

LOW POWER RADIO MODULE FOR THE 2.4 GHz ISM BAND

→ WiMOD - iM221A



radio module iM221A

OVERVIEW

The iM221A – member of the WiMOD family – is a compact, low power radio module for the 2.4 GHz ISM band. It is specially designed for low power driven applications. The module includes a transceiver, a microcontroller with AES coprocessor and a PCB antenna. It is solderable like a SMD component and minimizes the need for an expensive and time-consuming RF development. To find out it's capabilities a demo board and sample applications are available. For a firmware update a bootloading functionality exists. With the iM820A we provide a pin-compatible module for 868 MHz.

FEATURES:

- Compact radio module for 2.4 GHz
- Low power consumption, wake on radio (WOR) functionality
- 128-bit AES security coprocessor
- RF data rate from 2.4 kbps to 500 kbps
- Digital RSSI¹ to evaluate the radio link quality
- UART and SPI interface
- Sample applications available
- Bootloading functionality for firmware updates
- Software and pin-compatible to the iM820A
- Small footprint, solderable like a SMD component
- Integrated antenna or 50 Ohm pad

APPLICATIONS:

- Security & access systems (wireless locking system)
- Battery driven wireless sensor and actor systems
- Remote control
- Home-, Building-, Industrial Automation
- Metering systems (data logging)
- ...

The wide range of capabilities and functionalities provided by the iM221A can be tested by using our demo board.

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→ Technical Data

General

Operating voltage:	2 V to 3.6 V, typ. 3.0 V
Supply current:	typ. 23 mA (receive) typ. 26 mA (transmit @ 0 dBm) typ. 5 mA (μ C active, transceiver off) typ. 1 μ A (power down)
Dimension (LxWxH):	approx. 20x25x5 mm
Operating temperature:	-10°C to +60°C

Radio

Frequency range:	2401 MHz to 2482 MHz
Channel spacing:	500 kHz
Data rate:	2.4 kbps to 500 kbps
Modulation:	GFSK, 2-FSK
Output power:	typ. 0 dBm (50 Ω pad)
Receiver sensitivity:	typ. -101 dBm @ 1 % PER ¹ & 2.4 kbps typ. -80 dBm @ 1 % PER & 500 kbps
Antenna:	integrated PCB antenna or optional 50 Ω pad
Range (line of sight):	up to 600 m

Interface

IO Ports:	8 general purpose IO (analog/digital) 9 digital IO 1 analog reference
UART:	up to 230.4 kBaud
SPI:	

Certifications

Pre-qualified to ETSI EN 300 440
Lead-free and RoHS compliant

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¹ PER = Packet error rate, 20 bytes packet length