

MP400

SYNCHRONOUS / ASYNCHRONOUS LED MEDIA PLAYER

Networked playback, HDMI live input and integrated LED display control

4 × 1 GbE

LED OUTPUTS

2.6 MP

MAX. CAPACITY

4K60

HARDWARE DECODE

Android 12

PLAYER PLATFORM



BUILT FOR NETWORKED LED DISPLAY PLAYBACK

PC-free scheduling | HDMI synchronous input | Cloud cluster management

SECTION 01

PRODUCT OVERVIEW

A networked synchronous/asynchronous LED media player with integrated playback, HDMI input and four LED data outputs.

The MP400 combines an Android media-player platform, video decoding, program scheduling, HDMI live-input processing and LED sending functions in one compact enclosure. It can operate without a continuously connected PC, while remaining accessible from local management tools or an Internet-based cluster-management platform.

2.6

MILLION PIXELS

Maximum device capacity

4

1 GbE OUTPUTS

Integrated LED sending outputs

3840

MAX. WIDTH / HEIGHT

Within total capacity

64 GB

INTERNAL eMMC

Local program and media storage

SYSTEM ROLE

FUNCTION	DESCRIPTION
Asynchronous playback	Store and play scheduled programs from the internal eMMC; update by network or USB drive.
Synchronous playback	Accept a live HDMI source and scale the image to the configured LED display raster.
Live-input insertion	Display HDMI IN1 as a live video window inside an asynchronous program.
LED display control	Drive Mooncell receiving cards directly through four 1 GbE LED outputs.
Network operation	Manage one or many players over LAN, Wi-Fi or an optional cellular connection.

PRODUCT CLASSIFICATION MP400 is an LED media player and playback controller that integrates local playback, live HDMI handling and LED sending in one enclosure.

SECTION 02

KEY FEATURES & APPLICATIONS

Integrated playback, flexible program composition and remote operation for commercial LED display systems.

KEY FEATURES

- Four 1 GbE LED outputs with up to 2.6 million pixels of aggregate loading capacity.
- Synchronous/asynchronous mode selection from the front panel or by scheduled switching.
- Multi-window programs with freely adjustable size, position and overlap order.
- Quad-core Cortex-A55 platform, Android 12, 2 GB DDR3 memory and 64 GB eMMC storage.
- Hardware decoding for H.264/H.265/VP9 video, including 4K60-class media decoding.
- HDMI loop-through for multi-unit cascading and stitched playback.
- PC, mobile app, tablet, cloud platform and USB-drive program delivery.
- Wi-Fi AP/STA operation, LAN connectivity and optional 4G/5G cellular access.
- Screen Manager app support, including photo-assisted LED screen mapping.

TYPICAL APPLICATIONS

APPLICATION	VALUE
Fixed LED displays	PC-free scheduled content with local or remote maintenance
Retail and chain stores	Centralized program distribution to multiple locations
Streetlight-pole and outdoor signage	Compact installation with optional cellular connectivity
Transparent, glass and mirror displays	Integrated media playback for specialty display formats
LED electronic whiteboards	Wireless casting and live HDMI presentation input
Advertising and information displays	Video, graphics, text, clocks, web content and live windows

DEPLOYMENT NOTE The final feature set depends on the installed communications module, software version and configured content services.

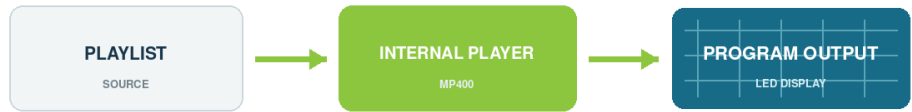
SECTION 03

OPERATING MODES

Three practical signal paths cover scheduled playback, live HDMI operation and live video inside an asynchronous program.

