DIGITALINX
VALUE-ENGINEERED DIGITAL SOLUTIONS

DL-FHD2 Owners Manual

LIBERTY
AV SOLUTIONS
A SUBSIDIARY OF WESCO DISTRIBUTION, INC.

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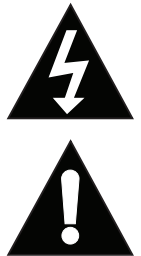
» **WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE AND OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THIS APPARATUS.**

» 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-FHD2 HDBaseT extender set extends uncompressed HDMI audio, video up to 18Gbps as well as control up to 300m / 984' using a duplex multi-mode OM3 fiber cable. Supports HDMI 2.0b, HDR10, HDR10+ Dolby Vision and HDCP 2.2 as well as Dolby and DTS audio formats. Control and audio extension supports bidirectional IR, Ethernet, ARC and RS232.

The DL-FHD2 is sold only as a set. The individual transmitter and receiver are not compatible with other extender devices.

Package Contents

- (1) DL-FHD2 Transmitter and Receiver Set
- (2) IR Receivers (Eye)
- (2) IR Transmitters (Emitter)
- (1) RS232 Breakout Cables (3 pin to DB9)
- (2) 3 pole Terminal Block (attached to extenders)
- (2) DC12v US Power Supply with US, UK, EU and AU adapters
- (4) Mounting Brackets with screws
- (8) Plastic Cushions
- (1) Quick Install Guide

Front and Rear View

Transmitter
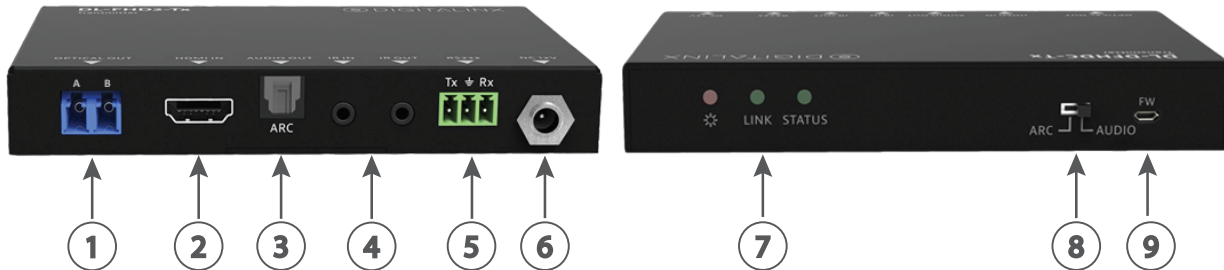
1. OPTICAL OUT (A B)
   - LC-LC Fiber Optic output for duplex LC fiber to DL-FHD2 receiver connection
2. HDMI IN
   - HDMI input port for connection to video sources
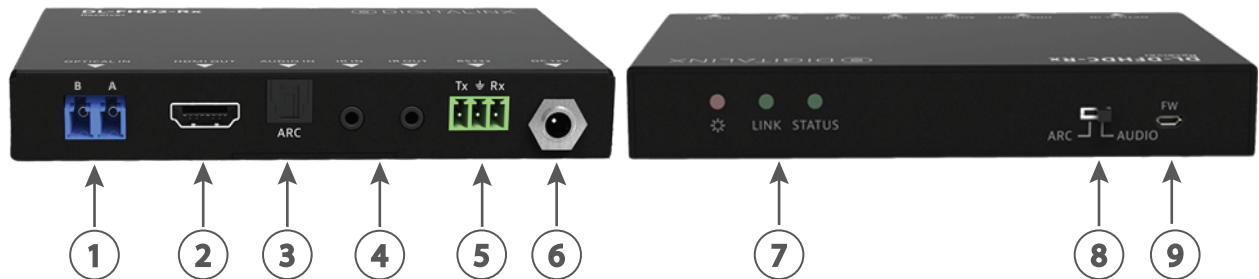3. AUDIO OUT (ARC)
   - Digital audio output port (TOSLINK) for routing multi-channel audio from DL-FHD2 receiver to audio amplifier or mixer
4. IR IN / IR OUT
   - 3.5mm IR input port for connection to IR receiver or IR system
   - 3.5mm IR output port for connection to IR emitter
5. RS232
   - 3 pin Phoenix connector port for connecting and passing RS232 control to receiver / display location
6. DC 12V
   - Locking power port, connect DC12V power adapter to transmitter (both TX and RX must be powered individually to activate circuit)
7. FRONT PANEL DIAGNOSTIC LEDs;
   - *POWER* - When solid, the DL-FHD2 extender is receiving power from the DC power supply
   - *LINK* - When solid green, the transmitter and receiver fiber optic links are successful
   - *STATUS* - When solid green, signal data is transmitting successfully between the transmitter and receiver
8. AUDIO MODE SELECTION SWITCH
   - *ARC* - Switches audio mode to ARC
   - *AUDIO* - Switches audio mode to audio pass through (from receiver)
9. FW
   - Micro USB B port for firmware updates

