grass valley
A BELDEN BRAND

User's Guide

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OCP 400

Operational Control Panel

Declaration of Conformity

We, Grass Valley Nederland B.V., Bergschot 69, 4817 PA Breda, The Netherlands, declare under our sole responsibility that these products are in compliance with the following standards:

- EN62368-1:2014 + AC:2015 — Safety

- EN 55032:2012 + C2:2013 — EMC (Emission)

- EN55103-2:2009 — EMC (Immunity)

following the provisions of:

a. the Low Voltage directive 2014/35/EU
b. the EMC directive 2014/30/EU
c. the RoHS directive 2011/65/EU

FCC CLASS A Statement

This product generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause interference to radio communications.

It has been tested and found to comply with the limits for a CLASS A digital device pursuant to part 15 of the FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

Operation of this product in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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Table of contents

Chapter 1 – Introduction

1.1 Application 9
1.2 Features 9
1.3 Using this guide 10
1.4 Location of controls 11
1.5 Using the OCP controls 12
1.5.1 Button lights 12
1.5.2 Non-standard indication 12
1.5.3 Momentary buttons 12
1.5.4 Assignable rotary controls 12
1.5.5 Joystick 13
1.5.6 Lens indicators 13
1.5.7 Panel lock button 14
1.5.8 Free button 14
1.5.9 Bars button 15
1.5.10 Call button 15
1.5.11 Using the menu panel 15

Chapter 2 – Configurations

2.1 Studio configuration 17
2.2 Dual camera configuration 17
2.3 Local mode configuration 19
2.3.1 Serial connection 19

Chapter 3 – Setup

3.1 Installation 21
3.2 Checking system status 21
3.3 Setting up the OCP 22
3.3.1 Setting the OCP control level 25
3.3.2 Camera assignment 25
3.3.3 IP and Ethernet configuration 25
3.3.4 Display and button brightness 26
3.3.5 Iris (joystick) setup 26
3.3.6 Clock 26
3.3.7 Name server 26
3.3.8 Default values 27
3.4 Setting up the XCU/Base Station 28
3.4.1 Accessing the XCU/Base Station menu 28
3.5 Setting up the camera 29
3.5.1 Variable matrix and shading 31

Chapter 4 – Operation

4.1 Camera control. 33
4.1.1 Setting white balance 33
4.1.2 Iris control 33
4.1.3 Changing camera video parameters 34
4.2 Monitoring pages. 35
4.2.1 Camera status pages 35
4.2.2 Programmable function pages 36
4.2.3 Transmission diagnostics pages 37
4.2.4 License information page. 37
4.3 Using files. 39
4.3.1 Storing and recalling scene files 39
4.4 OCP File Management. 40
4.4.1 Introduction 40
4.4.2 Formatting OCP storage cards. 40
4.4.3 Fast Recall menu 41
4.4.4 Recall/Store menu 41
4.4.5 Delete/Rename menu 43
4.4.6 Read/Write attribute menu 43
4.4.7 Copy Files menu 44
4.4.8 Card menu 44
4.4.9 Partial file recall 45
4.4.10 Recalling standard files 45
4.5 Adjusting video parameters 46
4.5.1 Skin button. 46
4.5.2 Setting Skin detail 47
4.5.3 Gamma button 48
4.5.4 Knee button 49
4.5.5 Color button 51
4.5.6 Black button 52
4.5.7 Flare button 52
4.5.8 Exposure time button 53
4.5.9 Gain button 53
4.5.10 Filters button 54
4.5.11 Detail button 54
4.5.12 Non-standard indication 56

Chapter 5 – Specifications

5.1 Specifications for OCP 400 57
5.2 Dimensions. 58

Chapter 6 – Connectors

6.1 Power connectors 59
6.1.1 DC input connector 59
6.1.2 DC output connector 59
6.2 Communication connectors 60
6.2.1 Network connector 60
6.2.2 Serial interface connector (RS-232 or RS-422). 60
6.2.3 Preview connector 61

6.3 Studio signalling 61
6.3.1 Dry contact 62
6.3.2 Dry contact with multiple OCPs 62
6.3.3 Common ground 63
6.3.4 Voltage level 64
6.3.5 Open circuit/Voltage level 65

Recycling

Visit www.grassvalley.com for recycling information.

Packing for return

If a unit is being returned to Grass Valley for servicing, try to use the containers and materials of the original packaging. Attach a tag indicating the type of service required, return address, model number, full serial number and the return number which will be supplied by your Grass Valley service centre.

If the original packing is not available or can no longer be used contact your regional Grass Valley service representative to have a return package provided.

Important information

Read this information carefully before installing this equipment and retain them for future reference. Read and comply with the warning and caution notices that appear in the manual. Any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Caution

Do not plug in the power cable connector into the Ethernet connector. Plugging the power cable connector into the Ethernet connector of the OCP 400 will damage the connector.

Safety Summary

This informaton is intended as a guide for trained and qualified personnel who are aware of the dangers involved in handling potentially hazardous electrical/electronic equipment. It is not intended to contain a complete list of all safety precautions which should be observed by personnel in using this or other electronic equipment.

During installation and operation of this equipment, local building safety and fire protection standards must be observed. Before connecting the equipment to the power supply of the installation, the proper functioning of the protective earth lead of the installation needs to be verified.

Whenever it is likely that safe operation is impaired, the apparatus must be made inoperative and secured against any unintended operation. The appropriate servicing authority must then be informed.

Warnings

Warnings indicate danger that requires correct procedures or practices to prevent death or injury to personnel.

- Do not modify this equipment;
- Installation of this equipment must only be performed by qualified personnel;
- Do not use any accessories other than those recommended by the manufacturer;
- In case of an emergency ensure that the power is disconnected;
- Mount equipment so that power lead can be accessed to disconnect power;
- To prevent fire or shock hazard, do not expose the unit to rain or moisture;
- There are no user servicable parts inside. Refer servicing to qualified personnel only or contact your local Grass Valley representative.

Cautions

Cautions indicate procedures or practices that should be followed to prevent damage or destruction to equipment or property.

- Do not subject the unit to severe shocks or vibration;
- Do not expose the unit to extremes of temperature;
- To prevent risk of overheating, ventilate the product correctly.

Chapter 1

Introduction

1.1 Application

The OCP 400 is a compact operational control panel for all Grass Valley cameras. The user interface is designed for convenience, with menu accessible functions for detailed set-up and a clear display of functions and values.

The OCP 400 operates within the Ethernet-based C2IP camera control network using TCP/IP as its communication protocol. The OCP 400 not only controls all camera functions, it can also be used to change the menu values of the Grass Valley XCU/Base Stations. Extensive set-up parameters for the OCP 400 itself, the camera and XCU/Base Station are available.

1.2 Features

- Uses IP connectivity: off-the-shelf IT-network infrastructure over standard IEEE 802.3 10/100 Mb Ethernet;
- Supports C2IP camera control interface protocol supported by all Grass Valley cameras;
- Integrates with other Grass Valley broadcast products and network tools;
- provides remote diagnostics for camera and transmission operation;
- Improved ergonomics and large flexibility: comfortable, slimline and clean design with hard style buttons;
- Tilted backlit LCD display for maximum readability;
- Very clear and dimmable On Air and ISO indicators on board;
- Easy setup and camera number selection;
- Configurable access levels;
- Multiple camera support for 3D operation;
- Adjustable joystick tension to accommodate wide variety of applications from mobile unit to outdoor use;
- Full and partial locking of the operation panel;
- Smart card for storing operational and technical parameters of the camera system.

1.3 Using this guide

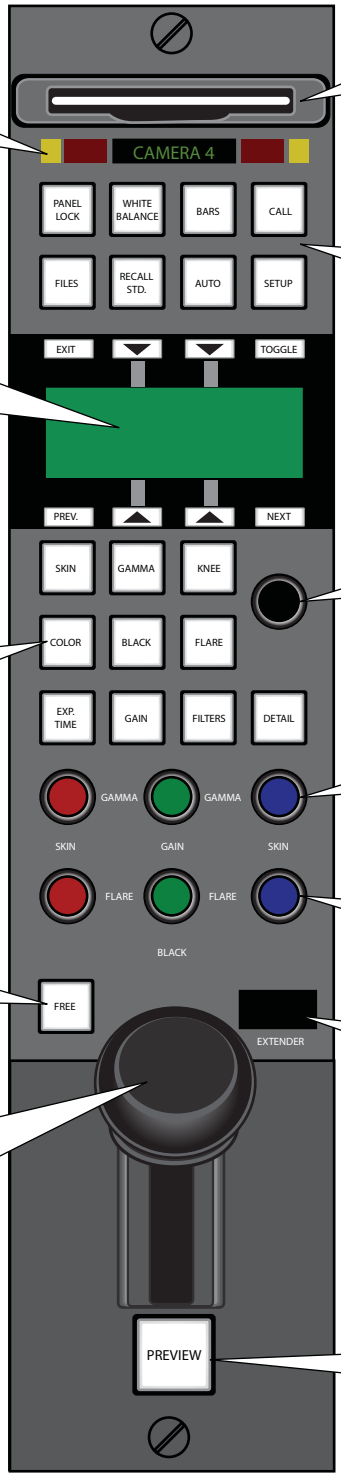
The OCP 400 can control many different types of camera. This guide includes all possible menu items and functions. Depending on the type of camera to which the OCP is connected, not all of these items and functions may be available. The values available are also camera dependent. The menu system only displays the relevant items.

In the tables on the following pages that list menu items, the Level column indicates the control level at which an item is displayed:

- An **S** (simple) indicates an item that is always shown.
- A **B** (basic) indicates items that are shown in addition to simple items when the control level is set to basic.
- An **F** (full) indicates items that are shown in addition to basic and simple items when the control level is set to full.

To change access level for the OCP 400 refer to "Setting the OCP control level" on page 25.

1.4 Location of controls



Tally lights
- red lights indicate that camera signal is on air.
- yellow lights indicate that camera signal is being recorded.

Menu panel
- Backlit LCD display shows menus, functions and values
- use keys to navigate through display.

Video parameter buttons
- skin menu
- gamma menu
- knee menu
- color balance menu
- black menu
- flare menu
- exposure time menu
- gain menu
- filter menu
- detail (contour) menu

Free button
- allows analogue controls to be repositioned without changing values.

Iris/Master black/Preview
- move the joystick up and down to change the iris opening
- turn the lower part of the knob to vary the master black level
- push the top of the knob down to preview a camera signal

Card slot
- use camera cards to store and recall scene files.

Push buttons to
- lock the panel
- start white balance procedure
- display color bars/sawtooth
- call camera operator
- open files menu
- switch automatic iris
- open the setup menu

Assignable control
- varies the value of the function selected in the menu.

R,G and B controls for
gain, gamma and skin (relevant indicator lights)

R,G and B controls for
black level, flare, skin (relevant indicator lights)

Lens indicators
- displays the iris value or the master black value.
- **Extender** lights when lens extender is in use.

Preview button
- push to see a selected camera signal on a preview monitor.
- press simultaneously with the preview knob for six seconds to reset the OCP.

1.5 Using the OCP controls

1.5.1 Button lights

When the OCP is powered its buttons are illuminated. The normal colour of a button is dim green. The light shines brighter when a button is selected. You can set the illumination levels in the OCP set-up menu.

1.5.2 Non-standard indication

When a value for one of the video parameters is changed by the user its status will become 'non-standard'. The button for its function group will lit up bright yellow when it is selected and dim orange when it is not. A changed value is indicated by a *-symbol in the text-display.

All changes are relative to the user's reference settings which are the last stored or recalled settings. By recalling (full or partial) or storing a scene file all non-standard indications are reset. You can find more information about file handling in the section 'Using files' of this guide.

☞ Note

Analogue values are being regarded as *changed* when they vary more than 10% of their reference value.

☞ Note

Functions that are blocked or disabled by another function or that are not part of the current function set (simple, basic or full) will not be indicated 'non-standard' even if they are changed.

1.5.3 Momentary buttons

Two buttons on the OCP – the **FREE** button and the **PREVIEW** button – are momentary buttons. These type of buttons only operate as long as they are held down. The **FILES** button operates both selective and momentary.

1.5.4 Assignable rotary controls

The single assignable rotary control varies the value of the function selected in the display. When no function is selected, this control varies Detail.

The upper Red, Green and Blue assignable rotary controls vary either:

- the gain levels of the red, green and blue signals individually (default),
- the gamma levels of the red, green and blue signals individually, or
- the skin contour colours.

The function selected for adjustment and its value is shown in the menu display and the relevant indicators light.

