C2

Integrated Controller

Operations Guide

Safety Instructions

Symbols used in user manuals and equipment indicate the possible harm to users or others and the risk of property damage. In order for you to use the equipment safely and correctly, the signs and their meanings are as follows. Please make sure to correctly understand these signs before reading the user manual.

The product contains some metal components, please pay attention to environmental protection.

This product is Class A, which may cause radio interference in living environment. In this case, users may need to take practical measures against interference.

Remind the user that the uninsulated dangerous voltage in the equipment may cause electric shock.

Warning: To avoid electric shock, please don't open the cover and put the useless parts in the case. Please contact qualified service personnel.

General information indication

Lists the contents that may lead to unsuccessful operation or setup and some related information that needs attention.

Warning

To ensure the reliable use of the equipment and personal safety, please observe the following items during installation, use and maintenance:

Precautions during installation

- Do not use this product in the following places: places with dust, lampblack, conductive dust, corrosive gas and combustible gas; Exposed to high temperature, condensation, wind and rain; There are occasions of vibration and impact. Electric shock, fire and misoperation can also lead to product damage and deterioration;
- During screw hole processing and wiring, do not make metal scraps and wire ends fall into the vent hole of the controller, which may cause fire, failure and misoperation;
- At the end of the product installation, it is necessary to ensure that there are no foreign objects on the ventilation surface, including dust-proof paper and other packaging items, otherwise it may lead to poor heat dissipation during operation, resulting in fire, failure and misoperation;
- Avoid wiring, plugging and unplugging cable plugs in the live state, otherwise it will easily lead to electric shock or circuit damage;
- And the installation and wiring must be firm and reliable, and poor contact may lead to misoperation;
- For applications with serious interference, shielded cables should be used for input or output cables of high-frequency signals to improve the anti-interference performance of the system.

Matters needing attention when wiring

- All external power supply must be cut off before installation, wiring and other operations can be carried out, otherwise electric shock or equipment damage may be caused;
- This product is grounded through the grounding wire of the power cord. To avoid electric shock, the grounding wire must be connected to the earth. Before connecting the input or output of this product, please be sure to properly ground this product.
- After the installation and wiring, remove the foreign matter immediately. Please cover the terminal cover plate of the product before electrifying to avoid electric shock.

Matters needing attention in maintenance

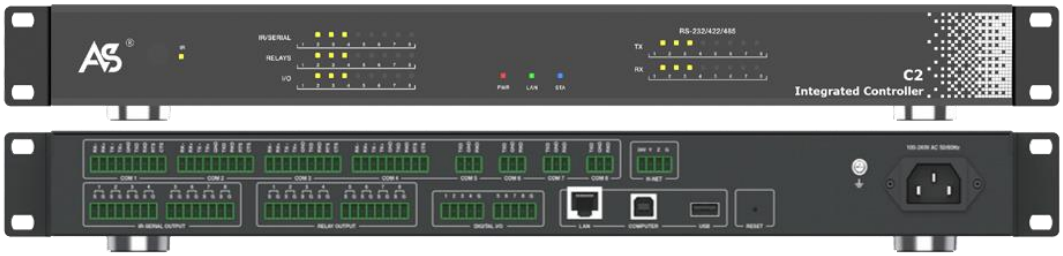
- Do not touch the terminal when it is energized, otherwise it may cause electric shock and misoperation;
- Please clean and tighten the terminals after turning off the power supply, which may cause electric shock when powered on;
- Please connect or remove the communication signal cable, cable connection or removal of expansion module or control unit after turning off the power supply, otherwise it may cause equipment damage and misoperation;
- Do not disassemble the equipment to avoid damaging the internal electrical components;
- Be sure to read this manual carefully and fully confirm the safety before changing, commissioning, starting and stopping the program.

Matters needing attention when scrapping products

- Electrolytic capacitors on circuit boards may explode when burned;
- Please collect and treat them separately, and do not put them into domestic garbage.
- Please treat it as industrial waste or according to local environmental protection regulations.

Contents:

1. Technical parameter

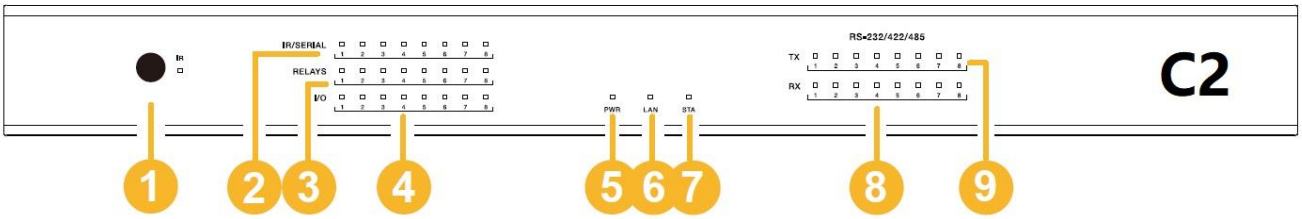


Specifications for the C2 are listed in the following table.

