摩西尔 Mooncell

PRODUCT SPECIFICATION

V4.1 | ENGLISH

MC2K

MEDIA CONTROL SERVER

Centralized control for distributed LED media-server systems

20C / 28T	16 GB	1 TB	M2
INTEL CPU	DDR5 MEMORY	M.2 SSD	CONTROL SOFTWARE

CONTROL • ORCHESTRATION • SYNCHRONIZED PLAYBACK

Multi-display management | Slicing projects | Timeline control | Device monitoring

SECTION 01

PRODUCT OVERVIEW

A centralized media control server for managing projects, content and synchronized playback across distributed LED display-server systems.

The MC2K is the control-side server in a distributed Mooncell media-server architecture. Built on an industrial motherboard with a high-performance Intel processor, it runs M2 media control software to manage media assets, slicing projects, program scenes, schedules, display-side media servers and system status from one operator station.

20 / 28	16 GB	1 TB	4U
CORES / THREADS	DDR5 MEMORY	M.2 SSD	RACKMOUNT CHASSIS
High-performance Intel processor	System and project workspace	High-speed local media storage	Industrial control-server platform

SYSTEM ROLE

ROLE	MC2K CAPABILITY
Centralized control	Manages multiple LED displays in batches while retaining independent playback control for each display.
Project orchestration	Loads, switches and controls media projects, program scenes, timelines and saved slicing configurations.
Distributed playback	Coordinates multiple display-side media servers for synchronized native-resolution output across very large canvases.
Creative mapping	Supports content splitting, reassembly, geometric warping, rotation and CAVE perspective conversion.
Operations	Provides scheduling, unattended startup, remote power functions, third-party control integration and device monitoring.

PRODUCT CLASSIFICATION MC2K is a media control server. It does not replace the display-side media servers that render and output the ultra-high-resolution LED canvas.

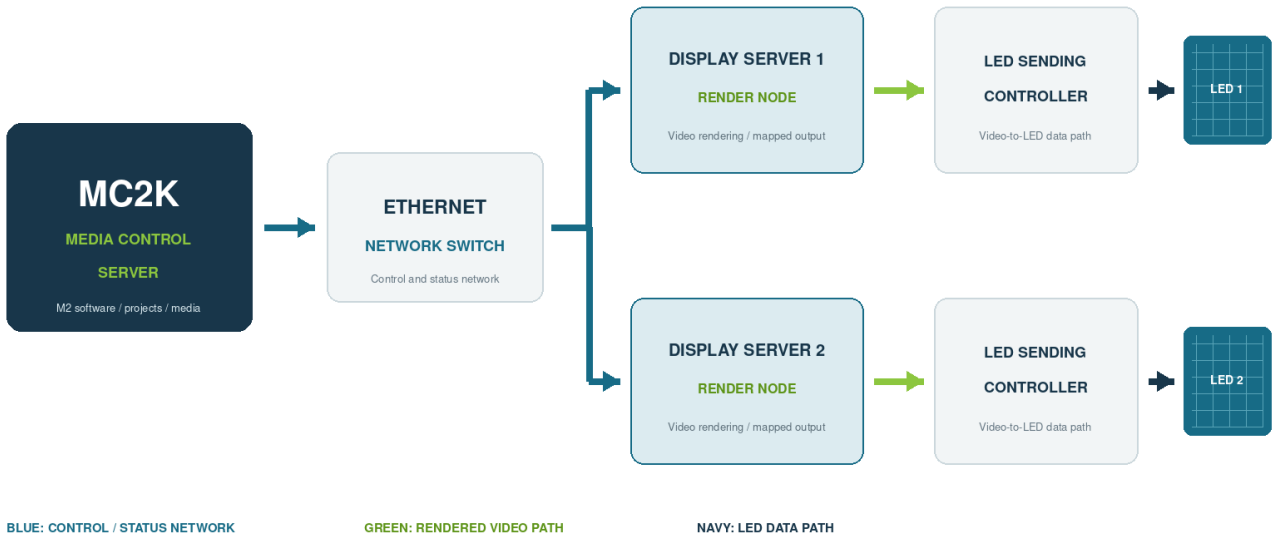
SECTION 02

DISTRIBUTED SYSTEM ARCHITECTURE

The control server, Ethernet network, render nodes and LED sending controllers perform distinct functions in the complete signal chain.

