

AI Cloud Gateway Module

一、概述 (Overview)

HOTEKEY AI 云网关模块是 HOTEKEY 开发研制的一种智能化系统控制器核心设备，是智能家居控制系统连接到 TCP/IP 网络，连接到云服务器的边缘计算网关，内嵌多协议解析引擎，兼容 Modbus RTU/TCP、MQTT 等协议，打通传统 485 设备与云平台的通信壁垒；支持 MQTT 协议，支持 OTA 升级，支持远程调试；支持本地数据预处理（如滤波、告警规则执行），降低云端负载与网络带宽消耗，典型时延降低 40%-60%。该模块采用 485 总线通讯方式和网络通讯方式，功能齐全，适用于智能控制领域。

The HOTEKEY AI Cloud Gateway Module is an intelligent system controller core device developed by HOTEKEY, serving as an edge computing gateway that connects smart home control systems to TCP/IP networks and cloud servers. Equipped with a multi-protocol parsing engine, it seamlessly bridges communication between traditional RS-485 devices and cloud platforms by supporting protocols such as Modbus RTU/TCP and MQTT. Key features include:

- Protocol Interoperability:** Breaks down communication barriers between legacy industrial devices and modern cloud ecosystems through integrated protocol conversion.
- MQTT 5.0 Support:** Ensures efficient messaging with QoS guarantees and bandwidth optimization.
- OTA & Remote Debugging:** Enables secure firmware updates and real-time diagnostics via remote access.
- Edge Data Preprocessing:** Executes localized operations (e.g., data filtering, alarm rule triggering), reducing cloud workload and network bandwidth consumption, with typical latency reduced by **40%-60%**.

The module employs dual communication modes—RS-485 bus and network-based connectivity (Ethernet/Wi-Fi)—delivering comprehensive functionality for smart control applications. Its robust architecture and advanced edge computing capabilities make it ideal for industrial automation, smart homes, and energy management systems, ensuring high reliability and scalability in IoT deployments.

二、功能特点 (Features)

- 模块地址分配和数据恢复
- 系统编程和管理
- 数据存储
- 逻辑分析与控制
- 定时控制
- 采用 485 总线通讯和网络通讯
- 标准 35mm 导轨式安装结构
- Module address allocation and data recovery
- System programming and management
- Data storage
- Logic analysis and control
- timing control
- Using 485 bus communication and network communication
- Standard 35mm rail mounting structure

三、主要技术参数 (The main technical parameters)

- 工作电压: DC 12V
- 输入电流: 65mA DC 12V
- 环境条件:
 - 工作温度 0°C~45°C
 - 工作相对湿度 20%~90%
 - 储存温度-40°C~+55°C
 - 储存相对湿度 10%~93%
- 外形尺寸: 72mm×88mm×66mm
- Working voltage: DC 12V
- Input current: 65mA DC 12V
- Environmental conditions: Working temperature 0 ° C ~ 45 °
- Working relative humidity 20%~90%
- Storage temperature -40 ° C ~ +55 °
- Store relative humidity 10%~93%

• Dimensions: 72mm × 88mm × 66mm

四、外观说明及连接示意图 (Appearance description and connection diagram)



- ① RJ45 接口接入网络。
- ② DC12V、A、B、GND 为 485 总线接线端。
- ③ 模块指示灯：模块正常工作时，为稳定的 1 秒闪烁，当使能了记忆功能时，模块记忆状态，指示灯快闪 3 秒，模块出厂和检测状态过程中，指示灯保持常亮。
- ④ 复位和出厂按键

单按该按键超过 1 秒时，识别为复位操作，执行模块复位功能，长按该按键超过 5 秒时，识别为出厂功能

- ② RJ45 interface is connected to network.
- ② DC12V, A, B, GND are 485 bus terminals.
- ③ Module indicator: When the module is working normally, it will be stable for 1 second. When the memory function is enabled, the module memorizes and the indicator flashes for seconds. During the module factory and detection status, the indicator light remains on.
- ④ reset and factory button

When the button is pressed for more than 1 second, it is recognized as a reset operation, and the module reset function is executed. When the button is pressed for more than 5 seconds, it is recognized as the factory function.

五、主要设置说明 (Main setup instructions)

该模块接入 485 总线，打开“系统设置软件”，搜索并设置系统模块。

- 本机通讯地址

本机通讯地址默认为 1。通过设置软件的搜索模块功能为系统内的工作模块分配地址。

- 区域

通过创建区域对系统内的回路进行划分。

- 模块设置

对系统内的各模块进行相关参数或事件的设置。

- 模式

综合设置系统使用模式，如离家模式、回家模式、全开/全关模式等等。

- 其他

具体操作和设置请仔细参阅智控系统设置软件说明书。

The module is connected to the 485 bus, open the "system setup software", search and set the system module.

- Local communication address

The local communication address defaults to 1. The address of the working module in the system is assigned by setting the search module function of the software.

- area

The loops within the system are divided by creating zones.

module settings Set parameters or events for each module in the system.

- mode

Comprehensively set system usage modes, such as home mode, home mode, full on / full off mode, and so on.

- Other

Please refer to the intelligent control system setup software manual for specific operations and settings.

安装连接

• 安装条件

安装位置要通风良好，注意防潮、防震、防尘。

• 接线规格

本模块网络通讯端连接线：标准网线。

485 总线连接线：采用超五类线。

• Installation connection

The installation location should be well ventilated, pay attention to moisture, shock and dust.

• Wiring specification

Network communication terminal cable of this module: Standard network cable.

485 bus connection line: using super five types of lines.

六、安全使用与维护保养 (Safe use and maintenance)

1. 使用前仔细阅读所有说明。
2. 勿靠近干扰设备。
3. 要建立良好通风散热环境。
4. 在使用过程中，注意防潮、防震、防尘。
5. 严禁雨淋、接触其它液体或腐蚀性气体。
6. 定期除尘，不能用酒精、汽油等挥发性液体擦拭。
7. 如受潮或被液体侵袭，应及时进行干燥处理。
8. 定期检查线路的受损和老化程度，应及时更换不合格线路。
9. 机器出现故障时，请与专业维修人员或本公司联系。

1. Read all instructions carefully before use.
2. Do not get close to the interference device.
3. To establish a good ventilation and heat dissipation environment.
4. During use, pay attention to moisture, shock and dust.
5. Do not expose to rain or other liquids or corrosive gases.
6. Regular dust removal, can not be wiped with volatile liquids such as alcohol and gasoline.
7. If it is wet or invaded by liquid, it should be dried in time.

8. Regularly check the damage and aging of the line, and replace the unqualified line in time.
9. When the machine malfunctions, please contact a professional service person or the company. The AC220V~240V power supply of this module must pass the appropriate circuit breaker ($\geq 10A$). Wiring should meet the requirements.

七、Contacts

Hotekey Sytem Co.,Ltd of Guangzhou

Office Address: Room 101, Building B, Research Center, No. 885 Shenzhou Road, Huangpu District, Guangzhou City, Guangdong Province, China

TEL:+86-20-32299913

Web site:www.hotekey.com

Factory Address: Floors 1-2, Building 1, No. 51 Xiangshan Avenue, Ningxi Street, Zengcheng District, Guangzhou City, Guangdong Province, China