

USER MANUAL
FOR
GRM2SAP1AW
ZIGBEE RF 2.4GHZ MODULE
VERSION 1.0

December 21, 2012

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1 Introduction

This document is intended for using Zigbee RF 2.4GHz board for providing wireless connectivity for automatic meter reading.

2 Features

The following figure gives an overview of Zigbee RF 2.4GHz board.

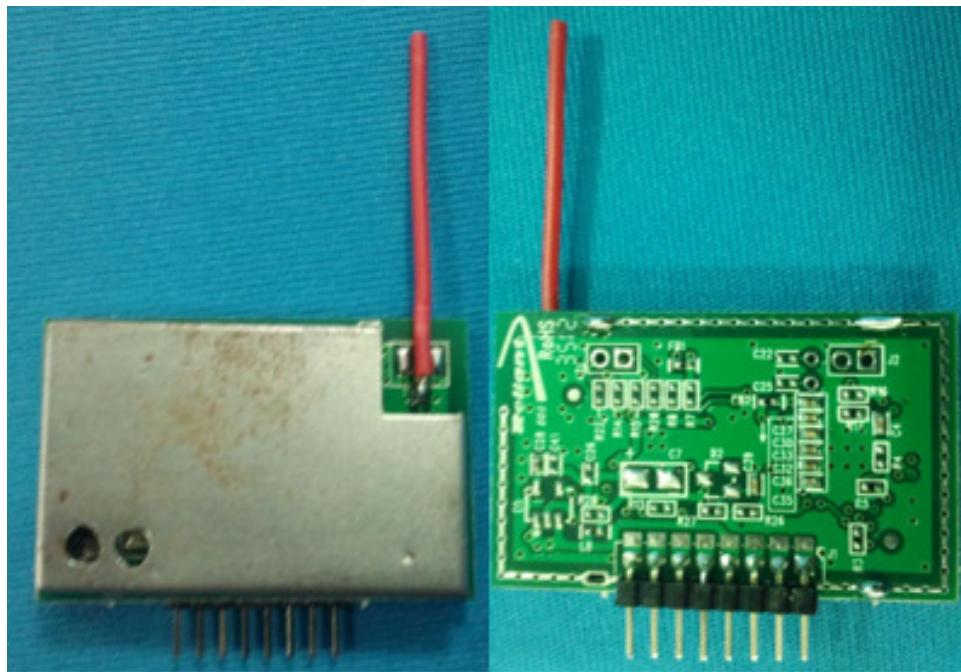


Figure 1: "GRM2SAP1AW" Zigbee RF 2.4GHz module

2.1 Features

1. IEEE 802.15.4 Zigbee compliant
2. Designed for 2.4GHz frequency band
3. TTL UART port for communication with meter
4. On board voltage regulation for 3.6V to 5V power supply
5. Current consumption: Continuous current of 40mA, Peak current of 180mA
6. Antenna: Quarter wavelength monopole wire
7. High RF transmit power of 17dBm
8. Very good RF receiver sensitivity of -98.8dBm
9. RF range of 50 meters with one obstacle

3 Hardware overview

The below section discusses the hardware details of module for connecting it to meter.

3.1 Pin details

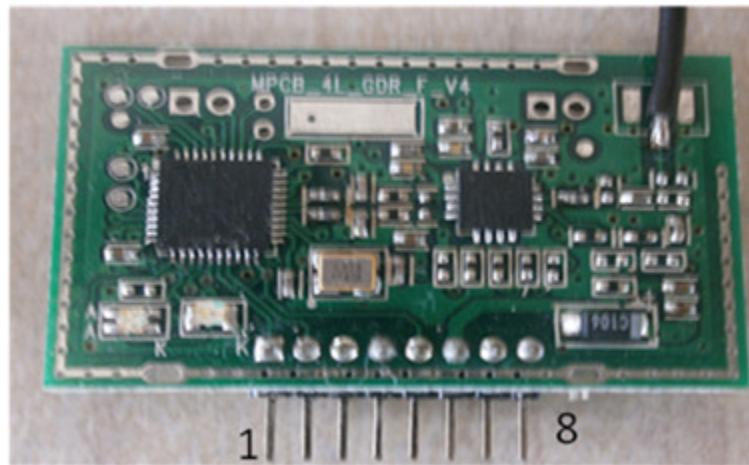


Figure 2: Pin outs of “GRM2SAP1AW” Zigbee RF 2.4GHz module

Sr. No.	Pin No.	Signal	Description
1	1	TXD	Transmit signal of UART communication port for meter
2	2	RXD	Receiver signal of UART communication port for meter
3	3	NC	No connection
4	4	VCC	Power supply input from meter
5	5	NC	No connection
6	6	GND	Ground
7	7	NC	No connection
8	8	NC	No connection

3.2 LED indications

Sr. No.	LED color	Description	Indication
1	LED 1	Power ON LED	Continuously ON
2	LED 2	RF status	Searching network: Continuous Blink Connected in network: Continuous ON

4 GRM2SAP1AW module fitment

The GRM2SAP1AW module will be soldered in the meter using an 8 pin Berg connector of 2.0mm pitch.

