

PA703

3 In 1 Control Board

Specification



1 Update Record

File Documents	Hardware Version	Release Time	Release Time
V4.0	PA703 (V1.0)	2025-12-18	First Time

2 Product Introduction

The PA703 is a three-in-one control board developed and launched by Mosier, integrating a power supply module, a receiver card, and HUB interfaces into a single unit. Each board supports a maximum resolution of 384×256@60Hz and can handle up to six sets of parallel RGB data.

The PA703 features an integrated power supply module that supports direct input of 100V to 240V AC voltage; it includes three onboard standard HUB75E interfaces for direct drive of display modules. The PA703 also offers overvoltage, overcurrent, overpower, and short-circuit protection, ensuring safety and reliability.

3 Product Features

3.1 Improve maintainability

- Integrated power supply and receiver card
- Supports direct input of 100V–240V AC voltage and outputs 4.2V DC to directly power the LED panel
- Supports display of standby screen, last frame, or black screen in case of cable disconnection
- Supports memory verification
- Supports backup of factory calibration data
- Supports backup of factory parameters
- Supports voltage detection
- Supports temperature monitoring

- Error Detection

AutoLED allows real-time monitoring of the communication signal quality of network cables connected to the system hardware, enabling quick determination of cable integrity and troubleshooting.

- Configuration Parameter Readback

AutoLED allows you to read back the current configuration parameters. The read-back configuration parameters are saved locally.

- Loop Redundancy

The network ports are connected via a primary-backup network cable loop, enhancing the reliability of the board cascade. In a primary-backup cascade configuration, if one cable fails, the other ensures the display function normally.

- Dual Firmware Backup

Two copies of the firmware are stored at the factory to prevent board lockups in the event of an abnormal update process.

3.2 Improve the Display Effect

- 18-bit

Enabling 18-bit mode in the software quadruples the grayscale range of the LED display. This effectively addresses the loss of grayscale detail caused by reduced brightness, optimizes the graininess issues associated with low grayscale levels, ensures natural transitions between low grayscale levels, and results in a more refined image display.

- Per-pixel luminance and chromaticity calibration

In conjunction with calibration software, this process calibrates the luminance and chromaticity of every individual pixel on the display. It effectively eliminates color discrepancies, ensuring high consistency in both luminance and chromaticity across the screen, thereby enhancing image quality.

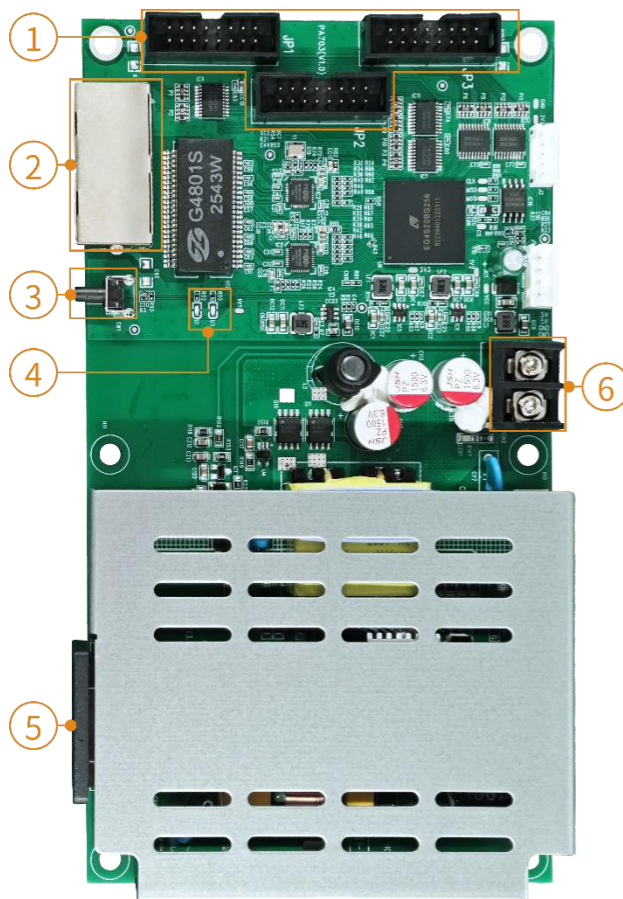
- Low Latency

Reduces latency of the video source at the receiver card, with latency as low as 1 frame (for LED panels using driver ICs with built-in RAM)

- Independent RGB Gamma Adjustment

When used with a dedicated controller and software that support independent RGB gamma adjustment, this feature allows for separate adjustment of red, green, and blue channels. This effectively addresses issues such as uneven low-gray levels and white balance drift on the display, resulting in a more realistic image.

