

APPLICATION AREA

The W-BACnet product transmits BACnet MS/TP frames wirelessly. It is designed to be used indoors as a BACnet MS/TP cable replacement.

GENERAL

All relevant personnel must acquaint themselves with these instructions before installation. Warranty is subject to void if the product is not handled accordingly with the outlined instructions. Any damage to the product or parts due to improper handling will void the warranty. For additional W-BACnet documentation scan the QR-code or visit www.lumenradio.com.

WARRANTY

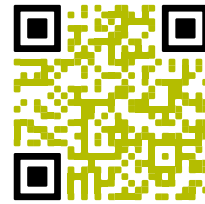
The warranty or service agreement will be deemed void if:
 (1) The product is repaired, modified, or changed, unless such repair, modification or change has been approved by LumenRadio AB; or
 (2) The serial number on the product has been made ineligible or is missing.

THE PACKAGING CONTAINS

1 x W-BACnet or 1 x W-BACnet PRO
 1 x Instruction leaflet

MANUFACTURER

LumenRadio AB
 Johan Willins gata 6
 416 64 Gothenburg
 Sweden



Scan for additional information

www.lumenradio.com

ELECTRICAL SAFETY

Only qualified electricians or service personnel trained by LumenRadio may perform interventions in connection with electrical installation. Always follow local/national rules when performing this type of electrical installation. When connecting a 24 V isolation transformer, this must be done in accordance with IEC 61558-1.

TECHNICAL DATA

Power supply:	24 VAC ±15% 50-60 Hz, 24 VDC ±15% only to be powered by a UL listed LPS power supply of max 15 W
Max. power consumption:	2.5 W
24 V output max. power:	10 W
Auto resettable fuse:	Yes
Cable rating, connector:	solid / stranded 0.14 - 0.5 mm ² / 0.2 - 0.5 mm ²

Conductor sizes (AWG):	24 – 20
Frequency band:	2.45 GHz, ISM band (2400-2483 MHz)
Baud rate:	9600, 19200, 38400, 76800 bps
Number of Nodes:	100 nodes in one wireless network
Number of hops:	Max 8 hops in the meshing network
Range per hop:	500 m line of sight (approximately 50-70 m indoors with walls)
Output (ERP):	Max 20 dBm
IP class:	40
Material:	ABS UL94-V0
Colour:	White, RAL 9003
Ambient temperature:	Operating: -20 to +55°C
Storage:	-30 to +80°C
RH:	10 – 95% non-condensing
Weight:	95g
Dimensions:	W86.0 x H86.0 x D25.5 mm

SYSTEM OVERVIEW

A W-BACnet network consists of a single W-BACnet Gateway connected to the BACnet Controller using an RS485 cable, and up to 100 W-BACnet Nodes, each of them connected to a BACnet MS/TP device over a RS485 cable. Every device can act as either a Gateway or a Node, selectable by the 3 pole switch - see Commissioning section.

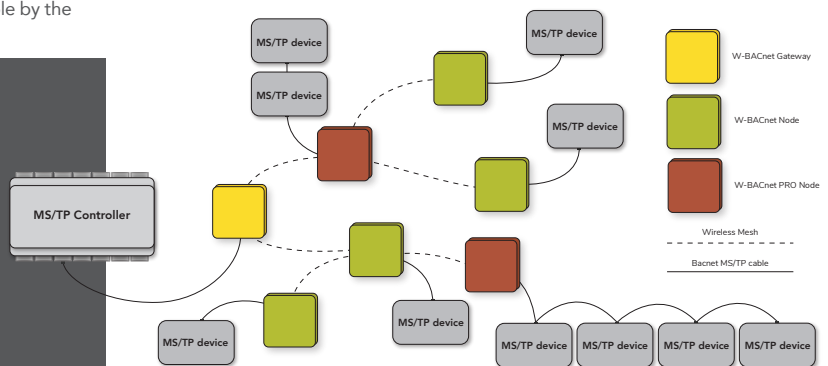
It is recommended to install the W-BACnet Gateway by the BACnet MS/TP Controller, to achieve best performance.

W-BACnet PRO

With the PRO version of W-BACnet, up to four BACnet devices can be connected to one W-BACnet PRO Node - making it even easier to connect multiple devices located in close proximity to each other.

W-BACnet and W-BACnet PRO are fully compatible and can be mixed in a system. All instructions below apply to both models.

The label on the back of the product shows the product type: W-BACnet or W-BACnet PRO.



INSTALLATION

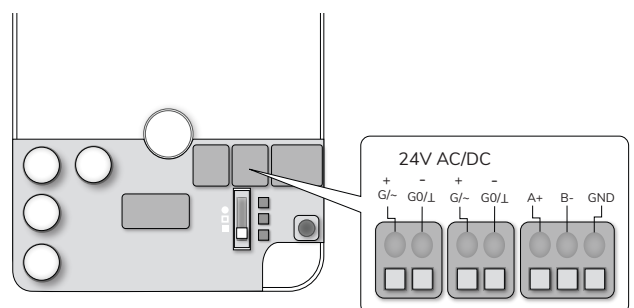
Install the W-BACnet unit next to the device it should be connected to

1. Confirm that the W-BACnet unit has no visible damage
 2. The W-BACnet enclosure is wall mounted and fits onto a junction box. Start with mounting the backplate of the enclosure.
 3. Connect the power supply and the BACnet MS/TP device to the W-BACnet unit, as shown to the right. Use the rear and/or top knock-outs for cable entry.
 4. All W-BACnet units are factory set for Node operation, without the need for additional configuration. If mixing serial configuration in the system, adjust the dip switches accordingly.
 5. Secure the front plate to the mounted back plate
 6. Check that the W-BACnet unit and its wiring are securely mounted (if the unit is powered this will be indicated by the LEDs)
- The device is now ready for commissioning.

