DL-HD70 Owners Manual

Rev 181228

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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.
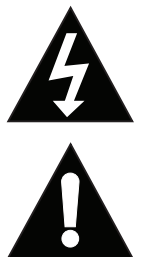
» **WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE AND OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THIS APPARATUS.**

» 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-HD70 HDBaseT extender set transmits HDMI (1080p, 4K (UHD/HDR) and 3D) including HDCP 2.2, bidirectional IR, and RS232 up to 70 meters away using a single Category 6 twisted pair cable.

Built-in surge protection and diagnostic LEDs ensure hassle-free and robust installations. Flexible power design allows the units to be powered at either the TX or RX end, and only one power supply is required. The 18 volt power supply is secured with a screw-on connector to prevent the power from being accidentally disconnected.

The DL-HD70 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

- (2) IR Receivers (Eye)
- (2) IR Transmitters (Emitter)
- (1) IR-AC IR Coupler Cable
- (2) 3 pole Terminal Block (attached to extenders)
- (1) DC18v Power Supply with 4 Power Plug Adapters for US, EU, AU, UK
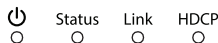- (4) Mounting Brackets with screws

Front and Rear Panels

Transmitter View
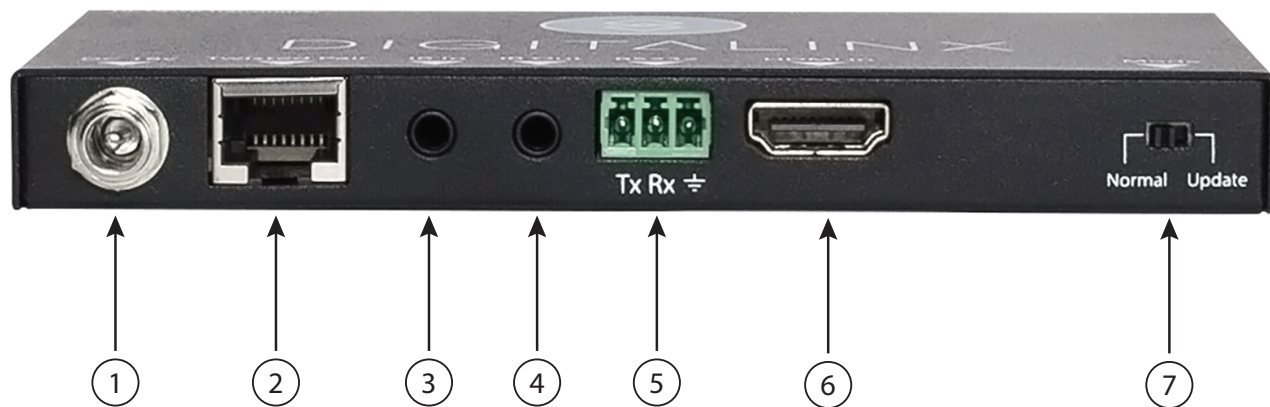
1. DC 18V
   - Locking power port, connect DC18V power adapter (either power port can power entire set)
2. Twisted Pair
   - RJ45 HDBaseT connection. Connect Cat6 cable to transmitter
3. IR In
   - 3.5mm IR input port for connection to IR receiver or IR system
4. IR Out
   - 3.5mm IR output port for 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
7. 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.

Front Panel Diagnostic LEDs: ⏻ Status Link HDCP

The DL-HD70 provides four blue LEDs to indicate the current operating status and to assist troubleshooting an installation.

Power: Solid, the DL-HD70 extender is receiving power from the power supply or from the remote extender via Category 6 cabling.

Status: Flashes once per second, the HDBaseT processor is running.

Link: Solid, the two DL-HD70 extenders are communicating via Category 6 cabling.

HDCP: Solid, HDCP signal is present in the HDMI stream. Flashes quickly, no HDCP signal is present in the HDMI stream.