ASYNCHRONOUS PLAYBACK

Scheduled program from eMMC, USB or network



SYNCHRONOUS PLAYBACK

Live HDMI source, scaled to the LED canvas



HDMI LIVE WINDOW

HDMI IN1 inserted into an asynchronous program



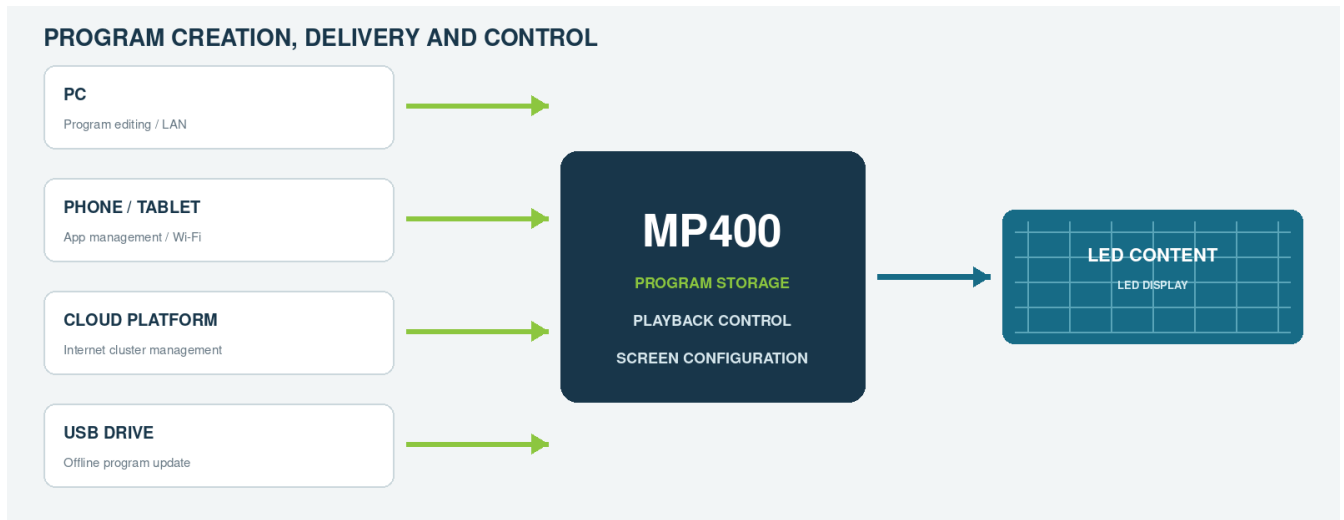
MODE	PRIMARY SOURCE	BEHAVIOR	SELECTION
Asynchronous	Internal eMMC / USB / network program	Plays stored schedules and multi-zone content without a live source.	ASync key or schedule
Synchronous	HDMI IN2	Scales a live HDMI signal to the configured LED screen and supports cascade input.	HDMI IN2 key or schedule
HDMI IN1 live window	HDMI IN1	Places a 1920 × 1080 @ 60 Hz live input inside an asynchronous program.	Program window / HDMI IN1 key

MODE SWITCHING The front panel locks automatically after two minutes. Unlock it before changing the active mode from the panel.

SECTION 04

PROGRAM MANAGEMENT

Create, publish, schedule and control programs from local devices, mobile apps, a cloud platform or a USB drive.



MANAGEMENT FUNCTIONS

FUNCTION	CAPABILITY
Program delivery	Send programs over LAN/Wi-Fi/cellular networks or update them from a USB drive.
Playback control	Start, stop and advance programs; select operating mode and active content.
Screen control	Turn the LED display on/off and adjust brightness manually, by schedule or through an ambient-light sensor.
Device configuration	Manage system parameters and LED screen configuration from supported tools.
Scheduling	Create timed playlists, operating-mode changes and display power schedules.
Cluster management	Operate multiple networked players from an Internet-connected management platform.

SUPPORTED MANAGEMENT TERMINALS PC, Android devices and iOS devices are supported. The mobile management app is available for Android and iOS.

