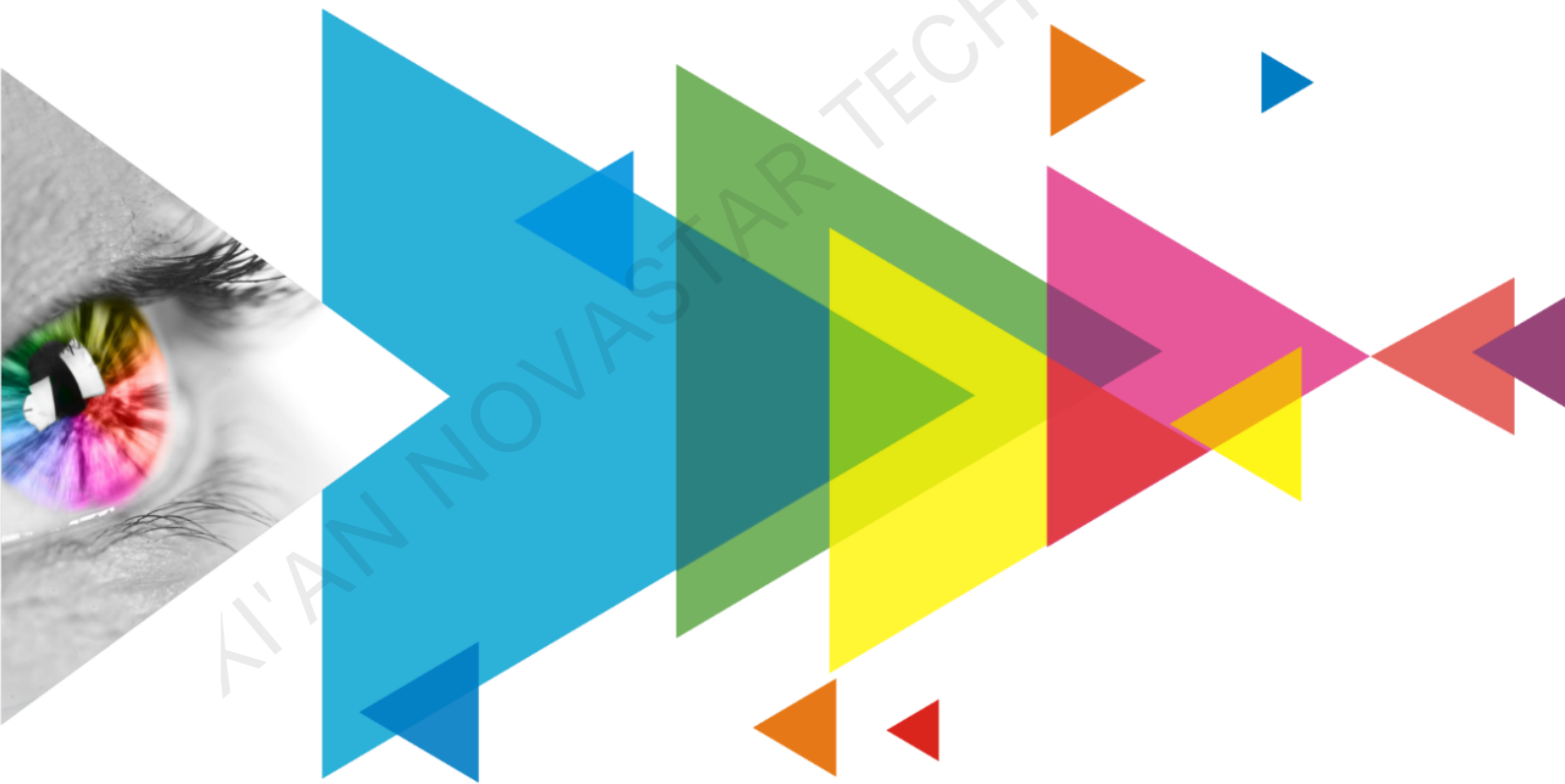


MRV220

Receiving Card



Specifications

Change History

Document Version	Release Date	Description
V2.1.7	2022-03-26	<ul style="list-style-type: none"> • Added the feature of quick uploading of calibration coefficients. • Added the certifications description. • Added the dimensions diagram description.
V2.1.6	2020-09-18	<ul style="list-style-type: none"> • Optimized the product introduction. • Optimized the feature description. • Optimized the legends in the appearance diagram. • Optimized the indicator description. • Optimized the dimensions diagram.
V2.1.5	2019-10-31	Increased the version number only.