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VALUE-ENGINEERED DIGITAL SOLUTIONS

Receiver View

1. DC 18V
   • Locking power port, connect DC18V power adapter (either power port can power entire set)
2. Twisted Pair
   • RJ45 HDBaseT connection. Connect Cat6 cable to transmitter
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 Out
   • HDMI output port for connections to display technology
7. 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.

Front Panel Diagnostic LEDs:
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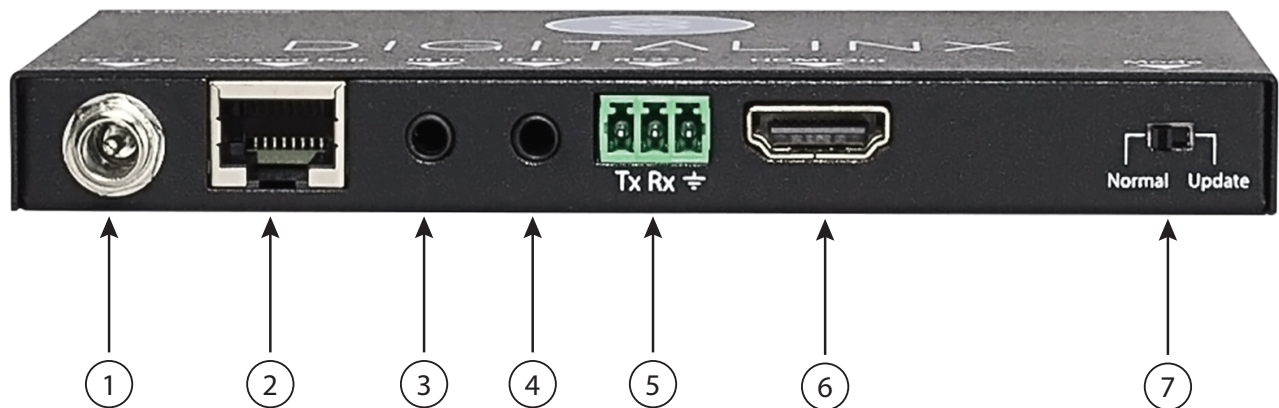
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Status: Flashes once per second, the HDBaseT processor is running.

Link: Solid, the two DL-HD70 extenders are communicating via Category 6 cabling.

HDCP: Solid, HDCP signal is present in the HDMI stream. Flashes quickly, no HDCP signal is present in the HDMI stream.

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-HD70 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-HD70 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-HD70 receiver near the display input as it is not recommended that an active HDMI cable be used on the HDMI output on the DL-HD70 receiver.

HDBaseT Connection

Connect one end of a Category cable to the DL-HD70 transmitter labeled *TWISTED PAIR*, then connect the other end of the Category cable to the DL-HD70 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-HD70, 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-HD70 using the RS232 connection ports on he DL-HD70 transmitter and receiver.

RS232 Wiring
Connect the controller or device RX signal to TX on the DL-HD70 extender. Connect the controller or device TX signal to RX on the DL-HD70 extender.