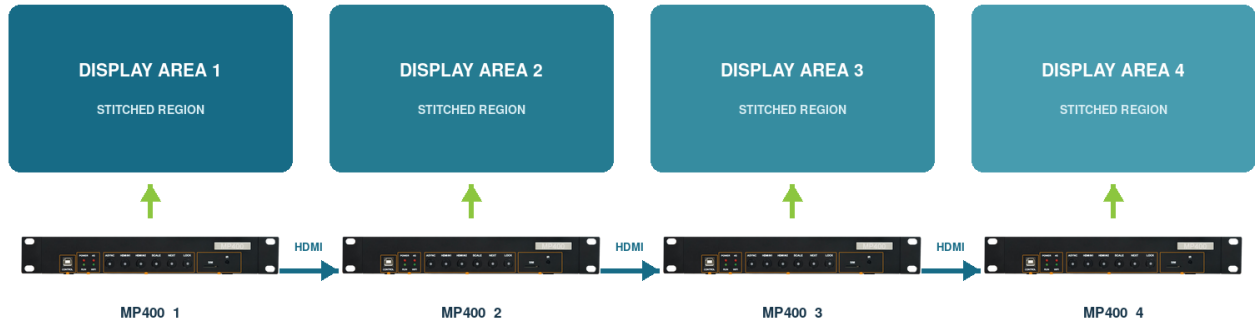
SECTION 05

HDMI CASCADE & STITCHING

Use the HDMI loop output to distribute one source through multiple MP400 units for a larger stitched LED canvas.

HDMI CASCADE AND MULTI-UNIT STITCHING

HDMI OUT loops the source to HDMI IN2 on the next MP400.



SOURCE ROUTING

Set the same HDMI source across the cascade, then assign each unit's output region for the combined canvas.

CASCADE PATH

CONNECTION	ROLE
Source → first HDMI IN2	Provides the common synchronous source to the first unit.
HDMI OUT → next HDMI IN2	Loops the source to each downstream unit in the cascade.
Each MP400 → assigned LED region	Scales and maps the relevant portion of the source to its local display area.
HDMI OUT → monitor (alternative)	The loop output can be connected to a local monitoring display instead of another unit.

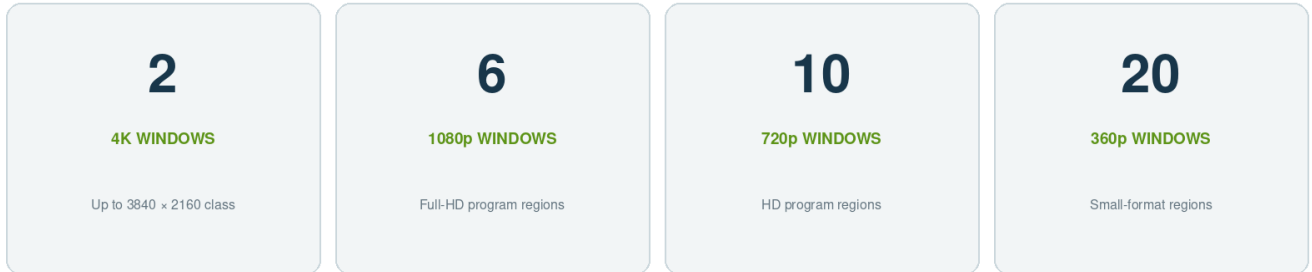
INPUT FORMAT For HDMI IN2, 1920 × 1080 @ 60 Hz is recommended. The maximum stated input is 3840 × 2160 @ 30 Hz.

SECTION 06

MULTI-WINDOW & MEDIA PLAYBACK

Compose mixed-media programs with independently sized, positioned and overlapping zones.

SIMULTANEOUS VIDEO-WINDOW CAPACITY



PROGRAM ELEMENTS

CATEGORY	SUPPORTED CONTENT / FUNCTION
Video	MOV, MP4 and MKV; multiple simultaneous video windows
Audio	MPEG-1 Layer III (MP3) and AAC
Images	JPG, PNG and animated GIF
Text	Single-line, static, multi-line and multicolor text regions
Documents	Document regions supported by the program-authoring platform
Dynamic content	Clock/date, weather, timer, streaming media and web-page regions
Live content	HDMI IN1 video window and promotional / discount pop-up regions
Layout	Video, image, scrolling text, logo and date/time zones with adjustable z-order

