

ENFORCER®

4K ENHANCED HDMI Long Range Extender

MVE-AH1H1-42YQ

Installation Manual

HDMI
HIGH DEFINITION MULTIMEDIA INTERFACE



ENHANCED

The ENFORCER 4K ENHANCED HDMI Long Range Extender extends the range of HDMI signals by using an active transmitter and receiver to send video and audio, RS-232, and bi-directional IR over a single Cat5e/6 cable. It can send 1080p signals up to 492ft (150m) between the two units with zero signal loss, while 4K2K/UHD HDMI signals can be transmitted up to 394ft (120m). A single power supply can power both devices from either end of the installation.

- Extends 1080p up to 492ft (150m) and 4K2K up to 394ft (120m)
- Supports resolutions from 480i to 4K2K/UHD
- Supports 18Gbps video bandwidth
- Plug and play operation – comes as a complete set
- HDCP 2.2 / HDCP 1.4 and DVI 1.0 compliant
- Transmitter includes an HDMI loop output
- Analog stereo output on receiver
- Bi-directional IR, RS-232, and CEC pass-through
- Supports HDF, HDR10+, Dolby Vision, and HLG
- Includes one 24VDC power supply – set can be powered at either the transmitter or receiver

ENFORCER 4K ENHANCED HDMI Long Range Extender

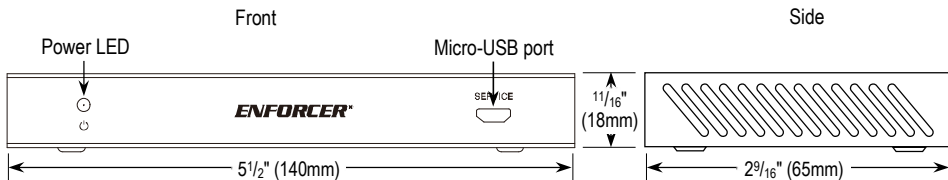
Parts List

1x Transmitter	1x Receiver	1x IR Transmitter	1x IR Receiver
1x 24V Power adapter	4x IR Mounting clips	2x 3-Pin phoenix connector	1x Manual

Specifications

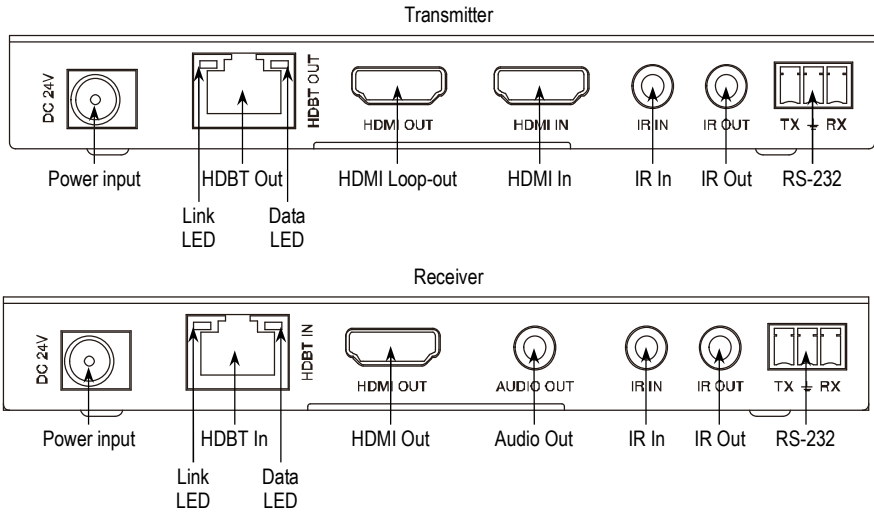
Input video signal	3.3V
Input DDC signal	5Vp-p (TTL)
Maximum single link range	4K2K@60Hz
Deep color	48-bit
Video formats supported	All HDMI 3D, HDCP 2.2
Audio formats supported	LPCM 2.0/2.1/5.1/6.1/7.1, Dolby Digital, Dolby TrueHD, Dolby Digital Plus (DD+), DTS-ES, DTS HD Master, DTS HD-HRA, DTS-X
L/R Audio formats	PCM 2.0
Output video	HDMI
Resolutions supported	4K2K@50/60Hz, 4K2K@30Hz, 1080p, 1080i, 720p, 720i, 480p, 480i
Range	1080p 492ft (150m) 4Kx2K 394ft (120m)
Video amplifier bandwidth	18Gbps
Video input connector	HDMI Type A 19-pin female
Max. HDMI cable length (IN/OUT)	4K@60Hz, 16' (5m) / 4K@30Hz, 32' (10m) / 1080p@60Hz, 50' (15m)
Cat5e/6 wiring standard	T568-B
IR Pass-through	20~60kHz
Operating voltage	24VDC
Power supply	1A@24VDC (1 adapter)
ESD protection (human body model)	±8kV (air-gap discharge), ±4kV (contact discharge)
Current draw (both units total)	390mA
Operating humidity	20~90% (non-condensing)
Operating temperature	32°~104° F (0°~40° C)
Dimensions	5 ¹ / ₂ "x1 ¹ / ₁₆ "x2 ⁹ / ₁₆ " (140x18x65 mm)
Weight	Transmitter 5.6-oz (160g), Receiver 5.5-oz (155g)

Dimensions



Both transmitter and receiver have the same dimensions and the same front panel.

