# DL-UHDRC70 Owners Manual

Important Safety Instructions

» Please completely read and verify you understand all instructions in this manual before operating this equipment.

» Keep these instructions in a safe, accessible place for future reference.

» Heed all warnings.

» Follow all instructions.

» Do not use this apparatus near water.

» Clean only with a dry cloth.

» Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

» Use only accessories specified or recommended by Intelix.

» Explanation of graphical symbols:

◊ Lightning bolt/flash symbol: the lightning bolt/flash and arrowhead within an equilateral triangle symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product enclosure which may be of sufficient magnitude to constitute a risk of shock to a person or persons.

◊ Exclamation point symbol: the exclamation point within an equilateral triangle symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.
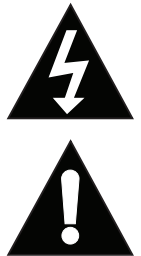
» **WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE AND OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THIS APPARATUS.**

» Use the mains plug to disconnect the apparatus from the mains.

» **THE MAINS PLUG OF THE POWER CORD MUST REMAIN READILY ACCESSIBLE.**

» Do not defeat the safety purpose polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of your obsolete outlet. **Caution! To reduce the risk of electrical shock, grounding of the center pin of this plug must be maintained.**

» Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and the point where they exit from the apparatus.

» Do not block the air ventilation openings. Only mount the equipment per Intelix's instructions.

» Use only with the cart, stand, table, or rack specified by Intelix or sold with the equipment. When/if a cart is used, use caution when moving the cart/equipment combination to avoid injury from tip-over.

» Unplug this apparatus during lightning storms or when unused for long periods of time.

» **Caution!** Shock Hazard. Do not open the unit.

» Refer to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Table of Contents

Product Overview

The DigitaLinx DL-UHDRC70 is an HDBaseT extender that can extend uncompressed 4K video at a maximum of 3840x2160@60Hz/4:2:0, multichannel audio, bi-directional POC power, RS232 and bi-directional IR up to 40 meters (~130') using a single Category 6 twisted pair cable. At 1080p@60Hz/4:4:4 the unit can extend up to 70 meters (~230').

Some select standard cable boxes that have sub versions of HDMI 1.2/1.3 chipsets that do not support clock stretching which is an integral part of the HDCP handshake. This can cause transmission issues when using traditional HDBaseT extenders. The DL-UHDRC70 features an embedded circuit that addresses and solves HDMI clock stretching issues that are common in older cable set top boxes with older HDMI chipsets.

The DL-UHDRC70 is sold only as a set. The individual transmitter and receiver are not compatible with other HDBaseT devices due to proprietary PoE circuitry.

Package Contents

- (1) DL-UHDRC70 Transmitter and Receiver Set
- (1) Quick Install Guide
- (1) 18V Power Supply with 4 power plug adapters for US, UK, EU and AU
- (2) Phoenix 3.5mm 3 pin Male Connectors
- (2) IR emitters
- (2) IR eyes
- (4) mounting brackets

Front and Rear Panels

Transmitter / Receiver Rear View
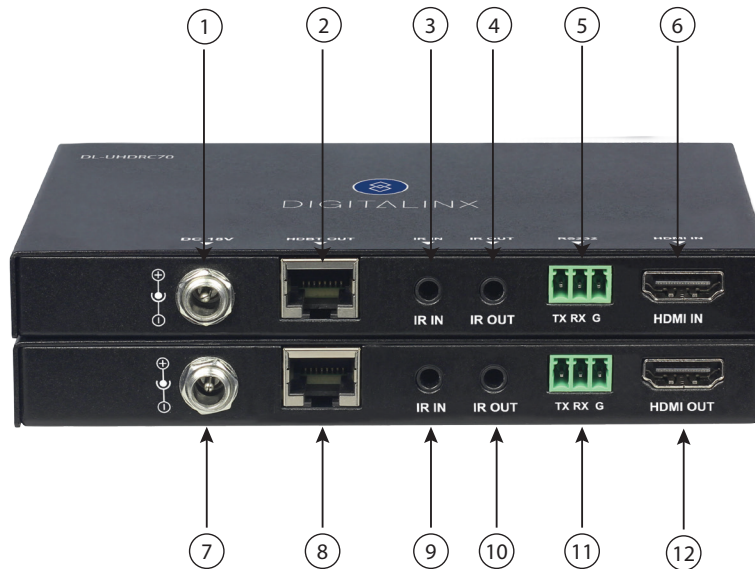
Transmitter

