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# IOT-BMC410 Technical Specifications

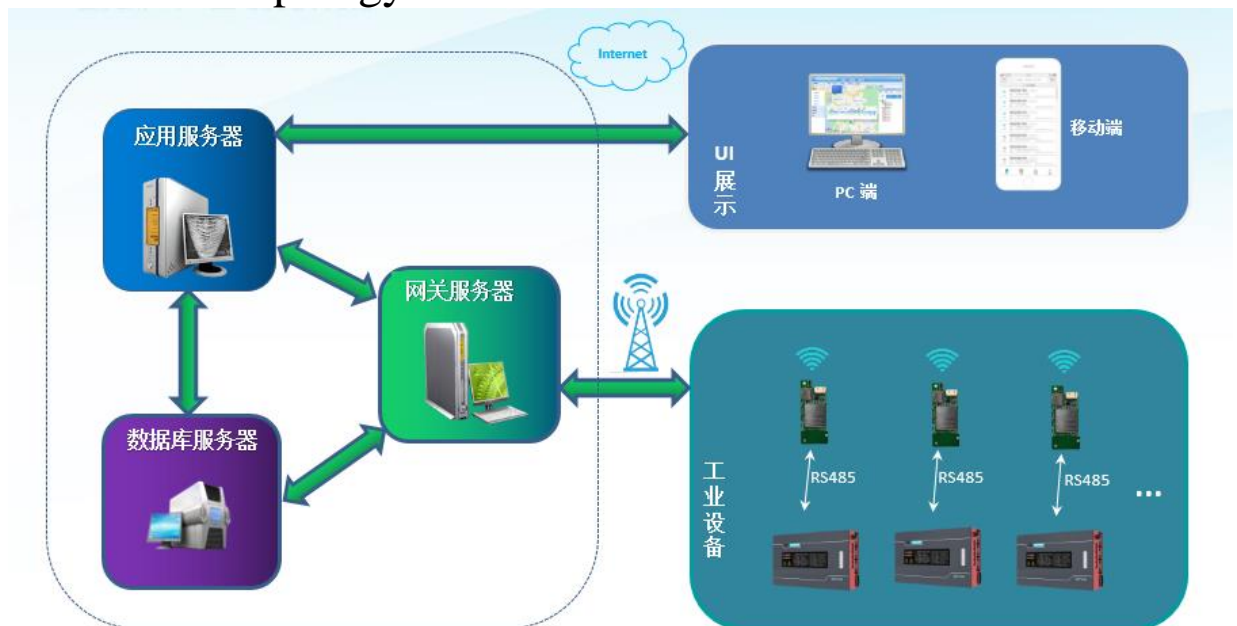
## 1. Introduction



IOT-BMC410 is an IoT wireless data terminal 4G product that uses public cellular network to provide users with wireless long-range secure and reliable data transmission function. The product adopts high-performance industrial-grade wireless module and provides both SPI and RS485 interfaces to realize wireless data communication between field devices and the central cloud server, and easily complete remote data acquisition and control of field devices; the product adopts embedded design, featuring compact size, easy installation, low power consumption and stable performance.

This product has been widely used in M2M industries in the IoT industry chain, such as smart buildings, photovoltaics, air compressors, smart grids, smart transportation, supply chain automation, industrial automation, environmental protection, telemetry, space exploration, agriculture, forestry, water affairs, coal mines, petroleum and petrochemical and other fields.

## 2. Network topology



## 2. Product Features

### Industrial Grade Application Design

- Adopt high-performance industrial grade wireless module;
- Low-power design to minimize power consumption;
- Industrial-grade protection grade design, suitable for industrial control field applications;
- Wide power input (DC 5~24V);

### Stable And Reliable

- The design adopts the soft self-check function to ensure the stability of the system;
- Adopt a complete anti-drop mechanism to ensure that the data terminal is always online;
- RS485 interface built-in 15KV ESD protection;
- SIM/UIM card interface with built-in 15KV ESD protection;
- Power interface built-in overcurrent protection;
- Lightning protection of antenna interface;
- Strong anti-interference ability, can maintain normal operation in harsh environment;