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Receiver

1. OPTICAL IN (B A)
   - LC-LC Fiber Optic input for duplex LC fiber to DL-FHD2 transmitter connection
2. HDMI OUT
   - HDMI output port for connection to display
3. AUDIO IN (ARC)
   - Digital audio input port (TOSLINK) for routing multi-channel audio to DL-FHD2 transmitter
4. IR IN / IR OUT
   - 3.5mm IR input port for connection to IR receiver or IR system
   - 3.5mm IR output port for connection to IR emitter
5. RS232
   - 3 pin Phoenix connector port for connecting and passing RS232 control from and to transmitter location
6. DC 12V
   - Locking power port, connect DC12V power adapter to receiver (both TX and RX must be powered individually to activate circuit)
7. FRONT PANEL DIAGNOSTIC LEDs;
   - *POWER* - When solid, the DL-FHD2 receiver is receiving power from the DC power supply
   - *LINK* - When solid green, the transmitter and receiver fiber optic links are successful
   - *STATUS* - When solid green, signal data is transmitting successfully between the transmitter and receiver
8. AUDIO MODE SELECTION SWITCH
   - *ARC* - Switches audio mode to ARC
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9. FW
   - Micro USB B port for firmware updates

Installation Instructions

Quick Start

1. Mount the extender set
2. Connect a source
3. Connect a display
4. Connect audio input / output (optional)
5. Connect control (optional)
6. Apply power

Mount the Extender Set

At least 2 inches of free air space is required on both sides of the DL-FHD2 for proper side ventilation. Avoid mounting the DL-FHD2 near a power amplifier or any other source of significant heat.

Attach the supplied mounting rails to the sides of the transmitter / receiver. Once the rails are installed the receiver can be mounted in an A/V enclosure or on the wall behind a display or above a projector.

Connecting a Video Source

HDMI Input

Connect an HDMI source device to the HDMI input on the transmitter using an HDMI cable that is less than or equal to 5 meters in length.

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Connecting a Display

HDMI Output

Connect the display devices to HDMI output on the receiver using an HDMI cable that is less than or equal to 5 meters in length. For display devices that are further away, it is highly recommended to utilize the HDBaseT output.

Optical Input / Output

Connect a duplex LC-LC OM3 multimode fiber cable from the OPTICAL OUT of the transmitter to the OPTICAL IN of the receiver. Be sure that you route the duplex fiber cable as numbered on the transmitter and receiver, i.e. OPTICAL PORT 1(TX)- OPTICAL PORT 1(RX); OPTICAL PORT 2(TX)- OPTICAL PORT 2 (RX).

To ensure proper performance of the DL-FHD2, it is recommended that you use multi-mode OM3 fiber optic cabling.

Connect Audio Input / Output

Connect a Toslink digital audio cable to the transmitter and receiver from AVR / display, use the audio mode selection switch on the front of the transmitter and receiver to set the audio mode of choice. See page 11 for audio mode selection status and page 12 for application diagrams for the physical routing of the desire mode.

Connecting Control

Passing IR Signals

The DL-FHD2 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.

IR OUT: The IR transmitter (IR emitter) must be plugged into the IR OUT port.

