



User Manual

HDMI 2.1 4K EDID Emulator Pro

Model: 4K-EW2



Taiwan Hanwell Technology
www.hanwell.com.tw

Package Content:

EDID Emulator x1

Requirements:

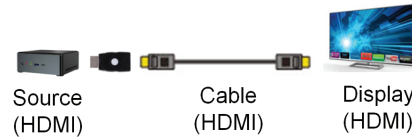
Source: Device with HDMI output such as PC, laptop, gaming console, or other device.

Display: Display with HDMI input, supporting 4K@60Hz or higher resolutions, such as monitor, projector, or TV.

Cables: Please use high-quality HDMI cables that support HDMI 2.0 or higher versions.

Remark:

The 4K-EW2 EDID Emulator supports maximum resolutions, frequencies, and image quality of 1080p@240Hz 4:4:4 and 4K@120Hz 4:2:0, and does not support 8K resolution. The actual HDMI audio and video output will depend on the specifications of the devices used.



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Product Overview:



1. HDMI Output (connect to HDMI display)
2. LED Status
(1) Blue light: Using external EDID
(2) Green light: Using internal EDID
3. HDMI Input (connect to HDMI signal source)
4. 16-position EDID Knob (0-9, A-F)

EDID Knob Settings:

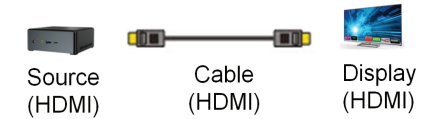
0: Used to copy the EDID settings of an external monitor
1: Stores the most recently copied EDID settings of an external monitor

- | | |
|------------------|------------------|
| 2: 1024x768_60 | 9: 1920x1080_144 |
| 3: 1280x720_60 | A: 1920x1200_60 |
| 4: 1280x1024_60 | B: 2560x1440_60 |
| 5: 1366x768_60 | C: 3840x2160_30 |
| 6: 1920x1080i | D: 3840x2160_60 |
| 7: 1920x1080_60 | E: 3840x2160_120 |
| 8: 1920x1080_120 | F: 4096x2160_60 |

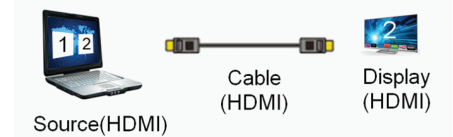
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Starting with the Basic Connection:

Please connect your devices as shown in the diagram below. Then, proceed to the display settings window to confirm the monitor model and display resolution detected by the computer, ensuring that the basic functions are working properly.



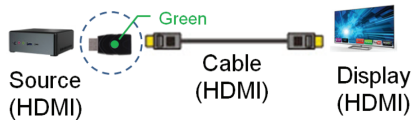
If you are using a laptop, please enable the extended screen mode to verify the model and resolution functionality of the external monitor.



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Adding the EDID Emulator:

1. Switch the emulator's knob to 0 and connect the EDID emulator between the source and the cable.
2. The emulator will copy the external display's EDID. Then, switch the knob to 1, and the signal source will detect the copied EDID.

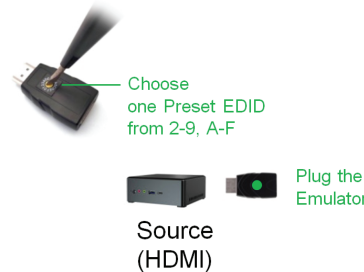


3. If the HDMI cable is too long or of poor quality, the 4K-EW2 may not be able to copy the EDID. Please use a short, high-quality cable. Some older displays may have incorrect or damaged EDID circuits and may not support EDID copying. Try using a different suitable monitor.
4. Do not copy the EDID of an 8K monitor, as it will result in a display failure.

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How to Apply Other Preset EDID Values:

1. Refer to the EDID settings on page 2, select an appropriate EDID value, and then switch the knob to the corresponding value (there are 14 preset EDID values in total).
2. The LED light will turn green, and the signal source will detect the EDID you selected. Please confirm that the display is functioning correctly or try another EDID setting.



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Application in System Integration:

If you have connected multiple layers of devices in system integration, the EDID emulator may not function properly. Please simplify your connections, starting with a single PC and display. After confirming the basic functionality, you can then add another layer of devices to avoid other interferences.

Headless Operation:

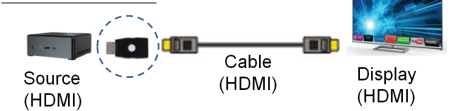
You can insert the emulator into the signal source (PC) without a display or with the display turned off, and the signal source will still operate as if a display is connected.

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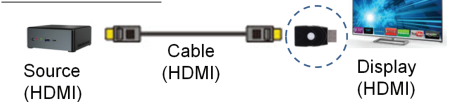
Bi-directional design:

This EDID emulator can automatically detect the direction of the HDMI signal. You can directly connect the emulator to the HDMI signal source for use. If needed, you can reverse the connection and connect the EDID emulator to the display side.