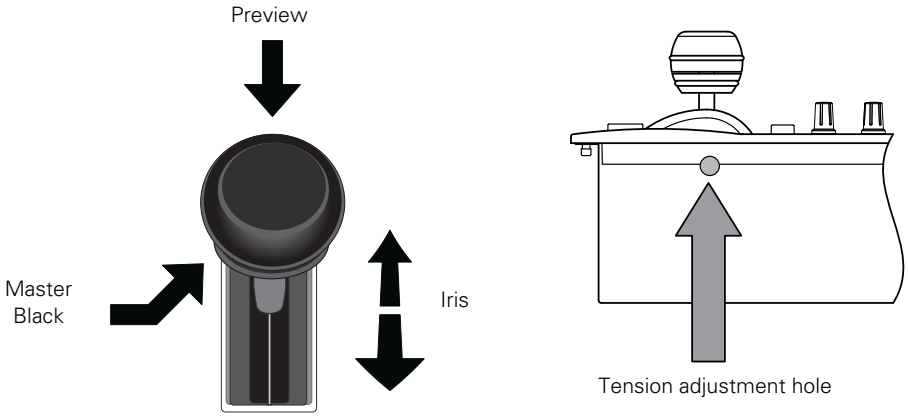
The lower Red, Green and Blue assignable rotary controls vary either:

- the black levels of the red, green and blue signals individually,
- the flare levels of the red, green and blue signals individually, or
- the skin contour colour width.

The function selected for adjustment and its value is shown in the menu display and the relevant indicators light. Black level or Flare can be set as default.

1.5.5 Joystick

This three-in-one control is used to vary the master black level, to control the iris and to preview the connected camera signal on a preview monitor.



Operation

- Press the top of the knob to get a preview of the connected camera signal.
- Turn the lower knob to vary the master black level.
- Move the joystick up and down to open and close the iris. The joystick direction, range and sensitivity can be set in the OCP setup menu.

Tension adjustment

When the joystick's movement becomes too loose or too tight it may be necessary to adjust its tension spring. Use a long Torx-10 type screwdriver to adjust the tension screw of the joystick. The screw is located in a hole at the side panel of the OCP casing. Turn the screw and move the joystick at the same time to find the right adjustment.

1.5.6 Lens indicators

The display shows the current F-number of the iris. When the master black is changed, or when the FREE button is pressed, the value of the master black level is displayed for five seconds.

The Extender indication lights when the range extender function of the lens is selected.

1.5.7 Panel lock button

Push the **PANEL LOCK** button to lock the operation panel of the OCP. This button lights when the panel is locked (On). When off, all functions of the OCP can be used. When on, limited control is possible by using the **FREE** button.

1.5.8 Free button

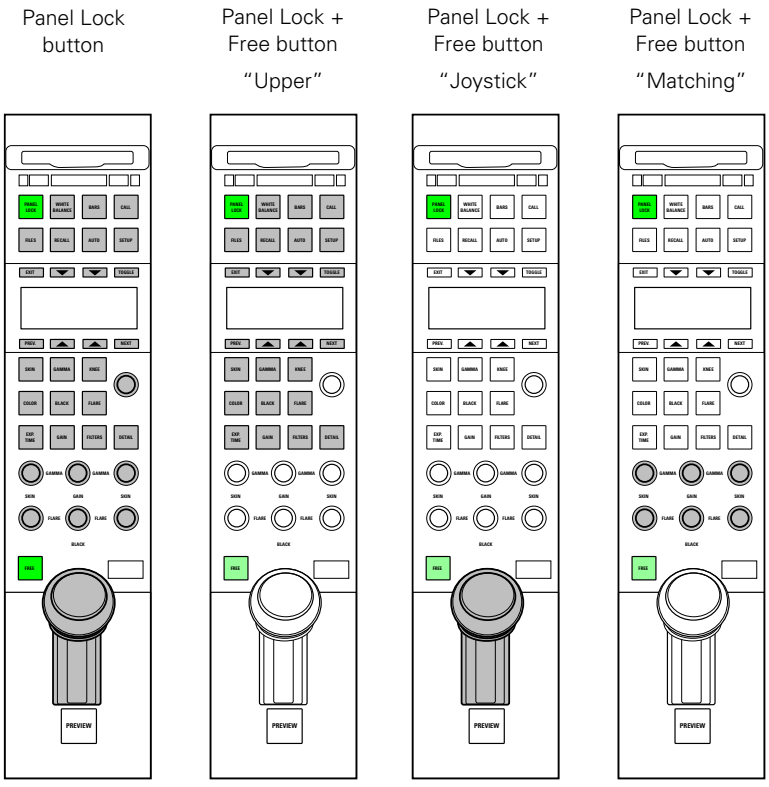
Hold down the **FREE** button and change the position of all the rotary controls without affecting the value of the function assigned to them. Use this button to position the joystick without affecting the value of the iris or the master black.

Panel lock with Free button

The **FREE** button can be used together with the **PANEL LOCK** button to control partial access to panel functions. When the panel lock function is selected (the **PANEL LOCK** button is lit), the **FREE** button also lights.

With panel lock engaged, push the **FREE** button to allow partial access to the panel. The "Lock + Free" item in the OCP Setup menu defines which part of the operation panel stays locked when the **PANEL LOCK** with the **FREE** button is used. Refer to Section 3.3 on page 22 for more information about the OCP setup menu. The following settings can be selected:

- Upper (default): all buttons in the upper operation field stay locked;
- Joystick: master black and iris control functions stay locked;
- Matching: six colour matching rotary controls in the middle section stay locked.



Darker color means that the button or control is locked.

1.5.9 Bars button

Push the BARS button to switch on the colour bar test signal in the connected camera. Push the button again to select a sawtooth test signal.

- The button lights (green) when Bars are on.
- The button lights (yellow) when the sawtooth test signal is on.

1.5.10 Call button

Push the CALL button to send a signal to the connected camera calling for attention.

- The CALL button lights when it is activated or when a call is received from another system part.
- If active, push again to switch off.
- (A buzzer signal can be associated with the call signal.)

1.5.11 Using the menu panel

The menu panel contains a display and eight buttons for selecting items in the menu system. The main operational tasks of the menu panel are:

- to provide access to parameters for setting up the OCP, the XCU/Base Station and the camera.
- to display function menus and values when a direct video parameter button is pushed.
- to display the status of a set of functions.

Selection buttons

The function of the four arrow buttons in the centre of the menu panel is determined by the item appearing next to them on the display. Push the button associated with the item displayed to select this item.

Toggle button

This button is used in some submenus to toggle between two values.

Prev(ious) / Next button

Push these buttons to move up and down through the various menu pages.

Exit button

Push this button to exit the current menu and return to the monitoring pages.

Illumination

The menu panel buttons are illuminated to indicate their state:

- not lit: no function for that button
- low light: function available; push to change or to assign to rotary control.
- bright light: function is assigned to rotary control.

Opening menu pages

There are several ways of opening a menu page. You can use:

- the SETUP button
- the FILES button
- the RECALL STD. button
- the video parameter buttons

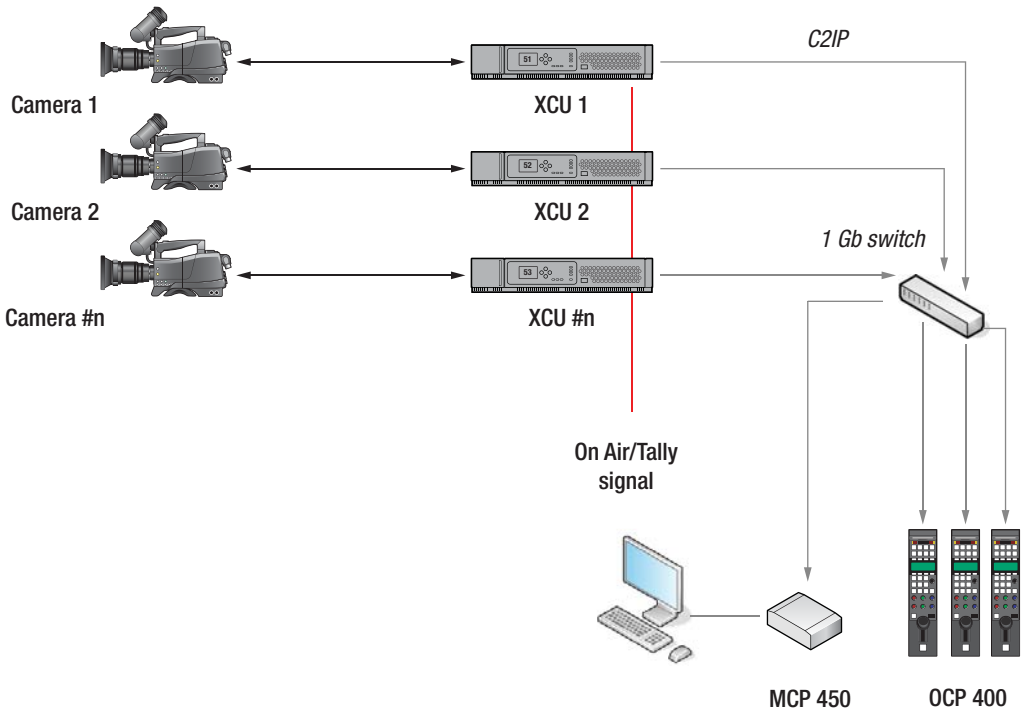
Push an activated button to exit that particular menu function.

Chapter 2

Configurations

2.1 Studio configuration

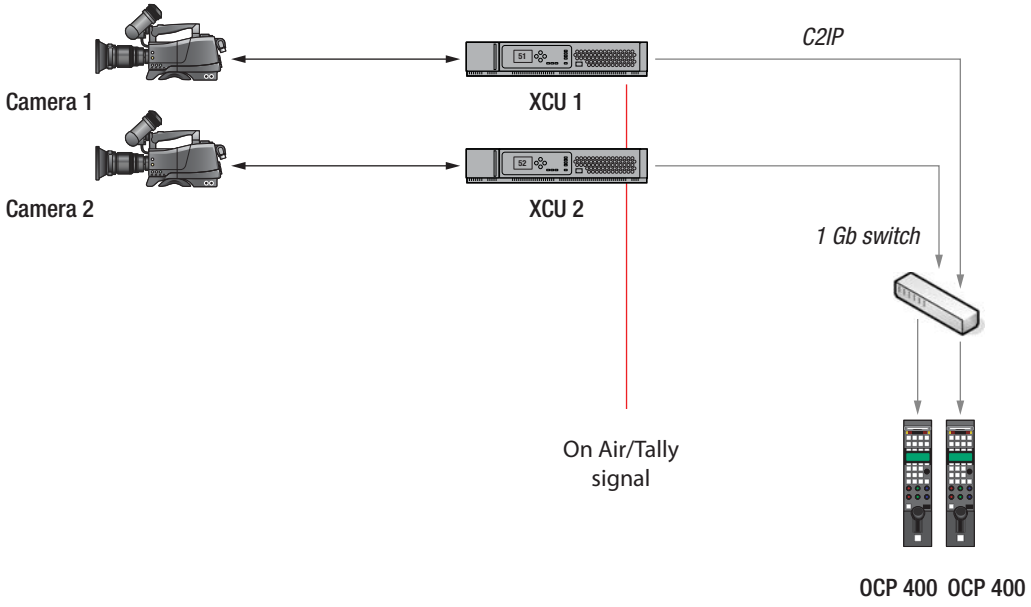
One or more OCP 400 control panels are connected to the C2IP camera control network. The IP address and other options for the Ethernet connection can be set up in the OCP Setup menu.



2.2 Dual camera configuration

This configuration is commonly used in 3D operation. One of the two OCPs is switched to a special multi-camera mode, in which its own camera is the primary camera and the other the secondary camera. All functions controlled from this OCP that fall under multi-camera control, will be sent to both cameras at the same time.