Introduction

The MRV220 is a general receiving card developed by NovaStar. A single MRV220 supports resolutions up to 256×256@60Hz. Supporting various functions such as pixel level brightness and chroma calibration, quick adjustment of dark or bright lines, and 3D, the MRV220 can significantly improve the display effect and user experience.

The MRV220 uses 2 hub connectors for communication, resulting in high stability. It supports up to 28 groups of parallel RGB data or 64 groups of serial data. Thanks to its EMC Class B compliant hardware design, the MRV220 has improved electromagnetic compatibility and is suitable for various on-site setups.

Certifications

RoHS, EMC Class B

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

- 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.

Improvements to Maintainability

- Quick uploading of calibration coefficients
The calibration coefficients can be quickly uploaded to the receiving card, improving efficiency greatly.
- One click to apply calibration coefficients stored in module Flash
For modules with flash memory, if the Ethernet cable is disconnected, users can hold down the self-test button on the cabinet to upload the calibration coefficients in the memory of the module to the receiving card.
- Setting of a pre-stored image in receiving card
The image displayed on the screen during startup, or displayed when the Ethernet cable is

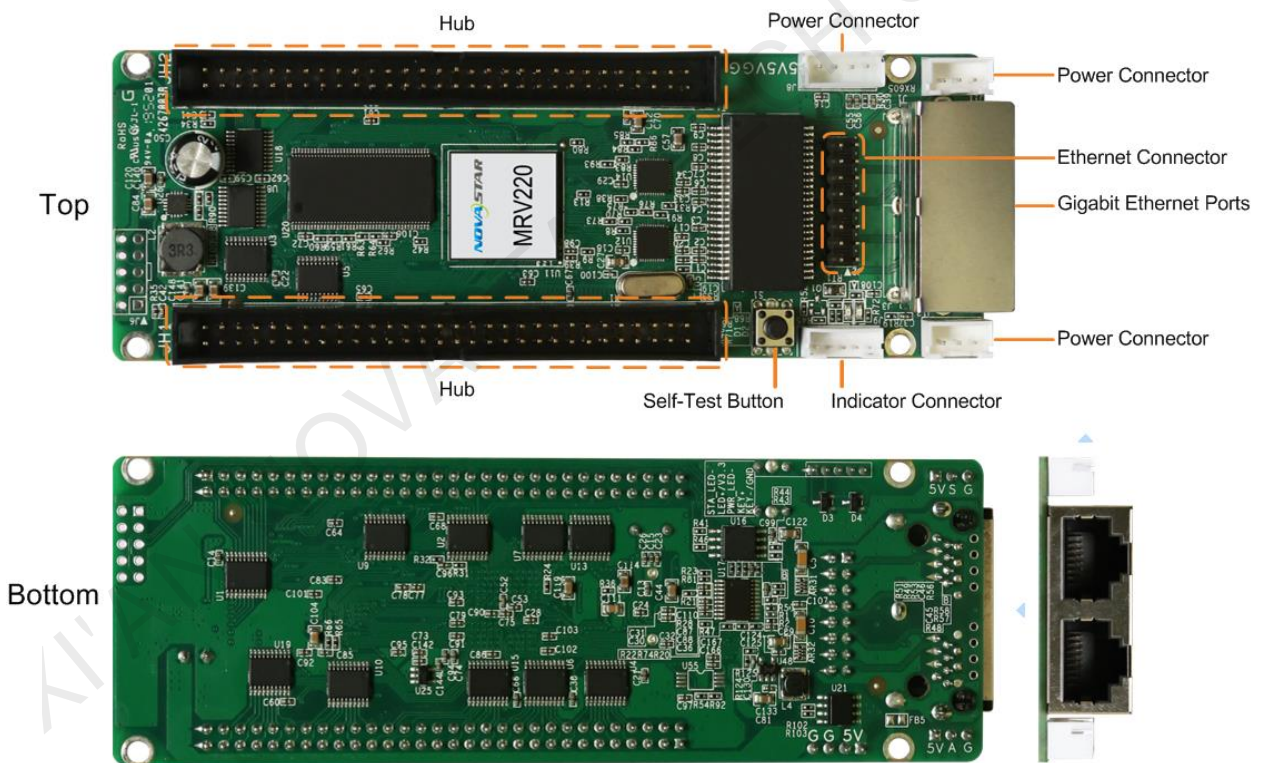
- disconnected or there is no video signal can be customized.
- Temperature and voltage monitoring
The receiving card temperature and voltage can be monitored without using peripherals.
- Cabinet LCD
The LCD module of the cabinet can display the temperature, voltage, single run time and total run time 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.
- Status detection of dual power supplies
When two power supplies are connected, their working status can be detected by the receiving card.