1. DC 18V
   - Locking power port, connect DC18V power adapter (either power port can power entire set)
2. HDBT OUT
   - Connects transmitter to receiver; supports PoC / bi-directional power
3. IR In
   - 3.5mm IR input port for connection to IR receiver or IR system
4. IR Out
   - 3.5mm IR output port for connection to IR emitter
5. RS232
   - 3 pin Phoenix connector port for connecting / passing RS232 control
6. HDMI In
   - HDMI input port for connections to video sources

Receiver

7. DC 18V
   - Locking power port, connect DC18V power adapter (either power port can power entire set)
8. HDBT IN
   - Connects receiver to transmitter; supports PoC / bi-directional power
9. IR In
   - 3.5mm IR input port for connection to IR receiver or IR system
10. IR Out
    - 3.5mm IR output port for connection to IR emitter
11. RS232
    - 3 pin Phoenix connector port for connecting / passing RS232 control
12. HDMI In
    - HDMI input port for connections to video sources

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Transmitter / Receiver Front View
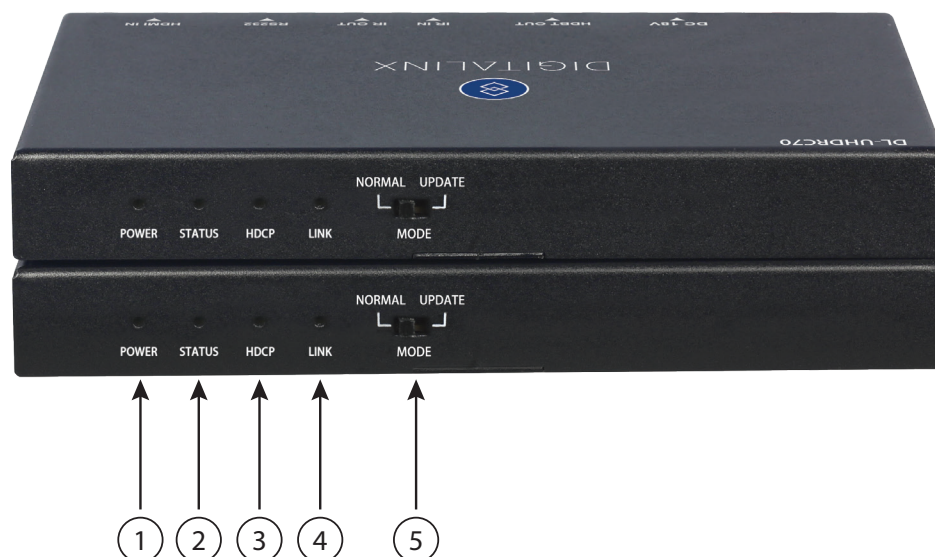
1. POWER
   - Power LED indicator; when LED is solid, the DL-UHDRC70 extender is receiving power from the power supply or from the remote extender via Category 6 cabling.

2. STATUS
   - Status LED indicator; when LED flashes once per second, the HDBaseT processor is running.

3. HDCP
   - Power LED indicator; when LED is solid, HDCP signal is present in the HDMI stream. When LED flashes quickly, no HDCP signal is present in the HDMI stream.

