OR-M42HC-USB

4x2 HDMI/USB-C Matrix Multiviewer with USB Strolling

OPERATION MANUAL

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Version 1.1

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SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.
- Please completely disconnect the power when the unit is not in use to avoid wasting electricity.

VERSION HISTORY

REV.	DATE	SUMMARY OF CHANGE
v1.00	06/12/2024	Initial Release

CONTENTS

1. INTRODUCTION

This 4K@60 4 by 2 Matrix is a high performance HDMI/USB-C matrix switcher with integrated scaling, multi-window mode, and USB with mouse control interface. With the seamless switch feature, it is an ideal solution for monitoring or displaying multiple sources simultaneously for control rooms, conference rooms or classrooms. Any of 4 different sources including HDMI and USB-C may be displayed individually, full screen, or multi-window mode including quad mode, PiP, and PoP with the output being sent to 2 HDMI outputs. Management of input/window routing, position and sizing can be controlled easily by use the with a USB mouse. Video resolution is up to 4K@60Hz and LPCM audio 2 channel at 48kHz are supported on both input and output ports. This unit is fully compatible with the HDCP 1.x and 2.2 standards.

2. APPLICATIONS

- Conference call & meeting room presentation
- Show Room & Demo Room
- Lecture Room & Hall Presentation
- Public Commercial Display
- Multiview Video Monitoring

3. PACKAGE CONTENTS

- 1× 4K@60 4x2 Seamless Matrix with USB Docking
- 1× 24V/7.5A DC Power Adapter
- 1× Shockproof Feet (Set of 4)
- 1× 3-Pin Phoenix Connector
- 1× Operation Manual

4. SYSTEM REQUIREMENTS

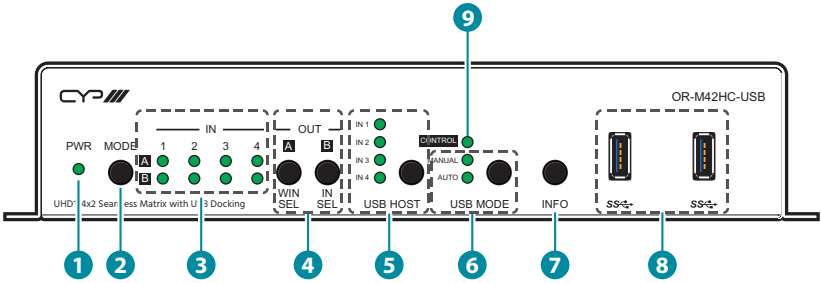
- HDMI or USB-C source equipment such as media players, video game consoles , PCs, or set-top boxes
- HDMI receiving equipment such as an HDTV, monitor or audio amplifier

5. FEATURES

- 2 HDMI inputs, 2 USB(Type-C) inputs and 2 HDMI outputs up to 4K@60 4:4:4
- Controllable via front panel buttons, Telnet, RS-232, and OSD via USB mouse and keyboard
- 2 USB Type-C Inputs support USB3.1 Gen1 to Ethernet and DP video
- Two USB Type-C ports respectively provide 45W and 30W of power to each connected device
- Supports PiP (Picture-in-Picture), PoP, quad mode display options with independent audio source selection or auto audio switch by following USB control function
- Seamless switching (no loss of sync to display) when switching sources in both matrix and multi-view modes
- Supports easy adjustment of window size, position and settings in the window mode via USB mouse
- Supports the ability to store a multi-window arrangement as a preset that can be recalled later
- Selected window will have a border to highlight the window that is being operated
- DVI 1.0 compatible with the use of an HDMI-DVI adaptor
- HDCP 1.x and 2.2 compliant

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



1. **PWR LED:** This LED will illuminate to indicate the unit is on and receiving power.

   Note: When layout selection is active the LED will blink.

2. **MODE Button:** Press this button to sequentially switch the operational mode between Dual Monitor (matrix), 2 Display, 3 Display, and 4 Display. Press and hold the button for 3 seconds will activate layout selection, and additional presses will sequentially step through the available layouts. Press and hold again to back out from layout selection.

3. **A~B/IN 1~4 LEDs:** In Matrix mode, these LED's indicate the currently selected sources (IN 1~4) routed to each of the two outputs (OUT A~B). When the unit is in a multi-windowing mode (PiP/PoP/Quad/Preset) all LEDs will be illuminated simultaneously.

4. **OUT A/B WIN/IN SEL Buttons:** In Matrix mode, press either of these buttons to activate source selection for the associated output. In multi-windowing modes (2/3/4 Display) OUT A/WIN SEL button will activate window selection, or additional presses will sequentially step through the available windows. Press OUT B/IN SEL button to sequentially switch the source for the currently selected window.

