4K@60Hz 18Gbps 1×16 HDMI Splitter

Model: PANIO CH2116K_W

1. Product Overview

The CH2116K_W is a professional-grade 1×16 HDMI splitter engineered for high-end audio-visual signal distribution demands. Fully compliant with HDMI 2.0b, HDCP 2.2/1.x and DVI 1.0 standards, it features a 1-input 16-output HDMI signal distribution architecture, enabling simultaneous transmission of a single HDMI signal source to 16 HDMI display devices. It supports a maximum resolution of 4K2K@50/60Hz 4:4:4 ultra-high definition with 18Gbps uncompressed high-bandwidth transmission technology, delivering true-to-life audio and visual details flawlessly.

Integrated with intelligent multi-mode EDID management and industrial-grade ESD electrostatic protection, it adopts a metal housing for efficient heat dissipation and a user-friendly interface design. Natively supporting full-range high-definition audio formats such as DTS-HD and Dolby TrueHD, as well as mainstream HDR specifications including HDR10+ and Dolby Vision, it greatly enhances compatibility between signal sources and display devices. With easy installation and stable operation, it serves as a professional HDMI signal distribution solution for control rooms, digital signage, educational institutions, corporate meeting rooms, professional audio-visual studios and other professional scenarios.

2. Key Features

• 1×16 HDMI Signal Simultaneous Distribution: 1 HDMI input interface paired with 16 HDMI output interfaces realizes single-source multi-display simultaneous output, meeting large-scale AV deployment needs with **attenuation-free output signals** and **zero-latency synchronized imaging**.

• Full-Spec 4K60Hz UHD Support: Max resolution of 4K2K@50/60Hz 4:4:4, backward compatible with 1080P and other resolutions; supports 8/10/12-bit color depth and full-range color spaces of RGB & YCbCr, reproducing exquisite image quality and rich

color layering.

• 18Gbps High-Bandwidth Uncompressed Transmission: Equipped with 594Mhz/18Gbps high video bandwidth for uncompressed AV signal transmission, ensuring smooth, frame-loss-free 4K UHD display and meeting professional high-definition AV standards.

• Native Support for Full-Range HD Audio Formats: Natively supports digital audio formats including LPCM 2.0/5.1/7.1CH, DTS-HD, Dolby TrueHD, DTS, Dolby-AC3 and DSD, with synchronized audio and video transmission for an immersive 3D audio experience, satisfying professional AV and commercial display audio requirements.

• Full-Spec HDR Technology Compatibility: Perfectly supports mainstream HDR specifications such as HDR, HDR10, HDR10+, HLG and Dolby Vision, enhancing the dynamic range and color performance of images for UHD display with richer bright and dark details.

• Intelligent Multi-Mode EDID Management: Configured with a 5-pin EDID DIP switch and built-in 32 preset EDID modes, covering resolutions (4K/1080P/3D) and audio specs (2.0/5.1/7.1); supports EDID copy output and PC control mode, eliminating compatibility issues such as black screen and resolution mismatch.

• Industrial-Grade ESD Protection for Stable Durability: Complies with industrial-grade electrostatic protection standards, supporting ±8kV air discharge and ±4kV contact discharge; effectively resists electrostatic interference, protects internal electronic components and ensures 24/7 stable operation.

• Metal Housing for Superior Heat Dissipation & Easy Installation: Black metal housing design with excellent heat dissipation performance for 7×24 continuous operation; compact size, humanized interface layout and flexible installation methods save cabinet and on-site space.

• Stable Power Supply & Low Power Consumption for Long-Term Operation: Adopts AC 100~240V wide voltage input and DC 12V/2.5A standard power supply with only 12W total power consumption for high efficiency at low power; equipped with a lockable power adapter for stable, non-detachable power supply, suitable for long-term use in various scenarios.

3. Technical Specifications

Specification Category	Details
Compliant Standards	HDMI 2.0b, HDCP 2.2/1.x, DVI 1.0, IEC standard ESD electrostatic protection
Video Specifications	Bandwidth: 594Mhz/18Gbps Resolution: Max 4K2K@50/60Hz 4:4:4, backward compatible with all lower resolutions Color Depth: 8/10/12bit (1080p@60Hz); 8bit (4K2K@60Hz YUV4:4:4); 8/10/12bit (4K2K@60Hz YCbCr 4:2:2/4:2:0) Color Space: RGB 4:4:4, YCbCr 4:4:4/4:2:2/4:2:0 HDR Support: HDR, HDR10, HDR10+, HLG, Dolby Vision
Audio Specifications	Native support: LPCM 2.0/5.1/7.1CH, DTS-HD, Dolby TrueHD, DTS, Dolby-AC3, DSD, Dolby 5.1, DTS 5.1
Port Configuration	1×HDMI IN [Type A, 19-pin female] 16×HDMI OUT [Type A, 19-pin female] 1×DC 12V Power Input Port 1×5-pin EDID DIP Switch 1×SERVICE Micro USB Port (firmware upgrade only)
Protection Specifications	ESD Electrostatic Protection: ±8kV air discharge (human body model), ±4kV contact discharge (human body model)
Physical Specifications	Material: Metal Housing Color: Black Dimensions: 300mm (L) × 100mm (W) × 28mm (H) Weight: 900g
Power Requirements	Power Supply: AC 100~240V 50/60Hz input, DC 12V/2.5A output (US/EU standard, CE/FCC/UL certified) Power Consumption: 12W