- 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 main and backup line connections. If a fault occurs at a location of the lines, the screen can still display the image normally.
- 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.

Pin Definitions of the Ethernet Connector (J2)							
2	4	6	8	10	12	14	16
A0+	A1+	A2+	A3+	B0+	B1+	B2+	B3+
1	3	5	7	9	11	13	15
A0-	A1-	A2-	A3-	B0-	B1-	B2-	B3-

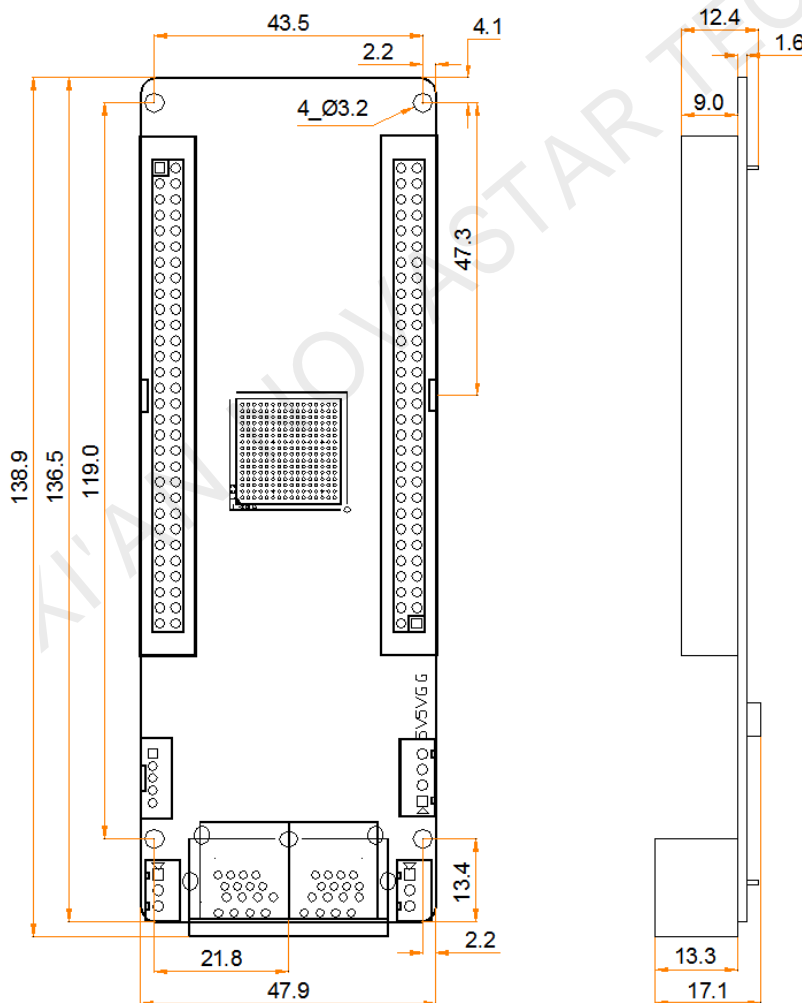
Pin Definitions of the Indicator Connector (J9)				
1	2	3	4	5
STA_LED	LED +/3.3V	PWR_LED -	KEY +	KEY -/GND

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 18.0 mm. Ground connection (GND) is enabled for mounting holes.

