

Lime CM09 Starter & Development Kit

Build your own high-performance wireless mesh application

v1.3

Green Peak



Jump-start your wireless sensor application with the GreenPeak Starter and Development Kits

GreenPeak takes great pride in offering customers a seamless and effortless integration of wireless capability into equipment for building automation, safety and security, asset management and health care.

GreenPeak provides a complete, high-quality design environment for engineers. A wide variety of tools help to simplify the programming and significantly reduce the time-to-market. The GreenPeak kits include software, reference designs, cables and programming software.

GreenPeak Starter Kit

A 5-node kit for those who are seriously evaluating wireless sensor applications and who wish to gain more insight in mesh capabilities (multi-hop, self-forming, self-healing) with standard-off-the-shelf products.

GreenPeak Development Kit Enterprise

A 10 node kit allowing to in-design wireless modules in applications and to develop own applications onto the wireless module.



Applications

The GreenPeak technology for wireless sensor networks can be integrated in a wide variety of applications requiring ultra low power consumption, high reliability and high performance.

- ▶ Safety and security systems
- ▶ Building and home automation
- ▶ Health care applications
- ▶ Asset management
- ▶ Industrial automation
- ▶ Lighting control
- ▶ Production automation
- ▶ Equipment supervision
- ▶ Asset management
- ▶ Warehouse management
- ▶ Gas detection
- ▶ Process control
- ▶ Energy management
- ▶ Inventory Tracking
- ▶ Emergency lighting
- ▶ Access control
- ▶ Indoor lighting
- ▶ Outdoor lighting
- ▶ Fire alarm
- ▶ HVAC
- ▶ Telemetry
- ▶ Meter Reading

Integrate the GreenPeak Lime modules with your electronics to build reliable and low-cost applications.



GreenPeak Starter Kit

Build your own high-performance wireless mesh application

Jump-start your wireless sensor application with the GreenPeak Starter Kit

The powerful concept of wireless mesh networking is available as a jump-start kit. Without engaging in expensive and complex development projects, you can link sensors to the GreenPeak Starter Kit and get the look and feel of mesh networking at work in your own environment.

In the mesh network the wireless nodes act as repeaters for other wireless nodes. Messages hop across several nodes to reach the final destination, even if the physical distance is far longer than what a single link could span. Mesh networking features robustness and reliability as the best route from source to destination is chosen.

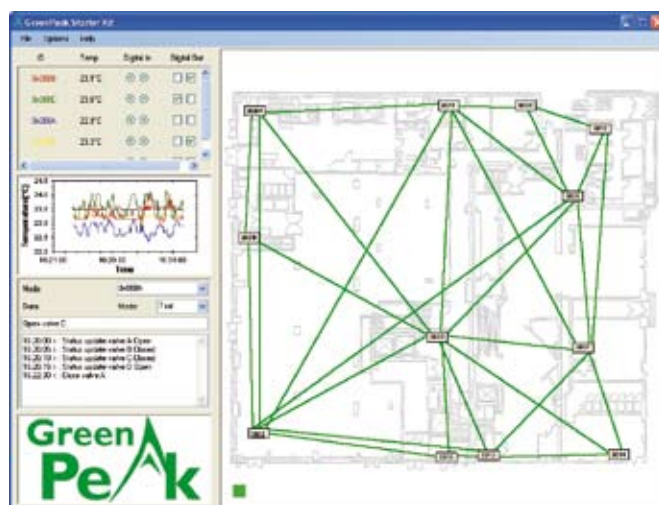
The Starter Kit is based on GreenPeak's successful Lime CM09 module and provides mesh networking, long range, sensor interfaces and a software API.

The Starter Kit comes with everything that allows you to rapidly evaluate if your application can benefit from wireless sensor networks.

Snapshot of example control panel application, showing graphical representation of a mesh network of nodes, with temperature readings, digital inputs and digital outputs.

