RT620 focuses on the collection of various signals, data processing and transmission to background applications or cloud platform for data monitoring and analysis. It supports various analog signal sensors, switch signal sensors and sensor signal input of RS485 communication interface, it also supports GPS/BD positioning and reports coordinates through 3G/4G network, and can realize alarms by sending SMS/Email/data.

RT620 has a built-in temperature sensor, which enables users to better monitor the ambient temperature.

RT620 can rechargeable management of built-in backup battery, and supports real-time clock power-down operation.

RT620 provides a wide variety of interfaces and can be applied to a variety of application scenarios.

## Business Challenge

- Smart city
- Smart agriculture
- Surface Meteorological Observation
- PLC/Sensor management
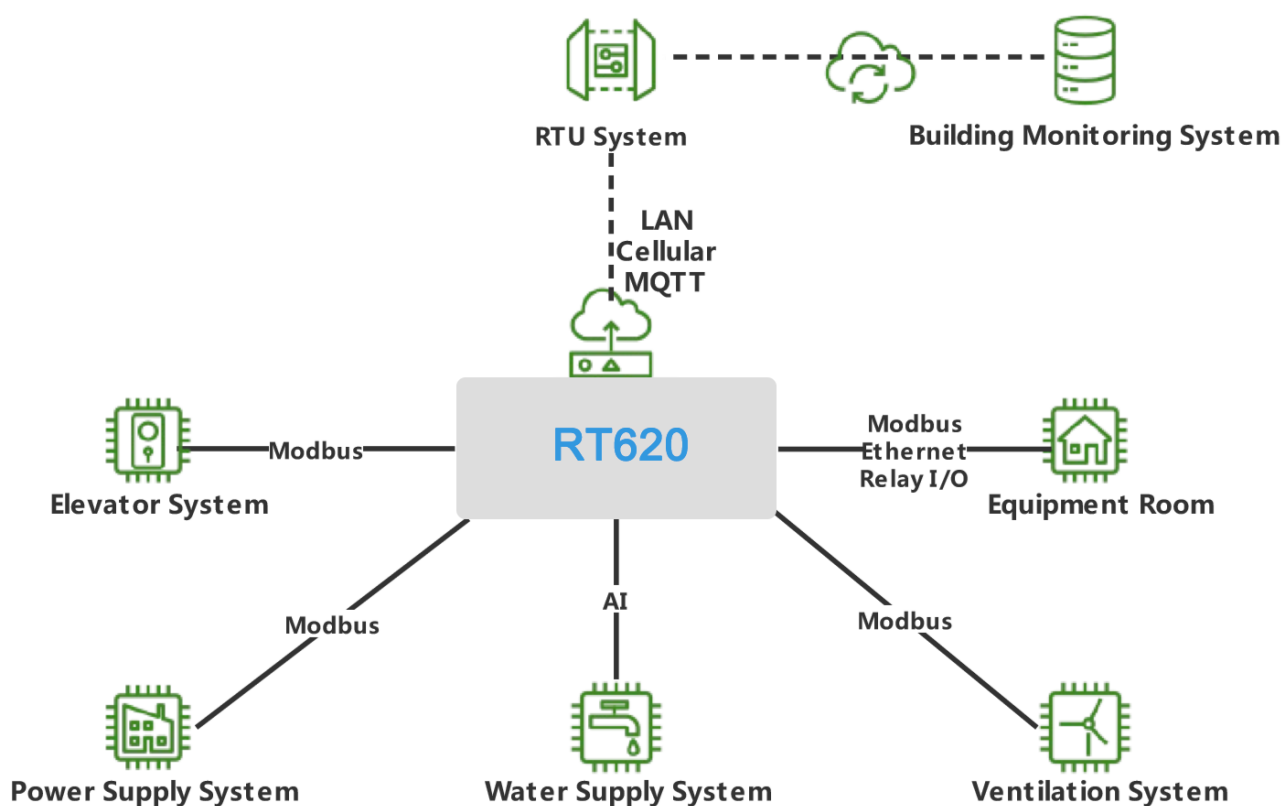