	Adapter: DC 12V/2.5A lockable power adapter
Operating Environment	Temperature: 0°C ~ 40°C / 32°F ~ 104°F Relative Humidity: 20~90% RH (no condensation)
Storage Environment	Temperature: -20°C ~ 60°C / -4°F ~ 140°F Relative Humidity: 20~90% RH (no condensation)
Additional Functions	32 EDID mode intelligent management, firmware upgradeable, metal housing heat dissipation, 16-channel signal synchronous output, plug-and-play, easy installation design

4. Important Installation Notes

1. The CH2116K_W houses precision electronic components. Do not use the device in environments with dust, oil fume, corrosive gas, flammable gas, high temperature, condensation, strong vibration or heavy impact, as these conditions may cause component damage, equipment failure or safety hazards.

2. For stable 4K UHD signal transmission, use high-quality certified HDMI cables. For high-frequency signal wiring, select shielded cables to enhance the system's anti-interference performance and avoid signal noise.

3. Use **only the original DC 12V/2.5A power adapter** provided with the device. Using unqualified adapters with mismatched voltage/current may cause permanent equipment damage or fire hazards. Confirm the power adapter is firmly connected to the device port before power-on, and fasten the lock buckle to prevent disconnection.

4. Adjust the EDID DIP switch according to the compatibility requirements of the signal source and display devices. **Turn off all connected devices before switching the EDID mode**, and restart the system after adjustment to ensure the EDID setting takes effect.

5. Ensure the device's ventilation surface is unobstructed by foreign objects at all times. Blocked ventilation will lead to poor heat dissipation, resulting in overheating, performance degradation or equipment failure.

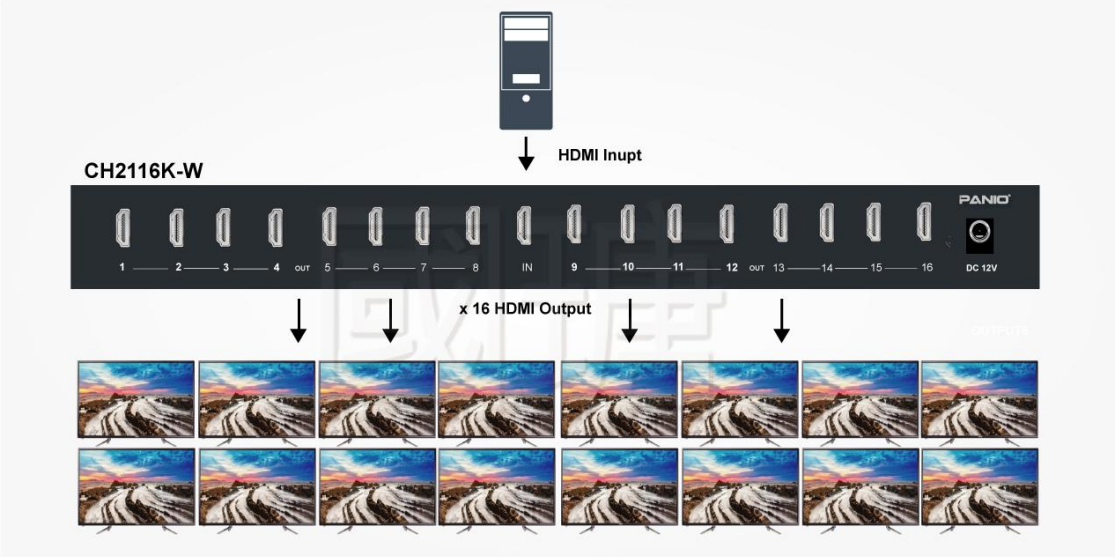
6. **Do not plug or unplug HDMI cables or power cords while the device is powered on**. Hot-swapping may cause electrostatic discharge or surge current, damaging internal circuits and components. Turn off all power supplies before connecting or disconnecting any cables.

7. Avoid metal shavings, wire ends or other debris falling into the device's ventilation holes during installation. Ensure all installations and wiring are firm and reliable; poor contact may cause signal interruption, screen flickering or other malfunctions. Connect the device's ground wire to the earth to avoid electric shock risks.

8. Do not touch the device's terminals while it is powered on. Clean the device and tighten terminals only after turning off the power and unplugging the adapter. Do not disassemble the device by yourself; contact professional service personnel for maintenance in case of failure.

9. For product disposal, classify and collect the device as industrial waste and do not dispose of it with household garbage. Electrolytic capacitors on the circuit board may explode if incinerated; follow local environmental regulations for proper industrial waste treatment.