7 Good reasons to start with the GreenPeak Starter Kit

- 1 Set up a self-forming, self-healing wireless mesh network with the five included wireless nodes in virtually no time
- 2 Use the software API to control and monitor sensors in the wireless network
- 3 Drag & drop the network visualization software component (the JadeMonitor) to receive a real-time visual on the network status and the strength of the links
- 4 Use the demo software application (source code) to build your own custom PC application in 1 hour (!)
- 5 Benefit from the built in radio power amplifier for extended wireless range
- 6 Activate the included test sensors to get meaningful readings in real-time
- 7 Get acquainted with the system with the included documentation



GreenPeak Development Kit

Build your own high-performance wireless mesh application



Build a full-fledged wireless sensor solution with the Development Kit

GreenPeak's leading wireless mesh networking technology is also available in development kit. Without detailed knowledge about the inner workings of the mesh network you can link your sensors to the Development Kit. With the Embedded API you can develop your own embedded sensor application, co-located in the mesh network microcontroller.

The **Development Kit Enterprise** allows embedded programming or interfacing via serial command set from an external processor.

10 Good reasons to start with the GreenPeak Development Kit Enterprise

- 1 Set up a self-forming, self-healing wireless mesh network with the 10 wireless nodes in no time
- 2 Use the Embedded API to develop your embedded sensor application on top of the mesh networking stack
- 3 Use the JadeConfigurator or JadeCreator to configure and update the firmware of your modules
- 4 Drag & drop the network visualization software component (the JadeMonitor) to receive a real-time visual on the network status & strength of the links
- 5 Use the demo software application (source code) to build your own custom application in 1 hour
- 6 Benefit from the built in power amplifier for 3 times the range of conventional wireless modules
- 7 Activate the included test sensors to get meaningful readings in real-time
- 8 Get acquainted with the system with the included documentation
- 9 Scale up the number of nodes in the network as your project grows
- 10 Receive one month of free engineering support

In the spotlight: the Jade Tools

- ▶ **JadeConfigurator:** this GUI application uses the boot loader API to set the PANID, the channel and to reprogram the node. The configuration and the reprogramming is done via a serial connection to the device.
- ▶ **JadeCreator:** GUI application which allows programming (single-hop) all nodes in a star network with different firmware versions; allows updating EEPROM settings (PANID, channels) in the development network
- ▶ **PC API:** implemented as a C# DLL, the PC API can be used to send application messages/commands to the connected node via the serial port
- ▶ **Embedded API:** the embedded API contains a set of functions prototypes allowing the complete control over a PeakNet network
- ▶ **JadeMonitor:** software component to display a PeakNet network
- ▶ **Energy Budget Calculator:** tool to calculate the average energy needed for a specified network configuration
- ▶ **JadeLogger:** console application that interprets the logging messages in the PeakNet protocol. Messages are displayed in the console and are written to a file. The console application allows sending commands to the connected device.





Starter & Development Kit

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	GreenPeak Starter Kit	Development Kit Enterprise
Hardware		
Coordinator	1 Coordinator	1 Coordinator
Sensor nodes	4 Sensor Nodes	9 Sensor Nodes
Gateway interface	RS232	RS232 & TCP/IP
Test sensor	Integrated digital I/O temperature	Integrated digital I/O temperature
Battery pack	Standard included	Standard included
Power adapter	—	Included for gateway
Cables	1 DB9 to pinheader	1 DB9 male/female 1 DB9 to pinheader UTP Cat. 5
Software		
PeakNet Z stack	All routers, no end devices	✓
PeakNet LPR stack	✓	✓
Extendable with more modules	—	✓
Serial command set	—	✓
Tools		
Software kit	PC API, Starter Kit GUI, source demo application	Embedded API, Jade Monitor, source demo application
JadeConfigurator	Serial	Serial
JadeCreator	—	✓
JTag Programmer	—	✓
Embedded Software Development Kit	—	✓
Energy Budget Calculator	—	✓
JadeLogger	—	✓
Order References		
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