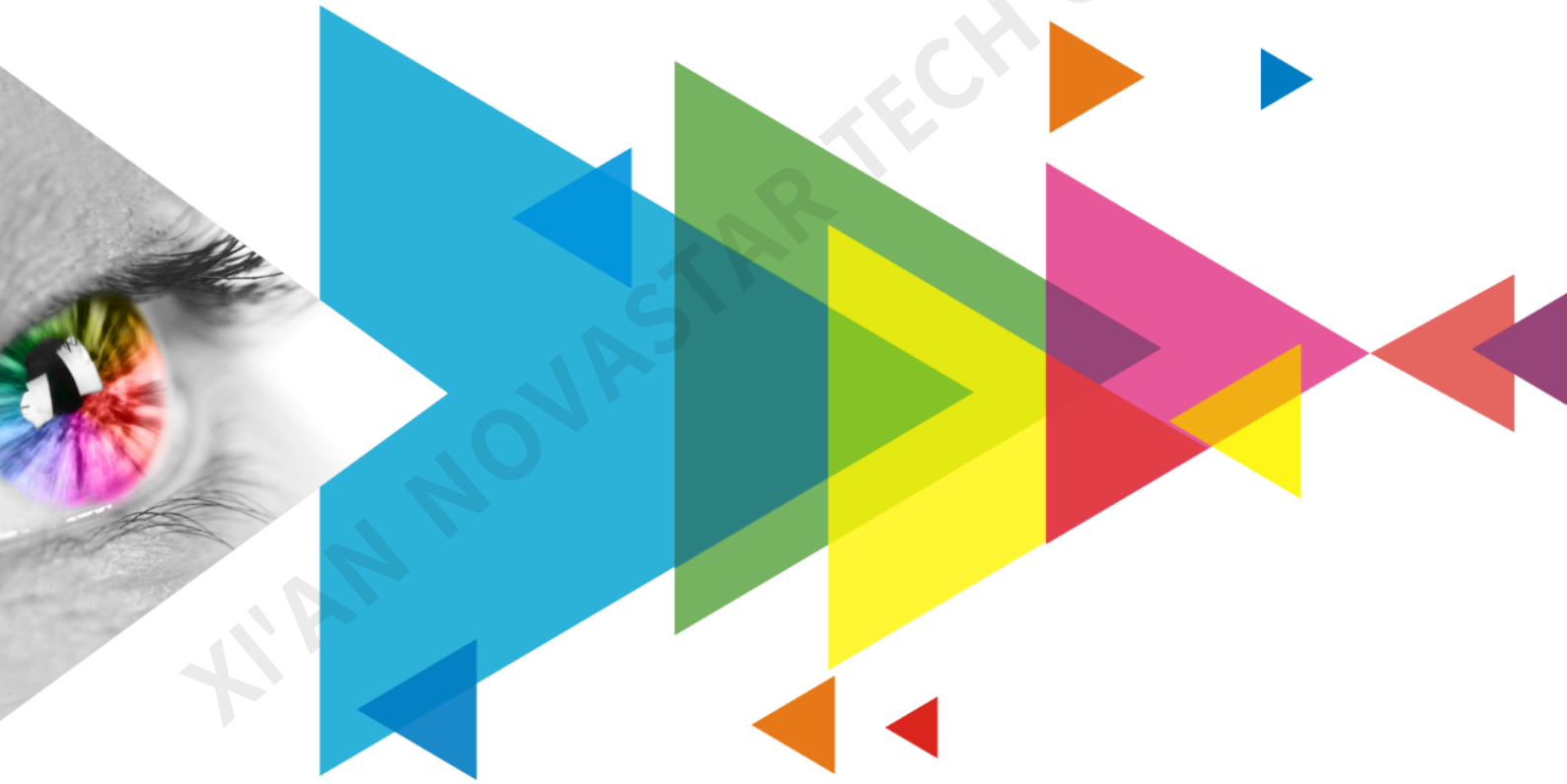
B875

Receiving Card



Specifications

Change History

Document Version	Release Date	Description
V1.1.3	2022-08-31	• Added the table of appearance description. • Updated the input voltage.
V1.1.2	2022-03-26	• Added the dimensions diagram description. • Updated the certifications description. • Updated some feature descriptions.
V1.1.1	2021-07-30	• Updated the description of features. • Added the certification related description.
V1.1.0	2021-05-15	• Added the features of color management, 18bit+ and quick uploading of calibration coefficients. • Updated the appearance diagram.
V1.0.0	2021-01-04	First release

Introduction

The B875 is a receiving card developed by Xi'an NovaStar Tech Co., Ltd. (hereinafter referred to as NovaStar). It is designed for fine-pitch LED displays and features a large load capacity. A single B875 supports resolutions up to 512×512@60Hz. Supporting various functions such as Color Management, 18bit+, pixel level brightness and chroma calibration, quick adjustment of dark or bright lines, 3D, individual gamma adjustment for RGB, and image rotation in 90° increments, the B875 can significantly improve the display effect and user experience.