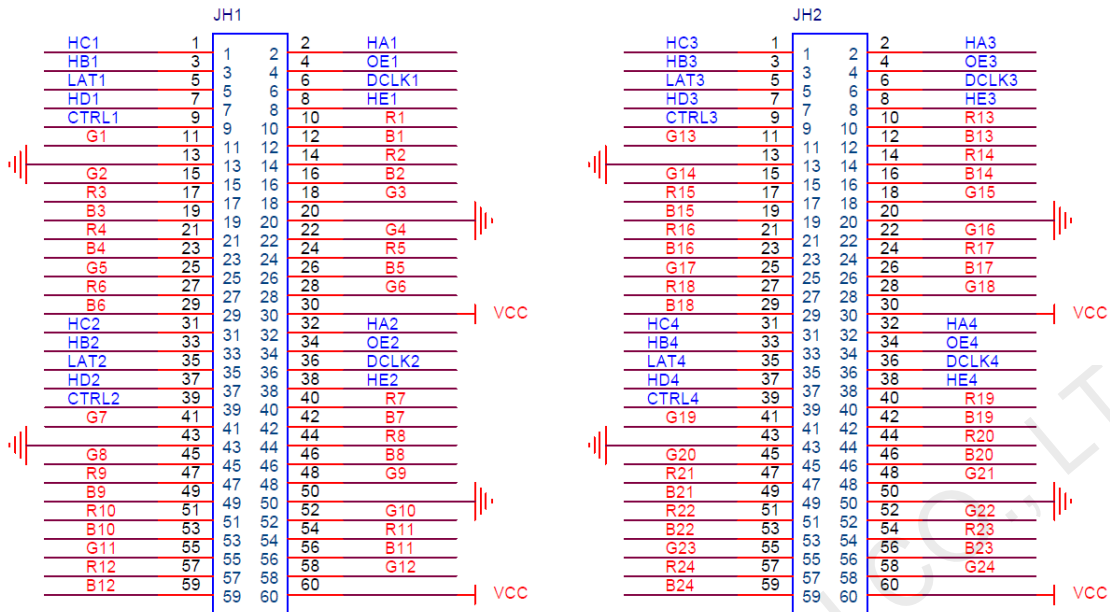


Tolerance: ± 0.3 Unit: mm

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

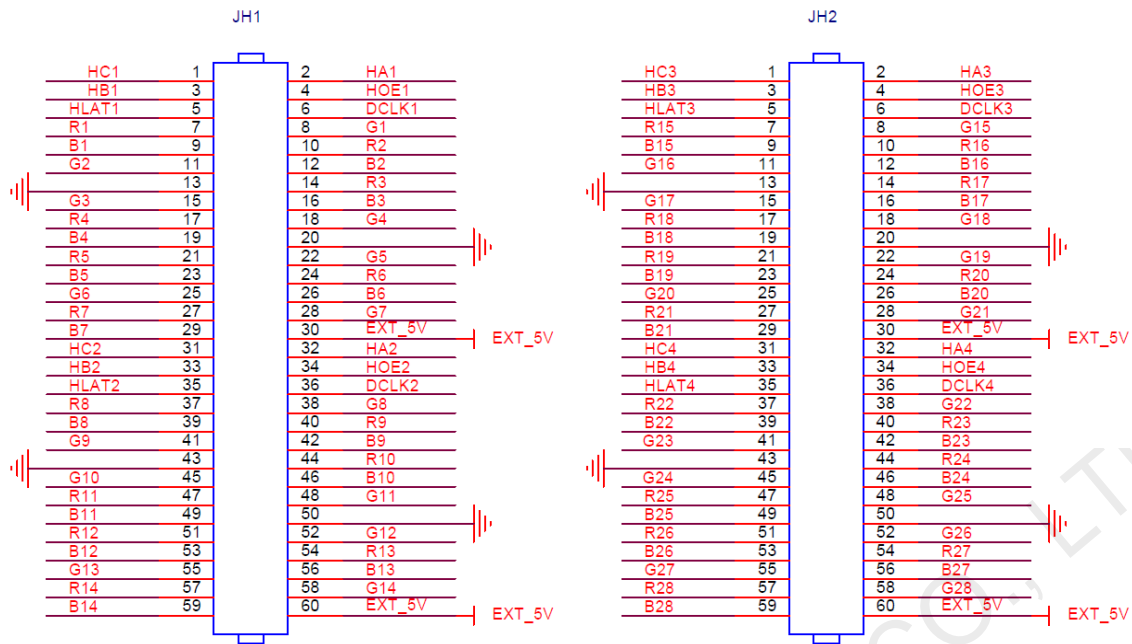
Pins

24 Groups of Parallel RGB Data



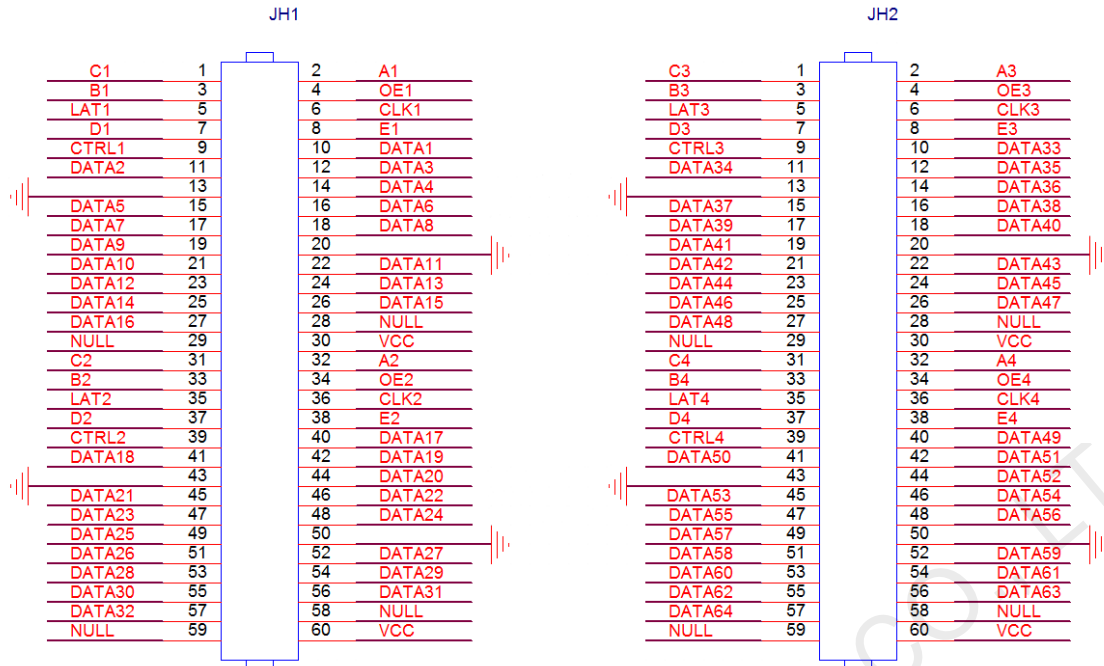
JH1			JH2		
1	HC1	HA1	2	HC3	HA3
3	HB1	OE1	4	HB3	OE3
5	LAT1	DCLK1	6	LAT3	DCLK3
7	HD1	HE1	8	HD3	HE3
9	CTRL1	R1	10	CTRL3	R13
11	G1	B1	12	G13	B13
13	GND	R2	14	GND	R14
15	G2	B2	16	G14	B14
17	R3	G3	18	R15	G15
19	B3	GND	20	B15	GND
21	R4	G4	22	R16	G16
23	B4	R5	24	B16	R17
25	G5	B5	26	G17	B17
27	R6	G6	28	R18	G18
29	B6	VCC	30	B18	VCC
31	HC2	HA2	32	HC4	HA4
33	HB2	OE2	34	HB4	OE4
35	LAT2	DCLK2	36	LAT4	DCLK4
37	HD2	HE2	38	HD4	HE4
39	CTRL2	R7	40	CTRL4	R19
41	G7	B7	42	G19	B19
43	GND	R8	44	GND	R20
45	G8	B8	46	G20	B20
47	R9	G9	48	R21	G21
49	B9	GND	50	B21	GND
51	R10	G10	52	R22	G22
53	B10	R11	54	B22	R23
55	G11	B11	56	G23	B23
57	R12	G12	58	R24	G24
59	B12	VCC	60	B24	VCC