DISTRIBUTED MEDIA-SERVER ARCHITECTURE

MC2K is the control-side node; display-side media servers perform the rendered video output.



COMPONENT RESPONSIBILITIES

COMPONENT	PRIMARY RESPONSIBILITY
MC2K Media Control Server	Media, project, scene, schedule, node and status management through M2 software.
Display-Side Media Server (Render Node)	Renders the assigned content region and provides the mapped video output for its LED display area.
LED Sending Controller	Converts the render node's video output into LED display data and drives the downstream receiving-card system.
Ethernet network	Carries control commands, project coordination and device-status information between servers.

LOCAL DISPLAYPORT The MC2K's DP 1.2 output is specified for the local operator monitor. Distributed LED image outputs are provided by the display-side media servers.

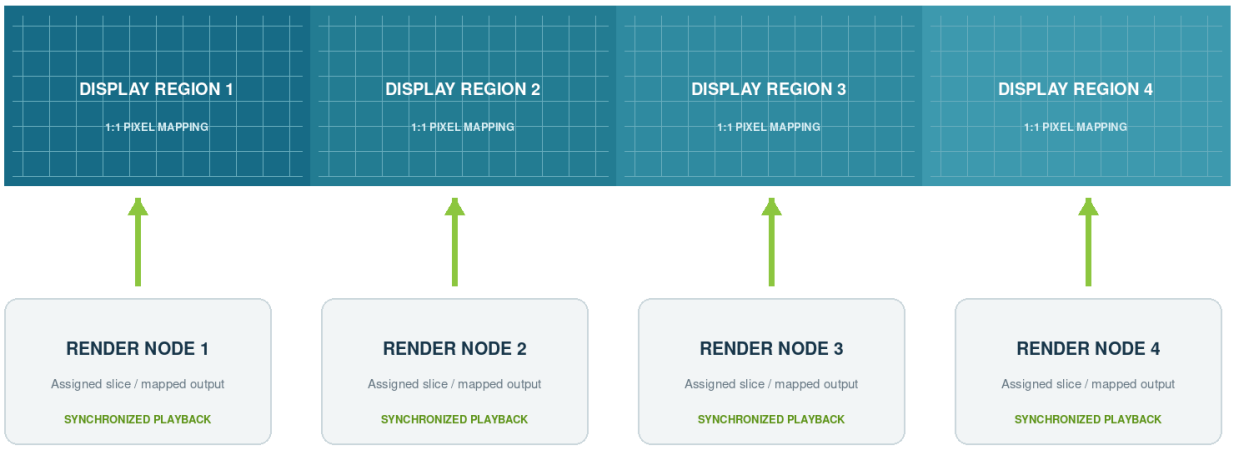
SECTION 03

SCALE-OUT LED DISPLAY WORKFLOWS

Coordinate multiple render nodes for very large native-resolution canvases, independent display zones and non-standard LED geometries.

NATIVE-RESOLUTION SCALE-OUT WORKFLOW

A large LED canvas is divided into mapped regions and rendered by synchronized display-side servers.



MC2K coordinates projects, scenes and playback across the render nodes.

SUPPORTED DEPLOYMENT PATTERNS

- Ultra-large LED canvases that exceed the practical output capacity of one display-side media server.
- Multiple LED displays managed together while retaining independent programs or playback control.
- One content canvas divided into native-resolution slices and assigned to several synchronized render nodes.
- Irregular, angled or composite LED surfaces that require custom splitting, mapping and geometric correction.
- Multi-server systems in which projects and saved slicing configurations must be switched from one control station.