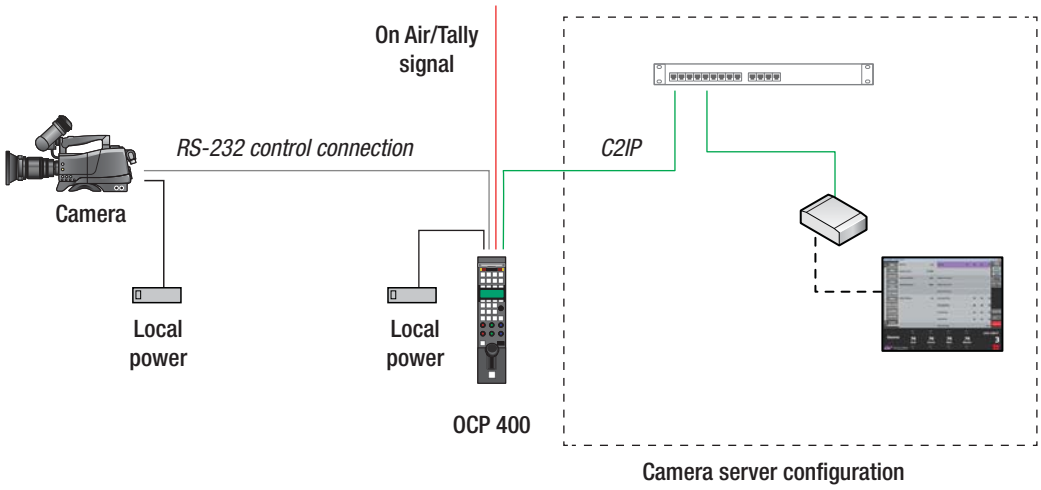
In multi-camera mode, all switch-functions and multi-valued switch functions will be controlled in an absolute manner, so, e.g. the colour bar or optical filters of both cameras will be set to the same value when controlled from an OCP in multi-camera mode. In case of potmeter-functions (e.g. iris, gains, blacks) the behaviour is different. In this case both cameras will receive the same relative updates, so any offsets between their values will normally remain intact.



2.3 Local mode configuration

2.3.1 Serial connection

In local mode, the OCP 400 is directly connected to the serial RS-232 connector at the front of the camera. Both the camera and the OCP 400 must be powered locally. Video signals are available at the camera adapter (back panel).



A camera server can be enabled in the OCP setup menu to allow a local camera to be connected to the C2IP network.

Chapter 3

Setup

3.1 Installation

1. Connect a power supply unit to the power input connector of the OCP 400.
2. Connect the Ethernet cable from the camera control (C2IP) network to the Ethernet connector of the OCP 400.

☞ Note

It is recommended to use Grass Valley's LDK 5903 power supply unit with the OCP 400.

3.2 Checking system status

To check that XCU/Base Station and camera are connected correctly go to the Diag menu in the setup menu.

– Push the SETUP button to open the menu.

Menu	Selections	Function	Level	Possible values
Setup	DIAG	Go to the Diagnostics menu	S	
	OCP	Go to the OCP setup menu	S	
	BS	Go to the XCU/Base Station setup menu	S	
	CAM	Go to the Camera setup menu	S	

– Push the SELECTION button to choose the Diagnostics menu. The diagnostics menu appears. Push NEXT and PREV to navigate through the different pages.

Menu	Selections	Function	Level	Possible values
Diagnostics page 1	Camera	Camera type information	S	No camera, [Camera type]
	Gen Lock	GenLock Status	S	Lock, No Lock
	BS Type	XCU/Base Station type	S	[XCU or Base Station type]
	Cable	Triax status diagnostics	S	No camera, DC Power, Short, etc
Diagnostics page 2	Cam Pack.	Camera package version	S	Last 4 digits of Package 12nc
	Version	Camera package version	S	vXX
	BS Pack.	XCU/Base Station package version	S	Last 4 digits of Package 12nc
	Version	XCU/Base Station package version	S	vXX
Diagnostics page 3	Cam SW	Camera Software 12NC	S	(only for LDK cameras)
	Status	Camera Software Status	S	(only for LDK cameras)
	BS SW	XCU/Base Station Software 12NC	S	(only for LDK cameras)
	Status	XCU/Base Station Software Status	S	(only for LDK cameras)
Diagnostics page 4	OCP Appl	Application software version	S	vXX
	OCP BootSw	Boot software version	S	vXX
	OCP FirmW	Firmware version	S	vX.X
	OCP Type	OCP device type	S	OCP 400/00 or OCP 400/10
Diagnostics page 5	Ethernet MAC	OCP Ethernet MAC address	S	Mac-address is displayed as: XX:XX:XX:XX:XX:XX
	Address			
	Link Type	Ethernet link speed	S	10 Mbit/100 Mbit Full/Half Duplex
	Link State	Ethernet connection status	S	Connected / Not Connected

3.3 Setting up the OCP

Various aspects of the OCP can be set to suit your work methods. To open the menu which lets you set up these preferences proceed as follows:

- Push the SETUP button to open the menu.
- Push the SELECTION button to choose the OCP submenu.
- The first page of the OCP setup menu appears. Use the NEXT button to find the page with the item you wish to change and then select this item with its correpsonding selection button.

Menu	Selections	Function	Level	Possible values
OCP setup page 1	Cam Nr	Selects camera number	S	1..99
	SELECT	Connects to selected camera	S	Press button to connect to the selected camera
	Connector	Selects which connector to use for control	S	Ethernet, Serial
	-			
OCP setup page 2	Ser. Level	Selects serial connector voltage levels	B	RS232, RS422
	ReSync TO	Resynchronization time-out	B	0..60 seconds
	-			
	CamServer	Camera Server enable	B	Enable, Disable
OCP setup page 3	**IP CONFIG**	Go to the IP configuration menu ("IP and Ethernet configuration" on page 25.)	F	
	NAME SRVR	Go to the Name Server menu ("Name server" on page 26.)	B	
	BlackPot	Assigns black rotary control function	B	Black, Flare
	IRIS	Go to the Iris menu ("Iris (joystick) setup" on page 26.)	S	
OCP setup page 4	LCD BackL	Sets LCD display backlight level	B	0..99 **(50)**
	LCD Contr	Sets LCD display contrast level	B	0..99 **(50)**
	Buzzer	When switched on, a buzzer signal sounds when a CALL signal is received from the camera.	B	On, Off
	Txt Bright	Sets brightness of dot matrix text displays	B	1..20 **(20)**
OCP setup page 5	Tally Leds	Selects Tally LEDs intensity	B	Low, Medium, High, Full
	Text Leds	Sets rotary text-LEDs intensity	B	0..99
	LED Low	Sets button Low-Level illumination	B	0..99
	LED High	Sets button High-Level illumination	B	0..99
OCP setup page 6	MB Res	Master black rotary resolution	F	Vfine,fine,normal,coarse,Vcoarse
	MB Mode	Master black mode	F	Linear, Mixed
	ETH CONFIG	Go to the Ethernet configuration menu ("IP and Ethernet configuration" on page 25.)	F	
	Preview	Show On Air status on Preview button light	F	On Air On, On Air Off

Menu	Selections	Function	Level	Possible values
OCP setup page 7	—			
	—			
	CLOCK	Go to the clock menu ("Clock" on page 26.)	F	
	Lock+Free	Defines which part of the panel stays locked when Free button is pushed (in Locked mode).	B	Upper, Joystick, Matching
OCP setup page 8	TallyRinp	Selects switching mode of Red Tally/On Air GPIO input on the preview connector.	F	Disable, Low/High, High/Low, Open/High, High/Open
	TallyYinp	Selects switching mode of Yellow Tally/ISO GPIO input on the preview connector.	F	Disable, Low/High, High/Low, Open/High, High/Open
	TallyGinp	Selects switching mode of Green Tally/Call GPIO input on the preview connector.	F	Disable, Low/High, High/Low, Open/High, High/Open
	—			
OCP setup page 9	CamNum2	Select secondary camera number.		1..99
	SELECT	Connects to the secondary camera.		Press button to connect to the selected secondary camera
	—			
	Multi-Cam	Switches multi camera mode on or off		On, Off
OCP setup page 10	ProgFunc1	Assigns a function to programmable function1	F	Disabled, Gain +/-, ND Up/Dwn, FX Up/Dwn
	ProgFunc2	Assigns a function to programmable function 2	F	Disabled, Gain +/-, ND Up/Dwn, FX Up/Dwn
	—			
	—			
OCP setup page 11	ProgFunc3	Assigns a function to programmable function 3	F	Disabled, Dtl Lvl, Var Gain, Var Ctemp, BlackStr, BlackStr Lvl, Knee, Knee Slope, Knee Point
	ProgFunc4	Assigns a function to programmable function 4	F	same as above
	ProgFunc5	Assigns a function to programmable function 5	F	same as above
	ProgFunc6	Assigns a function to programmable function 6	F	same as above
OCP setup page 12	OCP Set	Selects the OCP control access level	S	Simple (S), Basic (B), Full (F)
	—			
	—			
	Reset OCP	Resets all local functions to their default values.	F	Press button to execute reset

3.3.1 Setting the OCP control level

The OCP menu system has three levels of control: Simple, Basic and Full. These levels determine which functions are displayed. In the OCP setup menu move to the OCP Set item and select S (simple), B (basic) or F (full).

- Select the simple level to reduce the number of functions displayed to a minimum. Use this level to protect against unintentional changes to critical parameters.
- Select the basic level as the normal operational mode of the OCP. Use this level to prevent set-up parameters from being displayed. This is the factory default level.
- Select the full level to access all functions available on the OCP.

3.3.2 Camera assignment

The OCP can be assigned to an XCU/Base Station - camera combination by moving to the CamNum item of the OCP setup menu. Select the camera number of the camera that you want to control using the assignable rotary control. Press SELECT to confirm.

3.3.3 IP and Ethernet configuration

For the OCP to operate in a network environment it must have a unique identification. By default, an IP address is assigned automatically. To set the IP address manually use the IP CONFIG and ETH CONFIG submenus.

Menu	Selections	Function	Level	Possible values
IP Config page 1	IP Mode	IP address assignment	F	Auto, Manual
	Apply	Sets IP mode	F	Press button to activate the new IP settings
	Subnet Mask	Subnet mask address	F	255.255.0.0
	—			
IP Config page 2	IP Byte 1	IP address 1st byte	F	1..250 **(192)**
	IP Byte 2	IP address 2nd byte	F	0..255 **(168)**
	IP Byte 3	IP address 3rd byte	F	0..255 **(0)**
	IP Byte 4	IP address 4th byte	F	1..254 **(2)**

Menu	Selections	Function	Level	Possible values
Ethernet Config page 1	Eth Speed	Ethernet speed setting	F	10 Mbit, 100 Mbit, Auto
	Duplex	Ethernet duplex-mode setting	F	Full, Half, Auto
	—			
	—			

3.3.4 Display and button brightness

The text brightness and contrast of the display and the brightness of the low and high levels of the button lights can be set in the OCP setup menu. Select the item you wish to change and then use the assignable rotary control to adjust its value.

3.3.5 Iris (joystick) setup

The range over which the iris opening can be controlled by the joystick and its sensitivity are set in the Iris submenu of the OCP Setup menu. The direction of control can also be set in the IRIS submenu.

Menu	Selections	Function	Level	Possible values
Iris setup	Iris Mode	Select Iris joystick mode	S	**Normal**, Reverse
	Range	Set Iris joystick control range	S	0..99
	Center	Set Iris joystick control center	S	0..99
	IRIS CAL	Calibrate joystick	S	Move the joystick to the most upper and lower position.

3.3.6 Clock

The time for the internal clock is set in the CLOCK submenu of the OCP setup menu. The assignable rotary control is used to set the hours, minutes and seconds.

Menu	Selections	Function	Level	Possible values
Clock page 1	Hour	Hour selection function	F	0..23
	Minute	Minute selection function	F	0..59
	Second	Second selection function	F	0..59
	-			
Clock page 2	Year	Year selection function	F	2000..2099
	Month	Month selection function	F	<months>
	Day	Day selection function	F	0..31
	-			

3.3.7 Name server

The OCP can be set up for two individual C2IP name servers. Each name server can be enabled or disabled. Use the name server status indication to monitor the connection to the name server.

☞ Note

Refer to the "Multiple LAN support for C2IP *Application Note*" for more information about setting up a nameserver in a multiple LAN configuration.

Menu	Selections	Function	Level	Possible values
Name Server	SERVER 1	Go to Name Server 1 submenu	F	
	SERVER 2	Go to Name Server 2 submenu	F	
	-			
	-			

Menu	Selections	Function	Level	Possible values
Server 1 page 1	Use Srvr1	Use name server 1	F	Yes, No
	Apply	Apply settings	F	Exec
	Status	Status of nameserver connection	F	Unknown, Avail, Unavail
Server 1 page 2	IP Byte 1	IP Address Byte 1	F	1..250
	IP Byte 2	IP Address Byte 2	F	0..255
	IP Byte 3	IP Address Byte 3	F	0..255
	IP Byte 4	IP Address Byte 4	F	1..254

Menu	Selections	Function	Level	Possible values
Server 2 page 1	Use Srvr2	Use name server 2	F	Yes, No
	Apply	Apply settings	F	Exec
	Status	Status of nameserver connection	F	Unknown, Avail, Unavail
Server 2 page 2	IP Byte 1	IP Address Byte 1	F	1..250
	IP Byte 2	IP Address Byte 2	F	0..255
	IP Byte 3	IP Address Byte 3	F	0..255
	IP Byte 4	IP Address Byte 4	F	1..254

3.3.8 Default values

The default values of the OCP are stored in the OCP and are restored when the Reset OCP item is selected. When the OCP is powered up or reset, a connection to the last camera number used is made.

