

USER MANUAL

DL-HDE100-H3 Owners Manual



Digitalinx Series HDMI 2.0 Uncompressed 100m Extension Set

18G HDBaseT 3.0 Extender set extends uncompressed resolutions up to 4K60 4:4:4, IR,RS232,Power, and Gigabit ethernet up to 100m with built in test pattern generator and adjustable bandwidth mode for maximum cable compatibility

Liberty

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PRODUCT OVERVIEW

The Digitalinx DL-HD100-H3 HDBaseT 3.0 extender set transmits video, audio, IR, Gigabit ethernet, and RS232 over single category 6a F/UTP or better twisted pair cable. The DL-HD100-H3 can transmit 4K resolutions up to 4K@60Hz 4:4:4 up to 100m. The Digitalinx DL-HD1000-H3 supports HDMI 2.0 and is HDCP 2.2/2.3 compliant and supports CEC pass-through. The Digitalinx DL-HD100-H3 supports multiple audio formats including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X . The Digitalinx DL-HD100-H3 supports any HDR format, including Dolby Vision and HDR10+.

DL-HDE100-H3 units purchased after 2/15/25 offer two bandwidth modes to adapt to different category cables and installations. It allows not only Cat 6A or above cables but also lower specification cables, such as Cat 5e and Cat 6 by optionally engaging compression circuitry. The extender kit includes test pattern generation with both non-HDCP and HDCP 2.2 to troubleshoot setup not only link capabilities, but also HDCP capabilities

The DL-HD100-H3 has an EDID Dipswitch to allow manual or auto EDID selection.

The DL-HD100-H3 is sold only as a set with a single power supply which can be used on either side

PACKAGE CONTENTS

- DL-HD100-H3 extender set
- (2) 3pin-3.81mm Phoenix Connectors (Male)
- (4) Mounting Ears with Mounting Screws
- 12V 2A Power Adapter with US, UK, AU AND EU Power Adapters
- (1) IR Emitter
- (1) IR Receiver (30kHz - 50kHz)
- (1) IR-AC Coupler Cable

Features

- HDMI 2.0b and HDCP 2.3 compliant.
- HDBT 3.0 technology built-in. It supports resolutions up to 4K@60Hz 4:4:4 8bit along with other signals, such as IR, RS232, 1GbE ETHERNET and optical audio to 330ft/100m via Cat 6A F/UTP or above cable.
- Additional HDMI loop-out on the transmitter with auto 4K-to-1080P scaler built-in.
- Supports HDR formats up to 4K@60Hz, including HLG, HDR10, HDR10+, and Dolby Vision.
- Supports two bandwidth modes to adapt to different wiring. This can be configured via extender TX front panel:
 - In high-bandwidth mode DL-HDE100-H3 transmits uncompressed video over Cat 6A or above cable up to 330ft/100m.
 - In low-bandwidth mode, it transmits visually lossless video and allows use of lower specification Cat 5e or Cat 6 cable up to 230ft/70m. (Note, this feature is only available on units purchased after 2/15/25)
- Test pattern generation supports both non-HDCP and HDCP 2.2 encrypted patterns to troubleshoot setup. (Available on units purchased after 2/15/25)
- Supports OPTICAL audio return up to 5.1ch.
- Supports HDMI audio de-embedding on the transmitter side, via both 3.5mm analog audio out and optical digital audio output.
- Supports bi-directional IR, RS232, 1GbE ETHERNET and CEC pass-through.
- Supports bi-directional PoC, only requiring one power supply to be connected at either end.
- Firmware upgradable.
- Plug and play.

Transmission Distance

Note:

- Straight-through category cable wired to T568B standard is recommended.
- For max HDMI 2.0 performance, recommended cable is: Cat 6A U/FTP or above.
- The extender supports two transmission modes: High-bandwidth and Low-bandwidth.