SYNCHRONIZATION SCOPE The source specification confirms multi-server synchronized operation but does not state a specific Genlock or timecode interface. Confirm frame-lock requirements for projects that demand deterministic scan-level synchronization.

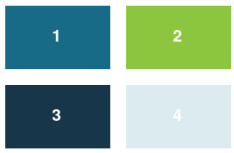
SECTION 04

CREATIVE MAPPING & CAVE WORKFLOWS

Prepare content for irregular, angled and immersive LED surfaces without constraining the project to a conventional rectangular canvas.

CREATIVE MAPPING AND GEOMETRY TOOLSET

SLICE & REASSEMBLE

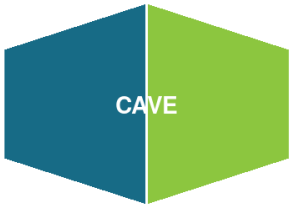


Divide one source into independent regions and rebuild the final composition.

WARP & ROTATE

Apply geometric transformation and rotation for angled or irregular surfaces.

CAVE PERSPECTIVE



Convert conventional video into a mapped CAVE perspective workflow.

MAPPING FUNCTIONS

FUNCTION	APPLICATION
Arbitrary splitting and reassembly	Divides source imagery into independent regions and reconstructs the final display composition.
Geometric warping	Transforms content geometry to fit angled, skewed or non-planar display surfaces.
Image rotation	Rotates mapped regions to match the physical orientation of display sections.
Saved slicing projects	Stores multiple mapping projects and switches them through the control system.
CAVE perspective conversion	Converts conventional video into a perspective-mapped workflow for compatible CAVE installations.
HDR playback	Supports playback of HDR video content within the configured system workflow.

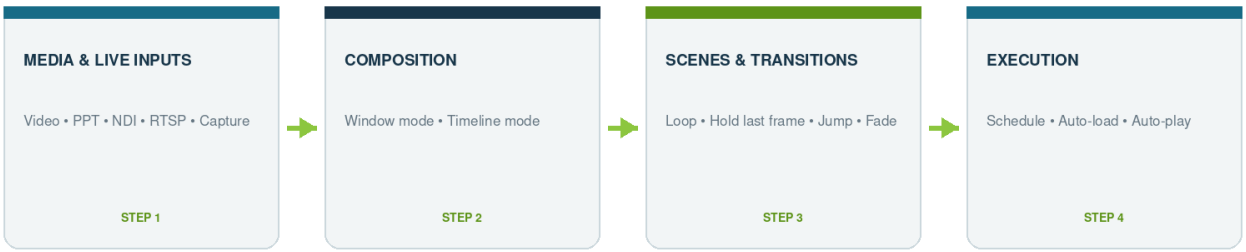
PROJECT VALIDATION Final results depend on the complete render, output and LED mapping chain. Verify every surface from the intended audience viewpoint before acceptance.

SECTION 05

PLAYBACK, SCENES & SCHEDULING

Build programs in window or timeline mode, control scene behavior and automate playback for attended or unattended operation.

PROGRAM CREATION AND PLAYBACK CONTROL



PROGRAM SCENES No fixed scene-count limit is stated in the source specification.

POWERPOINT Presentation playback supports page control from a compatible presentation remote.

PLAYBACK CONTROL

FUNCTION	BEHAVIOR
Window mode	Builds a composition from independently placed content windows.
Timeline mode	Arranges media and scene events along a time-based program sequence.
Scene count	No fixed program-scene limit is stated in the source specification.
Playback actions	Loop playback, hold the last frame and jump to another program.
Scene transitions	Fade-in and fade-out transitions between programs.
Scheduled tasks	Starts selected programs according to a configured schedule.
PowerPoint	Plays PowerPoint presentations and supports page control from a presentation remote.

SECTION 06

MEDIA FORMATS & LIVE INPUTS

Combine high-performance media codecs, network streams, presentations and optional capture-card signals in one program environment.

