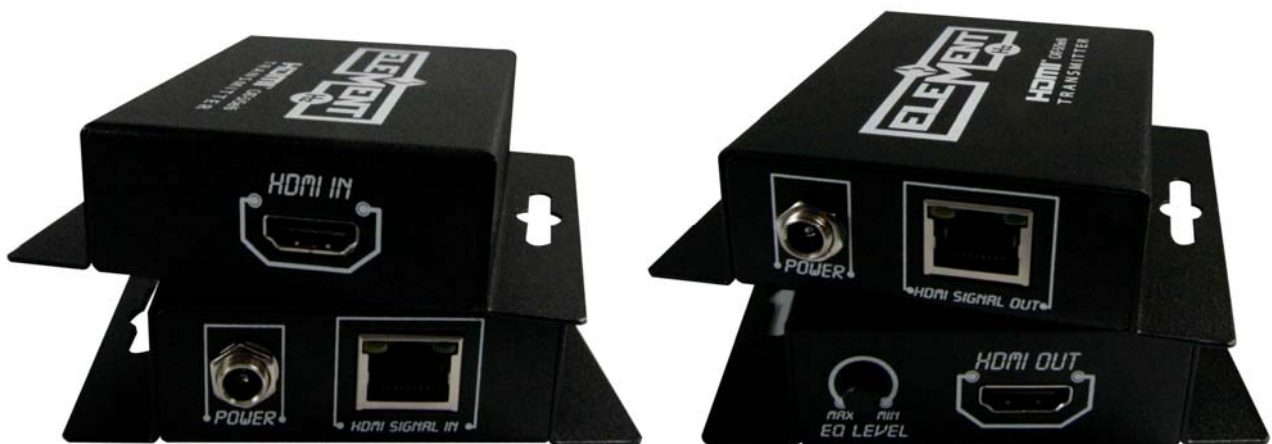




HDMI™ EXTENDER

ELE8081

INSTALLATION MANUAL





SAFETY AND NOTICE

The **ELE8081 HDMI™ EXTENDER** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the ELE8081 should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapter and power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.



INTRODUCTION

The **ELE8081 HDMI™ EXTENDER** boosts up your audio/video transmission distance up to 60m (200ft) in HDTV 1080i format, 40m (130ft) in HDTV 1080p format, and 20m (65ft) in HDTV 1080p with 36-bit color depth. With only one cost effective Cat-5/5e/6 solid cable, users can readily extend HDTV sources from DVD players, Blu-ray Disc player, PS3, PC, and any other kinds of sources compliant with TMDS standard to distant display monitors including HDMI™ or DVI supported TV sets or LCD PC monitors. With the state-of-the-art Silicon Image chipsets embedded, Deep Color video, HDMI™ 1.3 audio standards, HDCP and HDMI™ compatibility are all further insured. This flexibility makes HDCP compliant source devices transmit utmost high quality audio and video over a great distance at the minimal cost.

The ELE8081 includes two units: transmitting and receiving units. The transmitting unit is used to transfer the HDMI™ signals input and carry the signals through one low cost Cat-5/5e/6 solid cable. The receiving unit is responsible for equalizing transferred HDMI™ multimedia data. The transmission distance between the sending and receiving units can be up to 60m (200ft) under HD (720p/1080i) or 40m (130ft) under Full HD (1080p). With an adjustable equalization tuner on the receiving unit, users can adjust the equalization strength to the received HDMI™ signals accordingly, and therefore optimize the transmission distance between HDMI™ source and display. With the built-in auto EDID learning feature, the ELE8081 can automatically learn the EDID from the HDMI™ or DVI display connected to the receiving unit even with only one UTP/STP cable for HDMI™ transmission. The display's EDID then will be learned to the transmitting unit to let ELE8081 to request the source device to output HDMI™ signal at proper setting automatically according to the capability of the display.