4. LINK
   - Link LED indicator; when LED is solid, the extender components are communicating via Category 6 cabling.

5. Mode- *Normal-* for normal operation. *Update-* for firmware update process
   - The mode switch is used when updating firmware in the extender. A separate document will provide usage instructions once a new firmware update is available.

Installation Instructions

Quick Start

1. Connect video source to transmitter HDMI IN
2. Connect display technology to receiver HDMI OUT
3. Connect transmitter and receiver together with a shielded Category 6 cable
4. Connect control (optional)
5. Apply power to either transmitter OR receiver to power entire circuit

Connecting a Video Source

HDMI Input (Transmitter)

Connect an HDMI source device to the HDMI input on the DL-UHDRC70 transmitter labeled *HDMI IN* using an HDMI cable that is less than or equal to 5 meters in total length. For HDMI source devices that are further away, an active HDMI cable may be required to complete the connection.

Connecting a Display

HDMI Output (Receiver)
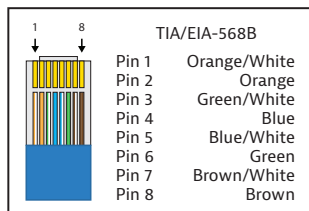
Connect the display to the HDMI output on the DL-UHDRC70 receiver labeled *HDMI OUT* using an HDMI cable that is less than or equal to 5 meters in length. It is recommended to keep the DL-UHDRC70 receiver near the display input as it is not recommended that an active HDMI cable be used on the HDMI output on the DL-UHDRC70 receiver.

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HDBaseT Connection

Connect one end of a Category cable to the DL-UHDRC70 transmitter labeled *TWISTED PAIR*, then connect the other end of the Category cable to the DL-UHDRC70 receiver labeled *TWISTED PAIR*

TIA/EIA-568B	
Pin 1	Orange/White
Pin 2	Orange
Pin 3	Green/White
Pin 4	Blue
Pin 5	Blue/White
Pin 6	Green
Pin 7	Brown/White
Pin 8	Brown

Twisted Pair Wiring
Use TIA/EIA-568B wiring for Category 6 connection between send and receive units.

To ensure proper performance of the DL-UHDRC70, it is recommended that you use solid core, shielded Category 6 F/UTP cabling at a minimum. Category 5e F/UTP may perform well up to a certain length but may not support power over HDBaseT reliably longer distances.

When using shielded category cabling *ALWAYS*...

....use shielded connectors
....properly ground the category cable

For optimized performance use the following Liberty Wire and Cable branded cabling;
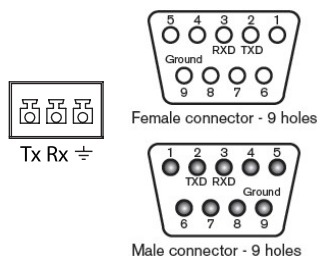Category 6 plenum; **24-4P-P-L6SH**
Category 6A plenum; **24-4P-P-L6ASH**

Category 6 NON-plenum; **24-4P-L6SH**
Category 6A NON -plenum; **24-4P-L6ASH**

Connecting RS232 Control

RS232 or serial control signals can be transmitted through the DL-UHDRC70 using the RS232 connection ports on he DL-UHDRC70 transmitter and receiver.

RS232 Wiring
Connect the controller or device RX signal to TX on the DL-UHDRC70 extender.
Connect the controller or device TX signal to RX on the DL-UHDRC70 extender.

Female connector - 9 holes

Male connector - 9 holes

Tx Rx

Connecting IR Control

The DL-UHDRC70 is capable of transmitting bi-directional IR signals through the HDBaseT circuit. The   DL-UHDRC70 comes with 2 IR receivers (eye) and 2 IR emitters (flashers) so you can control devices from either end of the extender circuit.