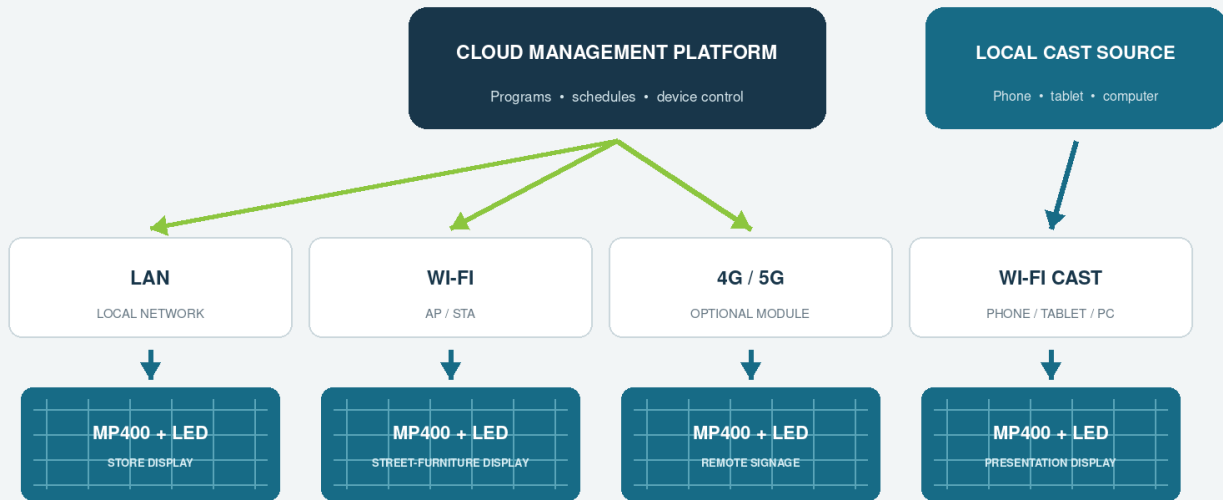
WINDOW-COUNT RULE The listed counts are maximum simultaneous video-window references. Actual performance varies with codec, bitrate, resolution and program complexity.

SECTION 07

NETWORKING & CLUSTER CONTROL

Connect locally or over the Internet and manage multiple LED endpoints from a centralized platform.

NETWORK AND CONTENT-DELIVERY PATHS



CONNECTIVITY MODES

LINK	USE
Gigabit Ethernet LAN	Local configuration, program delivery and network management
Wi-Fi AP	Direct local connection from a phone, tablet or PC
Wi-Fi STA	Connection to an existing wireless network
Optional 4G/5G	Remote operation where wired or local Wi-Fi access is unavailable
Wireless casting	Real-time screen casting from supported phones, tablets or computers

CELLULAR OPTION The SIM slot and cellular antenna interface are used only when the corresponding optional 4G/5G module is installed.

SECTION 08

FRONT PANEL

Local communication, operating-mode keys, status indicators, infrared reception and optional cellular SIM access.



Front-panel functional groups.

NO.	GROUP	INTERFACES / CONTROLS	FUNCTION
1	CONTROL	USB control port	Direct PC communication, configuration and debugging.
2	Status indicators	POWER, RUN, 4G, Wi-Fi	Power, Android-system, cellular-module and wireless-network status.
3	Operating keys	ASYNC, HDMI IN1, HDMI IN2, SCALE, NEXT, LOCK	Mode selection, scaling, program advance and panel locking.
4	SIM / IR	Micro-SIM slot; IR receiver	Optional cellular connectivity and infrared remote-control reception.

REMOTE CONTROL The infrared remote can switch Android playback programs. The remote control is sold separately.

SECTION 09

FRONT-PANEL OPERATION

Indicator states and key behavior for installation, mode selection and fault checking.

STATUS INDICATORS

INDICATOR	STATE	MEANING
POWER	Red, steady	Unit has completed power-up.
RUN	Green, flashing	Android operating system is running normally.
RUN	Green, steady or off	Android operating system is abnormal.
4G	Red, steady	Optional cellular module is operating normally.
4G	Red, flashing	Cellular data is being transferred.
Wi-Fi	Green, steady	Wi-Fi enabled but not connected.
Wi-Fi	Fast flash / slow flash	AP mode active / STA mode active.
Wi-Fi	Off	Wi-Fi disabled.