Diagram



5. Package Contents

Item	Quantity
4K@60Hz 1×16 HDMI Splitter (CH2116K_W) Main Unit	1 unit
DC 12V/2.5A Lockable Power Adapter	1 piece
Multi-Language User Manual (Traditional Chinese/English)	1 piece

6. Function Description

Name	Function Description
Power LED	Blue LED illuminates steadily when the device is connected to a valid DC 12V power supply (indicates normal power input).
IN LED	Blue LED lights up when the HDMI IN port is connected to an active signal source (indicates successful signal detection from the source).
OUT (1~16) LED	Corresponding blue LED lights up for each HDMI OUT port that is properly connected to a display device (indicates successful signal output to the display).
SERVICE Port	Micro USB interface, exclusively used for firmware upgrades. Connect to a computer via a Micro USB cable to update the device's firmware (improves compatibility or adds new functions).
5-pin EDID DIP Switch	5-pin mechanical switch for selecting 32 preset EDID modes; supports EDID copy output and PC control mode to optimize signal source and display device compatibility.
HDMI OUT 1~16	16 HDMI Type A female ports, used to connect HDMI display devices (e.g., monitors, digital signage, projectors) to receive split and synchronized UHD signals.
HDMI IN	Single HDMI Type A female port, used to connect HDMI signal source devices (e.g., PCs, surveillance hosts, AV editing hosts) to input the original UHD signal.

DC 12V Port	Power input interface, connects to the provided DC 12V/2.5A lockable power adapter to supply power to the device (must use the original adapter for safety and stability).

7. Frequently Asked Questions

① Q: What are the typical application scenarios for the CH2116K_W?
A: It is widely applicable to professional and commercial scenarios requiring large-scale 1-to-multi HDMI signal distribution, including **surveillance control rooms**, **commercial digital signage (shopping malls/transport hubs)**, **educational institution multimedia classrooms/lecture halls**, **corporate meeting rooms/exhibition halls**, **professional audio-visual studios**, **hotel/cinema AV systems** and **exhibition/event on-site display systems**.

② Q: What input source and output devices are compatible with the CH2116K_W?
A: **Input source devices**: Surveillance hosts, AV editing workstations, PCs, Blu-ray players, set-top boxes, game consoles and any device with HDMI output compliant with HDMI 2.0b and HDCP 2.2/1.x specifications.
Output devices: 4K UHD TVs, professional monitors, digital signage screens, projectors, audio amplifiers (with HDMI input) and other HDMI-compatible display devices.
Note: To achieve 4K2K@50/60Hz 4:4:4 UHD transmission, use certified high-speed HDMI 2.0b cables to ensure signal integrity.

③ Q: How to solve the black screen or resolution mismatch issue between the signal source and display devices?
A: This issue is usually caused by EDID incompatibility. Please follow these steps: 1) Turn off all connected signal source and display devices; 2) Adjust the 5-pin EDID DIP switch to select the preset EDID mode matching the resolution and audio specs of your devices (refer to the user manual for mode details); 3) Restart all devices to make the EDID setting take effect. For custom EDID requirements, use the PC control mode for EDID copy output.

④ Q: What are the cable length recommendations for different resolution transmissions?

A: For optimal signal quality, we recommend using certified high-speed HDMI 2.0b cables and following these length limits:
• 4K2K@50/60Hz 4:4:4: Up to 5m
• 4K2K@30Hz: Up to 10m
• 1080p@60Hz: Up to 15m
Shielded HDMI cables are recommended for long-distance wiring or high-interference environments to avoid signal attenuation and noise.

⑤ Q: Can the CH2116K_W run continuously for 24 hours a day?
A: Yes. The device is designed for 7×24 continuous operation with an industrial-grade metal housing for efficient heat dissipation, low power consumption (only 12W) and industrial-grade ESD protection. Ensure the device is placed in a well-ventilated environment and the power supply is stable for long-term continuous operation.

8. Safety Instructions

• **Warning Symbols**: The symbols in this manual and on the CH2116K_W device indicate potential risks of personal injury (e.g., electric shock) or property damage. Read and understand all safety symbols and instructions before operating the device.
• **Electric Shock Prevention**: Do not open the device's metal housing. The internal circuits contain uninsulated dangerous voltages that may cause severe electric shock. If maintenance or repair is required, contact qualified professional service personnel—do not attempt to disassemble the device yourself.
• **Operation Safety**: Do not touch the device's ports, terminals or EDID DIP switch while it is powered on, as this may cause electric shock, electrostatic interference or signal failure. Before cleaning the device, tightening terminals or adjusting the EDID switch, turn off the power and unplug the adapter.
• **Environmental Safety**: Do not place the device near water, heat sources (e.g., radiators, stoves) or flammable materials. Avoid exposing the device to direct sunlight or heavy moisture to prevent component corrosion and short circuits.
• **Power Safety**: Ensure the power supply voltage matches the device's AC 100~240V wide voltage input specification. Unplug the power adapter during thunderstorms to avoid lightning damage to the device.