When the extender is set to High-bandwidth mode (set the pin4 of the DIP switches of the transmitter and receiver to “Up” position):

Cable Type	Range	Supported Video
Cat 5e/6 (UTP)	131ft/40m	4K@60Hz 4:4:4 24bpp
Cat 6A (F/FTP or U/FTP)	330ft/100m	

When the extender is set to Low-bandwidth mode (set the pin4 of the DIP switches on the transmitter and receiver to “Down” position):

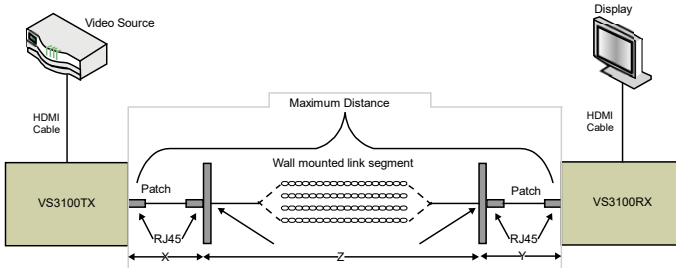
Cable Type	Range	Supported Video
Cat 5e/6 (UTP)	230ft/70m	4K@60Hz 4:4:4 24bpp
Cat 6A (F/FTP or U/FTP)	330ft/100m	

Note: Check the DIP settings on how to configure the high and low bandwidth mode.

Use Patches

Patches may be used in the installation, but the patches will affect the transmission distance. Limits and distances are as follows:

- Support up to 2 patch cables, each not exceeding 5m.
- Patches must be installed on both ends of the device, refer to the following pictures:



The standard specifies the following lengths for the three-segment cable installation:

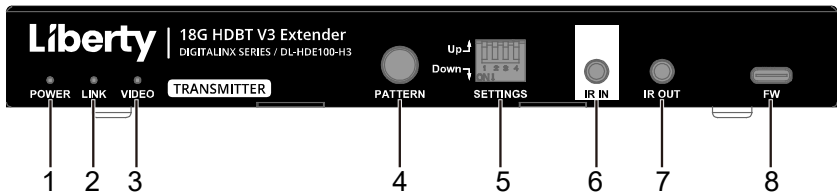
- X = Left-side patch cable length ≤ 5 [meter]
- Y = Right-side patch cable length ≤ 5 [meter]
- Z = Wall segment \leq Maximum Distance – X – Y [meter]

Note: The use of patches introduces a transmission distance loss of 10m.

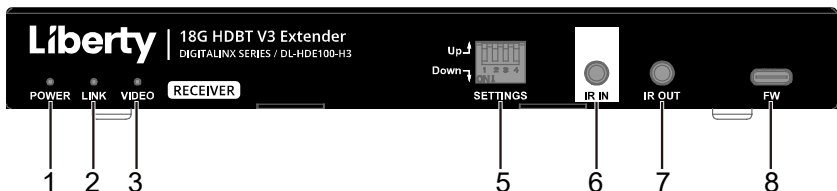
Panel Descriptions

Front Panel

Transmitter



Receiver

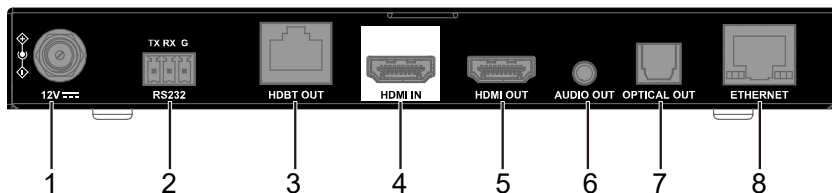


No.	Name	Description
1	POWER LED	On/Off: The device is powered on/off.

No.	Name	Description
2	LINK LED	On: HDBT link is normal. Off: No HDBT link or link error.
3	VIDEO LED	Green: Source video is being transmitted. Red: Pattern video with HDCP 2.2 is being transmitted. Blue: Pattern video without HDCP is being transmitted. Off: No video is being transmitted.
4	PATTERN Button (Transmitter only)	The default mode is Source video mode. <ul style="list-style-type: none"> Hold the button for about 3s to enter/exit Pattern video mode. Short press the button to switch between HDCP-encrypted and no HDCP-encrypted signals in Pattern mode. Pattern video mode is usually used for testing video transmission of the extender. Detail information, please refer to “ Test Pattern Generation ” section.
5	DIP Switch	For audio mode configurations and firmware upgrade configurations. See “ DIP Switch Settings ” section to get detail information.
6	IR IN	Connect to the IR receiver provided.
7	IR OUT	Connect to the IR emitter provided.
8	FW	USB Type-C port. Connect to a PC for firmware upgrade.