Parameter specification	
CPU	ARM Cortex-A53 1.8GHz
Operating system	Android 9
Memory	2GB DDR4 RAM
Flash Memory	8GB EMMC Flash
Indicator	1 × IR learning indicator 1 × power indicator 1 × Network indicator 1 × System running indicator 8 × bidirectional serial TX port indicator 8 × bidirectional serial RX port indicator 8 × IR/Serial port indicators 8 × Relay port indicators 8 × I/O port indicators
COM1/2/3/4	4×COM [9-pin phoenix], bidirectional RS-232/422/485 serial communication port
COM5/6/7/8	4×COM [3-pin phoenix], bidirectional RS-232 serial communication port
IR-SERIAL OUTPUT	2×8-pin Phoenix , infrared port or unidirectional RS-232 serial communication port
RELAY OUTPUT	2×8-pin phoenix, isolated low voltage relay, normally open contact, maximum load 30VDC, 2A/125VAC, 1A
DIGITAL I/O	2×5-pin Phoenix, digital signal input port
LAN	1×RJ45, 10M/100M/1000M Ethernet interface
USB	1×USB TYPE A (function reserved)
COMPUTER	1×USB TYPE B
H-NET	1×4-pin Phoenix, private bus interface (function reserved)
RESET	1×RESET, the system reset button
IR	1×Infrared learning window
Shell	Aluminum alloy panel + Metal shell
Color	Black
Size	440mm（L）× 200mm（W）× 44mm（H）
Weight	2.1kg
Installation method	Standard 19-inch cabinet (with mounting ears) or surface installation
Power supply	AC110~220V 50/60Hz
Power consumption	55W (48W is used for H-NET external power supply)
Operating temperature	0° C ~ 40° C / 32° F ~ 104° F
Relative humidity	10~90% RH (No condensation)