The default values for the camera and XCU/Base Station parameters are stored in the camera and XCU/Base Station default files. The camera parameters and their values that are shown on the OCP depend on the camera connected to OCP. If you select a different camera number, a different set of parameters and values can appear.

3.4 Setting up the XCU/Base Station

– Push the **SETUP** button to open the menu.

– Push the **SELECTION** button to choose the BS submenu. The BS menu appears. Use the **NEXT** button to view subsequent pages.

Menu	Selections	Function	Level	Possible values
BS setup page 1	Monitoring	Monitoring output selection	S	CVBS,R,G,B,Y,EXT1,EXT2,Y/EXT1,Y/EXT2
	-			
	-			
	MENU	Go to BS menu control	S	
BS setup page 2	H Phase	Adjustment H-Phase	B	0..99
	SC Coarse	Adjustment SC-Phase coarse	B	0,90,180,270
	-			
	SC Fine	Adjustment SC-Phase fine	B	0..99
BS setup page 3	Notch Lvl	Notch Depth	B	0..99
	Notch	Notch function	B	On, Off
	-			
	-			

3.4.1 Accessing the XCU/Base Station menu

Select the MENU item of the BS menu to access the internal menu of the XCU/Base Station. The menu appears on the XCU/Base Station text and monitoring output.

Menu	Selections	Function	Level	Possible values
BS menu control	Up	Navigate ‘up’ in the BS menu	S	
	-			
	Down	Navigate ‘down’ in the BS menu	S	
	Select	Activate ‘select’ in the BS menu	S	

3.5 Setting up the camera

– Push the **SETUP** button to open the menu.

– Press the **SELECTION** button to choose the camera setup menu.

Menu	Selections	Function	Level	Possible values
Camera setup page 1	Videomode	Select camera video mode	S	<various video modes>
	SELECT	Press button to activate selected video mode		
	SensMode	Select Sensitivity Mode	S	HiQ, Nom, HiSens
	XDR *)	Enable HDR mode	S	On, Off
*) Only available when XDR eLicense is installed.				
Camera setup page 2	KeyBacking *)	Keying Assist Mode	S	Off, Green, Blue
	—			
	KeyView *)	Keying Assist View control	S	On, Off
	Transition *)	Keying Assist Transition level	S	-100 .. 100
*) Only available when camera type and version supports the Keying Assist functionality.				
Camera setup page 3	HD Ratio	Select HD aspect ratio	S	16:9, SW
	SD Lbox	Select SD letterbox function	S	14:9,10:9,16:9, Off
	SD Ratio	Select SD aspect ratio	S	4:3, 16:9
	Ratio Sel	Aspect ratio selection	S	Extern, MCP
Camera setup page 4	Freeze	Freeze picture	S	On, Off
	LEDWallFlt	Turns LED Wall filter on or off	S	On, Off
	Reverse Scan	Switches reverse scan on or off	S	On, Off
	Mode	Selects Reverse Scan Mode	S	Horizontal, Vertical, Both
Camera setup page 5	Lens Ctrl	Selects lens control point	S	Local, Remote
	—			
	Focus	Remote Focus	S	0..99
	Zoom	Remote Zoom	S	0..99
Camera setup page 6	Iris Pk/Av	Iris Peak/Average level	F	0..99
	Paint Rng	Painting range setting	F	3 dB, 6 dB
	-			
	VF MENU	Go to VF MENU control	F	
Camera setup page 7	Matrix	Matrix selection	B	EBU, Skin, B/W, RAI, BBC, 1:1, CoolFL, Var1, Var2, XGL
	Mtrx Seq	Matrix sequence	F	M->G, G->M
	VAR MTRX	Go to VAR MATRIX menu	F	
	SHADING	Go to SHADING menu	F	

Menu	Selections	Function	Level	Possible values
Camera setup page 8	Max User LVL	Sets maximum User level	F	0, 1, 2, 3, 4
	OnAir LAMP	Front On Air indicator	F	On, Off
	OnAir LVL	On Air indicator level	F	0..99
	Power	Camera remote power	S	On, Off
Camera setup page 9	DiskRec IF	Select disk recorder interface (LDK 8300 only)	S	EVS, Std
	Combine	Selects method of combining high speed phases for the viewing output (LDK 8300 only)	S	Field, 2-line, 4-line
	Tally Lock	Tally lock	S	On, Off
	Ext. Iris	Extended Iris	S	On, Off
Camera setup page 10	V-Shift	Vertical Shift	S	On, Off
	V-Shift Lvl	Vertical Shift Level	S	0..99
	Cam Disable	Camera Disable	S	On, Off
	—			
Camera setup page 11	Rem Audio	Remote Audio Select	S	Loc, Rem
	—			
	Audio1 Lvl	Set Audio 1 Level	S	-22 to -64dB
	Audio2 Lvl	Set Audio 2 Level	S	-22 to -64dB
Camera setup page 12	V Timing	Vertical timing adjustment	S	1..1125 (depends on video mode)
	Hph Coarse	Hphase coarse adjustment	S	0..2749 (depends on video mode)
	CVBS SCph	CVBS Subcarrier phase adjustment	S	
	Hph Fine	Hphase fine adjustment	S	
Camera setup page 13	Fan Ctrl	Remote camera fan control	S	Off, Max, Var
	—			
	—			
	Cam Temp	Shows camera temperature	S	Degrees Celcius or Fahrenheit
Camera setup page 14	AptFlwIris	Selects Aperture Follow Iris	S	On, Off
	—			
	—			
	Noise Red	Selects Noise Reducer Mode	S	Off, 1, 2, 3

Menu	Selections	Function	Level	Possible values
VF MENU control	Up	Up menu (also with rotary)	S	
	-			
	Down	Down menu (also with rotary)	S	
	Select	Select	S	

3.5.1 Variable matrix and shading

The Variable Matrix and Shading menus are submenus of the camera setup menu.

Menu	Selections	Function	Level	Possible values
Variable Matrix page 1	G->R	Sets the green to red ratio.	F	0..99 **(50)**
	B->R	Sets the blue to red ratio.	F	0..99 **(50)**
	R->G	Sets the red to green ratio.	F	0..99 **(50)**
	B->G	Sets the blue to green ratio.	F	0..99 **(50)**
Variable Matrix page 2	R->B	Sets the red to green ratio.	F	0..99 **(50)**
	G->B	Sets the green to blue ratio.	F	0..99 **(50)**
	-			
	-			

Menu	Selections	Function	Level	Possible values
Shading page 1	Shading	Turns shading on or off	F	On, Off
	-			
	-			
	-			
Shading page 2	R-SAW H	Sets the horizontal sawtooth value (for red)	F	0..99 **(50)**
	R-PAR H	Sets the horizontal parameter (for red)	F	0..99 **(50)**
	R-SAW V	Sets the vertical sawtooth value (for red)	F	0..99 **(50)**
	R-PAR V	Sets the vertical parameter (for red)	F	0..99 **(50)**
Shading page 3	G-SAW H	Sets the horizontal sawtooth value (for green)	F	0..99 **(50)**
	G-PAR H	Sets the horizontal parameter (vor green)	F	0..99 **(50)**
	G-SAW V	Sets the vertical sawtooth value (for green)	F	0..99 **(50)**
	G-PAR V	Sets the vertical parameter (vor green)	F	0..99 **(50)**
Shading page 4	B-SAW H	Sets the horizontal sawtooth value (for blue)	F	0..99 **(50)**
	B-PAR H	Sets the horizontal parameter (for blue)	F	0..99 **(50)**
	B-SAW V	Sets the vertical sawtooth value (for blue)	F	0..99 **(50)**
	B-PAR V	Sets the vertical parameter (for blue)	F	0..99 **(50)**

Chapter 4

Operation

4.1 Camera control

4.1.1 Setting white balance

The WHITE BALANCE button starts the automatic white balance process. The camera measures a white area in the middle of the picture and stores a colour temperature setting in the AW1 or AW2 memory positions.

The WHITE BALANCE button only operates if the colour temperature function is in a preset position (AW1 or AW2) and the colour bars are switched off.

1. Press the WHITE BALANCE button once to display the measurement window in the camera viewfinder.
   – The button lights.
2. Press the WHITE BALANCE button a second time to start the measurement process.
   – The button flashes.

If the measurement is successful, the light in the button and the measurement window are switched off. If the measurement is unsuccessful, the light in the WHITE BALANCE button is orange.

If the button is pressed during the measurement process or at the end of an unsuccessful measurement, the value stored in AW1 or AW2 is reset.

4.1.2 Iris control

Press the AUTO button to switch on the automatic iris control system.

– The AUTO button lights to show that the automatic iris control system is in operation.

Tip

Even when auto iris is activated the manual control can still be used to vary the iris opening by +1 or - 1 F-stop.

4.1.3 Changing camera video parameters

There are several ways of changing the video parameters of the camera from the OCP:

- scene files
- standard values
- the direct video parameter buttons
- programmable functions

Scene files

Scene files can be stored and recalled to immediately change a complete set of parameters.

Standard values

Different set of standard values can be recalled to immediately reset the video parameters.

Direct video parameter buttons

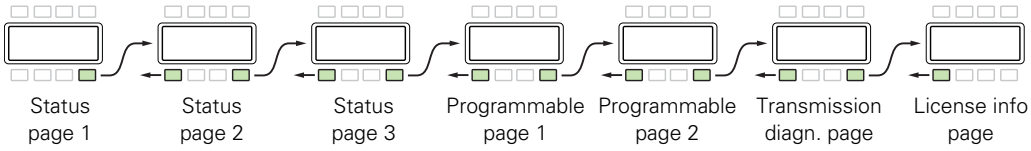
A direct video parameter button when selected brings its associated menu to the display where you can navigate, select and vary the applicable values.

Programmable functions

Up to 6 functions can be assigned in the OCP setup menu (refer to "Setting up the OCP" on page 22). These functions are accessed from the monitoring pages.

4.2 Monitoring pages

The status pages, programmable function pages, transmission diagnostics page and license information page are available to monitor the camera and transmission or to directly access camera functions.

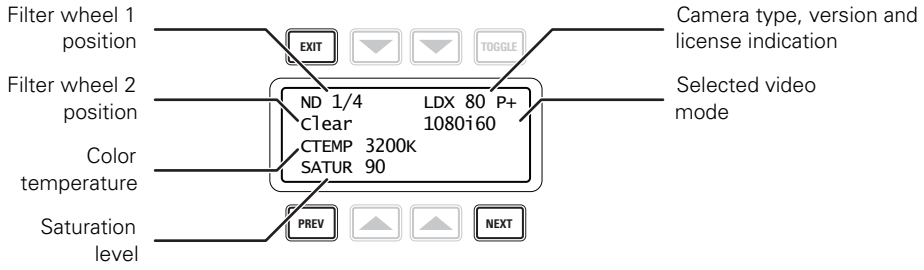


Status page 1 is displayed when the **EXIT** button is used to leave the menu system. Use the **PREV** and **NEXT** buttons to scroll through the subsequent pages.

4.2.1 Camera status pages

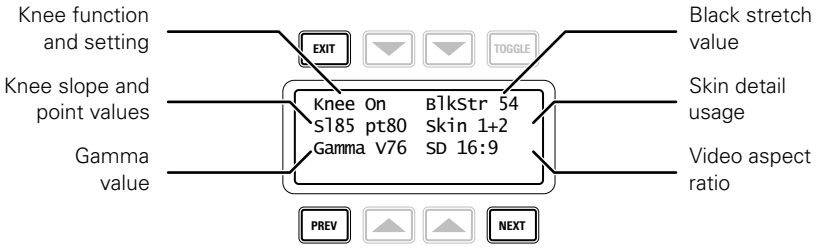
Status page 1

Displays information about filter wheels, color and saturation settings, camera type and video mode.



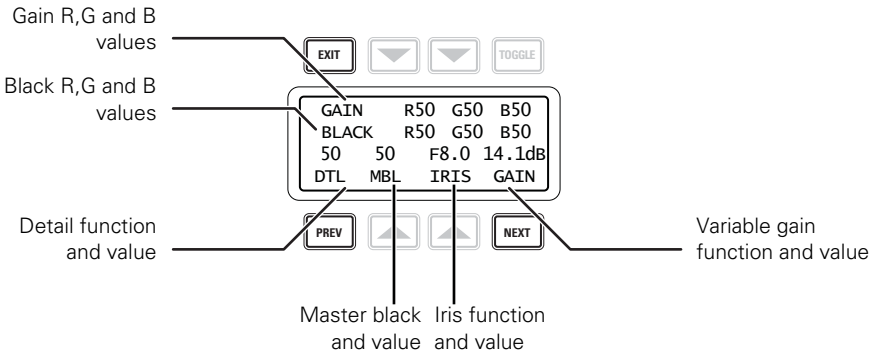
Status page 2

Displays information about knee, gamma, black stretch, skin detail and video aspect ratio.