The B875 uses eight HUB75E connectors for communication, resulting in high stability. It supports up to 16 groups of parallel RGB data. Thanks to its EMC compliant hardware design, the B875 has improved electromagnetic compatibility and is suitable for various on-site setups.

Certifications

RoHS, EMC Class A

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

Features

Improvements to Display Effect

- Color Management
  Allow users to freely switch the color gamut of the screen between different gamuts in real time to enable more precise colors on the screen.
- 18bit+

  Improve the LED display grayscale by 4 times to avoid grayscale loss due to low brightness and allow for a smoother image.
- Pixel level brightness and chroma calibration
  Work with NovaStar's high-precision calibration system to calibrate the brightness and chroma of each pixel, effectively removing brightness differences and chroma differences, and enabling high brightness consistency and chroma consistency.
- Quick adjustment of dark or bright lines
  The dark or bright lines caused by splicing of modules and cabinets can be adjusted to improve the visual experience. The adjustment can be easily made and takes effect immediately.

- 3D function
  Working with the sending card that supports 3D function, the receiving card supports 3D image output.
- Individual gamma adjustment for RGB
  Working with NovaLCT (V5.2.0 or later) and the sending card that supports this function, the receiving card supports individual adjustment of red gamma, green gamma and blue gamma, which can effectively control image non-uniformity under low grayscale and white balance offset, allowing for a more realistic image.
- Image rotation in 90° increments
  The display image can be set to rotate in multiples of 90° (0°/90°/180°/270°).

Improvements to Maintainability

- Quick uploading of calibration coefficients
  The calibration coefficients can be quickly uploaded to the receiving card, improving efficiency greatly.
- Mapping function
  The cabinets can display the receiving card number and Ethernet port information, allowing users to easily obtain the locations and connection topology of receiving cards.
- Setting of a pre-stored image in receiving card
  The image displayed on the screen during startup, or displayed when the Ethernet cable is disconnected or there is no video signal can be customized.
- Temperature and voltage monitoring
  The receiving card temperature and voltage can be monitored without using peripherals.
- Cabinet LCD
  The LCD module of the cabinet can display the temperature, voltage, single run time and total run time of the receiving card.
- Bit error detection
  The Ethernet port communication quality of the receiving card can be monitored and the number of erroneous packets can be recorded to help troubleshoot network communication problems.

  NovaLCT V5.2.0 or later is required.
- Firmware program readback
  The receiving card firmware program can be read back and saved to the local computer.

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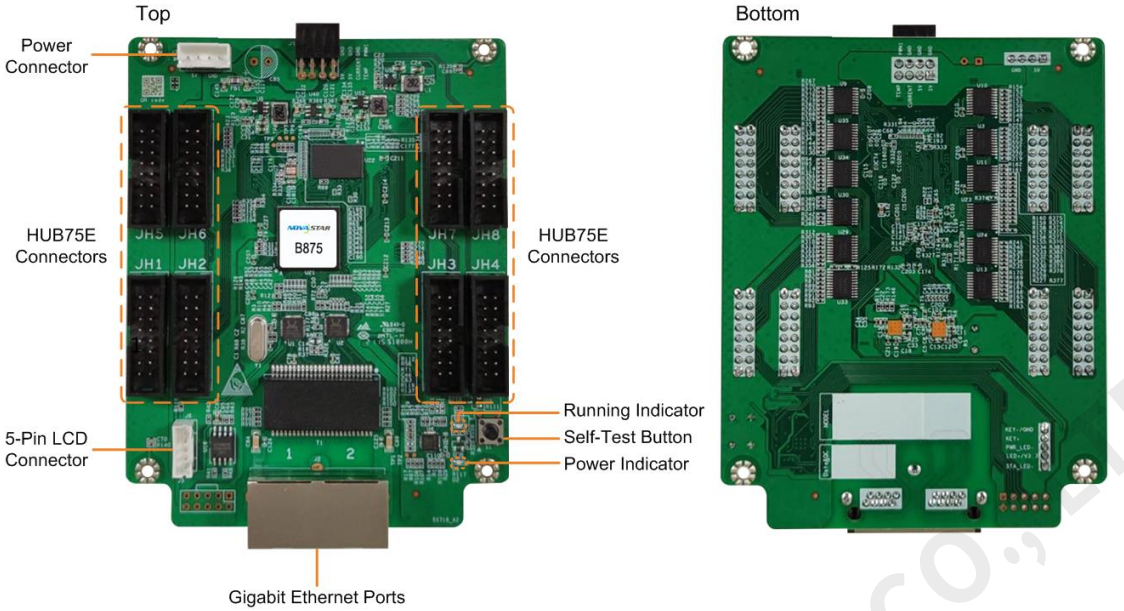
- Configuration parameter readback
  The receiving card configuration parameters can be read back and saved to the local computer.