2. Physical Description

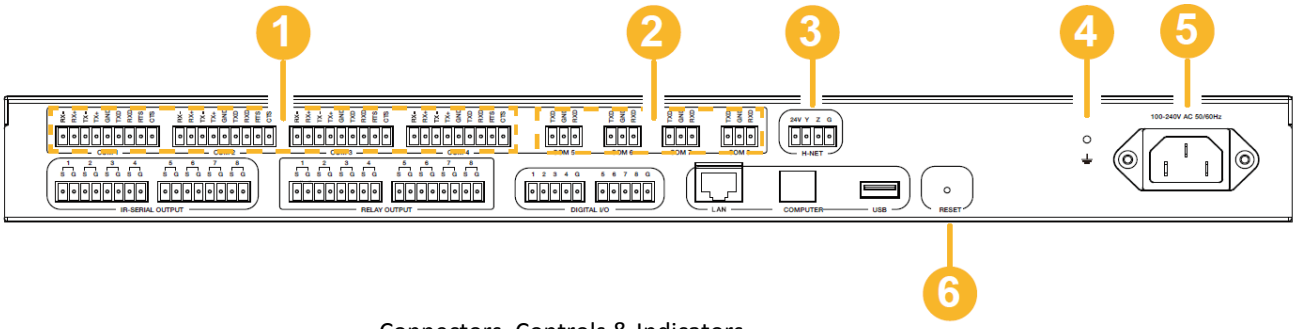
2.1 Front panel introduction



Connectors, Controls & Indicators

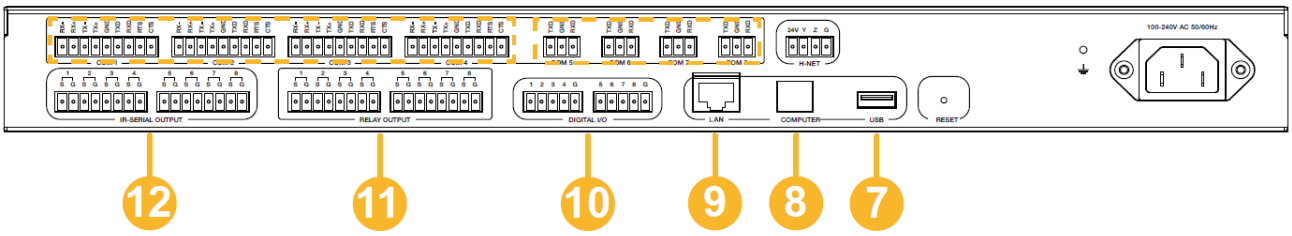
No.	Name	Functional description
1	IR Learning Window & Indicator (Yellow)	Infrared learning receiving window, if the infrared waveform is received, the yellow indicator light will flash, if not, the light will be off.
2	IR/SERIAL Indicator (Yellow)	When the IR-Serial port sends data, the yellow indicator of the corresponding port flashes, if not, the indicator is off.
3	RELAY Indicator (Yellow)	When the RELAY port is closed, the yellow indicator of the corresponding port is always on, and when it is disconnected, the indicator is off.
4	I/O Indicator (Yellow)	When the level of the I/O port changes, the yellow indicator of the corresponding port flashes, if not, the indicator is off.
5	PWR Indicator (Red)	After the device is connected to the power supply, the PWR power indicator is always on.
6	LAN Indicator (Green)	After the host is connected to the network, the working indicator of the network port is always on, and when the network protocol is used for communication, the indicator flashes.
7	STA Indicator (Blue)	After the host is started, during the normal operation of the device, the working status indicator is always on, and when the System is reset, the indicator flashes.
8	TX Indicator (Yellow)	When the bidirectional serial port TX port sends data, the yellow indicator light of the corresponding port flashes, if not, the light is off.
9	RX Indicator (Yellow)	When the bidirectional serial port RX port receives data, the yellow indicator light of the corresponding port flashes, if not, the light is off.

2.2 Back panel introduction



Connectors, Controls & Indicators

No.	Name	Functional description
1	COM1/2/3/4	The device has 4 programmable bidirectional multi-mode serial ports (9PIN Phoenix), which supports changing the communication mode of the serial port through programming. The serial port has the following four communication modes: RS232, RS232+HardwareFlow, RS485 and RS422. The baud rate of the serial port can be configured by programming, and 8 kinds of baud rates such as 2400-115200bps can be configured. The communication protocol wiring definition of 9PIN Phoenix is as follows: **In RS232 mode,** PIN5 is GND, PIN6 is TXD, PIN7 is RXD; **In RS232 + Hardware Flow mode,** PIN5 is GND, PIN6 is TXD, PIN7 is RXD, PIN8 is RTS, PIN9 for CTS; **In RS422 mode,** PIN1 is RX-, PIN2 is RX+, PIN3 is TX-, PIN4 is TX+, and PIN5 is GND. **In RS485 mode,** PIN1 (RX-) and PIN3 (TX-) need to be shorted to B, PIN2 (RX+) and PIN4 (TX+) to be shorted to A, and PIN5 to GND.
2	COM5/6/7/8	The device has 4 programmable bidirectional single-mode serial ports (3PIN Phoenix socket), which supports RS232 mode communication. The baud rate of the serial port can be configured by programming, and 8 kinds of baud rates such as 2400-115200bps can be configured. **In RS232 mode,** PIN1 is TXD, PIN2 is GND, and PIN3 is RXD.
3	H-NET	The system reserves a private bus interface.
4	GND	For equipment grounding
5	100-240V AC 50/60Hz	The power input interface is used to connect an external 220V/10A AC power supply.
6	RESET	**Device restart:** After the device is started, press the RESET button on the back of the device for more than 1 second and less than 5 seconds. After releasing the button, the STA light on the front panel flashes for 5 times and the device restarts. After restarting, the device will not load the user's project. **Factory reset:** After the device is started, press and hold the RESET button on the back of the device for more than 5 seconds, the STA indicator on the front panel will flash 5 times, after releasing the button, the device will reset the user configuration information, and the IP will return to the DHCP state. The login password of the management page will be initialized to admin, the device time will be initialized to the automatic acquisition mode, and the user project will not be deleted by the factory initialization.