Status page 3

Displays information about gain and black levels, detail, master black, iris and variable gain.

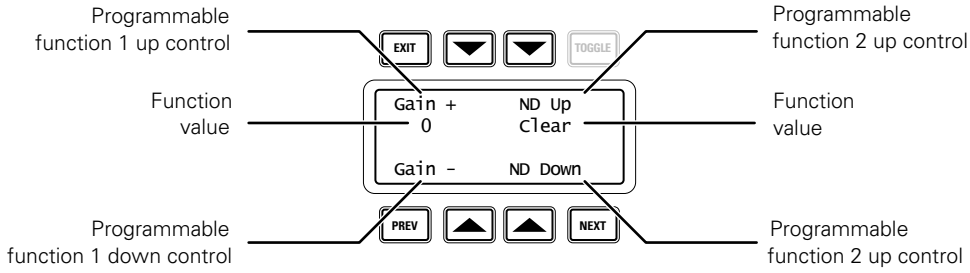


4.2.2 Programmable function pages

This page gives direct access (by pressing the corresponding SELECTION button) to up to 6 programmable functions.

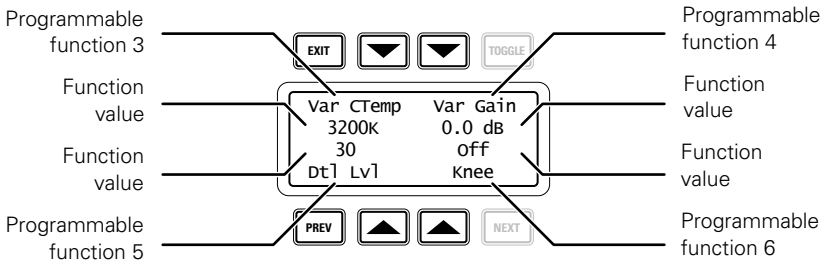
Function page 1

This page gives access to programmable functions 1 and 2.



Function page 2

This page gives access to programmable functions 3 to 6.



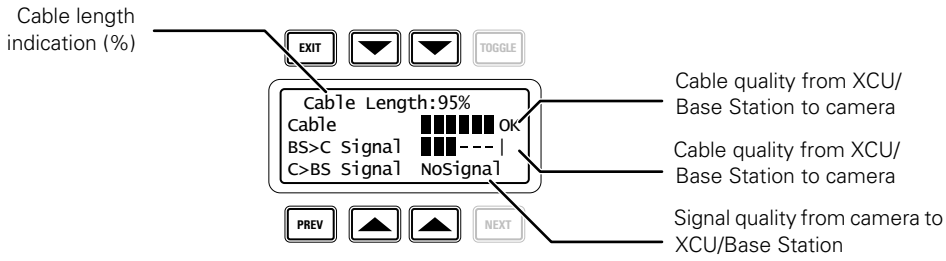
Note

Programmable functions that are disabled in the OCP setup menu are not shown. When all functions on a page are disabled, the entire page is not shown.

4.2.3 Transmission diagnostics pages

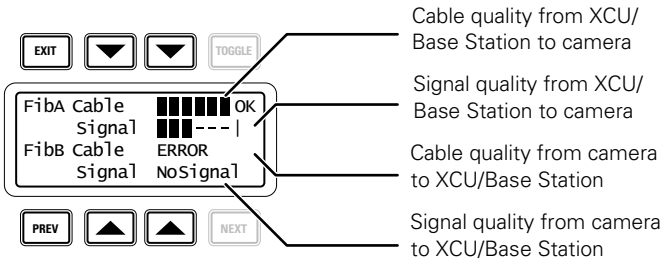
For 3G Triax systems

When you are using a 3G Triax transmission system, the following diagnostics page is shown:



For Universe XF transmission and 3G Fiber systems

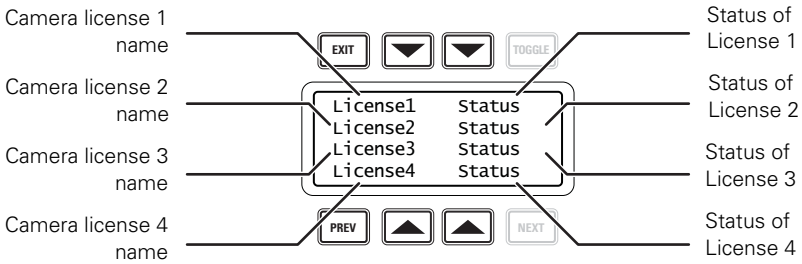
When you are using a Universe XF transmission or 3G Fiber transmission system, the following diagnostics page is shown:



☞ Note

Refer to the user's guide of your camera or transmission system for more information about these diagnostic indications.

4.2.4 License information page



☞ Note

Refer to the user's guide of your camera for different license options and how to install them.

4.3 Using files

4.3.1 Storing and recalling scene files

The scene file function is used for storing and recalling scene settings for the camera. Four scene files can be stored in memory positions 1 to 4 of the camera.

- To recall a scene file, push the **FILES** button to open the menu.
- Select a memory position 1 to 4. The values stored in this file are then recalled.

To create a scene file, set up the values for all the functions on the OCP, push the **FILES** button to open the menu. Push the **NEXT** button to open the store page and then select a memory position. The values are stored in this position.

☞ Note

When a scene file is recalled, the values only take effect if the camera is not On Air.

Menu	Selections	Function	Level	Possible values
Scene files page 1	RECALL 1	Recall Scene File 1	S	Ready, Failed
	RECALL 2	Recall Scene File 2	S	Ready, Failed
	RECALL 3	Recall Scene File 3	S	Ready, Failed
	RECALL 4	Recall Scene File 4	S	Ready, Failed
Scene files page 2	STORE 1	Store Scene File 1	S	Ready, Failed
	STORE 2	Store Scene File 2	S	Ready, Failed
	STORE 3	Store Scene File 3	S	Ready, Failed
	STORE 4	Store Scene File 4	S	Ready, Failed

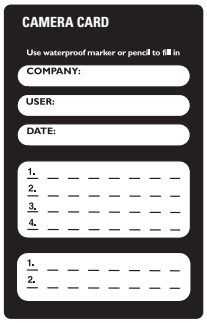
4.4 OCP File Management

4.4.1 Introduction

Use OCP File Management to manage settings and scene files for your camera. Up to four scene files can be stored in the camera while more Card scene files can be stored on an OCP storage card.

– To access OCP File Management functions, push the **FILES** button to open the menu.

4.4.2 Formatting OCP storage cards



Before OCP File Management can be used you need to format an OCP storage card. Empty cards can be obtained from Grass Valley in a set of 10 cards (LDK 5210). Follow these steps for to format a card:

1. Insert the card into the slot at the top of the OCP and push the **FILES** button.
2. Push the **NEXT** button until the OCP 400 Card item appears.
3. Select the Format option and wait a few seconds.
4. Your OCP storage card is now ready for use.

☞ Note

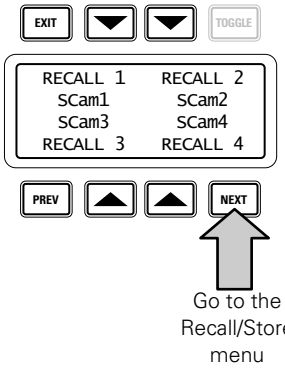
Make sure not to format your camera owner's card: this will make the owner's card unusable.

☞ Note

Camera user's cards and OCP storage cards look identical, but they are not interchangeable.

4.4.3 Fast Recall menu

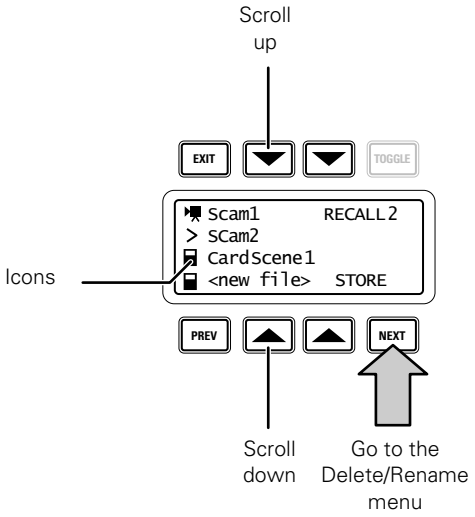
This menu offers fast access to your camera's scene files. Select a scene file and the settings in this file are recalled. To recall a card scene file push the NEXT button to go to the Recall/ Store menu.



> **Note**
>
> When a scene file is recalled, the values only take effect if the camera is not On Air.

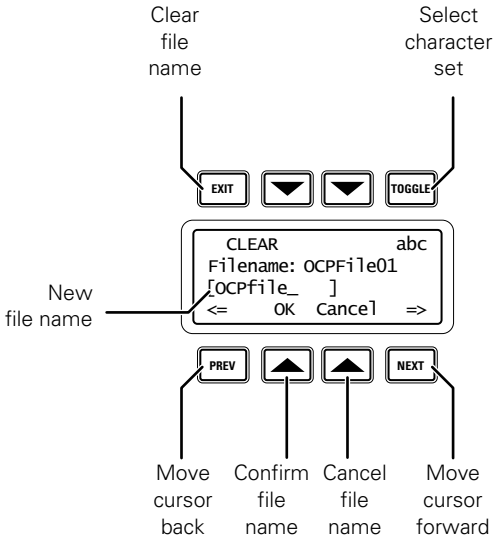
4.4.4 Recall/Store menu

At the left side of the menu panel a list of available scene files is shown. The first four items are camera scene files. They are followed by the card scene files stored on your OCP storage card. Use the left menu buttons or the assignable rotary control to scroll up and down the list. Camera scene files are indicated with a *camera* icon and card scene files with a *card* icon. The arrow indicates the currently selected scene file.



Select RECALL to recall the settings in the selected scene file. Select STORE to store the current settings of the camera into the selected scene file.

The last item in the scene file list is <New File>. Select this item to create a new file on your card and store the current camera settings to the new file.



The default name appears for your new file. You can change it by using the Rotary Control to select a character and the PREV and NEXT buttons to move the cursor back and forward.

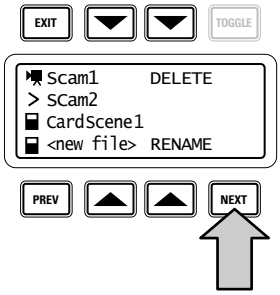
- Use the TOGGLE button to select a different character set (abc - 123 - #!@ - ABC).
- Select CLEAR to clear the file name.
- Select OK to use the new filename. The file will be added to the card and the current settings are stored in this file.
- Select CANCEL to cancel the operation and return to the Recall/Store menu.

☞ Note

File names can have up to ten characters.

4.4.5 Delete/Rename menu

Select a scene file from the list. Select DELETE to delete the selected scene file. Select RENAME to change the name of the selected scene file. Refer to the Recall/Store section to enter a new filename.

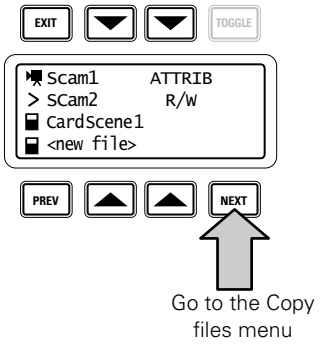


Note

Camera scene files can not be deleted.

4.4.6 Read/Write attribute menu

Select a scene file from the list. Select ATTRIB to change the Read/Write status of the selected scene file. A scene file can have a Read Only (R) status and a Read/Write (R/W) status.

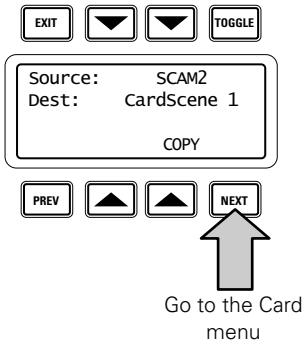


Note

Read/Write attributes of a camera scene file can not be changed.

4.4.7 Copy Files menu

To copy one file to another, select the scene file in the source field by using the cursor up/ down keys or the Assignable rotary control. Use the TOGGLE button to switch beteen the Source and Dest(ination) fields. Select COPY to copy the selected source scene file to the selected destination scene file.



☞ Note

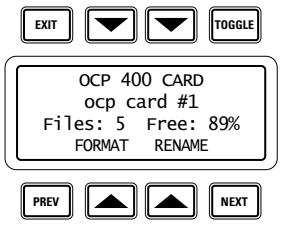
The original contents of the destination file are overwritten.

