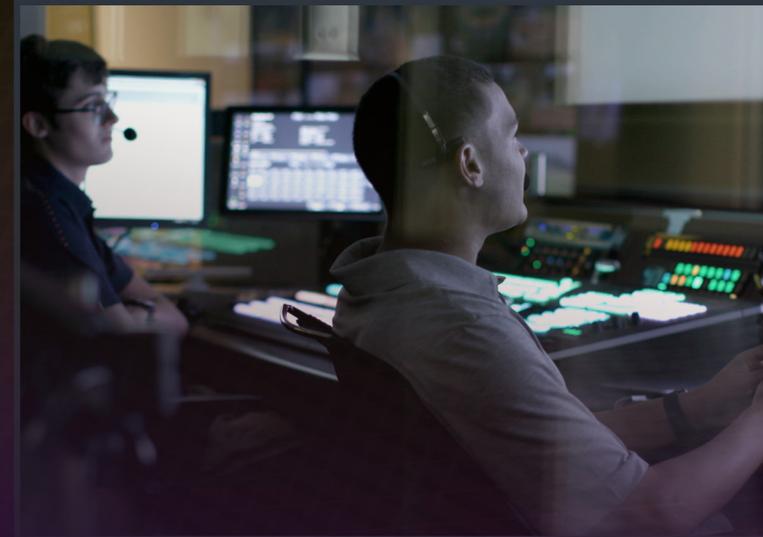


# Canon



# CINEMA EOS LIVE

VERSION 1.1

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Add depth to your productions with amazing color, detailed imagery, and extraordinary optics through Canon's Cinematic System.

Canon's Live Cinematic System can be a vital part of 4K and HD live production and is the next step in the evolution of content creation.

Canon's equipment integrates into 4K production chains by offering multiple solutions and connectivity options that provide efficient workflows from capture and control to broadcast and streaming. The systemized options provided by Canon provide up to 4K resolution and Canon's world renowned optics to give productions the cinematic look and feel they desire, with the control workflows they are familiar with. Give your programs that new look you've been seeking with a true cinematic solution in a live systemized workflow.

## ***IT'S NOT JUST ABOUT 4K...***

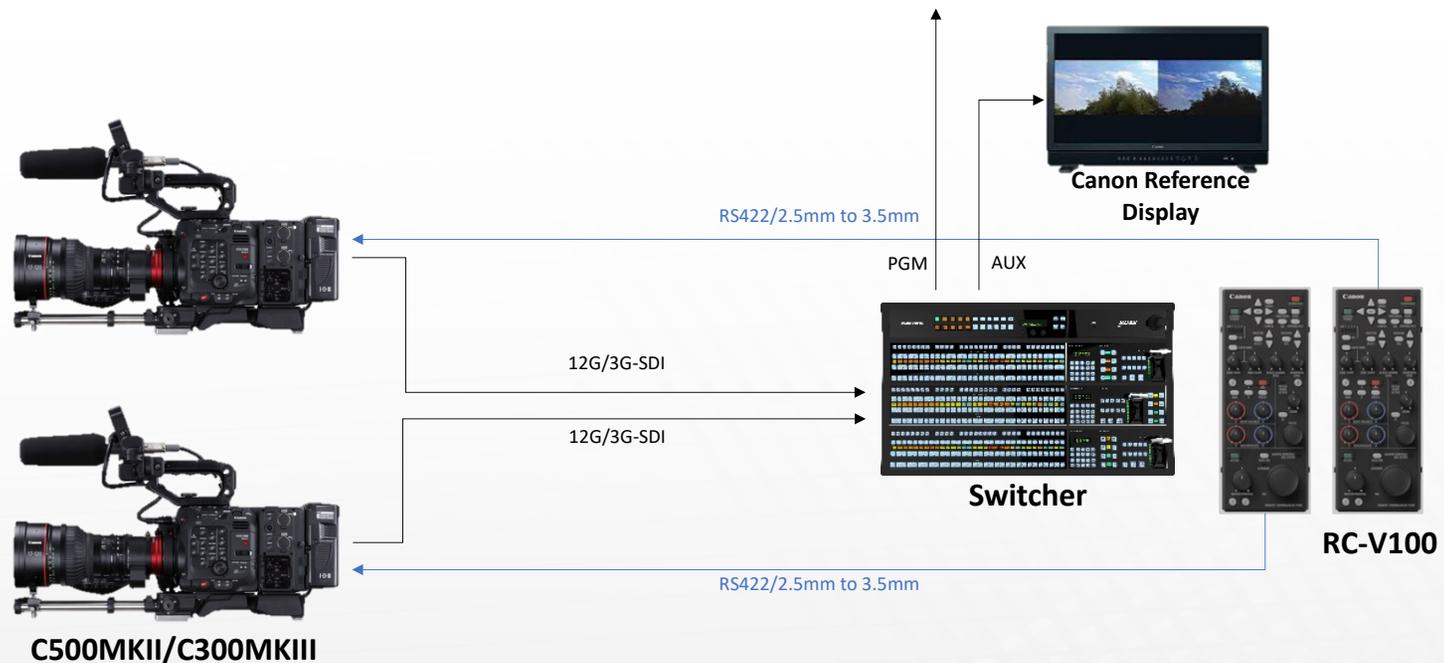
4K picture quality continues to impress audiences across all mediums, and continues its market penetration into homes across the US. But today it's about more than resolution, because while most broadcasters and viewers are still watching HD, the look and immersive experience of their programming is expounded by a shallow depth of field that wows audiences, and gives a whole new look and feel, even through an HD feed. With Canon's cinematic lenses, large-sensor cameras, and plug-and-play workflows, 4K and HD live production is here, allowing productions to immerse viewers, isolate subjects, punch in on review angles, and give the on-screen image that soft bokeh that leaves audiences in awe. Whether for live sports, concerts, worship services, news coverage or dynamic live entertainment, Canon has you covered with gorgeous optics and that captivating Canon color science. And Canon's Dual Pixel CMOS AutoFocus helps operators keep that shallow depth of field focus right where you want it.

