



Colorlight

5A-75B

Receiving Card

Specification V8.3.1

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01 INTRODUCTION

1.1 Overview

The Colorlight 5A-75B is a cost-effective receiving card designed to help customers reduce costs, minimize failure points, and lower failure rates. A single card supports up to 256×1024 pixels and 16 groups of parallel data or 32 groups of serial data (expandable to 128 groups). The integration of HUB75 connectors enhances display performance while ensuring greater reliability, convenience, and cost savings.

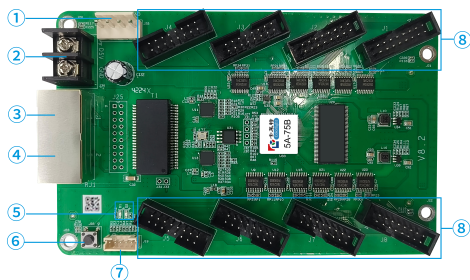
1.2 Certification

RoHS



Note: If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please contact Colorlight to confirm or address the problem as soon as possible. Otherwise, the customer shall be responsible for the legal risks or Colorlight has the right to claim compensation.

1.3 Appearance



No.	Item	Description	
1	Power input 1	Connects to a DC 3.8~5.5V power supply for the receiving card (Choose either of them)	
2	Power input 2		
3	Ethernet port A	RJ45 Ethernet ports for transmitting network signals. Each port can be used for input or output (auto-identified by the system).	
4	Ethernet port B		
5	Power indicator D1	Steady RED: Normal power supply	
	Signal indicator D2	Blinking GREEN (once/sec)	Receiving card: Normal operation Network cable: Normal connection
		Blinking GREEN (10 times/sec)	Receiving card: Normal operation Cabinet: Highlighted

		Blinking GREEN (4 times/sec)	Loop redundancy takes effect, and the receiving card is in the backup mode.
6	Test button	With testing program, enabling test patterns such as solid red/green/blue/white, and horizontal/vertical scanning methods	
7	External connector	For external indicator and test button	
8	HUB connectors	HUB75 data connector and J1~J8 pins are connected to display modules. For details, see the following section <i>Pin Definitions</i> .	



* The illustration is for reference only. Actual products may vary.

02 FEATURES

Display Effect

- 8-bit video source input
- Color temperature adjustment
- Improved grayscale at low brightness
- 240Hz high frame rate

Calibration

- Pixel-level brightness and chroma calibration

Easy Maintenance

- Highlighting and numbering
- Image rotation
- Data group offset
- Emptying any row/column/point
- Quick firmware upgrade and calibration coefficient saving

Stable&Reliable

- Loop redundancy
- Cable status monitoring
- Firmware redundancy and readback
- 24/7 uninterrupted operation

03 FEATURE DESCRIPTION

Display Effect

8-bit	8-bit color depth inputs and outputs, with a single-color grayscale of 256 levels, capable of 16,777,216 mixed colors.
High frame rate	Adaptive frame rate technology significantly enhances image smoothness and reduces smearing. • Supports standard and non-integer frame rates such as 23.98/24/29.97/30/50/59.94/60Hz. • Outputs 120/240Hz high frame rate images.
Color temperature adjustment	Enhances the visual impact of the image through saturation adjustment.
Improved grayscale at low brightness	The optimized gamma table algorithm effectively addresses grayscale loss caused by low brightness, resulting in improved grayscale performance under low brightness conditions.
Calibration	Pixel-level brightness and chroma calibration effectively eliminates LEDs color differences, ensuring uniformity and consistency across the entire screen, thereby enhancing the overall display effect.

Quick Operations

Cabinet highlighting	Supports quick marking of target cabinets using the control software. The borders of highlighted cabinets will flash, and the blinking frequency of cabinet indicators will change, facilitating maintenance from both the front and back sides.
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Quick numbering	Working with the control software to display the receiving card number and Ethernet port information, enabling users to easily access the locations and connection topology of receiving cards.
Image rotation	A single cabinet image can be rotated at 90 °/180 °/270 °, allowing for rotation at any desired angle when used with certain processors.
Data offset	Supports image offset by data groups, suitable for basic irregular-shaped screens.

Monitoring Hardware

Error detection	Detects data transmission status and cable errors among receiving cards, quickly identifying cabinets with hardware connection errors to facilitate maintenance.
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Redundancy

Loop redundancy	The redundant port enables an extra connection to the sending device, enhancing cascading reliability. If the primary connection fails, the backup seamlessly takes over, ensuring uninterrupted display.
Firmware redundancy	Secures upgrades without the risk of firmware loss due to cable disconnection or power interruptions.

