

Specification

File No.	File version	confidential

F8414 ZigBee+WCDMA IP MODEM TECHNICAL SPECIFICATION

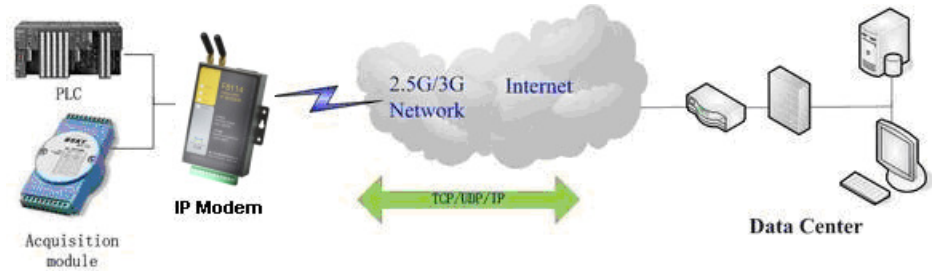


**General**

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**

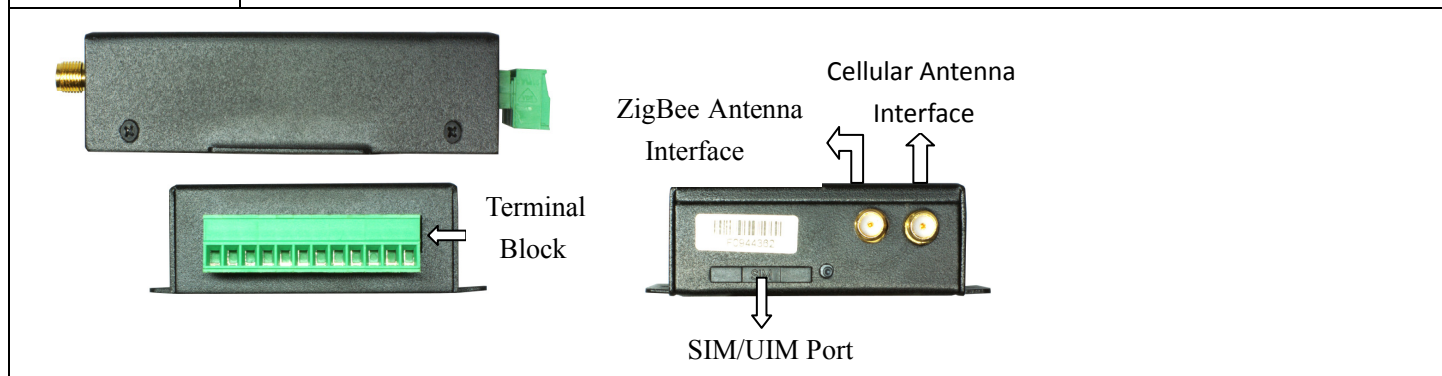
Network Topologies	Point-to-Point, Point-to-Multipoint, Peer-to-Peer and Mesh
Number of channels	16 Direct Sequence Channels 15 Direct Sequence Channels (for enhanced version)
Channels	11 to 26 11 to 25 (for enhanced version)
Max package size	1024 Bytes

**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
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## Specification

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)