Come explore Canon's systemized offerings and help take your production to the next level.



# BASIC SDI SETUP WITH CANON RC-V100

For workflows where fiber is not necessary, the cameras can be connected directly to a production switcher via SDI cables. The Canon RC-V100 can provide camera control over a 2.5mm to 3.5mm cable (Remote A) or an optional RS422 cable (Remote B). Both 4K and HD signals are supported.



## COMPONENTS

### CAMERA

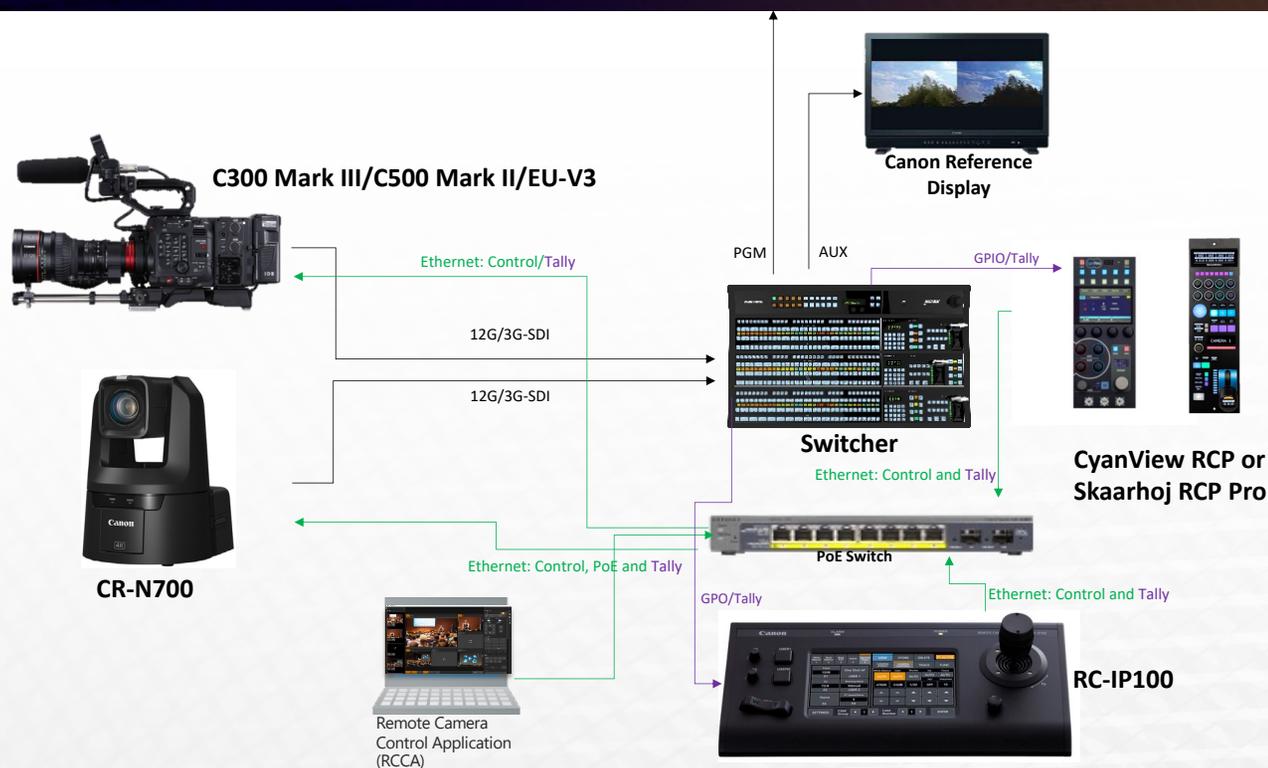
- Canon C500 Mark II and/or C300 Mark III
  - Optional Canon EU-V1, EU-V2 or EU-V3 Expansion Units (sold separately).
  - EU-V1 needed for Remote B operation. EU-V2 needed for Remote B, 12-pin servo lens power and V-lock battery power.
  - EU-V3 needed for Remote B, 12-pin and 4-pin XLR DC power input or V-lock battery power.
- If using CINE-SERVO or B4-mount lenses, Extension Cable 12P-12PCABLE 200MM H will be necessary
- SDI cables

### RCP

- Canon RC-V100 w/included 2.5mm to 3.5mm cable (Remote A)
- Optional Canon RR-10 (10m) or RR-100 (100m) 8-pin cable (Remote B)

# BASIC SDI SETUP WITH RC-IP100, THIRD-PARTY RCP CONTROLLERS

Where fiber is not necessary, connect the cameras directly to a production switcher using SDI cables. Through Canon's IP-enabled XC Protocol, the CyanView RCP or the Skaarhoj RCP Pro can control the cameras over an Ethernet network.