Improvements to Reliability

- Loop backup
  The receiving card and sending card form a loop via the primary and backup line connections. If a fault occurs at a location of the lines, the screen can still display the image normally.
- Dual backup of configuration parameters
  The receiving card configuration parameters are stored in the application area and factory area of the receiving card at the same time. Users usually use the configuration parameters in the application area. If necessary, users can restore the configuration parameters in the factory area to the application area.
- Dual program backup
  Two copies of firmware program are stored in the application area of the receiving card at the factory to avoid the problem that the receiving card may get stuck abnormally during program update.

Appearance



All product pictures shown in this document are for illustration purpose only. Actual product may vary.

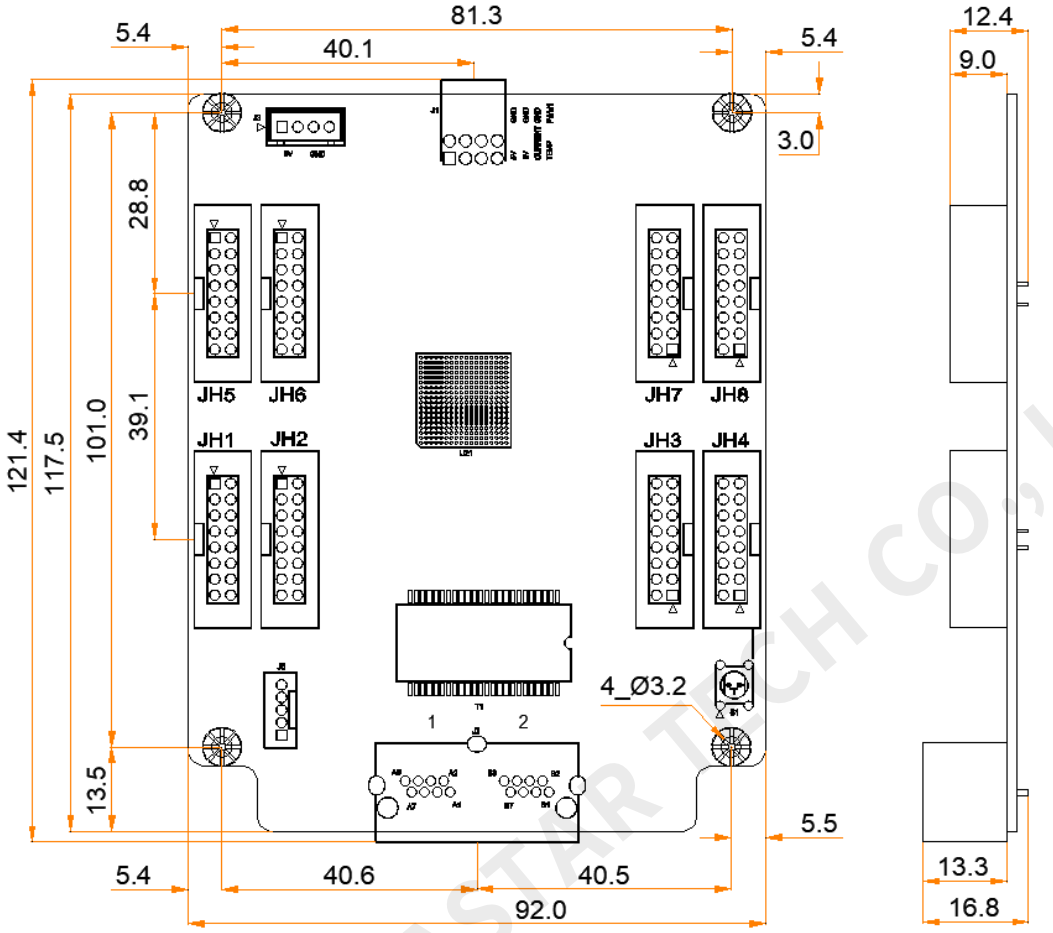
Name	Description
HUB75E Connectors	Connect to the module.
Power Connector	Connect to the input power.
Gigabit Ethernet Ports	Connect to the sending card, and cascade other receiving cards. Each connector can be used as input or output.
Self-Test Button	Set the test pattern. After the Ethernet cable is disconnected, press the button twice, and the test pattern will be displayed on the screen. Press the button again to switch the pattern.
5-Pin LCD Connector	Connect to the LCD.