28 Groups of Parallel RGB Data



JH1				JH2			
1	HC1	HA1	2	1	HC3	HA3	2
3	HB1	HOE1	4	3	HB3	HOE3	4
5	HLAT1	DCLK1	6	5	HLAT3	DCLK3	6
7	R1	G1	8	7	R15	G15	8
9	B1	R2	10	9	B15	R16	10
11	G2	B2	12	11	G16	B16	12
13	GND	R3	14	13	GND	R17	14
15	G3	B3	16	15	G17	B17	16
17	R4	G4	18	17	R18	G18	18
19	B4	GND	20	19	B18	GND	20
21	R5	G5	22	21	R19	G19	22
23	B5	R6	24	23	B19	R20	24
25	G6	B6	26	25	G20	B20	26
27	R7	G7	28	27	R21	G21	28
29	B7	EXT_5V	30	29	B21	EXT_5V	30
31	HC2	HA2	32	31	HC4	HA4	32
33	HB2	HOE2	34	33	HB4	HOE4	34
35	HLAT2	DCLK2	36	35	HLAT4	DCLK4	36
37	R8	G8	38	37	R22	G22	38
39	B8	R9	40	39	B22	R23	40
41	G9	B9	42	41	G23	B23	42
43	GND	R10	44	43	GND	R24	44
45	G10	B10	46	45	G24	B24	46
47	R11	G11	48	47	R25	G25	48
49	B11	GND	50	49	B25	GND	50
51	R12	G12	52	51	R26	G26	52
53	B12	R13	54	53	B26	R27	54
55	G13	B13	56	55	G27	B27	56
57	R14	G14	58	57	R28	G28	58
59	B14	EXT_5V	60	59	B28	EXT_5V	60

64 Groups of Serial Data



JH1				JH2			
1	C1	A1	2	1	C3	A3	2
3	B1	OE1	4	3	B3	OE3	4
5	LAT1	CLK1	6	5	LAT3	CLK3	6
7	D1	E1	8	7	D3	E3	8
9	CTRL1	DATA1	10	9	CTRL3	DATA33	10
11	DATA2	DATA3	12	11	DATA34	DATA35	12
13	GND	DATA4	14	13	GND	DATA36	14
15	DATA5	DATA6	16	15	DATA37	DATA38	16
17	DATA7	DATA8	18	17	DATA39	DATA40	18
19	DATA9	GND	20	19	DATA41	GND	20
21	DATA10	DATA11	22	21	DATA42	DATA43	22
23	DATA12	DATA13	24	23	DATA44	DATA45	24
25	DATA14	DATA15	26	25	DATA46	DATA47	26
27	DATA16	NULL	28	27	DATA48	NULL	28
29	NULL	VCC	30	29	NULL	VCC	30
31	C2	A2	32	31	C4	A4	32
33	B2	OE2	34	33	B4	OE4	34
35	LAT2	CLK2	36	35	LAT4	CLK4	36
37	D2	E2	38	37	D4	E4	38
39	CTRL2	DATA17	40	39	CTRL4	DATA49	40
41	DATA18	DATA19	42	41	DATA50	DATA51	42
43	GND	DATA20	44	43	GND	DATA52	44
45	DATA21	DATA22	46	45	DATA53	DATA54	46
47	DATA23	DATA24	48	47	DATA55	DATA56	48
49	DATA25	GND	50	49	DATA57	GND	50
51	DATA26	DATA27	52	51	DATA58	DATA59	52
53	DATA28	DATA29	54	53	DATA60	DATA61	54
55	DATA30	DATA31	56	55	DATA62	DATA63	56
57	DATA32	NULL	58	57	DATA64	NULL	58
59	NULL	VCC	60	59	NULL	VCC	60

Specifications

Maximum Resolution	256x256@60Hz	
Electrical Specifications	Input voltage	DC 3.3 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	138.9 mm x 47.9 mm x 17.1 mm
	Net weight	58.4 g
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 x 500.0 mm x 200.0 mm

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

Copyright © 2022 Xi'an NovaStar Tech Co., Ltd. All Rights Reserved.

No part of this document may be copied, reproduced, extracted or transmitted in any form or by any means without the prior written consent of Xi'an NovaStar Tech Co., Ltd.

Trademark

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

Statement

Thank you for choosing NovaStar's product. This document is intended to help you understand and use the product. For accuracy and reliability, NovaStar may make improvements and/or changes to this document at any time and without notice. If you experience any problems in use or have any suggestions, please contact us via the contact information given in this document. We will do our best to solve any issues, as well as evaluate and implement any suggestions.

Official website
www.novastar.tech

Technical support
support@novastar.tech