► Features

- » HDMI™ founder Silicon Image chipsets embedded for utmost compatibility and reliability
- » HDMI™ 1.3c compliant
- » Extends the transmission distance up to 60m (200ft) from the sources under 1080i or 720p
- » Extends the transmission distance up to 40m (130ft) from the sources under 1080p (24-bit color)
- » Extends the transmission distance up to 20m (65ft) from the sources under 1080p (36-bit color)
- » HDCP 1.1 compliant
- » Minimizes the cable skew by adjustable equalization tuner
- » Pure unaltered uncompressed 7.1ch digital HDMI™ over solid category cable transmission
- » Allows cascading
- » Wall mounting housing design for easy and robust installation
- » Perfectly integrated with other HDMI™ over CAT5 series products



The length depends on the characteristics and quality of the cables. Higher resolutions and longer transmission distances require low skew cables (<25ns/100m) for best performance. Unshielded CAT6 with metal RJ-45 connectors is recommended.

▶ Package Contents

- » ELE8081 x1 (TX unit & RX unit)
- » Installation manual x1
- » +5V DC power supply unit x2

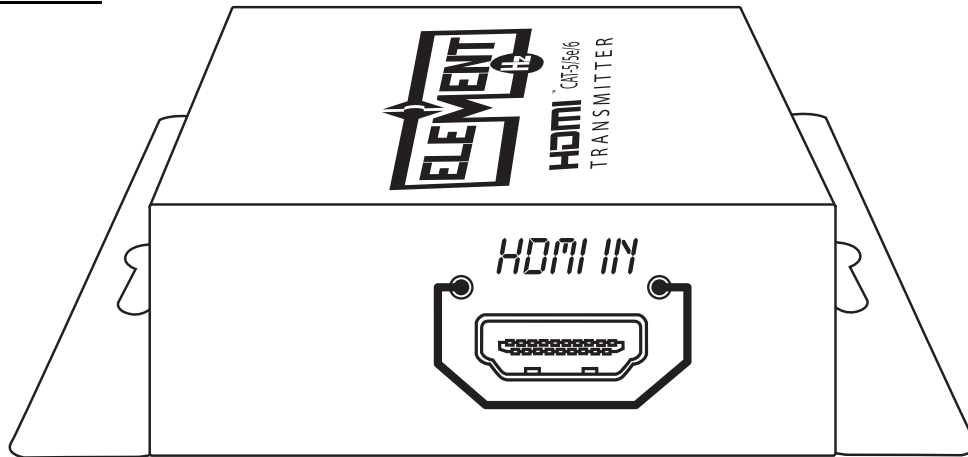
➤ Specifications

Model Name	ELE8080		ELE8081	
Technical				
Role of usage	Transmitter (TX)	Receiver (RX)	Transmitter (TX)	Receiver (RX)
HDMI™ compliance	HDMI™ 1.3c			
HDCP compliance	Yes			
Video bandwidth	Single-link 225MHz (6.75Gbps)			
Video support	480i / 480p / 720p / 1080i / 1080p60 up to 36-bit color			
Transmission (24-bit)	Full HD (1080p)-40m (130ft) [CAT5e] / 50m (165ft) [CAT6] HD (720p/1080i)-50m (165ft) [CAT5e] / 60m (200ft) [CAT6]			
Audio support	Surround sound (up to 7.1ch) or stereo digital audio			
Equalization	Adjustable rotary tuner for signal level control at RX			
Input TMDS signal	1.2 Volts (peak-to-peak)			
Input DDC signal	5 Volts (peak-to-peak, TTL)			
ESD protection	[1] Human body — ±19kV (air-gap discharge) & ±12kV (contact discharge) [2] Core chipset — ±8kV			
PCB stack-up	4-layer board [impedance control — differential 100Ω; single 50Ω]			
Input	1x HDMI™	2x RJ-45	1x HDMI™	1x RJ-45
Output	2x RJ-45	1x HDMI™	1x RJ-45	1x HDMI™
HDMI™ connector	Type A (19-pin female)			
RJ-45 connector	WE/SS 8P8C with 2 LED indicators			
Rotary control	None	Signal EQ level	None	Signal EQ level
Mechanical				
Housing	Metal enclosure			
Dimensions [L x W x H]	Model	3.3" x 2.4" x 1" (85x60x25mm)		3.7" x 2.4" x 1" (93x60x25mm)
	Package	10.6" x 6.9" x 3.1" (270 x 175 x 80mm)		
Weight	Model	11oz (315g)		14oz (405g)
	Package	1.5 lbs (685g)		1.8 lbs (815g)
Fixedness	Wall-mounting case with screws			
Power supply	5V 4A DC		5V 2A DC	
Power consumption	1 Watt (max)			
Operation temperature	32~104°F (0~40°C)			
Storage temperature	-4~140°F (-20~60°C)			
Relative humidity	20~90% RH (no condensation)			