Passing IR Signals:
The DL-UHDRC70 is capable of passing IR signals between 33 and 55 KHz. To prevent damage to any of the electronics, the extenders should be powered off while inserting or removing any IR components. Inserting an IR transmitter into the IR IN port may damage the IR circuit for that
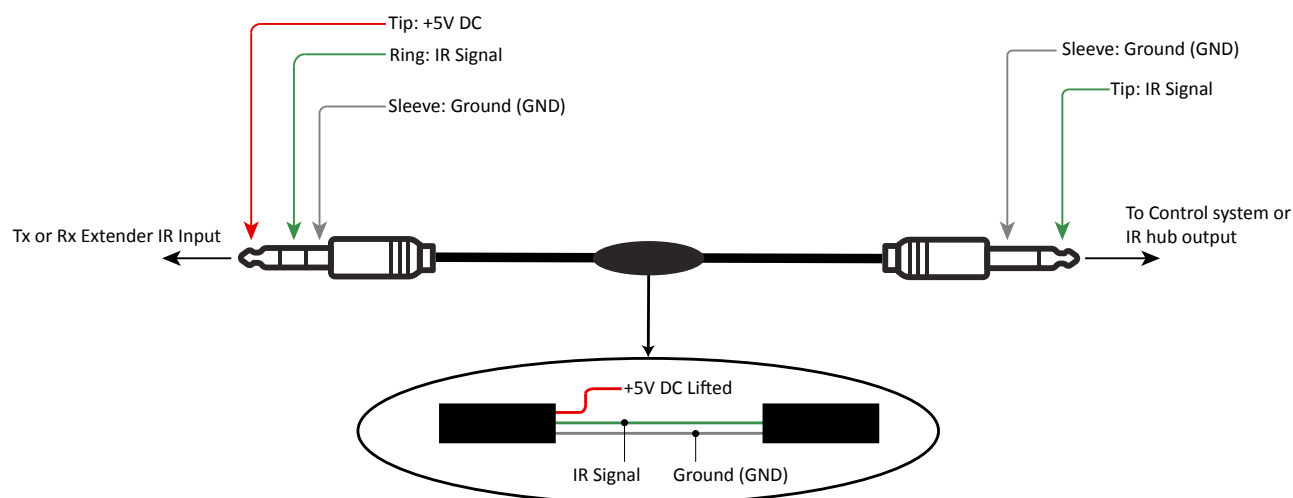
Source Device Control using IR

Attach the IR emitter to the IR receiver of the source device, insert the TS 3.5 mm plug of the emitter to the IR OUT port of the DL-UHDRC70 transmitter. Insert the TS 3.5 mm plug of the IR receiver (eye) to the IR IN port of the DL-UHDRC70 receiver. Point the source device IR remote at the display location where the IR receiver is located, IR signals will now travel through HDBaseT to the DL-UHDRC70 transmitter side where the IR emitter is attached to the source device.

Remote Display using IR

Attach the IR emitter to the IR receiver of the display device, insert the TS 3.5 mm plug of the emitter to the IR OUT port of the DL-UHDRC70 receiver. Insert the TS 3.5 mm plug of the IR receiver (eye) to the IR IN port of the DL-UHDRC70 transmitter. Point the source device IR remote at the source device location where the IR receiver is located, IR signals will now travel through HDBaseT to the DL-UHDRC70 receiver side where the IR emitter is attached to the display device.

Source / Display Control from Control System

To pass 3rd party IR system signals through the DL-HD70, such as a control system, connect the TS connector of the IR-AC coupling cable (provided) to the IR output port of the control system and connect the TRS connector of the IR-AC cable to the IR IN to either transmitter or receiver of the DL-UHDRC70.