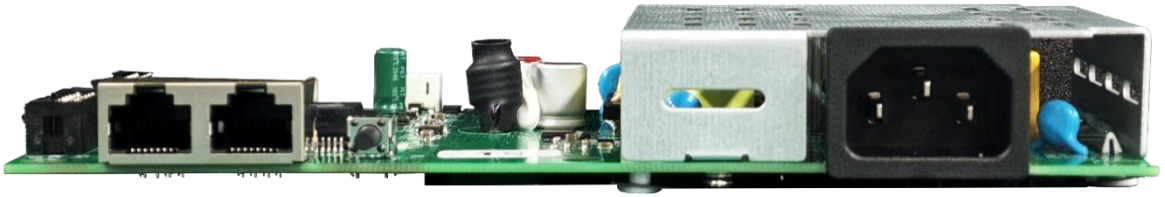
4 Product Appearance



Front Panel



Rear Panel



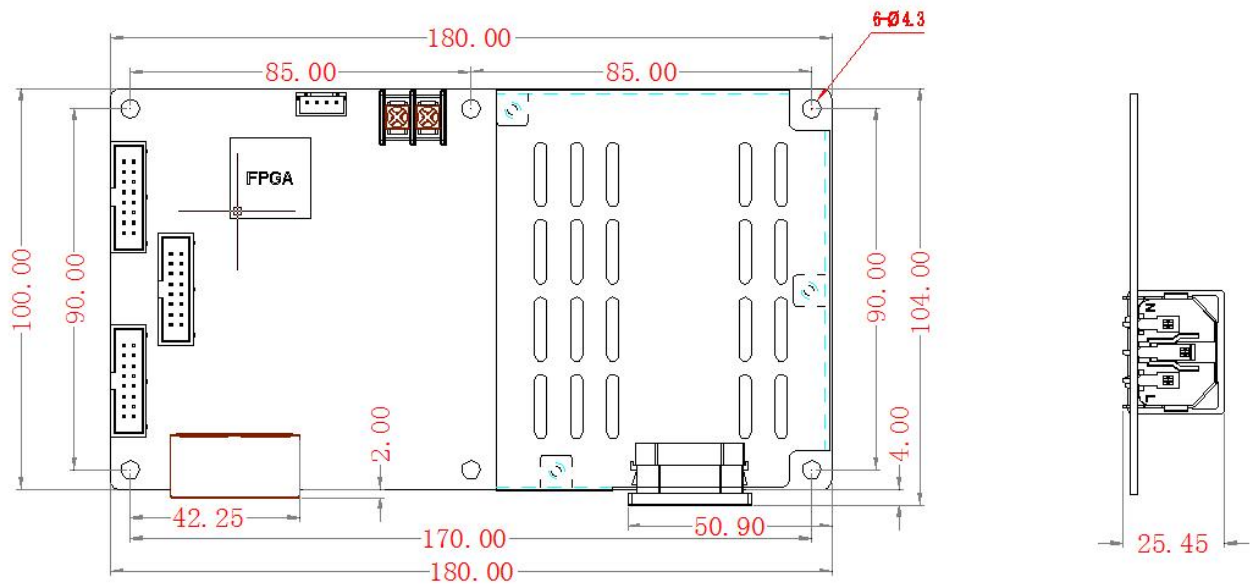
Side View

*Product photos are for reference only; the actual product you receive may vary.