Connecting IR Control

The DL-HD70 is capable of transmitting bi-directional IR signals through the HDBaseT circuit. The DL-HD70 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-HD70 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 extender.
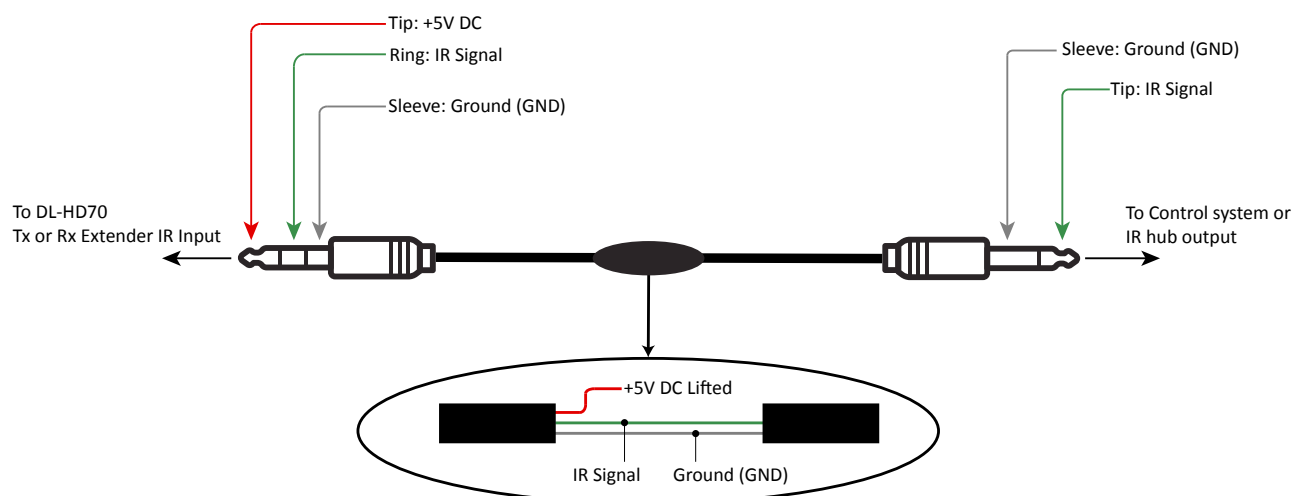
Source Device Control using IR

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-HD70 transmitter. Insert the TS 3.5 mm plug of the IR receiver (eye) to the IR IN port of the DL-HD70 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-HD70 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-HD70 receiver. Insert the TS 3.5 mm plug of the IR receiver (eye) to the I*R IN* port of the DL-HD70 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-HD70 receiver side where the IR emitter is attached to the display devic*e*.

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-HD70.