Tip: +5V DC
Ring: IR Signal
Sleeve: Ground (GND)

Sleeve: Ground (GND)
Tip: IR Signal

Tx or Rx Extender IR Input

To Control system or IR hub output

+5V DC Lifted

IR Signal   Ground (GND)

Note: Voltage on Tip from RX may be differnt for non Liberty Devices

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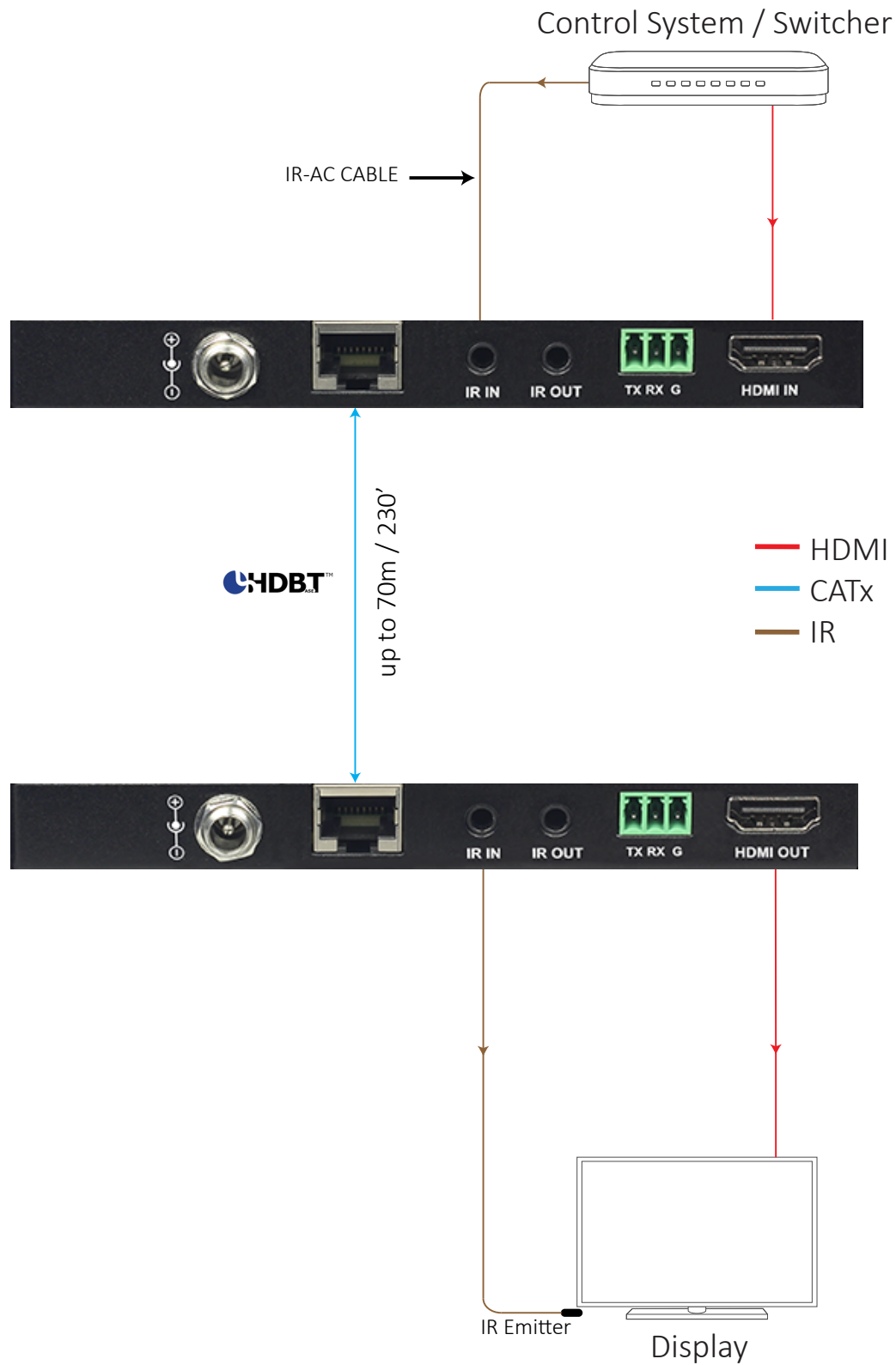VALUE-ENGINEERED DIGITAL SOLUTIONS

