DY75

Receiving card

User Manual

Document version:： V2.0

CONTENT

1 Update Records

Document Version	Hardware Version	Release Time	Update Record
V4.0	DY75（V3.0.2）	June 17(th), 2025	First release

2 Product Introduction

DY75 is a standard receiving card independently developed by Mooncell, with a maximum on-board resolution of 512×512@60Hz（PWM）;

Support 18-bit, pixel-by-pixel chromaticity correction, low delay, RGB independent Gamma adjustment, 90 multiple rotation of the screen, serial number detection of the receiving card, configuration parameter readback and other functions to improve the screen display effect and user experience;

It uses 16 standard HUB75E interfaces for communication, and supports up to 32 sets of RGB parallel data. It has powerful processing power, ultra-stable performance, and high cost performance.

3 Product Characteristics

3.1 Improve the display effect

- 18bit

  Enabling 18bit in the software can increase the gray scale of LED display screen by 4 times, effectively deal with the gray scale loss caused by brightness reduction of LED display screen, optimize the pitting problem caused by low gray, make the low gray transition natural, and make the image display more delicate.

- HDR

  Support HDR10 and HLG two video source standards; with large-band independent master controller, input HDR10 standard or HLG standard video source, which can achieve greater brightness dynamic range and color space, greatly enhance the display image quality, and make the picture more delicate and real.

- Brightness correction by pixels

  With the correction software, the brightness and chromaticity of each pixels of the large screen are corrected, which effectively eliminates the color difference, makes the brightness and chromaticity of the display screen highly consistent, and improves the image quality of the display screen.

- Seam Tool Quick Adjustment

  Quickly adjust the bright and dark lines on the software to quickly solve the bright and dark lines caused by the splicing of the adjustment module and the splicing of the box, and improve the visual abrupt sense caused by the bright and dark lines. It takes effect immediately during the adjustment process and is simple and easy to use.

- Low delay

  Reduce the delay of the video source at the receiving card end, and the delay is as low as 1 frame (for the lamp board of the driving IC using built-in RAM).

- 3D

  The 3D picture effect needs to be viewed with 3D glasses, and the format of the 3D signal is transmitted to the 3D glasses by connecting the 3D signal transceiver.

- RGB independent Gamma adjustment

  With the independent master control and software supporting RGB independent Gamma adjustment, the problems such as uneven low gray and white balance drift of the display screen are effectively controlled by adjusting "red", "green" and "blue" respectively, making the picture more realistic.

- 90 multiple rotation of the picture.

  With the help of AutoLED software, the picture is displayed in multiples of 90 (0, 90, 180, 270).

- Picture scaling

  With the help of AutoLED software, the pixels loaded on the receiving card can be scaled multiple times, and the display screen can be enlarged and reduced.

3.2 Improve maintainability

- Receiving card serial number detection

  With the network port debugging function in AutoLED software, the receiving card number and network port information will be displayed on the target box, and the user can know the position serial number and connection line of the receiving card.

- Error detection

  On the AutoLED, the communication signal quality of the network cable connected with the system hardware can be monitored in real time, so as to quickly judge the quality of the network cable and troubleshoot.

- Configuration parameter readback

  The configuration parameters of the current receiving card can be read back on the AutoLED. Read back the configuration parameters of the receiving card and save them locally.