   Note: Press and hold OUT B button for 3 seconds will put the border highlighted window in Matrix mode. Press and hold again to back out from Matrix mode.

5. **USB HOST Button:** Press this button to sequentially switch the USB host ports. IN 1~2 selects the USB Type-C ports, and IN 3~4 selects the

USB Type-B ports on the unit.

Note: This button is disabled when USB mode is set to Auto.

IN 1~4 LEDs: The illuminated LED indicates which USB host port is currently active.

6. **USB MODE Button:** Press this button to enable or disable the automatic selection of the USB host port.

   MANUAL & AUTO LEDs: The illuminated LED indicates which mode is currently selected for USB.

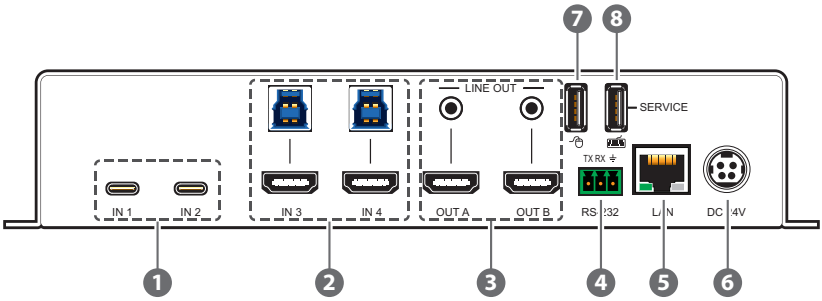
7. **INFO Button:** Press this button to activate the information OSD, additional presses will sequentially step through the available information OSD. Press and hold the button for 3 seconds will toggle between muting and unmuting the audio.

   Note: Press and hold this button when power up will reset the unit back to its factory default settings.

8. **USB 3.2 Device Ports (Type-A):** Connect directly to standard USB devices such as a mouse, keyboard or flash drive to extend their USB functionality to the host connected to the USB 3.2 Host Port.

9. **CONTROL LED:** This LED will illuminate to indicate the unit is in normal control mode. When the unit is in window lock mode the LED will be off.

6.2 Rear Panel



1. **USB-C IN 1~2 Ports:** Connect to USB Type-C host or video source equipment such as a PCs or laptops. When the USB-C port has "USB3.2" support active, this port can support 4K60 A/V, Ethernet, and USB simultaneously. When "USB3.2" is disabled, this port will support full bandwidth 4K60 A/V content but USB data functionality will be limited to USB 2.0 levels. Input 1 provides up to 45W and input 2 provides 30W of power to connected device.

   Note 1: Not all devices with USB Type-C ports can support video output. Please verify that the device supports video output from the USB Type-C port before attempting to use it as a video source.

   Note 2: When USB3.2 is enabled, the output resolution may vary from USB-C sources.

2. **HDMI IN 3~4 Ports:** Connect to HDMI source equipment such as media players, game consoles, or set-top boxes. DVI source are supported with the use of an HDMI to DVI adapter.

   USB 3.2 Host 3~4 Ports (Type-B): Connect directly to a standard USB hosts such as a PC or laptop to extend their USB functionality to all currently connected USB devices.

3. **HDMI OUT A~B Ports:** Connect to HDMI TVs, monitors, or amplifiers for digital video and audio output.

   LINE OUT Ports: Connect to powered speakers or amplifiers for analog stereo audio output.

4. **RS-232 CONSOLE 3-pin Terminal Block:** Connect directly to a PC, laptop, or other serial control device with a 3-pin adapter cable to send RS-232 commands to control the unit.

5. **LAN Port:** Connect directly, or through a network switch, to your PC/

laptop to control the unit via Telnet and to extend the network across the USB Type-B and Type-C ports.

6. **DC 24V Port:** Plug the 24V DC power adapter into this port and connect it to an AC wall outlet for power.

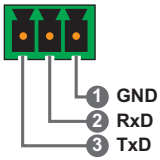
7. **USB 2.0 Mouse Port (Type-A):** Connect directly to standard USB devices such as a mouse to extend their USB functionality, or to control the unit.

9. **USB 2.0 Keyboard/Service Port (Type-A):** Connect directly to standard USB devices such as keyboard to extend their USB functionality, or to control the unit. Firmware update is also available on this port.