Normal Direction



Reverse Direction

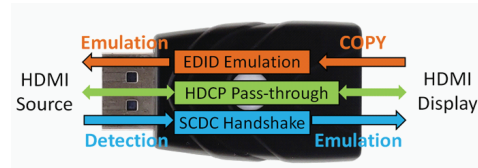


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Additional Information

Three Main Features:

This EDID emulator is equipped with three main functions: first, EDID emulation; second, HDCP pass-through; and third, SCDC handshaking. Through these three functions, it facilitates communication between the HDMI host and the display, ensuring that the host can detect the required EDID information and the display can function properly.



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Accurate Simulation and Display of Correct Aspect Ratios through EDID Copying:

This device comes with 14 built-in EDID settings. You can test or fix any of these settings as needed. If you use a monitor with a special aspect ratio, such as 16:10, 4:3, or an ultra-wide screen, you can copy the EDID of the specified monitor (knob position 0) and store it in the emulator (knob position 1). This allows the graphics card to correspond to the EDID, ensuring that the desired image and aspect ratio are continuously output during screen changes (switching, plugging, unplugging, turning on/off).

HDCP Pass-through Correspondence:

The 4K-EW2 supports HDCP correspondence, meaning your HDMI output device will read the display's HDCP keys through the EDID emulator via HDMI pins 15 & 16. If the display's HDCP keys are unavailable or not functioning, the screen or content window will display blank or at a lower resolution, depending on the design of the HDMI output device. In this case, you may need to use another display with normal HDCP functionality and reboot.

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SCDC Handshaking:

This product supports SCDC handshake control for 10x and 40x frequencies and supports hot-plugging on the display side. It does not support the FRL handshake function required for 8K.

When unplugging and plugging in the display cable, if the HDMI signal is at 10x frequency (resolution bandwidth below 4K@60Hz 4:2:0), the indicator light will flash slowly twice, indicating a re-handshake of SCDC. This will not cause the computer to detect the display plug-in action, thus avoiding window rearrangement.

If the HDMI signal is at 40x frequency (mainly 1080p@240Hz 4:4:4, 4K@60Hz 4:4:4, or 4K@120Hz 4:2:0), the indicator light will flash quickly ten times, indicating a 40x frequency SCDC handshake. The display will only show after a successful handshake.

Please note that this product does not support 4K@120Hz 4:4:4 and resolutions above 8K, as this version does not support the required FRL handshake communication mode.

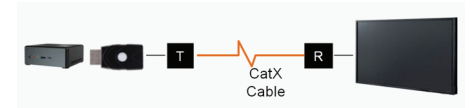
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Common Applications and Benefits:

1. **Remote Login Management:** Allows the computer to have a virtual screen without an external monitor, enabling a better display during remote login. Even if the screen is turned off, the computer can still detect the screen as connected, achieving energy savings and equipment simplification.

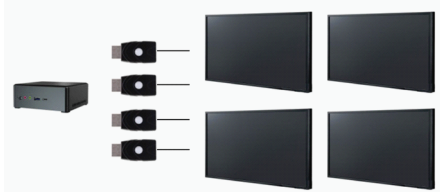


2. **Video Extension Applications:** Ensures that the computer connected to the T-end (Transmitter side) of the extender always has the correct EDID model correspondence, ensuring continuous audio and video output and that the R-end (Receiver side) screen receives the correct audio and video signals.



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3. **Video Wall:** Ensures that the screen arrangement does not change due to computer rebooting or screen switching.

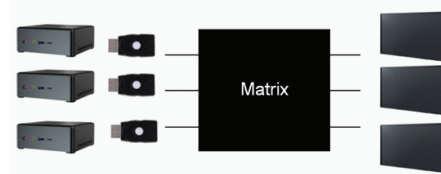


4. **Multi-Screen Operation:** Ensures that each HDMI output can detect EDID at all times, preventing screen shutdown, unplugging, or switching from affecting window arrangement, while also precisely matching screen display and aspect ratio through EDID copying.



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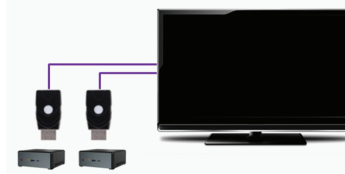
5. **Video Matrix Switching:** Ensures stable output from each computer, preventing the stability of video output from being affected by the plugging/unplugging caused by switching, and ensures that the computer's output screen is based on the screen's EDID output.



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6. **Multi-Computer and Video Switching:**

Ensures that each computer always has EDID correspondence, ensuring stable operation of computers or servers, preventing display anomalies or system logouts due to lack of screen correspondence.



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CE Certification

The equipment complies with the requirement set forth in EMC Directive 2014/30/EU and technical standards.

FCC Certification

The equipment has been tested and complies with the requirement set forth in the FCC Rules and Regulation Part 15, Subpart B and the measurement procedures were based on ANSI C63.4. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Limited Warranty

HANWELL Technology offers a one-year warranty in workmanship commencing from the invoice date. Defective items that are newly purchased can be exchanged for free if returned within 2 weeks of the arrival date. For further information, please refer to www.hanwell.com.tw

Thank you very much for purchasing the THWT EDID emulator!