

# SynapSense® Wireless Mesh Constellation Node™

# PANDUIT®

SPECIFICATION SHEET

## specifications

The wireless mesh node shall be a battery-operated wireless device designed to collect analog sensor data as part of a comprehensive cooling optimization solution. Typically applied to self or loop-powered external devices that may or may not be connected to a power monitoring system, this node capture and calculates analog data via 0-10V or 4-20mA outputs and pulse outputs on meters or other measurement devices. These meters or devices may include UPS units, facilities equipment, or other equipment that is being measured. Each node shall accept up to four 4-20mA and two 0-10V inputs, which are commonly used for monitoring contractor switch relay status (open/close status).



## technical information

<b>Dimensions:</b>	91.44mm L x 63.50mm W x 30.48mm H (3.6" L x 2.5" W x 1.2" H)
<b>Housing:</b>	ABS Plastic
<b>Packaging:</b>	Includes four AA batteries
<b>Mounting:</b>	Can be mounted using screws (via four holes that accommodate up to #6 machine screws) or thru use of cable ties (via four holes that can accommodate up to 4.572mm or 0.18" cable tie width)

## key features and benefits

<b>Analog Data Relay</b>	Relays analog power and/or environmental operational data captured from metered equipment in facilities or data center areas (that may or may not be connected to a monitoring system) 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 node 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 four 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>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 200 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 Constellation 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 Constellation Node™ is a battery-operated wireless device designed to relay power and/or environmental data collected from metered equipment or devices that may or may not be connected to a complete monitoring system.

As part of a wireless mesh network, up to 200 SynapSense® Wireless Mesh Constellation Node™ units can be connected thru a single IP address to relay analog operational power and/or environmental data captured from metered equipment in facilities or data center areas (that may or may not be connected to a monitoring system).

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 solution for optimizing cooling operations.

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### Wireless Mesh Nodes

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

### 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 Constellation Node™

## 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>	<ul style="list-style-type: none"><li>• 250 Kbps</li></ul>
<b>Maximum RF Output Power</b>	<ul style="list-style-type: none"><li>• 0 dBm</li></ul>
<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>	Dependent on applications; Contractor applications four to six years (typically)
<b>Maintenance and Calibration</b>	No recalibration or maintenance possible
<b>Antenna Type</b>	+0 dBi inverted F Type antenna
<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

## Mechanical Specifications

Specifications	Description
<b>Connectors</b>	Molex Micro-Fit <sup>^</sup> series 14 position I/O connector for use with SynapSense external thermistor wire harness (provided)
<b>Power Requirements</b>	(Depending on the external device being measured) Two or four AA 1.5 VDC Lithium batteries of 3 to 24 VDC
<b>Mechanical Impact</b>	Protection for electronics is up to 7 foot multi-axis drop (battery compartment may open above two feet)
<b>Mechanical Expectancy</b>	Protection for electronics is up to seven foot, multi-axis drop (battery compartment may open above two feet)
<b>On/Off Switch</b>	Switch in ON in the left position
<b>Regulatory Information</b>	<ul style="list-style-type: none"><li>• FCC Part 15, Subpart C, 15.247 U62-SRS100 and U62-CONST</li><li>• Industry Canada 7265A-SRS100 and 7265-CONST</li><li>• CE Marketing EN 300 328; V1.7.1 (2006-05) and EN 300 440-2 V1.1.2 (2004-07)</li></ul>

<sup>^</sup>Micro-Fit is a trademark of Molex.

## Constellation Node Environmental Specifications\*

Parameter	Specification
<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)