### Standard and easy to use

- Adopt industrial terminal interface for various field applications in industry;
- Provides 1 standard RS485 and 1 SPI interface, which can be directly connected to serial devices;
- Provide powerful background center management software to facilitate device management;
- Intelligent terminal, easy to use, flexible, plug and play;
- Convenient system configuration and maintenance interface;
- Support local software upgrade and remote upgrade and maintenance;

### Powerful

- Support UDP communication, use standard MODBUS protocol for communication with equipment;
- Support positioning function;
- Support SMS function;
- Support remote monitoring function;
- Support remote read and write control function;
- Support anti-disassembly function; (optional)
- Support fault active reporting function;
- Support inverter firmware remote upgrade function;
- Support multiple device access function;
- Support data active reporting function;
- Support offline storage function; (optional)
- Support registration + heartbeat link detection mechanism;
- Support transparent transmission function;
- Support network connection status query;

### 3. Product Specifications

#### Wireless Parameters

| Name                | Content                                    |   |
|---------------------|--|---|
| Working frequency   | LTE FDD: B1,B3,B5,B8                       |   |
|                     | LTE TDD: B34,B39,B40,B41 (2555Mhz-2655Mhz) |   |
|                     | GSM/GPRS/EDGE: 900/1800MHz                 |   |
| Transmission rate   | LTE FDD Rel.13                             | 10Mbps DL/5Mbps UL                                |
|                     | LTE TDD Rel.13                             | 10Mbps DL/5Mbps UL                                |
|                     | GPRS                                       | GPRS:85.6kbps DL/85.6kbps UL(multi-slot class 12) |
| transmit power      | <23dBm                                     |   |
| Receive sensitivity | <-98.5dBm                                  |   |

#### Interface type

| Name                   | Content  |  |
|------------------------|--|--|
| serial port            | 1 * RS485 interface, built-in 15KV ESD protection.<br>The serial port parameters are as follows:<br>Data bits: 5, 6, 7, 8 bits<br>Stop bits: 1, 1.5, 2 bits<br>Parity: no parity, even parity, odd parity<br>Serial port rate: 9600~115200bits/s |  |
| SPI                    | SPI master device, baud rate 1MHz<br>SPI waveform timing:<br>CPOL: low<br>CPHA: 2 edge<br>Voltage Domain: 3.3V   |  |
| indicator light        | Red  | Power Indicator                          |
|                        | Green  | Network status indicator                 |
| Antenna interface      | USS RF Gen I socket  |  |
| SIM/UIM card interface | Micro SIM card   |  |
|                        | USIM 3.0V/1.8V   |  |
| 4G standard            | All Netcom (Mobile, Unicom, Telecom)   |  |
| USB □                  | USB 2.0 x 1  |  |
| button                 | BOOT key   | Module power-on operation mode selection |
|                        | RESET key  | restart the module                       |

### Power supply

| Name                        | Content                     |
|-----------------------------|-----------------------------|
| SPI terminal power supply   | DC 5V                       |
| RS458 terminal power supply | DC 5~24V wide voltage input |

### Power consumption

| Name                      | Content   |
|---------------------------|---|
| Peak power consumption    | DC 5V supply Current 110mA Power consumption 550mW      |
| Average power consumption | DC 5V power supply Current 52mA Power consumption 262mW |

