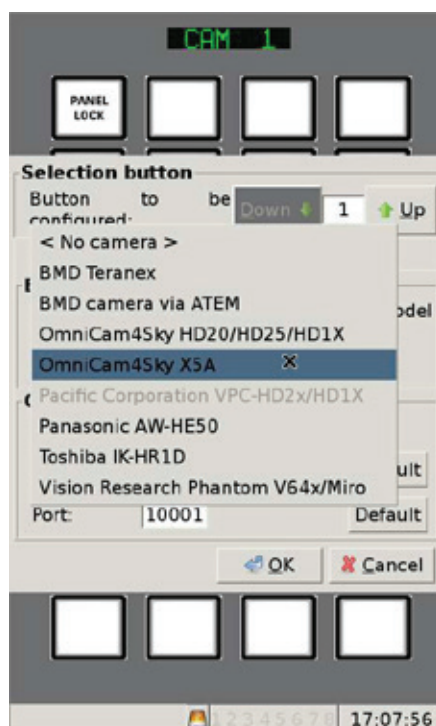


4. To the right of the screen "Button to be configure" select the number that we wish to assign to the RCP using the 'Up' and 'Down'.



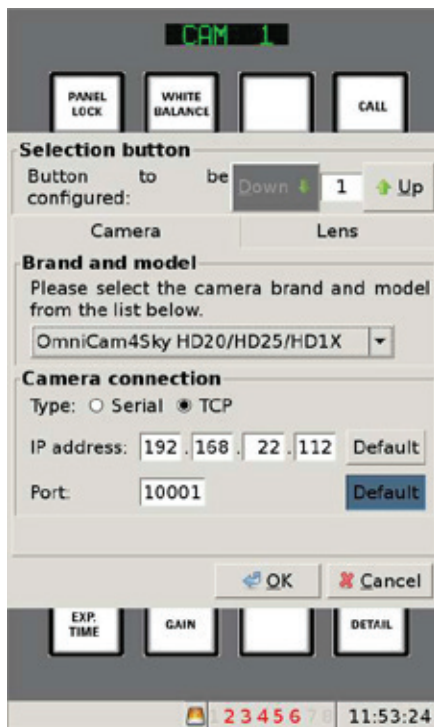
This is the number that associates the RCP with the <1> to <4> buttons. If you select a number between <5> and <8>, the RCP is double-clicked, and you will not have Tally's physical connections or matrix.

5. Once the number is selected for the RCP, we will indicate the model of the RCP: Touch "RCP" and use the folding control to select "Omnica4Sky X5A".





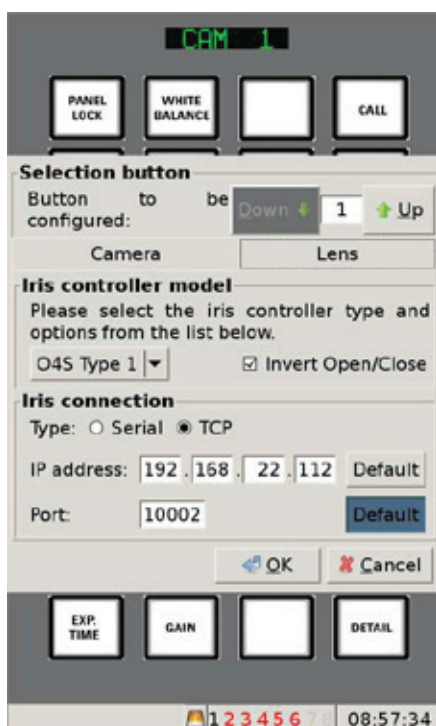
6. In the point “RCP connection” select ☒ [TCP]
7. Enter RCP IP address.
8. In “Port” you must press the [Default] button, since the RCP itself has the correct values loaded according to the RCP model (for RCP X5A the correct port is 10001).



