

SynapSense® Wireless Mesh Pressure Node™

specifications

The wireless mesh node shall be a battery-operated wireless device designed for measuring air pressure differentials between two locations as part of a comprehensive cooling optimization solution. Typically employed in a raised floor environment with one pressure tube above the subfloor and the other placed in the subfloor plenum. The differential air pressure, when analyzed in conjunction with floor tile distribution throughout the facility, provides actionable data on the effectiveness of air flow.



technical information

Dimensions:	114.3mm L x 66.04mm W x 35.56mm H (4.5" L x 2.6" W x 1.4" H)
Maximum Weight:	8 oz.
Housing:	ABS Plastic
Packaging:	Includes four AA batteries
Mounting:	Can be mounted using screws (via four holes that accommodate up to #6 machine screws) or with cable ties (via four holes that can accommodate up to 4.572mm or 0.18 in cable tie width)

key features and benefits

Air Flow Data Capture	Provides floor pressure differential data to monitor air flow 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 four 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
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*
128-bit Network Encryption	Encrypts data over the network using a unique 128-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 Pressure Node 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 Pressure Node is a battery-operated wireless device designed to for measuring air pressure differentials between two locations as part of a comprehensive cooling optimization solution. The SynapSense® Wireless Mesh Pressure Node is installed within the rack, on the floor, and towards the exhaust side

for typical use in a raised floor environment. The high pressure diffuser and tubing are passed through to the subfloor plenum, while the low pressure diffuser and tubing are left above the floor to capture the room side air pressure. The differential air pressure, when analyzed in conjunction with floor tile distribution throughout the facility, provides actionable data on the effectiveness of air flow.

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 Nodes

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

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 Pressure Node™

Specifications

General Specifications

Specifications	Description
Node Specifications	<ul style="list-style-type: none">• 2.4 GHz, ISM unlicensed band• IEEE 802.15.4 MAC
Battery Life	Five to seven years (typically)
Maintenance and Calibration	No field recalibration or maintenance
Antenna Type	+0 dBi inverted F type antenna
Software Requirements	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

Mechanical Specifications

Specifications	Description
Connectors	.125 in (3.175mm) barbed hose fitting for high and low pressure differential connections
Power Requirements	Four AA 1.5 VDC lithium iron batteries
Life Expectancy	Less than 0.1 Pa (0.0004 inches of water) per year
Mechanical Impact	Protection for electronics is up to seven foot, multi-axis drop (battery compartment may open above two feet)
On/Off Switch	Pressure Node contains an on/off power switch. The switch is ON in the left position.
Regulatory Information	<ul style="list-style-type: none">• FCC Part 15, Subpart C, 15.247 U62-SRS100 and U62-PNODE• Industry Canada 7265A-SRS100 and 7265-PNODE• CE Marketing EN 300 328; V1.7.1 (2006-05) and EN 300 440-2 V1.1.2 (2004-07)

Pressure Node Sensor Specifications*

Specifications	Description
Differential Pressure Range	-2.0 to 2.0 H2O (-500 to 500 pa)
Zero Point Accuracy	0.002; H2O (0.5 pa)
Span Accuracy	+3.0% of reading
Resolution	+0.001; H2O (+0.25 pa)
Offset Stability	<0.1 pa per year

*It is recommended to replace pressure nodes used in dew point calculations after ten years to preserve accuracy.

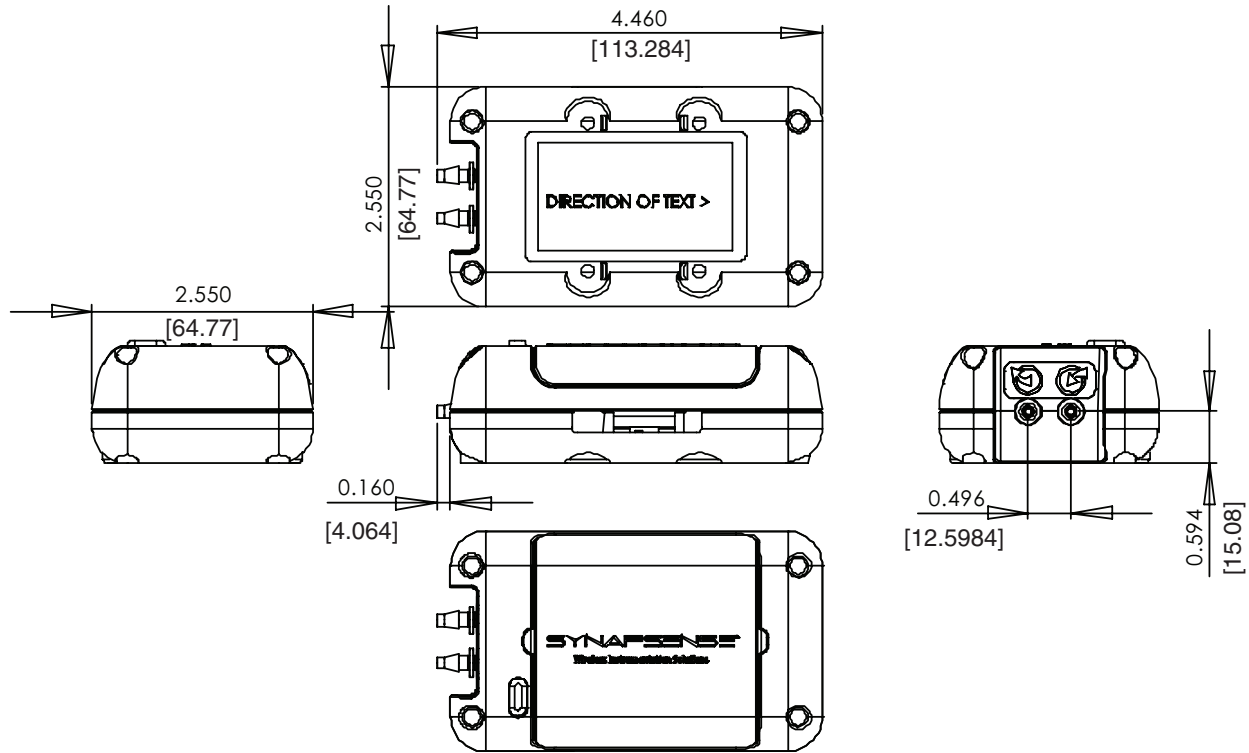
Pressure Node Environmental Specifications^

Specifications	Description
Operating	32°F to 140°F (0°C to 60°C)
Storage	(with batteries) 14°F to 140°F (-10°C to 60°C)

^Indoor use only

SynapSense® Wireless Mesh Pressure Node™

Dimensions



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

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