AVX-101C-KIT

UHD+ HDMI over CAT 5 Transmitter & Receiver

OPERATION MANUAL

HIGH-DEFINITION MULTIMEDIA INTERFACE

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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	2021/07/09	Preliminary release (RDV1)

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1. INTRODUCTION

This 4K UHD+ HDMI over CAT Transmitter and Reciever Set is designed for high-quality AV extension with minimum latency. By using a sophisticated ultra-light compression scheme (lossless for most content) it's a great solution for extending 4K@60Hz (4:4:4) HDMI audio/video streams. Advanced HDMI content such as HDR (High Dynamic Range), 10-bit colour and multi-channel HD Bitstream audio can be easily transmitted. The use of 10 Gigabit Ethernet allows for extension distances of up to 100m when using Cat.6A/7. Additionally, this unit's compact form factor makes it ideal for installation in tight spaces, or inclusion in A/V travel kits.

2. APPLICATIONS

- High quality, low latency, video extension
- Household entertainment
- Lecture halls, meeting rooms, and classrooms
- Point-to-Point secure video conferencing

3. PACKAGE CONTENTS

- 1× UHD+ HDMI over Copper Transmitter
- 1× 5V/2.6A DC Power Adapter
- 1× Shockproof Feet (Set of 4)
- 1× Operation Manual

4. SYSTEM REQUIREMENTS

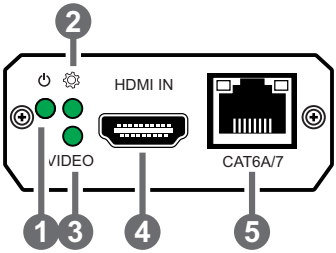
- HDMI source equipment such as a media player, video game console, PC, or set-top box
- Compatible copper-based receiver
- The use of Premium High Speed HDMI cables, and industry standard Cat.6A, or Cat.7 Ethernet cable is highly recommended.

5. FEATURES

- HDMI 2.0 and DVI 1.0 compatible
- HDCP 2.2 and HDCP 1.x compliant
- 1 HDMI input
- 1 10GbE output
- Ultra-light compression, lossless for most content
- Extension up to 100m when using at.6A/7
- Supports up to 4K UHD+ (18Gbps, 4K@50/60Hz 4:4:4, 8-bit) video input and output
- Supports pass-through of 10/12-bit HDR sources
- Supports pass-through of audio formats including LPCM (up to 8 channels), Bitstream and HD Bitstream
- Simple, hassle free, point-to-point connection

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Transmitter Front Panel



1. **Power (⏻) LED:** This LED will illuminate to indicate the unit is on and receiving power.

   Note: This LED will blink during the firmware update process.

2. **System (☼) LED:** This LED will illuminate to indicate that the system is stable and ready to process audio/video streams.

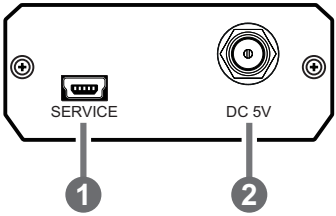
   Note: This LED will blink during the firmware update process.

3. **VIDEO LED:** This LED will illuminate to indicate that the video source is stable, and streaming is in process.

4. **HDMI IN Port:** Connect to HDMI source equipment such as a media player, game console, or set-top box.

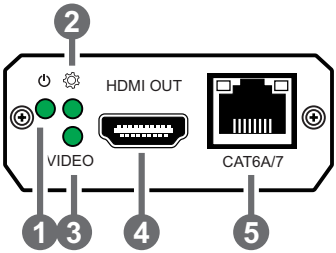
5. **CAT6A/7 Port:** Connect directly to a compatible receiver for audio and video extension.

6.2 Transmitter Rear Panel



1. **SERVICE (USB Mini-B) Port:** This port is for firmware update only.
2. **DC 5V Port:** Plug the 5V DC power adapter into this port and connect it to an AC wall outlet for power.

6.3 Receiver Front Panel



1. **Power (⏻) LED:** This LED will illuminate to indicate the unit is on and receiving power.

   Note: This LED will blink during the firmware update process.

2. **System (⚙) LED:** This LED will illuminate to indicate that the system is stable and ready to process audio/video streams.