Rear Panel

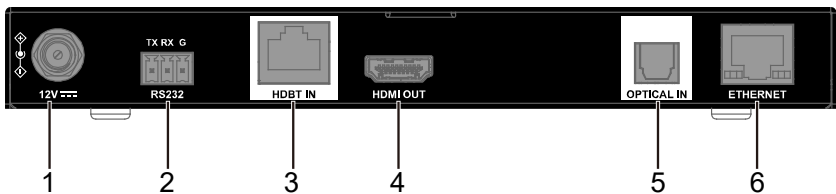
Transmitter



No.	Name	Description
1	DC 12V	Connect to the power adapter provided. With bi-

No.	Name	Description
		directional PoC, whether the power adapter is connected to the transmitter or receiver, it can power both the units.
2	RS232	Connect to RS232 enabled devices, for RS232 pass-through.
3	HDBT OUT	Connect to the HDBT IN port of the receiver.
4	HDMI IN	Connect to an HDMI source device.
5	HDMI OUT	Connect to an HDMI display for video looping out. Note: When input 4K@60Hz signal in Low-bandwidth mode, this loop-out port doesn't support downscaler function.
6	AUDIO OUT	Connect to an audio receiver. When set the extender to OPTICAL audio return mode, this port will output the audio comes from OPTICAL IN. When set the extender to Audio de-embedded mode, this port will output the de-embedded audio from HDMI IN.
7	OPTICAL OUT	Connect to the optical in port of an audio receiver.
8	ETHERNET	Connect to local area network or Ethernet device for Ethernet pass-through.

Receiver



No.	Name	Description
1	DC 12V	Connect to the power adapter provided. With bi-directional PoC, whether the power adapter is connected to the transmitter or receiver, it can power both the units.
2	RS232	Connect to RS232 enabled devices, for RS232

No.	Name	Description
		pass-through.
3	HDBT IN	Connect to the HDBT OUT port of the transmitter.
4	HDMI OUT	Connect to an HDMI display.
5	OPTICAL IN	Connect to an optical out port of a display.
6	ETHERNET	Connect to local area network or Ethernet device for Ethernet pass-through.

Installation and Wiring

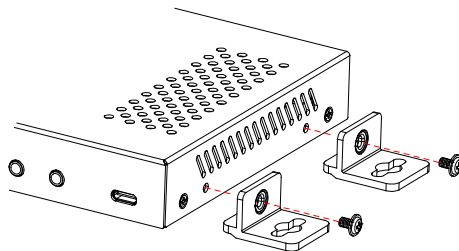
Installation

Warnings:

- Before wiring, disconnect the power from the device.
- During wiring, connect and disconnect the cables gently.

Steps to install the device:

1. Attach the installation bracket to the enclosure using the screws provided in the package separately.
2. The bracket is attached to the enclosure as shown.



3. Repeat the steps from 1 to 2 for the other side of the unit.
4. Attach the brackets to the surface you want to hold the unit against using the screws (provided by others).
5. Repeat the steps from 1 to 4 to install the receiver.

Wiring

Warnings:

- Before wiring, disconnect the power from all devices.
- During wiring, connect and disconnect the cables gently.
- The Cat x cable should not exceed the maximum cable length, refer to the specifications section for details.

Audio and Video Extender Mode:

1. Connect an HDMI source to HDMI IN port of the transmitter, and connect an HDMI display to HDMI OUT port of the receiver.
2. Connect the transmitter and the receiver.
3. Connect the provided power adapter to the transmitter or receiver.
4. Power on all attached devices. The audio and video signal from the HDMI source will be transmitted to the HDMI display (See Figure 1).

Note: Users can set audio input EDID through DIP switch on the transmitter, see [“DIP Switch Settings”](#) to get detail information.

OPTICAL audio return mode:

1. Set the DIP switch of transmitter to Audio return mode (See [“DIP Switch Settings”](#) section).
2. Connect an audio receiver to the OPTICAL OUT port of transmitter.
3. Connect an audio source to OPTICAL IN port of receiver.
4. Connect the transmitter and the receiver.
5. Connect the provided power adapter to the transmitter or receiver.
6. Power on all attached devices. Audio signal from OPTICAL IN port will be transmitted to OPTICAL OUT port (See Figure 1).