6.3 Serial Pinout and Defaults

Serial Port Default Settings	
Baud Rate	19200
Data Bits	8
Parity Bits	None
Stop Bits	1
Flow Control	None

3-pin Terminal Block



6.4 USB Control

6.4.1 USB Mouse

Some functions such as source selection, window reposition and resizing can be controlled by using the USB mouse which connect to the back of the unit.

1) **Input Select:** Right click on the mouse to select the video source for the border highlighted window.

   Note: It is recommended to open the OSD toolbar for full control of this function.

2) **Visual Layout Window:** When in a multi-windowing mode, individual windows may be moved and resized simply by clicking and dragging on them with the mouse. Click and drag a window to reposition it. Click and drag the edge of a window to manually resize it.

   Note: It is recommended to open the OSD toolbar for full control of this function.

4) **Seamless collaboration across multiple windows:** Integrate with multiple computers and USB devices for simultaneous collaboration.

5) **OSD Toolbar:** Double click on the mouse wheel to open or close the toolbar.

   Note: See section 6.4.3 for additional details on how to control toolbar.

6.4.2 USB Keyboard

Some functions such as window layout change, preset recall, and USB host select can be controlled by using the combination hotkey press with USB keyboard which connect to the back of the unit. The functions will be executed as soon as the keyboard button has been released.

Note: After pressing the combination hotkeys, all three USB MODE LEDs will blink to indicate that the function has been triggered.

1) **Window Layout Change:** Select the preferred layout mode of the unit.

   Note: Additional presses will sequentially step through the available layouts.

   - **[Alt] + [W] + [1]:** Switch to Dual Monitor mode.

- **[Alt] + [W] + [2]:** Switch to 2 Display mode.
- **[Alt] + [W] + [3]:** Switch to 3 Display mode.
- **[Alt] + [W] + [4]:** Switch to 4 Display mode.

2) **Recall Preset:** Select a preset to activate.
   - **[Alt] + [R] + [1]**: Recall preset 1.
   - **[Alt] + [R] + [2]:** Recall preset 2.
   - **[Alt] + [R] + [3]:** Recall preset 3.
3) **Switch USB Host:** Select the preferred window to control.
   - **[Alt] + [S] + [1]:** Switch USB host to window 1.
   - **[Alt] + [S] + [2]:** Switch USB host to window 2.
   - **[Alt] + [S] + [3]:** Switch USB host to window 3.
   - **[Alt] + [S] + [4]:** Switch USB host to window 4.
4) **Lock USB Host:** Enable window lock mode on the unit.

   Note 1: Below operations will automatically disabled the window lock mode and put the unit back to normal control mode.

   - Re-plug USB mouse.

   - Turn on OSD Toolbar.

   - Press "WIN SEL" button on the front panel.

   - Execute other keyboard hotkeys.

   Note 2: Android system and extended desktop will only be supported after enabling window lock mode.
   - **[Alt] + [L] + [1]:** USB host is fixed to window 1.
   - **[Alt] + [L] + [2]:** USB host is fixed to window 2.
   - **[Alt] + [L] + [3]:** USB host is fixed to window 3.
   - **[Alt] + [L] + [4]:** USB host is fixed to window 4.
5) **OSD Toolbar:**
   - **[Alt] + [T]:** Open or close the toolbar.

   Note: See section 6.4.3 for additional details on how to control toolbar.

6.4.3 OSD Toolbar

Some functions of this unit can be controlled by using the OSD (On Screen Display) toolbar which is activated by double clicking the mouse wheel, or use the keyboard hotkey [Alt] + [T]. Use the mouse navigate the OSD menu.

MAIN MENU
SETUP
2 DISPLAY
3 DISPLAY
4 DISPLAY
DUAL MONITOR
PRESET 1~3
SAVE

The individual functions of the OSD will be introduced in the following section. Items marked in BOLD are the factory default settings.

SETUP	
2ND LEVEL	**3RD LEVEL**
Resolution	4K60
	4K30
	1920x1080 60Hz
	1920x1200 60Hz
	1920x1440 60Hz
	2048x1152 60Hz
	2560x1080 60Hz
	2560x1440 60Hz
	2560x1600 60Hz
	4096x2160 30Hz
	4096x2160 60Hz
Audio Out	IN 1 (USB-C)
	IN 2 (USB-C)
	IN 3 (HDMI)
	IN 4 (HDMI)
	By Mouse
PIP Blending (Pip Layout Only)	Level 0
	Level 1
	Level 2
	Level 3
	Level 4
	Level 5
IN 1. USB3.2	Off
	On

SETUP	
2ND LEVEL	**3RD LEVEL**
IN 2. USB3.2	Off
	On

1) **Resolution:** Select the preferred video output resolution.

