



EX1L

**HDMI 2.0b (18Gbps) 4K HDR/DolbyVision®
120m Extender Set**



User Manual

VER 2.0

Thank you for purchasing this Device

The Simplified MFG EX1L was designed to provide years of reliable service. At Simplified MFG we want your experience with this device to be the best possible and are committed to helping achieve that experience. Please read and keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended to protect and extend the life of your equipment. If connected to satellite or cable boxes, the HDSURGE is recommended to prevent surges through the HDMI cable.

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**Please use 568b protocol when terminating the category cable.

1. Introduction

This EX1L 18Gbps HDMI Extender can extend HDR/Dolby Vision™ audio/video, RS-232, bi-directional IR, and the distance is up to 394ft /120m and a 1080p signal up to 150m (492ft) between transmitter and receiver via a single CAT cable. It supports resolution up to 4K2K@60Hz 4:4:4, 18Gbps and HDCP 2.2. Additional features include a HDMI loop out and audio de-embedder port on the TX, and audio de-embedding at the RX device via an optical SPDIF and 3.5mm audio breakout on the RX device and is powered by a single power supply on one end (can be powered from either end). A 12V IR kit is supplied with the extender set as well.

2. Features

- HDMI 2.0, HDCP 2.2 / HDCP 1.4 and DVI 1.0 compliant
- Supports 18Gbps bandwidth
- 120m (394ft) distance at HDMI 2.0b 4K/UHD
- 150m (492ft) distance at 1080p
- HDR 8/10/10+ and Dolby Vision™ support
- Supports digital audio formats including Dolby+, Atmos, and DTS-X
- WCG (Wide Color Gamut) and HLG (Hybrid Log Gamma) support
- 3.5mm Mini-jack stereo audio breakout on TX
- HDMI Loop Out on TX
- Optical SPDIF and 3.5mm Mini-jack stereo audio breakout on RX
- 2-Way 12V IR (kit included)
- Powers from a single end (either RX or TX)

3. Package Contents

Qty	Item
1	18Gbps HDMI over HDBaseT Extender (Transmitter)
1	18Gbps HDMI over HDBaseT Extender (Receiver)
2	IR Blaster cable (1.5 meters)
2	20~60KHz IR Receiver cable (1.5 meters)
4	Mounting Ears
2	3-pin Phoenix connectors
1	24V/1A Locking Power adapter
1	User Manual

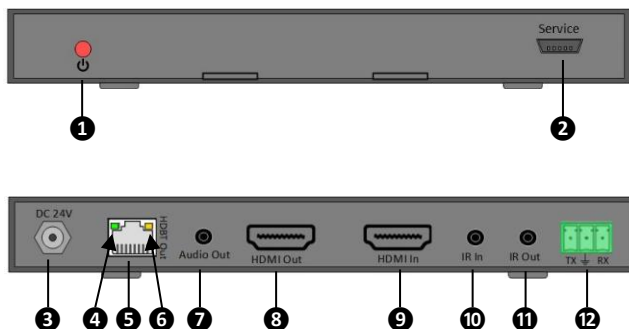
4. Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2 / HDCP 1.4
Video Bandwidth	18Gbps
Video Resolution	4K2K 50/60Hz 4:4:4/4:2:2/4:2:0 4K2K 30Hz 4:4:4 1080p, 1080i, 720p, 720i, 480p, 480i All HDMI 3D TV formats All PC resolutions including 1920 x 1200
Color Space	RGB / YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Color Depth	8/10/12-bit (1080P60Hz, 4K30Hz, 4K60Hz YCbCr 4:2:2/4:2:0) 8-bit (4K60Hz 4:4:4)
HDMI Audio Formats	LPCM 2.0/2.1/5.1/6.1/7.1, Dolby Digital, Dolby TrueHD, Dolby+, Atmos, DTS-ES, DTS HD Master, DTS HD-HRA, DTS-X
L/R Audio Formats	PCM 2.0
SPDIF Audio Formats	LPCM 2.0, LPCM5.1, Dolby Digital 2/5.1
ESD Protection	Human body model — ±8kV (Air-gap discharge) & ±4kV (Contact discharge)

