

# SynapSense® Wireless Mesh Pressure Node™ 3

## specifications

The Pressure Node 3 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 airflow.



## technical information

<b>Dimensions:</b>	114.3mm L x 66.04mm W x 35.56mm H (4.5"L x 2.6"W x 1.4"H)
<b>Maximum Weight:</b>	8 oz.
<b>Housing:</b>	ABS Plastic
<b>Packaging:</b>	Includes two AA batteries
<b>Mounting:</b>	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

<b>Airflow Data Capture</b>	Provides floor pressure differential data to monitor airflow 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 provides typically five 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>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>128-bit Network Encryption</b>	Encrypts data over the network using a unique 128-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

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

## applications

The Pressure Node 3 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 Pressure Node 3 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 Pressure Node 3 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 airflow.

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™:** 99-1532-001

**ThermaNode™ EZ (measures temperature):** 99-0944-001

**ThermaNode™ EZ-H (measures temperature and humidity):** 99-0944-010

### 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

## specifications

### General Specifications

Specifications	Description
<b>Node Specifications</b>	<ul style="list-style-type: none"> <li>• 2.4GHz, ISM unlicensed band</li> <li>• IEEE 802.15.4 MAC</li> </ul>
<b>Battery Life</b>	Five to seven years (typically)
<b>Maintenance and Calibration</b>	No field recalibration or maintenance
<b>Antenna Type</b>	+0 dBi inverted F type antenna
<b>Software Requirements</b>	Requires SynapSoft® Version 7.4.1 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
<b>Connectors</b>	.125 in. (3.175mm) barbed hose fitting for high and low pressure differential connections
<b>Power Requirements</b>	Two AA 1.5 VDC lithium iron batteries
<b>Mechanical Impact</b>	Protection for electronics is up to seven foot, multi-axis drop (battery compartment may open above two feet)
<b>On/Off Switch</b>	Pressure Node 3 contains an on/off power switch. The switch is ON in the left position.
<b>Regulatory Information</b>	<ul style="list-style-type: none"> <li>• FCC 47 CFR Part 15, Subpart C, Clause 15.249</li> <li>• RSS-210 Issue 9, August 2016, Annex B.10</li> <li>• FCC 47 CFR Part 15, Subpart B - Verification</li> <li>• ICES-003 Issue 6 2016</li> <li>• EN 55032: 2015 + AC: 2016-07</li> <li>• CISPR 32: 2015/COR1: 2016</li> <li>• AS/NZS CISPR 32: 2015</li> <li>• EN 61000-3-2: 2014</li> <li>• EN 61000-3-3: 2013</li> <li>• EN 55035: 2017</li> <li>• ETSI EN 300 328 V2.1.1 (2016-11)</li> <li>• AS/NZS 4268: 2017</li> <li>• EN 301 489-17 V3.1.1 (2017-02)</li> </ul>

### Pressure Node Sensor Specifications\*

Specifications	Description
<b>Differential Pressure Range</b>	-0.5 to 0.5 in. H <sub>2</sub> O (-125 to 125 Pa)
<b>Zero Point Accuracy</b>	0.0003 in. H <sub>2</sub> O (0.08 Pa)
<b>Span Accuracy</b>	+3.0% of reading
<b>Resolution</b>	+0.001; H <sub>2</sub> O (+0.25 Pa)
<b>Offset Stability</b>	<0.05 Pa per year

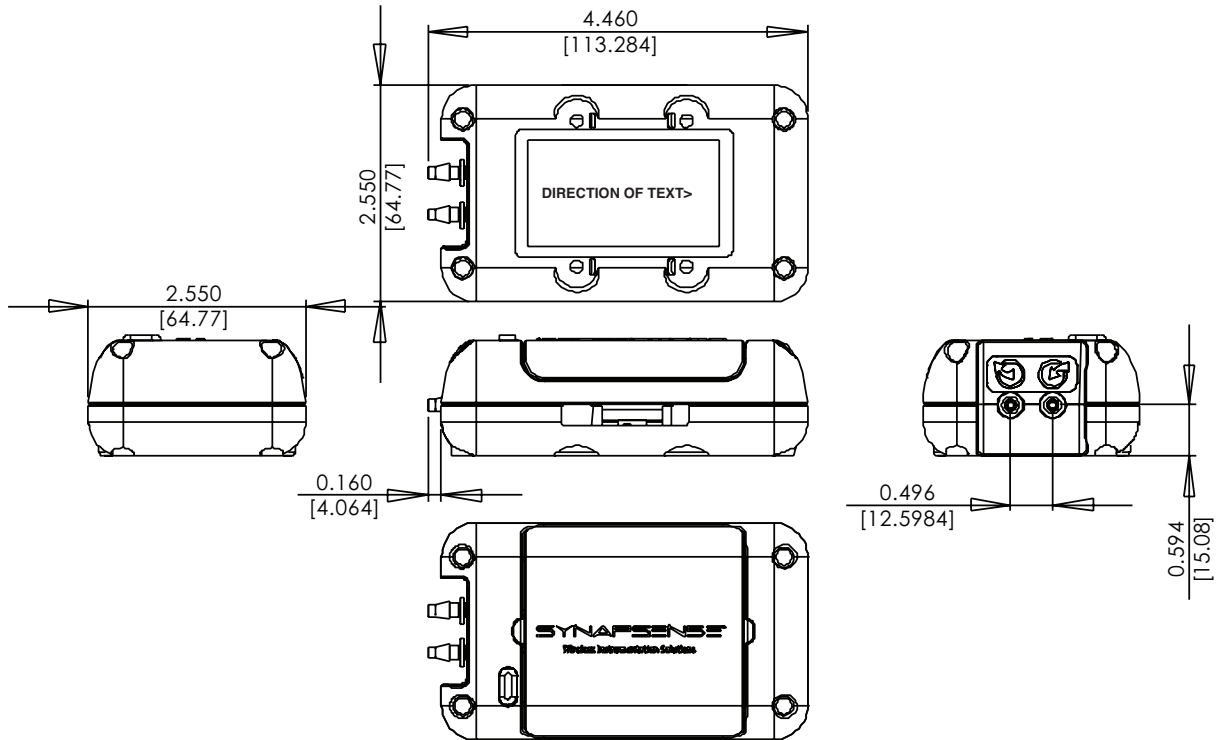
\*It is recommended to replace pressure nodes used in dew point calculations after ten years to preserve accuracy.

### Pressure Node Environmental Specifications^

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

^Indoor use only

## dimensions



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

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

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