



**4K2K**  
**HDCP2.2**



# QU-4-4K22

1 to 4 Full 4K HDMI Distribution Amplifier

**OPERATION MANUAL**

**HDMI**<sup>®</sup>  
HIGH-DEFINITION MULTIMEDIA INTERFACE

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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.

## REVISION HISTORY

VERSION NO.	DATE	SUMMARY OF CHANGE
v1.00	19/04/2018	First release

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## 1. INTRODUCTION

This QU-4-4K22 is more than just a Distribution Amplifier, it provides high performance audio and video support including HDR and other features defined by the HDMI 2.0a specification. 4K UHD HDMI video sources, up to and including 4K@60Hz (4:4:4, 8-bit) as well as 10/12-bit sources with HDR, are able to be 'Split' to the 4 x HDMI outputs. Pass-through of multiple digital audio formats such as LPCM 7.1, Bitstream and advanced HD Bitstream with audio sampling rates up to 192kHz are also supported. An independent HDCP management engine for each output ensures stable HDCP performance.

When a mixture of displays with different specifications and resolutions are connected, each output can automatically scale 4K to 1080p or apply colour space conversion (4:4:4 to 4:2:0), as appropriate, based on each connected display's EDID requirements. CEC "active source" command can be enabled to periodically reset input selection on CEC compatible connected displays. This unit is controlled via front-panel switches with easy to read status LED's.

## 2. APPLICATIONS

/// Classroom and Lecture Hall Presentations

/// Showrooms and Demo Rooms

/// Hotel Lobby information Displays

/// Public Commercial Displays

## 3. PACKAGE CONTENTS

/// 1xHDMI Splitter

/// 1x5V/2.6A DC Power Adapter

/// 1xShockproof Feet (Set of 4)

/// 1xOperation Manual

## 4. SYSTEM REQUIREMENTS

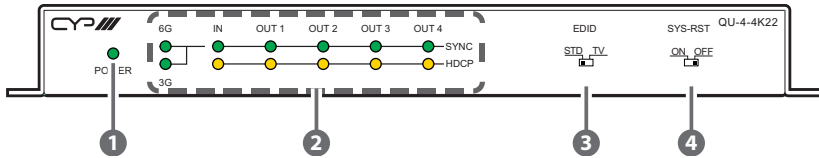
- /// HDMI source equipment such as a media player, video game console or set-top box.
- /// HDMI receiving equipment such as HDTVs, monitors or audio amplifiers.
- /// The use of "Premium High Speed HDMI" cables is highly recommended.

## 5. FEATURES

- /// HDMI with HDR, 3D & 4K@60Hz support, DVI 1.0 compatible
- /// HDCP 2.2 and HDCP 1.x compliant
- /// 1 HDMI input and 4 HDMI outputs
- /// Supports up to 4K UHD (18Gbps, 4K@50/60Hz 4:4:4, 8-bit) video signals
- /// Supports current 10-bit and 12-bit HDR (High Dynamic Range) formats
- /// Supports pass-through of LPCM 7.1, Bitstream and advanced HD Bitstream audio formats
- /// Automatic 4K to 1080p down-scaling and colour space conversion (4:4:4 to 4:2:0) for each independent output based on each connected display's EDID
- /// Independent HDCP management engine for each output ensures stable HDCP performance
- /// Simple to use EDID management options
- /// Support for the CEC "active source" command to periodically reset input selection on CEC-compatible connected displays
- /// Controllable via front-panel switches

## 6. OPERATION CONTROLS AND FUNCTIONS

### 6.1 Front Panel



- 1 POWER LED:** This LED will illuminate to indicate the unit is on and receiving power.
- 2 6G LED:** When the input source bandwidth is above 340MHz, the 6G LED will illuminate.

**3G LED:** When the input source bandwidth is between 275MHz and 340MHz, the 3G LED will illuminate.

**IN HDCP LED:** When HDCP is required by the input source, this LED will illuminate. If no HDCP is detected, the LED will remain off.

**OUT 1~4 HDCP LEDs:** When a connected display supports HDCP and HDCP is active, the LED for that output will illuminate. If HDCP is not active, the LED will remain off.

**IN SYNC LED:** When sync from a live source has been detected on the input, this LED will illuminate. If no source is detected, the LED will remain off.

**OUT 1~4 SYNC LEDs:** When a live source is being sent to a connected display, the associated LED will illuminate. If no display is connected or no signal is being passed, the LED will remain off.
- 3 EDID:** This switch selects the EDID that is provided to the input.