Connections			
Transmitter	Inputs: 1x HDMI Type A [19-pin female] 1x Service [Mini-USB, Update port] Outputs: 1x HDMI Type A [19-pin female] 1 x Audio L/R stereo [3.5mm Mini-jack] 1x HDBT Out [RJ45, 8-pin female] Control: 1x Control: 1x IR IN [3.5mm Stereo Mini-jack] 1x IR Out [3.5mm Stereo Mini-jack] 1x RS-232 [Phoenix jack]		
Receiver	Inputs: 1x HDBT In [RJ45, 8-pin female] 1x Service [Mini-USB, Update port] Outputs: 1x HDMI Type A [19-pin female] 1x Audio out [3.5mm Stereo Mini-jack] 1 x Audio out [Optical SPDIF] Control: 1x IR IN [3.5mm Stereo Mini-jack] 1x IR OUT [3.5mm Stereo Mini-jack] 1x RS-232 [Phoenix jack]		
Mechanical			
Housing	Metal Enclosure		
Color	Black		
Dimensions	Transmitter / Receiver: 155mm/6.1" [W] x 75mm/2.95" [D] x 18mm/0.71" [H]		
Weight	299g/10.5oz.		
Power Supply	Input: AC 100 - 240V 50/60Hz Output: DC 24V/1A (Locking connector)		
Power Consumption	24W Max		
Operating Temp	32 - 104°F / 0 - 40°C		
Storage Temperature	-4 - 140°F / -20 - 60°C		
Relative Humidity	20 - 90% RH (no condensation)		
Resolution / Distance			
4K2K	394ft / 120M		
1080P	492ft / 150M		
Suggest. HDMI Cable length	4K60 - Ft / Meters	4K30 - Ft / Meters	1080P60 - Ft / Meters
HDMI IN / OUT	10ft / 3M	30ft / 10M	50ft / 15M
The use of "Premium High-Speed HDMI" cable is highly recommended.			

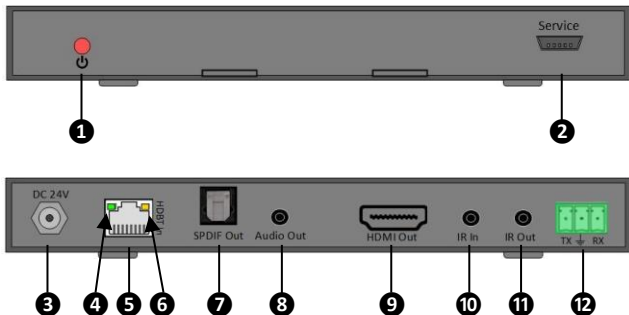
5. Operation Controls and Functions

5.1 Transmitter Panel



No.	Name	Function/Description
1	Power LED	LED indicates power status
2	Service Port	Firmware update port
3	DC 24V	Power Supply connection. The EX1L can be powered from either the TX or the RX. Only one supply is needed.
4	Category Connection LED Indicator	<ul style="list-style-type: none">- Illuminated: The RX and TX are connected well- Flashing: The connection is poor- Off: The connection is not made
5	HDBaseT Out	RJ45 Output for using Cat6/6a/7 cable to connect to RX
6	Data Signal Connection LED Indicator	<ul style="list-style-type: none">- Illuminated: HDMI Signal is passing and has HDCP- Flashing: HDMI Signal is passing and does not have HDCP- Off: HDMI circuit is not complete for some reason (check HDMI cables)
7	Audio Out	3.5mm Stereo audio breakout (not downmixing)
8	HDMI Out	HDMI loop output EDID is copied from this port if used
9	HDMI In	The HDMI source is connected here
10	IR In	IR RX or control system connects here (use mono to mono)
11	IR Out	IR TX (Flasher) connects here and outputs IR from RX IR input
12	RS232	3-Pin Phoenix connector for RS232 pass-through. TX, ground, & RX are indicated on the metal chassis