Note: In this mode, audio signals from the OPTICAL IN port will also be transmitted to the AUDIO OUT port, and will output an analog audio signal. If audio signal is compressed audio, AUDIO OUT port will be muted.

OPTICAL audio de-embedded mode:

When setting the DIP Switches to OPTICAL audio de-embedding mode (see "[DIP Switch Settings](#)" to get detail information), the audio receiver connected to OPTICAL OUT port and AUDIO OUT port will output the de-embedded audio from HDMI IN (See Figure 2).

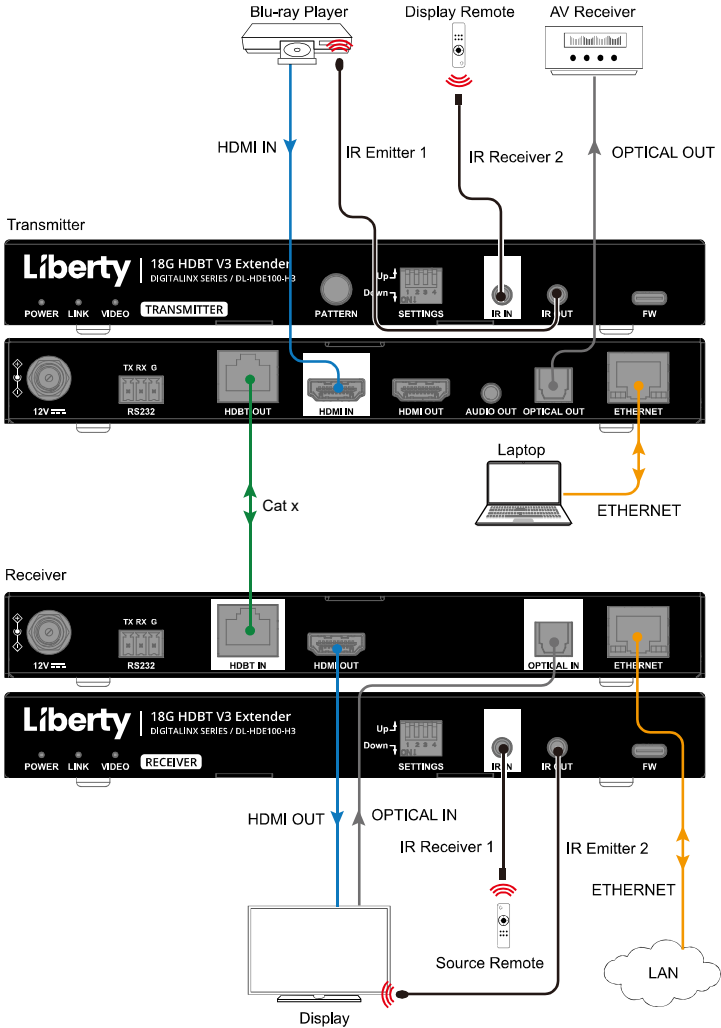


Figure 1

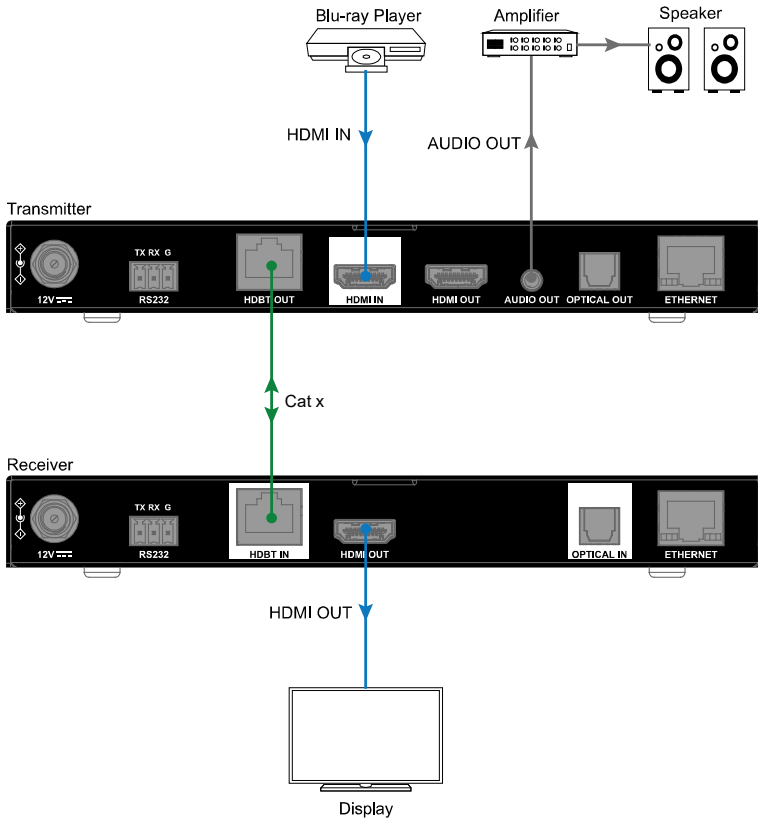


Figure 2

Additional control connection selection:

- RS232 Pass-through: Connect a RS232 control system/controlled device to the transmitter/receiver, and connect a RS232 controlled/control system device to the receiver/transmitter for serial communication. See [“RS232 Pass-Through”](#) section to get detail information.
- IR Pass-through: Connect the IR emitter cable provided to IR OUT port of the transmitter/receiver. Connect the IR receiver cable provided to IR IN port of the receiver/transmitter. Users can control the source at the receiver side using source remote or control the display at the transmitter

side using display remote (See Figure 1).

- Ethernet Pass-through: Connect the ETHERNET port of the transmitter/receiver to local area network, and connect a laptop to the ETHERNET port of the receiver/transmitter, the laptop can access to the connected local area network (See Figure 1).

Test Pattern Generation

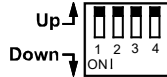
The extender kit supports generation of a test pattern video signal, with different HDCP capabilities. This feature is usually used to test setup before use and help troubleshooting. (Only available on units purchased after 2/15/25)

The “Pattern” button on the front panel of the transmitter is used to switch different pattern generation options.