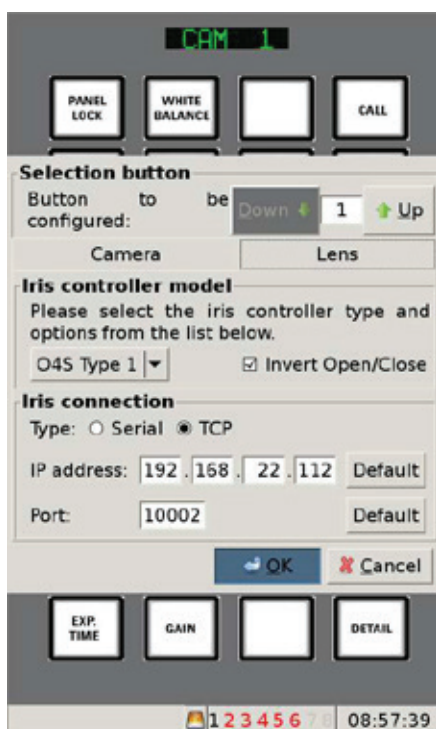
9. Touch the “Lens” tab and use the fold-out control to select “O4S Type 1” in the “Iris controller model”.



10. At the “Iris connection” point, select ☒ [TCP]
11. Enter RCP IP address.
12. In the “Port” you must press the [Default] button, since the RCP itself has loaded the correct values according to the lens model (for the O5S lens of X5A the correct port is 10002).

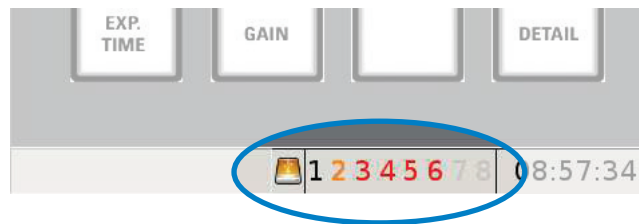


13. Press [OK] to communicate with the RCP.



## RCP connection indicators

At the bottom of the screen a list of RCP numbers is displayed.



These numbers can be represented in four colors that indicate:

- Gray: number not assigned to any RCP.
- Red: number assigned to a RCP with which there is no communication at all.
- Yellow: number assigned to a RCP with which there is partial communication (eg there is communication with the RCP but not with the lens).
- Black: number assigned to a RCP with which there is complete communication.



**NOTE:** It may be the case that after the initial communication has been established, it is interrupted for some reason. Depending on the RCP model the RCP002 may or may not detect the loss of communication. This is especially significant in the case of the X5A, since this RCP does not respond directly and - with the current firmware version - the number continues to indicate that it is present (black color) when it is not. Therefore, if you are acting on the RCP and there is no response thereto, even though it is indicating communication, it is recommended to switch the RCP002 off and on or change the RCP number assignment to start a connection cycle from Zero, and in which case it will mark in red the absence of communication.

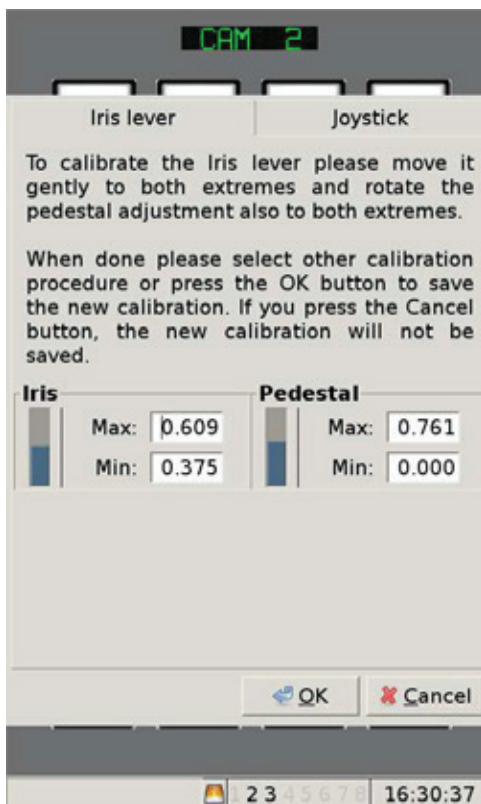
### 2.3.7. Calibration of analogue controls

The iris, pedestal and mini joytick controls arranged in the RCP are of the analog type, that is, they handle the assigned values continuously, unlike the digital controls, which respond in steps. This continuous responsiveness comes at a cost: analog controls are subject to noise, wear, and assembly accuracy. To compensate for their errors, analogue controls must be periodically calibrated (even if they are not required frequently) or when they are inaccurate.