## COMPONENTS

### CAMERAS

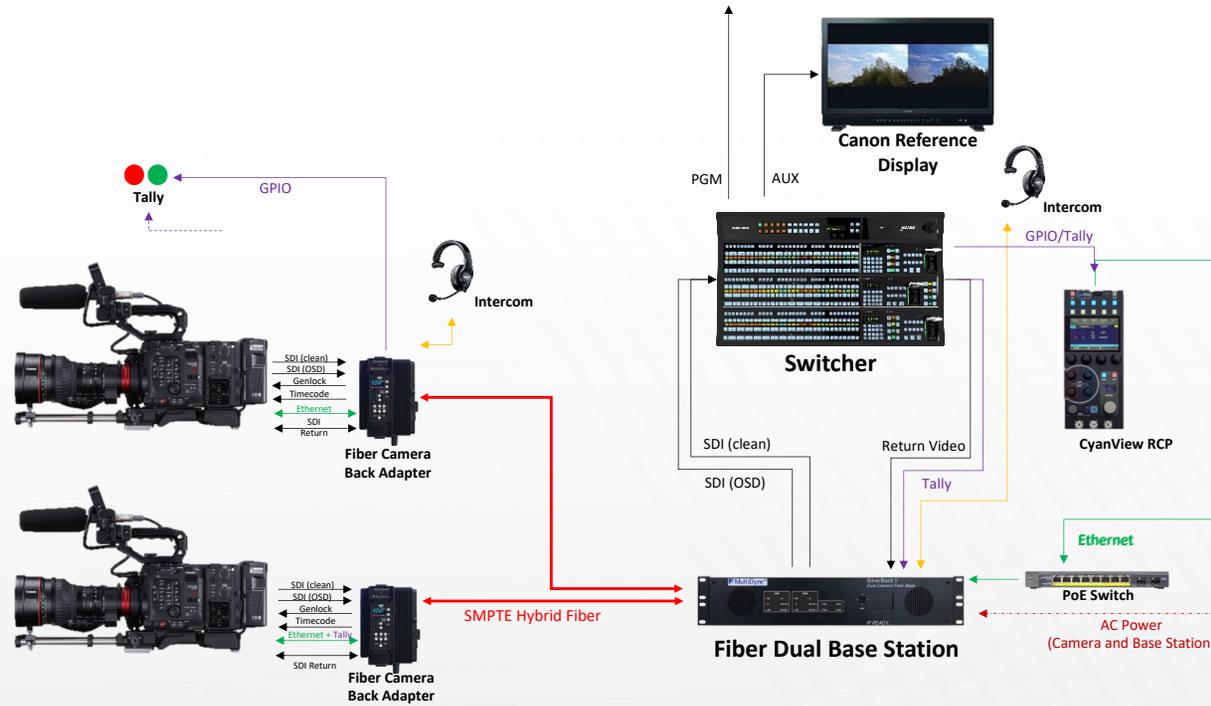
- Canon C500 Mark II and/or C300 Mark III
- Canon EU-V3 Expansion Unit
- If using CINE-SERVO or B4-mount lenses, Extension Cable 12P-12PCABLE 200MM H will be necessary
- CR-N300, CR-N500 or CR-N700 cameras
- SDI cables to connect fiber camera adapter
- Ethernet Cables

### RCP

- Canon RC-IP100
- Skaarhoj and CyanView Remote Control Panels
- Ethernet Cables
- PoE Ethernet Switch

# FIBER-BASED SETUP WITH CYANVIEW RCP

With the fiber-based workflow, another alternative remote option is the CyanView RCP. The RCP connects to a PoE Ethernet switch and controls the cameras remotely through an IP/Ethernet network.



## COMPONENTS

### CAMERA

- Canon C500 Mark II and/or C300 Mark III
- Canon EU-V3 Expansion Unit
- If using CINE-SERVO or B4-mount lenses, Extension Cable 12P-12PCABLE 200MM H will be necessary
- SDI cables to connect fiber camera adapter
- Ethernet Cables

### RCP

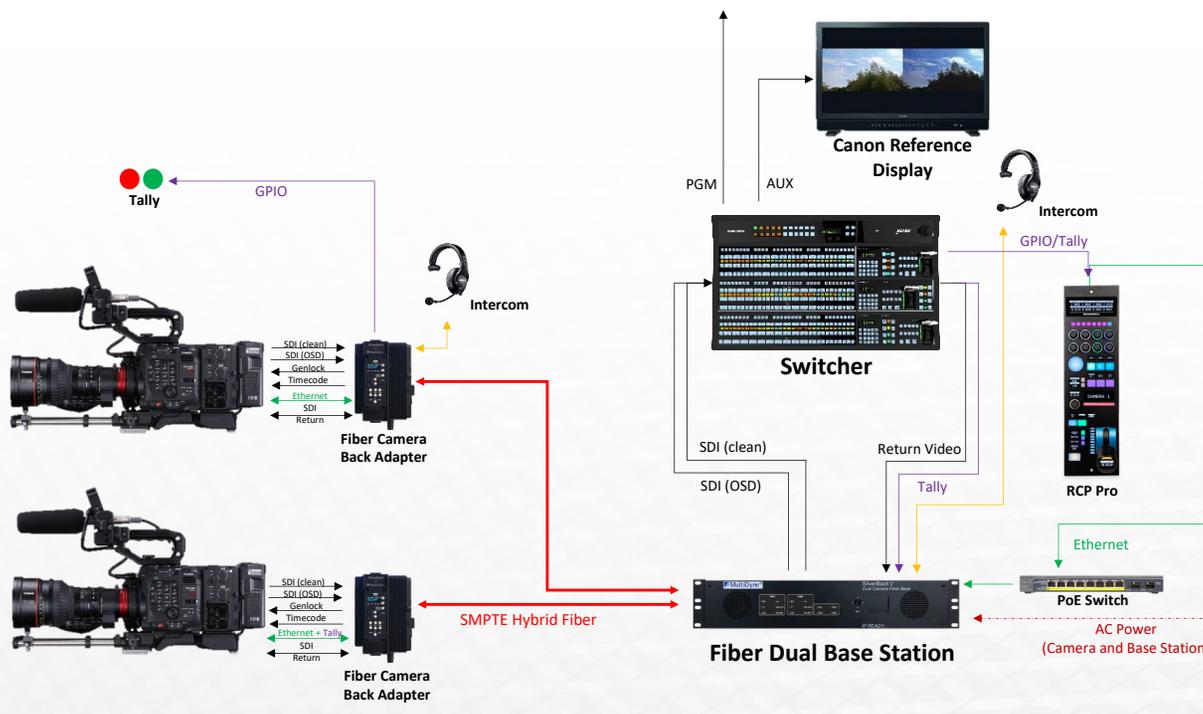
- CyanView RCP
- PoE Ethernet Switch
- Ethernet connection cables

