

## The 6424 MeshScape® Wireless Zone Sensor (Wi-Zone) Measures and Communicates Temperature and Relative Humidity 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
- Battery-powered end node
  - Complete wireless operation
  - Low power consumption for extended use
- Factory-installed temperature and relative humidity sensors
- Battery-pack for completely wireless operation
- Low power and configurable duty cycling
- CE- and FCC-compliant hardware module
- RoHS-compliant
- Indoor/Outdoor enclosure is easy to mount

### Wireless Zone Sensor

The 6424 MeshScape Wireless Zone Sensor, Wi-Zone, is ideal for retrofit or new installations and is designed for purposes such as HVAC monitoring and control, energy management, environmental monitoring, and storage or refrigeration condition monitoring. The Wi-Zone is a MeshScape 6424 End Node with factory-installed temperature and relative-humidity sensors.

### Zone Sensing Where It's Needed

The Wi-Zone can be placed wherever sensing a thermal zone's environmental conditions is most advantageous in order to monitor HVAC and control applications. The Wi-Zone is designed to consume minimal amounts of energy and to enable battery-powered operation with configurable duty cycling, allowing for optimal battery life. Since the Wi-Zone is a wireless device, there is no need to run signal wires for control and monitoring.

### Typical Applications

The Wi-Zone is ideal for indoor and outdoor temperature and relative humidity sensing. When used in conjunction with a MeshScape Wireless Thermostat (Wi-Stat) within the same thermal zone, the Wi-Stat can be configured to include the Wi-Zone temperature input for improved temperature uniformity within the zone.

### Long Range

The Wi-Zone transmits at a radio power of 60-mW, allowing for communication distances of at least 750 feet clear line of sight.

#### 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](http://www.millennialnet.com)

### MeshScape GO Networking

The Wi-Zone 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 multi-route, reliable data transmission over extensive distances
- **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 Wi-Zone 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 Wi-Zone is ideal for indoor or outdoor temperature and relative humidity sensing. The indoor/outdoor enclosure is easy to mount.

### Remote Monitoring/Control Software Features

The MeshScape Wi-Zone is designed to interface with any Modbus®- or MeshScape-compatible Remote Monitoring and Control software application, such as Millennial Net's Wi-EMS. The Wi-EMS is a full-featured and easy-to-use Wireless Energy Management System that provides all the tools you need to report, trend, and analyze energy consumption.

MeshScape®

## 6424 Wi-Zone Specifications

Parameter	Value	Unit	Notes
<b>Power</b>			
External DC supply	4.5 ~ 30	VDC	
Internal batteries	4.5	VDC	Three AA size batteries
Expected battery life	5	Years	Alkaline batteries, 5 minutes transmission interval; battery life reduces with shorter transmission intervals
<b>Temperature Measurement</b>			
Measurement range	-40 ~ +55	°C	
	-40 ~ +131	°F	
Repeatability	±0.1 (±0.18)	°C (°F)	
	±0.5 (±0.9)	°C (°F)	In 20 °C (68 °F) ~ 30 °C (86 °F) range
Accuracy	±1.4 (±2.5)	°C (°F)	At -10 °C (-14 °F) and +55 °C (131 °F)
	±2.0 (±3.6)	°C (°F)	At -40 °C (-40 °F) and +90 °C (194 °F)
Response time	5 ~ 30	Seconds	
<b>Humidity Measurement</b>			
Measurement range	0 ~ 100	% RH	
Repeatability	±0.1	% RH	
Accuracy	±3	% RH	For 20 ~ 80% RH
	±3 ~ ±5	% RH	For 0 ~ 20% & 80 ~ 100% RH
Response time	4	Seconds	
<b>Radio</b>			
Operating frequency range	2405 ~ 2475	MHz	ISM band
Available Communication Channels	15		IEEE 802.15.4 channels 11 ~ 25
Channel spacing	5	MHz	
Maximum RF transmit power	18 (63)	dBm (mW)	
Receiver sensitivity	-95	dBm	At 10 <sup>-5</sup> bit error rate
RF data transmission rate	250	Kbits/sec	
<b>Environmental &amp; Mechanical</b>			
Operating temperature range	-40 ~ +55	°C	
	-40 ~ +131	°F	
Storage temperature range	-40 ~ +85	°C	
	-40 ~ +185	°F	
Dimension	118x69x25.4	mm	
	Nema Enclosure 160x90x60	mm	
Weight	3.3	oz	Excluding batteries
	Nema Enclosure 9.7	oz	Excluding batteries
<b>Regulatory Compliance</b>			
FCC. IC & CE for unlicensed operation			