MEDIA, STREAMING AND CAPTURE INPUTS

HAP FAMILY
Hap • Hap Q • Hap Alpha

H.264
MOV • AVI • MP4 containers

NETWORK VIDEO
NDI and RTSP inputs

CAPTURE CARDS
Optional HDMI / SDI capture

PRESENTATIONS
PowerPoint playback and page control

HDR VIDEO
HDR media playback workflow

Format support may also depend on codec profile, media characteristics and the installed capture hardware.

FORMAT AND INPUT REFERENCE

CATEGORY	SUPPORTED ITEMS / CONDITION
High-performance codecs	Hap, Hap Q and Hap Alpha
General video codec	H.264
Video containers	MOV, AVI and MP4; additional mainstream formats may be supported by the software environment
Network video	NDI and RTSP inputs
Physical capture	Capture-card inputs; HDMI and SDI capture cards are optional
Presentations	PowerPoint playback with compatible page-control remote
Dynamic range	HDR video playback

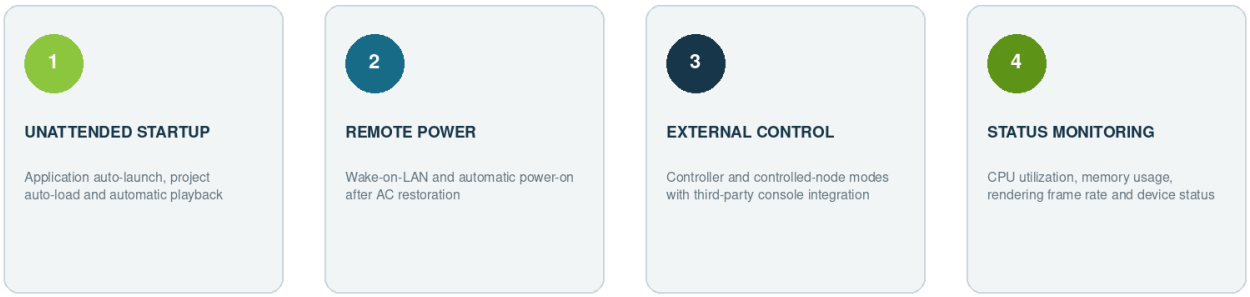
CAPTURE HARDWARE HDMI and SDI inputs require the corresponding optional capture card. They are not built into the standard rear I/O panel shown in this specification.

SECTION 07

AUTOMATION, CONTROL & MONITORING

Support unattended startup, remote power functions, third-party console integration and real-time health monitoring.

AUTOMATION, EXTERNAL CONTROL AND MONITORING



OPERATOR PROTECTION The software interface can be locked at any time to reduce accidental operation.

Scheduled operation still requires a correctly configured power, network and display-server environment.

OPERATIONAL FUNCTIONS

FUNCTION	CAPABILITY
Automatic application startup	Launches the media control software automatically after system startup.
Project auto-load / auto-play	Loads the configured project and begins playback without manual operator action.
Controller / controlled-node modes	Supports coordinated server control and integration with compatible third-party control consoles.
Wake-on-LAN	Allows the server to be awakened through a configured network connection.
AC-recovery auto-start	Automatically powers on after AC is restored when the rear-panel selector is enabled.
System monitoring	Monitors server status, CPU utilization, memory usage and rendering frame rate.
Interface lock	Locks the software interface to reduce accidental operation.

SECTION 08

FRONT PANEL

Local reset, power and high-speed USB access on the 4U rackmount control-server chassis.

Front-panel interface map. Product image is for reference; delivered appearance may vary.