Indicators

Indicator	Color	Status	Description
Running indicator	Green	Flashing once every 1s	The receiving card is functioning normally. Ethernet cable connection is normal, and video source input is available.
		Flashing once every 3s	Ethernet cable connection is abnormal.
		Flashing 3 times every 0.5s	Ethernet cable connection is normal, but no video source input is available.
		Flashing once every 0.2s	The receiving card failed to load the program in the application area and is now using the backup program.
		Flashing 8 times every 0.5s	A redundancy switchover occurred on the Ethernet port and the loop backup has taken effect.
Power indicator	Red	Always on	The power supply is normal.

Dimensions

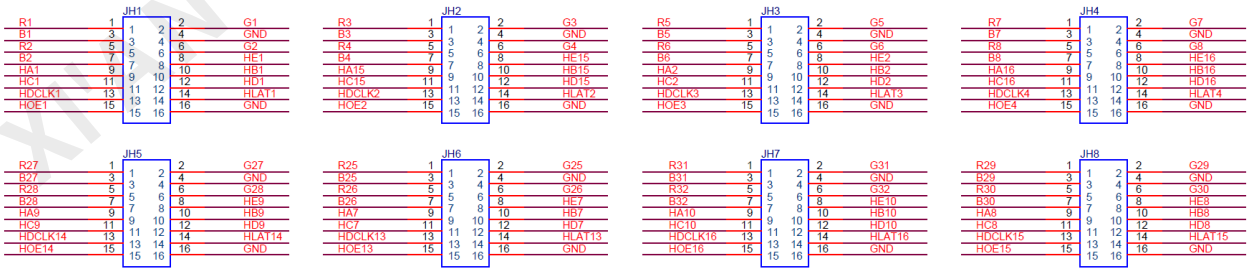
The board thickness is not greater than 2.0 mm, and the total thickness (board thickness + thickness of components on the top and bottom sides) is not greater than 17.5 mm. Ground connection (GND) is enabled for mounting holes.



Tolerance ±0.3 Unit: mm

To make molds or trepan mounting holes, please contact NovaStar for a higher-precision structural drawing.

Pins



Pin Definitions					
/	R	1	2	G	/
/	B	3	4	GND	Ground
/	R	5	6	G	/
/	B	7	8	HE	Line decoding signal
Line decoding signal	HA	9	10	HB	Line decoding signal
Line decoding signal	HC	11	12	HD	Line decoding signal
Shift clock	HDCLK	13	14	HLAT	Latch signal
Display enable signal	HOE	15	16	GND	Ground

Specifications

Maximum Resolution	512×512@60Hz	
Electrical Specifications	Input voltage	DC 3.8 V to 5.5 V
	Rated current	0.5 A
	Rated power consumption	2.5 W
Operating Environment	Temperature	–20°C to +70°C
	Humidity	10% RH to 90% RH, non-condensing
Storage Environment	Temperature	–25°C to +125°C
	Humidity	0% RH to 95% RH, non-condensing
Physical Specifications	Dimensions	92.0 mm × 121.4 mm × 16.8 mm
	Net weight	71.2 g Note: It is the weight of a single receiving card only.
Packing Information	Packing specifications	An antistatic bag and anti-collision foam are provided for each receiving card. Each packing box contains 100 receiving cards.
	Packing box dimensions	650.0 mm × 500.0 mm × 200.0 mm

The amount of current and power consumption may vary depending on various factors such as product settings, usage, and environment.

Trademark

NOVASTAR is a trademark of Xi'an NovaStar Tech Co., Ltd.

Statement

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