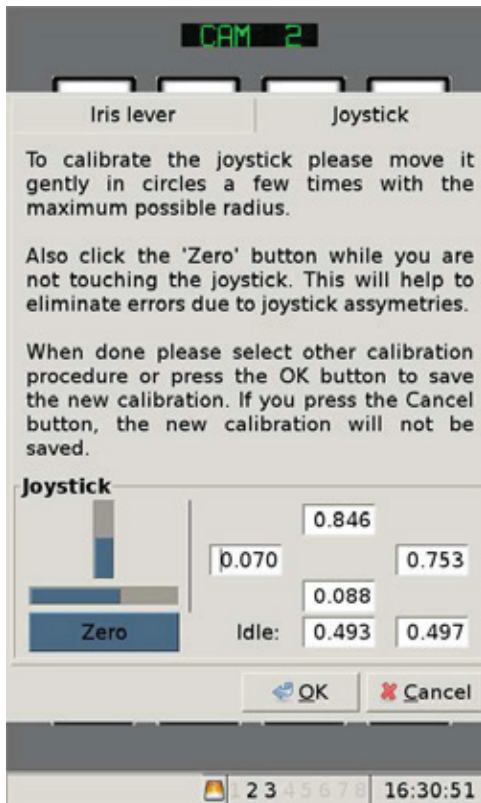
To execute:



1. Select [SETUP]
2. Turning the <9> knob select "RCP" and accept pressing <9>
3. Select "Lever & Joytick calibration"



4. The Calibration window appears, with two sections: one for the iris control and one for the micro joystick
5. Select "Iris lever"
6. Move the iris control all the way down.
7. Move the iris control to the maximum up.
8. Turn the pedestal control fully to the left.
9. Turn the pedestal control all the way to the right.



10. Select the “Joystick” section.
11. Move the joystick in circles as wide as possible; Complete at least 2 or 3 turns.
12. Leave the joystick fully released to go to the center position and press [Zero].
13. Press [OK] and the new Calibration will be saved..



In addition to the trajectory adjustment of the analog commands, it has a Configuration screen that is accessed:  
**SETUP] ‘RCP’ ‘Lever & Joytick configuration’**  
 From here you can adjust the range between 0% and 100% and define a dead band for each of the commands.

