

The 6424 MeshScape® Wireless Local Energy Meter (Wi-LEM) Measures and Communicates Active Power and Current Values as a Node in a Self-Forming and Self-Healing Wireless Network

Features at a Glance

- MeshScape-compatible wireless sensor node
- Operates on a worldwide and license-free 2.4 GHz ISM radio band with 15 user-selectable channels
- Wide range of electrical parameter measurements
- Direct connections to:
 - 3 phases Star (with or without neutral) or Delta 120/240 VAC
 - Single phase 120/240 VAC
- Self-powered from the line
- Current rating: 5, 20, 50, 100 A – 2000 A
- Accuracy: Active energy IEC 62053-21 Class 1
- Split core current transformers
- CE- and FCC-compliant hardware modules

Wireless Energy Sensor

The 6424 MeshScape Wireless Local Energy Meter, Wi-LEM, is ideal for retrofit or new installations and is designed for purposes such as electricity sub-metering, energy auditing, and diagnostics. The Wi-LEM is a MeshScape 6424 Mesh Node with a factory-installed split core transducer for the electronic measurements of AC waveform currents.

Measurement Values

The meter processes multiple sensor signals to provide electric parameters for each phase (i.e. L1, L2, L3). The capabilities of the Wi-LEM are indicated by the shaded boxes in the chart below:

	Configurable Reading Interval (5 to 30 minutes)													
	Interval Base Values									Cumulated Values				
	L1			L2			L3			Sum	L1	L2	L3	Sum
	Av	Min	Max	Av	Min	Max	Av	Min	Max					
Current (A)														
Voltage (V)														
Active Energy (kWh)														
Reactive Energy (kVarh)														
Apparent Energy (kVA)														
Frequency														

Energy Sub-Metering Where It's Needed

Due to its small size, the Wi-LEM is perfectly suited for limited cabinet space and can be fitted to most electrical boxes. Long-range radio enhances communication through metal electric boxes. The Wi-LEM transmits at a radio power of 60-mW, allowing for communication distances of at least 750 feet clear line of sight. It can be positioned on existing circuits regardless of where they are in a building. Wireless Mesh Network connectivity permits repositioning of the Wi-LEM from one location to another within a building or among buildings with no additional configuration necessary.

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 4 Networking

The Wi-LEM uses the industrially-proven MeshScape 4 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:** very low power consumption
- **Scalable:** with the application, can scale to hundreds of wireless nodes with minimal overhead
- **Low latency:** very short network data delivery times



Example of a DIN rail mount Wi-LEM showing three split core current transformers (CTs); simply snap on to any electric wire.

Typical Applications

The Wi-LEM is an energy sub-meter used to measure energy currents in order to calculate active power and energy consumption. As part of the Wireless Energy Management System, it enables easier recognition of energy usage and cost allocation to specific departments or users in many commercial, residential, and industrial environments.

Remote Monitoring/Control Software Features

The Wi-LEM is designed to interface with a MeshScape-compatible Wireless Energy Management software application, such as Millennial Net's Wi-EMS, which allows users to remotely monitor and control energy usage at their sites. The Wi-EMS is a full-featured and easy-to-use system that provides all the tools you need to report, trend, and analyze energy consumption.