

The 6424 MeshScape® Wireless Gateway (6424 MeshGate II) is a stand alone gateway which performs wireless mesh network management tasks, collects wireless sensor data and communicates control commands to the compatible wireless devices.

Features at a Glance

- Operates on a worldwide and license-free 2.4 GHz ISM radio band with 15 user-selectable channels
- Provides bi-directional communication to and from devices on the wireless network
- Controls the wireless network
- Supports star, mesh and star-mesh network topologies
- 18 dBm maximum RF transmit power
- Data rates up to 250 kbps
- RS-232 and RS-485 serial interface to PC or Controller
- Communicates sensor data to PC or Controller over standard Modbus RTU protocol
- Compatible with most Modbus RTU Controllers
- CE- and FCC-compliant hardware module
- RoHS-compliant

Wireless MeshScape Gateway

The 6424 MeshGate II gateway allows network monitoring and control of a wireless mesh network via a PC or Modbus RTU embedded controller. 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 computer to the mesh nodes and end nodes and supervises the operation of the network. The MeshGate II gateway provides a central point for configuring and managing the wireless network. It is readily compatible with any Modbus RTU controller.

Ease of Integration

The 6424 MeshGate II can be easily integrated with any Modbus RTU controller on the market through RS-232 or RS-485 serial interface. LED indicators allow for strategic positioning in areas with reliable network connectivity. The 6424 MeshGate II runs on a low voltage power supply (4.5 – 30 VDC) which is easily obtained from a power line or other sources.

Long Range

The 6424 MeshGate II serves as the focal point of a MeshScape wireless network. It transmits at a radio power of 60-mW, allowing for communication distances between 6424 MeshGate II and wireless devices to span at least 750 feet outside line of site, depending on the local conditions affecting radio transmission. The MeshScape Networking System is scalable to include hundreds of nodes and cover thousands of feet.

Try it for yourself

Setting up a wireless mesh network is fast and easy. The MeshScape self-forming and self-healing network is designed for rapid deployment and easy operation.

For more information, visit www.millennialnet.com

MeshScape GO Networking

The 6424 MeshGate II uses the industrially-proven MeshScape GO networking system, which employs patented Persistent Dynamic Routing™ (PDR) techniques to form a self-configuring wireless mesh network. PDR uses a node-initiated network formation to enable efficient topology discovery and facilitates network re-formation (required in ever-changing RF environments) by applying “best route” information. With MeshScape, you can deploy industrial-class wireless mesh networks that are:

- **Self-administrating:** a self-forming and self-healing mesh network requires no administration
- **Robust:** a network that ensures reliable data transmission
- **Responsive:** a network that quickly adapts to changes in topology and radio frequency (RF)
- **Power efficient:** can run for years on a single battery set
- **Scalable:** with the application, can scale to hundreds of wireless nodes with minimal overhead
- **Low latency:** very short network data delivery times

The 6424 MeshGate II is designed to be part of the MeshScape GO LAN- based system, which can be configured to provide either single-site monitoring/control via a local PC or multi-site monitoring/control via an internet web interface.



The 6424 MeshGate II Wireless Standalone Gateway

Remote Monitoring/Control Software Features

The 6424 MeshGate II is designed to interface with any Modbus®- or MeshScape-compatible Remote Monitoring and Control software application, such as Millennium Net's Wi-EMS or other.

6424 MeshGate II Specifications

Power

Parameter	Value	Unit	Notes
External DC supply	4.5 ~ 30	VDC	

Communication Interface

Parameter	Value	Unit	Notes
Physical connector	DB-9	1	RS-232 and RS-485
Serial interface	RS-232 & RS-485		8 data bits, 1 stop bit, no parity bit
Baud rate	2400, 4800, 9600, 19200, 38400, 57600, & 115200	bits/second	

Communication protocol Modbus RTU

MeshGate II operates as proxy server of data from all devices in the mesh network; all wireless devices including MeshGate II are slave devices to the Modbus host.

Radio

Parameter	Value	Unit	Notes
Operating frequency range	2405 ~ 2475	MHz	ISM band
Channel number	15		IEEE 802.15.4 channels 11 ~ 25
Channel spacing	5	MHz	
Maximum RF transmit power	18	dBm	
Receiver sensitivity	-95	dBm	At 10^{-5} bit error rate
RF data transmission rate	250	Kbits/sec	

Environmental & Mechanical

Parameter	Value	Unit	Notes
Operating temperature range	-10 ~ +55	°C	
	14 ~ +131	°F	
Storage temperature range	-40 ~ +85	°C	
	-40 ~ +185	°F	
Dimension (L X W X H)	3.5 X 1.5 X 0.75	in	
	89 X 38 X 19	mm	
Weight	1.6	oz	
	45	g	

Regulatory Compliance

FCC, IC & CE for unlicensed operation