IR IN: The IR receiver (IR eye) must be plugged into the IR IN port.

To connect to a 3rd party IR system such as a control system, the Digitalinx IR-AC IR coupling cable (sold separately) is required. Connect the TS connector of the IR-AC coupling cable 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-FHD2.

RS232 Control Wiring

Connect the controller or device RX signal to TX port of the DL-FHD2 transmitter / receiver. Then connect the controller or device TX signal to the RX port on the DL-FHD2 transmitter / receiver.
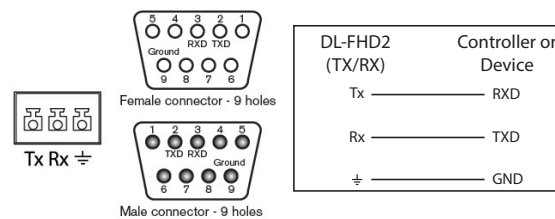
Apply Power

Plug the power supply into the power input port on the rear of DL-FHD2 receiver and transmitter. For proper operation both the transmitter and receiver must be powered simultaneously.
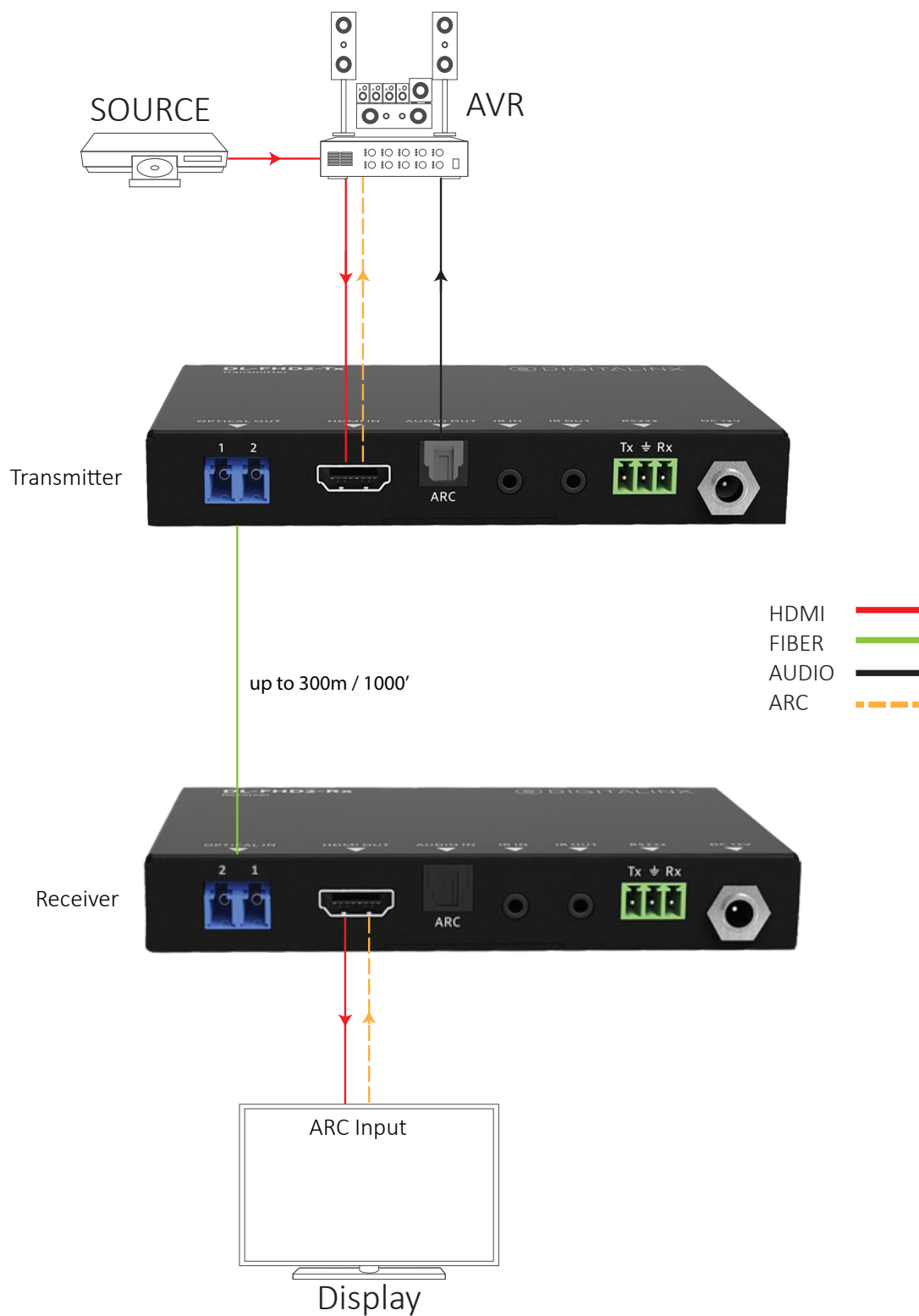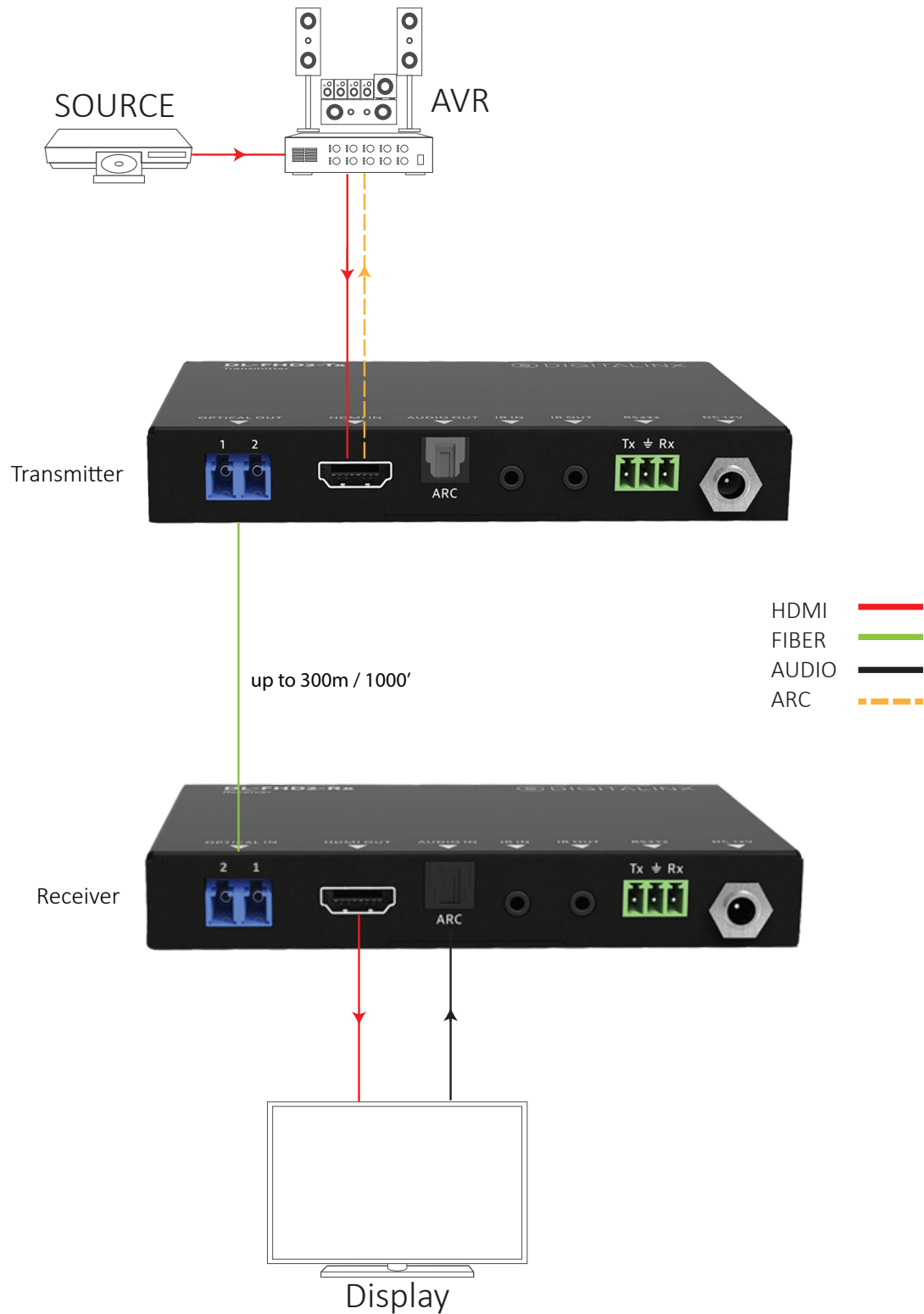
Audio Mode Selection Status

