

Product Brief – JN5121-EK005

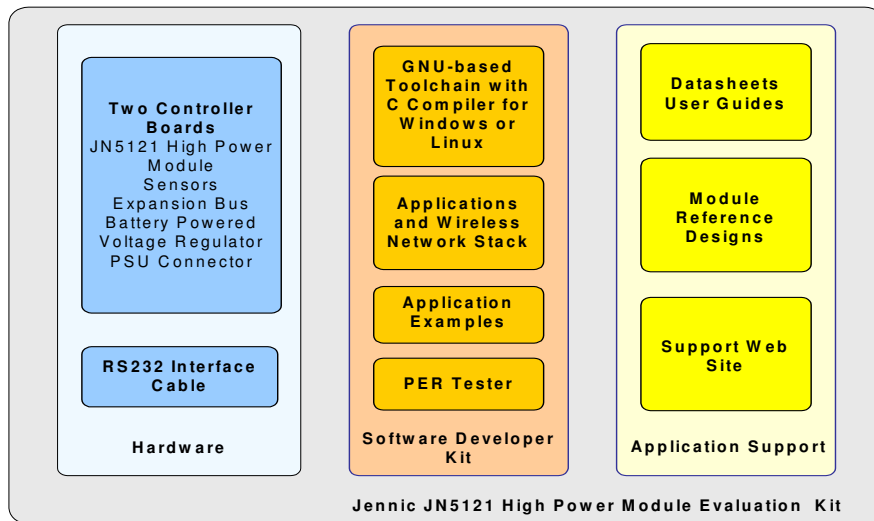
IEEE802.15.4 High Power Module Evaluation Kit

Overview

Jennic's IEEE802.15.4 high power module evaluation kit provides a platform for evaluation of the increased range and performance available with the high power version of the JN5121 module. The platform is ideally suited for performing range tests and site surveys. The EK005 kit is delivered with Packet Error Rate test software for system performance evaluation. Additional software includes a wireless UART enabling a long-range wireless serial communication link between two pieces of equipment to be set up.

The kit features two controller boards, each with a high-power JN5121-000-M02 module in place of the standard module. There is the option for connection to an external power supply. An RS232 interface enables connection to a PC for flash programming and serial communications during debug and test.

Block Diagram



Features:

JN5121-EK005: High power module evaluation kit

- Controller board (2 off)
- JN5121-000-M02 High power module with SMA connector
- 2.4GHz IEEE802.15.4 compliant
- Onboard temperature, light level and humidity sensors
- RS232 connection to PC
- JN5121 IO expansion port
- 128x64 pixel bitmapped LCD
- On board voltage regulation, allows for an external PSU to provide power

Features: Module

- JN5121-000-M02 High power module with SMA connector
- 2.4GHz IEEE802.15.4 compliant
- 2.7 - 3.6V operation
- Sleep current (with active sleep timer) < 14µA
- 18.5dBm power with LNA and SMA connector
- > 4km range
- Receiver sensitivity -93dBm
 - o TX current < 120mA
 - o RX current < 55mA
 - o 18x40mm

Features: Software

- Packet Error Rate tester
- Long range wireless serial link

Benefits

- Demonstrates high power JN5121 module
- Increased range - over 4km achieved
- Code developed on standard platform can be readily migrated for high power operation
- Module based architecture provides low-risk route to manufacture

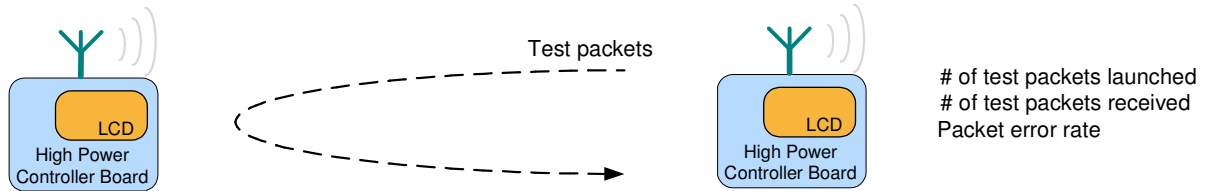
Applications

- Robust and secure low power wireless applications
- Wireless sensor networks, particularly IEEE802.15.4 / ZigBee systems
- Home and commercial building automation
- Home networks
- Toys and gaming peripherals
- Industrial systems
- Telemetry and utilities (e.g. AMR)

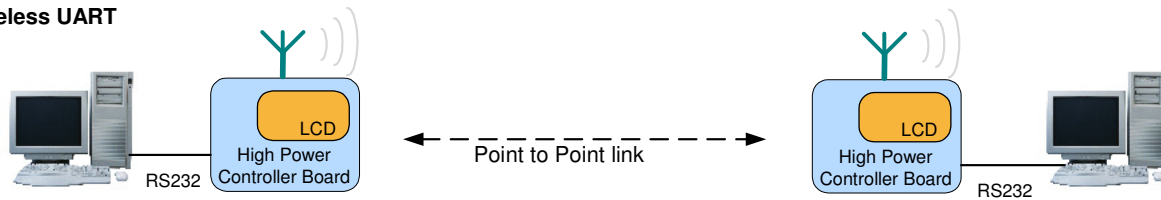
Applications

Two demonstration applications are included; the first is a packet error rate tester which may be used to estimate quality of a link. The second is a wireless UART for providing an RS232 connection between two pieces of equipment.

a) PER Tester



b) Wireless UART



Evaluation Kits

Jennic provides a range of evaluation kits to enable the user to quickly, easily and effectively develop applications for wireless sensor networks. A network starter kit (JN5121-EK003) with 3 sensor boards provides a low cost entry route, whilst a full evaluation kit (JN5121-EK000) can allow development of applications using Mesh network stacks and includes a controller board, four sensor boards and an RS232 serial interface cable to connect to the PC-based development platform

A software development kit includes a complete suite of tools for rapid application development and debug, including C compiler, assembler, debugger and flash programmer. The tool chain is based upon the mature GNU tools and runs on either Linux or Windows platforms. A series of libraries provide developers with access to the peripheral functions of the JN5121 wireless microcontroller through a simple application programming interface. Applications developed on this kit can be directly loaded into the flash memory of the standard range of JN5121 modules and so production solutions may be implemented quickly, easily and with low-risk.

Wireless Protocol Stacks

As standard an IEEE802.15.4 compliant protocol stack library is provided, this is suitable for point-to-point, star and tree networks. Libraries are also available for mesh network stacks such as ZigBee and IPv6.