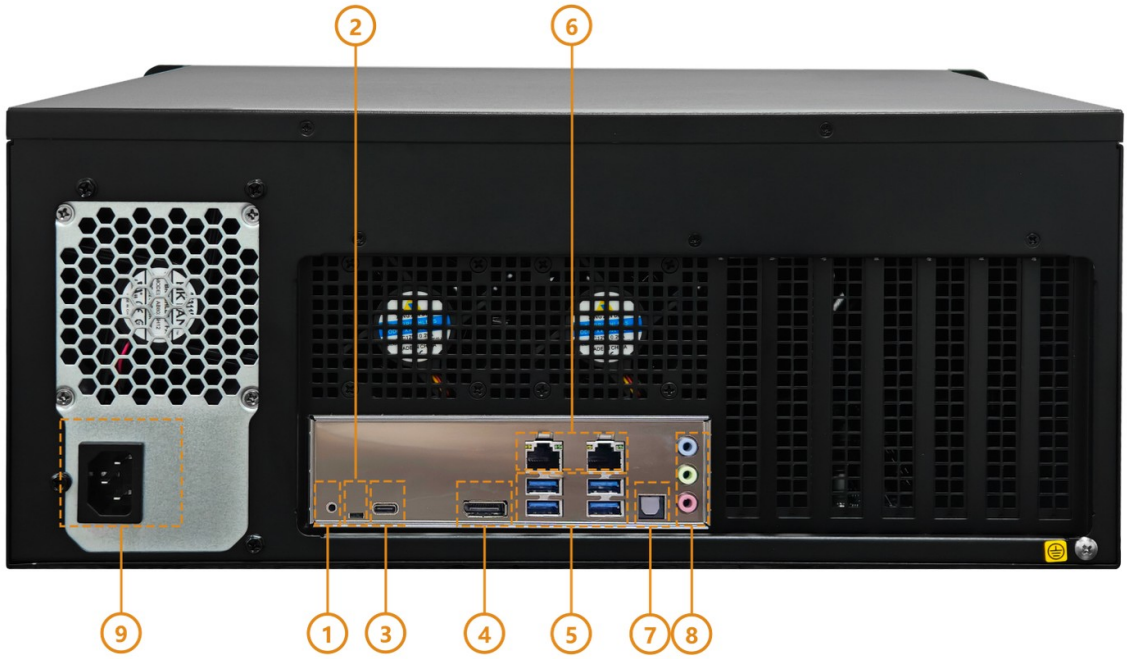
NO.	ITEM	FUNCTION
1	System reset button	Restarts the server hardware.
2	Power button	Turns the server on or initiates the configured power action.
3	2 × USB 3.0	Convenient front-panel connection for supported storage devices and peripherals.

SERVICE ACCESS Keep the front ventilation path clear and allow space for rack handles, USB devices and maintenance access.

SECTION 09

REAR PANEL

Motherboard I/O, network, local monitor, audio and universal AC power connections.



Rear-panel interface map. Product image is for reference; delivered appearance may vary.

NO.	INTERFACE	FUNCTION
1	BIOS recovery	One-touch BIOS recovery control.
2	AC-recovery auto-start switch	Left: disabled; right: enabled.
3	USB Type-C	One USB Type-C interface.
4	DisplayPort 1.2	Local monitor output, up to 3840 × 2160 @ 60 Hz.
5	4 × USB 3.0	High-speed USB connections for supported peripherals and storage.
6	2 × LAN	Network control and communications; supports Wake-on-LAN.
7	Optical digital audio	Supports 5.1-channel digital audio transmission.
8	Analog audio	Line input (blue), line output (green) and microphone input (pink).
9	AC input	AC 100–240 V, 50/60 Hz.

SECTION 10

INTERFACE SPECIFICATIONS

Operational limits and intended use for the standard front- and rear-panel connections.

INTERFACE	QTY.	SPECIFICATION / USE
DisplayPort	1	DP 1.2 local monitor output; maximum stated format 3840 × 2160 @ 60 Hz.
Front USB	2	USB 3.0 Type-A interfaces.
Rear USB	4	USB 3.0 Type-A interfaces.
USB Type-C	1	USB Type-C interface; protocol generation is not stated.
LAN	2	Ethernet connections for control and system communications; supports Wake-on-LAN.
Optical audio	1	Optical digital audio output supporting 5.1-channel transmission.
Analog line input	1	Blue 3.5 mm audio input.
Analog line output	1	Green 3.5 mm audio output.
Microphone input	1	Pink 3.5 mm microphone input.
AC power input	1	AC 100–240 V, 50/60 Hz.

