C12

Receiving card

User Manual

Document version:： V2.0

CONTENT

1 Update Records

Document Version	Hardware Version	Release Time	Update Record
V4.0	C12（V1.2）	June 23(th), 2025	First release

2 Product Introduction

C12 is an ultra-small size high-end receiving card independently developed and launched by Mooncell, with a maximum of 8192 pixels 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;

The output of the board adopts universal plug-in interface with 2.0mm spacing, which has high stability and reliability. The size of C12 is only (73 mm x 24 mm), which is the smallest external dimension that can be realized in the industry. It can save design space, simplify the structural design of the screen and reduce the design difficulty, and with high cost performance. With the help of this system, customers can realize unprecedented innovative design.

3 Product Characteristics

3.1 Improve the display effect

- Low delay

  Reduce the delay of the video source at the receiving card end, and the delay is as low as 1 frame (for

- 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).

- 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.

3.2 Improve maintainability

- Data interface customization

  With AutoLED software, the output data of the receiving card can be detected and edited.

- Complex structure box

  In the advanced layout of AutoLED software, boxes can be arranged and constructed at will quickly.

- Construct complex large screen

  In the complex display screen connection of AutoLED software, boxes can be arranged and constructed at will quickly.

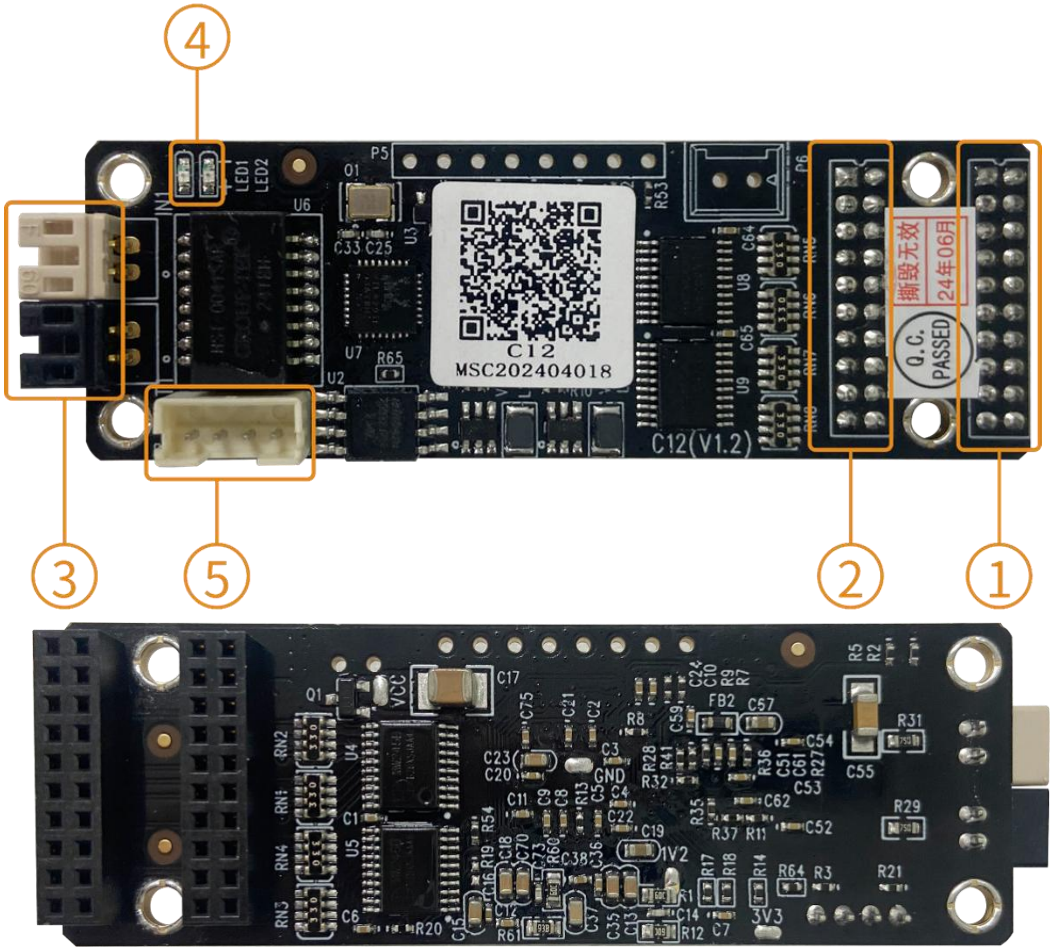
- Loop backup

  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.

- Small size and thickness save space for the increasingly narrow box and light bar.
- Single card outputs 24 sets of serial RGB data, 8 sets in parallel, and supports 4 clock extensions.
- Support any setting within 8192 pixels.
- Strong LED driver chip compatibility, supporting all conventional chip drivers.
- Support security upgrade
- Support the arbitrary offset of single card position and the rotation of single card display content to realize special-shaped screen.