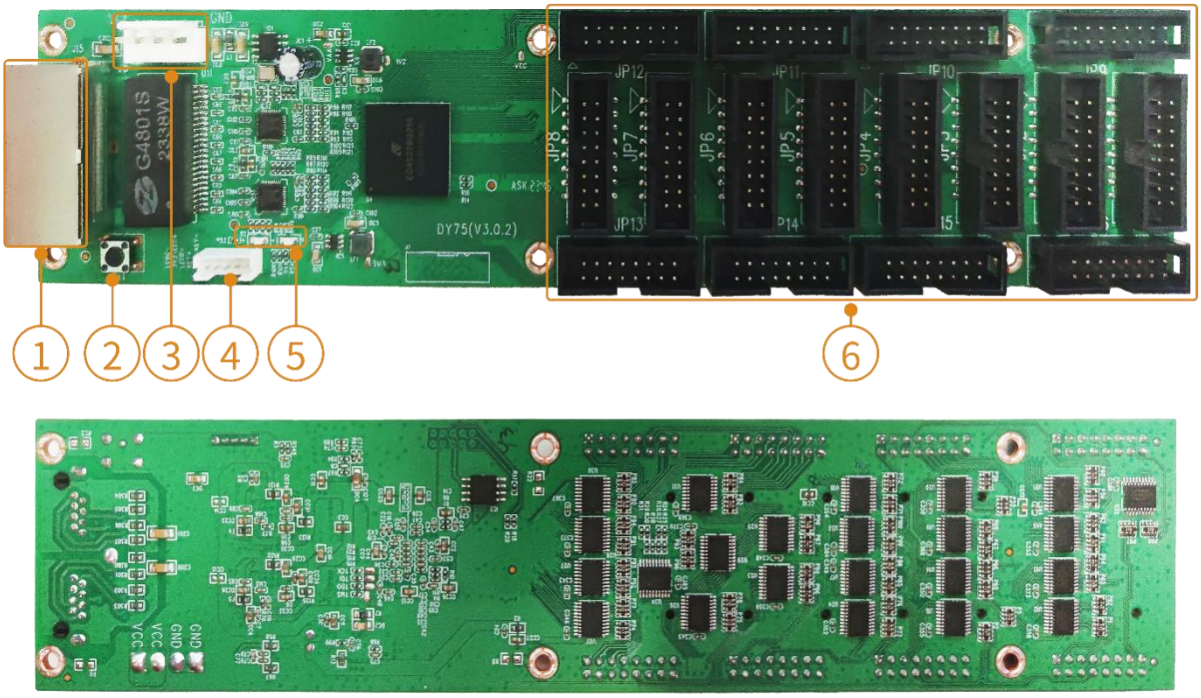
- Loop backup

  The network port is connected through the loop of the main and standby network cables to increase the reliability of the serial connection of the receiving cards. When one of the main and standby series lines fails, the other one can ensure the normal display of the screen.

- FPGA dual program startup

  When the FPGA main program configuration is unsuccessful, it enters the standby BOOT program to work and realize normal communication.

4 Product Appearance



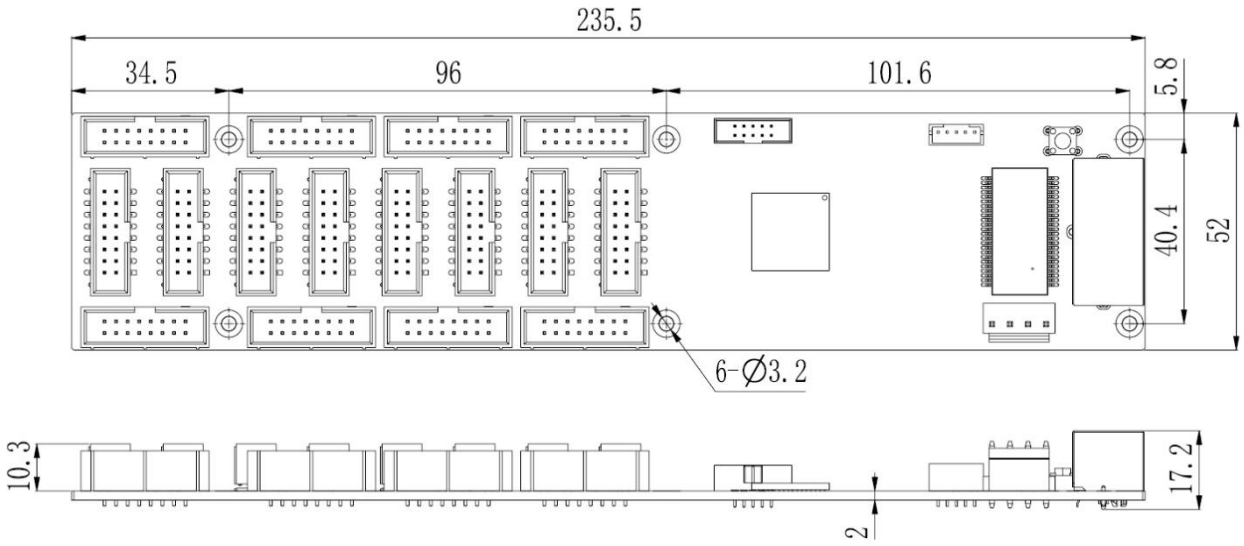
* Product photos are for reference only, please refer to the products actually purchased.