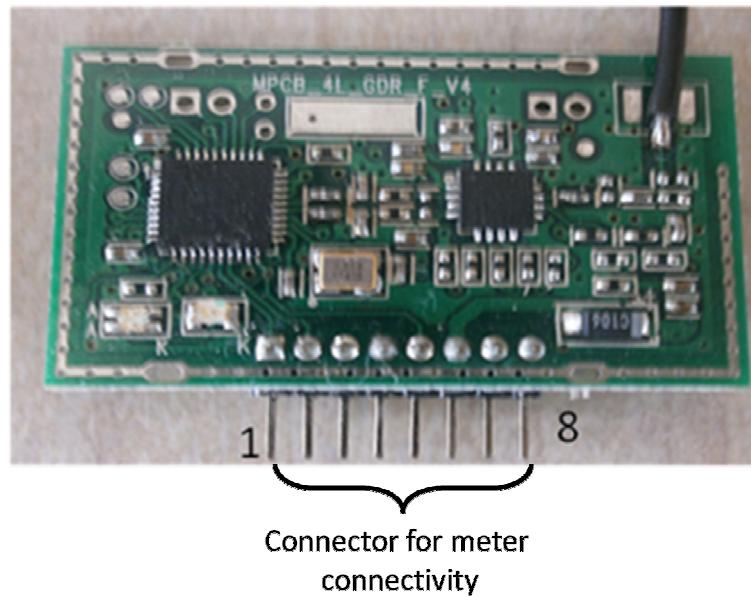


Figure 3: "GRM2SAP1AW" Zigbee RF 2.4GHz module fitment in meter

4.1 Mechanical dimension of module:

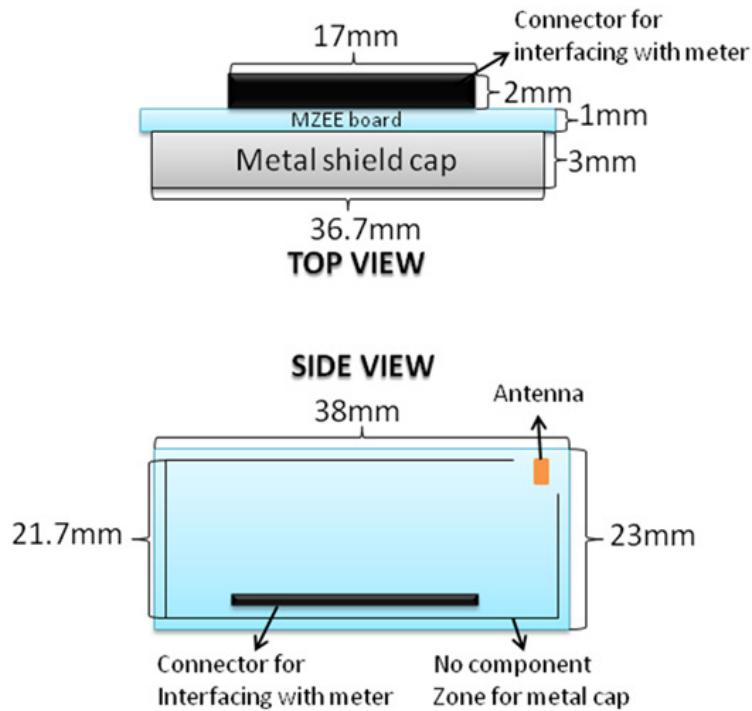


Figure 4: Dimension of "GRM2SAP1AW" Zigbee RF 2.4GHz module

4.2 Instruction for module fitment in meter:

1. Module should be connected to meter by soldering it vertically to meter board with 8 pin, 2mm berg of module.
2. RF antenna of module should bend such that it will be perpendicular to module.

5 FCC user manual compliance statements

This device complies with Part 15 of the FCC rules.

Operation is subject to following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received including interference that may cause undesired operation of this device.

The changes or modifications not expressly approved by the party responsible for Compliance could void the user's authority to operate the equipment.

The antenna of this transmitter must not be co-located or operating in conjunction with any other antenna or transmitters within a host device, except in accordance with FCC multi transmitter product procedures.

The antenna of this transmitter must be installed to provide a separation distance of at least 20 cm from all persons, except if the final host device is tested certified for SAR compliance in accordance with FCC and IC Canada regulations.

5.1 OEM Installer:

1. The Original Equipment Manufacturer (OEM) must ensure that FCC labeling requirements are met. This includes a clearly visible label on the outside of the OEM enclosure specifying contains FCC ID: RGG0000GRM2SAP1AW.
2. In the user manual, final system integrator must ensure that there is no instruction provided to install or remove the transmitter module.
3. The user manual of the final host system must contain the following statements:

This device complies with Part 15 of the FCC rules. Operation is subject to following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received including interference that may cause undesired operation of this device.
4. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
5. The antenna of this transmitter must not be co-located or operating in conjunction with any other antenna or transmitters within a host device, except in accordance with FCC multi transmitter product procedures.
6. The antenna of this transmitter must be installed to provide a separation distance of at least 20 cm from all persons, except if the final host device is tested certified for SAR compliance in accordance with FCC and IC Canada regulations.

Note:

The buyer of the module who will incorporate this module into his host must submit the final product to the manufacturer of the module and the MANUFACTURER OF THE MODULE WILL VERIFY that the product is incorporated in host equipment in a way that is represented by the testing as shown in the test report.