



# User Manual

## HDMI 2.1 4K EDID Emulator

Model: 4K-EWB



Taiwan Hanwell Technology  
www.hanwell.com.tw

### Package Content:

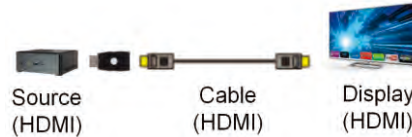
EDID Emulator x1

### 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-EWB 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.



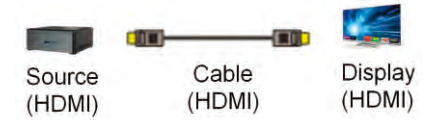
### Product Overview:



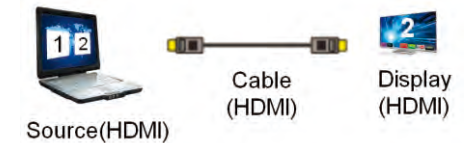
- HDMI Output (Connect to HDMI display)
- LED Status Indicator
  - Green Light: Uses internal EDID emulation, default set to 4K@60Hz 4:4:4
  - Blue Light: Uses external EDID emulation, default set to 4K@120Hz 4:2:0, can be overwritten by copying to match a specific screen's EDID
- HDMI Input (Connect to HDMI signal source)
- EDID Mode Button
  - Press once to switch between external and internal EDID modes
  - Hold for 3 seconds to copy the connected screen's EDID as the external EDID
  - Hold for 10 seconds to reset the EDID mode to factory defaults

### 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.

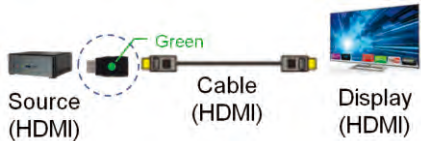


If you are using a laptop, please enable the extended screen mode to verify the model and resolution functionality of the external monitor.



### Adding the EDID Emulator:

- Connect the EDID Emulator (4K-EWB) between the signal source and the cable. This allows the computer to detect the use of the emulator's EDID. You can switch between the internal/external default EDID or copy a specified screen's EDID by holding the button 3 secs.



- When you press the button and switch to the internal mode (green light), the signal source will detect a 4K\_60 display. If your screen or cable does not support 4K@60Hz and only supports a lower resolution, please adjust as follows:
  - Hold the button for 3 seconds to copy the EDID of an existing screen that supports a lower resolution for emulation.
  - Please find another screen that supports 4K@60Hz resolution.

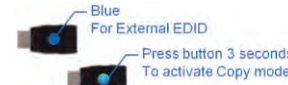
- If the computer uses a multi-output graphics card, please connect the screen directly. Do not connect the emulator to the screen but to another HDMI output. Open the settings window, go to the advanced settings of the display, in extended screen mode, reduce the computer's output resolution for this emulator (possibly Screen 2) to a displayable level, then reconnect for use.
- If your screen supports 4K@120Hz, you can press the button and switch to the external mode (blue light) for use.

### 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.

### How to Copy External EDID:

- Connect the 4K-EWB between the source and the display. Hold the button for 3 seconds; the LED will blink and then stay blue, indicating that the connected display's EDID has been stored in the emulator's external mode.



- If the HDMI cable is too long or of poor quality, the 4K-EWB may not be able to copy the EDID. Please use a shorter and higher-quality cable. Some older displays may have incorrect or damaged EDID circuits and may not support EDID copying. Try using another suitable display for operation.
- Do not copy the EDID of an 8K display, as it will result in a non-displayable state. Please refer to the next section to restore default values or copy the EDID from a suitable display.

### How to RESET

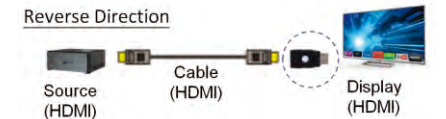
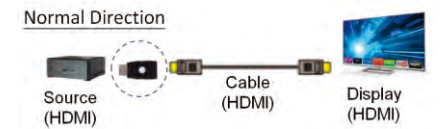
Hold the button on the emulator for 10 seconds. You will see the LED blink 6 times. At this point, the internal default EDID will be restored to 4K@60Hz 4:4:4, and the external EDID to 4K@120Hz 4:2:0, with the LED indicator finally staying on green.

### Headless Operation:

You can plug emulator to source (PC) without a display or with the display turned off, and the source will still function as if the display were connected.

### 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.



## 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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### Precise Emulation and Display of Correct Aspect Ratios Through EDID Copying:

The built-in EDID of this model outputs a screen aspect ratio of 16:9. If you are using screens with other aspect ratios, such as 16:10, 4:3, or ultra-wide screens, you can copy the specified screen's EDID to store it in the emulator, providing the graphics card with the corresponding output. This ensures the continuous output of your desired screen and aspect ratio during screen changes (switching, plugging/unplugging, turning on/off).

### HDCP Pass-through Correspondence:

The 4K-EWB 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 model supports 10x and 40x frequency control for SCDC handshaking and supports hot-plugging on the display side.

It does not support the FRL handshaking required for 8K resolution.

When unplugging/plugging the display cable, if the screen is 10x frequency (resolution bandwidth below 4K@60Hz 4:2:0), the indicator will blink slowly twice, indicating a re-handshake of SCDC. This will not cause the computer to detect the screen plugging/unplugging action, preventing the windows from rearranging.

If the screen is 40x frequency (mainly for 1080p@240Hz 4:4:4 or 4K@60Hz 4:4:4 or 4K120Hz 4:2:0), the indicator will blink rapidly ten times, indicating a 40x frequency SCDC handshaking. The screen will display only after a correct handshake.

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

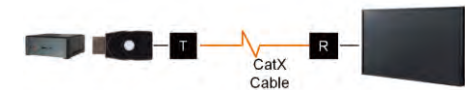
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## Common Applications and Benefits:

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.

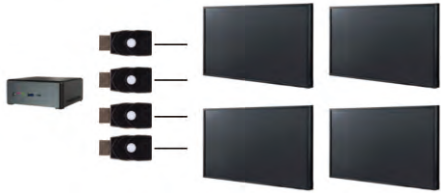


2. **Video Extension Applications:** Ensures that the computer connected to the T-end (Transmitter side) of the extender always has the correct EDID model correspondence, ensuring continuous audio and video output and that the R-end (Receiver side) screen receives the correct audio and video signals.



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

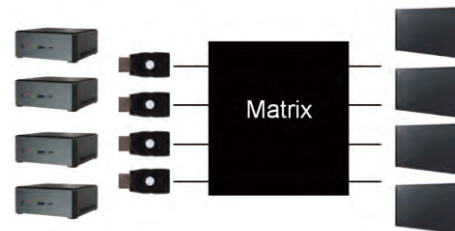


4. **Multi-Screen Operation:** Ensures that each HDMI output can detect EDID at all times, preventing screen shutdown, unplugging, or switching from affecting window arrangement, while also precisely matching screen display and aspect ratio through EDID copying.



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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](http://www.hanwell.com.tw)

**Thank you very much for purchasing the THWT EDID emulator!**