

Moxa Industrial Sub-1G Module

ZB-DCU3-T, ZB-PM3-T, ZB-WAN1-T

User's Manual

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Moxa Industrial Sub-1G Module

ZB-DCU3-T, ZB-PM3-T, ZB-WAN1-T

User's Manual

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The following topics are covered in this chapter:

Overview

Features

Specifications

Overview

Moxa Sub-1G module(ZB-DCU3-T, ZB-PM3-T, ZB-WAN1-T) uses ATMEL wireless microcontroller which provides a comprehensive solution with large memory(256KB Flash and 16KB SRAM), high CPU and radio performance and all RF components included.

The module is a range of ultra low power, high performance surface mount modules targeted at Sub-1G networking applications, enabling users to realize products with minimum time to market and at the lowest cost. Sub-1G module(ZB-DCU3-T, ZB-PM3-T, ZB-WAN1-T) can implement networking stacks, such as ZigBee, as well as customer applications

Note:

* The Sub-1G module will implement into Moxa System's DCU and CFE/Protecsa's Smart Meter application. So, it should follow Moxa System's DCU-8620-T specification and CFE/Protecsa AMI specification that provided by CFE company.

Features

- Support SCM setting
- Support upgrade firmware over the AIR
- Support AES-128 compatible encryption
- Support large packets fragmentation
- Support Mesh topology

Specifications

Sub-1G Interface

Internal Memory: 256KB

Flash : 256KB. SRAM: 16KB

RF Standard: IEEE 802.15.4

Frequency Band: 769 ~ 935 MHz

RF Data Rate: 20 ~ 40 Kbps (BPSK modulation)

RF Channel: 10 channel

Tx Power: +10 dBm

Rx sensitivity: -110 dBm

Distance: 900M

Serial Communication Parameters

UART Baud Rate: 50 bps to 115.2K Kbps

Power Requirement

Power consumption: RX : 26 mA TX : 110 mA

Operating Supply Voltage: 3.3 V

Environmental Limits

Operating Temperature: -40 to 75°C (-40 to 167°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -40 to 85°C (-40 to 185°F)

Physical Characteristics

Dimension: ZB-DCU3-T/ZB-WAN1-T (48x30x1.6mm), ZB-PM3-T (45x38x1.6mm)

Standard and Certifications

EMC: CE (EN55022 and EN55024 Class A), FCC Part 15 Subpart B Class A

Reliability

Automatic Reboot Trigger: Built-in WDT (watchdog timer)

MTBF (mean time between failures): Over 10 years

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Getting Started

This chapter covers the module layout, and block diagram, hardware installation of the Sub-1G module. Software installation is covered in the next chapter.