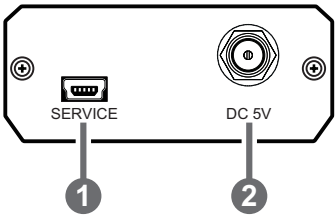
   Note: This LED will blink during the firmware update process.

3. **VIDEO LED:** This LED will illuminate to indicate that the video source is stable, and streaming is in process.

4. **HDMI OUT Port:** Connect to an HDMI TV, monitor, or amplifier for digital video and audio output.

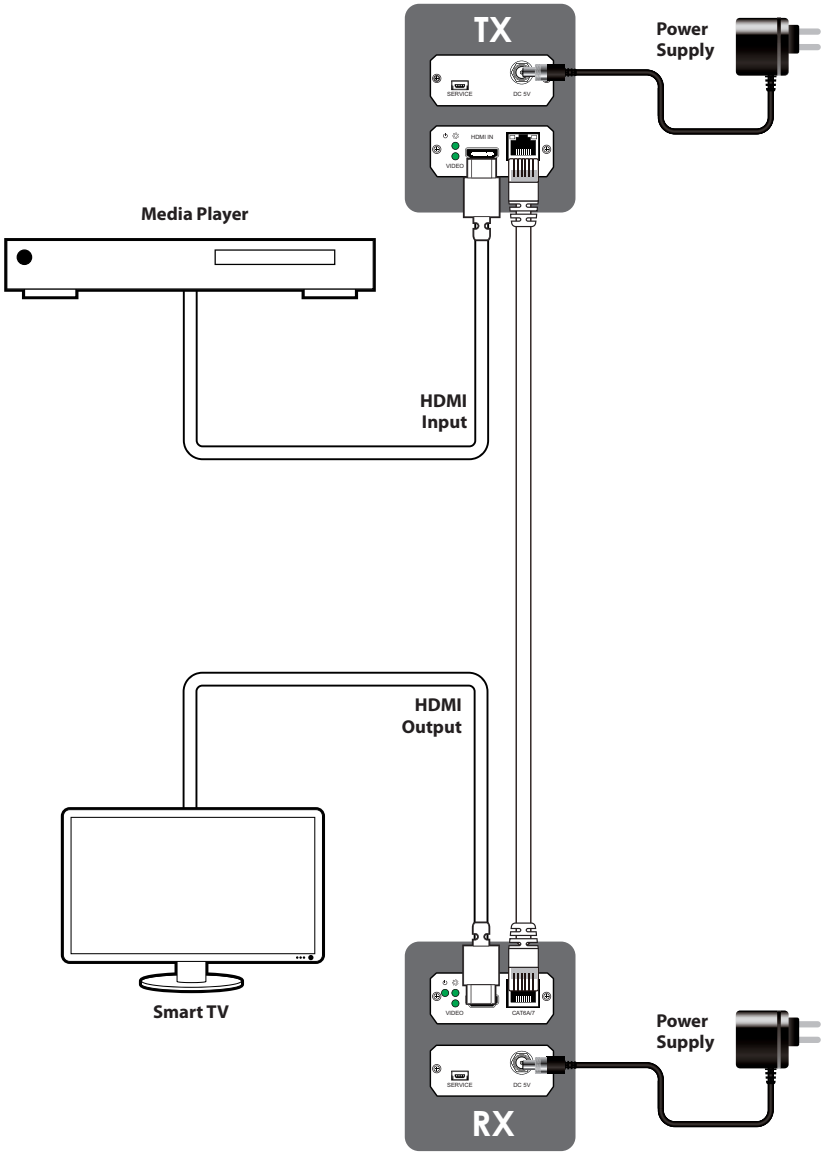
5. **CAT6A/7 Port:** Connect directly to a compatible transmitter for audio and video extension.

