

PRODUCT SPECIFICATION

Outdoor Stadium Full-Color LED Display P6.67 Product Specification

Cabinet Size 960×960mm | NovaStar Control System

Model: P6.67 (Outdoor Stadium Display Series) Document Version: V1.0

Date of Issue: _____

Executive Summary

This specification defines the product standard of the outdoor stadium full-color LED display P6.67: a 6.67mm pixel pitch with SMD3535 LED lamps, 960×960mm die-cast aluminum cabinet (144×144 pixels), and a standard NovaStar control system. The screen supports ≥3840Hz high refresh rate and 16-bit grayscale output, with white balance brightness ≥6000cd/m² and a whole-screen protection rating of IP65.

The product is designed for perimeter advertising and score display applications at outdoor stadiums such as football fields and basketball arenas, meeting the requirements of high-brightness display, anti-collision safety, and quick installation.

Quick Specifications

The table below summarizes the key parameters of this product; for detailed technical specifications, please refer to the following chapters.

Pixel Pitch

P6.67 / 6.67mm

Pixel Density

≈22,477 px/m²

Cabinet Resolution

144 × 144

White Balance Brightness

≥6000 cd/m²

Refresh Rate

≥3840 Hz

Protection Rating

IP65 / IP54

1. Document Description

This document is the technical product specification of the outdoor stadium full-color LED display P6.67 (cabinet size 960×960mm, NovaStar control system), applicable to stadium perimeter advertising screens, courtside display panels, and outdoor fixed installation applications. The technical parameters herein are design typical values; the final values shall be subject to the technical agreement and contract appendices signed by both parties.

Item	Content
Product Name	Outdoor Stadium Full-Color LED Display
Model	P6.67 (Outdoor Stadium Display Series)
Pixel Pitch	6.67 mm
Cabinet Size	960 × 960 mm (die-cast aluminum cabinet)
Control System	NovaStar control system
Document Version	V1.0

2. Product Overview

This product is specially designed for high-intensity outdoor usage scenarios such as sports stadiums and competitive arenas. Adopting SMD3535 surface-mount three-in-one LED lamps and a die-cast aluminum cabinet structure, it features high brightness, high refresh rate, high contrast, waterproof and dustproof protection, and impact resistance.

It satisfies the high-definition display requirements for broadcast shooting without moiré patterns or scan lines, and is suitable for perimeter advertising and score display at football fields, basketball arenas, and comprehensive sports stadiums.

Key Advantages

- **High brightness display:** white balance brightness $\geq 6000\text{cd/m}^2$, the image remains clear even under strong sunlight;
- **High refresh rate:** with the NovaStar control system, the refresh rate can reach $\geq 3840\text{Hz}$, no flicker when shot with high-speed cameras;
- **High protection rating:** whole-screen IP65 (front), suitable for outdoor rain and wind environments;
- **Reliable structure:** die-cast aluminum cabinet with high strength, good heat dissipation, and high flatness;
- **Anti-collision protection:** module mask and buffer strip design protect both athletes and the screen body;
- **Flexible control:** the NovaStar control system supports automatic brightness adjustment, per-pixel calibration, and multi-level cascading.

3. Pixel Structure & Module Parameters

Item	Parameter
Pixel Pitch	6.67 mm
Pixel Configuration	1R1G1B (SMD3535 three-in-one LED lamps)
Pixel Density	$\approx 22,477\text{ pixels/m}^2$
LED Brand	Nationstar / JINGTAI (or brand confirmed by both parties)
Chip Brand	San'an / HC SemiTek (or brand confirmed by both parties)
Driver IC	Constant-current driver (MBI/ICN series, high refresh supported)
Scan Mode	Constant-current 1/6 scan (or 1/8 scan, per configuration)
Module Resolution	48 (W) $\times$ 24 (H) pixels
Module Size	320 (W) $\times$ 160 (H) mm
Module Structure	Integrated kit + mask, pure black mask for high contrast
Connector	Pin header / flat cable connection, front and rear maintenance supported

4. Cabinet Parameters

Item	Parameter
Cabinet Size	960 (W) × 960 (H) mm
Cabinet Thickness	≈100 mm (incl. handles / connectors)
Cabinet Resolution	144 × 144 pixels
Module Quantity	3 (columns) × 6 (rows) = 18 pcs
Cabinet Material	Die-cast aluminum cabinet, powder-coated surface
Cabinet Weight	≈36.5 kg
Flatness	Module joint gap ≤0.2 mm, flatness ≤0.3 mm
Connection	Quick-release latch + alignment pin, supports quick assembly and disassembly
Heat Dissipation	Natural convection + aluminum heat-conduction structure, fanless and low noise