### FIBER

- Fiber camera adapter(s) like Multidyne SilverBack V or SilverBack-VB
- Fiber base station(s) like Multidyne SilverBack-V or SilverBack-VB
- SMPTE-311 cable(s)
- SDI cables to connect fiber base station to switcher

# FIBER-BASED SETUP WITH SKAARHOJ RCP PRO

With the fiber-based workflow, an alternative remote option is the Skaarhoj RCP PRO. The RCP PRO connects to a PoE Ethernet switch and uses the Skaarhoj ETH-LANC link to convert the control protocol to Remote A.



## COMPONENTS

### CAMERA

- Canon C500 Mark II and/or C300 Mark III
- Canon EU-V3 Expansion Unit
- If using CINE-SERVO or B4-mount lenses, Extension Cable 12P-12PCABLE 200MM H will be necessary
- SDI cables to connect fiber camera adapter
- Ethernet Cables

### RCP

- Skaarhoj RCP PRO
- PoE Ethernet Switch
- Ethernet cables

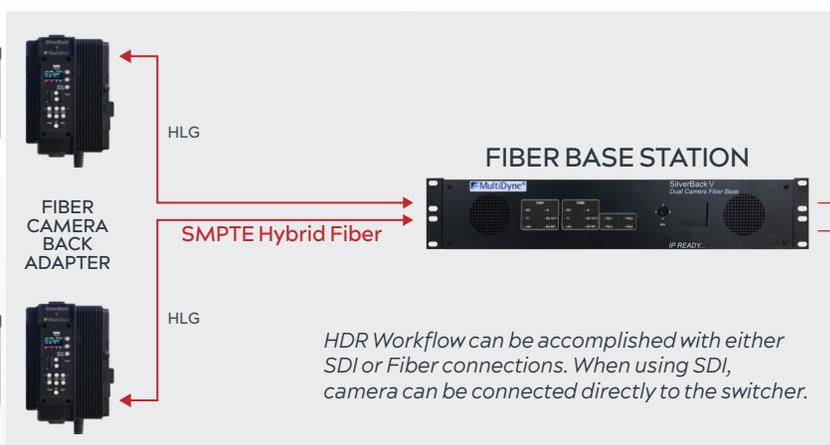
### FIBER

- Fiber camera adapter(s) like Multidyne SilverBack V or SilverBack-VB
- Fiber base station(s) like Multidyne SilverBack V or SilverBack-VB
- SMPTE-311 cable(s)
- SDI cables to connect fiber base station to switcher

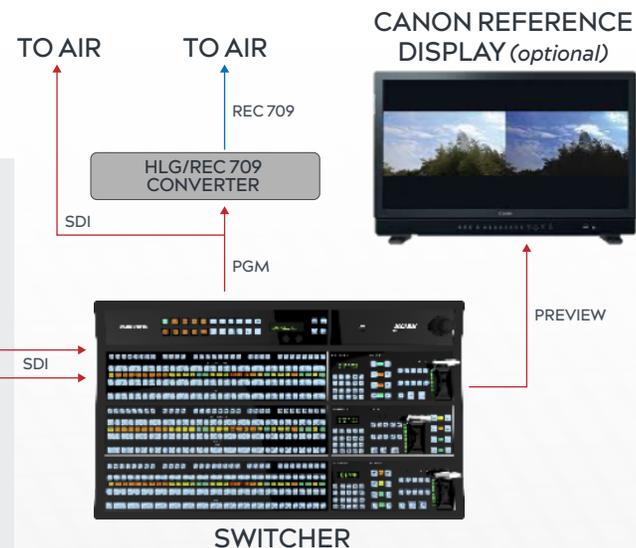
# HDR WORKFLOW (HYBRID LOG GAMMA)

An HDR workflow is possible by outputting the camera's HLG (Hybrid Log Gamma) signal.

C500 MARK II / C300 MARK III



RCPs not shown to simplify HDR/SDR signal path.