KEYS

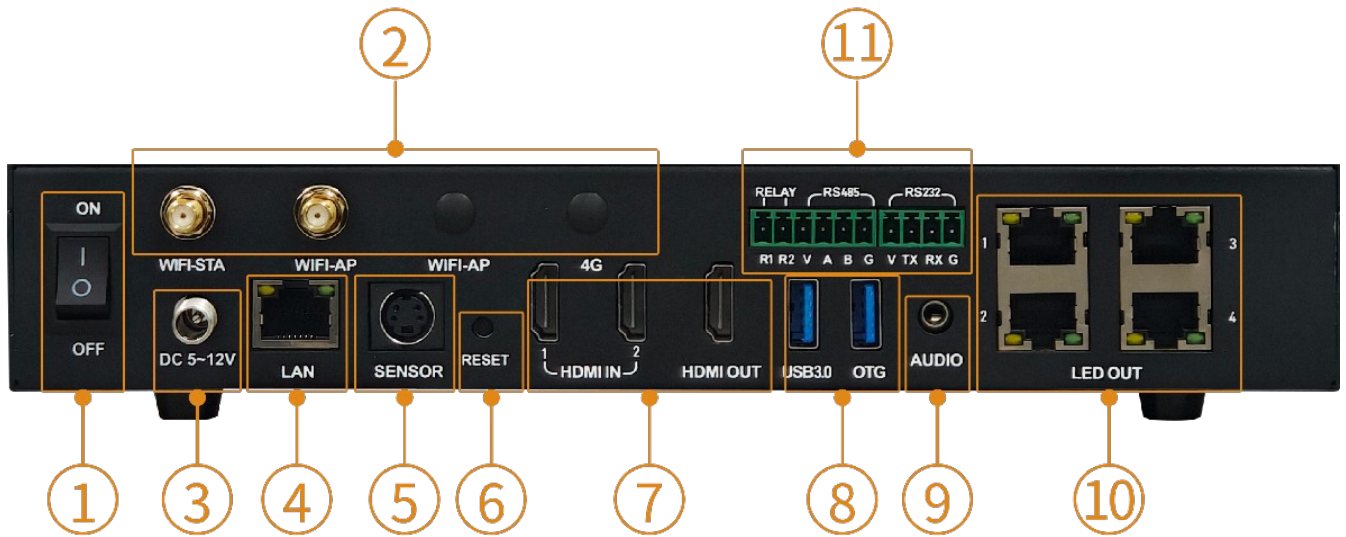
KEY	INDICATION / ACTION
ASYNCR	Green steady when asynchronous playback is selected.
HDMI IN1 / HDMI IN2	Green steady when the corresponding HDMI input mode is selected.
SCALE	Green steady for full-screen scaling; off for 1:1 pixel mapping. Short press toggles the state.
NEXT	Advances to the next program; available only in ASYNCR mode.
LOCK	Green steady when locked. Press and hold for 4–5 seconds to unlock.

AUTOMATIC LOCK The panel is locked at power-up and re-locks automatically after approximately two minutes.

SECTION 10

REAR PANEL

Power, network, sensors, HDMI, USB, audio, LED outputs, serial control and reserved relay connections.



Rear-panel interface map.

NO.	INTERFACE	DESCRIPTION
1	Power switch	Main DC power on/off control.
2	Antennas	Wi-Fi STA, Wi-Fi AP and optional cellular antenna connections.
3	DC 5–12 V	DC power input; 5.5 × 2.1 mm barrel connector.
4	LAN	Gigabit Ethernet network port.
5	SENSOR	Ambient-light sensor input for automatic brightness adjustment.
6	RESET	Restore factory settings.
7	HDMI IN1 / IN2 / OUT	Live input, synchronous/cascade input and loop/monitor output.
8	USB 3.0 / OTG	Media update/peripherals and service/debug connection.
9	AUDIO	3.5 mm (1/8 in) TRS analog audio output.
10	LED OUT	Four 1 GbE outputs to Mooncell LED receiving cards.
11	RELAY / RS485 / RS232	Reserved relay and serial central-control terminals.

SECTION 11

INTERFACE SPECIFICATIONS

Signal limits and practical roles for the video, network, USB, audio, sensor and control interfaces.

HDMI

INTERFACE	MAXIMUM / RECOMMENDED FORMAT	FUNCTION
HDMI IN1	1920 × 1080 @ 60 Hz only	Live video window for asynchronous playback programs.
HDMI IN2	Max. 3840 × 2160 @ 30 Hz; 1920 × 1080 @ 60 Hz recommended	HDMI 1.4 synchronous input or upstream cascade input; adaptive scaling.
HDMI OUT	Loop-through follows active cascade path	Downstream cascade connection or local monitoring output.

