HW5900_B

5×9 Multi-Window Video Wall Processor (4K Input)

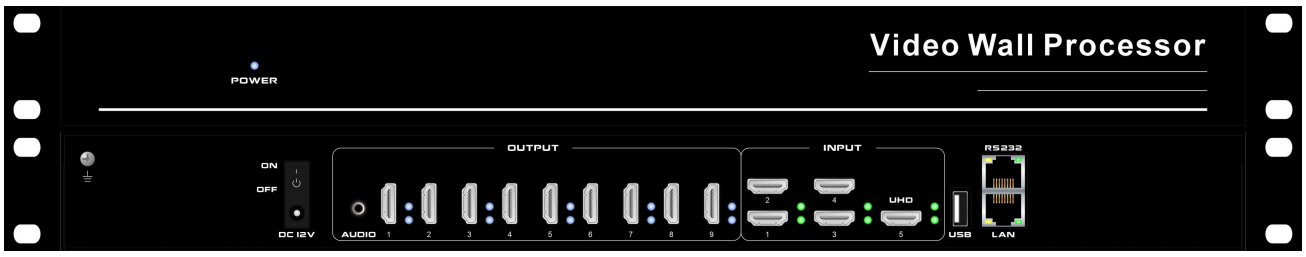
5 HDMI In / 9 HDMI Out, 4K@60Hz Input, 81-Window PIP, Cross-Screen Splicing, PC Software / Web GUI / RS-232 / LAN Control

Product Overview

PANIO HW5900_B is a professional 5×9 video wall processor designed for fixed-installation display walls that require large-format splicing and flexible windowing from a single device. It accepts five HDMI sources — one dedicated 4K@60Hz input and four 1080p@60Hz inputs — and drives nine independently configurable 1080p@60Hz HDMI outputs in a standard 1U rack-mount chassis.

Outputs can be arranged into any N×M array to form a single high-resolution canvas, while each screen simultaneously supports up to nine freely positioned PIP windows, for up to eighty-one windows across the complete wall. Windows may be scaled, repositioned, or extended across physical screen boundaries.

Background images, scrolling text overlays, scene presets, playback preview, file renaming, and audio routing are configured from a unified PC control application or the embedded Web GUI, and the unit integrates with third-party central control systems over RS-232 and TCP/IP LAN. The HW5900_B is suited to shopping malls, retail and commercial venues, corporate conference rooms, exhibition spaces, and command-and-control or surveillance centers.



Product Features

- **5×9 Video Wall Architecture:** Five HDMI inputs feed nine independent 1080p@60Hz HDMI outputs, supporting any N×M wall configuration up to a combined canvas of 1920×m by 1080×m pixels.
- **Multi-Window Display with Cross-Screen Spanning:** Each output displays up to nine independent windows simultaneously — eighty-one windows in total across the wall. Any window can be scaled, repositioned, or extended across multiple physical displays.
- **4K Input Support:** Accepts input signals up to 3840×2160@60Hz with automatic scaling and full downward compatibility, allowing 4K sources to be mixed freely with 1080p sources on the same wall.
- **Unified PC Software & Web GUI:** All splicing, windowing, and overlay parameters are managed from a single control application; the embedded Web GUI provides scene save and recall for instant layout switching during operation.
- **Content Playback Preview:** Video wall content can be previewed and monitored directly from the control interface, with file renaming supported for straightforward asset management.
- **Background Image & Scrolling Text:** Custom background images can be loaded behind the window layout and scrolling text banners superimposed for announcements, ticker information, or wayfinding, with no external character generator required.
- **Custom Output Timing for LED Walls:** Output resolution can be user-defined to match non-standard LED panel formats, with built-in synchronization keeping all nine outputs frame-aligned across the array.
- **Audio Pass-Through & De-embedding:** HDMI audio is passed through to the display outputs, and a dedicated 3.5 mm stereo port de-embeds the selected source audio for amplifiers, powered speakers, or a house PA system.
- **Multi-Control Integration:** PC control software, browser-based Web GUI, RS-232, and TCP/IP LAN are supported, with a USB port provided for firmware maintenance.
- **1U Rack-Mount Metal Chassis:** A compact 44 mm-high metal enclosure with detachable rack ears fits standard 19″ racks and is designed for continuous long-term operation.