   Note: Both outputs always share the same resolution selection, even in Matrix mode.

2) **Audio Out:** Select the audio source for all output.

3) **PIP Blending (Pip Layout Only):** Set the transparency level of the small windows when under Pip layout.

4) **IN 1/2. USB3.2:** Enable or disable USB3.2 support on the USB-C port.

   Note: It is recommended to disable USB3.2 support when video output is unavailable.

MAIN MENU	
2ND LEVEL	**3RD LEVEL**
2 Display	
	
	
3 Display	
	
	

MAIN MENU	
2ND LEVEL	**3RD LEVEL**
4 Display	
	
	
	
Dual Monitor	 (Matrix Mode)
	
	
	
Preset 1~3	
Save	Preset1
	Preset2
	Preset3

1) **2~4 Display:** Select the preferred layout mode of the unit.

   Note: Both outputs will always output the same video.

2) **Dual Monitor:** Select the preferred layout mode of the unit.

3) **Preset 1~3:** Click a preset to activate the currently selected preset.

4) **Save Preset 1~3:** Click a preset to store the unit's current video window configuration to the currently selected preset.

6.4.4 Firmware Update

To update the firmware via USB, insert a USB stick containing the new firmware into the Service port and do either of the following steps. After the upgrade is complete, the unit will reboot automatically.

Note: The USB stick must contain, in the root directory, a compatible and properly named (.BIN) firmware file.*

1) **Front Panel Button:**
   - Insert a USB stick containing the new firmware into the Service port.
   - Press and hold the "MODE" button while power up the unit. The upload will occur immediately.
   - During the update process, the unit will be flashing the LEDs on the front of the unit. After the upgrade is complete, the unit will reboot automatically.
2) **Console Command:**
   - Insert a USB stick containing the new firmware into the Service port.
   - Type in console command "set system usb fw update" via Telnet or RS-232. The upload will occur immediately.
   - During the update process, the unit will be flashing the LEDs on the front of the unit. After the upgrade is complete, the unit will reboot automatically.

6.5 Telnet Control

Before attempting to use Telnet control, please ensure that both the unit and the PC are connected to the same active networks.

Start your preferred Telnet/Console client, or use the built in client provided by most modern computer operating systems. After starting the client, connect by using the current IP address of the unit and port 23 (if the communication port number used by the unit has not been changed previously). This will connect us to the unit we wish to control and commands may now be entered directly.

Note 1: If the IP address of the unit is changed then the IP address required for Telnet access will also change accordingly.

Note 2: This unit defaults to DHCP mode. The current IP address can be verified via the RS-232 if the Device Discovery software is not available. The default communication port is 23.

6.6 Serial and Telnet Commands

COMMAND Description and Parameters
help↵ Show the full command list.
help N1↵ Show details about the specified command. **N1** = {command}
?↵ Show the full command list.
? N1↵ Show details about the specified command. **N1** = {command}

COMMAND
Description and Parameters
get fw ver↵ Show the unit's current firmware version.
get command ver↵ Show the unit's current command version
get model name↵ Show the unit's model name.
get model type↵ Show the unit's product type.
set system reboot↵ Reboot the unit.
set factory default↵ Reset the unit to the factory defaults.
get update filename↵ Show the unit's update firmware filename.
set system usb fw update↵ Trigger the unit's firmware update state and load the new firmware file via USB.
set nickname N1↵ Set the name of the unit's nickname. Available values for **N1**: **N1** = {ASCII string} [Nickname]
get nickname↵ Show the name of the unit's nickname.

COMMAND
Description and Parameters
set feedback broadcast N1↵ Enable or disable the broadcast of console command feedback. Available values for **N1**: ON [Enable] OFF [Disable]
get feedback broadcast↵ Show the current console command feedback broadcast state.
set local echo N1↵ Enable or disable the local echo display of typed characters. Available values for **N1**: ON [Enable] OFF [Disable]
get local echo↵ Show the current local echo display setting.
set uart 1 baudrate N1↵ Set the baud rate of the RS-232 port. Available values for **N1**: 4800 [4800 baud] 9600 [9600 baud] 19200 [19200 baud] 38400 [38400 baud] 57600 [57600 baud] 115200 [115200 baud]
get uart 1 baudrate↵ Show the current baud rate of the RS-232 port.