There are four ways to route digital audio with the DL-FHD2 extender system. Below is a chart indicating the routing status based on the audio mode switch selections on the transmitter and receiver

MODE SELECTION		ROUTING DESCRIPTION
TX	RX	
ARC	ARC	Audio signal transmitted from receiver / ARC display connection to transmitter (HDMI IN) and (AUDIO OUT)
ARC	AUDIO	Audio signal transmitted from display digital output to receiver (AUDIO IN), transmits audio to transmitter (HDMI IN)
AUDIO	ARC	Audio signal transmitted from receiver / ARC display connection to transmitter (AUDIO OUT) only
AUDIO	AUDIO	Audio signal transmitted from display digital output to receiver (AUDIO IN), transmits audio to transmitter (AUDIO OUT) only

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Application Diagrams

Audio Mode: Transmitter (ARC) / Receiver (ARC)

SOURCE

AVR

Transmitter

up to 300m / 1000'

HDMI	
FIBER	
AUDIO	
ARC	

Receiver

ARC Input

Display

Audio Mode: Transmitter (ARC) / Receiver (AUDIO)

SOURCE

AVR

Transmitter

up to 300m / 1000'

HDMI	
FIBER	
AUDIO	
ARC	

Receiver

Display

Audio Mode: Transmitter (AUDIO) / Receiver (ARC)

SOURCE

AVR

Transmitter

up to 300m / 1000'

HDMI
FIBER
AUDIO
ARC

Receiver

ARC Input

Display

Audio Mode: Transmitter (AUDIO) / Receiver (AUDIO)

SOURCE

AVR

Transmitter

up to 300m / 1000'

