



CHDBT-1H1CE

1×2 HDMI over HDMI and CAT5e/6/7 Splitter
with IR/RS-232, LAN Serving and Bidirectional PoE



Operation Manual



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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 DD/MM/YY	SUMMARY OF CHANGE
RDV1	24/06/13	Preliminary Release
RDV2	01/07/13	IR Power
VS1	16/12/13	Updated text/diagrams

CONTENTS

1. Introduction	1
2. Applications	1
3. Package Contents	1
4. System Requirements	1
5. Features	2
6. Operation Controls and Functions	3
6.1 Front Panel.....	3
6.2 Rear Panel	4
6.3 IR Cable Pin Assignment	5
6.4 D-Sub 9-Pin Definitions	5
7. Connection Diagram	6
8. Specifications	7
8.1 Technical Specifications	7
8.2 CAT5e/6/7 Cable Specification	8
9. Acronyms	8



1. INTRODUCTION

The HDMI over HDMI and CAT5e/6/7 Splitter can split and distribute a single HDMI input, 2-way IR or RS-232 control and LAN serving to a single CAT5e/6/7 output and includes a simultaneous HDMI bypass output. It supports resolutions up to 1080p Full HD, 4K×2K timing, 3D and multi-channel digital audio formats (such as LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD). The HDMI bypass output can be connected to an HDMI display or cascaded to another splitter. The CAT5e/6/7 outputs can be connected to a CAT5e/6/7 to HDMI receiver to extend the operating distance up to 100 meters.

Additionally, the LAN connectivity will allow a 100BaseT network to be served to smart TVs or games consoles. The Power over Ethernet (PoE) function can power compatible receivers, providing greater flexibility in installations.

2. APPLICATIONS

- Household entertainment sharing and control
- Lecture room display and control
- Showroom display and control
- Meeting room presentation and control
- Classroom display and control

3. PACKAGE CONTENTS

- 1×2 HDMI over HDMI and CAT5e/6/7 Splitter
- 1×IR Extender
- 1×IR Blaster
- 3.5mm Mini-jack to RS-232 Cable
- 24V DC Power Adaptor
- Operation Manual

4. SYSTEM REQUIREMENTS

- Source equipment with HDMI output connector
- Display TV/Monitor with HDMI input connector
- HDMI over CAT5e/6/7 Receivers with industry standard CAT5e/6/7 cables

5. FEATURES

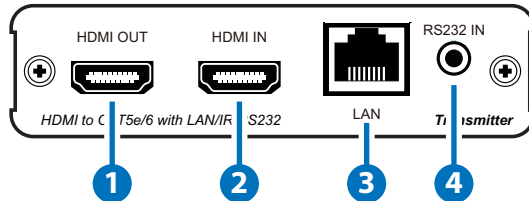
- HDMI with 4K×2K resolution and 3D support, HDCP and DVI compliant
- Simultaneous HDMI and CAT5e/6/7 outputs
- Supports data rate from 250Mbps up to 3Gbps
- Supports a wide range of PC resolutions from VGA to WUXGA (RB) and HDTV resolutions up to 4K×2K (3840×2160@30 Hz and 4096×2160@24 Hz)
- Supports transmission of High Definition audio: LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio (32 kHz~192 kHz sample rate)
- Supports distances up to 100 meters through CAT5e/6/7 cables
- Supports Ethernet network rates up to 100Mbps
- Supports selection of Standard or TV EDID settings
- Supports USB service port
- Provides 24V DC power to or received from compatible PoE Receiver through CAT5e/6/7 cable
- Supports control of devices via 2-way IR
- Supports RS-232 function
- 3D signal display is dependent on the TV/Display's EDID settings

Note:

1. *This system was tested with CAT6/23AWG cables, results may vary with cables of a different specification.*
2. *The PoE function is designed for powering compatible Receiver units only, non-PoE Receivers will need their own power supply. Receivers of another brand may not be compatible.*
3. *For playback of 4k×2k HDMI source signals, a 4K×2K capable display and High Speed HDMI cables are required.*

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



- 1 **HDMI OUT:** Connect to a HDMI display for local monitoring of the HDMI signal or cascade to another Splitter.
- 2 **HDMI IN:** Connect to an HDMI source device such as DVD/Blu-ray player or games console.
- 3 **LAN:** Connect to an active network for LAN serving. When any compatible LAN equipped receivers are connected, this allows the network access (including internet access if available) to be shared. Connect any Ethernet equipped device e.g. a Smart TV or games console to the LAN port of a receiver for that device to share the network/internet access.