OUTPUT-PATH CLARIFICATION

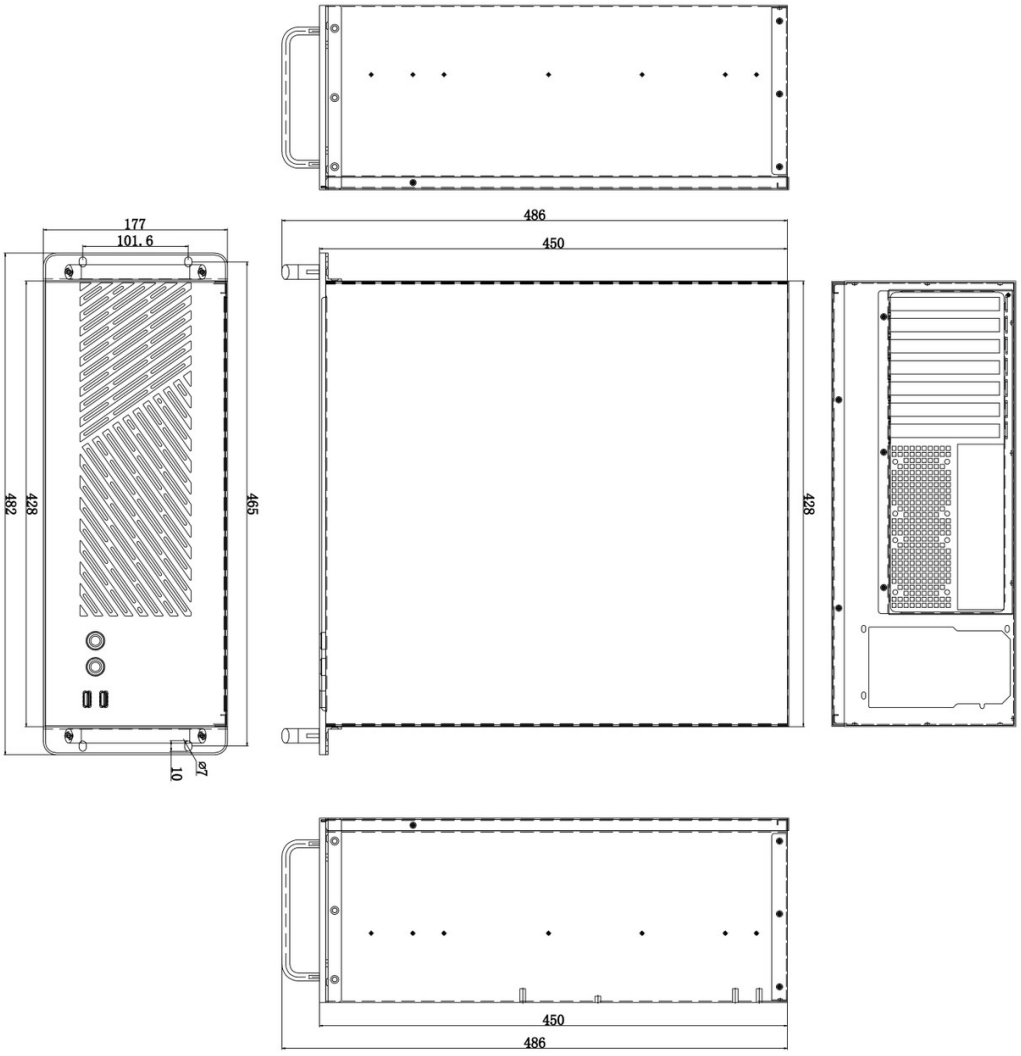
- DisplayPort 1.2 is the MC2K local operator-monitor connection.
- Video outputs for the LED canvas are provided by the paired display-side media servers and their installed output hardware.
- Optional HDMI/SDI capture interfaces are installed as capture cards and are separate from the standard motherboard I/O listed above.
- The LAN port speed is not stated in the source specification; confirm network-performance requirements for large multi-server deployments.