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

Sleeve: Ground (GND)
Tip: IR Signal

To DL-HD70
Tx or Rx Extender IR Input

To Control system or
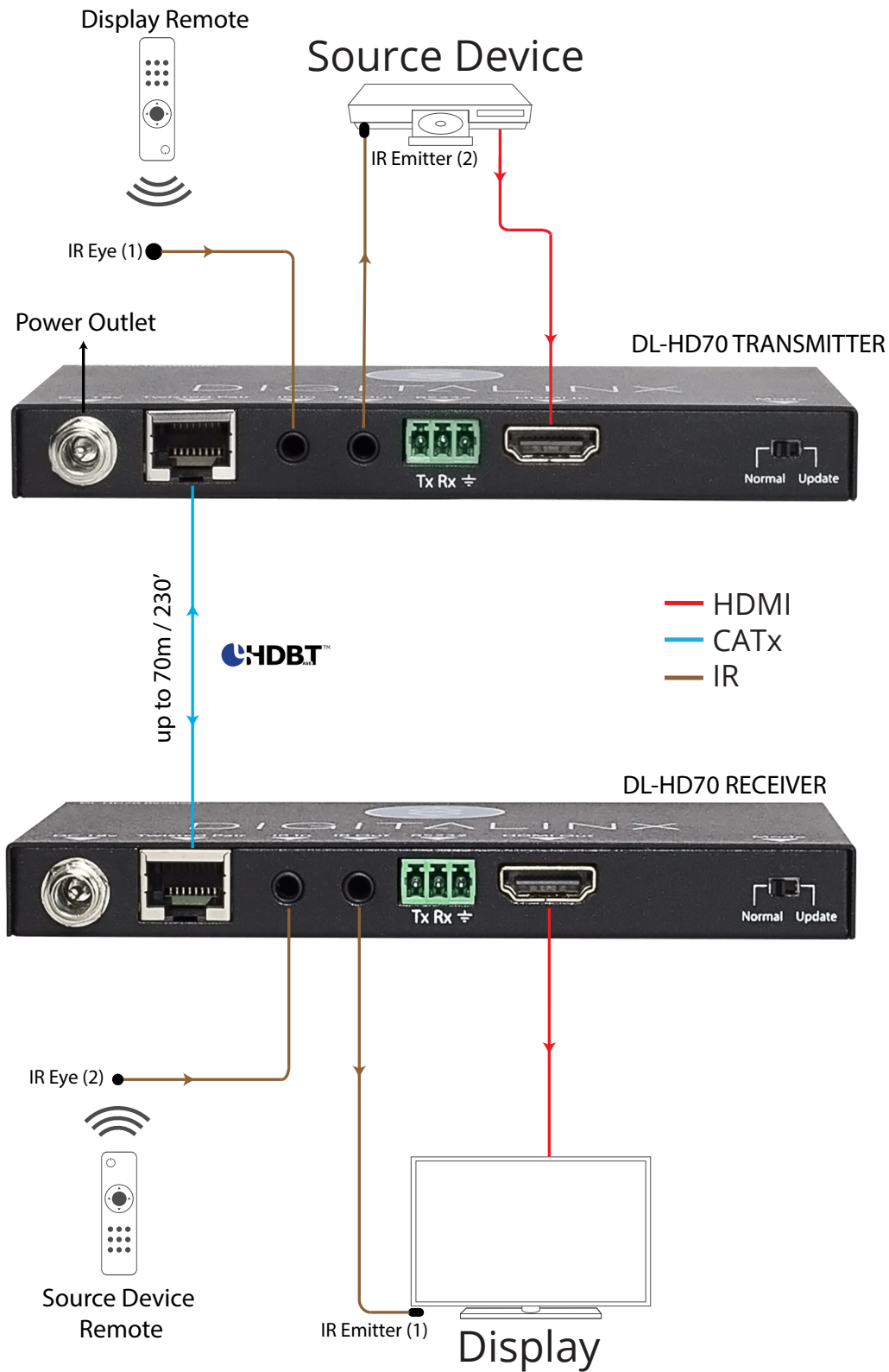IR hub output