DATA, CONTROL AND PERIPHERALS

INTERFACE	QTY.	SPECIFICATION / FUNCTION
LED OUT	4	1 GbE LED data outputs; aggregate capacity up to 2.6 million pixels.
LAN	1	Gigabit Ethernet for parameters, program delivery and network management.
USB 3.0	1	USB-drive program update and supported mouse/keyboard peripherals.
OTG	1	Service and debugging connection.
SENSOR	1	Ambient-light probe input for automatic brightness control.
AUDIO	1	3.5 mm (1/8 in) TRS analog output.
RS485	1	4-pin Phoenix terminal: 3.3 V, A, B, GND.
RS232	1	4-pin Phoenix terminal: 3.3 V, TX, RX, GND.
RELAY	1	Reserved 2-pin Phoenix terminal; R1/R2 switching contacts.

RECEIVER COMPATIBILITY The LED outputs are specified for use with Mooncell receiving cards.

SECTION 12

PERFORMANCE & LOADING

Player hardware, decoding capability, local storage, network access and LED canvas limits.

CATEGORY	PARAMETER	SPECIFICATION
Processing	CPU	Quad-core Arm Cortex-A55
Memory	System memory	2 GB DDR3
Storage	Internal storage	64 GB eMMC
Operating system	Platform	Android 12
Video decode	H.264	Up to 1920 × 1080 @ 60 fps
Video decode	H.264 / H.265 / VP9	Up to 4K @ 60 fps
Networking	Wired / wireless	Gigabit Ethernet LAN; Wi-Fi AP/STA; optional 4G/5G
LED output	Ports	4 × 1 GbE
LED output	Total capacity	Up to 2.6 million pixels
LED canvas	Maximum width	3840 pixels, within total capacity
LED canvas	Maximum height	3840 pixels, within total capacity
Receiving cards	Compatibility	Mooncell receiving cards

ENGINEERING NOTES

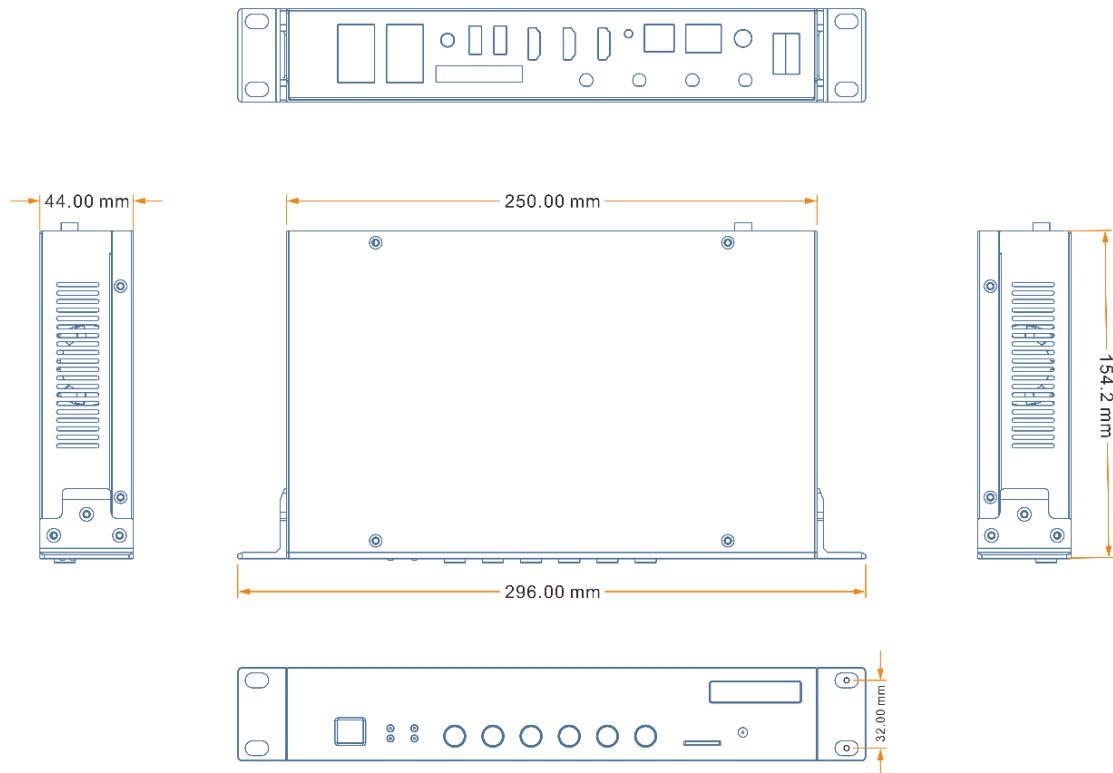
- The 2.6-million-pixel figure is the aggregate device capacity across all four LED outputs.
- Maximum canvas width and height are each 3840 pixels; the complete raster must also remain within the total pixel capacity.
- 4K60 refers to hardware media decoding. HDMI IN2 accepts up to 3840 × 2160 @ 30 Hz, as stated in the interface specification.
- Actual multi-window performance depends on codec, bitrate, media profile and program complexity.