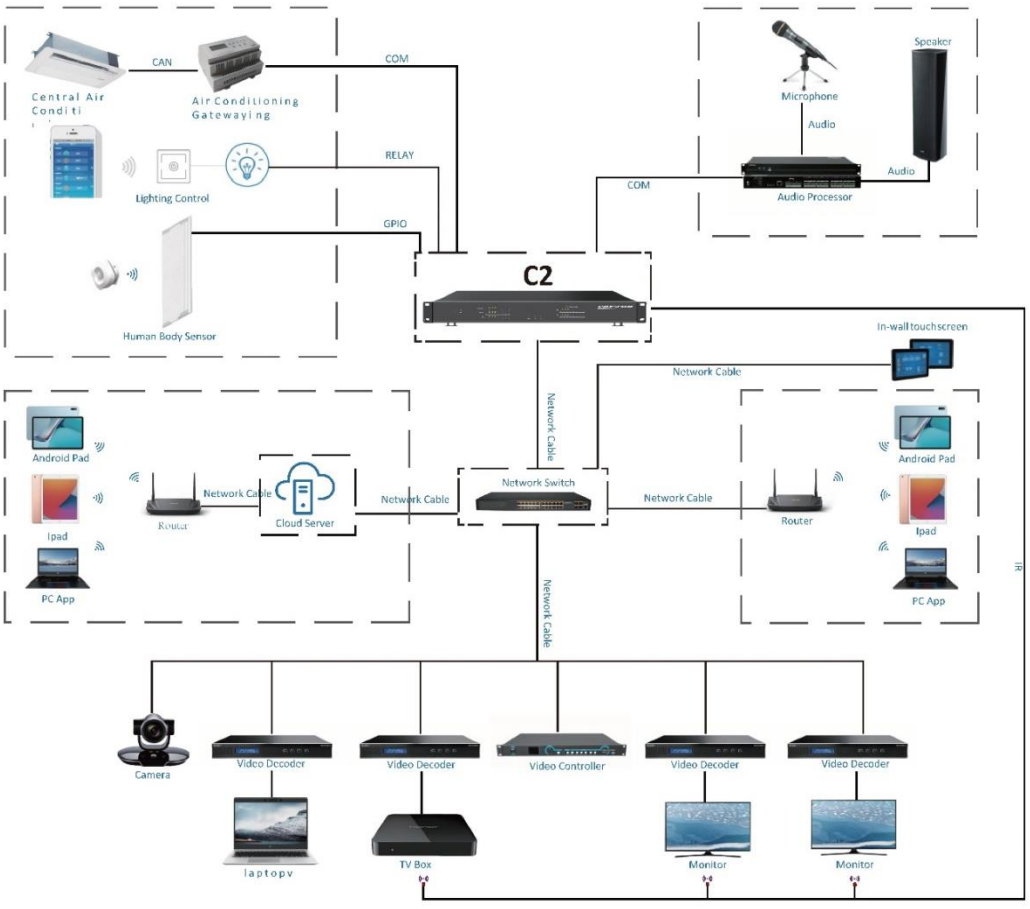


No.	Name	Functional description
7	USB Interface	The system reserves the interface for subsequent host function expansion.
8	COMPUTER	The system reserves the debugging interface.
9	LAN	The device is equipped with a standard 10M/100M/1000M Ethernet RJ45 interface, and the default network port is in the rate auto-negotiation mode, which is mainly used for connecting devices, uploading or downloading projects, network communication, debugging, etc. The factory default of the central control is DHCP mode. After power-on, plug in the network cable. If no router assigns an IP to the device within 3 minutes, the device will preset the IP to 192.168.0.101. At this time, the host is still in DHCP mode. After connecting to the router, The IP assigned by the router will be re-acquired as the IP of the device, and the default IP will be invalid. **Note:** If the central control host is in DHCP state, after power-on, the router assigns an IP address to the device and then unplugs the network cable, the central control will no longer preset the IP address, and the central control will be in no IP state (0.0.0.0), if you need to reset the IP, please power off and then power on the central control. If the central control is in static IP mode when it is powered on, the above settings will not be executed. If the user does not have a router during on-site debugging, the computer can be directly connected to the central control network port, and then the computer IP is modified to the 192.168.0.X network segment, and the After the device is powered on and waits for 3 minutes, the preset IP can be used to communicate with the device.
10	DIGITAL I/O	The device has 8 GPIO dry contact input interfaces, and the withstand voltage range of the interface is 0-24V. It can be used for the acquisition of digital level signals, and the low level is valid.
11	RELAY OUTPUT	The device has 8 groups of low-voltage isolation relay output ports (2PIN phoenix), normally open contacts, the left PIN is signal input, the right PIN is signal output, the maximum carrying capacity of each group is 2A 30VDC / 1A 125VAC, the port does not support Output voltage internally.
12	IR-SERIAL OUTPUT	The device has 8 groups of multi-mode infrared-serial output ports (2PIN Phoenix), each group can be used as infrared port output or unidirectional serial output (RS232 level, level range is 0-5V, non-standard RS232 level, you need to confirm whether the controlled device supports this level standard when using it), the PIN on the left is the signal data line, and the PIN on the right is GND. 8 groups of ports can set the working mode through the system program: When the working mode is infrared output, the carrier range of infrared output is 20K-60KHZ. When the working mode is one-way output serial port, the left PIN is TXD, and the right PIN is GND, the communication parameters of the serial port can be configured in the program.

