

# SynapSense® Wireless Mesh ThermaNode™ EZ

## specifications

The wireless mesh node shall be a battery-operated wireless device designed for environmental sensor data collection at any location within the data center as part of a comprehensive cooling optimization solution. Typically employed on the intake and exhaust sides of server racks, this node captures the thermal conditions of server operations, as well as relative humidity measurements.



## technical information

<b>Dimensions:</b>	73.025mm L x 44.45mm W x 23.495mm H (2.875" L x 1.75" W x 0.925" H)
<b>Housing:</b>	ABS Plastic
<b>Packaging:</b>	Includes two AA batteries
<b>Mounting:</b>	Can be mounted with cable ties or by double-sided adhesive strips mounted on a universal clip. Additionally, specially-mounting mechanisms are incorporated for rapid installation on perforated rack doors and on unistrut bars.

## key features and benefits

<b>Environmental Data Capture</b>	Provides environmental monitoring and capture of data used as part of a comprehensive solution for optimizing cooling operations
<b>Wireless Mesh Network</b>	Serves as one node within an innovative wireless mesh network made up of multiple nodes that "talk" to each other to share environmental monitoring data across the data center
<b>Simple Deployment</b>	Allows wireless placements of nodes at any points, avoiding the cost or time of installing complex or additional connectivity in data center
<b>Self-Configuring</b>	Self-configures into the existing wireless mesh network structure without needing any complicated configurations by the network administrator
<b>Auto Adjusting Receiver Sensitivity</b>	Adjusts receiver sensitivity to compensate for powerful ambient radio noise from other devices like Wi-Fi, enabling radios to communicate with each other in harsh RF environments
<b>Channel Black-listing</b>	Identifies and avoids radio frequencies that have high levels of RF noise, speeding up data transfer and conserving battery life
<b>Battery Operated</b>	Operates on two AA batteries that provide up to seven years of battery life, cost-effectively powering node over life of data center
<b>Time Stamped Data</b>	Allows automatic time stamping of each piece of node data to indicate and document the exact time at which data was collected making historical comparisons possible
<b>SmartSend Notifications</b>	Compares data collected every 30 seconds and recognizes temperature deviations outside of specified thresholds, causing override of configured reporting intervals to ensure that potential concerns are identified for quick resolution
<b>Smart-Over-the-Air (SMOTA) Firmware Update</b>	Uses wireless network to transmit hardware firmware updates directly to node without need for physical intervention for simplicity of updates*
<b>256-bit Network Encryption</b>	Encrypts data over the network using a unique 256-bit key to ensure security
<b>Single IP Address Scalability</b>	Allows interconnect ability of up to 400 nodes on a single wireless mesh network gateway thru one single IP address, reducing the need for separate IP ports, IP capital costs, and management overhead
<b>SmartZone™ Software DCIM Suite integration</b>	Captures environmental data that is consolidated by connected gateways and then utilized by SynapSoft® Cooling Software, part of the SmartZone™ Solutions portfolio, for real-time monitoring and display, management, and automated documentation

\*Performing a firmware upgrade is a specialized process which must involve technical support or a qualified reseller.

## applications

The SynapSense® Wireless Mesh ThermaNode™ EZ is a key component of SynapSense® Cooling Optimization, a turn-key wireless monitoring and cooling control solution for data centers that uses intelligent software, leading edge wireless nodes, and professional services to optimize cooling, increasing current capacity and reducing costs to deliver tangible ROI.

The SynapSense® Wireless Mesh ThermaNode™ EZ is a battery-operated wireless device designed for environmental data collection from any location within the data center.

The SynapSense® Wireless Mesh ThermaNode™ EZ is typically employed on the intake and exhaust sides of server racks in order to capture the thermal conditions of server operations environments, as well as the relative humidity measurements.

As part of a wireless mesh network, Up to 400 ThermaNode™ EZ units can be connected thru a single IP address to captured real-time temperature and humidity data across a data center. This data is then used by SynapSoft® Cooling Software to create thermal maps and movies to identify developing hotspots or anomalies, find reclaimable cooling capacity, or simply optimize the efficiency of the cooling overall for tangible ROI.