CONFIGURATION RULE Verify the final receiving-card mapping, output allocation and raster dimensions in the LED screen configuration before commissioning.

SECTION 13

MECHANICAL DIMENSIONS

Compact installation dimensions and drawing reference for enclosure integration.



Mechanical dimensions. Units: mm. Drawing tolerance: ± 0.3 mm.

PARAMETER	SPECIFICATION
Overall dimensions	296 mm (W) $\times$ 154.2 mm (D) $\times$ 44 mm (H)
Main enclosure width	250 mm, excluding mounting flanges
Front-panel body height	32 mm shown in the dimensional drawing
Net weight	1.18 kg
Drawing tolerance	± 0.3 mm

INSTALLATION REFERENCE Allow clearance for ventilation, antenna connections, cabling and service access. Product appearance is subject to the delivered unit.

SECTION 14

GENERAL SPECIFICATIONS

Electrical, environmental, physical, packaging and installation information.

CATEGORY	PARAMETER	SPECIFICATION
Electrical	Input voltage	DC 5–12 V
Electrical	Rated power	15 W
Operating	Temperature	–20°C to 60°C
Operating	Humidity	0% to 80% RH, non-condensing
Storage	Temperature	–40°C to 80°C
Mechanical	Dimensions / net weight	296 × 154.2 × 44 mm / 1.18 kg
Packaging	Carton dimensions	365 × 280 × 75 mm
Packaging	Gross weight	1.77 kg
Packaging	Packing method	1 unit per carton; outer packing varies with quantity

STANDARD PACKAGE MP400, 2 × Wi-Fi antennas, 12 V / 3 A power adapter with 1.5 m DC lead, HDMI cable, Ethernet cable and certificate of conformity.

OPTIONAL ACCESSORY Cellular communications module with antenna/base, selected for the required 4G/5G deployment.

SAFETY & HANDLING

- Installation and servicing must be performed by qualified personnel.
- Use electrostatic-discharge precautions when handling the unit and connected LED system components.
- Protect the product from water, conductive dust and condensation; maintain ventilation around the enclosure.
- Switch off and disconnect DC power before changing power, control or signal connections.

SECTION 15

MEDIA REFERENCE & DOCUMENT CONTROL

Supported program elements, platform functions and the revision history for hardware MP4 (V3.1).

MEDIA AND PROGRAM REFERENCE

TYPE	SUPPORTED ITEMS
Video containers	MOV, MP4, MKV
Video codecs	H.264, H.265, VP9 hardware decoding
Audio	MPEG-1 Layer III (MP3), AAC
Images	JPG, PNG, GIF
Text	Single-line, static, multi-line and multicolor text
Program zones	Video, image, document, scrolling text, logo, date/time, clock, timer, weather, web page, streaming media and HDMI live input
Timekeeping	Real-time clock (RTC)
Program control	Scheduled playlists, scheduled display power and timed brightness / mode changes

DOCUMENT CONTROL

VERSION	HARDWARE	RELEASE DATE	CHANGE DESCRIPTION
V4.0	MP4 (V3.1)	2025-12-29	First release.
V4.1	MP4 (V3.1)	2026-06-08	Corrected product-feature descriptions.

SPECIFICATION BASIS This edition distinguishes media-decoding capability from external-input limits: Gigabit Ethernet LAN, 4K60-class media decoding, and HDMI IN2 up to 3840 × 2160 @ 30 Hz.

NOTICE Specifications, supported services and product appearance may change with firmware, software or hardware revisions. Confirm critical project requirements before deployment.

After-Sales Service Hotline: 400-881-3531

Website: www.mooncell.com.cn

Mooncell Building, Third Industrial Zone,
Baoshi South Road, Shiyan Subdistrict, Bao'an District,
Shenzhen, China

Specifications are subject to change without notice.