04 BASIC PARAMETERS

Control System Parameters

Control area per card	Maximum load capacity (without calibration): • Common driver ICs: 128×1024 pixels • PWM driver ICs: 256×1024 pixels • SHIXIN driver ICs: 256×1024 pixels
Ethernet port switching	Flexible use for either input or output
Grayscale level	Up to 65,536 levels

Module Compatibility

Supported driver ICs	Common, PWM, and SHIXIN
Scan methods	Any scan type from static to 1/128 scan
Module specification	A single data group supports arbitrary routing method within 16,384 pixels
Cabling direction	Cascading from left to right, right to left, top to bottom, or bottom to top
Data groups	Can be freely exchanged • 16 groups of parallel RGB data • 32 groups of serial RGB data (expandable to 128 groups)
Data splitting	• Common driver ICs: 2~8 splits horizontally, 2~4 splits vertically • PWM & SHIXIN driver ICs: 2~8 splits horizontally or vertically

Empty point/row/column	Supports emptying any point, row, or column
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All-Round Monitoring

Cable monitoring	Monitors the total number of data packets and error packets, diagnosing network quality to prevent potential risks.
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Pixel-Level Calibration

Brightness calibration	8-bit
Chroma calibration	8-bit

Others

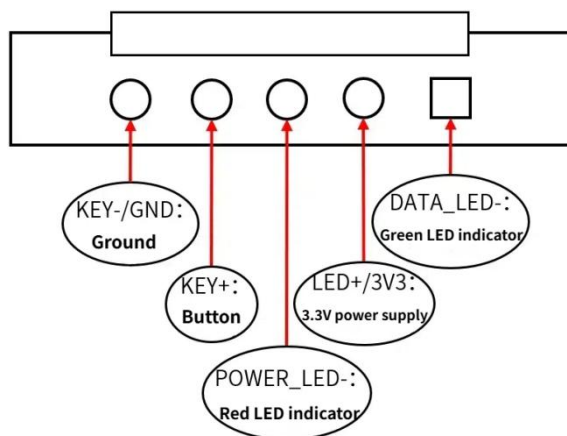
Redundancy	Loop redundancy and firmware redundancy
Optional	Irregular-shaped construction

05 PIN DEFINITIONS

HUB75

Data Signal			Scan Signal			Control Signal	
GD1	GND	GD2	E	B	D	LAT	GND
2	4	6	8	10	12	14	16
1	3	5	7	9	11	13	15
RD1	BD1	RD2	BD2	A	C	CLK	OE
Data Signal			Scan Signal			Control Signal	

External Connector



06 SPECIFICATIONS

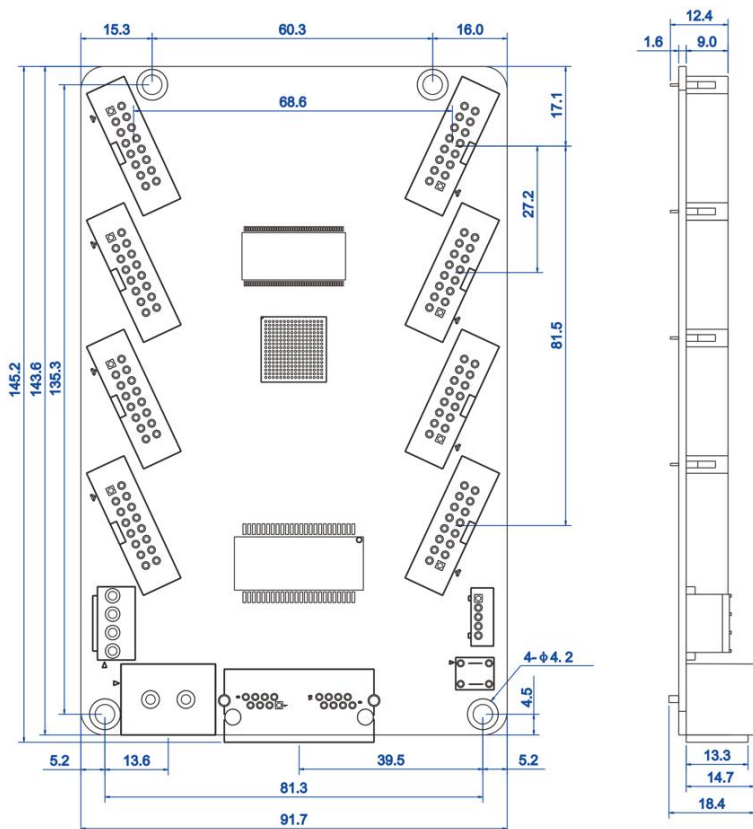
Physical Specifications	
Hardware connector	HUB75 connectors
Transmission rate	1Gb/s
Communication distance	CAT5e≤100m (Recommended)
Compatible devices	Gigabit switches, Gigabit fiber optic transceivers, and Gigabit fiber optic switches
Dimensions	L×W×H / 145.2mm (5.72") × 91.7mm (3.61") × 18.4mm (0.72")
Net weight	82g / 0.18lbs
Electrical Specifications	
Power supply	DC 3.8~5.5V, 0.6A
Rated power	3.0W
ESD Protection (HBM)	2KV
Operating Environment	
Temperature	-25°C~75°C (-13°F~167°F)
Humidity	0%RH-80%RH, non-condensing
Storage Environment	
Temperature	-40°C~125°C (-40°F~257°F)
Humidity	0%RH-90%RH, non-condensing

Packing Information	
Standard	With blister tray; 100 cards per packing box
Box dimensions	W×H×D / 603.0mm (23.74") ×190.0mm (7.48") × 501.0mm (19.72")

07 REFERENCE DIMENSIONS

Unit: mm

Tolerance: ± 0.16



08 STATEMENT

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Colorlight

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