Specification

Parameter	Specification
Model	HW5900_B
Product Type	5×9 Video Wall Processor with Multi-Window (PIP) Display
Video Inputs	5 × HDMI Type-A: 1 × 4K@60Hz (UHD) + 4 × 1080p@60Hz
Video Outputs	9 × HDMI Type-A, 1080p@60Hz, independently configurable
Audio Output	1 × 3.5 mm analog stereo output; HDMI audio pass-through supported
Input Resolution	Up to 3840×2160@60Hz; backward compatible with lower resolutions
Output Resolution	1920×1080@60Hz; user-defined output timing supported for LED displays
Video Wall Canvas	N × M array, where N = 1920 × columns and M = 1080 × rows
Windowing	Up to 9 windows per output; up to 81 windows in total; cross-screen window spanning
Standards	HDMI 1.4; HDCP 1.4
Bandwidth	HDMI pixel bandwidth 340 MHz, fully digital; total interface bandwidth 10.2 Gbps
Impedance	100 Ω
Audio Sampling	44.1K / 48K / 96K / 176K / 192K; analog output signal
Main Functions	Video wall splicing, multi-window PIP, cross-screen display, scene save and recall, background image, scrolling text, playback preview, file renaming, audio routing
Control Methods	PC control software, browser-based Web GUI, RS-232, TCP/IP LAN

01 Full-wall display



3 × 3 wall | One source spans nine displays

One wall. Multiple possibilities.

- **Full-wall scaling**
  Scale one image across the entire wall.
- **Cross-screen zones**
  Arrange sources in separate display zones.
- **Overlapping windows**
  Move, resize and layer source windows.
- **Scene recall**
  Save, recall and cycle through layouts.

02 Typical wall and window layouts

01 Full-wall image



One source across all panels

02 Independent images



Separate content on each panel

03 Cross-screen zones



Main zone A + zones B / C

04 Overlap & reposition



Windows span panel boundaries

05 Panoramic wall



1 row × 4 landscape displays

06 Portrait-display wall



1 row × 4 portrait displays

Interface & Control

Connection Interface

Interface	Description
HDMI Inputs	5 × HDMI source inputs; input 5 (UHD) accepts up to 4K@60Hz, inputs 1–4 accept up to 1080p@60Hz
HDMI Outputs	9 × independently configurable 1080p@60Hz display outputs for splicing or discrete display
Audio	1 × 3.5 mm analog stereo output, de-embedded from the selected HDMI source

Interface	Description
Serial / LAN	RS-232 control port and RJ45 LAN port for PC software, Web GUI, and central control integration
USB	1 × USB port for firmware maintenance and system service
Power	DC 12V input with local ON / OFF power switch and front-panel power indicator

Video Wall & Network Functions

- **Flexible Layout Engine:** Windows are positioned and sized graphically in the control software; any window may span multiple outputs to create true cross-screen layouts across the array.
- **Scene Presets:** Complete wall layouts, including window positions, source assignments, background, and text overlays, are stored as scenes and recalled instantly from the Web GUI or a central control system.
- **Centralized & External Control:** The unit operates on a standard TCP/IP network, allowing configuration from any PC on the same subnet, while RS-232 supports command-driven control from third-party control processors.

Mechanical & Environmental

Parameter	Specification
Chassis	1U standard rack-mount metal enclosure with detachable rack ears
Power	Adapter input AC 220–240V, 50/60 Hz, interchangeable plug; device input DC 12V / 3A
Power Dissipation	25 W maximum
Dimensions	With rack ears: 482(W) × 225(D) × 59(H) mm; without rack ears: 440(W) × 225(D) × 44(H) mm
Packing Size	558(W) × 275(D) × 90(H) mm
Weight	Net 2.64 kg; gross 3.68 kg
Environment	Operating temperature 0°C to 50°C; operating humidity 5% to 90%, non-condensing

Installation Notes

- **Cable Recommendation:** Use certified high-speed HDMI cables and keep runs as short as practical. For the 4K@60Hz input and any long output run, use premium-grade or active cable; excessive cable length is the most common cause of intermittent dropout on video wall installations.
- **Power Operation:** Complete all HDMI, network, and control connections before switching the unit on. Use only the supplied DC 12V / 3A adapter; substituting an adapter of different voltage or insufficient current rating may cause instability or permanent damage.
- **Output Resolution Setting:** Before commissioning, confirm that the output resolution configured in the control software matches the native resolution and timing of the connected displays or LED processor. Mismatched timing is the usual cause of blank screens, cropped images, or misaligned splicing.
- **Network Configuration:** Place the unit and the control PC on the same subnet before launching the control software, and confirm matching RS-232 parameters at both ends when integrating with a central control system.
- **Environment Maintenance:** Do not operate in humid, high-temperature, or conductive-dust environments. Keep chassis vents clear and do not obstruct the rack airflow path; sustained overheating will shorten service life.
- **Wiring Taboos:** Avoid running signal and control cabling parallel to, or in the same conduit as, high-power cabling such as air-conditioning or motor circuits, to prevent electromagnetic interference from degrading image quality.
- **No Hot-Swapping:** Power the unit down before connecting or disconnecting HDMI, network, or control cables. Hot-swapping may cause circuit damage from static discharge or surge current.

Package Contents

- **Main Unit:** HW5900_B video wall processor × 1
- **Control & Rack Accessories:** RS-232 control cable × 1; rack mounting ear set × 1
- **Power & Documents:** DC 12V / 3A power adapter (interchangeable plug) × 1; AC power cord × 1; user manual × 1