

INNCOM PC-502.2 Datasheet

Overview

The INNCOM PC-502.2 wall mounted module can be used to expand the range of a Layer-2 RF network or provide the protocol gateway from INNCOM S5-bus to Layer-2 RF protocol.

In the Layer-2.2 802.15.4 Zigbee 2006 mesh network, the PC-502.2 is designed to patch areas within the network where signal strength is lost due to distance limitations or interference. It also serves to create multiple pathways, increasing the redundancy of the mesh communications to ensure maximum network reliability.

Features

- Small wall mountable form factor
- 2.4Ghz IEEE 802.15.4 compliant RF transceiver (CC2430 radio core)
- Medium and long range variants available
- Industrial temperature ratings 0-65 degrees C
- FCC Part 15b listed



Figure 1 PC-502.2

Specification

| Parameter | PC-502.2 |
|--|---|
| RF Data Rate | 250kbps |
| Antenna Type | SMT |
| Indoor Range | 100ft |
| Outdoor/ RF line-of-sight range | 1000ft+ |
| Transmit Power | 10dBm |
| Receive Sensitivity | -94.6dBm |
| Frequency Band | 2.405-2.475GHz |
| Encryption | AES-128 |
| Protocol | 802.15.4 |
| Frequency Channels | 15 |
| Input Voltage | 12VDC |
| Current Consumption | 100mA (Peak) |
| Operating Ambient Temperature | 0-40°C, 0-95%RH |
| LED /Switch | Reset indication, blinks when unit is connected to an RF network. Rapid blink during binding association. |

Ranges are determined by performing an RF link quality test using e528.3G thermostats as the transmitter and the PC-502.2 as the receiver. The maximum distance threshold is based on a 95% overall link quality. Outdoor ranges were conducted in a low noise, free air environment. Indoor ranges are for reference. Indoor ranges are affected by the ambient environmental noise floor and building construction materials.

Network Topology

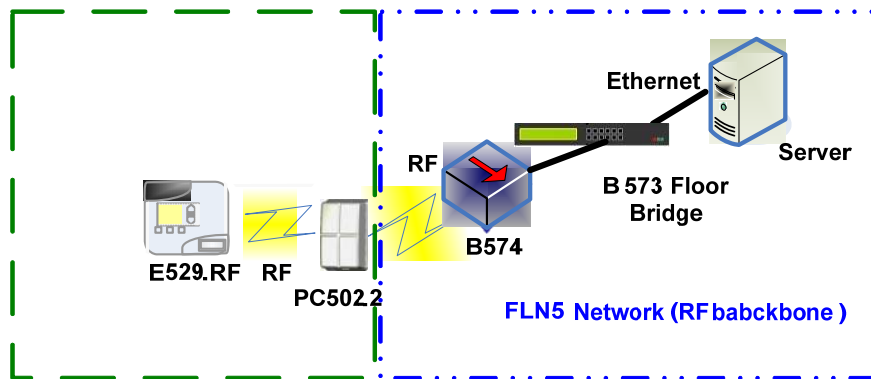


Figure 2 PC-502 Layer-2 Topology

In this application, the PC-502.2 in participation with the e529.RF provides the Layer-1 to Layer-2 RF Bridge where both wireless in-room and wireless back-end networking are required. The PC-502.2 can also patch areas within the Layer-2 network where signal strength is lost due to distance limitations or interference.

