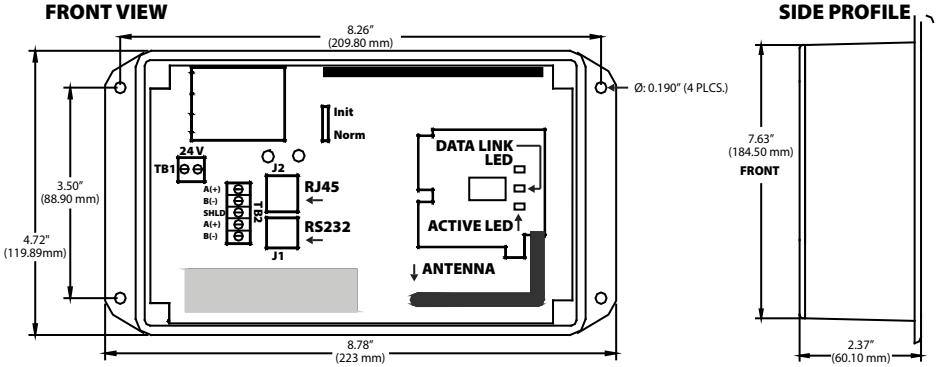
MOD9200BNT BACnet MSTP NETWORK TRANSCEIVER

Installation & Operation Instructions

Phone: 1-888-967-5224
Website: workaci.com

FIGURE 1: ENCLOSURE DIMENSIONS



Do not use this product in any safety related applications where human life may be affected.

GENERAL INFORMATION

ACI's Wireless Series MOD9200BNT BACnet® network transceiver utilizes reliable Spread Spectrum Mesh Network Radio technology. Together with other ACI wireless sensors and controls, the system can be used to transmit remote sensor readings, status/alarm indications, control signals and outputs wirelessly. It is compatible with any control panels or Automation Systems that utilize BACnet MSTP (Master Slave Token Passing) communication protocol. Up to 50 separate physical wireless sensor transmitters and/or wireless remote output (analog & digital) modules can be used with one MOD9200BNT Transceiver and up to 100 data points and 100 outputs can be monitored and controlled with one (1) MOD9200 Transceiver.

The maximum radio transmission distance is dependent on the building type. In a typical commercial building with steel I-Beam construction, concrete floors with reinforcing rod, and metal stud walls, it can be expected that transmissions will penetrate horizontally approximately 200-300 feet of floor, walls, furniture and air.

Generally, a wireless system will cover at least three floors–one floor above, and one floor below the receiver location. In some buildings with favorable transmission characteristics the system may cover more floors - see **FIGURE 3** (p. 2). Wireless sensor transmitters should be installed within 200 to 300 feet of the MOD9200 transceiver. RR2552 signal repeaters can be installed as needed to increase transmission distance between sensors and receivers - see **FIGURE 2** (p. 2). **NOTE:** For best results, no more than three (3) repeaters should be installed per wireless system, and no more than two (2) repeaters in series.

PRECAUTIONS

- **To maintain high performance, do not install sensors, repeaters, or receivers in the following areas:**
  - **Inside metal enclosure / panel, or inside or immediately next to elevator shaft or elevator banks**
  - **In front of or immediately next to large trees or large body of water**

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MOUNTING INSTRUCTIONS

Mount the MOD9200BNT near MSTP access point, 1' below the ceiling, using four #8 screws.