COMMAND
Description and Parameters
get uart list↵ List all available RS-232 ports.
set ip mode N1↵ Set the unit's IP address assignment mode. Available values for **N1**: STATIC [Static IP mode] DHCP [DHCP mode]
get ip mode↵ Show the current IP address assignment mode.
get ipconfig↵ Show the unit's current IP configuration information.
get ipaddr↵ Show the unit's current IP address.
get netmask↵ Show the unit's current netmask.
get gateway↵ Show the unit's current gateway address.
set static ipaddr N1↵ Set the unit's static IP address. **N1** = X.X.X.X [X = 0~255, IP address]
get static ipaddr↵ Show the unit's current static IP address.

COMMAND	
Description and Parameters	
set static netmask N1↵ Set the unit's static netmask. **N1** = X.X.X.X	[X = 0~255, Netmask]
get static netmask↵ Show the unit's current static netmask.	
set static gateway N1↵ Set the unit's static gateway address. **N1** = X.X.X.X	[X = 0~255, Gateway address]
get static gateway↵ Show the unit's current static gateway address.	
get telnet maximum user↵ Show the maximum number of users allowed to connect simultaneously via Telnet.	
set telnet username N1↵ Set the Telnet login username. **N1** = {ASCII string}	[Telnet login username]
get telnet username↵ Show the current Telnet login username.	
set telnet password N1↵ Set the Telnet login password. **N1** = {ASCII string}	[Telnet password]
get telnet password↵ Show the current Telnet login password.	

COMMAND
Description and Parameters
set telnet port N1↵ Set the unit's Telnet access port. **N1** = 1~ 65535 [Telnet port number]
get telnet port↵ Show the unit's current Telnet access port.
set telnet login N1↵ Enable or disable requiring a login to access the unit via Telnet. Available values for **N1**: ON [Login required] OFF [No login required]
get telnet login↵ Show the current state of the Telnet login requirement.
set telnet mode N1↵ Enable or disable remote access the unit via Telnet. Available values for **N1**: ON [Enable] OFF [Disable]
get telnet mode↵ Show the current state of the Telnet access mode.
set telnet timeout N1↵ Set the Telnet inactivity timeout value. Available values for **N1**: 0 [Disabled] 1~65535 [Timeout in minutes]

COMMAND
Description and Parameters
get telnet timeout↵ Show the current Telnet inactivity timeout value.
set out N1 route N2↵ Route the specified input to the specified output. **N1** = A~B [HDMI output port] Available values for **N2**: 1 [USB-C input 1] 2 [USB-C input 2] 3 [HDMI input 3] 4 [HDMI input 4] *Note: Valid in matrix mode only.*
get out N1 route↵ Show which input is currently routed to the specified output. **N1** = A~B [HDMI output port] *Note: Valid in matrix mode only.*
set current route to preset N1↵ Save all current routing assignments to the specified preset. **N1** = 1~3 [Preset number]
set route preset N1 Activate the routing assignments saved in the specified preset. **N1** = 1~3 [Preset number]

COMMAND
Description and Parameters
set usb host N1 route 1↵ Route the specified USB host to the specified USB devices. Available values for **N1**: 1 [USB-C input 1] 2 [USB-C input 2] 3 [HDMI input 3] 4 [HDMI input 4] *Note: Valid in USB manual mode only.*
get usb host N1 route↵ Show the specified USB host that's routed to the specified USB devices. Available values for **N1**: 1 [USB-C input 1] 2 [USB-C input 2] 3 [HDMI input 3] 4 [HDMI input 4] *Note: Valid in USB manual mode only.*
set usb host auto mode N1↵ Set the automatic USB host switching behavior of the unit. Available values for **N1**: ON [Auto switching enabled] OFF [Auto switching disabled]
get usb host auto mode↵ Show the current automatic USB switching mode of the unit.

COMMAND	
Description and Parameters	
set usbc N1 3.0 mode N2↵	
Enable or disable USB3.2 support on the specified USB-C port.	
N1 = 1~2	[USB-C input port]
Available values for **N2**:	
ON	[USB3.2 support enabled]
OFF	[USB3.2 support disabled]
get usbc N1 3.0 mode↵	
Show the current USB3.2 support state for the specified USB-C port.	
N1 = 1~2	[USB-C input port]
set out A timing N1↵	
Set the output resolution to use for both outputs.	
Available values for **N1**:	
1	[3840x2160 60Hz(4K60)]
2	[3840x2160 30Hz(4K30)]
3	[1920x1080 60Hz]
4	[1920x1200 60Hz]
5	[1920x1440 60Hz]
6	[2048x1152 60Hz]
7	[2560x1080 60Hz]
8	[2560x1440 60Hz]
9	[2560x1600 60Hz]
10	[4096x2160 30Hz]
11	[4096x2160 60Hz]
get out A timing↵	
Show the index number of the current resolution used for both outputs.	