Module Layout

Block Diagram

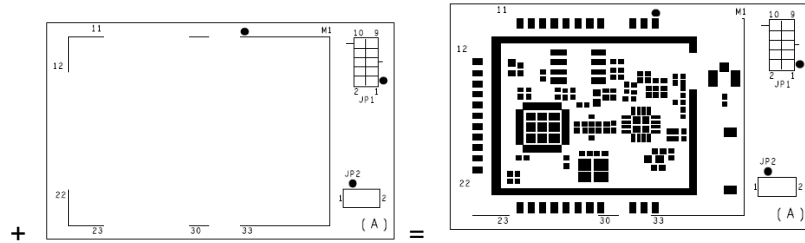
Connector Locations

Hardware Installation

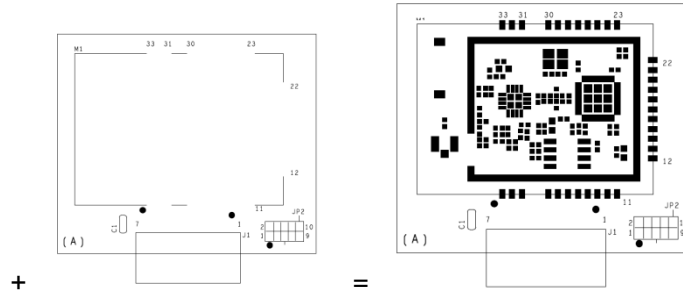
Software Installation

Module Layout

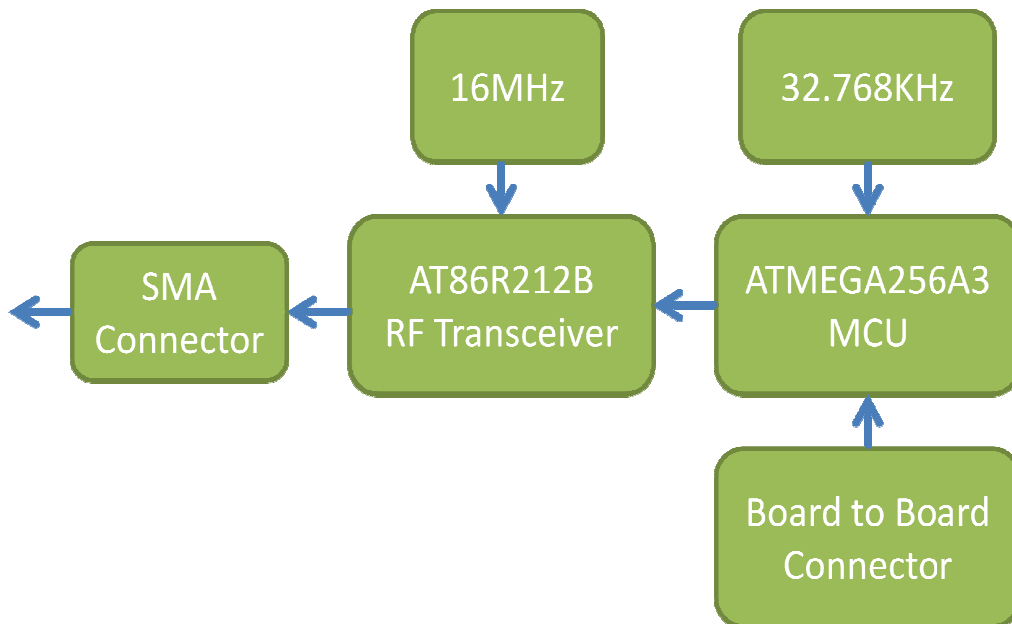
ZB-DCU3-T, ZB-WAN1-T



ZB-PM3-T



Block Diagram



PIN Define

ZB-DCU3-T, ZB-WAN1-T

PIN Number	PIN Function	PIN Number	PIN Function
1	3.3V	2	3.3V
3	GND	4	GND
5	GND	6	GND
7	NC	8	NC
9	NC	10	NC
11	RXD	12	NC
13	TXD	14	NC
15	NC	16	NC
17	NC	18	NC
19	NC	20	RESET

ZB-PM3-T

PIN Number	PIN Function
1	VCC
2	TXD
3	RXD
4	RST
5	NC
6	GND
7	GND

Hardware Installation

The Sub-1G Module can be installed into Moxa DCU-8620-T Embedded Computer system and Power Meter.

Steps for Installation on DCU

1. Attach the WLAN antenna to connector UI.
2. Let Sub-1G Module(ZB-DCU3-T and ZB-WAN1-T) connect to DCU-8620-T.
3. Screw on the Sub-1G Module

Steps for Installation on Power Meter

1. Let Sub-1G Module(ZB-PM3-T) connect to Power Meter.
2. Recover the Power Meter.

Software Installation

After physically installing the Sub-1G module, the module will be recognized on the new system board after the following steps.

Steps for Installation

1. Apply power to the system board.
2. Run DCU-8620-T application program. Make sure it could communicate with Sub-1G module(ZB-WAN1-T and ZB-DCU3-T).
3. Apply power to the Power Meter. Make sure the LED of "Ready" light-on on Power Meter.
4. Run DCU-8620-T application program, make sure it could read data from Power Meter through the air.

Regulatory Statements

Federal Communication Commission Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as **2** conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID: SLE-ZB-PM3-T" or "Contains FCC ID: SLE-ZB-DCU3-T". The grantee's FCC ID can be used only when all FCC compliance requirements are met.

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.