DESIGN RULE Size the control network, render-node outputs and LED sending-controller capacity as one complete system rather than from the MC2K local I/O alone.

SECTION 11

MECHANICAL DIMENSIONS

Standard 4U rackmount form factor for control-room and equipment-rack integration.



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

PARAMETER	SPECIFICATION
Overall dimensions	482 mm (W) × 486 mm (D) × 177 mm (H)
Rack height	4U
Main chassis body width	428 mm shown in the mechanical drawing
Main chassis depth	450 mm shown in the mechanical drawing
Net weight	11.3 kg
Drawing tolerance	±0.3 mm

RACK INTEGRATION Allow clearance for front and rear airflow, AC power, network cabling, monitor/audio connections and service access.

SECTION 12

HARDWARE & SYSTEM SPECIFICATIONS

Control-server platform, local storage, operator-display output and M2 software configuration.

CATEGORY	PARAMETER	SPECIFICATION
Product	Product name	Media Control Server
Product	Model	MC2K
Processor	CPU	Intel processor, 20 cores / 28 threads
Memory	System memory	16 GB DDR5
Storage	Internal storage	1 TB high-speed M.2 solid-state drive
Local display	Output	1 × DisplayPort 1.2 for operator monitor
Local display	Maximum stated format	3840 × 2160 @ 60 Hz
Power	Power supply / rated power	300 W
Chassis	Form factor	4U industrial rackmount server chassis
Software	Media control platform	M2 media control software

SYSTEM-SIZING NOTES

- MC2K hardware specifications describe the control-side server only; render-node specifications are separate.
- Project scale depends on the number and configuration of display-side media servers, output cards, LED sending controllers and network links.
- Media-decoding performance depends on codec, resolution, frame rate, bit rate, project complexity and concurrent tasks.
- Confirm optional capture-card type, quantity and driver compatibility when HDMI or SDI input is required.

SPECIFICATION BOUNDARY No aggregate LED pixel capacity is stated for MC2K because it is the control node rather than the display-output node.

SECTION 13

GENERAL SPECIFICATIONS

Electrical, environmental, physical, packaging and standard-accessory data.

CATEGORY	PARAMETER	SPECIFICATION
Electrical	Input voltage / frequency	AC 100–240 V, 50/60 Hz
Electrical	Rated power	300 W
Operating environment	Temperature	0°C to 40°C
Operating environment	Humidity	0% to 80% RH, non-condensing
Storage environment	Temperature	−10°C to 60°C
Storage environment	Humidity	0% to 95% RH, non-condensing
Mechanical	Dimensions	482 × 486 × 177 mm (W × D × H)
Mechanical	Net weight	11.3 kg
Packaging	Gross weight	14.9 kg including accessories and packaging
Packaging	Outer carton dimensions	615 × 565 × 275 mm
Standard accessories	Included items	1 × AC power cord; 1 × certificate of conformity

POWER NOTE Actual power consumption may vary with operating conditions, installed hardware, project load, environment and system settings.

DEPLOYMENT CHECKPOINTS

- Provide a correctly grounded AC circuit within the specified input range.
- Confirm rack depth, rail/support method, airflow direction and rear-cable clearance before installation.
- Use a managed control network appropriate for the number of servers and the required remote-management functions.
- Record the final M2 project, node mapping, slicing configuration and startup behavior during system handover.

SECTION 14

INSTALLATION, SAFETY & DOCUMENT CONTROL

Electrical safety, environmental handling and revision traceability for the MC2K specification.