+5V DC Lifted
IR Signal   Ground (GND)

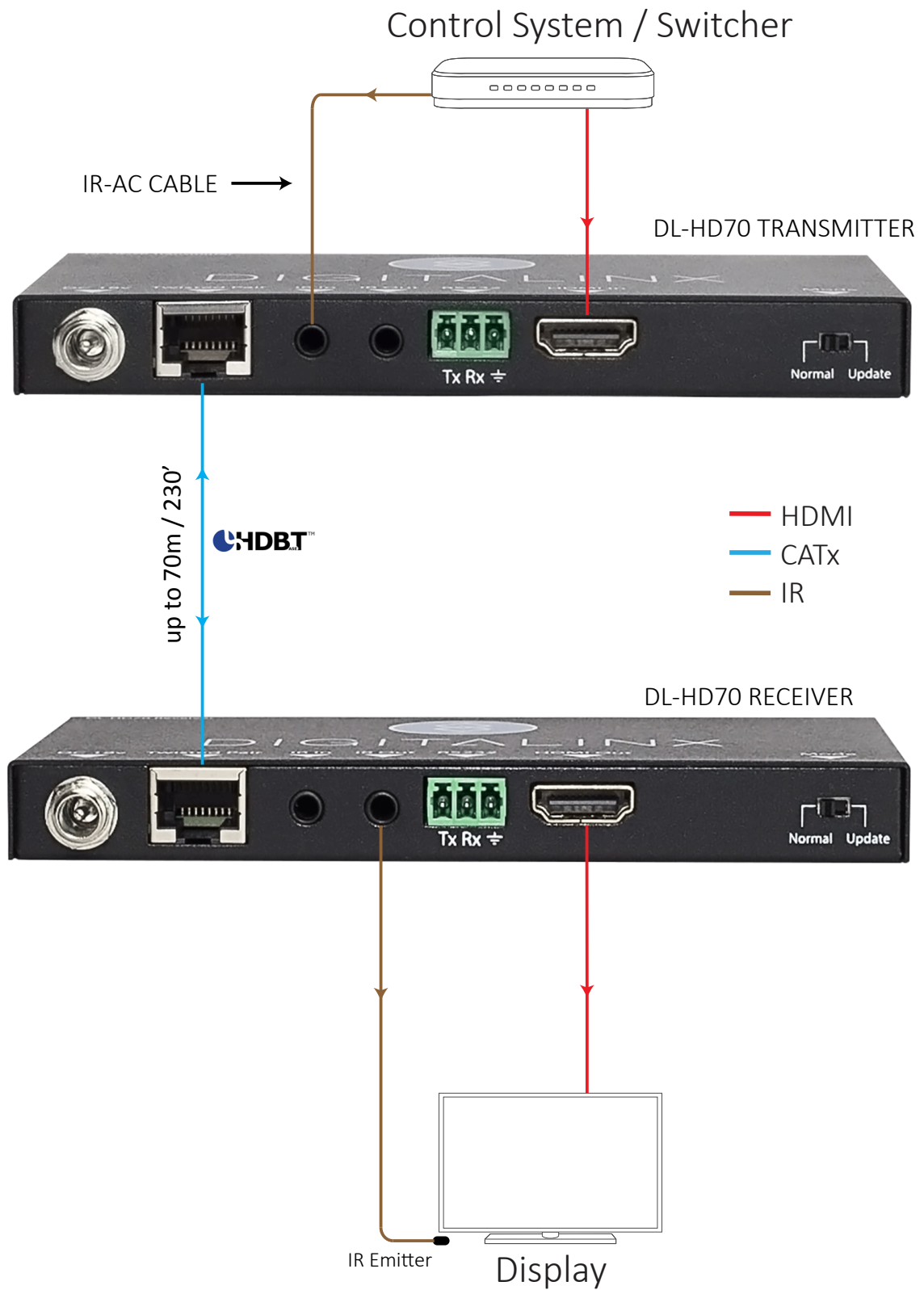**Note**: Voltage on Tip from RX may be differnt for non Liberty Devices