INPUT/OUTPUT PANELS

➤ Transmitting unit (TX)

INPUT PANEL



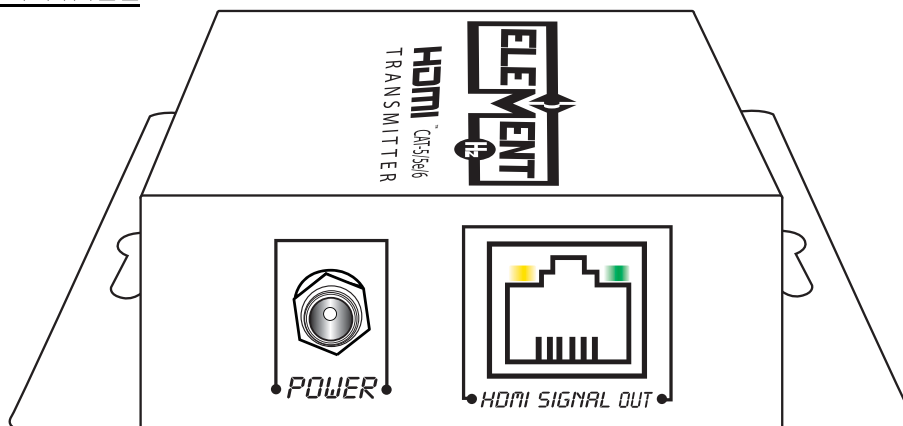
HDMI IN: Connect to a HDMI™ source with a HDMI™ male-male cable.



Note for Auto EDID (Extended Display Identification Data) learning

1. The first time you connect the ELE8081 to a HDMI™ display. The LED of RJ-45 connector will blink for up to 20 seconds to automatically learn the EDID of the HDMI™ display and dim when the learning procedure is done.
2. The next time when you turn on the ELE8081 and if it's connecting to the same HDMI™ display, the auto EDID learning process should be done within 5 seconds.
3. Whenever you use the ELE8081 to connect to any other HDMI™ display different from previously connected one, the auto EDID learning procedure will take up to 20 seconds.

OUTPUT PANEL

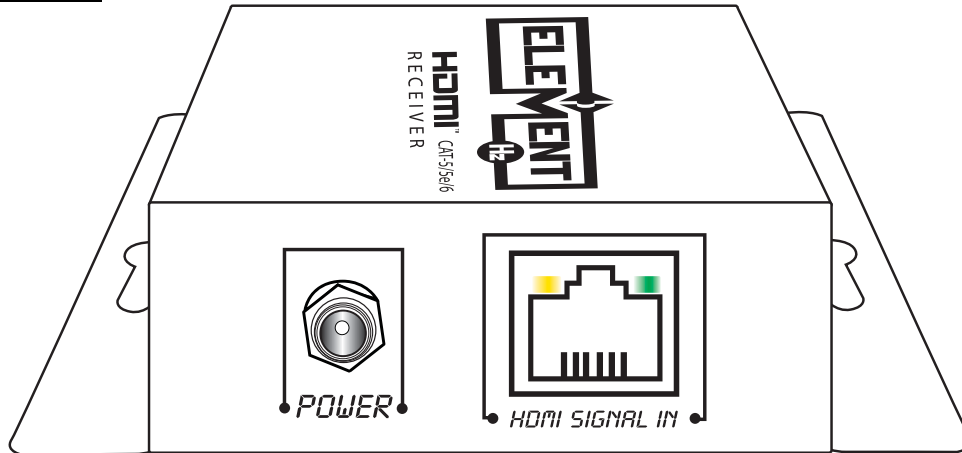


POWER: Connect to a +5VDC locking power supply unit.

HDMI SIGNAL OUT: Connect a Cat-5/5e/6 cable between the RJ-45 port on TX and RX units.