Overview



Installation

1. Determine the location of the transmitter and receiver and how much Cat5e/6 cable is needed.
2. Connect the HDMI cable between the transmitter and source device.
3. Connect the HDMI cable between the receiver and the display.
4. Connect the Cat5e/6 cable between the receiver and transmitter.
5. Connect the included 24VDC power adapter to either the transmitter or receiver.
6. If any device will be controlled by the remote control:
 - a. Plug the IR transmitter into the *IR-OUT* of the extender unit nearest the device to be controlled, pointing the IR transmitter toward the device's IR window.
 - b. Plug the IR receiver into the *IR-IN* port of the other extender unit so that the IR receiver will be easily visible to the remote control's signal.

Fig. 1 – HDBT Port LEDs

	Steady On	Flashing	Off
Link	Good	Poor	None
Data	HDMI with HDCP	HDMI only	No HDMI or HDCP

NOTE: Maximum IR transmission distance of 26ft (8m) can only be achieved when the line of sight is directly in line. At about 45° the distance may be reduced to 16ft (5m).

7. If desired, connect an RS-232 controller unit to the *RS-232* terminal on the transmitter and connect the remote device to be controlled to the *RS-232* terminal on the receiver.
8. If desired, connect powered speakers to the *Audio Out* on the receiver.
9. If desired, connect a monitor to the *HDMI Loop Out* of the transmitter.

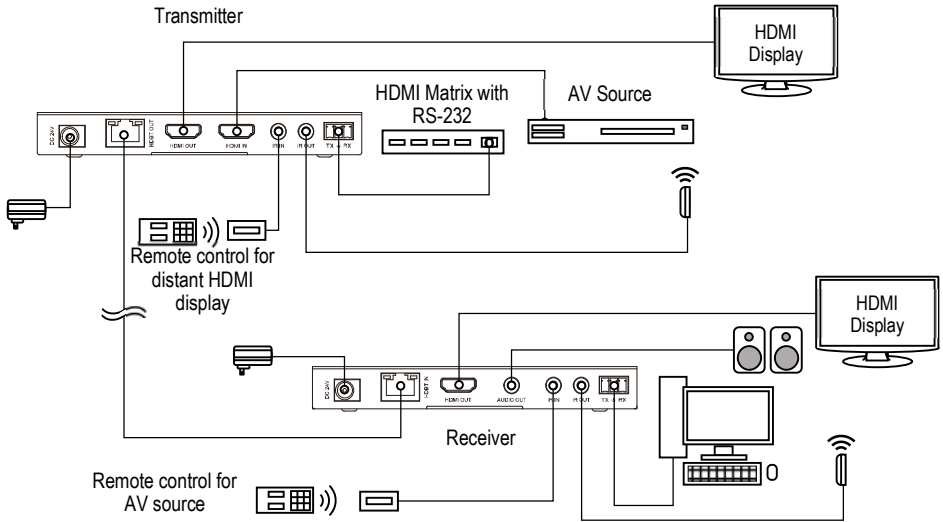
NOTES

- High-quality Cat5e/6 cables are recommended, especially at longer distances.
- Premium high-speed HDMI cables are highly recommended.
- Both Cat5e/6 and HDMI cable lengths should be kept within the maximums shown in Fig. 2.

Fig. 2 – Maximum Cable Length Chart

Resolution	4K@60Hz	4K@30Hz	1080p@60Hz
Cat5e/6	394' (120m)		492' (150m)
HDMI	16' (5m)	32' (10m)	50' (15m)

Sample Application



NOTES:

- Only one power supply is used, either on the transmitter or receiver.
- User either the *IR IN* on the transmitter and *IR OUT* on the receiver to control the distant HDMI display from the source, or the *IR IN* on the receiver and *IR OUT* on the transmitter to control the source from the distant display area.

Troubleshooting

HDMI device does not function correctly

- Use T568-B wiring standard
- Make sure the maximum lengths are not exceeded for either the HDMI or Cat5e/6 cable used (see Fig. 1, pg. 3)
- Test the Cat5e/6 cable between the receiver and transmitter and make sure it is functional
- Make sure that there are no problems with the HDMI source, HDMI cables, or HDMI display by plugging the source directly into the display using an HDMI cable
- Make sure that the transmitter and receiver are plugged into the correct units
- Make sure the HDMI source is compatible with the HDMI display

IMPORTANT: Users and installers of this product are responsible for ensuring this product complies with all national, state, and local laws and statutes related to monitoring and recording audio and video signals. SECO-LARM will not be held responsible for the use of this product in violation of any current laws or statutes.

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