When the item <New File> is selected in the destination field the source file is copied to a new file. You will be prompted to enter a file name. Refer to the Recall/Store menu for the naming procedure.

4.4.8 Card menu

This menu displays the name of the inserted OCP storage card, the number of scene files stored on the card and the percentage of space used.

Select FORMAT to format a card. Select RENAME to enter a new name for the card. Refer to to Recall/Store menu for the naming procedure.



4.4.9 Partial file recall

Partial file recall can be used to undo changes on a group of video parameters. Groups that can be recalled are Gain, Filters, Detail, Exposure Time, Color, Black, Flare, Skin, Gamma and Knee.

To recall a group of parameters press and hold the **FILES** button and at the same time press the button for the function group you want to recall. All functions of this group are restored to the user's reference settings.

While the **FILES** button is pressed the last recalled or restored file is displayed on the menu panel.

☞ Note

A partial recall of the Gain function set will also recall the RGB Gain values and a partial recall of the Black function set will also recall the RGB Black values and the master black value.

4.4.10 Recalling standard files

- Push the **RECALL STD.** button to open the menu.
- Select either a factory or a customer file for recall.
- Select RECALL.

Menu	Selections	Function	Level	Possible values
Recall Standard	RECALL	Recall standard file	S	
	STD CUST/ FACT	Select factory or customer file to recall	S	Factory, Custom
	-			
	-			

4.5 Adjusting video parameters

4.5.1 Skin button

– Press the **SKIN** button to open the skin menu.

When the skin colour and width pages are selected, the upper and lower red and blue rotary controls are assigned to these parameters. The **SKIN** lights light.

Menu	Selections	Function	Level	Possible values
SKIN page 1	SKIN SEL	Turns Skin Detail off or on and selects the memory position.	B	Off, 1, 2, 3, 1+2, 1+3, 2+3, 1+2+3
	SET 3	Go to SET SKIN 3 menu	B	
	SET 1	Go to SET SKIN 1 menu	B	
	SET 2	Go to SET SKIN 2 menu	B	
SKIN page 2	Flw Zoom	Skin detail follows Lens zoom	B	On, Off
	-			
	-			
	-			

Skin 1 menu

Menu	Selections	Function	Level	Possible values
SET SKIN1 page 1	SKIN SEL	Select SKIN	B	Off, 1, 2, 3, 1+2, 1+3, 2+3, 1+2+3
	SKIN1 LVL	Sets SKIN1 detail level	B	0..99
	SKIN VIEW	Turns on to view the selected SKIN detail area	B	On,Off
	SKIN Auto	Starts Auto Skin procedure	B	Off, Win, Run, Fail
SET SKIN1 page 2	COLOR1 R	Adjust Skin 1 Color R Level	B	0..99
	COLOR1 B	Adjust Skin 1 Color B Level	B	0..99
	WIDTH1 R	Adjust Skin 1 Width R Level	B	0..99
	WIDTH1 B	Adjust Skin 1 Width B Level	B	0..99
SET SKIN1 page 3	ViewInsert	Skin view insertion point	B	Main, BS Mon
	-			
	-			
	-			

Skin 2 menu

Menu	Selections	Function	Level	Possible values
SET SKIN2 page 1	SKIN SEL	Select SKIN	B	Off, 1, 2, 3, 1+2, 1+3, 2+3, 1+2+3
	SKIN2 LVL	Sets SKIN detail level	B	0..99
	SKIN VIEW	Turns on to view the selected SKIN detail area	B	On,Off
	SKIN AUTO	Starts Auto Skin procedure	B	Off, Win, Run, Fail
SET SKIN2 page 2	COLOR2 R	Adjust Skin 2 Color R Level	B	0..99
	COLOR2 B	Adjust Skin 2 Color B Level	B	0..99
	WIDTH2 R	Adjust Skin 2 Width R Level	B	0..99
	WIDTH2 B	Adjust Skin 2 Width B Level	B	0..99
SET SKIN2 page 3	ViewInsert	Skin view insertion point	B	Main, BS Mon
	-			
	-			
	-			

Skin 3 menu

Menu	Selections	Function	Level	Possible values
SET SKIN3 page 1	SKIN SEL	Select SKIN	B	Off, 1, 2, 3, 1+2, 1+3, 2+3, 1+2+3
	SKIN3 LVL	Sets SKIN3 detail level	B	0..99
	SKIN VIEW	Turns on to view the selected SKIN detail area	B	On,Off
	SKIN Auto	Starts Auto Skin procedure	B	Off, Win, Run, Fail
SET SKIN3 page 2	COLOR3 R	Adjust Skin 3 Color R Level	B	0..99
	COLOR3 B	Adjust Skin 3 Color B Level	B	0..99
	WIDTH3 R	Adjust Skin 3 Width R Level	B	0..99
	WIDTH3 B	Adjust Skin 3 Width B Level	B	0..99
SET SKIN3 page 3	ViewInsert	Skin view insertion point	B	Main, BS Mon
	-			
	-			
	-			

4.5.2 Setting Skin detail

Skin Detail is set up to select a particular color range. The detail level within this color range can then be set independently of the rest of the picture.

Skin detail is predominantly used to reduce the level of detail in a person's skin tone to produce a more attractive picture. Decreasing the detail level of a person's skin softens the skin tones only. The skin detail function is not limited to a particular color and so can also be used to achieve various effects in selected color areas. For example, decrease the detail level of a

soccer field to accentuate the players or increase the skin detail level to accentuate a rough surface.

The color range to which the skin detail level is applied can be selected automatically or manually. Two skin detail ranges can be independently defined; both can be used at the same time.

Auto Skin detail

Carry out the Auto Skin Detail procedure as follows:

1. In the Skin menu, select the item Set 1 to open the skin 1 page.
2. Select SKIN Auto.
3. Point the two small black boxes that appear in the viewfinder at the intended surface (color).
4. Select SKIN Auto again to start the measurement procedure (the iris is set to Auto). The process running message appears in the viewfinder.
5. When the process is completed (within a few seconds) the OK message appears in the viewfinder.
6. Adjust the skin detail level with the Skin Lvl item. Decrease the value below 50 to soften the selected area. Increase the value above 50 to add extra detail.

Repeat the steps for the Skin 2 and Skin 3 position if required.

Set the menu item Skin View to On to show the affected area. The color range set by the automatic procedure can be adjusted manually if required.

Manual skin detail

Set the skin detail color range manually as follows:

1. In the Skin menu, select item Set 1 to open the skin 1 page.
2. Push the NEXT button.
3. Adjust the color 1 red and blue, and the width 1 red and blue parameters with the assigned rotary controls. The higher the number, the broader the range.
4. Push the PREV button.
5. Adjust the skin detail level for the selected color range with the Skin Lvl item. Decrease the value below 50 to soften the selected area. Increase the value above 50 to add extra detail.

Repeat the steps for the Skin 2 and Skin 3 position if required.

4.5.3 Gamma button

– Press the GAMMA button to open the gamma menu.

When variable gamma is selected and the NEXT button is pressed, the upper row of rotary controls are assigned to changing the gamma R, G and B values. The GAMMA lights light.

Menu	Selections	Function	Level	Possible values
HDR Gamma *)	HdrStd	Select HDR standard	S	SMPTE2084, HLG
	HdrRange	Select HDR output range	S	SMPTE, SMPTE+, Full
	HdrGamHi	HDR Gamma High	S	1.0, 1.2, 1.4, 1.6, 1.8, 2.0
	HdrGamLo	HDR Gamma Low	S	0.8, 1.0, 1.2
Gamma page 1	Gamma Sel	Gamma selection	B	1, 2, Var, Lin
	Gamma Crv	Gamma Curve preset	B	ARD, BBC04, BBC05, BBC06, CCIR, RAI, 6xARD
	-			
	Gamma LPF	Gamma LowPass Filter	B	On, Off
Gamma page 2	Gamma M	Gamma Master	F	0..99
	Gamma R	Gamma Red	F	0..99
	Gamma G	Gamma Green	F	0..99
	Gamma B	Gamma Blue	F	0..99
Gamma page 3	Contrast	Switches contrast on or off	F	On, Off
	Shadow	Sets contrast for Shadows area	F	0..99
	Midtone	Sets contrast for Midtone area	F	0..99
	Highlight	Sets contrast for Highlight area	F	0..99

*) Only available when XDR eLicense is installed.

4.5.4 Knee button

– Press the **KNEE** button to open the knee menu.

Knee in PowerCurves Mode (available in LDX Series Première, Elite and WorldCam cameras):

Menu	Selections	Function	Level	Possible values
Knee page 1	Knee Sel	Knee function	S	Auto, Var, Off
	Kn Point	Knee point (as % video level)	S	0%..90%
	Kn Fade	Fades between linear (Fade=99) and Var Knee compression (Fade=0)	S	0..99
	Kn Max In	Sets maximum input video level.	B	100%..800%
Knee page 2	Knee Sat	Switches Knee Saturation on or off	B	On, Off
	Sat Lvl	Sets Knee Saturation level	B	0..99
	Kn Source	Selects Knee source selection	B	Y, Nam
	Kn OutLim	Sets maximum output video level after compression.	B	100%..118%

Menu	Selections	Function	Level	Possible values
Knee page 3	WhiteClip	Switches White Clipper on or off	B	On, Off
	Wclip Lvl	Sets White Clipper Level	B	0..99
	Knee Mode	Selects Knee Mode	B	PwrCurves, Compat
	-			

Knee in Compatibility Mode (Focus Series and LDX Series Flex camera):

Menu	Selections	Function	Level	Possible values
Knee page 1	Knee Sel	Knee function	S	Auto, Var, Off
	Kn Point	Knee point	S	0..99
	Kn Slope	Knee Slope	S	0..99
	Kn Source	Knee source selection	B	Y, NAM
Knee page 2	Knee Desat	Knee desaturation function	B	On, Off
	Desat Level	Knee desaturation level	B	0..99
	Kn Source	Knee source selection	B	Y, RGB, Max
	-			
Knee page 3	WhiteClip	Switches White Clipper on or off	B	On, Off
	Wclip Lvl	Sets White Clipper Level	B	0..99
	-			
	-			

4.5.5 Color button

– Press the **COLOR** button to open the color menu.

Menu	Selections	Function	Level	Possible values
Color page 1	Col Temp	Selects color temperature memory	S	3200K, 5600K, 7500K, AW1, AW2, AWC, FL
	Var Ctemp	Selects variable color temperature	S	2000K .. 21000K
	Saturation	Sets saturation Level	S	0..99
	Tint	Green/Magenta tint adjustment	S	-150 .. 150
Color page 2	Corrector	Turns color correction on or off	B	On,Off
	Col Filt	Selects electronic colour filter	S	-100 .. 100
	COLCORR	Go to the color correction menu		
	Chroma	Switches Chroma on or off	S	On, Off
Color page 3	Protect	Switches Color Protect on or off	S	On,Off
	Level	Selects Color Protect Level	S	0% .. 150%
	Col Gamut	Selects Color Space	S	REC709, REC2020
	HdrColGam *)	Selects HDR Color Space	S	REC709, REC2020

*) Only available when XDR eLicense is installed.

Color Corrector Menu

Menu	Selections	Function	Level	Possible values
Color corection page 1	CC SET: n	Selects color correction set	S	1..6 (1,2)
	On/Off	Turns color corr. set on or off	S	On, Off
	Color	Sets Color	S	0 . .360°
	Width	Sets Color Width	S	22.5 .. 360°
	Hue	Sets new Hue value for the selected color	S	0..99
	Sat	Sets new Saturation value for the selected color	S	0..99
	Lum	Sets new Luminance value for the selected color	S	0..99
Color corection page 2	CC View	Views color area	S	On,Off
	ViewInsert	CC View insertion point	S	Main, Mon
	Smoothing	Selexts transition between corrected and uncorrected area	S	Sharp, Medium, Smooth
	Reset CC	Resets all color correction sets	S	(execute)

4.5.6 Black button

– Press the **BLACK** button to open the black menu.

– The lower row of rotary controls are assigned to changing the black values. The **BLACK** light lights.

Menu	Selections	Function	Level	Possible values
Black page 1	Black Str	Black Stretch Function	S	On,Off
	Auto Black	Auto Black Function	S	<Press to start>
	BlkStrLvl	Black Stretch Level	S	0..99
	BlkStrTyp	Black Stretch type	B	Press, Stretch
Black page 2	—			
	FullBlack	Runs Full Black calibration	B	On, Off
	—			
	—			

4.5.7 Flare button

– Press the **FLARE** button to open the flare menu.

– The lower row of rotary controls are assigned to changing the flare values. The **FLARE** lights light.