## COMPONENTS

### CAMERA

- Canon C500 Mark II and/or C300 Mark III
- Canon EU-V2 or EU-V3 Expansion Units (required for servo lens power and/or fiber adapter)
- If using CINE-SERVO or B4-mount lenses, Extension Cable 12P-12PCABLE 200MM H will be necessary
- SDI cables to connect fiber camera adapter
  - Custom Picture selection: Gamma: "HLG," Color Space: "BT.2020"

### SDR CONVERSION

- All signals will be encoded with HDR HLG
- If a REC 709 signal is required, the signal will need to be converted with an HDR/SDR converter or LUT box like the AJA FS-HDR

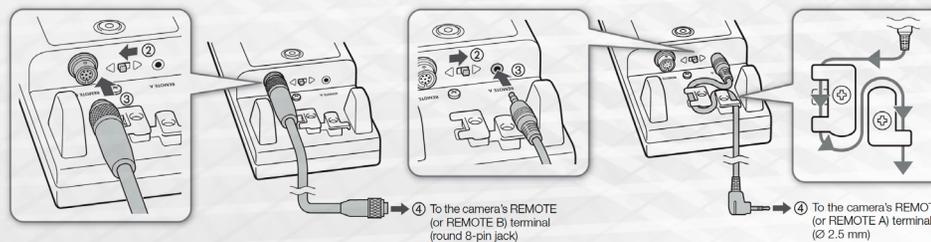
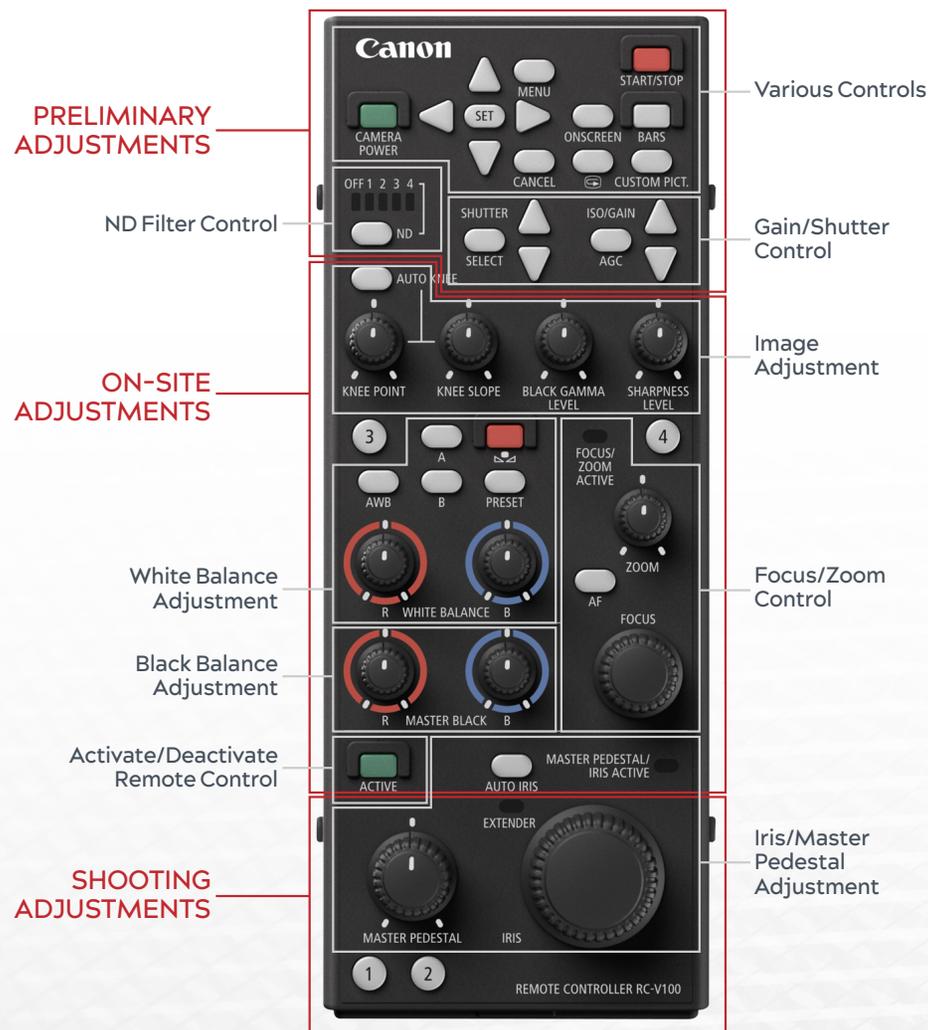
### MONITOR (optional)

- Professional Canon HDR Reference Display(s) like Canon DP-V series. These displays are capable of both HDR and SDR so no additional HDR/SDR converter is required

# SUPPORTED PARAMETERS

## CANON RC-V100

FOCUS	Manual adjustment AF mode
ZOOM (SERVO LENSES)	
IRIS	Manual adjustment Auto Iris
ISO/GAIN	AGC (Automatic Gain Control) Manual
SHUTTER	Value Mode
ND FILTERS	
WHITE BALANCE	R Gain B Gain AWB Presets
BLACK GAMMA	
MASTER BLACK	R Gain B Gain
MASTER PEDESTAL	
SHARPNESS	
COLOR BARS	
KNEE	Auto Knee Knee Point Knee Slope
ASSIGNABLE BUTTONS	(1-4)
CAMERA MENUS	
ONSCREEN DISPLAYS	
START/STOP REC	
RECORD REVIEW	
CAMERA POWER	



# SUPPORTED PARAMETERS

## CYANVIEW RCP

FOCUS (VIA TOUCH SCREEN ON RCP)

WHITE BALANCE

IRIS

GAIN

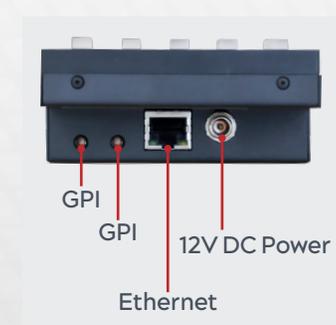
SHUTTER

ND FILTERS

MASTER BLACK

BLACK GAMMA

DETAIL



For complete information and support please refer to the CyanView website at: [www.CyanView.com](http://www.CyanView.com)

Cameras shown with optional accessories.