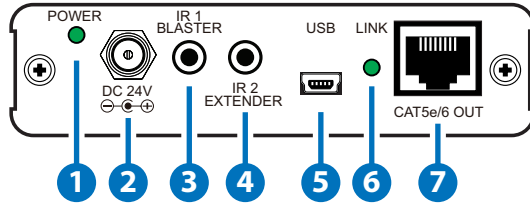
Warning: DO NOT connect the LAN connection to the CAT5e/6/7 output, doing so may trigger a power shut down and may damage the device.

- 4 **RS-232 IN:** Connect to a PC/Laptop or RS-232 control device (with the supplied 3.5mm mini-jack to D-Sub 9-Pin adaptor) to transmit RS-232 data to a suitably equipped receiver unit.

Note: This device has a last memory function and will retain the EDID settings of the last device connected via the CAT5e/6 output port when it is not connected to a display after power cycling.

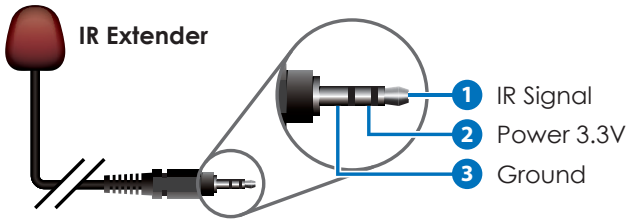
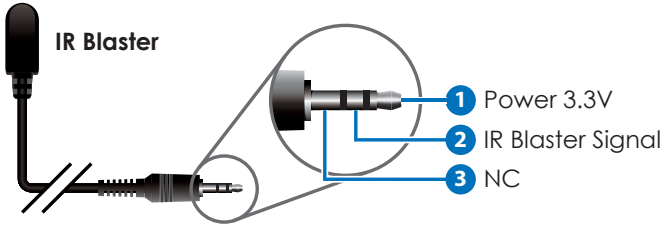
The splitter will read the EDID settings of the device connected to the HDMI output of the receiver unit and if it detects a 4Kx2K capable EDID it will transmit the signal in that format to the output port. If no 4Kx2K capable EDID is detected then the unit will detect the EDID settings and send out the signal that all outputs can accept.

6.2 Rear Panel



- 1 **POWER LED:** The LED will illuminate when connected to an active power supply.
- 2 **DC 24V:** Connect the 24V DC power supply to the unit and plug the adaptor into an AC outlet.
- 3 **IR 1 BLASTER:** Connect the supplied IR Blaster cable for IR signal transmission. IR signals received by an IR extender connected to the receiver unit will be transmitted by this blaster. Place the IR Blaster in direct line-of-sight of the equipment to be controlled.
- 4 **IR 2 EXTENDER:** Connect an IR Extender cable for IR signal reception. Signals received will be transmitted from any IR blaster connected to the receiver unit. Ensure that the remote being used is within the direct line-of-sight of the IR Extender
- 5 **USB:** This slot is reserved for firmware update only.
- 6 **LINK LED:** This LED will illuminate when connected to a Receiver unit that is connected with a TV/monitor that is displaying the signal.
- 7 **CAT5e/6/7 OUT:** Connect to a CAT5e/6/7 to HDMI Receiver (with or without PoE) with a single CAT5e/6/7 cable each to extend the HDMI signal up to 100m.