HDMI	————
FIBER	————
AUDIO	————
ARC	― ― ― ―

Receiver

Display
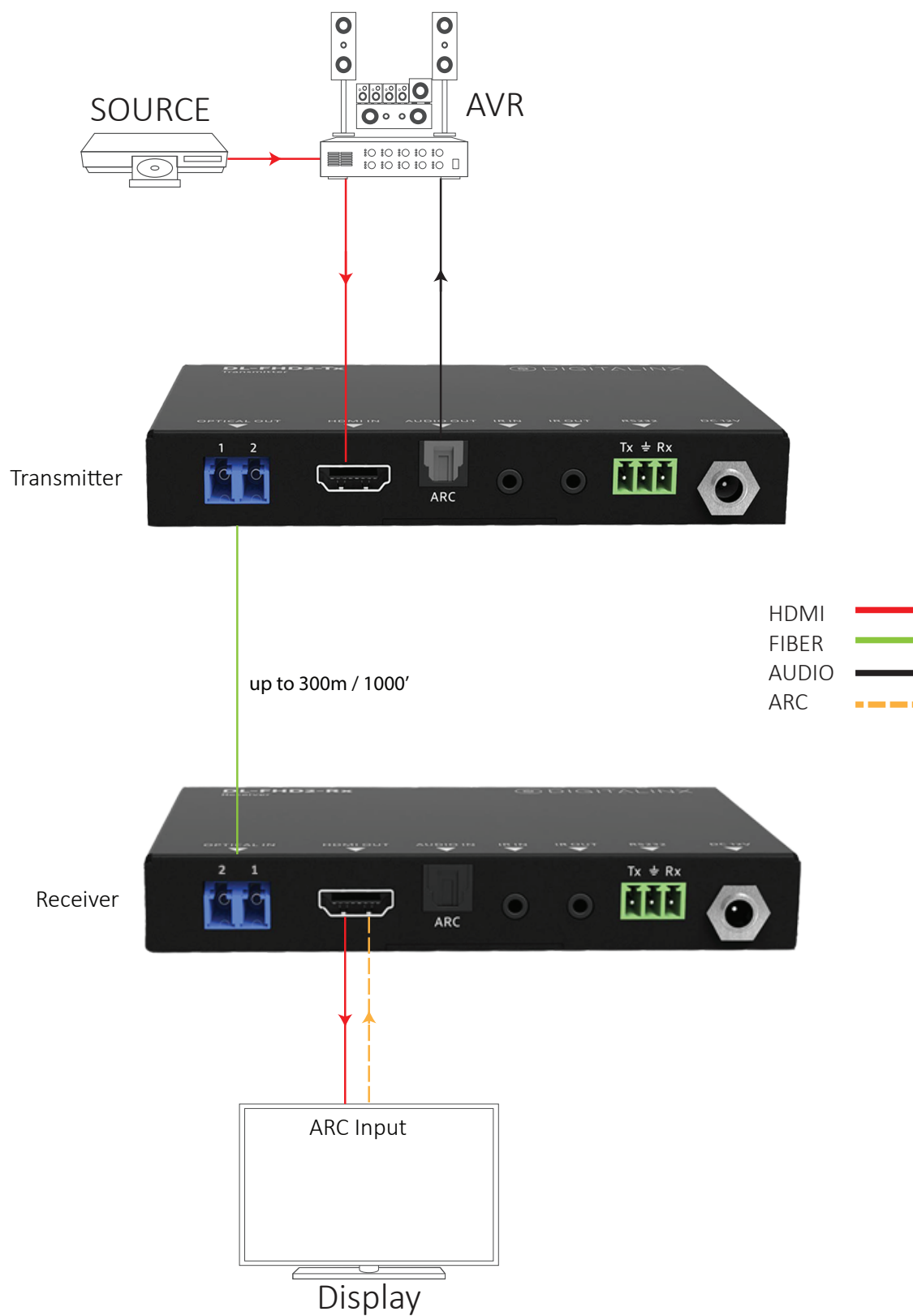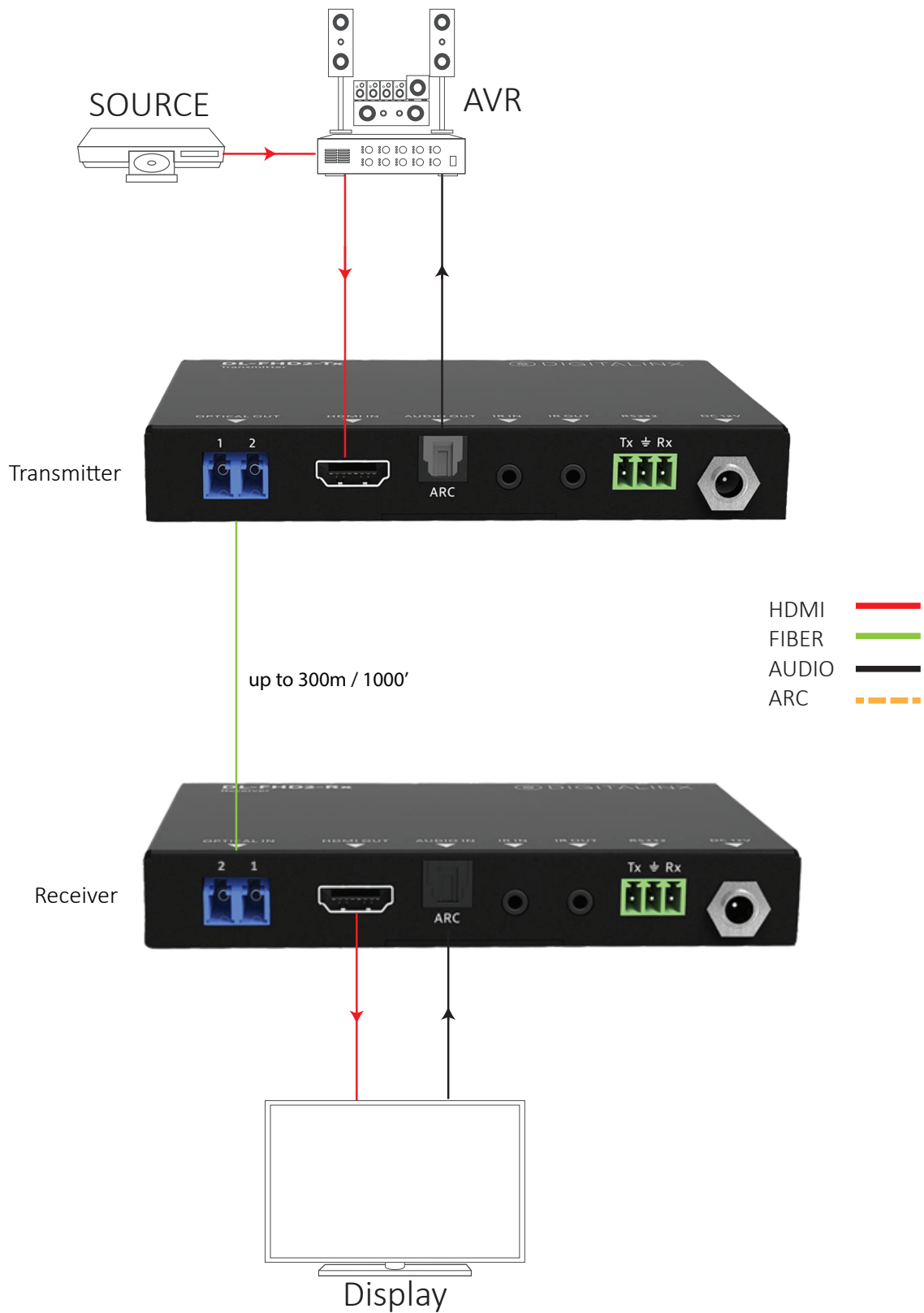
Technical Specifications