- Hold the button for about 3s to enter test pattern generation. In this mode, short press the button to switch between non-HDCP video and HDCP 2.2 encrypted video. When test pattern is set to non-HDCP, the VIDEO LED will light blue, and the extender will output a black and white bar image. When test pattern is set to HDCP 2.2, the VIDEO LED of the extender will light red, and extender will output a black and white chessboard image.
- To exit the pattern mode, hold the button for about 3s and extender will exist the pattern mode.

DIP Switch Settings

Using DIP switches on front panel of the transmitter and receiver to set audio mode, set upgrade function and bandwidth rate.



Please refer to the following table to set:

Transmitter:

1	2	3	4	Function
Up	-	-	-	Audio EDID 2CH (default)
Down	-	-	-	Audio EDID pass-through
-	Up	-	-	Audio de-embed (default)
-	Down	-	-	Audio return (from OPTICAL IN of the receiver)
-	-	Up	-	Upgrade Valens (default)
-	-	Down	-	Upgrade MCU
-	-	-	Up	High-bandwidth mode (default)
-	-	-	Down	Low-bandwidth mode

Receiver:

1	2	3	4	Function
-	-	Up	-	Upgrade Valens (default)
-	-	Down	-	Upgrade MCU
-	-	-	Up	High-bandwidth mode (default)
-	-	-	Down	Low-bandwidth mode

Note: “-” indicates the position of this pin doesn’t affect the current function.

Instructions of DIP Switches:

- When set the DIP switch on front panel of the transmitter to “Up, x, x, x”, the extender will automatically filter EDID and only supports PCM 2.0CH. When set the DIP switch on front panel of the transmitter to “Down, x, x, x”, the audio input EDID is set to copy display’s EDID.
- When set the DIP switch on front panel of the transmitter to “x, Up, x, x”, the AUDIO OUT port and OPTICAL OUT port of the transmitter will output the de-embedded audio from HDMI IN. When set the DIP switch on front panel of the transmitter to “x, Down, x, x”, the AUDIO OUT port and OPTICAL OUT port of the transmitter will output the audio from OPTICAL