FIGURE 2: WIRELESS BUILDING DIAGRAM

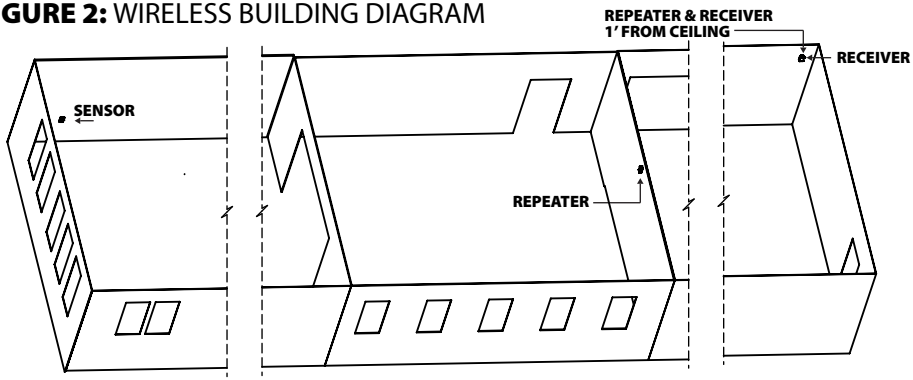
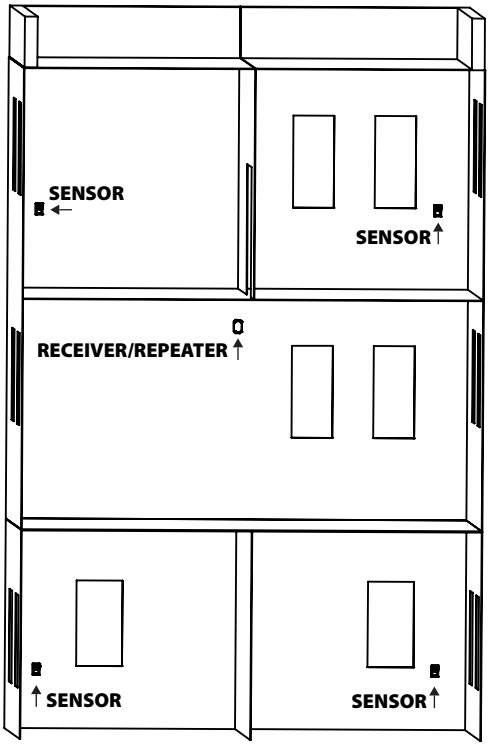


FIGURE 3: WIRELESS MULTILEVEL DIAGRAM



WIRING INSTRUCTIONS

WIRING PRECAUTIONS

- **Do NOT run RS485 wiring in any conduit with line voltage (24/120/230 VAC).**
- **Remove power before wiring. NEVER connect or disconnect wiring with power applied.**
- **The MOD9200BNT is full wave rectified.**
- **It is recommended that you use an isolated UL-listed Class 2 transformer when powering the unit with 24 VAC. Failure to wire the devices with the correct polarity when sharing transformers may result in damage to any device powered by the shared transformer.**

WIRING

24VAC Input – Connect 24VAC 60Hz to the power terminal blocks (TB1 terminal) using 16 to 26 AWG twisted pair cable.

BACnet MS/TP INTERFACE

The BACnet Master-Slave/Token-Passing (MS/TP) data link protocol uses EIA-485 as a two-wire, daisy chain network. A branch is a discrete chain of devices connected to a controller. The max number of devices per segment is (32), as per the BACnet specifications. 4000 ft (1219.2 m) is the maximum recommended length for a segment, which includes all devices from the controller to the last device in the daisy chain.

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BACnet MS/TP INTERFACE
(Continued)

ACI recommends using Belden 9841 or compatible cable for RS-485 communication wiring. If the MOD9200BNT is the only device on the RS-485 bus or if it is the last device on the bus, wire the left set of "A&B" terminals - see **FIGURE 4** (top). If the MOD9200BNT is in the middle of the bus and needs to be daisy chained, both sets of "A" and "B" terminals must be used: the left set for incoming wiring, and the right set for outgoing - see **FIGURE 5** (middle). Be mindful of wire polarity and termination.

Tie the shield wires together using a wire nut and do not terminate the shield wire in the shield terminal block. The shield wire is to be grounded at the controller end only. Do not terminate the shield wire in the shield terminal block. Do not use "Star" or "T" wiring.

The MOD9200BNT has a dip switch selectable 120 ohm end-of line resistor built into the BACnet proto node. It is marked SW2 and is set to default "Off". The resistor can be turned "On" if the MOD9200BNT is the last device on the bus - see **FIGURE 6** (bottom).

CONFIGURATION OF TRANSCEIVER

The sensors need to be configured to the MOD9200BNT using the configuration program (included), a laptop, and a crossover cable. Refer to the user manual for programming, baud rates, node ID, and downloading program to the transceiver.