Commissioning

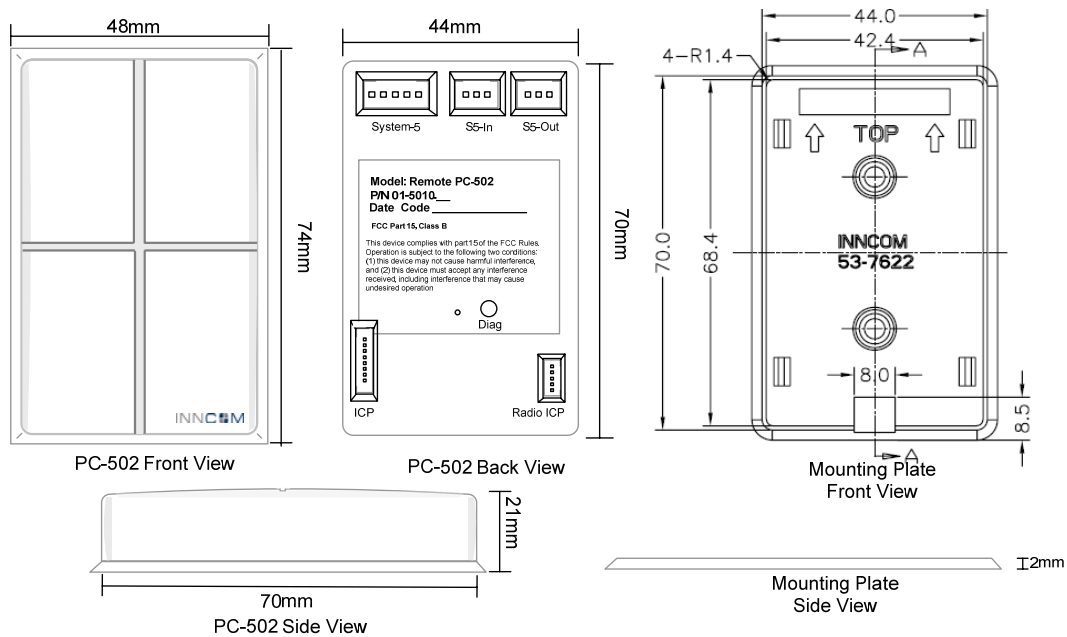
The PC-502.2 must be bound to the controlling device (e.g., the E529.RF in Figure 2 above) to receive configuration information. On the E529.RF in service mode

- Open the **run** menu and press Off/Auto
- Set the value to 3 and press Display
- When Display is pressed, the e529.RF sends Layer-2 configurations to the PC-502.2. (This function does not offer any feedback on the screen so it is recommended that the Display button be pressed 3 or 4 times to ensure configuration.)

Safety/Regulatory

| Parameter | Condition | Status |
|------------|-----------|---|
| FCC | Part 15b | 02-9994 is FCC listed. 02-9894, and 02-9927 FCC listings are pending. |

PC-502.2 Dimensions



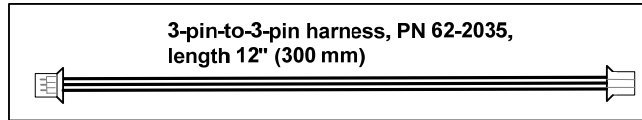
Header and Connections

H3 (In System Programming)

| Pin | Function | Type | Min | Max |
|------------|-------------|------|-----|-----|
| 1-8 | Programming | - | - | - |

H4 / H5 (S5-bus In/Out)

| Pin | Function | Type | Min | Max |
|----------------|---------------|------|-------|-------|
| 1-GND | Common | - | - | - |
| 2-12VDC | Input voltage | In | 11.75 | 12.25 |



| | | | |
|-----------------|------------|--------|---|
| 3-S5-bus | Multi-drop | In/Out | - |
|-----------------|------------|--------|---|

H6 (System-5)

| Pin | Function | Type | Min | Max |
|-----------------|---------------|--------|-------|-------|
| 1-GND | Common | - | - | - |
| 2-12VDC | Input voltage | In | 11.75 | 12.25 |
| 3-S5-bus | Multi-drop | In/Out | - | - |
| 4-InOut1 | TTL | In/Out | - | - |
| 5-InOut2 | TTL | In/Out | - | - |

3-pin to 3-pin harness for 12VDC and S5bus connection

Ordering Information

| Part Number | OPN | Description |
|------------------|----------|--------------------------------|
| 01-5010.2 | PC-502.2 | PC-502 with 02-9894 20db Radio |

Document Revision History

| Revision | Date Issued | Reason |
|----------|-------------|-------------------------------|
| 0.1 | 27-Mar-2009 | FCC for PC-502 |
| 0.2 | 31-Mar-2009 | Edited for content and format |
| 1.0 | 07-Apr-2009 | Released |

Warning

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

IMPORTANT NOTE:

FCC 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 20 cm between the radiator & your body

Note: 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 or more 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.