INSTALLATION & SAFETY

- High voltage: the product operates from AC 100–240 V. Installation and servicing must be performed by qualified personnel.
- Disconnect AC power before opening the chassis, changing internal hardware or performing service work.
- Prevent liquids, metal fragments and other conductive objects from entering the enclosure.
- Operate the server in a dry, clean and well-ventilated environment within the stated temperature and humidity limits.
- Do not obstruct the front or rear ventilation openings; maintain sufficient clearance for heat removal.
- Connect the protective earth and use a properly grounded rack and AC distribution system.
- Secure data and project backups before BIOS recovery, software servicing or hardware replacement.
- Verify the rear AC-recovery auto-start selector and Wake-on-LAN configuration before enabling unattended operation.

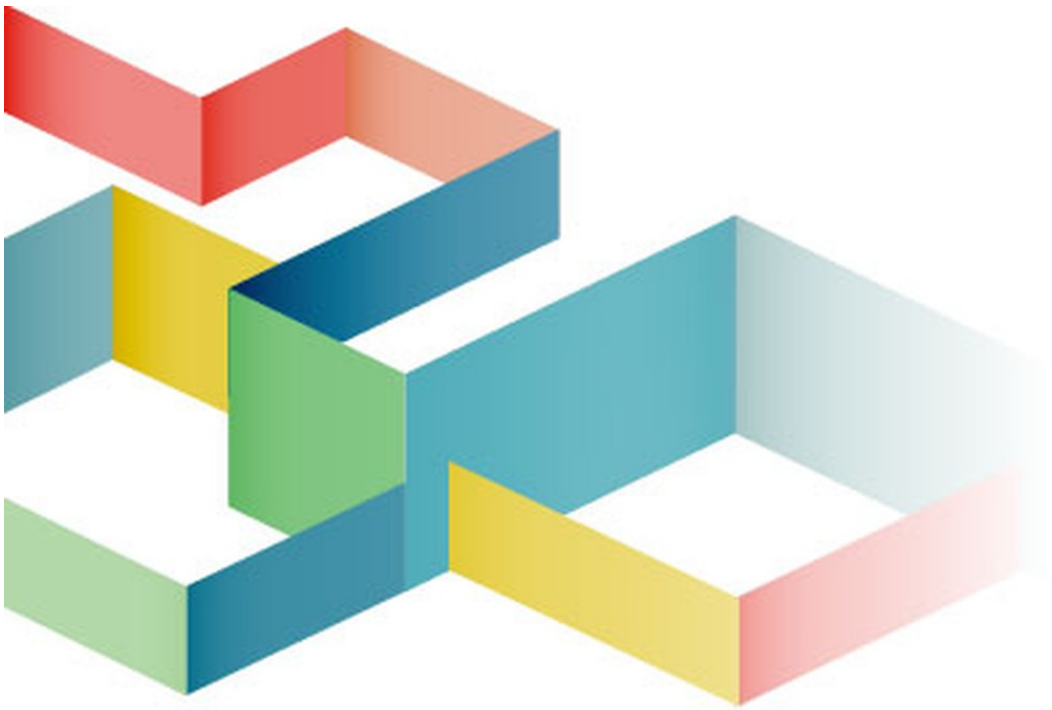
ELECTRICAL HAZARD This equipment contains hazardous AC voltages. Do not remove the chassis cover while power is connected.

DOCUMENT CONTROL

DOCUMENT VERSION	RELEASE DATE	CHANGE DESCRIPTION
V4.0	2025-07-15	Initial release of the updated specification.
V4.1	2026-06-03	Interface specifications changed.

SPECIFICATION BASIS This English edition is based on the supplied Chinese MC2K Multimedia Server Specification V4.1 and preserves the stated hardware, interface, mechanical and environmental limits.

NOTICE Specifications, installed components, software functions and product appearance may change with revision. Confirm critical project requirements before deployment.



摩西尔
Mooncell

After-Sales Service Hotline: 400-881-3531

Website: www.mooncell.com.cn

Professional LED Display Control Systems