

MeshScape™ 4.0 916 MHz Product Family

The MeshScape™ 916 MHz product family (5409) delivers a complete wireless sensor networking system on embeddable hardware modules using the 916 MHz ISM radio band for license-free operation in North America.

Features At a Glance

- Supports star, mesh, and star-mesh network topologies
- Low-power operation
- Compact size
- Four 8-bit analog input channels and four digital I/O channels or serial I/O port (end node and mesh node)
- RS-232 or RS-485 physical interfaces (gateway)
- Data rates up to 57 kbps
- Samples rates up to 10 Hz
- Typical 20 meter (end node) and 30 meter (mesh node) ranges
- FCC compliant hardware modules

MeshScape Software

MeshScape uses patented Persistent Dynamic Routing (PDR) techniques to form a self-configuring, wireless sensor network. PDR uses a node-initiated network formation for efficient topology discovery and uses "best route" information for network re-formation required in ever-changing RF environments. With MeshScape, you can deploy industrial-class wireless sensor networks which are:

- **Robust:** network ensures reliable data transmission.
- **Responsive:** network quickly adapts itself to changes in topology or RF environment.
- **Power efficient:** can run for years on a single battery or be completely energy independent.
- **Scalable:** can scale with the application to hundreds of sensor nodes with minimal overhead.

The MeshScape software is delivered on the MeshGate gateway and on the embeddable end nodes and mesh nodes. MeshScape is also available as a software-only license for those who wish to develop their own modules.

Try it for yourself

Setting up a wireless sensor network is fast and easy with the MeshScape Reference Kit. You can prototype your application in a matter of hours. For more information, visit www.millennialnet.com/refkit.

Software Features

The MeshScape 916 MHz product family offers a series of features that are configurable through the MeshGate gateway:

- **MeshScape-ULP:** MeshScape Ultra-Low-Power software allows mesh nodes to go into a very-low-power sleep mode.
- **MeshScape-QR:** MeshScape Query-Response software supports Modbus and other industry-standard query-response serial protocols.
- **MeshScape Programmer:** a software installation utility for configuring the network and upgrading firmware.

MeshGate

MeshGate is a wireless gateway which enables network monitoring and control of the wireless mesh network via a PC or third-party controller. MeshGate has physical interfaces for RS-232 or RS-485. The gateway serves as the focal point of a MeshScape wireless network. It aggregates data traffic from all mesh nodes and end nodes within radio range, and communicates to the host. The gateway also relays commands from the host to the mesh nodes and end nodes and supervises the operation of the network.



MeshGate

Embeddable Modules

End nodes integrate with sensors and actuators to capture data in star and hybrid star-mesh configurations.

Mesh nodes extend network area coverage, route around obstacles, and provide backup routes in case of network congestion or device failure. Mesh nodes can also integrate directly with sensors and actuators in mesh and hybrid star-mesh configurations.