COMMAND
Description and Parameters
set window layout mode N1↵ Set the unit's display and window layout mode. Available values for **N1**: 1 [2 Display PoP] 2 [2 Display Top & Bottom] 3 [2 Display PiP] 4 [3 Display PoP] 5 [3 Display Top & Bottom] 6 [3 Display PiP] 7 [4 Display Quad] 8 [4 Display PoP] 9 [4 Display Top & Bottom] 10 [4 Display PiP] 11 [Dual Monitor Full] 12 [Dual Monitor PoP] 13 [Dual Monitor Top & Bottom] 14 [Dual Monitor PiP]
get window layout mode↵ Show the unit's current window layout mode.
set window N1 route N2↵ Set the input to route to the specified window in multiview. **N1** = 1~4 [Window number] Available values for **N2**: 1 [USB-C input 1] 2 [USB-C input 2] 3 [HDMI input 3] 4 [HDMI input 4] *Note: Valid in multi-windowing modes only.*

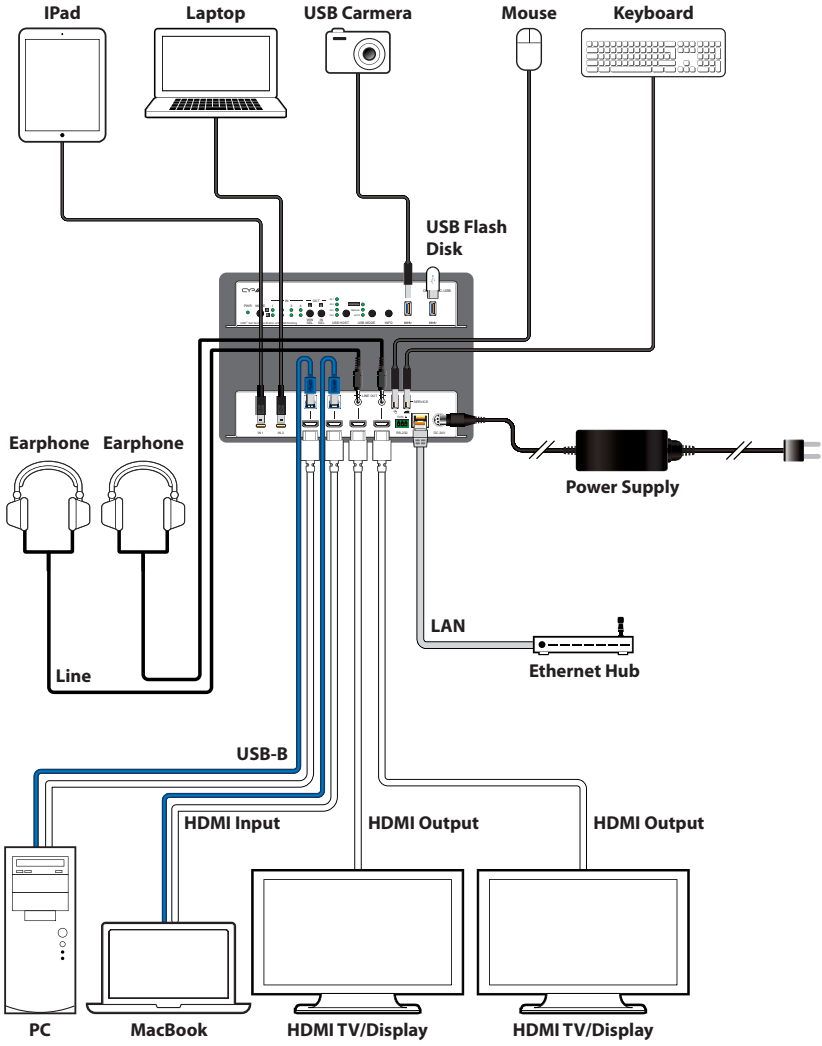
COMMAND
Description and Parameters
get window N1 route↵ Show the input currently routed to the specified window in multiview. **N1** = 1~4 [Window number] *Note: Valid in multi-windowing modes only.*
set audio out A mute N1↵ Enable or disable muting both audio outputs. Available values for **N1**: ON [Mute] OFF [Unmute]
get audio out A mute↵ Show the current mute state of both audio outputs.
set audio out A route N1↵ Route the specified audio source to both audio outputs. Available values for **N1**: 1 [USB-C input 1] 2 [USB-C input 2] 3 [HDMI input 3] 4 [HDMI input 4] 5 [USB mouse]
get audio out A route↵ Show the current audio input routed to both audio outputs.