## Basic Features

- Industrial robust design and compact metal housing
- Strong electromagnetic interference resistance, SAE J1455
- Multi-channel RS485 serial interface, single channel can support up to 32 device, support modubs-rtu protocol
- Digital I/O input can connect door magnetic, smoke alarm and other switch signals
- Analog input can be connect to 4~20mA current sensor or 0~5V voltage sensor
- Wide voltage power supply, protection against reverse connection, the power supply range can reach to 18V~32VDC, standard power supply 24V/1A DC by default
- Built-in clock battery and watch dog
- GRE, PPTP, L2TP, IPsec IKEv1/v2, OpenVPN client
- TCP/UDP/ICMP/NTP
- NAT/DMZ/SNMP/UPnP/RIPv2/TR069
- LED: NET, WAN, LAN, WLAN, SYS, 485, PWR

• Built-in programmable function, used to collect the analog quantity, switch quantity of the machine, and the data of the modbus protocol sensor connected to the serial port, and control the relay output. Simple data operations can be performed.

## Optional Features

• Cellular network FDD-LTE/TDD-LTE 4G, UMTS/WCDMA 3G and EVDO 3G optional
• Support remote parameter setting, modification, upgrade and reset
• Support WLINK M2M remote management protocol
• Support MQTT protocol works with cloud server
• Data storage support up to 64GB, data can be stored locally for more than a month
• Built-in temperature sensor

## Installation (M3 screw)
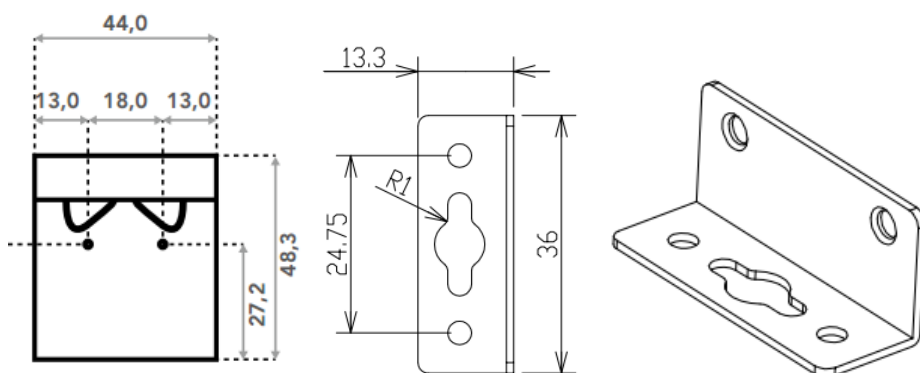


## RT620 Back Panel Instruction



## a) Power Supply Input and Output

| VIN=24V | | VIN 24V | VIN 24V | +12V | +12V | | +5V | Close 1 | COM 1 | Open 1 |
|---|---|---|---|---|---|---|---|---|---|---|
| V+ | V- | GND | GND | GND | GND | | GND | Close 2 | COM 2 | Open 2 |
| Power Input 18~32V | | Power Output | | | | | | Relay Interface | | |

- **Power Input:** The V+ V- are no polarity design, can be arbitrary access to positive and negative, anti - reverse. The input voltage range is +18V~32V DC, and the +24V/1A DC power adapter is recommended
- **Power Output:** 2 channels VIN output, the output voltage is approximately equal to the VIN input voltage value (actual voltage is VIN-1.1V); 2 channels + 12V voltage power supply output; 1 channel + 5V voltage power supply output. The output voltage power supply can directly supply power to external sensors, or to control relays, or provide power to 0 ~ 5V DI digital signal input devices.
- **Relay Interface:** 2 relay interfaces-Close normally closed, COM common node, Open normally open. Small signal relay, support control Max 1A / 30V DC; 0.3A / 60V DC; 0.5A / 125V AC

## b) Serial Interface

| 485 -A1 | 485 -B1 | GND | 485 -A2 | 485 -B2 |
|---------|---------|-----|---------|---------|
|  |  |  |  |  |
| TX | RX | GND | 485 -A3 | 485 -B3 |