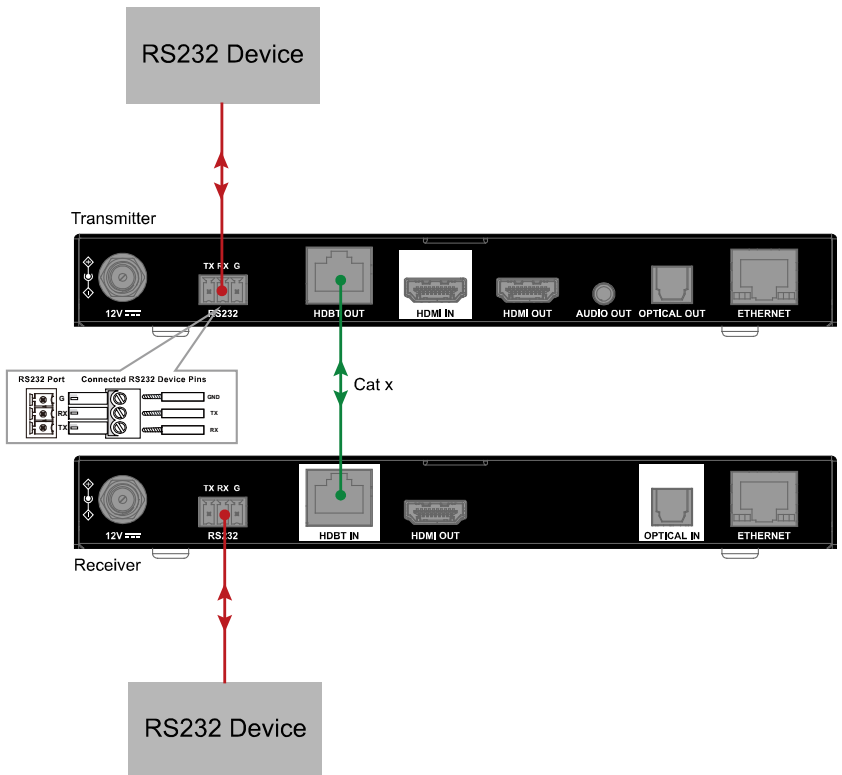
IN port of the receiver. If audio source signal is compressed audio, AUDIO OUT port will be muted.

- Both Valens firmware of the transmitter and receiver can be upgraded through FW port of the transmitter/receiver. Set the DIP switch of the transmitter/receiver to “x, x, Up, x”. Connect a PC to FW port of the transmitter/receiver, and connect the transmitter and receiver, users can upgrade Valens firmware of transmitter and receiver through the FW port of the transmitter/receiver.
- Set the DIP switch of the transmitter/receiver to “x, x, Down, x” position, and connect a PC to FW port of the transmitter/receiver to upgrade the MCU firmware of the transmitter/receiver.
- When set both transmitter and receiver DIP switches pin 4 to “Up”, the extender will work in high-bandwidth mode. In this mode, the extender transmits uncompressed AV signal using Cat 6A (foiled twisted pair) cable up to 330ft/100m. When set both transmitter and receiver DIP switches pin 4 to “Down”, the extender enters low-bandwidth mode. In this mode, it transmits visually lossless AV signal using Cat 5e/6 cable up to 230ft/70m. For more detail information, please refer to “[Transmission Distance](#)” part in “Specification” section.

RS232 Pass-Through

RS232 ports can be used for bi-directional RS232 signal pass-through between the transmitter and receiver.

1. Connect a RS232 master/slave Device to RS232 port of transmitter /receiver and connect a slave/master device to RS232 port of receiver/transmitter.
2. Connect HDBT OUT of the transmitter to HDBT IN of the receiver.
3. When all is set, RS232 signal can be passed through bi-directionally between two RS232 devices.



Cabling Requirements

HDBaseT Cabling

HDBaseT3.0 Specification is made using high quality Cat6a F/UTP cabling. For maximum full capability performance, ensure Cat6a F/UTP or above is used. To ensure proper performance of the DL-HDE100-H3, it is recommended that you use solid core, shielded Category 6a F/UTP or above cabling. Category 6 or 5e F/UTP may work but only over reduced distances



When using shielded category cabling *ALWAYS*...