Apply Power

Connect the included power supply to the transmitter or receiver and lock the power supply to the power connector by twisting the locking collar clockwise. It is not required that both the transmitter and receiver be powered simultaneously.
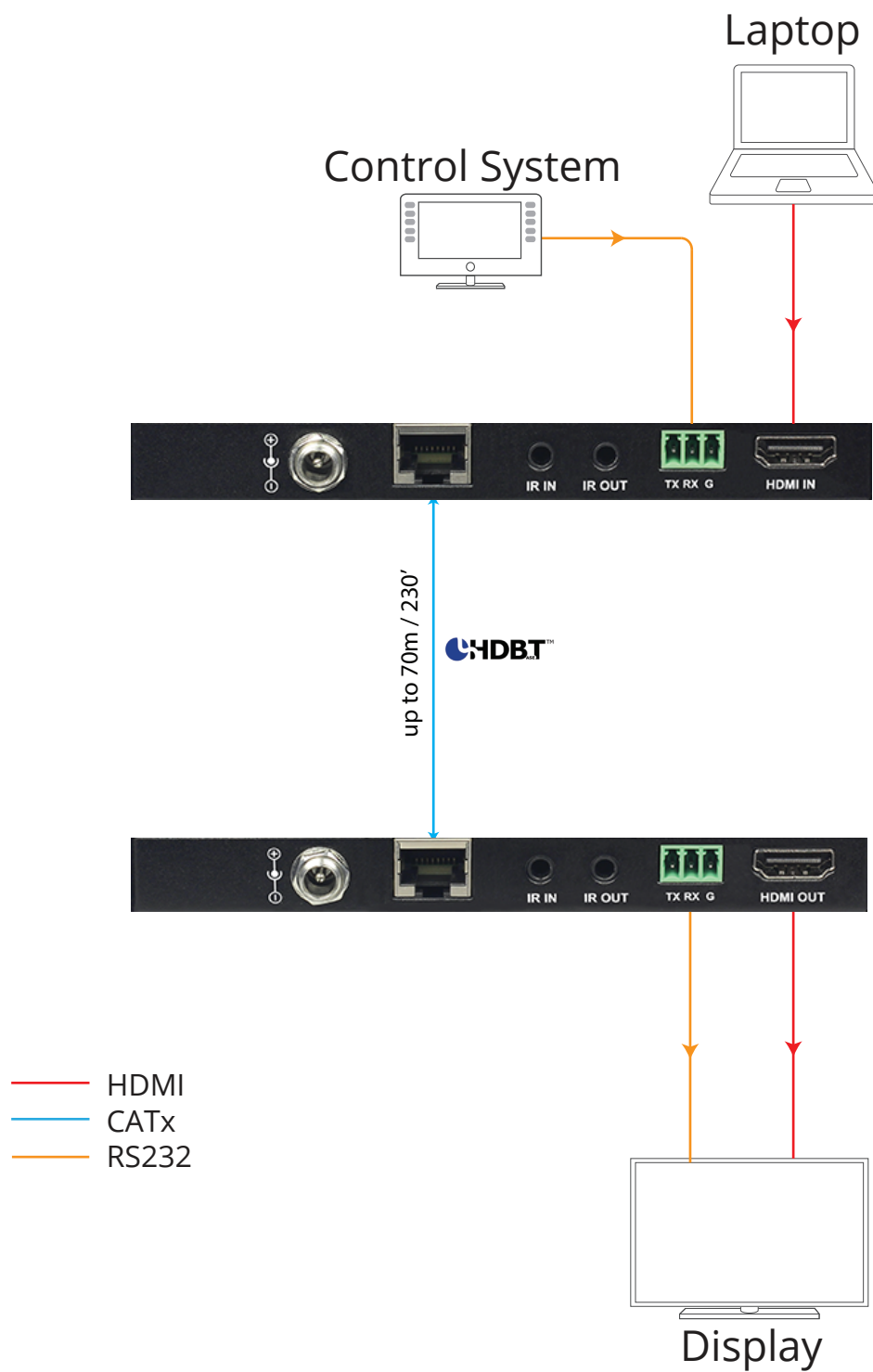
Application Diagrams