Menu	Selections	Function	Level	Possible values
Flare	Flare FUNC	Flare function	F	On, Off
	Flare R	Red Flare Level	S	0..99
	Flare G	Green Flare Level	S	0..99
	Flare B	Blue Flare Level	S	0..99

4.5.8 Exposure time button

– Press the **EXP.TIME** button to open the exposure time menu.

Menu	Selections	Function	Level	Possible values
Exposure time page 1	Exp. Sel	Selects exposure time	S	Nom, CRT, 50, 60, 1/100..1/2000, Var
	Lighting	Switches Lighting adj. on or off	S	On, Off
	Var Exp	Sets variable exposure time	S	xx Hz or xx mSec
	Lighting	Sets lighting adjustment value	S	-10..+10
Exposure time page 1 [VIPER]	Shutter	Selects shutter preset (Viper only)	S	90, 180, 216, VAR, MAX etc.
	Angle	Sets variable shutter angle (Viper only)	S	90° .. 315°
	Motor	Turns shutter motor on or off (Viper only)	S	On, Off
	-			
Exposure time page 2	AutoLight	Auto Lighting function	S	On, Off
	-			
	Exp Unit	Exposure Time Unit (for Var)	S	On, Off
	-			

4.5.9 Gain button

– Press the **GAIN** button to open the gain menu.

– Select GAIN+ or GAIN- to increase or decrease the gain in steps.

Menu	Selections	Function	Level	Possible values
Gain page 1 (HDR) *)	HdrGain+	Increase HDR Gain	S	+++, ++, +, 0, -
	HdrGain	Variable HDR Gain	S	x.xdB
	HdrGain-	Decrease HDR Gain	S	+++, ++, +, 0, -
	—			

*) Only available when XDR eLicense is installed.

Menu	Selections	Function	Level	Possible values
Gain page 2 (SDR)	Gain +	Increase Gain	S	+++, ++, +, 0, -
	Var Gain	Variable Master Gain	S	x.xdB
	Gain -	Decrease Gain	S	+++, ++, +, 0, -
	—		S	

4.5.10 Filters button

– Press the **FILTERS** button to open the filters menu.

– The optical filter wheels are controlled with the ND and FX UP and DOWN selection buttons.

Menu	Selections	Function	Level	Possible values
Filters page 1	ND Up	Increase ND Filter position	S	CLR, ND 1/4, ND 1/16, ND 1/64
	FX Up *)	Increase FX Filter position	S	CLEAR, 4 Star, 6 Star,Soft Focus
	ND Down	Decrease ND Filter position	S	
	FX Down *)	Decrease FX Filter position	S	
Filters page 2 [LDK 500 only]	Gradient	Select electronic gradient filter	B	On, Off
	SET	Go to Set Gradient page	B	
	Soft Fcs	Select electronic soft focus filter	B	On, Off
	SET	Go to Set Soft Focus page	B	
Filters page 3 [LDK 500 only]	Monotone	Select electronic monotone filter	B	On, Off
	SET	Go to set monotone filter page	B	
	-			
	-			

*) The Effects Filterwheel is not available on all camera versions.

4.5.11 Detail button

– Press the **DETAIL** button to open the detail menu.

Menu	Selections	Function	Level	Possible values
HDR Detail page 1 *)	HdrDtlLvl	HDR Detail level	S	0..99
	HdrC/Fine	HDR Detail coarse/fine adjustment	B	0..99
	HdrLvlDep	HDR Level dependency	B	0..99
	—			

Menu	Selections	Function	Level	Possible values
HDR Detail page 2 *)	HdrDtlSrc	HDR Detail Source	B	R, G, B, R+G
	—			
	—			
	HdrDtl	HDR Detail on or off	B	On, Off
*) Only available when XDR eLicense is installed.				
4K Detail page 1	4kDtlLvl	4K Detail Level	S	0..99
	4kV-Dtl	4K Vertical Detail Level	B	0..99
	4kLvlDep	4K Level Dependency	B	0..99
	4kNoiseSl	4K Noise Slicer level	B	0..99
4K Detail page 2	4kC/Fine	4K Detail coarse/fine adjustment	S	0..99
	4kDtl	4K Detail on or off	B	On, Off
	4KSoftLvl	4K Soft Detail Level	S	0..99
	4KSoftDtl	4K Soft Detail function	B	On, Off
HD Detail page 1	HD DtlLvl	HD Detail Level	S	0..99
	HD V-Dtl	HD Vertical Detail Level	B	0..99
	HD LvlDep	HD Level Dependency	B	0..99
	HD NoiseSl	HD Noise Slicer Level	B	0..99
HD Detail page 2	HD C/Fine	HD Detail coarse/fine adjustment	S	0..99
	HD Dtl	HD Detail on or off	B	On, Off
	—			
	—			
Detail page 1	Dtl Level	Detail level	S	0..99
	Texture	Selects Texture level	B	0..99
	Level Dep	Level dependency	B	0..99
	Noise Sl	Selects Noise slicer level	B	0..99
Detail page 2	V-Dtl	Vertical detail level	B	0..99
	C/Fine	Detail coarse/fine adjustment	B	0..99
	Knee DTL	Knee detail selection	B	Off, 1, 2, 3, 4
	DETAIL EQ	Go to Detail Equalizer menu		
Detail page 3	—			
	Soft Lvl	Sets Soft detail level	B	0..99
	Soft Dtl	Sets Soft detail function	B	On,Off
	Dtl Source	Selects Detail source	B	Y,R,G,R+G
Detail page 4	Diag Lvl	Diagonal Detail Level	B	0..99
	Diag Dtl	Diagonal Detail Function	B	Course, Fine
	—			
	—			

Menu	Selections	Function	Level	Possible values
Detail page 5	Flw Gain	Detail follows Gain	B	On, Off
	Flw Zoom	Detail follows Zoom	B	On, Off
	Texture	Enables/Disables Texture	B	Enabled, Disabled
	Dtl Func	Turns Detail function on or off	S	On, Off

Detail Equalizer menu

Menu	Selections	Function	Level	Possible values
Detail Equalizer	Detail Eq	Turns Detail Equalizer on or off	F	On, Off
	Shadow	Sets Detail Shadow level	F	0..99
	Midtone	Sets Detail Midtone level	F	0..99
	Highlight	Sets Detail Highlight level	F	0..99

Detail Equalizer

Camera systems that have parallel SD outputs, detail parameters have different values for the High Definition (HD) output and the Standard Definition (SD) output. Press the NEXT button to open the second (SD output) set of parameters.

Menu	Selections	Function	Level	Possible values
SD detail page 1	SD DTL LVL	Detail Level	S	SD 0..99
	SD DTL Funct	Detail Function	S	SD On, SD Off
	SD LVL Dep	Level Dependency	B	SD 0..99
	SD NoiseSl	NoiseSlicer	B	SD 0..99
SD detail page 2	SD V-Dtl	Vertical detail level	B	SD 0..99
	SD C/Fine	Detail fine adjustment	B	SD 0..99
	-			
	-			
SD detail page 3	-			
	SD SoftLvl	Soft detail level	B	SD 0..99
	SD SoftDt	Soft detail function	B	SD On, SD Off
	SD Sourc	Detail source Selection	B	SD Y,SD R,SD G,SD R+G

4.5.12 Non-standard indication

Normally if the menu of a function group is active, the button is illuminated high green. But in the case that the function group is non-standard ánd the menu is active, the button will be illuminated yellow (mix of orange and high-green).

When a button is illuminated as non-standard, it is possible to see which individual function or functions is/are nonstandard. This is indicated with a *-symbol behind every non-standard value in the menu.

Chapter 5

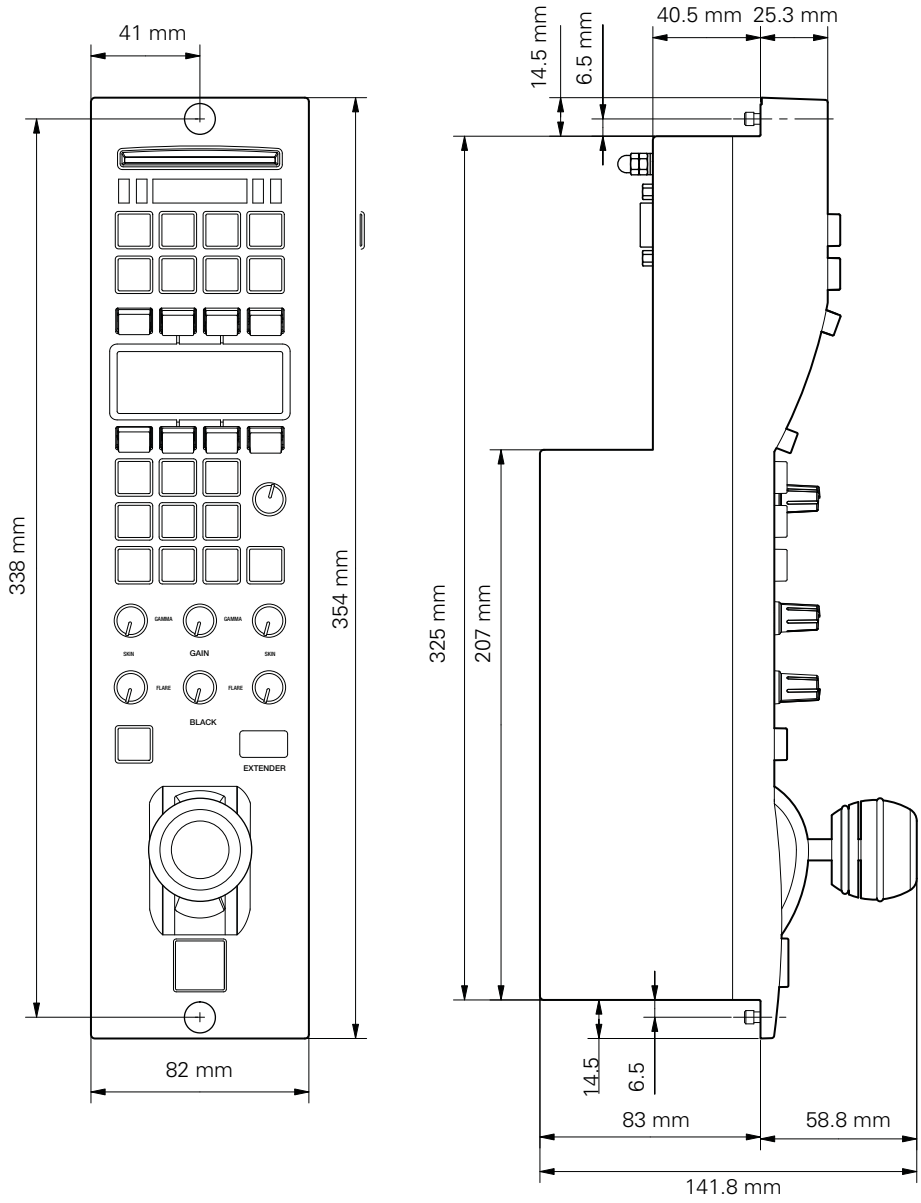
Specifications

5.1 Specifications for OCP 400

Item	Value
Dimensions (Height x Width x Depth)	354 x 82 x 85 mm (13.9 x 3.2 x 3.3 in) without joystick
Weight (approx.)	2.5 kg (5.5 lbs)
Operating temperatures	0 to +45° C (32 to 113° F)
Storage temperatures	-25 to +70° C (-13 to 158° F)
Power requirements	+12 VDC nom.
Power consumption	8.5 W max.
Ethernet connection	RJ-45 connector; 10Base-T, 100Base-TX compliant with IEEE-802.3
Serial connections	Sub D connector, RS-232 or RS-422 protocol

5.2 Dimensions

Figure 5-1. Dimensions

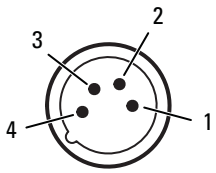


Chapter 6

Connectors

6.1 Power connectors

6.1.1 DC input connector



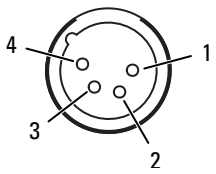
XLR 4-pin male
(panel view)

Pin	Description
1	GND
2	no connection
3	no connection
4	+12 VDC input (nominal)

It is recommended to use Grass Valley's LDK 5903 power supply unit to power the OCP 400.

Caution
The input voltage must not exceed +17 VDC.

6.1.2 DC output connector



XLR 4-pin female
(panel view)

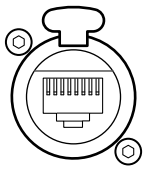
Pin	Description
1	GND
2	no connection
3	no connection
4	+12 VDC output

This socket supplies the input DC voltage (+12 VDC) for other OCP 400s (with a maximum of four units).