-use shielded connectors
-properly ground the category cable

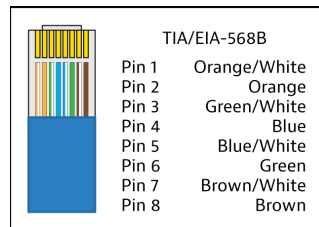
For optimized HDBaseT performance use the following Liberty Wire and Cable branded cabling;

Category 6 plenum; **24-4P-P-L6SH**

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

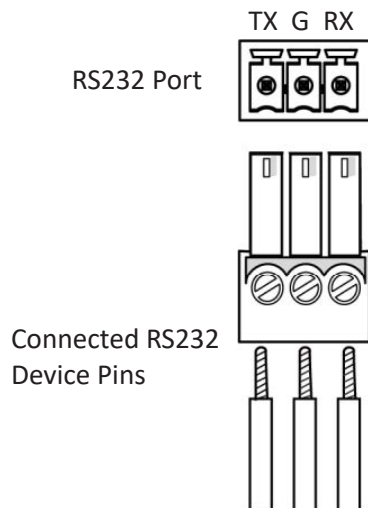
Category 6 NON-plenum; **24-4P-L6SH**

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



Twisted Pair Wiring

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



RS232 Wiring

Connect the controller or device RX signal to TX on the DL-HD70-H3 extender. Connect the controller or device TX signal to Rx on the DL-HD70-H3 extender.

TECHNICAL SPECIFICATIONS

Model	DL-HDE100-H3
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Technical	
Input/Output Ports	Transmitter: 1 x HDMI IN, 1 x HDMI OUT, 1 x HDBT OUT, 1 x OPTICAL OUT, 1 x AUDIO OUT, 1 x IR IN, 1 x IR OUT, 1 x RS232, 1 x ETHERNET, 1 x FW (USB-C), 1 x DC 12V IN Receiver: 1 x HDMI OUT, 1 x HDBT IN, 1 x OPTICAL IN, 1 x IR IN, 1 x IR OUT, 1 x RS232, 1 x ETHERNET, 1 x FW (USB-C), 1 x DC 12V IN
Input/Output Signal Type	HDMI with 4K@60Hz 4:4:4 8bit, HDCP 2.3 compatibility
Input/Output Resolution Supported	VESA: 800 x 600 ⁸ , 1024 x 768 ⁸ , 1280 x 768 ⁸ , 1280 x 800 ⁸ , 1280 x 960 ⁸ , 1280 x 1024 ⁸ , 1360 x 768 ⁸ , 1366 x 768 ⁸ , 1440 x 900 ⁸ , 1600 x 900 ⁸ , 1600 x 1200 ⁸ , 1680 x 1050 ⁸ , 1920 x 1200 ⁸ , 2048 x 1152 ⁸ SMPTE: 1280 x 720P ^{5,7,8} , 1920 x 1080P ^{5,7,8} , 3840 x 2160 ^{2,3,5,6,8} , 4096 x 2160 ^{2,3,5,6,8} 1 = at 23.98 Hz, 2 = at 24 Hz, 3 = at 25 Hz, 4 = at 29.97 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = at 60 Hz
HDR	HDR 10, HDR 10+, HLG, and Dolby Vision (low-latency mode)
Maximum Data Rate	18 Gbps
Maximum Pixel Clock	600 MHz
Audio Format Supported	HDMI: Supports all HDMI 2.0 formats including multi-channel PCM, Dolby True-HD and DTS-HD master audio; OPTICAL Audio Return Mode: Supports 5.1-ch compressed audio, such as Dolby Digital, DTS 5.1, and Dolby Digital Plus, and 2.0-ch uncompressed PCM audio; OPTICAL De-embed Mode: Supports 2.0-ch uncompressed PCM audio; AUDIO OUT: PCM 2.0

General	
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Humidity	10% to 90%, non-condensing
ESD Protection	Human-body Model:

General	
	±8kV (Air-gap discharge)/ ±4kV (Contact discharge)
Power Supply	DC 12V 2A
Power Consumption (Max)	20.04W
Device Dimension (W x H x D)	Transmitter/Receiver: 190mm x 23mm x 115mm/7.48" x 0.91" x 4.53"
Product Weight	Transmitter/Receiver:0.62kg/1.39lbs

COO

Taiwan

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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