**TV Mode:** The “TV Mode” setting copies the EDID from the display connected to output 1 and passes it to the input.

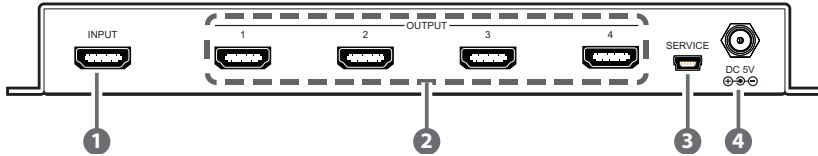
*Note: If the connected outputs are a mixture of HDMI and DVI displays, the EDID’s colour space will be set to RGB for compatibility reasons.*

**STD Mode:** The “Standard Mode” setting provides a pre-defined internal EDID (3840×2160@60Hz, RGB, LPCM 2.0) to the input.
- 4 SYS-RST:** Controls the CEC “active source” reset functionality of the unit. When switched to the “ON” position the unit will send a CEC active source reset command to all connected displays every 8~10 minutes. This command requests that any connected CEC compliant

TVs switch to the input the unit is connected on.

*Note: This function is ideal for TV displays where the public has access to the controls and might switch the input away from the preferred source.*

## 6.2 Rear Panel

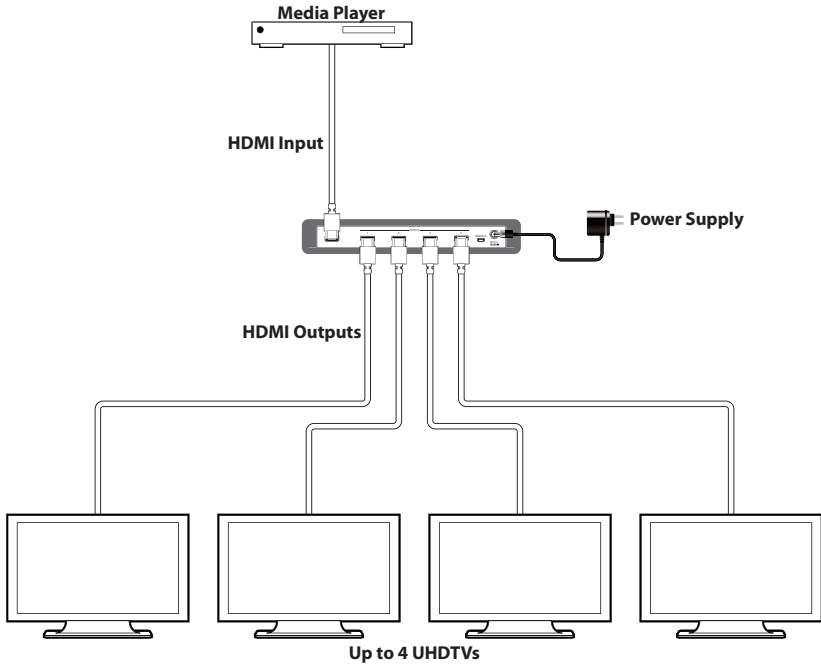


- 1 INPUT:** Connect to HDMI source equipment such as a media player, game console or set-top box.
- 2 OUTPUT 1~4:** Connect to HDMI TVs, monitors or amplifiers for digital video and audio output.

*Note: This unit employs automatic 4K to 1080p down-scaling and colour space conversion (4:4:4 to 4:2:0) for each independent output based on each connected display's EDID. If a display cannot support the source's 4K resolution/timing, the signal will be converted.*

- 3 SERVICE:** This slot is reserved for firmware update use only.
- 4 DC 5V:** Plug the 5V DC power adapter into this port and connect it to an AC wall outlet for power.