Caution
A maximum of 5 operational control panels can be looped through. An optional loop through power cable (ordering number: 8926 591 00501) is available at Grass Valley.

6.2 Communication connectors

6.2.1 Network connector

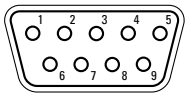


8-pin standard RJ-45 ethernet connector

Pin	Description
1	Transmit data + (TX+)
2	Transmit data - (TX-)
3	Receive data+ (RX+)
4	no connection
5	no connection
6	Receive data - (RX-)
7	no connection
8	no connection

Ethernet 10Base-T, 100Base-TX compliant with IEEE-802.3

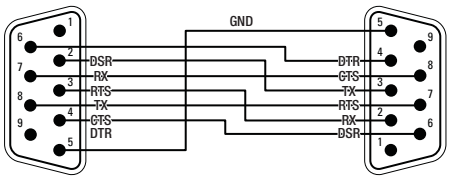
6.2.2 Serial interface connector (RS-232 or RS-422)



Sub-D connector 9-pin female (panel view)

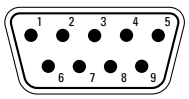
Pin	RS-232	RS-422
1	no connection	no connection
2	RXD	GO_A
3	TXD	RET_B
4	nDTR	reserved
5	DGND	DGND
6	nDSR	reserved
7	nRTS	GO_B
8	nCTS	RET_A
9	+12 V input	+12 V input

Select the connection type for the serial interface in the OCP 400 setup menu (refer to "Setting up the OCP" on page 22)



Wiring example for a standard 'null modem' cable that can be used to directly connect the OCP 400 to an **LDK** camera (not LDX!)

6.2.3 Preview connector

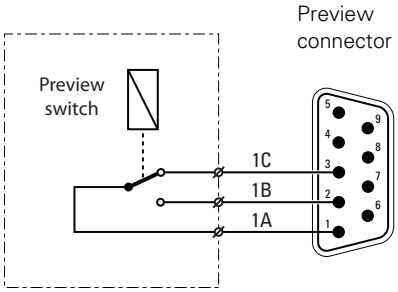


Sub D connector
9-pin male

Pin	Description
1	Preview contact 1A [1]
2	Preview contact 1B [1]
3	Preview contact 1C [1]
4	+REF external (typ. 4.1 V)
5	GND
6	GPIO contact for Yellow Tally/ISO (=TallyYinp) [2]
7	GPIO contact for Green Tally/Call (=TallyGinp) [2]
8	GPIO contact for Red Tally/On Air (=TallyRinp) [2]
9	shield

[1] For a Preview contact wiring application, see the example schematic below.

[2] For setting up studio signalling refer to Section 6.3 on page 61.



Preview switch not pressed:
1A is connected to 1C

Preview switch pressed:
1A is connected to 1B

6.3 Studio signalling

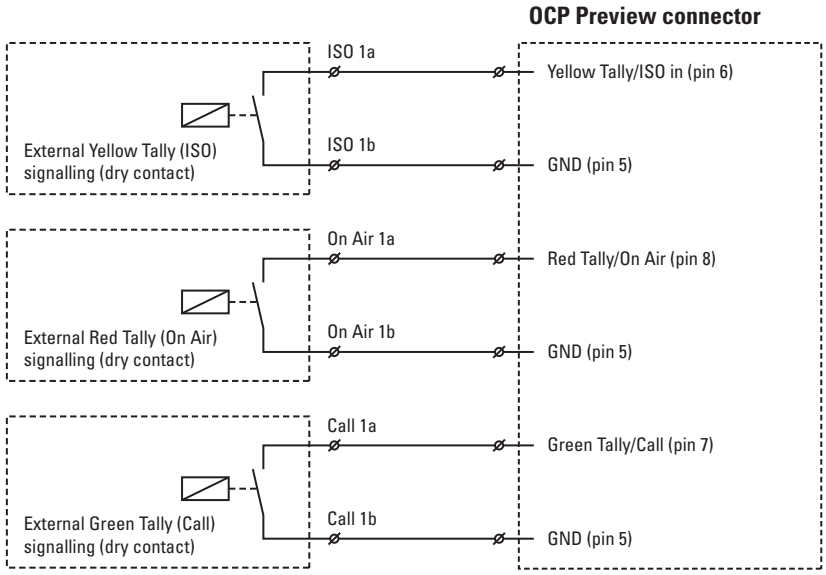
The OCP can accept Tally signal inputs at its Preview connector, which has three GPIO (General Purpose Input/Output) contacts for Tally signals.

To enable the GPIO inputs on the OCP enter the OCP Setup menu and navigate to the Tally setup page. On this page, GPIO contacts can be individually enabled, disabled and configured. For the different options and settings refer to the examples below.

Before using studio signalling on the OCP, the XCU must configured to use Ethernet based signalling (as opposed to using its own studio signalling GPIO inputs). To do this, enter the menu in the XCU and go to the `INSTALL` > `SIGNALLING INPUT` submenu and set the `ONAIR SOURCE` item to Ethernet.

6.3.1 Dry contact

This is an example of studio signalling with a single OCP with dry contacts:

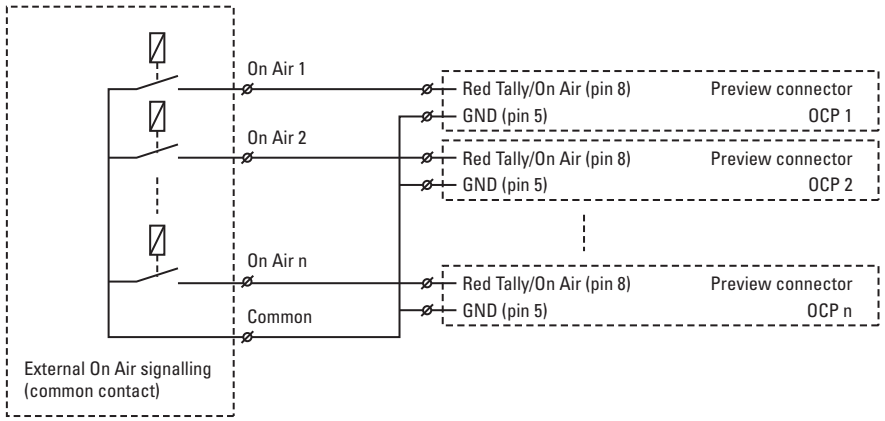


If a contact is closed, the corresponding function is Active or Inactive, depending on the selections in the Tally setup page in the OCP Setup menu:

Setting	Input is shorted:	Input is open:
Low/High	Function is Active	Function is Inactive
High/Low	Function is Inactive	Function is Active

6.3.2 Dry contact with multiple OCPs

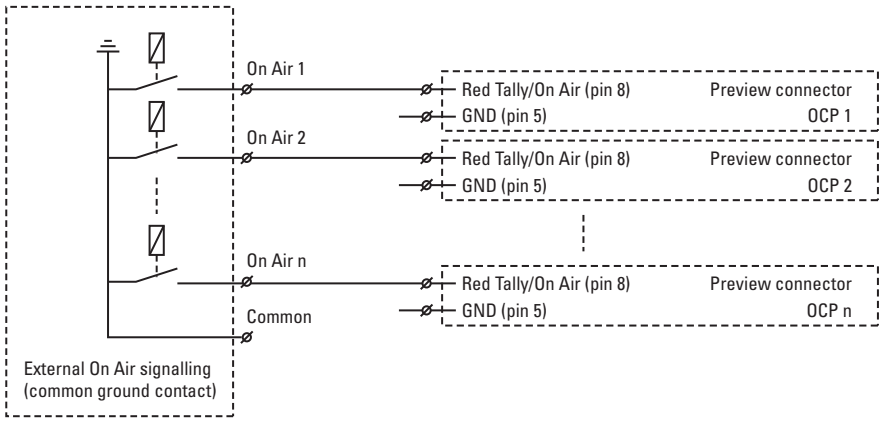
This is an example of an On Air signalling with multiple OCPs using a common contact.



If a contact is closed, the corresponding function is Active or Inactive, depending on the selections in the Tally setup page in the OCP Setup menu:

Setting	Input is shorted:	Input is open:
Low/High	Function is Active	Function is Inactive
Low/High	Function is Inactive	Function is Active

6.3.3 Common ground



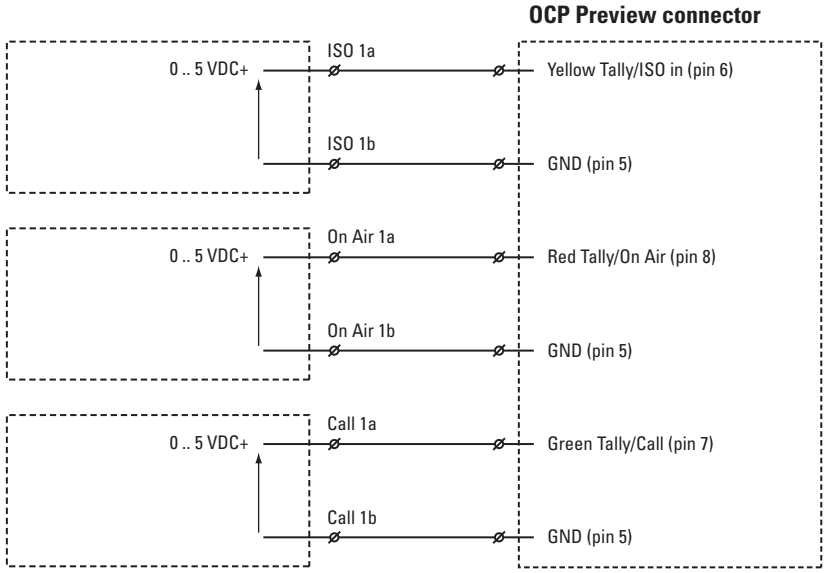
☞ Note

Ensure that a reliable ground coupling exists between the control device and the OCP and ground (pin 5).

If a contact is closed, the corresponding function is Active or Inactive, depending on the selections in the Tally setup page in the OCP Setup menu:

Setting	Input is shorted:	Input is open:
Low/High	Function is Active	Function is Inactive
Low/High	Function is Inactive	Function is Active

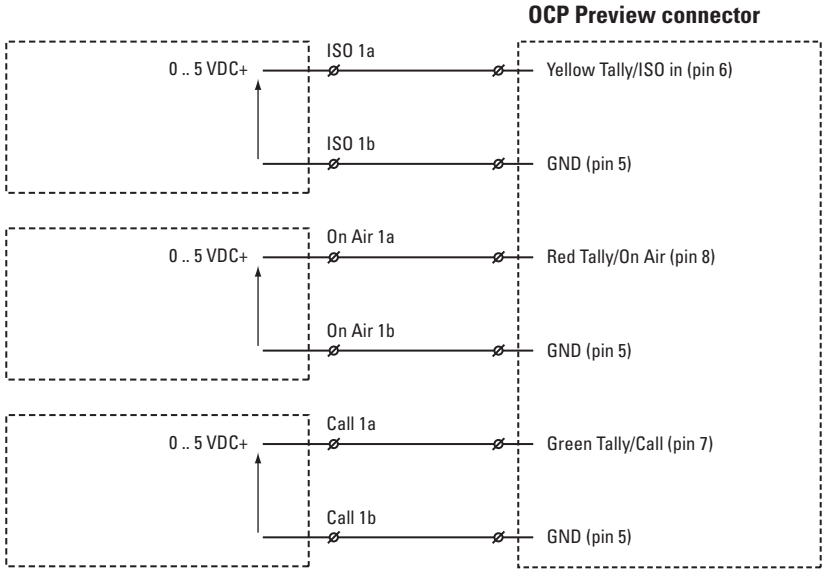
6.3.4 Voltage level



Apply a DC voltage to the inputs (respect polarity). If the voltage is low (0 to 2.5 V), the function is Active (or Inactive). If the voltage is high (3 to 5 V) the function is Inactive (or Active). The function state depends on the selections in the Tally setup page in the OCP Setup menu:

Setting	Input is 0 to 2.5V:	Input is 3 to 5V:
Low/High	Function is Active	Function is Inactive
High/Low	Function is Inactive	Function is Active

6.3.5 Open circuit/Voltage level



Leave the circuit open or apply a DC voltage to the inputs (respect polarity). If the circuit is open, the function is Active (or Inactive). If the voltage is high (3 to 5 V) the function is Inactive (or Active). The function state depends on the selections in the Tally setup page in the OCP Setup menu:

Setting	Input is open:	Input is 3 to 5V:
Low/High	Function is Active	Function is Inactive
High/Low	Function is Inactive	Function is Active