

Specification

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| File No. | File version | confidential |
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F8414 ZigBee+WCDMA IP MODEM TECHNICAL SPECIFICATION

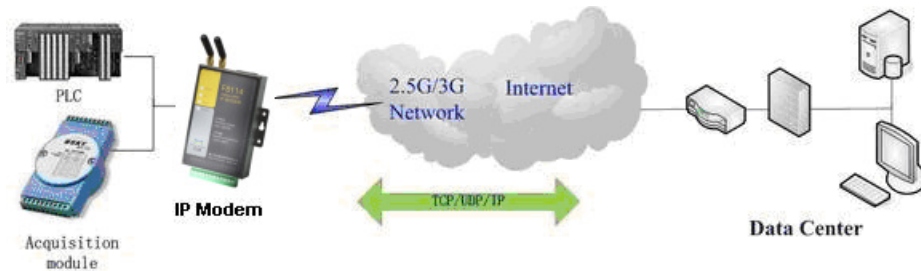


General

F8414 ZigBee+WCDMA IP MODEM is a kind of data terminal device that provides data transfer function by public WCDMA and ZigBee network.

It adopts high-powered industrial 32 bits CPU and embedded real time operating system. It supports RS232, RS485 (or RS422) and ZigBee port that can conveniently and transparently connect one device to a cellular network, allowing you to connect to your existing serial and ZigBee devices with only basic configuration. It has low power consumption states in which the power consumption could be lower than 1mA@12VDC. It has compatible digital I/O channel, ADC, input pulse counter and pulse wave output function.

It has been widely used on M2M fields, such as intelligent transportation, smart grid, industrial automation, telemetry, finance, POS, water supply, environment protection, post, weather, and so on.



Product Feature

Design for Industrial Application

- ◆ High-powered industrial cellular module
- ◆ High-powered industrial ZigBee module
- ◆ High-powered industrial 32 bits CPU
- ◆ Support low power consumption mode, including multi-sleep and trigger modes to reduce the power dissipation farthest
- ◆ Embedded Real Time Clock(RTC) circuit which can realize timing online/offline function
- ◆ Housing: iron, providing IP30 protection
- ◆ Power range: DC 5~35V

Stability and Reliability

- ◆ Support hardware and software WDT

- ◆ Support auto recovery mechanism, including online detect, auto redial when offline to make it always online
- ◆ RS232/RS485/RS422 ports: 15KV ESD protection
- ◆ SIM/UIM port: 15KV ESD protection
- ◆ Power port: reverse-voltage and overvoltage protection
- ◆ Antenna port: lightning protection(optional)

Standard and Convenience

- ◆ Adopt terminal block interface, convenient for industrial application
- ◆ Support standard RS232, RS485(or RS422) and ZigBee port that can connect to serial and ZigBee devices directly

Specification

- ◆ TTL logic level RS232 interface can be customized
- ◆ Support intellectual mode, enter into communication state automatically when powered
- ◆ Provide management software for remote management
- ◆ Support several work modes
- ◆ Convenient configuration and maintenance interface

High-performance

- ◆ Support data transfer by cellular and ZigBee network
- ◆ Support TCP server and support multi TCP client connection(optional)

- ◆ Support double data centers, one main and another backup
- ◆ Supply 5 I/O channels, compatible 2 pulse wave output channels, 2 analog inputs and one pulse input counters.
- ◆ Support multi data centers and it can support 5 data centers at the same time
- ◆ Support multi online trigger ways, including SMS, ring and data. Support link disconnection when timeout
- ◆ Support dynamic domain name(DDNS) and IP access to data center
- ◆ Design with standard TCP/IP protocol stack
- ◆ Support APN/VPDN

Product Specification**Cellular Specification**

| Item | Content |
|-------------------|---|
| Cellular Module | Industrial cellular module |
| Standard and Band | UMTS/WCDMA/HSDPA/HSUPA 850/1900/2100MHz UMTS/WCDMA/HSDPA/HSUPA 850/900/1900/2100MHz(optional) GSM850/900/1800/1900MHz GPRS/EDGE CLASS 12 |
| Bandwidth | HSUPA: 5.76Mbps(上行) / HSDPA: 7.2Mbps(下行)/UMTS: 384Kbps (DL/UL) |
| TX power | <24dBm |
| RX sensitivity | <-109dBm |

