

The 6424 MeshScape® Wireless Temperature Sensor (Wi-Temp) Measures and Communicates Temperature Conditions 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, license-free 2.4 GHz ISM radio band with 15 user-selectable channels
- Available in two configurations:
 1. Battery-powered end node
 - Complete wireless operation
 - Low power consumption for extended use
 2. Line-powered end node
- Wireless communication range of at least 750 feet between devices, clear line of sight.
- 2 thermistors per node provide lower cost per zone
- -30° F to 230° F (-34° C to 110° C) sensor temperature operating range
- +/- 0.5° F (0.3° C) accuracy up to 185° F (85° C) and +/- 1° F (0.6° C) above 185° F (85° C)
- Up to 25 feet of thermistor cable with RJ11 connector for mounting flexibility and easy installation
- CE- and FCC-compliant hardware modules
- RoHS-compliant
- Available in indoor/outdoor (NEMA) enclosure

Wireless Temperature Sensing

The 6424 MeshScape Wireless Temperature Sensor, Wi-Temp, is ideal for retrofit or new installations and is designed for purposes such as energy management, environmental monitoring, and storage or refrigeration condition monitoring. Embedded software permits users to identify appropriate data collection and transmission rates based on the device and the specific application. The Wi-Temp is available as a battery-pack equipped or a line-powered end node.

Typical Applications

The Wi-Temp sensor is well-suited for temperature extremes and is immune from effects of moisture and condensation. It can be placed wherever sensing conditions of a thermal zone or measuring temperatures of water, oil, gas, or other substances is most advantageous. A rugged thermistor and wide operating temperature range makes the Wi-Temp an ideal device for temperature sensing in many commercial, residential, and industrial environments. The Wi-Temp is particularly suited for use in building automation systems and mechanical equipment room instrumentation. Long thermistor lead cables give you great flexibility in placing temperature sensors in locations different from that of the device.

Wi-Temp applications:

- HVAC Systems – air duct temperature sensing and hot water loop temperature monitoring
- Food Service – refrigerator and freezer performance monitoring
- Healthcare – continuous lab condition (air and liquid temperatures) monitoring.

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 Wi-Temp 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-Temp includes two thermistors with RJ11 connectors for easy installation

Remote Monitoring/Control Software Features

The Wi-Temp is designed to interface with any Modbus®- or MeshScape-compatible software application for monitoring and control, 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.

Long Range

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

6424 Wi-Temp Specifications

Parameter	Value	Unit	Notes
Power			
External DC supply	4.5 ~ 30	VDC	
Internal batteries	4.5	VDC	Three AA size batteries
Minimum supply voltage	3.1	VDC	
Expected battery life	5	Years	Alkaline batteries, 5 minutes transmission interval; battery life reduces with shorter transmission intervals
Temperature Measurement			
Sensor type	Thermistor		10 KΩ thermal resistor, encapsulated probe immune to moisture and condensation
Number of sensors	2		
Sensor wire length	8 (2.4)	feet (m)	24 AWG zipcord
Measurement range	-34 ~ +110	°C	
	-30 ~ +230	°F	
Accuracy	±0.56 (±1.00)	°C (°F)	
Sensitivity	±0.10 (±0.18)	°C (°F)	At room temperature 25 °C (77 °F)
Radio			
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 ⁻⁵ bit error rate
RF data transmission rate	250	Kbits/sec	
Channel agility	Yes		Automatically realigns RF channel when network (MeshGate) switches to a new channel.
Environmental & Mechanical			
Operating temperature range	-10 ~ +55	°C	Applied only to radio box; -34 ~ +110 °C (-29 ~ +230 °F) operating and measurement range for thermistor probes
	-14 ~ +131	°F	
Storage temperature range	-40 ~ +85	°C	
	-40 ~ +185	°F	
Dimension	118x69x25.4	mm	
Weight	3.3	oz	Excluding batteries
Regulatory Compliance			
FCC, IC & CE for unlicensed operation			