3. Functional performance

- With 8 bidirectional serial ports, it can be used to control the matrix, projector or other audio and video equipment
- With 8 IR outputs/unidirectional serial ports for controlling home devices such as DVDs or TVs
- With 8 low voltage relays, it can be used to control lights, access control, curtains, etc.
- With 8 input ports, it can be used to receive the signal input of the sensor
- Supports devices connected to Ethernet control for Ethernet monitoring and control
- Integrated infrared learning function
- Integrated high-performance web server, support online firmware upgrade
- Supports industry standard network communication protocols
- Access control with password protection
- Built-in real-time clock
- Standard 1U chassis design, using 220V AC power supply
- Support factory reset

4. Schematic diagram



安全指示

用户手册和设备上所使用的符号，指出可能对用户或他人造成的伤害以及财产受损的风险，为了您能够安全、正确使用设备，标识及其含义如下，请确保在阅读用户手册之前正确理解这些标识。

产品中含有一些金属元器件，请注意环保。

此为A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对干扰采取切实 可行的措施。

提醒使用者设备内出现的未绝缘的危险电压可能会导致人遭受电击

警告：为了避免电击，请不要打开机盖，也不要将无用的部分放在机箱内。请与有资格的服务人员联系。

一般信息指示

列示了可能导致操作或设置不成功的内容及一些需要注意的相关信息。

警告

为确保设备可靠使用及人员人身安全，请在安装、使用和维护时，请遵守以下事项：

安装时的注意事项：

- 请勿在下列场所使用本产品：有灰尘、油烟、导电性尘埃、腐蚀性气体、可燃性气体的场所；
- 暴露于高温、结露、风雨的场合；有振动、冲击的场合。电击、火灾、误操作也会导致产品损坏和恶化；
- 在进行螺丝孔加工和接线时，不要使金属屑和电线头掉入控制器的通风孔内，这有可能引起火灾、故障、误操作；
- 产品在安装工作结束，需要保证通风面上没有异物，包括防尘纸等包装物品，否则可能导致运行时散热不畅，引起火灾、故障、误操作；
- 避免带电状态进行接线、插拔电缆插头，否则容易导致电击，或导致电路损坏；
- 安装和接线必须牢固可靠，接触不良可能导致误操作；
- 对于在干扰严重的应用场合，高频信号的输入或输出电缆应选用屏蔽电缆，以提高系统的抗干扰性能。

布线时的注意事项：

- 必须将外部电源全部切断后，才能进行安装、接线等操作，否则可能引起触电或设备损坏；
- 本产品通过电源线的接地导线接地，为避免电击，必须将接地导线与大地相连，在对本产品的输入端或输出端进行连接之前，请务必将本产品正确接地；
- 在安装布线完毕，立即清除异物，通电前请盖好产品的端子盖板，避免引起触电。

保养时的注意事项：

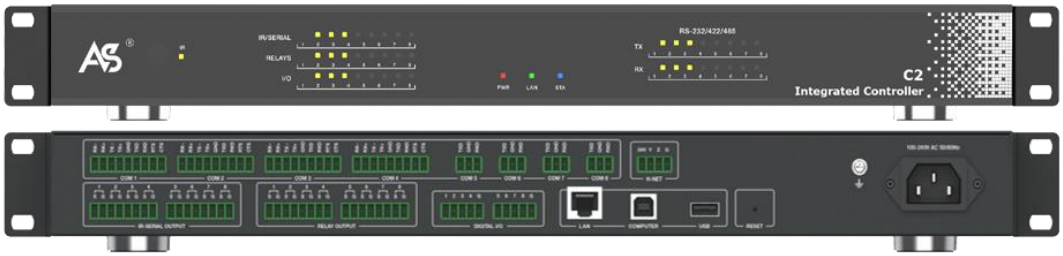
- 请勿在通电时触摸端子，否则可能引起电击、误操作；
- 请在关闭电源后进行清扫和端子的旋紧工作，通电时这些操作可能引起触电；
- 请在关闭电源后进行通讯信号电缆的连接或拆除、扩展模块或控制单元的电缆连接或拆除等操作，否则可能引起设备损坏、误操作；
- 请勿拆卸设备，避免损坏内部电气元件；
- 务必熟读本手册，充分确认安全后，再进行程序的变更、试运行、启动和停止操作。