**RS-232**　　　　**RS-485**

- **RS485 Interface:** It supports 3 channels RS485 interface communication and can be used to directly connect to RS485 interface devices, such as sensors or meters. The default baud rate is 9600, which can be configured through the Web page. The baud rate range is 1200 ~ 57600
- **Relay Interface:** It support 1 channel RS232 serial port, the default baud rate is 115200. Used for local software upgrade or parameter configuration, and can also be connected to serial devices to upload data

2.5.1 Warehouse security monitoring

## c) Digital Signal Input

| DI 1 | GND | DI 3 | GND | N/O 1 | GND | N/O 2 | GND | N/O 3 | GND | N/O 4 | GND | N/O 5 | GND | N/O 6 | GND |
|------|-----|------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
| DI 2 | GND | DI 4 | GND | N/O 7 | GND | N/O 8 | GND | N/O 9 | GND | N/O 10 | GND | N/O 11 | GND | N/O 12 | GND |

0~5V Digital Signal Input　　　　Digital Switch Signal Input

- **Active digital signal input:** 4 channels of active 0~5V digital signal input, the GND of the input signal source and the system GND need to be in common ground
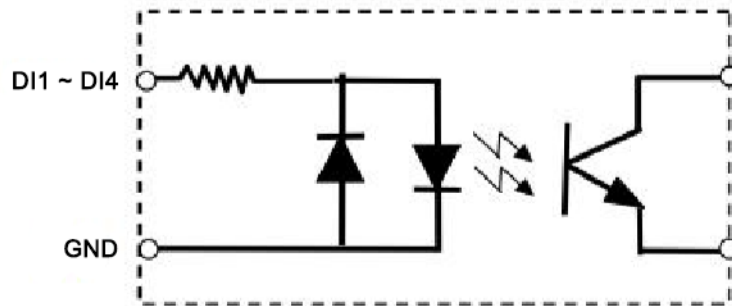
DI: isolated digital signal input channel

GND: digital signal input

- **Passive digital signal input:** 12 channels passive switch signal input
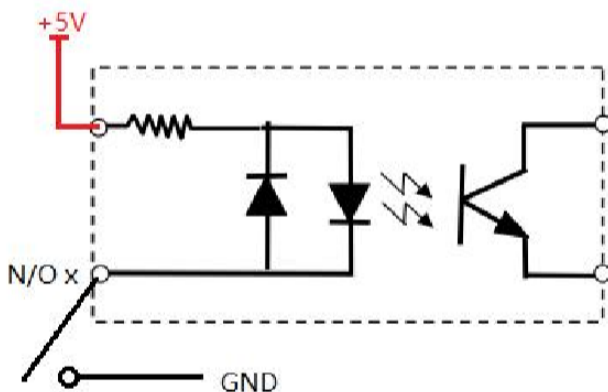


N/O x : Switch signal input

The N/O and GND are closed or open to
control the on and off of the optocoupler

**d) Analog Signal Input**

| AI 1 | AI 3 | AI 5 | AI 7 | AI 9 | AI 11 | A GND | A GND |
|------|------|------|------|------|-------|-------|-------|
|      |      |      |      |      |       |       |       |
| AI 2 | AI 4 | AI 6 | AI 8 | AI 10 | AI 12 | A GND | A GND |

4~20mA / 0~5V AI Input Interface

- 12 channels analog signal input, sampling accuracy is 12Bit. It can be connected with 4 ~ 20mA power sensor or 0 ~ 5V voltage sensor. We use it by compiling the script
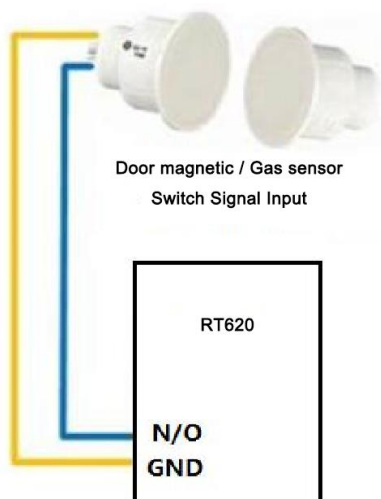
## RT620 Front Panel Instruction

