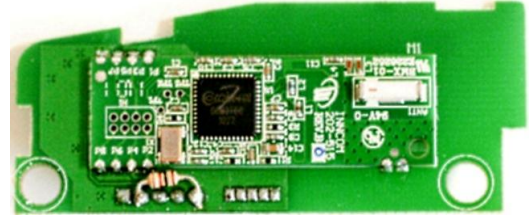


INNCOM I5RF Radio Datasheet

Overview

The INNCOM I5RF radio modules provide the INNCOM e528 with a common radio platform. The I5RF radios are used in point to point in-room networks and in mesh network topologies at 2.4 GHz.



Features

- Footprint compatible with the IR5 eye
- Adapts to an e528 or an e528.4G
- 2.4Ghz IEEE 802.15.4 compliant RF transceiver (CC2430 radio core)
- Low power and long range variants available
- Industrial temperature ratings 0–65 C°
- FCC Part 15C

Table 1 INNCOM I5RF Radio Specifications

Performance	I5RF
RF Data Rate	250kbps
Antenna Type	SMT
Indoor Range	70ft
Outdoor/ RF line-of-sight range	540ft
Transmit Power	1mW (+0dBm)
Receive Sensitivity	-94.6dBm
Frequency Band	2.4Ghz
Encryption	AES-128
Protocol	802.15.4
Frequency Channels	11-26
Dimensions	28mm x 38mm
Bandwidth Utilization	0.05%

Performing an RF link quality test using two identical e528.3G thermostats containing radios as defined in tables 2 and 3 determined the ranges. A 95% overall link quality defined the maximum distance threshold. Outdoor range tests were conducted in a low noise, free air environment. Indoor ranges were tested for reference (ambient environmental noise floor and building construction materials affect indoor ranges).

Secondary Range Performance Data

The following table describes the indoor and outdoor ranges recorded with the TXR series of 2.4Ghz transceivers.

Table 2 INNCOM I5RF Radio Indoor Range

Transmitter	Receiver	Receiver	Receiver
	02-9994	02-9894	02-9927
02-9994	70ft (21m)	73ft (22m)	98ft (30m)

Table 3 INNCOM I5RF Radio Outdoor Range

Transmitter	Receiver	Receiver	Receiver
	02-9994	02-9894	02-9927
02-9994	540ft (165m)	570ft (174m)	654ft (199m)
02-9894	640ft (195m)	980ft+ (299m+)	768ft (234m)
02-9927	550ft (168m)	620ft (189m)	980ft+ (299m+)
202-515 (I5RF)	540ft (165m)	-	-

Table 4 INNCOM I5RF Operating Conditions

Parameter	Min	Max	Unit
Operating ambient temperature range	-40	85	°C
Operating supply voltage	2.0	3.6	V

The supply pins to the radio must be driven by the 1.8VDC on-chip voltage regulator.

Table 5 INNCOM I5RF Safety / Regulatory

Agency Approval	Specification	Status
FCC	15.249	202-515 Certified under FCC ID: GTC202515I5RF

Only approved antennas can be used with this module. Additional antennas would require an application filing with the FCC in order to have them approved. Antennas which have either a higher gain or are of a different type may not be used, with this module, unless additional certification is obtained.

"All Final Products containing the INNCOM I5RF 202-515 module must contain the following statements on their label:"

This device contains FCC ID: **GTC202515I5RF**. The I5RF radio is only to be used in INNCOM products.

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 All Final Products containing the INNCOM

I5RF 202-515 should keep a safe distance of at least 20cm from all persons. The final product cannot be co-located with any other antenna or transmitter.

Modifications not expressly approved by INNCOM International Inc. could void the user's authority to operate the equipment.

Ordering Information

Part Number	Model Number	Assembly
202-515	Radio Module	0dB radio PCBA
213-515	I5F Radio Module Kit	0dB radio with e528 and e528.4G assembly kit

Document Revision History

Revision	Date Issued	Reason
0.1	3-March-2011	FCC Reports for I5RF Module