ZigBee Specification

| Item | Content |
|--------------------------------|---|
| ZigBee Module | Industrial ZigBee module |
| Standard and Band | IEEE 802.15.4 ISM 2.4 GHz |
| Indoor/Urban Range | 60m 90m(for enhanced version) |
| Outdoor/RF Line-of-Sight Range | 100m 800m(for enhanced version) |
| Transmit Power | 0dBm 22dBm (for enhanced version) |
| Bandwidth | 250Kbps |
| Receiver Sensitivity | -95dBm -104dBm(for enhanced version) |

Specification

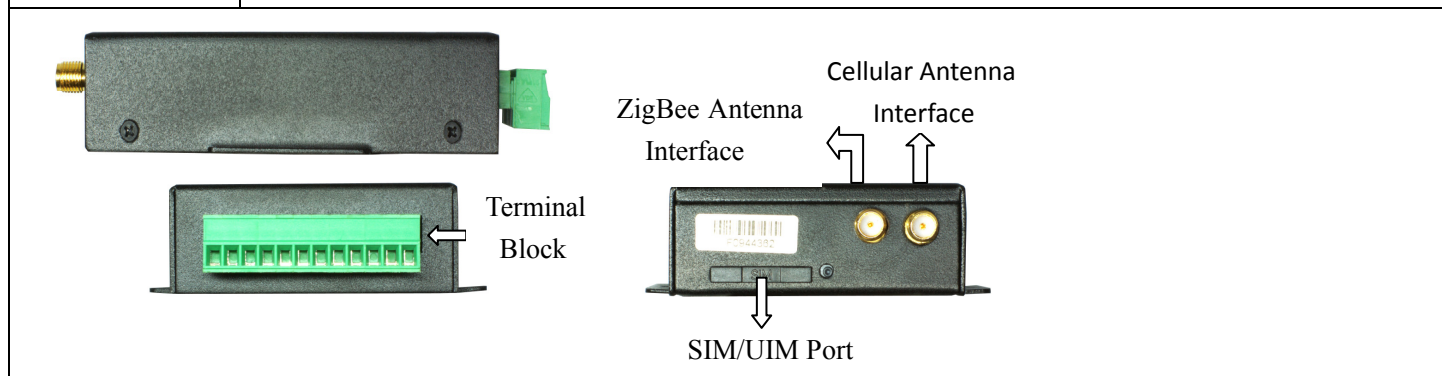
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|--------------------|---|
| Network Topologies | Point-to-Point, Point-to-Multipoint, Peer-to-Peer and Mesh |
| Number of channels | 16 Direct Sequence Channels 15 Direct Sequence Channels (for enhanced version) |
| Channels | 11 to 26 11 to 25 (for enhanced version) |
| Max package size | 1024 Bytes |

Hardware System

| Item | Content |
|-------|------------------------|
| CPU | Industrial 32 bits CPU |
| FLASH | 512KB (Extendable) |
| SRAM | 256KB(Extendable) |

Interface Type

| Item | Content |
|-----------|---|
| Serial | 1 RS232 port and 1 RS485(orRS422) port, 15KV ESD protection Data bits: 5, 6, 7, 8 Stop bits: 1, 1.5, 2 Parity: none, even, odd, space, mark Baud rate: 110~230400 bps |
| Indicator | "Power", "ACT", "Online", "ZigBee" |
| Antenna | Cellular: Standard SMA female interface, 50 ohm, lightning protection(optional) ZigBee: Standard SMA female interface, 50 ohm, lightning protection(optional) |
| SIM/UIM | Standard 3V/1.8V user card interface, 15KV ESD protection |
| Power | Terminal block interface, reverse-voltage and overvoltage protection |



Power Input

| Item | Content |
|----------------|-------------|
| Standard Power | DC 12V/0.5A |
| Power Range | DC 5~35V |

Power Consumption

| Working States | Power Consumption |
|----------------|-------------------|
|----------------|-------------------|

Specification

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|------------------|-------------------------------|
| Communication | 50-90mA@12VDC; 115-165mA@5VDC |
| Standby | 25mA@12VDC; 45mA@5VDC |
| Sleep | 8mA@12VDC; 18mA@5VDC |
| Timing Power Off | 0.6mA@12VDC; 1mA@5VDC |

Physical Characteristics

| Item | Content |
|------------|---------------------------------|
| Housing | Iron, providing IP30 protection |
| Dimensions | 91x58.5x22 mm |
| Weight | 210g |

Environmental Limits

| Item | Content |
|--------------------------------|------------------------|
| Operating Temperature | -25~+65°C (-13~+149°F) |
| Extended Operating Temperature | -30~+75°C (-22~+167°F) |
| Storage Temperature | -40~+85°C (-40~+185°F) |
| Operating Humidity | 95% (unfreezing) |