- Reduce the number of cables and connectors and simplify the structural design of LED screen. Signal transmission only needs 2-core super-category 5 twisted pair, which can combine the display screen signal and power supply wiring into one design, and the peripheral cascade connection line is changed from the traditional two-in and two-out to one-in and one-out.
- The lamp board of the display screen can be integrated with the receiving card in modular design, and the module only needs to be disassembled and replaced separately in case of failure, which makes the after-sales maintenance simple and reduces the later maintenance cost.
- Integrated network transformer simplifies the design and improves the electromagnetic compatibility, which is helpful for users to successfully pass EMC certification.

4 Product Appearance

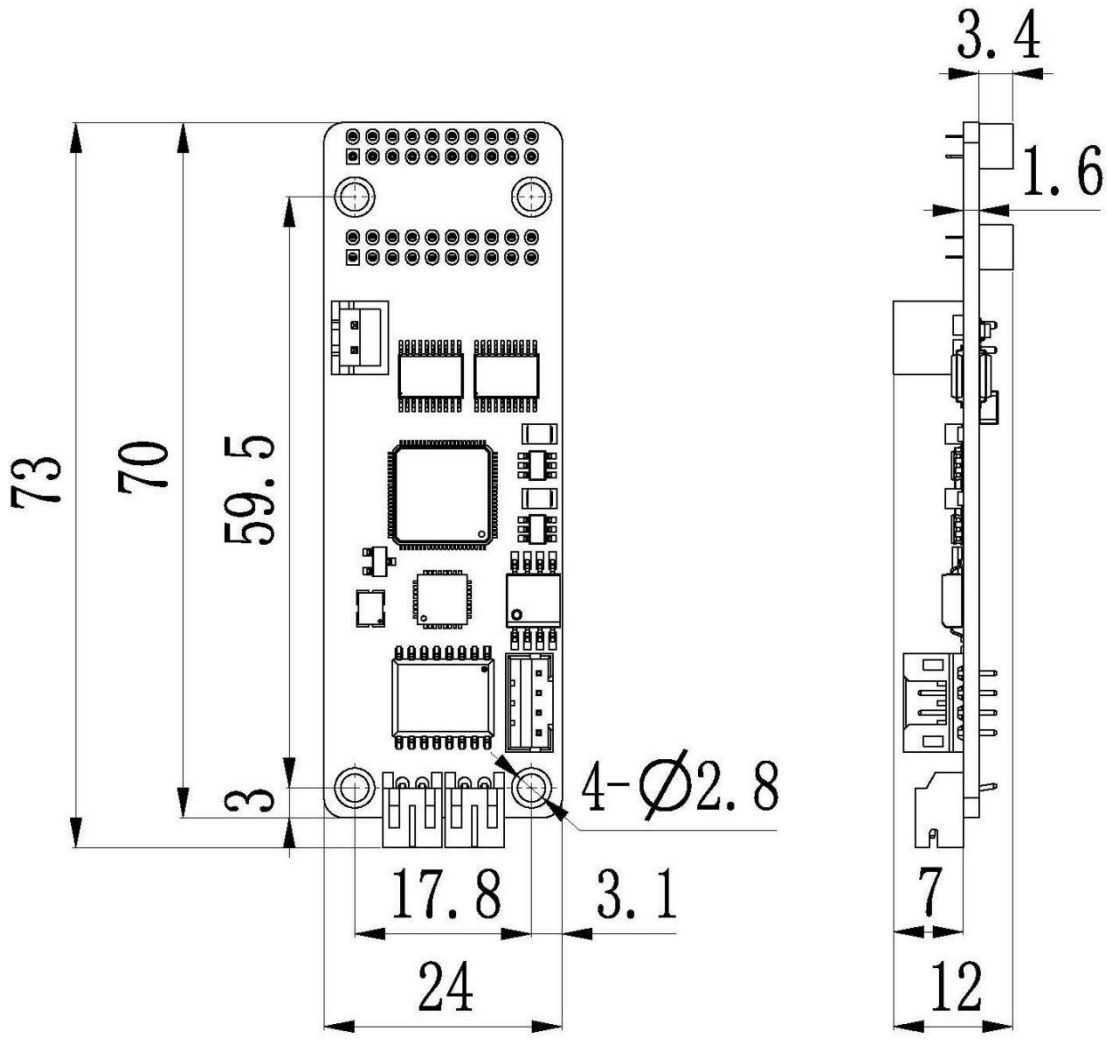


* Product photos are for reference only, please refer to the products actually purchased.