5. Optical Parameters

Item	Parameter
White Balance Brightness	≥6000 cd/m ² (software adjustable)
Color Temperature	3000K ~ 10000K adjustable, default 6500K ± 500K at factory
Brightness Uniformity	≥97%
Contrast Ratio	≥5000:1
Horizontal Viewing Angle	≥140°

Vertical Viewing Angle	≥120°
Display Colors	4.4 trillion colors (16-bit grayscale)
Gray Scale	16 bit (higher achievable with NovaStar system)
Chromaticity Uniformity	Within ±0.003 Cx, Cy
Frame Frequency	60 ~ 85 Hz

6. Electrical Parameters

Item	Parameter
Operating Voltage	AC 100 ~ 240V, 50/60Hz
Max Power Consumption	≤800 W/m ²
Average Power Consumption	≤400 W/m ² (typical usage scenario)
Standby Power Consumption	≤10 W/m ²
Power Supply Configuration	Outdoor waterproof switching power supply, dual-path redundancy backup (optional)
Grounding Protection	Reliable grounding, leakage current compliant with national standard requirements

7. Control System (NovaStar)

This product is equipped with the standard NovaStar control system, adopting the "video processor / sending card + receiving card + control software" standard architecture.

7.1 System Architecture

Signal source (PC / camera / playback server) → Video processor / sending card → Gigabit Ethernet cable or optical fiber → Receiving card → Module constant-current driver

7.2 Sending Card / Video Processor

Model Category	Description
MCTRL300	Standard sending card, 1.3-megapixel load, supports DVI/HDMI input
MCTRL660 PRO	High-end sending card, supports multi-source switching and cascading
MCTRL4K / MX40 Pro	4K-load sending card / processor, suitable for 4K×2K ultra-large screens
NovaPro HD, etc.	Video processor, supports multi-channel input, splicing & scaling, and image enhancement

7.3 Receiving Card

Item	Parameter
Recommended Model	NovaStar MRV series (e.g. MRV300T) or receiving card of equivalent specification
Load Capacity	≥384 × 384 pixels per card (per configuration)
Interface	Gigabit Ethernet input / output, cascading supported
High Gray & Refresh	Supports 16-bit grayscale and 3840Hz high refresh output
Working Mode	Supports dual-cable backup and loop redundancy (optional)

7.4 Control Software

Software	Function
SmartLCT / NovaLCT-Mars	Smart screen configuration, brightness & chromaticity adjustment, cabinet management
Per-pixel Calibration Software	Supports brightness / chromaticity per-pixel calibration to improve uniformity

VMP Visual Management Platform	Multi-screen joint control, media management, remote monitoring (optional)
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7.5 Control Features

- **High refresh & low gray:** 3840Hz refresh rate with low-brightness high-gray algorithm, rich gradation in dark scenes;
- **Adaptive brightness:** with an ambient light sensor, the screen brightness can be automatically adjusted according to ambient light;
- **Multi-level cascading:** multiple cabinets cascaded via Ethernet cable, up to 100m per link, fiber extendable;
- **Signal backup:** supports dual sending card / dual-link redundancy backup to avoid screen interruption during critical events (optional);
- **Image enhancement:** supports color management, Gamma correction, and HDR signal compatibility.

8. Environmental & Reliability Parameters

Item	Parameter
Protection Rating	Whole-screen IP65 (front) / IP54 (rear)
Operating Temperature	-20°C ~ +60°C
Storage Temperature	-30°C ~ +70°C
Operating Humidity	10% ~ 95% RH (non-condensing)
Service Life	≥100,000 hours (until LED brightness decays to 50%)
MTBF	≥5,000 hours
Pixel Failure Rate	≤0.01%
Wind Load Rating	Designed per installation structure, meeting site wind load requirements
Flame Retardant Rating	Structural parts meet UL94 V-0 requirements

9. Installation Methods & Structural Requirements

Item	Description
Fence Mounting	Stadium fence screen bracket, tilt angle adjustable (0°~15° backward)
Floor Support	Height-adjustable base + counterweight, suitable for temporary events
Hanging / Rigging	Steel-frame rigging, suitable for indoor hanging installation
Anti-collision Design	Buffer strip on the lower edge of the screen + soft corner guards to protect athletes
Cabling Requirements	Separation of power and signal cables, shielded signal cables, waterproof connectors

10. Packaging & Transportation

Item	Description
Packaging Method	Flight case (2 ~ 4 cabinets per case) or export wooden crate
Protection Requirements	EPE foam + moisture-proof bag, marked with "moisture-proof / fragile / stacking layers"
Transportation Conditions	Rainproof and shockproof; handling shall comply with the product manual requirements