HDMI Extension / Bi-Directional IR Control
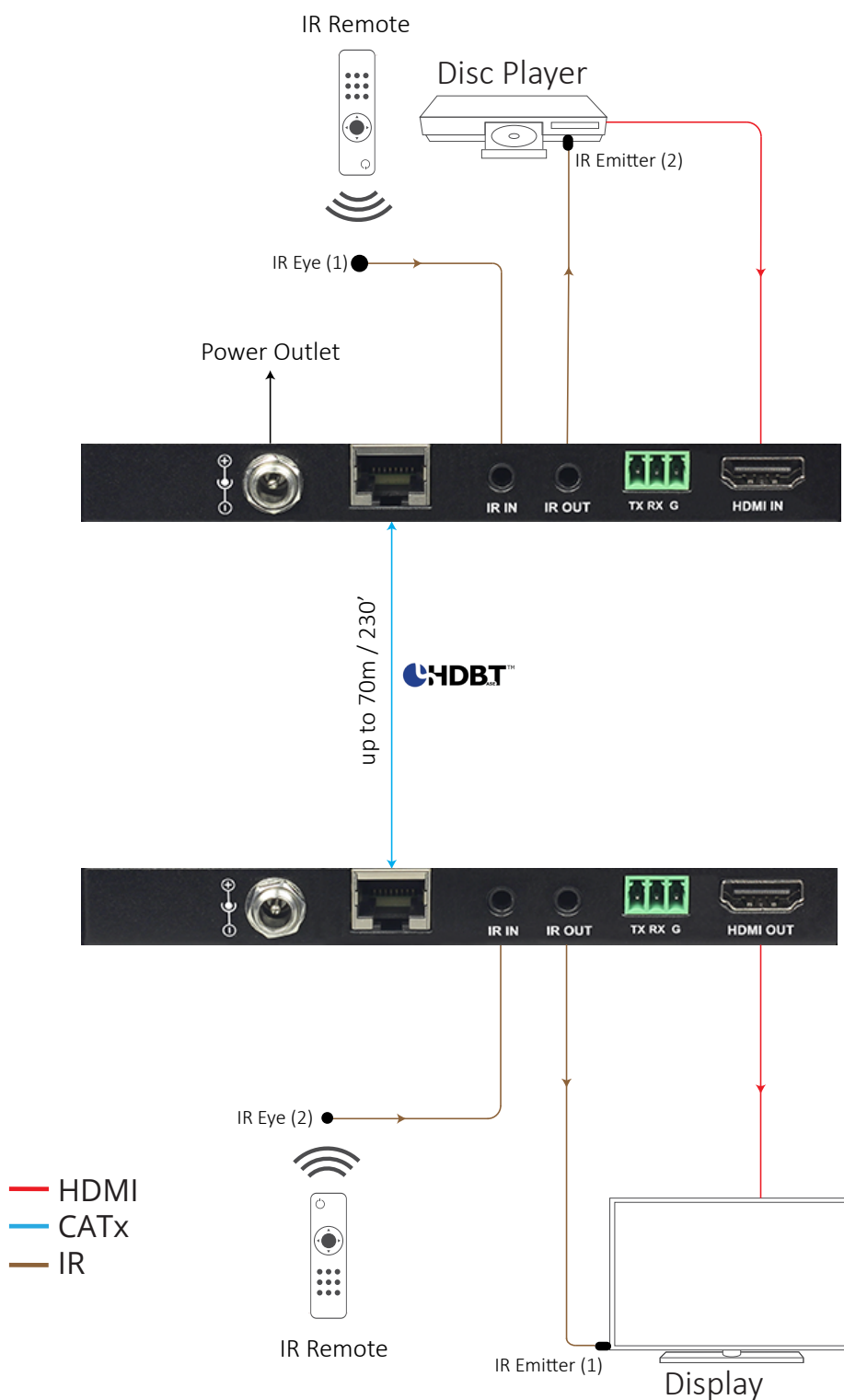
HDMI Extension / Control System IR Control