4.1 Data Interface Description

#	Interface Name	Interface Description	
1	P1	Signal interface P1 output to the display screen	
2	P2	Signal interface P2 output to the display screen	
3	JP1	The 100-megabit signal is input to the TX interface, and the signal interface is input from the splitter SH100.	
	JP2	The 100-megabit signal is output to the RX interface and cascaded to the next receiving card.	
4	Status Indicator D1	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.
4	Power Indicator D2	The red light is always on, which means the power supply is normal.	
5	P3	Signal interface for output to display screen, with 5V interface for power supply.	

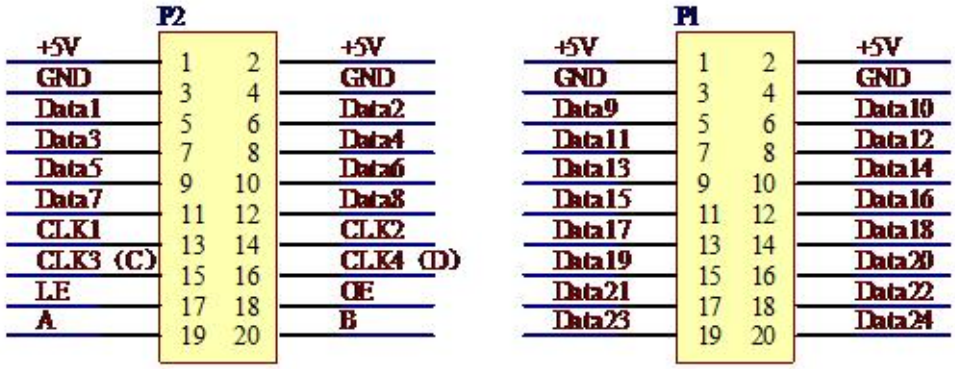
4.2 Product Dimensions



Tolerance: 0.3 Unit: mm

4.3 Definition of Output Interface

24 groups of RGB serial data interface definitions



P2 Data Interface Definition

Illustration	Definition	Pin	Pin	Definition	Illustration
	+5V	1	2	+5V	
	GND	3	4	GND	
RGB serial output data	DATA1	5	6	DATA2	RGB serial output data
	DATA3	7	8	DATA4	
	DATA5	9	10	DATA6	
	DATA7	11	12	DATA8	
Shift clock 1	CLK1	13	14	CLK2	Shift clock 2
Shift Clock 3/ Decoded Signal C	CLK3/C	15	16	CLK4/D	Shift clock 4/ decode signal D
Latch	LE	17	18	OE	Display enable
Line decoded signal	A	19	20	B	Line decoded signal

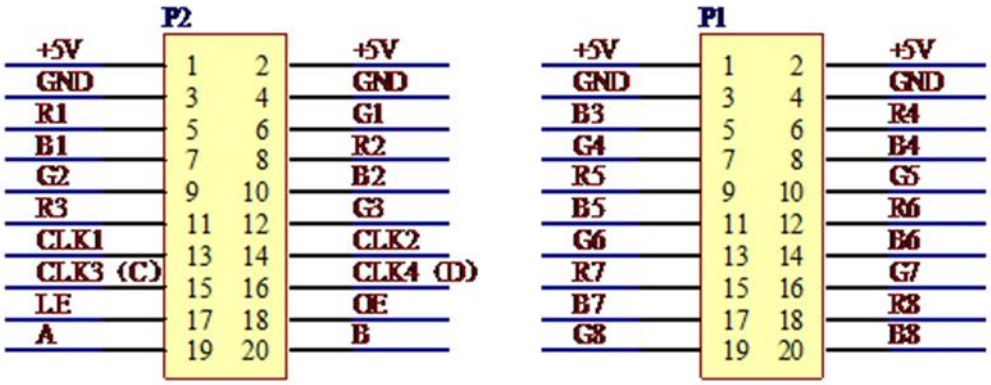
Description:

1. When using 5958 decoding drive, the decoded signal A is used as the DCLK signal of 5958, the decoded signal B is used as the BK signal of 5958, and the decoded signal C is used as the DIN signal of 5958.
2. When four extended groups of clocks are used, the scanning signal can only be connected with signals A and B; That is, when four groups of clock extensions are supported at most, pins 15 and 16 of P2 are used for CLK3 and CLK4； ; (Default routine)
3. When scanning signals A, B, C and D are used, the clock can only be extended by two groups; That is, when the scan is more than 4 scans, the pins 15 and 16 of P2 are used for C and D signals (customized program).