4.1 Data Interface Illustration

#	Name	Interface Illustration	
1	HUB75E Interface	Connect the display board	
2	Gigabit Ethernet port	Connect the transmitter card and daisy-chain other boards; the two interfaces can be used for either input or output	
3	Test button	Set up the test screen	
4	Signal indicator U1	Green light flashing slowly and steadily	Operating normally, Ethernet connection is normal, no DVI signal input
		Green light flashing rapidly and steadily	Operating normally, Ethernet connection is normal, DVI signal input present
		Green light off	No Gigabit Ethernet signal
		Green light flashing rapidly three times at intervals	Receiver card is operating normally, Ethernet loopback connection established, DVI signal input present
	Power indicator U3	A steady red light indicates that power is supplied normally.	
5	Power input	Direct input of 100V–240V AC voltage.	
6	Power output	Outputs 4.2V DC to directly power the light panel.	

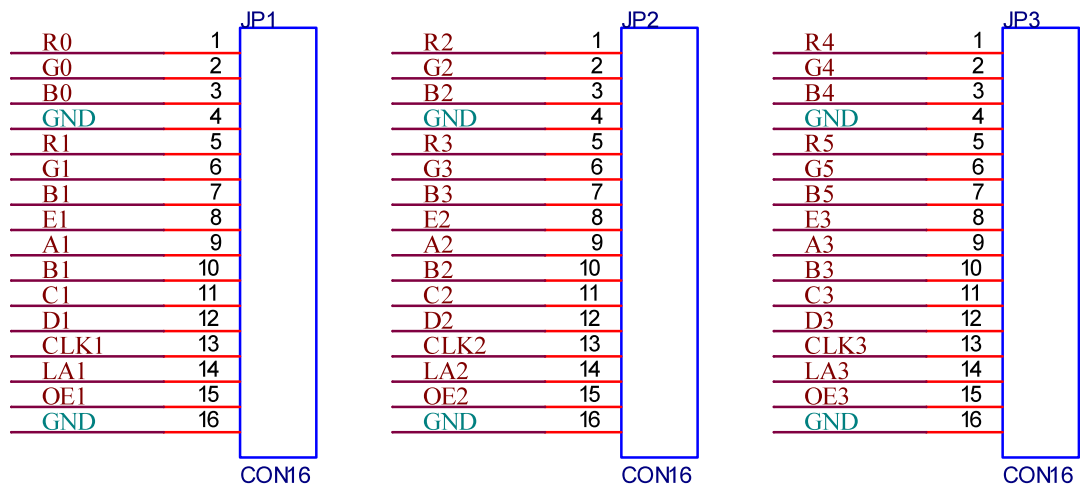
4.2 Product Dimensions



Tolerance: ± 0.3 Size: mm

4.3 Output Interface Illustration

Definition of 6 Parallel Data Interfaces



JP1-JP6 Data Interface Illustration

Definition	Pin	Pin	Definition
R0	1	2	G0
B0	3	4	GND
R1	5	6	G1
B1	7	8	E1
A1	9	10	B1
C1	11	12	D1
CLK1	13	14	LA1
OE1	15	16	GND

Indicator Interface Illustration

Pin Number	1	2	3	4	5
Definition	GND/KEY-	KEY+	LEDR-	3.3V/LED+	LEDG-

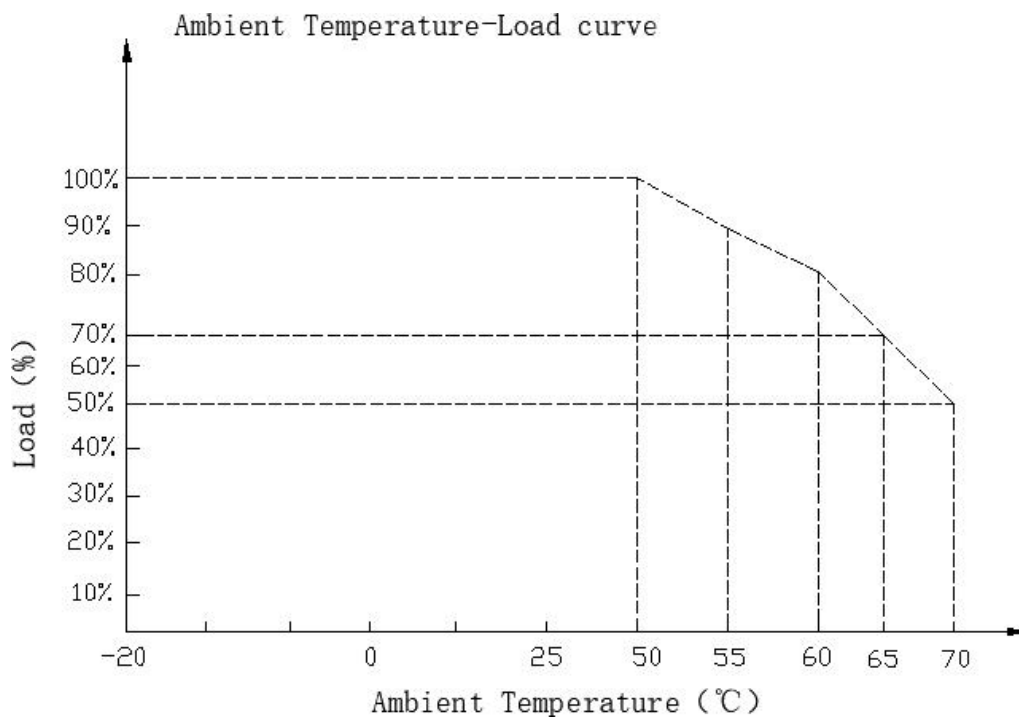
5 Power Supply Electrical Specifications