TROUBLESHOOTING

PROBLEM	SOLUTION(S)
Can't Discover MOD9200BNT:	• Is baud rate on transceiver and the com bus the same? • Check for duplicate node ID • Is Max Master set to 127? • Check wiring and wire polarity at RS485 terminals

FIGURE 4: STAND ALONE

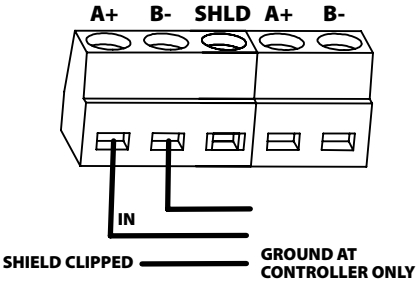


FIGURE 5: DAISY CHAIN WIRING

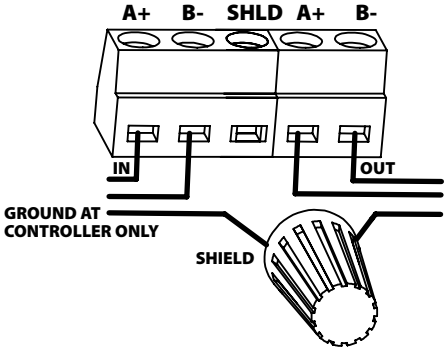
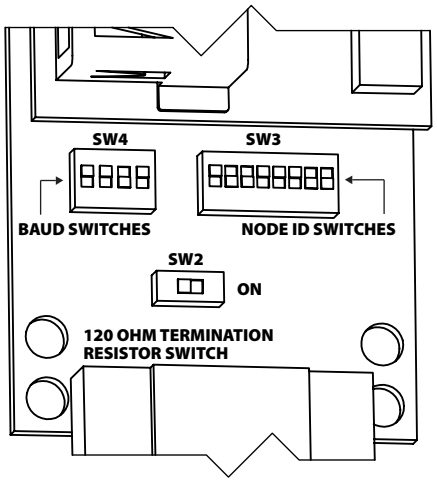


FIGURE 6: PROTOCESSOR 3.0



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PRODUCT SPECIFICATIONS

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Supply Voltage:	24 VAC, 60 Hz (Full wave rectified)
Supply Current:	0.5A Nominal
Connections:	Screw Terminal Blocks
Wire Size:	16 AWG (1.31 mm^2) to 26 AWG (0.129 mm^2)
Terminal Block Torque Rating:	0.37 ft-lb (0.5 Nm) Nominal
Operating Temperature Range:	32 to 122 °F (0 to 50 °C)
Operating Humidity Range:	30 to 50% RH, non-condensing
Storage Temperature:	-4 to 176 °F (-20 to 80 °C)
Data Protocol:	IEEE 802, 15.4-2003/2006
RF Characteristics:	900 MHz, Operating Frequency 10 channels between 902 - 928 MHz Transmitter Power: 11 dBm | Receiver Sensitivity: -11 dBm
Transmission Distance:	200 - 300 ft horizontally depending on building type and construction, and typically one floor above and below the transceiver vertically
Transceiver Inputs:	Maximum 100 Analog or Digital Inputs (Max. 50 sensors/modules per transceiver)
Transceiver Outputs:	50 Analog, 50 Digital points (100 total)
Communication Protocol:	BACnet MS/TP Physical Layer: RS-48S Twisted Pair
Communication Wire:	Belden 9841 or equivalent
Termination Resistor:	120 Ohm, Dip switch selectable
Baud Rate:	9600, 19.2K, 38.4K, 57.6K, 76.8K (default), and 115.2K (dip switch selectable)
Node ID:	1 to 127, dip switch selectable
Configuration Software:	Included; Data registers need to be configured prior to use
System Requirements:	- Laptop with Windows 98, XP, Vista, Windows 7, or Windows 10, Ethernet Port, and 10 GB memory - Direct Connection from PC to MOD9200BNT: RJ45 Crossover Cable (not provided by ACI) - IP Address of PC must have static address of 192.168.0.2 or above
Enclosure Material	ABS Plastic
Flammability Rating:	UL94-SVA

WARRANTY

The ACI Wireless Series are covered by ACI's Two (2) Year Limited Warranty, which is located in the front of ACI'S SENSORS & TRANSMITTERS CATALOG or can be found on ACI's website: www.workaci.com.

W.E.E.E. DIRECTIVE

At the end of their useful life the packaging and product should be disposed of via a suitable recycling centre. Do not dispose of with household waste. Do not burn.

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