

## Product Brief – JN5139-EK020

### IEEE802.15.4/JenNet Starter Kit

#### Overview

Jennic's IEEE802.15.4/JenNet starter kit provides an easy-to-use, low cost route for the evaluation and development of Wireless Sensor Network products. The kit is targeted at developers with little experience of low power wireless connectivity. The JenNet wireless networking stack provides a robust and reliable solution for most applications. It can be accessed either directly through the Jenie C API for true single chip operation, or via the AT-Jenie serial command API for use with a PC or host processor. The kit contains three network nodes pre-programmed with demonstration examples: i) a simple networking demonstration enabling users to evaluate simple wireless connectivity, ii) wireless control using a PC and the AT-Jenie API and iii) an extended demonstration showing a simple temperature sensing application and RF performance testing such as signal strength and Packet Error Rate. The starter kit can be expanded with additional nodes to develop a full JenNet based network.

#### Kit Hardware



#### Benefits

- Low cost evaluation platform for Wireless Sensor Networks
- Powerful JenNet networking stack
- Easy to use AT-Jenie interface
- 3 Nodes allow simple network formation with coordinator, router and end device node types
- Simple and quick application development and demonstration with PC or host processor

#### Applications

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

#### Hardware Features

- 3 Sensor Boards
  - JN5139 wireless microcontroller
  - Module with integrated ceramic antenna
  - 32-bit RISC CPU
  - Low power consumption for years of battery life
  - 96kB RAM for network stack and application
  - RS232 connection to PC
  - JN5139 IO expansion port
  - Pre-configured network
    - One end device
    - Two Router / coordinator devices

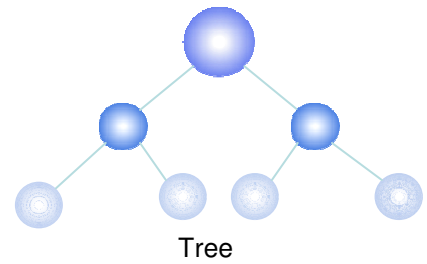
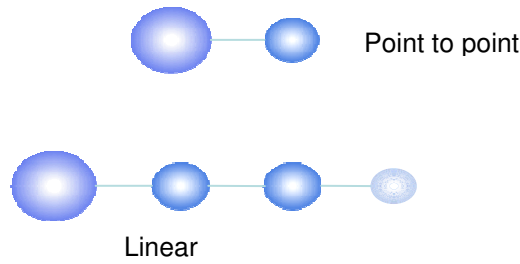
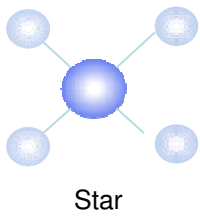
#### Software Features

- JenNet networking stack
  - Small memory footprint
  - Point-to-point, star and tree networks
  - Self healing functionality
  - Supports definition and binding of services
  - Easy to use Jenie C API
- AT-Jenie
  - Serial command interface to network and peripherals
- IEEE802.15.4 MAC
  - For simple star or point to point networks
- Free, unlimited software developer kit
- Demonstration applications
  - Simple networking demo
  - Wireless UART
  - Packet Error Rate tester
  - RF Signal strength meter

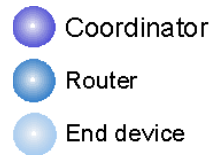
#### Kit Contents

- 3 sensor nodes, Batteries, 2 USB Cables
- CD with documentation, tools and binaries

## JenNet Networking Topologies



- Small stack memory footprint (Coordinator <30kB, Router <30kB, End device <16kB)
- Fast response times between two adjacent nodes - less than 2ms typ.
- Reliable and robust communication, ensured by end-to-end acknowledgements for sent messages
- Automatic route formation and repair
- Low power operation for battery powered sleeping end devices
- 128-bit AES encryption of data
- Automatic network parameter selection during start-up, e.g. network identifier (PAN ID)



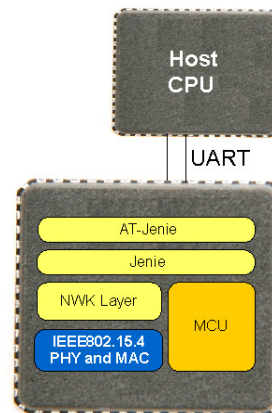
## AT-Jenie Application Example:

### Wireless Co-Processor

- Simplified serial command interface over UART
- Very easy to add wireless to an existing system

#### Usage examples:

- Modules serve as 'Wireless Dongles', to easily add wireless to existing products



Customer application runs on an existing host CPU or PC, Jennic device acts as "wireless dongle"

## Links

Please check our website [www.jennic.com](http://www.jennic.com) for additional information on wireless microcontroller chips, modules and networking stacks. In addition to product literature, there are many application notes detailing how to design successful end products using Jennic devices.