4.1 Data Interface Description

#	Interface Name	Interface Description	
6	HUB75E Interface	Connect the lamp board	
3	Power Input	Connect the DC3.5~ 5.5V power supply to power the receiving card	
1	Gigabit Ethernet port	Connect the sending card and cascade other receiving cards, the two interfaces can enter and exit at will	
5	Status Indicator U1	Uniform slow flash	The receiving card works normally, the network cable is connected normally, and no DVI signal is input.
		Uniform flash	The receiving card works normally, the network cable is connected normally, and there is DVI signal input.

		Constant extinction	No gigabit network signal
		Flash 3 times at intervals	The receiving card works normally, the network cable loop is connected, and there is DVI signal input.
5	Power Iindicator U3	The red light is always on, which means the power supply is normal.	
2	Test Button	Set up the test screen	
7	Indicator Interface	Indicator external interface	

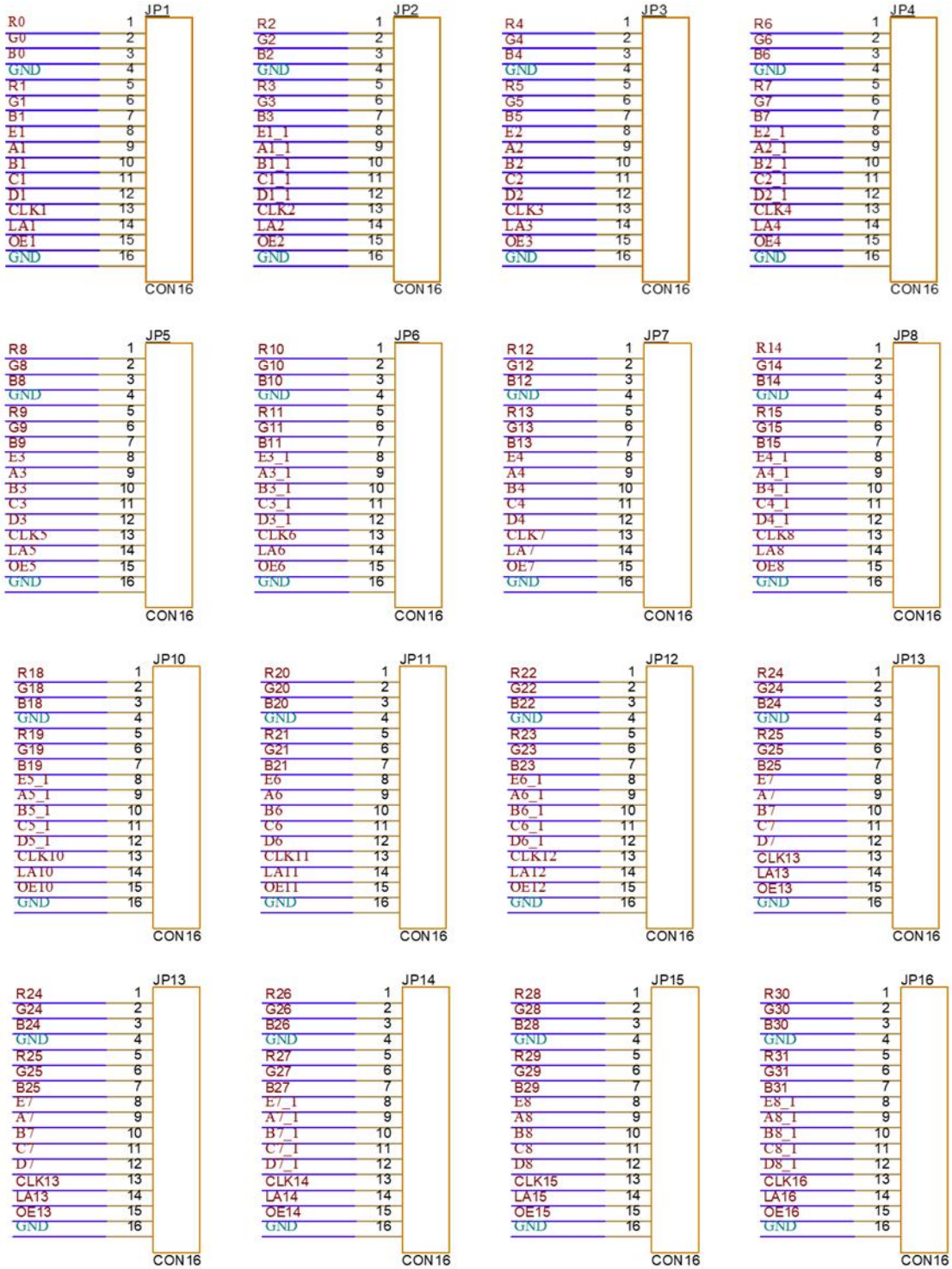
4.2 Product Dimensions



Tolerance: 0.3 Unit: mm

4.3 Definition of Output Interface

32 groups of parallel data interface definitions


JP1
R0 1
G0 2
B0 3
GND 4
R1 5
G1 6
B1 7
E1 8
A1 9
B1 10
C1 11
D1 12
CLK1 13
LA1 14
OE1 15
GND 16
CON16
JP2
R2 1
G2 2
B2 3
GND 4
R3 5
G3 6
B3 7
E1_1 8
A1_1 9
B1_1 10
C1_1 11
D1_1 12
CLK2 13
LA2 14
OE2 15
GND 16
CON16
JP3
R4 1
G4 2
B4 3
GND 4
R5 5
G5 6
B5 7
E2 8
A2 9
B2 10
C2 11
D2 12
CLK3 13
LA3 14
OE3 15
GND 16
CON16
JP4
R6 1
G6 2
B6 3
GND 4