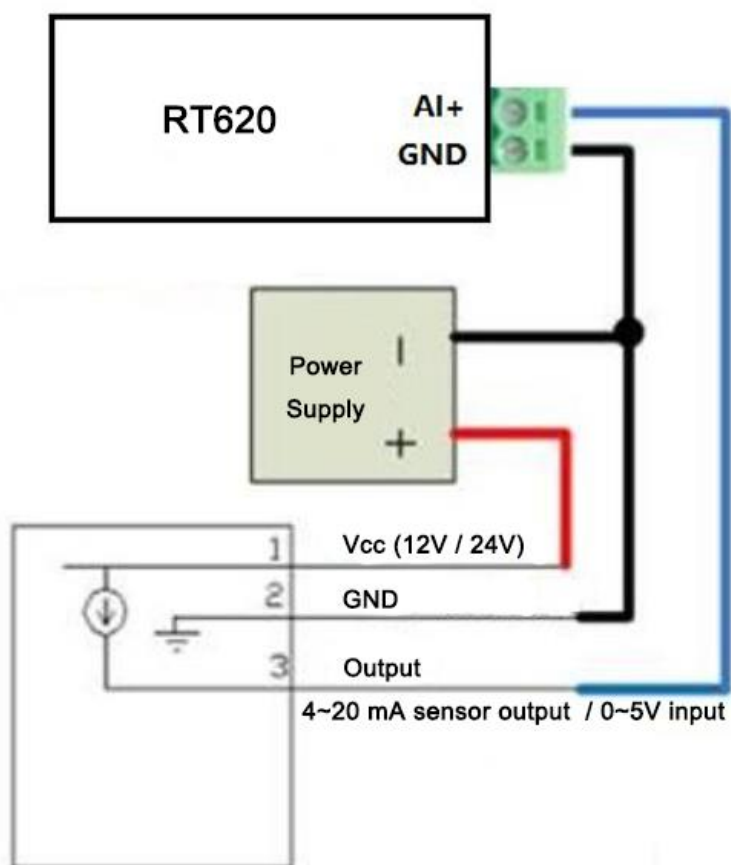| Interface/LED | Instruction |
|---------------|-------------|
| LAN | 10/100Mb port |
| WAN/LAN | 10/100Mb port |
| USB2.0 | External port, can be used for data encryption or data storage |
| RST | Restore the default switch and hold-press 8~15 secs to restore the factory configuration of the system |
| NET LED | Light up after works |
| WAN LED | Light up after works |
| LAN LED | Light up after works |
| Wi-Fi LED | Light up after enabled |

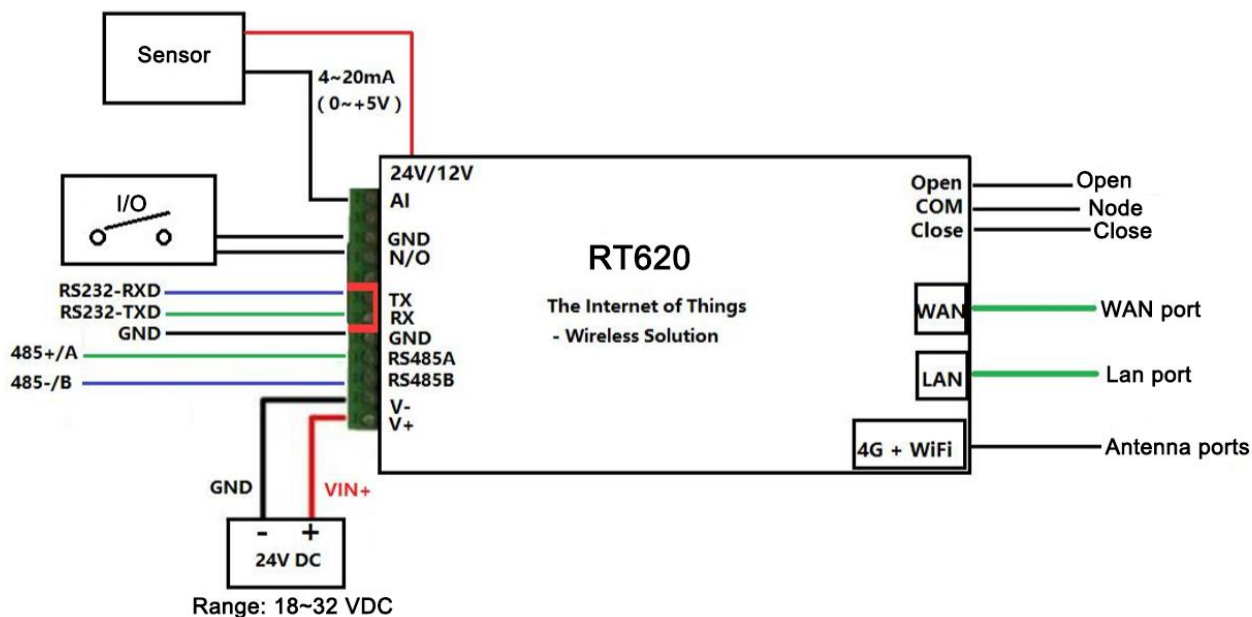| SYS LED | Light up after system works |
|---------|------------------------------|
| 485 LED | Flashes when transferring data |
| PWR LED | Power |
| Wi-Fi | 802.11n, max 300Mbps |
| 4G Main | 4G main communication antenna |
| 4G AUX | 4G secondary communication antenna |
| GPS/BD | Active positioning antenna |

