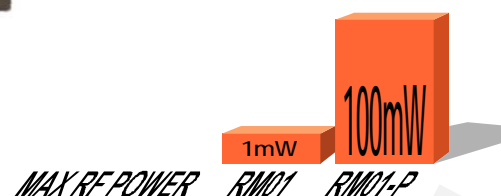


# Radio Modem

## RM01

IEEE 802.15.4 / ZigBee compatible



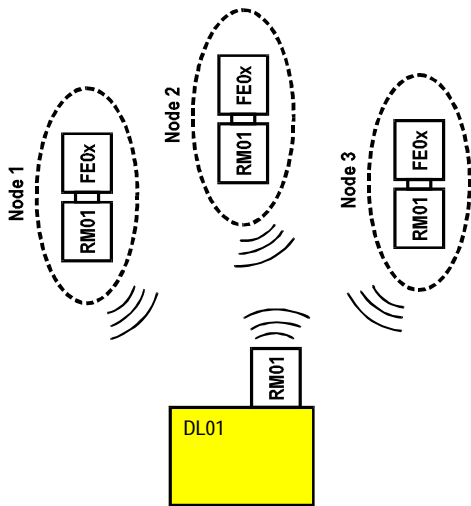
The RM01 is a radio modem module operating in the 2.4 GHz ISM band (Industrial, Scientific & Medical). Thanks to compatibility with the IEEE 802.15.4 and ZigBee protocols, it allows the implementation of low power sensor networks.

The typical outdoor range is 100 meters or over 1 km using the RM01-P model with higher transmission power. Inside the module is a built-in battery that can be used to power supply both the modem and a device of the FE01/02 families. The internal battery is rechargeable and can be fully restored within a couple of hours using a charger compatible with Li-Po batteries or inserting the module into the slot of a datalogger DL01 or DL02.

The complete network comprises one or more nodes equipped with measurement sensors and one coordinator node (datalogger). Each node has a radio modem RM01 operating according to the ZigBee standard; the communication takes place via a star network (denominated DataZig) in which the datalogger is its center. Each node operates with its own unique address and is able to automatically repeat the communication in case of collision or improper reception of the data.

The battery life is optimized by the communication protocol; each measurement node remains active only for the time necessary to transfer data and then is automatically turned off. The frequency of sampling is determined by the front end device (FE01/02).

In order to use a radio modem RM01 with a front end FE01/02 and build a measurement node is sufficient to connect together the two modules through their DB9 connectors. Once made the connection, both devices are powered by the internal modem battery and the node becomes ready to operate.



Example of a wireless network composed by 3 measurement nodes

### Ordering codes:

Code	Part	Description
8802200	RM01	Radio Modem with internal battery Pout max = 1 mW
8802210	RM01-P	Radio Modem with internal battery Pout max = 100 mW



## Technical specifications

### RF POWER MAX

1 mW (0 dBm) RM01

100 mW (20 dBm) RM01-P

(Note: when operating in some countries RM01-P must be configured to operate at a maximum transmit power output level of 10 dBm. Please specify when ordering if you want the power is limited to this value)

### OPERATING FREQUENCY

2.4 GHz (ISM band)

### COMMUNICATION RANGE

25 m (indoor) RM01

45 m (indoor) RM01-P

250 m (outdoor RF line-of-sight range) RM01

1300 m (outdoor RF line-of-sight range) RM01-P

### DATA RATE SERIAL INTERFACE

19200 bps

### POWER SUPPLY

3.3...5.1 Vdc

45 mA (TX), 50 mA (RX) RM01

220 mA (TX), 55 mA (RX) RM01-P

### BATTERY

Li-Po 3.7 V / 145 mAh, rechargeable

Low self-discharge

No memory effect

> 500 charge cycles

### TEMPERATURE RANGE

-20°...50°C working (RH max 85% at 25°C)

-30°...60°C storage

### DIMENSIONS

40 mm x 40 mm x 20 mm (excluding connector)

### WEIGHT

~40 g