

SynapSense® Wireless Mesh ThermaNode™ EZ Sensor for Data Center Applications

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

Dimensions:	73.025mm L x 44.45mm W x 23.495mm H (2.875" L x 1.75" W x 0.925" H)
Housing:	ABS Plastic
Packaging:	Includes two AA batteries
Mounting:	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

Environmental data capture	Provides environmental monitoring and capture of data used as part of a comprehensive solution for optimizing cooling operations
Wireless mesh network	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
Simple deployment	Allows wireless placements of nodes at any points, avoiding the cost or time of installing complex or additional connectivity in data center
Self-configuring	Self-configures into the existing wireless mesh network structure without needing any complicated configurations by the network administrator
Auto adjusting receiver sensitivity	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
Channel black-listing	Identifies and avoids radio frequencies that have high levels of RF noise, speeding up data transfer and conserving battery life
Battery operated	Operates on two AA batteries that provide up to seven years of battery life, cost-effectively powering node over life of data center
Time stamped data	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
Smartsend notifications	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
Smart-Over-the-Air (SMOTA) firmware update	Uses wireless network to transmit hardware firmware updates directly to node without need for physical intervention for simplicity of updates*
256-bit network encryption	Encrypts data over the network using a unique 256-bit key to ensure security
Single IP address scalability	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
SmartZone™ Software DCIM Suite integration	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 Sensor 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 Sensor is a battery-operated wireless device designed for environmental data collection from any location within the data center.

The SynapSense® Wireless Mesh ThermaNode™ EZ Sensor 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 Sensor 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

ThermaNode™ EZ Sensor (measures temperature):	99-0944-001
ThermaNode™ Sensor:	99-0501-001
ThermaNode™ EZ-H Sensor (measures temperature and humidity):	99-0944-010
Pressure Node™ Sensor:	99-0331-001

Wireless Mesh Gateway

Gateway:	100-1156-001
Gateway mounting shelf:	67-0811-003

SynapSoft® Software

Software fee	
Modbus driver:	SWFee-I-MB
Software fee	
BACnet driver:	SWFee-I-BN
Software fee	
SNMP driver:	SWFee-I-SN
Environmental monitoring license:	99-0794-001

SynapSense® Wireless Mesh ThermaNode™ EZ Sensor for Data Center Applications

General Specifications

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

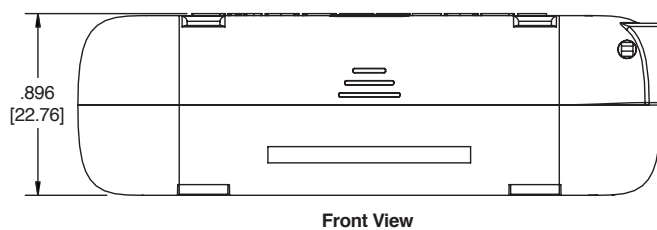
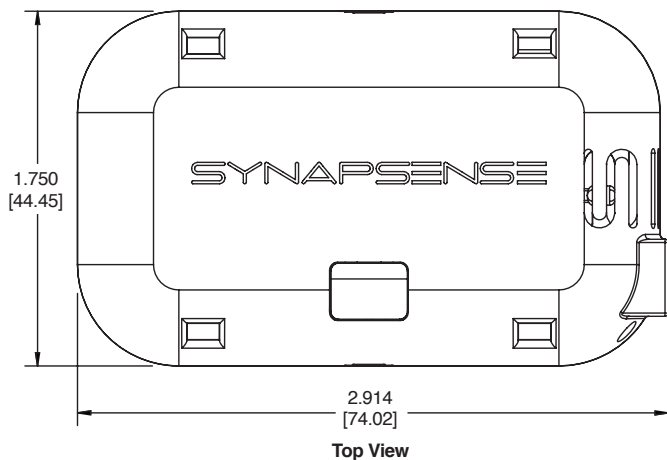
ThermaNode™ EZ Temperature Sensor

Parameter	Specification
Operating Range	32°F to 140°F (0°C to 60°C)
Accuracy	+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
Time Constant	<ul style="list-style-type: none"> • 30 seconds in moving air • 60 seconds in static air

ThermaNode™ EZ Humidity Sensor

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

Dimensions



The drift of the temperature sensor over 10 years is less than the resolution of the temperature data shown in the system, therefore is negligible.

For information on SynapSense® Wireless Monitoring Systems for Light Industrial Applications, visit: www.panduit.com/synapsense

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

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