**Application Reference**

- **Digital switch signal wiring diagram**



Door magnetic / Gas sensor
Switch Signal Input

RT620

N/O
GND

- **AI analog signal input: It supports 4~20mA or 0~5V analog signal input**



RT620    AI+
         GND

Power
Supply

1  Vcc (12V / 24V)
2  GND
3  Output
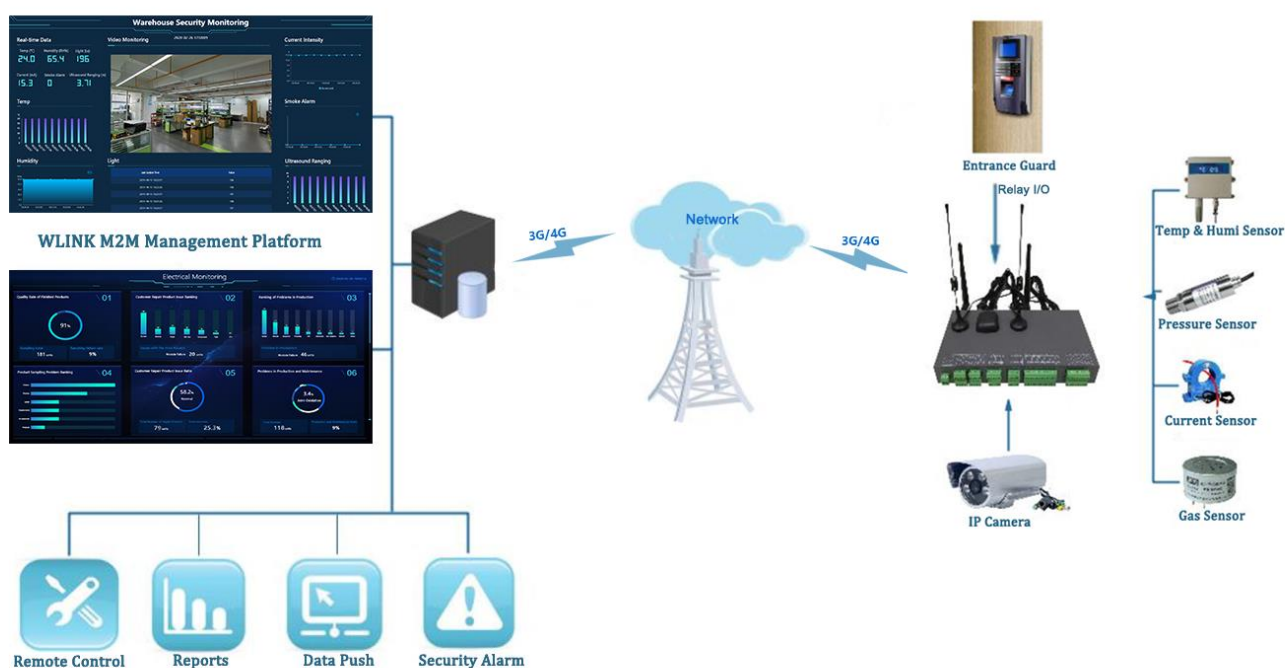4~20 mA sensor output / 0~5V input

## c) RT620 Interface Diagram



- Cross-connect TXD and RXD of RS232 communication interface.
- N/O switch signals break and close with GND.
- The analog signal sensor can be shared with the device VIN +. When the power supply is shared, there is no need for a common ground, and the signal output can be directly connected to AI +. If the analog signal sensor uses the power supply input alone, you need to connect the GND of the power supply and the GND of R3102 to form a common ground.
- The relay is a small signal relay that can support up to 60 VDC / 0.3A switch control or 125 VAC / 0.5A switch control
- LAN and WAN port support 10/100Mb
- Support 3G/4G ,DHCP, Static IP and pppoe

## Application

## Specification

| Hardware | | | |
|---|---|---|---|
| Cellular | • FDD-LTE / TDD-LTE<br>• HSPA/UMTS<br>• EDGE/GPRS<br>• Output power: class4(2W)@900MHz, class1(1W)@1800MHz<br>• Gain: 1.4dBi@900MHz, 3dBi@1800MHz<br>• Protocol: PPP/TCP/UDP/ICMP<br>• RF impedance: 50Ω | CPU | • MIPS32 74K Core. 533MHz/560DMIPs<br>• Flash 8MB (16MB optional)<br>• RAM 64MB (128MB optional)<br>• Cortex M3<br>• 8GB internal storage (64GB optional) |