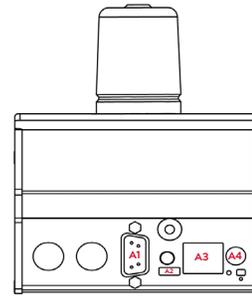
# SUPPORTED PARAMETERS

## SKAARHOJ RCP PRO

- FOCUS
- AUTO FOCUS
- ZOOM
- IRIS
- AUTO IRIS
- MASTER PEDESTAL
- PAINT: WHITE/BLACK: BLUE/RED
- WHITE BALANCE
- ISO/GAIN
- SHUTTER
- ND
- KNEE POINT
- KNEE SLOPE
- AUTO KNEE
- BLACK GAMMA
- SHARPNESS
- START/STOP
- RECORD REVIEW
- ASSIGNABLE BUTTON
- CUSTOM PICTURES
- BARS
- POWER
- MENU

## CONTROLLER USE

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



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

**POSITION UD**  
Undefined

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

### IRIS/CAM SELECT

Iris Control, when shifted, Camera Select

**M7**  
Shift level via toggle

B9	Auto Iris
B10	Auto Focus
B11	Auto Knee

	UPPER PRESS	LOWER PRESS
B13	Hold down: Hijacks main display to show actions for C1-C8	Hold down: Activates "Preview" relay on DB9 connector

### K1-K8

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

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

### C1-C8

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

**B7**  
Record Review

**B8**  
Custom Picture

### ID DISPLAY

Displays "CAMERA X" where X is set via K8 in *State > Menu > System/OSDD*

**M8**  
ND Filter

### ID TALLY

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

**IRIS**  
Displays Iris value

**LED BAR**  
Indicates Iris Value

**JOYSTICK**  
Controls Iris Value

**RING**  
Master Pedestal

**JOYSTICK BUTTON**  
Activates "Preview" relay on DB9 connector

For complete information and support please refer to the Skaarhoj website at: [www.skaarhoj.com](http://www.skaarhoj.com)

# CAMERA SETUP

<b>FIRMWARE VERSION</b>	<p>Please ensure that the latest firmware is installed. The current firmware version can be found in the [System Setup] menu. Visit <a href="http://usa.canon.com">usa.canon.com</a> to download the latest firmware for your camera.</p>
<b>CONFIGURE GENLOCK</b>	<p>When a reference sync signal (analog blackburst or tri-level signal) is input through the optional EU-V2 or EU-V3's G-LOCK/SYNC OUT. terminal, the phases of the camera's V and H sync will automatically be synchronized to it.</p> <ul style="list-style-type: none"><li>• Select MENU &gt; [System Setup] &gt; [G-LOCK/SYNC Term.] &gt; [Genlock Input].</li><li>• The phase difference between the external Genlock signal and the camera can be adjusted with the [System Setup] &gt; [Genlock Adjustment] setting.</li></ul>
<b>SDI OUTPUT CONFIGURATION</b>	<p>The camera features (2) SDI outputs; a 3G-SDI "MON." terminal" and a 12G "SDI OUT" terminal. Both outputs can be used simultaneously. The "SDI OUT" terminal is linked to the camera's internal recording resolution; the "MON. Terminal" is capable of a maximum of 2048x1080 resolution.</p> <ul style="list-style-type: none"><li>• To set the "MON. Terminal" select MENU &gt; [System Setup] &gt; [MON. Output Resolution] &gt; Desired option.</li><li>• To set the "SDI OUT" terminal select MENU &gt; [System Setup] &gt; [SDI OUT Output] &gt; [On].</li><li>• To set the "SDI OUT" terminal's resolution select MENU &gt; [Recording/Media Setup] &gt; [Resolution/Color Sampling] &gt; Desired option.</li></ul> <p><b>NOTES:</b></p> <ul style="list-style-type: none"><li>• Resolution/Color Sampling settings are only available when XF-AVC is selected as the "Main recording Format." When set to "RAW" the resolution is set automatically by the sensor mode.</li></ul>
<b>SELECT FRAME RATE</b>	<p>Select MENU &gt; [Recording/Media Setup] &gt; [Frame Rate].</p>
<b>SELECT CUSTOM PICTURE SETTINGS</b>	<p>Choose the Gamma/Color Space and Color Matrix to be used for the recorded and live output signal.</p> <ul style="list-style-type: none"><li>• Select MENU &gt; [Custom Picture] &gt; [Select CP File] &gt; Desired setting</li></ul> <p><b>NOTES:</b></p> <ul style="list-style-type: none"><li>• To adjust a Custom Picture setting with the RC-V100 or other RCP the file must be "Unprotected." To Unprotect a file, select MENU &gt; [Custom Picture] &gt; [Edit CP File] &gt; [Protect] &gt; [Unprotect].</li></ul>