产品报废时的注意事项：

- 电路板上的电解电容器焚烧时可能发生爆炸；
- 请分类收集和处理，不能投入生活垃圾中；
- 请按工业废弃物进行处理，或者按当地的环境保护规定处理。

目录：

1. 技术参数

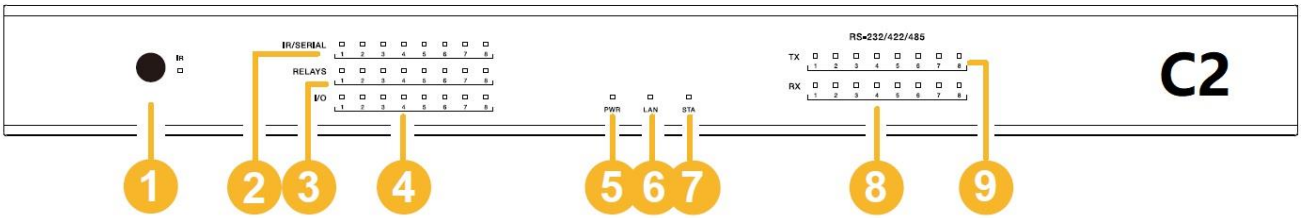


下表列出了C2的规格：

参数规格	
CPU	ARM Cortex-A53 1.8GHz
操作系统	Android 9
内存	2GB DDR4 RAM
闪存	8GB EMMC Flash
指示灯	1 × IR学习指示灯 1 × 电源指示灯 1 × 网络指示灯 1 × 系统运行指示灯 8 × 双向串口TX端口指示灯 8 × 双向串口RX端口指示灯 8 × IR/Serial端口指示灯 8 × Relay端口指示灯 8 × I/O端口指示灯
COM1/2/3/4	4×COM [9-pin凤凰端子]，双向 RS-232/422/485 串行通讯口
COM5/6/7/8	4×COM [3-pin凤凰端子]，双向 RS-232 串行通讯口
IR-SERIAL OUTPUT	2×8-pin凤凰端子，红外端口或单向 RS-232 串行通讯口
RELAY OUTPUT	2×8-pin凤凰端子，隔离低压继电器，常开触点，最大承载 30VDC, 2A/125VAC, 1A
DIGITAL I/O	2×5-pin凤凰端子，数字信号输入口
LAN	1×RJ45接口，10M/100M/1000M以太网接口
USB	1×USB TYPE A （功能预留）
COMPUTER	1×USB TYPE B
H-NET	1×4-pin凤凰端子，私有总线接口（功能预留）
RESET	1×RESET，系统复位按钮
IR	1×红外学习窗口
外壳	铝合金面板+铁壳
颜色	黑色
尺寸	440mm（长）× 200mm（宽）× 44mm（高）
重量	2.1kg
安装方式	标准19英寸机柜（配挂耳）或平面安装
供电电源	AC110~220V 50/60Hz
电源功耗	55W（48W为H-NET对外供电使用）
操作温度	0° C ~ 40° C / 32° F ~ 104° F
相对湿度	10~90% RH (无凝结)