5.1 Input Specifications

Input Specifications	
Input Voltage Range	90Vac~264Vac
Rated Input Voltage Range	100Vac~240Vac
Input Voltage Frequency	47Hz~63Hz
Minimum Input Start-up Voltage	90Vac
Maximum Input Current	≤1.3A
Standby Power Consumption	Power consumption < 0.8 W With card < 1.8 W
Inrush current @ 25°C	<60A @220Vac cold start

5.2 Output Specification

Output Specifications	
Rated Output Current	13A Note: Derating is required under low-voltage input and high-temperature conditions; please refer to the derating curve.
Rated Output Voltage	4.2V
Output Voltage Accuracy	$\leq \pm 2\%$
Linear Regulation	$\leq \pm 2\%$
Load Regulation	$\leq \pm 2\%$
Peak Output Power	$\leq 65\text{ W}$ (10-minute duration / 220 VAC input) Note: When used with LED loads, this power supply can deliver a peak output current of up to 15 A.
Output Ripple	$< 100\text{mV}$
Efficiency	ac110V $\geq 83\%$, ac220V $\geq 86\%$
Dynamic Load Response	10%-50% $< \pm 300\text{mV}$ 25%-75% $< \pm 400\text{mV}$ 10%-100% $< \pm 500\text{mV}$
Start-up Time	$\leq 3\text{ s}$ (220 VAC input, 13 A output load)
Output Hold-up Time	$\geq 10\text{ ms}$ (220 VAC input, 13 A output load)
Voltage Overshoot	$< 5.0\%$ (i.e., output overshoot voltage $< 4.41\text{ V}$)



5.3 Protection

Electrical Protection	
Output overcurrent protection	1.3IO < OCP < 1.5IO (Hiccup Protection Mode)
Output overpower protection	65W–81.9W (Hiccup Protection Mode)
Output short-circuit protection	Short circuit at the power output port; supports sustained short circuits; automatically recovers after the short circuit is resolved

6 Product Parameters

6.1 Basic Parameters

Three parallel lines (RGB)	Data Interface QTY	Drive IC	Max Capacity (Pixels)	Brightness calibration with load (pixels)	Chromaticity calibration under load (pixels)
6 Groups	HUB75E	Conventional	384×256	384×256	384×256
	3	PWM	384×256	384×256	384×256
Number of cascading cards			Supports scanning lines		
≤1000PCS			1-128		

6.2 Specification

Working Environment	Operating Temperature	-40°C~80°C
	Operating Humidity	20%RH~90%RH Non condense
Storage Environment	Temperature	-25°C~85°C
Board Dimensions	180mm×104mm	
Net Weight	254g	
Outer Packaging Dimensions	320mm×240mm×230mm	
Gross Weight	5.7KG	
Packaging Method	20 Pieces/Carton	
Certificate	RoHS, CE-EMC	

*Current and power consumption may vary depending on factors such as product usage, environment, and settings.