## 7. CONNECTION DIAGRAM



## 8. SPECIFICATIONS

### 8.1 Technical Specifications

<b>HDMI Bandwidth</b>	600MHz/18Gbps
<b>Input Port</b>	1×HDMI
<b>Output Ports</b>	4×HDMI
<b>HDMI Cable Distance</b>	5m, 4K@60Hz (YUV 4:4:4, 8-bit) 10m, 1080p@60Hz (12-bit) 15m, 1080p@60Hz (8-bit)
<b>Power Supply</b>	5V/2.6A DC (US/EU standards, CE/FCC/UL certified)
<b>ESD Protection</b>	Human Body Model: ±8kV (Air Discharge) ±4kV (Contact Discharge)
<b>Dimensions</b>	231.5mm×25mm×108mm (W×H×D) [Case Only] 231.5mm×30mm×117mm (W×H×D) [All Inclusive]
<b>Weight</b>	608g
<b>Chassis Material</b>	Metal
<b>Silkscreen Colour</b>	Black
<b>Operating Temperature</b>	0 °C–40 °C/32 °F–104 °F
<b>Storage Temperature</b>	-20 °C–60 °C/-4 °F–140 °F
<b>Relative Humidity</b>	20–90% RH (Non-condensing)
<b>Power Consumption</b>	3.08W

## 8.2 Video Specifications

Resolutions/Timing (Hz)	Support		Can Convert to 1080p	Can Convert to 4:2:0
	In	Out		
640×480p@60	✓	✓	✗	✗
640×480p@72	✓	✓	✗	✗
640×480p@75	✓	✓	✗	✗
640×480p@85	✓	✓	✗	✗
720×400p@70	✓	✓	✗	✗
720×400p@85	✓	✓	✗	✗
720×480i@59	✓	✓	✗	✗
720×480i@60	✓	✓	✗	✗
720×480p@59	✓	✓	✗	✗
720×480p@60	✓	✓	✗	✗
720×576i@50	✓	✓	✗	✗
720×576p@50	✓	✓	✗	✗
800×600p@56	✓	✓	✗	✗
800×600p@60	✓	✓	✗	✗
800×600p@72	✓	✓	✗	✗
800×600p@75	✓	✓	✗	✗
800×600p@85	✓	✓	✗	✗
848×480p@60	✓	✓	✗	✗
1024×768p@60	✓	✓	✗	✗
1024×768p@70	✓	✓	✗	✗
1024×768p@75	✓	✓	✗	✗
1024×768p@85	✓	✓	✗	✗
1152×864p@70	✓	✓	✗	✗
1152×864p@75	✓	✓	✗	✗

Resolutions/Timing (Hz)	Support		Can Convert to 1080p	Can Convert to 4:2:0
	In	Out		
1152x864p@85	✓	✓	✗	✗
1280x720p@23	✗	✗	✗	✗
1280x720p@24	✗	✗	✗	✗
1280x720p@25	✓	✓	✗	✗
1280x720p@29	✓	✓	✗	✗
1280x720p@30	✓	✓	✗	✗
1280x720p@50	✓	✓	✗	✗
1280x720p@59	✓	✓	✗	✗
1280x720p@60	✓	✓	✗	✗
1280x768p@60	✓	✓	✗	✗
1280x768p@60 (RB)	✓	✓	✗	✗
1280x768p@75	✓	✓	✗	✗
1280x768p@85	✓	✓	✗	✗
1280x800p@60	✓	✓	✗	✗
1280x800p@60 (RB)	✓	✓	✗	✗
1280x800p@75	✓	✓	✗	✗
1280x800p@85	✓	✓	✗	✗
1280x960p@60	✓	✓	✗	✗
1280x960p@85	✓	✓	✗	✗
1280x1024p@60	✓	✓	✗	✗
1280x1024p@75	✓	✓	✗	✗
1280x1024p@85	✓	✓	✗	✗
1360x768p@60	✓	✓	✗	✗
1366x768p@60 (RB)	✓	✓	✗	✗
1366x768p@60	✓	✓	✗	✗

Resolutions/Timing (Hz)	Support		Can Convert to 1080p	Can Convert to 4:2:0
	In	Out		
1400×1050p@60	✓	✓	✗	✗
1400×1050p@60 (RB)	✓	✓	✗	✗
1440×900p@60	✓	✓	✗	✗
1440×900p@60 (RB)	✓	✓	✗	✗
1440×900p@75	✓	✓	✗	✗
1600×900p@60 (RB)	✓	✓	✗	✗
1600×1200p@50	✗	✗	✗	✗
1600×1200p@60	✓	✓	✗	✗
1600×1200p@65	✓	✓	✗	✗
1600×1200p@70	✓	✓	✗	✗
1600×1200p@75	✓	✓	✗	✗
1600×1200p@85	✓	✓	✗	✗
1680×1050p@60	✓	✓	✗	✗
1680×1050p@60 (RB)	✓	✓	✗	✗
1920×1080p@23	✓	✓	✗	✗
1920×1080p@24	✓	✓	✗	✗
1920×1080p@25	✓	✓	✗	✗
1920×1080p@29	✓	✓	✗	✗
1920×1080p@30	✓	✓	✗	✗
1920×1080p@50	✓	✓	✗	✗
1920×1080p@59	✓	✓	✗	✗
1920×1080p@60	✓	✓	✗	✗
1920×1080i@50	✓	✓	✗	✗
1920×1080i@59	✓	✓	✗	✗
1920×1080i@60	✓	✓	✗	✗