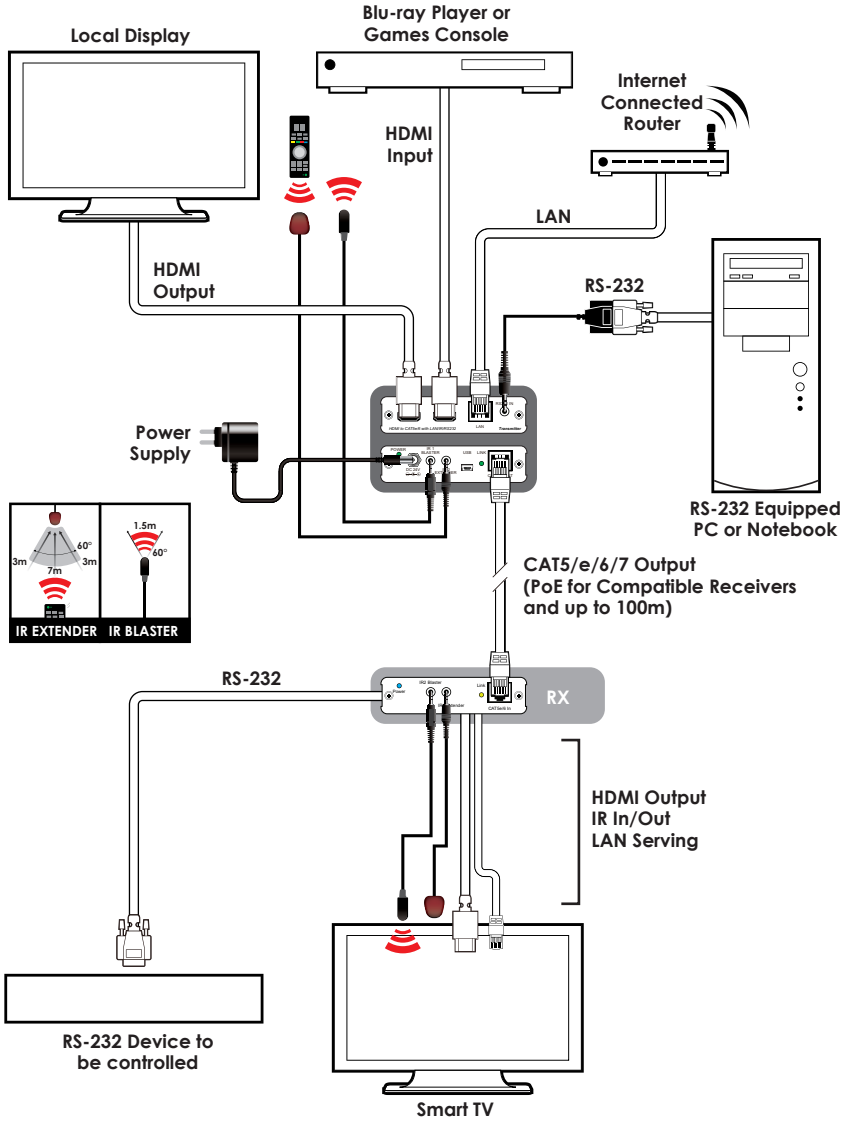
6.3 IR Cable Pin Assignment



6.4 D-Sub 9-Pin Definitions

PIN	DEFINE TX/RX
1	N/C
2	TxD/RxD
3	RxD/TxD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

7. CONNECTION DIAGRAM





8. SPECIFICATIONS

8.1 Technical Specifications

Video Bandwidth	300Mbps/10.2Gbps
Input Ports	1×HDMI, 1×3.5mm Phone Jack for RS-232, 1×IR IN, 1×LAN, 1×USB (Service only)
Output Ports	1×HDMI, 1×CAT5e/6/7, 1×IR OUT
HDMI Supported Resolutions	480i~1080p@50/60Hz, 1080p@24Hz, 4K×2K (3840×2160@30Hz/4096×2160@24/25Hz) & VGA~WUXGA (RB)
HDMI Input Cable Distance	10m (1080p@8/12-bit), 5m (4K×2K)
HDMI Output Cable Distance	15m (1080p@8-bit), 10m (1080p@12-bit), 10m (4K×2K)
IR Frequency	30~50kHz
Power Supply	24V/1.25A DC (US/EU standards, CE/FCC/UL certified)
Dimensions	102 mm(W)×109 mm(D)×25 mm(H)
Weight	252g
Chassis Material	Metal
Color	Silver
ESD Protection	Human body model: ±8kV (air-gap discharge) ±4kV (contact discharge)
Operating Temperature	0 °C ~ 40 °C
Storage Temperature	-20°C ~ 60°C / -4 °F ~ 140 °F
Relative Humidity	20 ~ 90 % RH (non-condensing)
Power Consumption	18.7W

8.2 CAT5e/6/7 Cable Specification

CABLE TYPE	RANGE	PIXEL CLOCK RATE	VIDEO DATA RATE	SUPPORTED VIDEO
CAT5e/6/7	100 m	≤225 MHz	≤5.3 Gbps (HD Video)	Up to 1080p, 60 Hz, 36 bits, 3D (data rates lower than 5.3 Gbps or below 225 MHz TMDS clock).
	70 m	>225 MHz	> 5.3 Gbps (Ultra HD Video)	4K×2K, 30Hz video formats

9. ACRONYMS

ACRONYM	COMPLETE TERM
4Kx2K	3840x2160 / 4096x2160
DTS	Digital Theater System
EDID	Extended Display Identification Data
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDTV	High-Definition Television



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