### Physical Characteristics

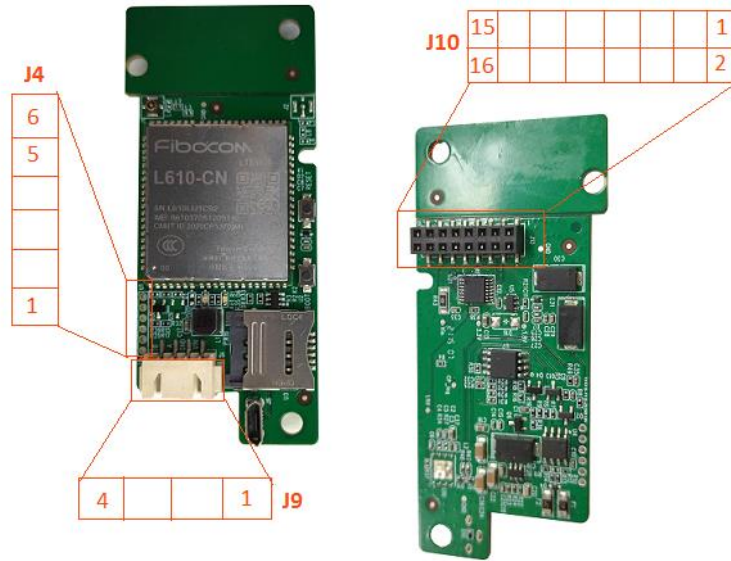
| Name      | Content                                    |
|-----------|--|
| Dimension | 84x37 mm (excluding antenna and mountings) |
| Weight    | Approx. 18.5g                              |

### Other parameters

| Name                  | Content               |
|-----------------------|-----------------------|
| Operating temperature | -20°C - 50°C          |
| Storage temperature   | -20°C - 60°C          |
| Relative Humidity     | 93% (no condensation) |

## 4. Application Interface

The IOT-BMC410 is the master station with two communication interfaces (SPI (3.3V voltage domain) and 485 communication) signals defined as follows:



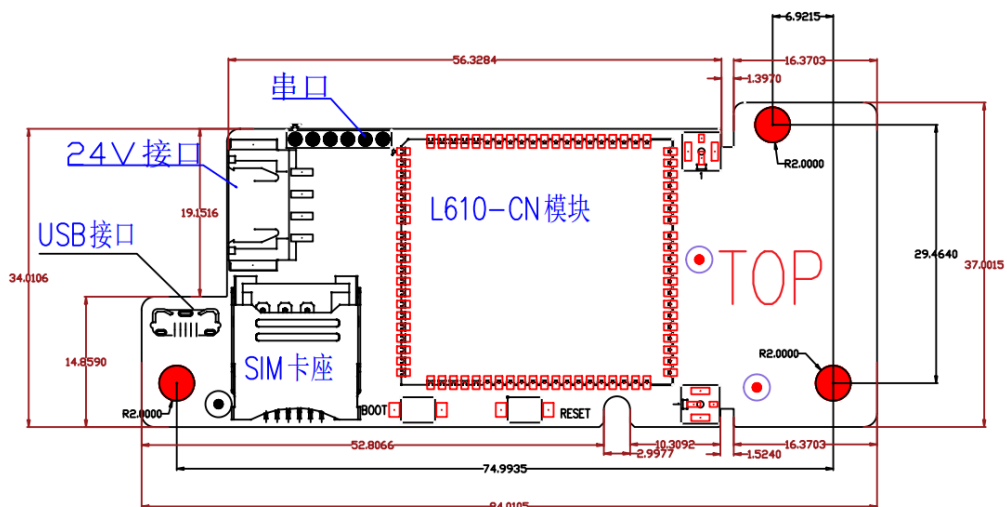
| J9  |            |     |            |
|-----|------------|-----|------------|
| Bit | Definition | Bit | Definition |
| 1   | 24V        | 3   | A+         |
| 2   | GND        | 4   | B-         |

| J4  |                |     |                |
|-----|----------------|-----|----------------|
| Bit | Definition     | Bit | Definition     |
| 1   | V1.8           | 4   | DEBUG_UART_TXD |
| 2   | GND            | 5   | UART1_RXD      |
| 3   | DEBUG_UART_RXD | 6   | UART1_TXD      |

| J10 |            |     |            |
|-----|------------|-----|------------|
| Bit | Definition | Bit | Definition |
| 1   | NC         | 9   | NC         |
| 2   | NC         | 10  | NC         |
| 3   | SPI_CLK    | 11  | NC         |
| 4   | SPI_MOSI   | 12  | 5V         |
| 5   | GND        | 13  | NC         |
| 6   | GND        | 14  | NC         |
| 7   | SPI_STE    | 15  | NC         |
| 8   | SPI_MISO   | 16  | NC         |

## 5. shape and size

### Specification size



### Physical picture