6.4 Rear Panel



1. **SERVICE (USB Mini-B) Port:** This port is for firmware update only.
2. **DC 5V Port:** 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

HDMI Bandwidth	18Gbps
Ethernet Bandwidth	10Gbps
Input Ports	1×HDMI (Type-A)
Output Ports	1×10GbE (RJ-45)
Service Port	1×USB 2.0 (Mini-B)
Power Supply	5V/2.6A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection (HBM)	±8kV (Air Discharge) ±4kV (Contact Discharge)
Dimensions (W×H×D)	57mm×20.6mm×87mm [Case Only] 60mm×20.6mm×87mm [All Inclusive]
Weight	139g
Chassis Material	Metal (Steel)
Chassis Colour	Black
Operating Temperature	0˚C – 50˚C/32˚F – 122˚F
Storage Temperature	-20˚C – 60˚C/-4˚F – 140˚F
Relative Humidity	20 – 90% RH (Non-condensing)
Power Consumption	4.51W

8.2 Video Specifications

Supported Resolutions (Hz)	Input HDMI	Output 10GbE
720×400p@70/85	✓	✓
640×480p@60/72/75/85	✓	✓
720×480i@60	✓	✓
720×480p@60	✓	✓
720×576i@50	✓	✓
720×576p@50	✓	✓
800×600p@56/60/72/75/85	✓	✓
848×480p@60	✓	✓
1024×768p@60/70/75/85	✓	✓
1152×864p@75	✓	✓
1280×720p@50/60	✓	✓
1280×768p@60/75/85	✓	✓
1280×800p@60/75/85	✓	✓
1280×960p@60/85	✓	✓
1280×1024p@60/75/85	✓	✓
1360×768p@60	✓	✓
1366×768p@60	✓	✓
1400×1050p@60	✓	✓
1440×900p@60/75	✓	✓
1600×900p@60RB	✓	✓
1600×1200p@60	✓	✓
1680×1050p@60	✓	✓
1920×1080i@50/60	✓	✓

Supported Resolutions (Hz)	Input	Output
	HDMI	10GbE
1920×1080p@24/25/30	✓	✓
1920×1080p@50/60	✓	✓
1920×1200p@60RB	✓	✓
2560×1440p@60RB	✓	✓
2560×1600p@60RB	✓	✓
2048×1080p@24/25/30	✓	✓
2048×1080p@50/60	✓	✓
3840×2160p@24/25/30	✓	✓
3840×2160p@50/60 (4:2:0)	✓	✓
3840×2160p@24, HDR10	✓	✓
3840×2160p@50/60 (4:2:0), HDR10	✓	✓
3840×2160p@50/60	✓	✓
4096×2160p@24/25/30	✓	✓
4096×2160p@50/60 (4:2:0)	✓	✓
4096×2160p@24, HDR10	✓	✓
4096×2160p@50/60 (4:2:0), HDR10	✓	✓
4096×2160p@50/60	✓	✓

8.3 Audio Specifications

8.3.1 Digital Audio

HDMI Input / 10GbE Output	
LPCM	
Max Channels	8 Channels
Sampling Rate (kHz)	32, 44.1, 48
Bitstream	
Supported Formats	Standard & High-Definition

8.4 Cable Specifications

Cable Length	1080p		4K30	4K60
	8-bit	12-bit	(4:4:4) 8-bit	(4:4:4) 8-bit
High Speed HDMI Cable				
HDMI Input	15m	10m	5m	3m
Ethernet Cable				
Cat.5e/6	70m			
Cat.6A/7	100m			

Bandwidth Category Examples:

1080p (FHD Video)

- Up to 1080p@60Hz, 12-bit colour
- Data rates lower than 5.3Gbps or below 225MHz TMDS clock

4K30 (4K UHD Video)

- 4K@24/25/30Hz & 4K@50/60Hz (4:2:0), 8-bit colour
- Data rates higher than 5.3Gbps or above 225MHz TMDS clock but below 10.2Gbps

4K60 (4K UHD+ Video)

- 4K@50/60Hz (4:4:4, 8-bit)
- 4K@50/60Hz (4:2:0, 10-bit HDR)
- Data rates higher than 10.2Gbps

9. ACRONYMS

ACRONYM	COMPLETE TERM
10GbE	10 Gigabit Ethernet
4K UHD	4K Ultra-High-Definition (10.2Gbps max)
4K UHD+	4K Ultra-High-Definition (18Gbps max)
AV	Audio/Video
AVoIP	Audio/Video over IP
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
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
Gbps	Gigabits per second
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range
kHz	Kilohertz
LAN	Local Area Network
LED	Light-Emitting Diode
LPCM	Linear Pulse-Code Modulation
MHz	Megahertz
TMDS	Transition-Minimized Differential Signaling
USB	Universal Serial Bus

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