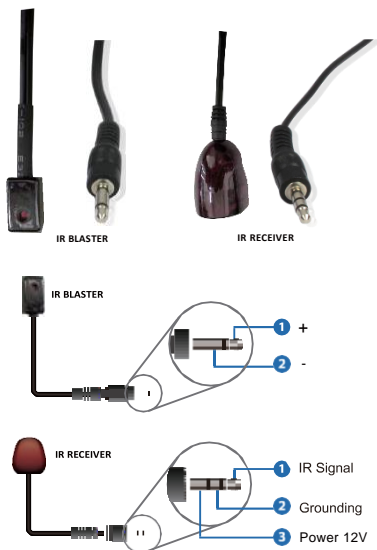
5.2 Receiver Panel



No.	Name	Function/Description
1	Power LED	LED indicates power status
2	Service Port	Firmware update port
3	DC 24V	Power Supply connection. The EX1L can be powered from either the TX or the RX. Only one supply is needed.
4	Category Connection LED Indicator	<ul style="list-style-type: none"> - Illuminated: The RX and TX are connected well - Flashing: The connection is poor - Off: The connection is not made
5	HDBaseT Out	RJ45 Output for using Cat6/6a/7 cable to connect to RX
6	Data Signal Connection LED Indicator	<ul style="list-style-type: none"> - Illuminated: HDMI Signal is passing and has HDCP - Flashing: HDMI Signal is passing and does not have HDCP - Off: HDMI circuit is not complete for some reason (check HDMI cables)
7	Optical Out	Optical audio breakout (outputs stereo up to Dolby Digital 5.1)
8	Audio Out	3.5mm Stereo audio breakout (not downmixing)
9	HDMI Out	The display is connected to this port via a HDMI cable
10	IR In	IR RX port receives IR from IR remote and is output at IR Out on TX
11	IR Out	IR TX (Flasher) connects here and outputs IR from TX IR input
12	RS232	3-Pin Phoenix connector for RS232 pass-through. TX, ground, & RX are indicated on the metal chassis

5.3 IR Pin Definition

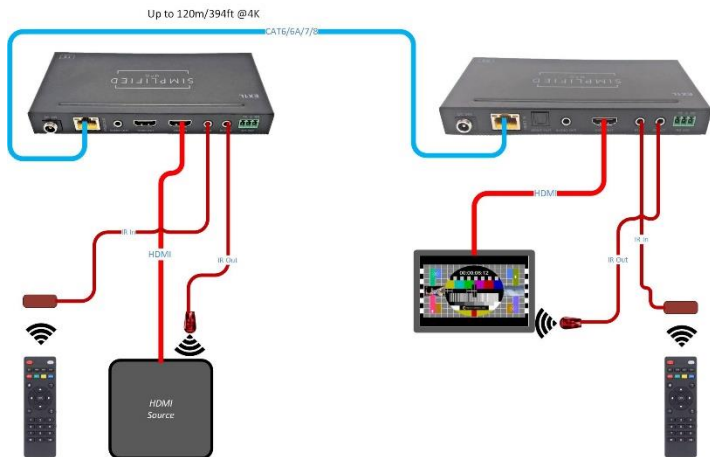
IR Receiver and Blaster pin's definition is as below:



****Note****

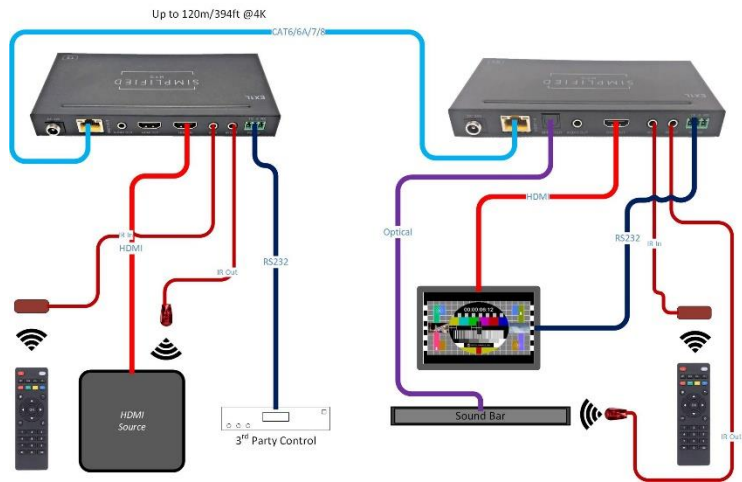
12V IR from a third-party control system can be input into the IR RX on the TX portion of the EX1L. The cable should be a mono-to-mono cable.

5.4 IR System Diagram



Note that IR remote sends signal distance for 0~5 meters/0~8 meters, and angle is plus-minus 45 degrees / vertical direction.

6. Application Example



7. Warranty and Contact Information

Should you feel that this product does not function adequately due to defects in materials or workmanship, we (referred to as “the warrantor”) will, for the length of the period indicated below (starting from the original date of the purchase) either a) repair the product with new or refurbished parts. Or b) Replace the product with new or refurbished product. All Simplified MFG products are covered by a 3-year warranty. During this period there will be no charge for unit repair, replacement of unit components or replacement of the product if deemed necessary. The decision to repair or replace is made by the warrantor. The purchaser must mail in the product during the warranty period. This limited warranty only covers the product purchased as new and is extended to the original purchaser only. It is non-transferrable to subsequent owners, even during the warranty period. A purchase receipt or other proof of purchase date is required for the limited warranty service.

Sales and Tech Support

P. 833-HDMI-411 (833-436-4411)

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