2. 物理描述

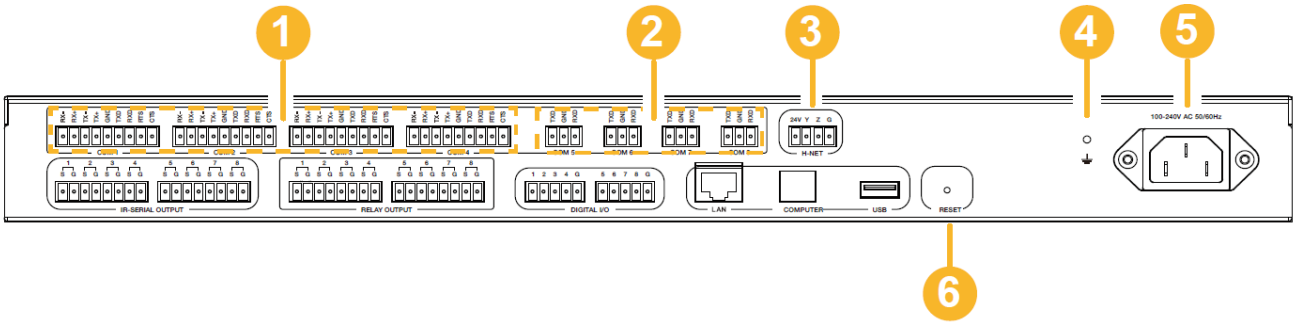
2.1 前面板介绍



连接器、控制器和指示器

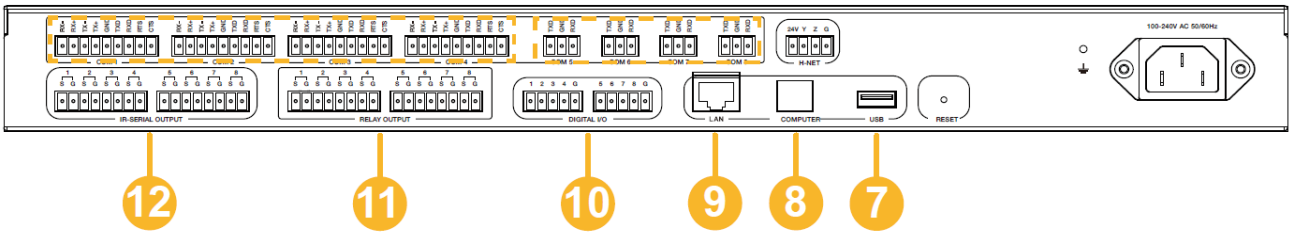
标号	名称	功能描述
1	IR 学习窗口 & 指示灯 (黄色)	红外学习接收窗口，若接收到红外波形，黄色指示灯闪烁，若无，则灯灭。
2	IR/SERIAL 指示灯(黄色)	IR-Serial端口发送数据时，对应端口的黄色指示灯闪烁，若无，则灯灭。
3	RELAY指示灯 (黄色)	RELAY端口闭合时，对应端口的黄色指示灯常亮，断开时，灯灭。
4	I/O指示灯 (黄色)	I/O端口电平变化时，对应端口的黄色指示灯闪烁，若无，则灯灭。
5	PWR指示灯 (红色)	设备接入电源后， PWR电源指示灯常亮。
6	LAN指示灯 (绿色)	主机连接网络后，网口工作指示灯常亮，使用网络协议进行通讯时，指示灯闪烁。
7	STA指示灯 (蓝色)	主机启动后，设备正常运行期间，工作状态指示灯常亮，工厂复位时，指示灯闪烁。
8	TX指示灯 (黄色)	双向串口TX端口发送数据时，对应端口的黄色指示灯闪烁，若无，则灯灭。
9	RX指示灯 (黄色)	双向串口RX端口接收数据时，对应端口的黄色指示灯闪烁，若无，则灯灭。

2.1 后面板介绍



连接器、控制器和指示器

标号	名称	功能描述
1	COM1/2/3/4	设备带4个可编程的双向多模串行端口（9PIN凤凰座子），支持通过编程更改串口的通信模式。串行端口具有以下四种通信模式：RS232、RS232+HardwareFlow、RS485和RS422。可通过编程配置串口的波特率，配置2400-115200bps等8种波特率。 9PIN凤凰端子的通信协议接线定义如下： **RS232模式**中，PIN5为GND，PIN6为TXD，PIN7为RXD； **RS232 + Hardware Flow模式**中，PIN5为GND，PIN6为TXD，PIN7为RXD，PIN8为RTS，PIN9为CTS； **RS422模式**中，PIN1为RX-，PIN2为RX+，PIN3为TX-，PIN4为TX+，PIN5为GND。 **RS485模式**中，需将PIN1(RX-)和PIN3(TX-)短接为B，PIN2(RX+)和PIN4(TX+)短接为A，PIN5为GND。
2	COM5/6/7/8	设备带4个可编程的双向单模串行端口（3PIN凤凰座子），支持RS232模式通信。可通过编程配置串口的波特率，配置2400-115200bps等8种波特率。 **RS232模式**中，PIN1为TXD，PIN2为GND，PIN3为RXD。
3	H-NET	系统预留私有总线接口。
4	共地端子	用于设备接大地或机架地。
5	100-240V AC 50/60Hz	电源输入接口，用于连接外部220V/10A AC电源。
6	RESET	**设备重启：**设备启动后，按下设备后部的RESET复位按钮超过1秒，小于5秒，松开按钮后，前面板的STA灯闪烁5下后设备重启，重启后设备不会加载用户的工程。 **工厂复位：**设备启动后，按住设备后部的RESET复位按钮5秒以上，前面板的STA指示灯会闪烁5下，松开按钮后，设备会重置用户配置信息，IP将恢复为DHCP状态，管理网页的登录密码将初始化为admin，设备时间初始化为自动获取模式，工厂初始化不会删除用户工程。