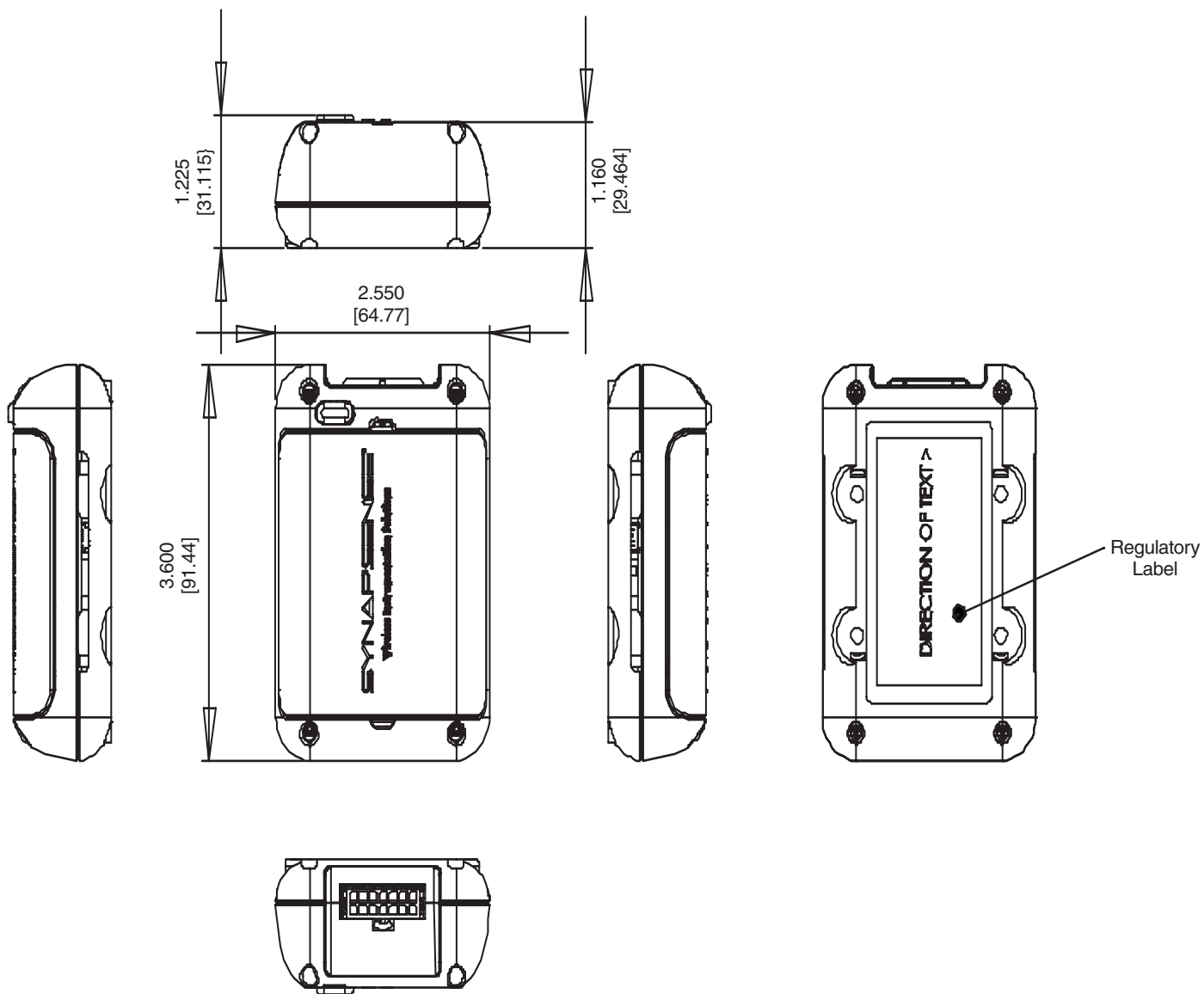
\*Indoor use only

## Constellation Node Accuracy

Parameter	Specification
<b>4-20mA</b>	<ul style="list-style-type: none"><li>• Up to four 4-20mA analog devices</li><li>• + 1.15% full scale</li><li>• Resolution: 0.03%</li></ul>
<b>0-10V</b>	<ul style="list-style-type: none"><li>• Up to two 0-10V analog devices</li><li>• + 1.53% full scale</li><li>• Resolution: 0.03%</li></ul>
<b>Accuracy Over Time</b>	No specified degradation or field recalibration required.

# SynapSense® Wireless Mesh Constellation Node™

## Dimensions



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

### WORLDWIDE SUBSIDIARIES AND SALES OFFICES

PANDUIT CANADA  
Markham, Ontario  
cs-cdn@panduit.com  
Phone: 800.777.3300

PANDUIT EUROPE LTD.  
London, UK  
cs-emea@panduit.com  
Phone: 44.20.8601.7200

PANDUIT SINGAPORE PTE. LTD.  
Republic of Singapore  
cs-ap@panduit.com  
Phone: 65.6305.7575

PANDUIT JAPAN  
Tokyo, Japan  
cs-japan@panduit.com  
Phone: 81.3.6863.6000

PANDUIT LATIN AMERICA  
Guadalajara, Mexico  
cs-la@panduit.com  
Phone: 52.33.3777.6000

PANDUIT AUSTRALIA PTY. LTD.  
Victoria, Australia  
cs-aus@panduit.com  
Phone: 61.3.9794.9020

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