R7 5
G7 6
B7 7
E2_1 8
A2_1 9
B2_1 10
C2_1 11
D2_1 12
CLK4 13
LA4 14
OE4 15
GND 16
CON16
JP5
R8 1
G8 2
B8 3
GND 4
R9 5
G9 6
B9 7
E3 8
A3 9
B3 10
C3 11
D3 12
CLK5 13
LA5 14
OE5 15
GND 16
CON16
JP6
R10 1
G10 2
B10 3
GND 4
R11 5
G11 6
B11 7
E3_1 8
A3_1 9
B3_1 10
C3_1 11
D3_1 12
CLK6 13
LA6 14
OE6 15
GND 16
CON16
JP7
R12 1
G12 2
B12 3
GND 4
R13 5
G13 6
B13 7
E4 8
A4 9
B4 10
C4 11
D4 12
CLK7 13
LA7 14
OE7 15
GND 16
CON16
JP8
R14 1
G14 2
B14 3
GND 4
R15 5
G15 6
B15 7
E4_1 8
A4_1 9
B4_1 10
C4_1 11
D4_1 12
CLK8 13
LA8 14
OE8 15
GND 16
CON16
JP10
R18 1
G18 2
B18 3
GND 4
R19 5
G19 6
B19 7
E5_1 8
A5_1 9
B5_1 10
C5_1 11
D5_1 12
CLK10 13
LA10 14
OE10 15
GND 16
CON16
JP11
R20 1
G20 2
B20 3
GND 4
R21 5
G21 6
B21 7
E6 8
A6 9
B6 10
C6 11
D6 12
CLK11 13
LA11 14
OE11 15
GND 16
CON16
JP12
R22 1
G22 2
B22 3
GND 4
R23 5
G23 6
B23 7
E6_1 8
A6_1 9
B6_1 10
C6_1 11
D6_1 12
CLK12 13
LA12 14
OE12 15
GND 16
CON16
JP13
R24 1
G24 2
B24 3
GND 4
R25 5
G25 6
B25 7
E7 8
A7 9
B7 10
C7 11
D7 12
CLK13 13
LA13 14
OE13 15
GND 16
CON16
JP13
R24 1
G24 2
B24 3
GND 4
R25 5
G25 6
B25 7
E7 8
A7 9
B7 10
C7 11
D7 12
CLK13 13
LA13 14
OE13 15
GND 16
CON16
JP14
R26 1
G26 2
B26 3
GND 4
R27 5
G27 6
B27 7
E7_1 8
A7_1 9
B7_1 10
C7_1 11
D7_1 12
CLK14 13
LA14 14
OE14 15
GND 16
CON16
JP15
R28 1
G28 2
B28 3
GND 4
R29 5
G29 6
B29 7
E8 8
A8 9
B8 10
C8 11
D8 12
CLK15 13
LA15 14
OE15 15
GND 16
CON16
JP16
R30 1
G30 2
B30 3
GND 4
R31 5
G31 6
B31 7
E8_1 8
A8_1 9
B8_1 10
C8_1 11
D8_1 12
CLK16 13
LA16 14
OE16 15
GND 16
CON16