► Receiving unit (RX)

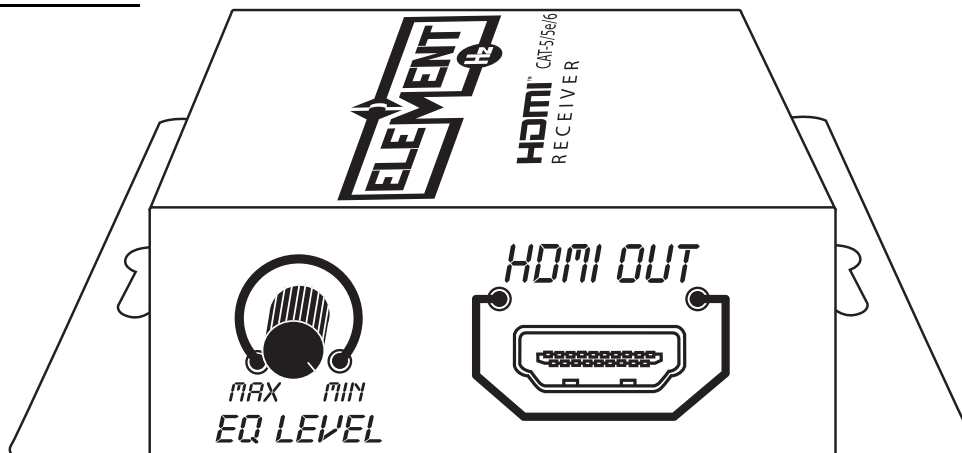
INPUT PANEL



POWER: Connect to a +5VDC locking power supply unit.

HDMI SIGNAL IN: Connect a Cat-5/5e/6 cable between the RJ-45 port on TX and RX units.

OUTPUT PANEL



EQ LEVEL: Adjust the equalization level of the rotary control tuner to the received HDMI™ signals. The HDMI™ signal level varies from MAX (strongest) to MIN (weakest) for respective transmission length from longest possible range to short distance. It is recommended to dial from MIN to MAX to find the optimal visual experience.

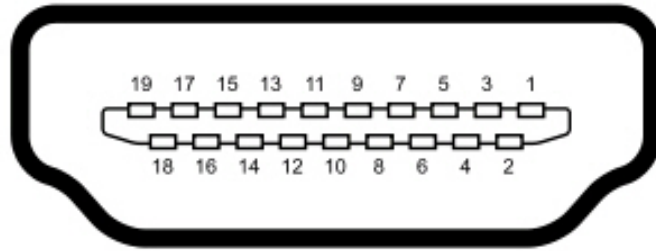
HDMI OUT: Connect to a HDMI™ display with a HDMI™ male-male cable.

INSTALLATION

1. Connect a HDMI™ source such as a Blu-ray Disc player to the transmitting unit.
2. Connect a HDMI™ display such as a LCD HDTV to the receiving unit.
3. Connect one Cat-5/5e/6 cable between the **HDMI SIGNAL OUT** port on the transmitting unit and **HDMI SIGNAL IN** port on the receiving unit.
4. Make sure this Cat-5/5e/6 cable is tightly connected and not loose.
5. Plug in a +5V DC power supply unit to the power jack of the receiving unit.
6. Plug in a +5V DC power supply unit to the power jack of the transmitting unit.
7. Wait for up to 20 seconds for auto EDID learning procedure to be done. System setup is complete
8. If flickering or blinking image is seen on the display, try to adjust the rotary tuner to improve the cable skew. MAX stands for the strongest HDMI™ signal equalizing level for longest possible transmission range while MIN stands for the weakest HDMI™ signal level for short transmission distance.
9. When tuning the signal level on the receiving unit, it is strongly recommended to dial the rotary control tuner from MIN to MAX and stop turning the tuner whenever the audio/video is playing normally. Inappropriate EQ level setting may cause overpowering issue that would shorten the product life significantly!