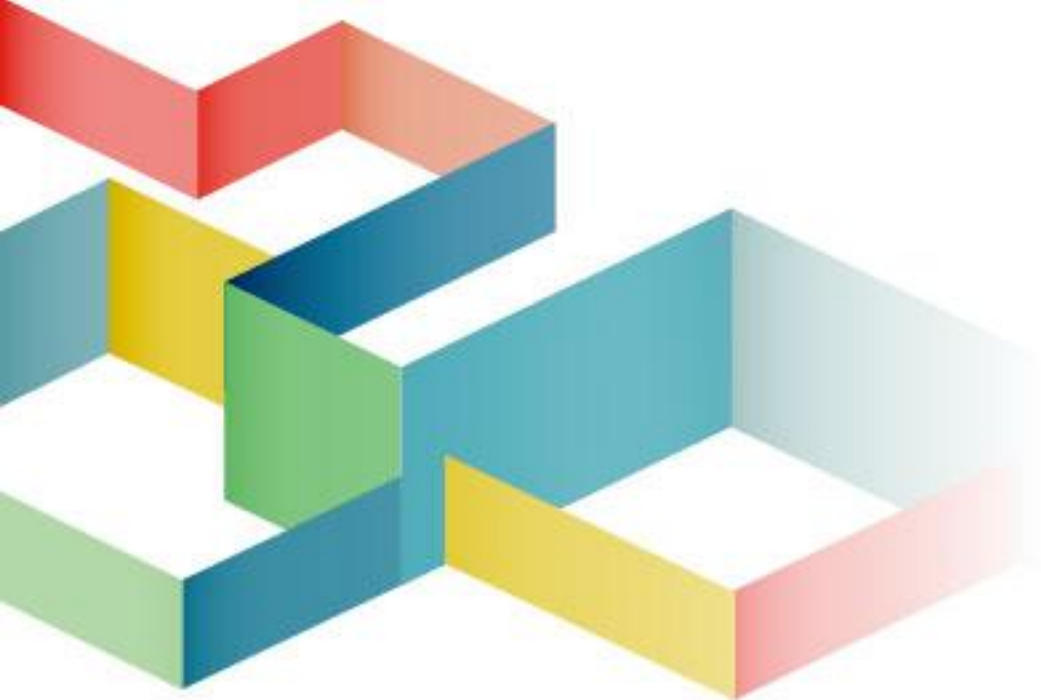
7 Safety Standards and EMC

Safety Standards	
Insulation resistance	Input–Output: 10 MΩ; Input–Chassis: 10 MΩ; Output–Chassis: 10 MΩ
Dielectric strength	Input–Output: 3kVAC/10mA; Input–Chassis: 1.5kVAC/10 mA; Output–Chassis: 0.5 kV DC/10 mA Test duration for each item: 1 minute
Contact current	<0.75mA 230Vac
Ground resistance	Ground impedance < 0.1 Ω
Warning labels	Primary-side circuits and components must be clearly marked with hazard warnings.
Leakage current	The enclosure and any parts that may be touched must not pose an electric shock hazard, and input and output terminals must be clearly and conspicuously labeled.

EMC	
Conducted immunity (CE)	CISPR32/EN55032 CLASS A
Radiated immunity (RE)	CISPR32/EN55032 CLASS A
Harmonic current immunity	/
Voltage fluctuations and flicker	/
Radiated immunity (RS)	IEC/EN 61000-4-3 LEVEL 2 Criterion A
Conducted immunity	IEC/EN 61000-4-6 LEVEL 2 Criterion A
Surge immunity	IEC/EN 61000-4-5 LEVEL 3 Criterion B
Electrical fast transients (EFT)	IEC/EN 61000-4-4 LEVEL 3 Criterion B
Electrostatic discharge (ESD)	IEC/EN 61000-4-2 LEVEL 3 Criterion B
Voltage dips	IEC/EN 61000-4-11 0%, 70% performance Criterion C

Precautions

- To ensure the long-term stable operation of the system, please use a power supply that meets the specified standards;
 - Do not perform any operations while the device is powered on;
 - Due to production batches, random inspections, and other factors, there may be slight discrepancies between the product images and the actual product. If you have any questions, please contact us for confirmation.
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