# SUPPORTED FORMATS

## MON. TERMINAL / HDMI OUT TERMINAL VIDEO OUTPUT CONFIGURATION

(Recording/Playback)

Main recording video configuration / Configuration of the clip played back			Output Settings			Video output configuration (YCbCr 4:2:2, 10 bit signal) <sup>5</sup>			
Video Format <sup>1</sup>	Frame Rate <sup>2</sup>	Resolution	Scan Mode <sup>3</sup>	MON. resolution <sup>4</sup>	HDMI OUT resolution <sup>4</sup>	MON. Terminal	HDMI OUT terminal		
RAW	59.94P 50.00P 29.97P 25.00P 24.00P 23.98P	5952x3840 (C500 Mark II) 4096x2160	P	2048x1080 / 1920x1080	4096x2160 / 3840x2160	2048x1080	4096x2160		
				1920x1080	1920x1080	1920x1080			
				1280x720	1280x720	1280x720 <sup>6</sup>			
		2048x1080	P	2048x1080 / 1920x1080	4096x2160 / 3840x2160	2048x1080	1920x1080	1920x1080 <sup>7</sup>	1920x1080 <sup>8</sup>
				1920x1080	1920x1080	1920x1080			
				1280x720	1280x720	1280x720 <sup>6</sup>			
	59.94P 50.00P 29.97P 25.00P 24.00P 23.98P	4096x2160 3840x3260	P	2048x1080 / 1920x1080	4096x2160 / 3840x2160	2048x1080 1920x1080	4096x2160 3840x2160		
				1920x1080	1920x1080	1920x1080			
				1280x720	1280x720	1280x720 <sup>6</sup>			
		2048x2160 1920x1080	P	2048x1080 / 1920x1080	4096x2160 / 3840x2160	2048x1080 1920x1080	1920x1080	1920x1080 <sup>7</sup>	1920x1080 <sup>8</sup>
				1920x1080	1920x1080	1920x1080			
				1280x720	1280x720	1280x720 <sup>6</sup>			
59.94P 50.00P	1280x720	P	—	—	1280x720				
			—	—	1920x1080 <sup>7</sup>				
			—	—	1920x1080				
59.94i 50.00i	1920x1080	—	—	—	—	1920x1080			

<sup>1</sup> MENU > [  Recording/Media Setup] > [Main Rec Format] setting.

<sup>2</sup> In most cases (orange cells in the table), the output signal's frame rate will be the same as that used for recording (except when slow & fast motion recording is activated).

<sup>3</sup> MENU > [  System Setup] > [MON./HDMI Scan Mode] setting.

<sup>4</sup> MENU > [  System Setup] > [MON. Output Resolution] or [HDMI Max Res.] setting.

<sup>5</sup> The video signal's effective bit depth will be output.

<sup>6</sup> The output signal's frame rate is fixed and determined by the system frequency: 59.94P (59.94 Hz recordings), 50.00P (50.00 Hz recordings) or 60.00P (24.00 Hz recordings).

<sup>7</sup> The output signal's frame rate will be changed as follows: 59.94P or 23.98P → 59.94i, 29.97P → 29.97PsF, 50.00P → 50.00i, 25.00P and 24.00P → 60.00i.

<sup>8</sup> The output signal's frame rate is fixed and determined by the system frequency: 59.94i (59.94 Hz recordings), 50.00i (50.00 Hz recordings) or 60.00i (24.00 Hz recordings).

# REMOTE CONTROL AND OPTIONAL COMPONENTS

## CANON RC-V100



- Canon RC-V100
- Supplied remote cable – Remote A (2.5mm to 3.5mm)
- Optional RR-10 or RR-100 8-pin Remote Cable – Remote B (RS422)
- The Canon EU-V1, EU-V2 or EU-V3 Expansion Unit is required for Remote B (RS422) operation (Remote B allows for control over farther distances, simultaneous adjustment of zoom and focus, and slightly faster response).

## CYANVIEW RCP



- CyanView RCP
- Ethernet connection cables
- Ethernet switch supporting PoE

## SKAARHOJ RCP PRO



- Skaarhoj RCP PRO
- Ethernet connection cables
- Ethernet switch supporting PoE

## OPTIONAL COMPONENTS

- On-board monitor and mounting arm (the camera features an included 4.3" LCD monitor, however, a typical studio setup would include a larger monitor mounted to the rear of the camera for operators using broadcast-style zoom and focus controls)
- Pan Handle-mounted zoom and focus controls (e. g. Canon SS-41)
- Intercom Headset(s)
- Professional HDR Reference Display like Canon DP-V series
- Clip on tally light(s)
  - GPIO interface cable
  - or
  - PoE Ethernet Switch
  - Ethernet connection cables

# LENS CONTROL

## EQUIPMENT NEEDED

### ENG STYLE LENSES EF, PL, AND B4

EU-V2 or EU-V3 Expansion Units (*Lens Servo needs to be connected to the Hirose connector with an extension cable*)



### EF LENSES

Iris control is supported through the EF Mount



### FOCUS/ZOOM CONTROLLERS



## EU-V3

### EU-V3 RETURN INPUT SUPPORTED FORMATS

SDI	Resolution	Frame rate	p/f/psf
3G	1920x1080	59.94/50	P
HD	1920x1080	29.97/25/24/23.98	P
HD	1920x1080	29.97/25	PsF
HD	1920x1080	59.94/50	i