PIN DEFINITION

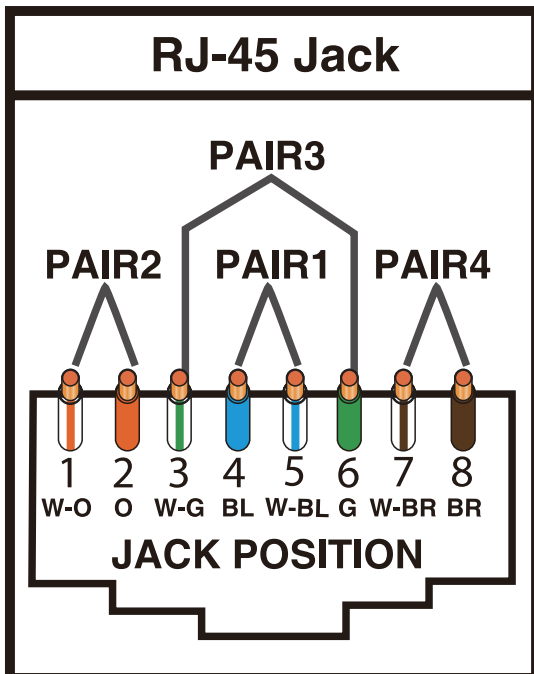
▶ HDMI™



Type A (Receptacle) HDMI

- | | | |
|---------------------------|------------------------------------|--------------------------|
| Pin 1 – TMDS Data2+ | Pin 8 – TMDS Data0 Shield | Pin 15 – SCL |
| Pin 2 – TMDS Data2 Shield | Pin 9 – TMDS Data0- | Pin 16 – SDA |
| Pin 3 – TMDS Data2- | Pin 10 – TMDS Clock+ | Pin 17 – DDC/CEC Ground |
| Pin 4 – TMDS Data1+ | Pin 11 – TMDS Clock Shield | Pin 18 – +5 V Power |
| Pin 5 – TMDS Data1 Shield | Pin 12 – TMDS Clock- | Pin 19 – Hot Plug Detect |
| Pin 6 – TMDS Data1- | Pin 13 – CEC | |
| Pin 7 – TMDS Data0+ | Pin 14 – Reserved (N.C. on device) | |

▶ RJ-45 / CAT5



Pair of Cat-5/5e/6 Cable		Definition
	White/orange stripe	TX0-
	Orange solid	TX0+
	White/green stripe	TX1-
	Blue solid	TX2-
	White/blue stripe	TX2+
	Green solid	TX1+
	White/brown stripe	TXC-
	Brown solid	TXC+

NOTICE

1. When adjusting the signal EQ level on the receiving unit, dial the rotary control tuner from MIN to MAX and stop turning the tuner whenever the audio/video is playing normally. Inappropriate signal level setting may cause overpowering issues that would shorten the product's life significantly!
2. All HDMI™ over CAT5 transmission distances are measured using Belden CAT5e 125MHz UTP cable and ASTRODESIGN Video Signal Generator VG-859C.
3. The transmission length is largely affected by the type of category cables, the type of HDMI™ sources, and the type of HDMI™ displays. The testing result shows solid UTP cables (usually in the form of 300m or 1,000ft bulk cables) can transmit a lot longer signals than stranded UTP cables (usually in the form of fixed length patch cords). A solid UTP Cat-5e cable shows longer transmission range than a stranded STP Cat-6 cable. For long extension applications, solid UTP/STP cables are the only viable choice.
4. EIA/TIA-568-B termination (T568B) for category cables is recommended.
5. To reduce the interference among the unshielded twisted pairs of wires in a category cable, double shielded STP cables are better suited than unshielded UTP cables to improve EMI problems, which is worse in long transmission.
6. Because the quality of the category cables has the major effect on how long the transmission limit can achieve and how good is the received picture quality, the actual transmission range is subject to one's choice of Cat-5/5e/6 cables. For desired resolutions greater than 1080i or 1280x1024, a Cat-6 cable is recommended.
7. If the HDMI™ display has multiple HDMI™ inputs, it is found that the first HDMI™ input (HDMI™ input 1) generally can produce better transmission performance among all HDMI™ inputs.



➤ Performance Rating Guide


		Type of CAT5/6 cable		
Wiring	Shielding	CAT5	CAT5e	CAT6
Solid	Unshielded (UTP)	★★★	★★★★	★★★★★
	Shielded (STP)	★★★	★★★	★★★★
Stranded	Unshielded (UTP)	★	★★	★★
	Shielded (STP)	★	★	★★
Termination	Please use EIA/TIA-568-B termination (T568B) at any time			




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Headquarters: 9390 Veterans Memorial Parkway, O'Fallon, MO 63366


 (800) 844 – 9555 / (636) 272 – 8025

 (636) 272 – 8214


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