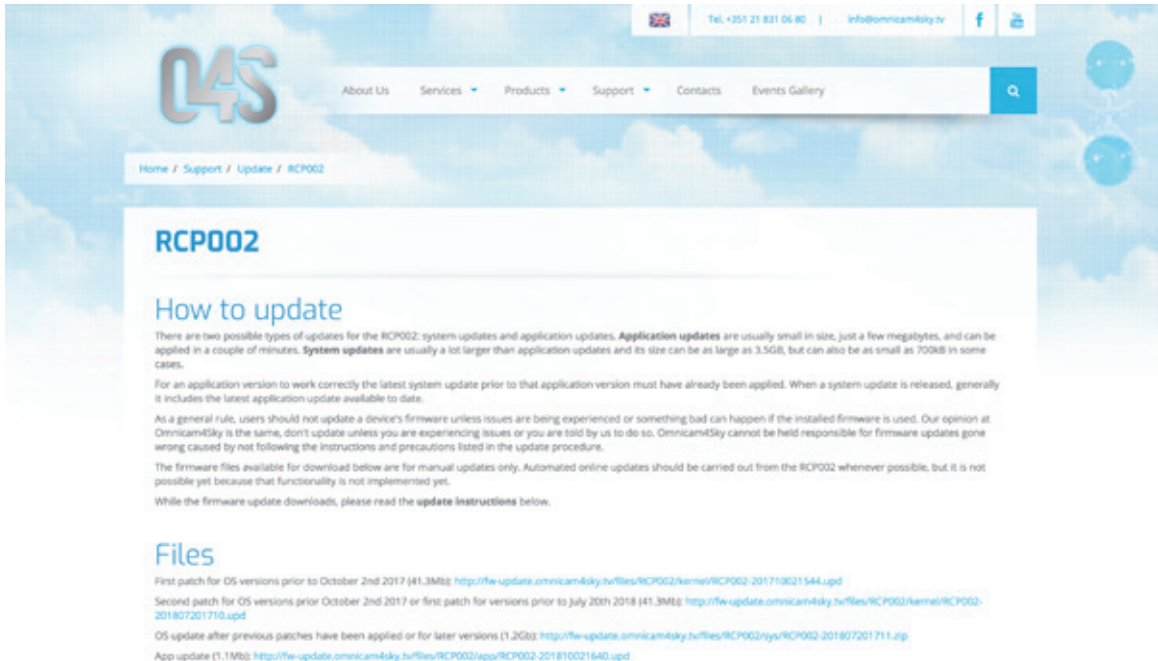
### 2.3.8. System Time Setting

- For RCP002 to function properly, the internal clock must be set. Many of the features of the operating system depend on the correct time. Setting the time on RCP002 is very easy.
- Connect the RCP002 to the Internet and leave it connected for some time. The internal clock automatically adjusts itself from the atomic clocks that exist all over the world and share their time using the NTP protocol. If the clock does not turn on automatically, contact your network administrator because the NTP protocol may be blocked.
- When using the RCP002 in an environment with a live Internet connection you will not have to do anything to make the clock look right.

### 2.3.9. Internal software update

The RCP002 is not limited to the features it had when you purchased it, it can be updated to add new and improved features, fix software errors or add support for new RCPs and systems. The best thing is that you can upgrade by yourself, without having to return to the factory to do it.

If you have a web service to perform the updates go to <http://www.omnicam4sky.tv/en/support/update/rcp002> and follow the instructions.



The screenshot shows the Omnicam4Sky website's support page for RCP002 updates. The page has a blue header with the 'O4S' logo and navigation links: About Us, Services, Products, Support, Contacts, and Events Gallery. A search bar is on the right. Below the header, a breadcrumb trail reads 'Home / Support / Update / RCP002'. The main content area is titled 'RCP002' and 'How to update'. It explains that there are two types of updates: system updates (usually larger, up to 3.5GB) and application updates (usually smaller, a few megabytes). It advises users to apply the latest system update first. A 'Files' section lists three update files with their download links: a first patch for OS versions prior to October 2nd 2017 (41.3MB), a second patch for OS versions prior to October 2nd 2017 or first patch for versions prior to July 20th 2018 (41.3MB), and an OS update after previous patches have been applied or for later versions (1.2Gb). It also mentions an app update (1.1Mb).

**RCP002**

### How to update

There are two possible types of updates for the RCP002: system updates and application updates. **Application updates** are usually small in size, just a few megabytes, and can be applied in a couple of minutes. **System updates** are usually a lot larger than application updates and its size can be as large as 3.5GB, but can also be as small as 700KB in some cases.

For an application version to work correctly the latest system update prior to that application version must have already been applied. When a system update is released, generally it includes the latest application update available to date.

As a general rule, users should not update a device's firmware unless issues are being experienced or something bad can happen if the installed firmware is used. Our opinion at Omnicam4Sky is the same, don't update unless you are experiencing issues or you are told by us to do so. Omnicam4Sky cannot be held responsible for firmware updates gone wrong caused by not following the instructions and precautions listed in the update procedure.

The firmware files available for download below are for manual updates only. Automated online updates should be carried out from the RCP002 whenever possible, but it is not possible yet because that functionality is not implemented yet.

While the firmware update downloads, please read the [update instructions](#) below.

### Files

First patch for OS versions prior to October 2nd 2017 (41.3Mb): <http://fw-update.omnicam4sky.tv/files/RCP002/kernel/RCP002-201710021544.upd>

Second patch for OS versions prior October 2nd 2017 or first patch for versions prior to July 20th 2018 (41.3Mb): <http://fw-update.omnicam4sky.tv/files/RCP002/kernel/RCP002-201807201710.upd>

OS update after previous patches have been applied or for later versions (1.2Gb): <http://fw-update.omnicam4sky.tv/files/RCP002/sys/RCP002-201807201711.zip>

App update (1.1Mb): <http://fw-update.omnicam4sky.tv/files/RCP002/app/RCP002-201810021640.upd>



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Special Cameras

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