| Physical Interface | •Analog input: 12 channels    Resolution: 12 Bit<br>• DI Dry contact: 12 channels digital I/O<br>• DI wet contact: 4 channels digital signal detection (0~5 V)<br>• Relay: 2 channels, max 1A/30V DC, 0.3A/60V DC, 0.5A/125V AC | Communication Interface | • 2x 10/100Mb LAN (1xLAN, 1xWAN configurable)<br>• Cellular Antennas: SMA-K (Female)<br>• GPS Antenna: SMA-K (Female)<br>• Standard SIM/R-UIM Slot<br>• WLAN: IEEE 802.11 b/g/n<br>• 3x RS485 A,B<br>• 1x RS232 RXD,TXD,GND<br>• USB2.0 |
| Power | • Voltage: DC +18~32v (standard 24/1A power adapter)<br>• SIM/R-UIM Card: 1.8/3V<br>• Consumption:<br>transfer mode: 180mA/24V(Average)<br>Idle mode: 100mA/24V (4G and WIFI off)<br>•24V power input, support V+ and V- reverse connection, Vin=18~32V<br>• 24V power output, Vin= -1V, it can power sensors<br>• 12V power output, it can power sensors<br>• 5V power output, it can power DI wet contact | Other | • Dimension: 236mm x 125mm x 40mm<br>• Weight: 500g<br>• Mount: Din rail, wall<br>• Shock and Vibration: SAE J1455<br><br>• Operation temperature: -30~ +75℃<br>• Storage temperature: -40~+85 ℃<br>• Relative Humidity: <95% (non-condensing)<br>• Guarantee: one year<br>• LED: NET, WAN, LAN, WLAN, SYS, 485, PWR |
| Software | | | |
| System | • WLINK OS based Linux | Firewall | • IP/URL Filter<br>• Domain Filter |
| Network Protocol | • IPv4, IPv6(optional)<br>• PPPoE/DHCP/Static IP<br>• TCP/UDP/ICMP/NTP<br>• Modbus TCP/ Modbus RTU<br>• NAT/DMZ/SNMP/UPnP/RIPv2/TR069 | Device Management | • Local/Remote GUI<br>• Telnet/SSH/CLI<br>• WLINK M2M Platform |
| VPN | • GRE<br>• PPTP/L2TP<br>• IPsec<br>• OpenVPN | | |