P1 Data Interface Definition

Illustration	Definition	Pin	Pin	Definition	Illustration
	+5V	1	2	+5V	
	GND	3	4	GND	
RGB serial output data	DATA9	5	6	DATA10	RGB serial output data
	DATA11	7	8	DATA12	
	DATA13	9	10	DATA14	
	DATA15	11	12	DATA16	
	DATA17	13	14	DATA18	
	DATA19	15	16	DATA20	
	DATA21	17	18	DATA22	
	DATA23	19	20	DATA24	

8 groups of RGB parallel data interface definitions



P2 Data Interface Definition

Illustration	Definition	Pin	Pin	Definition	Illustration
	+5V	1	2	+5V	
	GND	3	4	GND	
RGB parallel output data	R1	5	6	G1	RGB parallel output data
	B1	7	8	R2	
	G2	9	10	B2	
	R3	11	12	G3	
Shift clock 1	CLK1	13	14	CLK2	Shift clock 2
Shift Clock 3/	CLK3/C	15	16	CLK4/D	Shift clock 4/ decode
Latch	LE	17	18	OE	Display enable
Line decoded signal	A	19	20	B	Line decoded signal

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1. When using 5958 decoding drive, the decoded signal A is used as the DCLK signal of 5958, the decoded signal B is used as the BK signal of 5958, and the decoded signal C is used as the DIN signal of 5958.

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P1 Data Interface Definition

Illustration	Definition	Pin	Pin	Definition	Illustration
	+5V	1	2	+5V	
	GND	3	4	GND	
RGB parallel output data	B3	5	6	R4	RGB parallel output data
	G4	7	8	B4	
	R5	9	10	G5	
	B5	11	12	R6	
	G6	13	14	B6	
	R7	15	16	G7	
	B7	17	18	R8	
	G8	19	20	B8	

P3 indicator interface definition

Pin	1	2	3	4
Definition	SWITCH	LED STATE	GND	3.3V

5 product parameters

5.1 Basic parameters

Serial (RGB)/ parallel	Maximum band load (pixels)	Brightness correction band (pixel)	Chroma correction band (pixel)
24 sets of serial data	8192	8192	4096
8 groups of parallel data	64×128	64×128	64×64
Number of cascaded cards		Support scanning lines	Clock expansion
≤1000PCS		1-4 sweep	Support 4 groups of clock extensions.

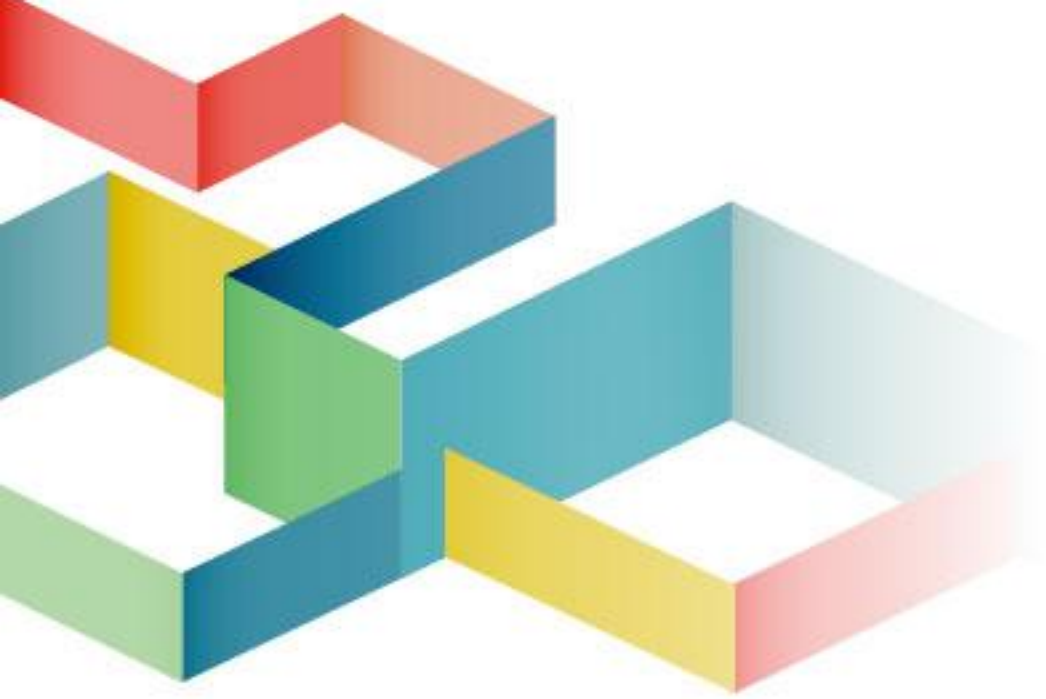
5.2 Specification Parameters

Electrical parameters	Input voltage	DC3.5~5.5V
	Rated current	0.4A
	Rated power	2W
Working environment	Working temperature	-20℃~70℃
	Working humidity	10%RH~90%RH has no condensation.
Storage environment	Temperature	-40℃~85℃
Board size	73mm×24mm	
Net weight	10g Description: Weight of single card	
Outer packing size	490×335×120mm	
Gross weight of product	2.24Kg Description: Including wire, accessories	
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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