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.

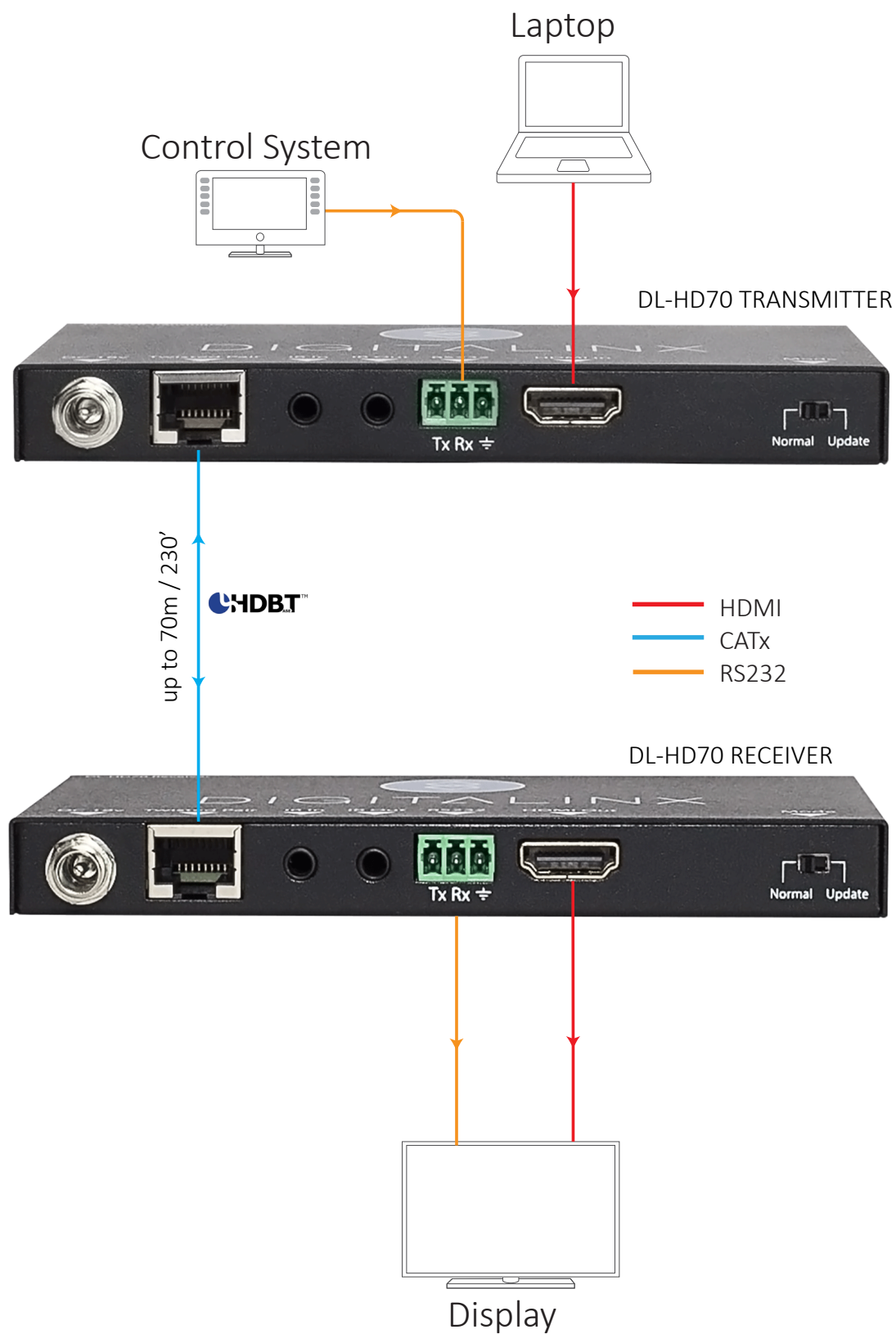# Application Diagrams

HDMI Extension / Bi-Directional IR Control

HDMI Extension / Control System IR Control

Control System / Switcher

IR-AC CABLE ⟶

DL-HD70 TRANSMITTER

Tx Rx ⏚

Normal   Update

up to 70m / 230'

⟩HDB.T™

HDMI
CATx
IR

DL-HD70 RECEIVER

Tx Rx ⏚

Normal   Update

IR Emitter

Display

HDMI Extension / Control System RS232 Control

Laptop

Control System

DL-HD70 TRANSMITTER

up to 70m / 230'

HDBT™

—— HDMI
—— CATx
—— RS232

DL-HD70 RECEIVER

Display

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Technical Specifications

Supported Audio and Video	
Video Compliance	HDMI 2.0, HDCP 2.2, and CEC (Consumer Electronics Control)
Embedded Audio	Up to PCM 8 channel, Dolby Digital TrueHD, and DTS-HD Master Audio
IR Carrier Frequency Range	33-55kHz at 5 volts
RS232 Baud Rate	Up to 115200 baud
HDBaseT Signal Characteristics	
Maximum Distance	70 m
Cable Requirements	Solid core shielded Category 6 or greater with TIA/EIA-568B crimp pattern
Bandwidth	10.2 Gbps
Chassis and Environmental	
Dimensions	135mm x 74mm x 15mm (5.31 in. x 2.91 in. x 0.59 in.)
Operating Temperature (Environment)	0° to +40° C (+32° to +104° F)
Operating Temperature (Chassis)	31° C (88° F) (S); 38° C (100° F) (R)
Operating Humidity (Environment)	20% to 90%, Non-condensing
Power	
Maximum Power Consumption	3 watts (S), 6 watts (R)
Power Supply Input Voltage	100-240V AC at 50-60 Hz
Power Supply Output Voltage	18V DC
Regulatory	CE, RoHS
Other	
Standard Warranty	5 Years
Included Items	Quick Install Guide, Power Supply with 4 Power Plug Adapters for US, EU, AU, UK, IR Transmitters (2 ea), IR Receivers (2 ea), (1) IR-AC IR coupler cable, Mounting Brackets (4 ea), Mounting Screws (4 ea)

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

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