JP1-JP16 Data Interface Definition

Illustration	PIN	PIN	Illustration
R0	1	2	G0
B0	3	4	GND
R1	5	6	G1
B1	7	8	E
A	9	10	B
C	11	12	D
CLK	13	14	LAT
OE	15	16	GND

J12 Indicator Light Interface Definition

Pin	1	2	3	4	5
Definition	GND/KEY-	KEY+	LEDR-	VCC/LED+	LEDG-

5 product parameters

5.1 Basic parameters

Three-wire Parallel (RGB)	Data Interface	Maximum Load (pixels)	Brightness Correction Band Load (pixel)	Chromaticity Correction Band Load (pixel)	Chroma Correction With Load (pixels)
32 Groups	HUB75E	Conventional	384×512	384×512	256×320
	16	PWM	512×512	512×512	256×320
Number of cascaded cards			Support scanning lines		
≤1000PCS			1-128 sweep		

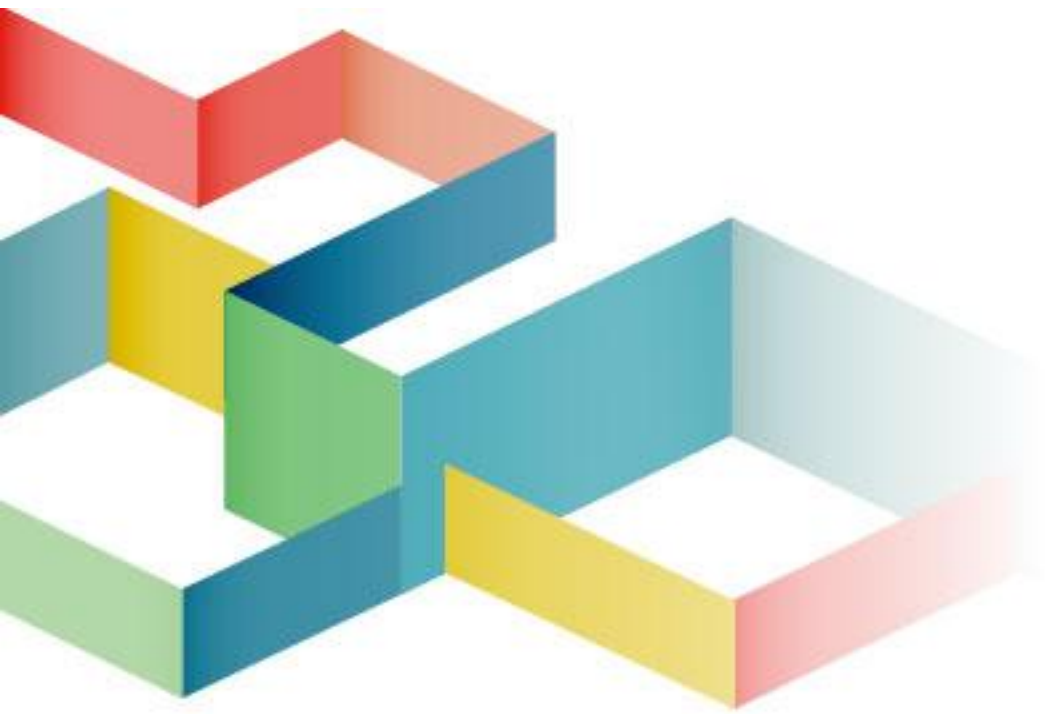
5.2 Specification Parameters

Electrical parameters	Input voltage	DC3.5~5.5V
	Rated current	0.6A
	Rated power	3W
Working environment	Working temperature	-20℃~70℃
	Working humidity	10%RH~90%RH has no condensation.
Storage environment	Temperature	-40℃~85℃
Board size	235.5mm×52.00mm	
Net weight	108g Description: Weight of single card	
Outer packing size	620×315×285mm	
Gross weight of product	14.3Kg Description: Including wire, accessories	
Single Card with plastic Holder	121.6g	
Pack Mode	100PCS /box	
Certificate Information	Comply with RoHS standards and CE-EMC standards.	

* Current and power consumption may vary according to different factors such as product usage, environment and settings.

6 Precautions

- The installation process must be completed by professionals.
- Must be antistatic.
- Please pay attention to waterproof and dust removal.



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