Control System / Switcher

IR-AC CABLE

IR IN   IR OUT   TX RX G   HDMI IN

up to 70m / 230'

HDMI
CATx
IR

IR IN   IR OUT   TX RX G   HDMI OUT

IR Emitter

Display

HDMI Extension / Control System RS232 Control

Laptop

Control System

up to 70m / 230'

HDBT™

IR IN   IR OUT   TX RX G   HDMI IN

IR IN   IR OUT   TX RX G   HDMI OUT

HDMI
CATx
RS232

Display

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Technical Specifications

VIDEO	
Video Input (Transmitter)	(1) HDMI
Video Output (Receiver)	(1) HDMI
Video I/O Connector (Transmitter / Receiver)	(1) HDMI type A
HDBaseT Connector (Transmitter / Receiver)	(1) RJ45
HDBaseT Cable Requirements	Solid core shielded Category 5e, Category 6 or greater with TIA/EIA-568B crimp pattern
Maximum Transmission Distance	Transmits 1080P signal up to 60m via Cat5e/6 cable, 70m via Cat6a/7 cable. Transmits 4K@60 4:2:0 8 bit signal up to 35m via Cat5e/6 cable, 40m via Cat6a/7 cable.
Maximum Pixel Clock	297Mhz
Input Video Level	0.5-1.2 V p-p
Input DDC Signal	5V p-p
Input / Output Resolution Support	4096x2160@24/25/30/60Hz; 3840x2160@24/25/30/60Hz; 1920x1200@60Hz; 1080p@50/60Hz; 720p50/60; 576p@30Hz; 480p@60Hz; 1680x1050@60Hz; 1600x1200@60Hz; 1600x900@60Hz; 1440x900@60Hz; 1366x768@60Hz; 1360x768@60Hz; 1280x1024@60Hz; 1280x960@; 1280x800@60Hz; 1280x768@60Hz; 1024x768@60Hz; 800x600@60Hz
Maximum Data Rate	10.2 Gbps
Standards	Compliant with HDMI 2.0 & HDCP 2.2
Audio	
Embedded Audio	Multichannel audio support up to PCM 8 channel, supports 7.1 DTS Master HD and Dolby True HD
Frequency Response	20Hz~20K Hz
CONTROL	
Control Port (Transmitter / Receiver)	(2) IR IN/OUT (1) RS232
Control Connector (Transmitter / Receiver)	(2) 3.5mm (IR IN/OUT) (1) 3 pin phoenix connector (RS232)
IR Carrier Frequency Range	33-55kHz at 5 volts
RS232 Baud Rate	Up to 115200 baud
General	
Temperature	0 ~ +45 C (32 F- 113 F)
Humidity	10% ~ 90%
Power Supply	Input Voltage: 100-240V 50/60Hz Output Voltage: DC18V 1A
Power Consumption	<10W
Dimension (W*H*D)	140mm x 17mm x 90.2mm 5.5" x .67" x 3.6" each for Transmitter / Receiver
Weight	0.36kg / .75lbs each for Transmitter / Receiver
Certification	CE, FCC, RoHS
Warranty	2 years
Included Accessories	(1) 18V Power supply with 4 power plug adapters for US, UK, EU and AU; (2) 3 pin phoenix male connectors; (2) IR emitters; (2) IR eyes; (4) mounting brackets; (1) Quick Install Guide

Thank you for your purchase.

For Technical Support please call our toll free number at
800-530-8898 or email us at supportlibav@libav.com

www.libav.com