Supported Audio and Video	
Video Compliance	HDMI 2.0b, HDCP 2.2, ARC (Audio Return Channel) and CEC (Consumer Electronics Control)
Input / Output Resolution Support	All resolutions are supported up to 4096x2160 / 60Hz; 4:4:4; 8 bit deep colour
Maximum Pixel Clock	594MHz
Embedded Audio	LPCM, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD
ARC (Audio Return Channel)	Up to 6 channel audio
IR Carrier Frequency Range	33-55kHz at 5 volts
RS232 Baud Rate	Up to 115200 baud
Fiber Optic Signal Characteristics	
Maximum Distance	300 meters / 984 feet
Required Cable Type	Duplex LC-LC OM3
Bandwidth	35Gbps
Chassis and Environmental	
Dimensions (W*H*D)	125 mm (4.92 in) x 19 mm (0.75 in) x 86 mm (3.17 in)
Operating Temperature (Environment)	0 to + 45°C (32 to + 113 °F)
Operating Temperature (Chassis)	35 to + 44°C (95 to + 111 °F)
Operating Temperature (Storage)	-20 to +70°C (-4 to + 158 °F)
Operating Humidity (Environment)	10% to 90%, Non-condensing
Product Weight	175g / .4 lbs
Power	
Maximum Power Consumption	9 watts
Power Supply Input Voltage	100-240V AC at 50-60 Hz; 0.5A Max
Power Supply Output Voltage	DC 12V 1A
ESD Protection	±8kV(Air-gap discharge)/ ±4kV(Contact discharge)
Regulatory	CE, FCC, RoHS
Other	
Standard Warranty	5 Years
Included Items	(1) Transmitter, (1) Receiver, (1) Quick Install Guide, (2) DC 12V Power Supply with US, UK, EU and AU adapters, (2) IR Transmitters, (2) IR Receivers, (4) Mounting Brackets, Mounting Screws, (8) Tab Cushions

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Thank you for your purchase.

For Technical Support please call our toll free number at
800-530-8998 or email us at supportlibav@libav.com

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