4K / DCI (17:9) / HD (1280x720) / SD are NOT supported

Camera output format and return input format should be same

### FOCUS POSITION GUIDE: SUPPORTED LENSES

Category	Model Name
CINE-SERVO EF	CN10 × 25 IAS S/E1 CN20 × 50 IAS H/E1 CN7 × 17 KAS S/E1 CN8 × 15 IAS S/E1
CINE-SERVO PL	CN10 × 25 IAS S/P1 CN20 × 50 IAS H/P1 CN7 × 17 KAS S/P1 CN8 × 15 IAS S/P1
COMPACT-SERVO	CN-E18-80mm T4.4 L IS KAS S CN-E70-200mm T4.4 L IS KAS S
B4, 2/3" Broadcast Lenses	HJ14ex4.3B IASE S HJ18ex7.6B IASE S HJ24ex7.5B IASE S HJ17ex7.6B IASE A HJ22ex7.6B IASE A CJ45ex9.7B IASE-V H CJ45ex13.6B IASE-V H CJ18ex7.6B IASE S CJ24ex7.5B IASE S CJ14ex4.3B IASE S CJ15ex4.3B IASE S CJ25ex7.6B IASE S/IRSE

### EU-V3 12V (HIROSE 4 PIN) PIN-OUTS



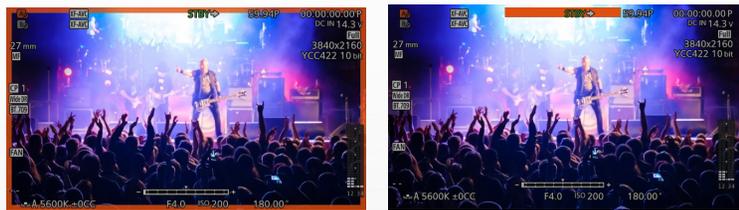
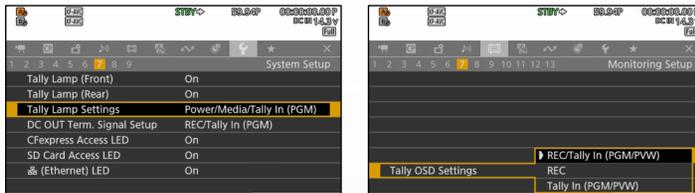
Pin Number

- |             |  |
|-------------|--|
| (1) GND     |  |
| (2) GP Out  | GPO Output Voltage rating: 15.0V[open collector(TBD)]<br>GPO Output Current Rating: 0.05[A](TBD) |
| (3) GP In   | GPI Input Voltage Rating: 15.0V[ $\pm$ (TBD)]<br>GPI Input Current Rating: 0.001[A](TBD)         |
| (4) 12V Out | GPI Input Voltage Rating: 15.0V[ $\pm$ (TBD)]<br>GPI Input Current Rating: 0.001[A](TBD)         |

# LENS CONTROL

## TALLY DISPLAY EXAMPLE

Supports Tally input via Ethernet using XC camera control protocol Enable to show tally OSD (Frame / Bar)



## FOCUS POSITION GUIDE

Register focus position and display color frame when focus position is set to registered point



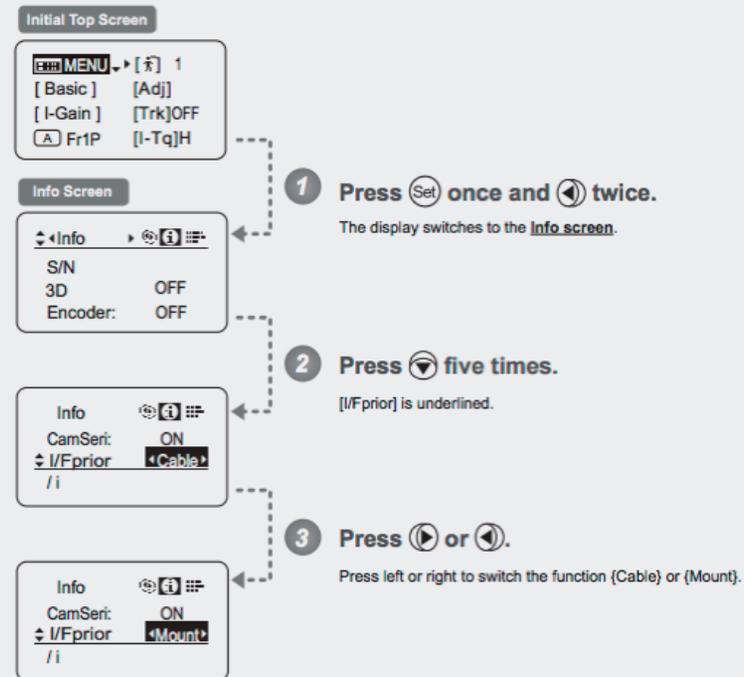
## SERVO LENS SETTINGS

In case the lens iris control does not operate properly, check the following settings in the lens display:

### Specifying the Input Route for Command Signals from the Camera

There are two input routes for command signals from the camera: via the mount and via the 12-pin cable. This setting specifies the input route for command signals from the camera. The default setting is "Mount," and in this case command signals received via the mount are given priority.

However, the command signals via the 12-pin cable are received automatically if no command signals are input via the mount. When the "Cable" setting is selected, only command signals received via the 12-pin cable are used.



# Canon

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