Resolutions/Timing (Hz)	Support		Can Convert to 1080p	Can Convert to 4:2:0
	In	Out		
1920×1200p@60 (RB)	✓	✓	✗	✗
2560×1600p@60 (RB)	✗	✗	✗	✗
2048×1080p@23	✓	✓	✗	✗
2048×1080p@24	✓	✓	✗	✗
2048×1080p@25	✓	✓	✗	✗
2048×1080p@29	✓	✓	✗	✗
2048×1080p@30	✓	✓	✗	✗
2048×1080p@50	✓	✓	✗	✗
2048×1080p@59	✓	✓	✗	✗
2048×1080p@60	✓	✓	✗	✗
3840×2160p@23 (4:2:2)	✓	✓	✓	✗
3840×2160p@24 (4:2:2)	✓	✓	✓	✗
3840×2160p@25 (4:2:2)	✓	✓	✓	✗
3840×2160p@29 (4:2:2)	✓	✓	✓	✗
3840×2160p@30 (4:2:2)	✓	✓	✓	✗
3840×2160p@50 (4:2:0)	✓	✓	✓	✗
3840×2160p@59 (4:2:0)	✓	✓	✓	✗
3840×2160p@60 (4:2:0)	✓	✓	✓	✗
3840×2160p@23 (4:4:4)	✓	✓	✓	✗
3840×2160p@24 (4:4:4)	✓	✓	✓	✗
3840×2160p@25 (4:4:4)	✓	✓	✓	✗
3840×2160p@29 (4:4:4)	✓	✓	✓	✗
3840×2160p@30 (4:4:4)	✓	✓	✓	✗
3840×2160p@50 (4:4:4)	✓	✓	✓	✓
3840×2160p@59 (4:4:4)	✓	✓	✓	✓

Resolutions/Timing (Hz)	Support		Can Convert to 1080p	Can Convert to 4:2:0
	In	Out		
3840×2160p@60 (4:4:4)	✓	✓	✓	✓
4096×2160p@23 (4:2:2)	✓	✓	✓	✗
4096×2160p@24 (4:2:2)	✓	✓	✓	✗
4096×2160p@25 (4:2:2)	✓	✓	✓	✗
4096×2160p@29 (4:2:2)	✓	✓	✓	✗
4096×2160p@30 (4:2:2)	✓	✓	✓	✗
4096×2160p@50 (4:2:0)	✓	✓	✓	✗
4096×2160p@59 (4:2:0)	✓	✓	✓	✗
4096×2160p@60 (4:2:0)	✓	✓	✓	✗
4096×2160p@23 (4:4:4)	✓	✓	✓	✗
4096×2160p@24 (4:4:4)	✓	✓	✓	✗
4096×2160p@25 (4:4:4)	✓	✓	✓	✗
4096×2160p@29 (4:4:4)	✓	✓	✓	✗
4096×2160p@30 (4:4:4)	✓	✓	✓	✗
4096×2160p@50 (4:4:4)	✓	✓	✓	✓
4096×2160p@59 (4:4:4)	✓	✓	✓	✓
4096×2160p@60 (4:4:4)	✓	✓	✓	✓

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
<b>CEC</b>	Consumer Electronics Control
<b>DVI</b>	Digital Visual Interface
<b>EDID</b>	Extended Display Identification Data
<b>HD</b>	High-Definition
<b>HDCP</b>	High-bandwidth Digital Content Protection
<b>HDMI</b>	High-Definition Multimedia Interface
<b>HDR</b>	High Dynamic Range
<b>LPCM</b>	Linear Pulse-Code Modulation
<b>UHD</b>	Ultra-High Definition
<b>USB</b>	Universal Serial Bus
<b>VGA</b>	Video Graphics Array (640×480@60Hz)
<b>WUXGA</b>	Wide Ultra Extended Graphics Array (1920×1200@60Hz)







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