### Wireless Mesh Therma Nodes

<b>ThermaNode™ EZ (measures temperature):</b>	99-0944-001
<b>ThermaNode™:</b>	99-0501-001
<b>ThermaNode™ EZ-H (measures temperature and humidity):</b>	99-0944-010
<b>Pressure Node™:</b>	99-0331-001
<b>Constellation Node™:</b>	99-0348-003

### Wireless Mesh Gateway

<b>Gateway:</b>	100-1156-001
<b>Gateway mounting shelf:</b>	67-0811-003

### SynapSoft® Software

<b>Software Fee Modbus Driver:</b>	SWFee-I-MB
<b>Software Fee BACnet Driver:</b>	SWFee-I-BN
<b>Software Fee SNMP Driver:</b>	SWFee-I-SN
<b>Environmental Monitoring License:</b>	99-0794-001

# SynapSense® Wireless Mesh Thermanode™ EZ

## General Specifications

Specifications	Description
<b>Node Specifications</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz, ISM unlicensed band</li> <li>• IEEE 802.15.4 MAC.</li> </ul>
<b>Data Rate Maximum</b>	• 250 Kbps
<b>Maximum RF Output Power</b>	• 0 dBm
<b>RF Data Range</b>	Typical data center environment: 50 feet (15m); Max 260 feet (80m) open air, line of sight
<b>Battery Life</b>	Five to seven years (typically)
<b>Maintenance and Calibration</b>	No recalibration or maintenance possible
<b>Antenna Type</b>	Internal
<b>Software Requirements</b>	Requires SynapSoft® Version 6.0 or newer Device Manager Software NOTE: LiveImaging, Device Manager, MapSense, and other software features referenced in this document are included within the SynapSoft® Software platform.

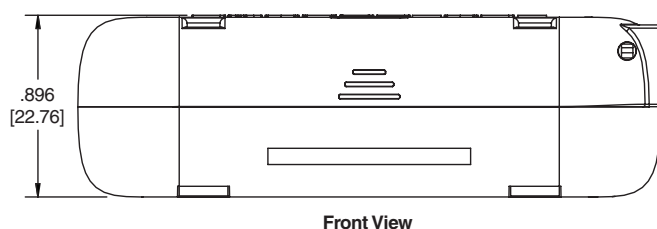
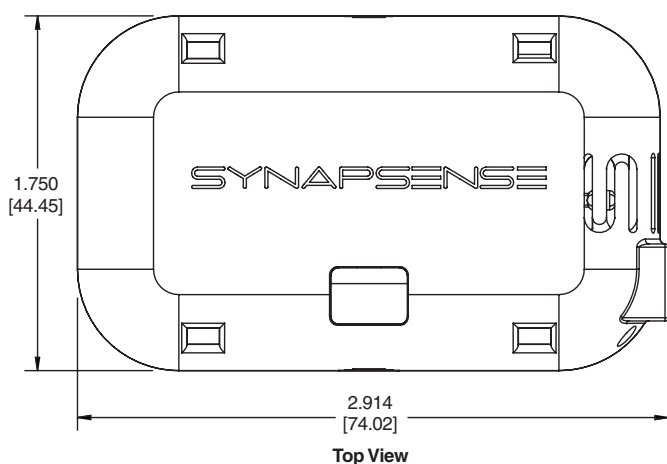
## Thermanode™ EZ Temperature Sensor

Parameter	Specification
<b>Operating Range</b>	32°F to 140°F (0°C to 60°C)
<b>Accuracy</b>	+0.5°F: 50°F to 110°F +0.3°C: 10°C to 43°C +1.2°F: 32°F to 50°F, 110°F to 140°F +0.7°C: 0°C to 10°C, 43°C to 60°C
<b>Accuracy Over Time*</b>	<ul style="list-style-type: none"> <li>• After 1 year +0.92°F to 0.88°F (+0.51°C to 0.49°C)</li> <li>• After 2 years +0.99°F to 0.94°F (+0.55°C to 0.52°C)</li> <li>• After 3 years +1.06°F to 0.99°F (+0.59°C to 0.55°C)</li> </ul>
<b>Time Constant</b>	<ul style="list-style-type: none"> <li>• 30 seconds in moving air</li> <li>• 60 seconds in static air</li> </ul>

## Thermanode™ EZ Humidity Sensor

Parameter	Specification
<b>Operating Range</b>	41°F to 122°F (5°C to 50°C), 10% to 90% RH
<b>Accuracy</b>	+5% RH

## Dimensions



Dimensions are in inches. [Dimensions in brackets are metric.]

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