COMMAND
Description and Parameters
get in N1 hdcp status↵ Show the current HDCP status of the specified input. Available values for **N1**: 1 [USB-C input 1] 2 [USB-C input 2] 3 [HDMI input 3] 4 [HDMI input 4] Possible response values: 0 [No HDCP] 1 [HDCP 1.x active] 2 [HDCP 2.2 active]
get out N1 hdcp status↵ Show the current HDCP status of the specified output. **N1** = A~B [HDMI output port] Possible response values: 0 [No HDCP] 1 [HDCP 1.x active] 2 [HDCP 2.2 active] 3 [HDCP 1.x failed] 4 [HDCP 2.x failed]
get out N1 hdcp ability↵ Show the HDCP compliance level of the display device connected to the specified output. **N1** = A~B [HDMI output port] Possible response values: 0 [No HDCP support] 1 [HDCP 1.x supported] 2 [HDCP 2.2 supported]

COMMAND
Description and Parameters
get in N1 hdcp ability↵ Show the HDCP compliance level of the source connected to the specified input. Available values for **N1**: 1 [USB-C input 1] 2 [USB-C input 2] 3 [HDMI input 3] 4 [HDMI input 4] Possible response values: 0 [No HDCP support] 1 [HDCP 1.x supported] 2 [HDCP 2.2 supported]

Note: Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specifications

HDMI Bandwidth	18Gbps
USB-C Bandwidth	21.6Gbps
Input Ports	2×HDMI (Type-A) 2×USB (Type-C)
Output Ports	2×HDMI (Type-A) 2×Stereo Audio (3.5mm)
Pass-through Ports	2×USB (Type-A) 2×USB (Type-B)
Pass-through/Control Ports	1×LAN (RJ-45) 2×USB (Type-A)
Control Ports	1×RS-232 (3-pin Terminal Block)
Pass-through/Service Port	1×USB 2.0 (Type-A) *Combined with USB of Keyboard
Baud Rate	19200
Power Supply	24V/7.5A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection (HBM)	±8kV (Air Discharge) ±4kV (Contact Discharge)
Dimensions (W×H×D)	213.5mm×44mm×158mm [Case Only] 231.5mm×49mm×163mm [All Inclusive]
Weight	1270g
Chassis Material	Metal (Steel)
Chassis Color	Black
Operating Temperature	0˚C – 40˚C/32˚F – 104˚F
Storage Temperature	-20˚C – 60˚C/-4˚F – 140˚F
Relative Humidity	20 – 90% RH (Non-condensing)
Power Consumption	140W

8.2 Video Specifications

Supported Resolutions (Hz)	Input		Output
	HDMI	USB-C	HDMI
720×400p@70/85	×	×	×
640×480p@60/72/75/85	✓	✓	×
720×480i@60	✓	×	×
720×480p@60	✓	✓	×
720×576i@50	✓	×	×
720×576p@50	✓	✓	×
800×600p@56/60/72	✓	✓	×
848×480p@60	✓	✓	×
1024×768p@60/70/75/85	✓	✓	×
1152×864p@75	✓	✓	×
1280×720p@50/60	✓	✓	×
1280×768p@60/75/85	60/75	60/75	×
1280×800p@60/75/85	60Hz	60Hz	×
1280×960p@60/85	✓	✓	×
1280×1024p@60/75/85	60/75	60/75	×
1360×768p@60	✓	✓	×
1366×768p@60	✓	✓	×
1400×1050p@60	✓	✓	×
1440×900p@60/75/85	✓	✓	×
1600×900p@60RB	✓	✓	×
1600×1200p@60	✓	✓	×
1680×1050p@60	✓	✓	×
1920×1080i@50/60	✓	✓	×

Supported Resolutions (Hz)	Input		Output
	HDMI	USB-C	HDMI
1920×1080p@24/25/30	✓	✓	×
1920×1080p@50/60	✓	✓	60Hz
1920×1200@60/60RB	✓	✓	60Hz
1920×1440p@60	✓	✓	✓
2560×1080p@60	✓	✓	✓
2560×1440p@60/60RB	60RB	60RB	60Hz
2560×1600p@60/60RB	60RB	60RB	60Hz
2048×1080p@24/25/30	×	×	×
2048×1080p@50/60	✓	✓	×
2048×1152p@60	×	×	✓
3840×2160p@24/25/30	✓	✓	30Hz
3840×2160p@50/60 (4:2:0)	✓	×	×
3840×2160p@24, HDR10	×	×	×
3840×2160p@50/60 (4:2:0),HDR10	×	×	×
3840×2160p@50/60/60RB	50/60	60RB	60Hz
4096×2160p@24/25/30	✓	✓	30Hz
4096×2160p@50/60 (4:2:0)	✓	×	×
4096×2160p@24, HDR10	×	×	×
4096×2160p@50/60 (4:2:0),HDR10	×	×	×
4096×2160p@50/60	✓	×	60Hz