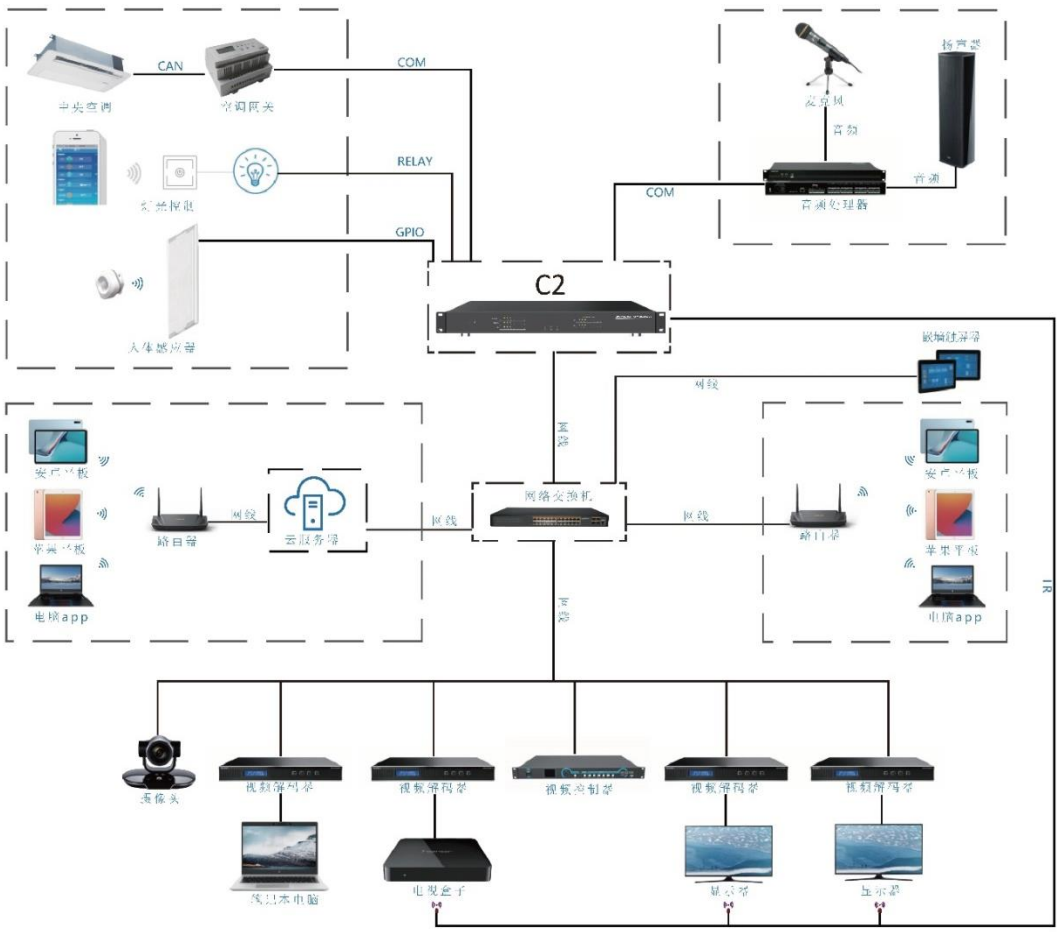
连接器、控制器和指示器

标号	名称	功能描述
7	USB接口	系统预留接口，用于后续主机功能拓展。
8	COMPUTER	系统预留调试接口。
9	LAN	设备配备标准的10M/100M/1000M以太网RJ45接口，默认 网口处于速率自动协商模式，主要用于连接设备、上传或下载工程、网络通信、Debug调试等。 中控出厂默认为DHCP模式，主机上电后，插入网线，如果 3分钟内没有路由器分配IP给设备，设备将预设IP为192.168.0.101，此时主机仍然处于DHCP模式，接入路由器 后，将重新获取路由器分配的IP作为设备的IP，预设IP将失效。 注意：若中控主机处于DHCP状态，上电后，路由器给设备分配IP地址之后再拔掉网线，中控将不会再预设IP地址，此时中控将为无IP状态(0.0.0.0)，如需重新预设IP，请将中控断电后再上电。如果中控上电时为静态IP模式，则不会执行以上设置如用户现场调试时无路由器，可电脑直连中控网口，然后将电 脑IP修改为192.168.0.X 网段后，将设备上电，等待3分钟后，即可使用预设IP与设备进行通信。
10	DIGITAL I/O	设备带8路GPIO干触点输入接口，接口耐压范围为0-24V，可用于数字电平信号的采集，低电平有效。
11	RELAY OUTPUT	设备带8组低压隔离继电器输出端口（2PIN凤凰座子），常开触点，左侧PIN为信号输入，右侧PIN为信号输出，每组最大承载能力为 2A 30VDC / 1A 125VAC，端口不支持从内部输出电压。
12	IR-SERIAL OUTPUT	设备带8组多模红外-串行输出端口（2PIN凤凰座子），每一组都可作为红外端口输出或单向串行输出（RS232电平，电平幅度为0-5V，非标准的RS232电平，使用时需确认受控设备是否支持该电平标准），其中左侧的PIN脚为信号数据线，右侧的PIN脚为GND。 8组端口可通过系统程序设定工作模式： 工作模式为红外输出时，红外输出的载波范围为20K-60KHZ。 工作模式为单向输出串口时，左侧PIN为TXD，右侧PIN为GND，可在程序中配置串口的通讯参数。

3. 功能特性

- 带8个双向串行端口，可用于控制矩阵，投影仪或其它音视频设备
- 带8个红外输出/单向串行端口，可用于控制DVD或电视等家用设备
- 带8个低压继电器，可用于控制灯光、门禁、窗帘等
- 带8个输入端口，可用于接收传感器的信号输入
- 支持连接以太网控制的设备，实现以太网监视和控制
- 集成红外学习功能
- 集成高性能Web服务器，支持在线升级固件
- 支持行业标准网络通讯协议
- 带密码保护的访问控制
- 内置实时时钟
- 标准1U机箱设计，采用220V AC交流供电
- 支持工厂复位

4. 系统连接图



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