8.3 Audio Specifications

8.3.1 Digital Audio

HDMI & USB-C Inputs / HDMI Outputs	
LPCM	
Max Channels	8 Channels
Sampling Rate (kHz)	32, 44.1, 48, 88.2, 96, 176.4, 192
Bitstream	
Supported Formats	Standard

8.3.2 Analog Audio

Analog Outputs	
Max Audio Level	2Vrms
THD+N	< –60dB@0dBFS 1kHz (A-wt)
SNR	> 70dB@0dBFS
Frequency Response	< ±3dB@20Hz~20kHz
Crosstalk	< –60dB@10kHz
Impedance	470Ω
Type	Unbalanced

8.4 Cable Specifications

Cable Length	HD	FHD	4K UHD	4K UHD+	8K UHD
High Speed HDMI Cable					
HDMI Input	15m	10m	5m	3m	×
HDMI Output	15m	10m	5m	3m	×
USB-C Cable					
USB-C Input	2m			1m	×

Bandwidth Category Examples:

- **HD Video**
  - 720p@60Hz
  - HDMI transmission rates lower than 3Gbps
  - HD-SDI (SMPTE 292M, 1.485Gbps)
- **FHD Video**
  - 1080p@60Hz
  - HDMI transmission rates between 3Gbps and 5.3Gbps
  - 3G-SDI (SMPTE 424M, 2.970Gbps)
- **4K UHD Video**
  - 4K@24/25/30Hz (8-bit color) & 4K@50/60Hz (4:2:0, 8-bit color)
  - HDMI transmission rates between 5.3Gbps and 10.2Gbps
  - 6G-SDI (SMPTE ST 2081, 6Gbps)
- **4K UHD^{+} Video**
  - 1080p@120Hz (10/12-bit HDR)
  - 4K@50/60Hz (4:4:4, 8-bit) & 4K@50/60Hz (4:2:0, 10/12-bit HDR)
  - HDMI transmission rates between 10.2Gbps and 18Gbps
  - 12G-SDI (SMPTE ST 2082, 12Gbps)
- **8K UHD Video**
  - 4K@120Hz (10/12-bit HDR)
  - 8K@24/25/30Hz (10/12-bit HDR) & 8K@50/60Hz (4:2:0, 8-bit color)
  - HDMI transmission rates between 18Gbps and 48Gbps
  - 24G-SDI (SMPTE ST 2083, 24Gbps)

9. ACRONYMS

ACRONYM	COMPLETE TERM
4K UHD	4K Ultra-High-Definition (10.2Gbps max)
4K UHD+	4K Ultra-High-Definition (18Gbps max)
ADC	Analog-to-Digital Converter
ASCII	American Standard Code for Information Interchange
AV	Audio/Video
Cat.5e	Enhanced Category 5 cable
Cat.6	Category 6 cable
Cat.6A	Augmented Category 6 cable
Cat.7	Category 7 cable
CEC	Consumer Electronics Control
CLI	Command-Line Interface
dB	Decibel
DHCP	Dynamic Host Configuration Protocol
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
GbE	Gigabit Ethernet
Gbps	Gigabits per second
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDTV	High-Definition Television
HID	Human Interface Device
HPD	Hot Plug Detection
IP	Internet Protocol
kHz	Kilohertz

ACRONYM	COMPLETE TERM
LAN	Local Area Network
LED	Light-Emitting Diode
LPCM	Linear Pulse-Code Modulation
MAC	Media Access Control
MHz	Megahertz
OSD	On-Screen Display
PD	Powered Device
PiP	Picture in Picture
PoP	Picture outside of Picture
PSE	Power Sourcing Equipment
S/PDIF	Sony/Philips Digital Interface Format
SNR	Signal-to-Noise Ratio
TCP	Transmission Control Protocol
UAC	USB Audio Class
UHDTV	Ultra-High-Definition Television
USB	Universal Serial Bus
UVC	USB Video Class
VLAN	Virtual LAN
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduced Blanking)
XGA	Extended Graphics Array
Ω	Ohm

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