W-BACnet is an end device with internal termination resistor.

POWER AND RS485 CONNECTION

The W-BACnet units have 24 VAC/VDC power in/out connection and connection for BACnet MS/TP communication.

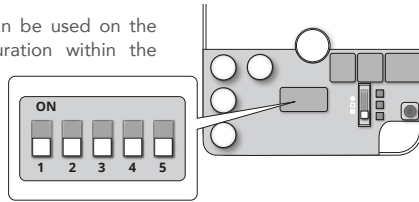


BAUD RATE, PARITY AND STOP BIT

Set the baud rate, parity and stop bit settings on the W-BACnet Gateway to match the settings of the BACnet Controller.

The configuration on the W-BACnet Gateway is global and will be synced to all connected W-BACnet Nodes, meaning the W-BACnet Gateway is the only device that needs to be configured as long as the same configuration is used in the entire network.

If needed, different configuration can be used on the Nodes - effectively mixing configuration within the network. Use the 5th DIP switch to override the global configuration and use a local configuration set on the Node.



	1	2	3	4	5
9600 baud	OFF	OFF	-	-	-
19200 baud	OFF	ON	-	-	-
38400 baud	ON	OFF	-	-	-
76800 baud	ON	ON	-	-	-
No parity	-	-	OFF	-	-
Even parity	-	-	ON	-	-
1 stop bit	-	-	-	OFF	-
2 stop bit	-	-	-	ON	-
Use local serial configuration set on Node					ON
Use Gateway serial configuration on Node					OFF

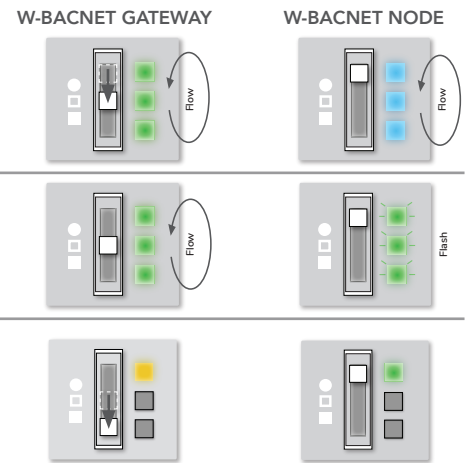
COMMISSIONING

The commissioning process is used to connect the W-BACnet devices to the same wireless network. All W-BACnet devices will come from factory uncommissioned in Node mode. If the same configuration is used in the entire system, the W-BACnet Gateway is the only device that needs to be configured, the nodes will automatically be configured when connecting to the gateway.

Mount and power up each device before starting with step 1 below.

- Start by selecting which device to use as the W-BACnet Gateway by position the 3 pole switch in the middle position. This unit will reboot into Gateway Commissioning Mode. The device will indicate the mode by a green flow of LEDs. In this step also adjust the dip switch to the correct baud rate, parity and stop bit(s)
- All powered W-BACnet Nodes within range will now connect to the Gateway. This process takes a few minutes. Nodes further away will connect to a closer W-BACnet Node if the Gateway is out of reach. When a Node is connected it will be indicated by a synchronous green blink on all three LEDs.
- Check that all Nodes installed are indicating connection, and then set the 3 pole switch to bottom position on the W-BACnet Gateway. Now the entire network will reboot into secure mode and be ready for operation. From now on the LEDs will indicate status in accordance with the system status section.

TIP: It is possible to add a new node to an existing system. Just mount and power up the device as usual, then redo the commissioning starting from step 1.
TIP: To speed up the connection process, set the device intended to be Gateway in Commissioning mode before mounting the nodes. In that way they will connect as soon as they are powered, and the waiting time in step 2 above is reduced.

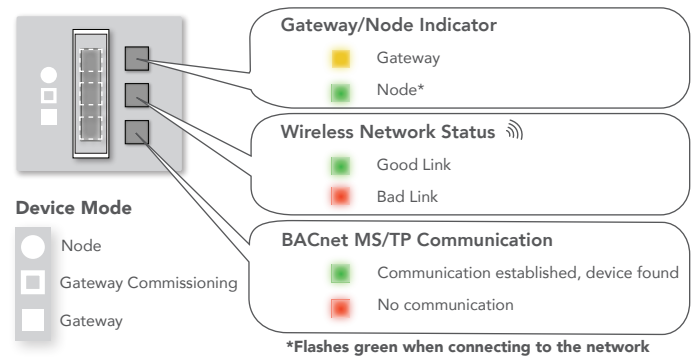


TROUBLESHOOTING

- Does the unit have power? Press the push button, if the LEDs are not switched on, check the power connection.
- Is the unit connected to the network? Check the Wireless Network status LED. A Node with a flowing blue light is not connected to the network. Reference the commission section to ensure the unit indicates connection before switching the Gateway into secure mode. If the flowing blue light persists the unit is out of range from the network. Try installing an extra W-BACnet unit in between for better wireless coverage.
- Is the network within the limits of the maximum (100) Nodes allowed? Make sure no more than 100 Nodes are connected to one W-BACnet Gateway. If more than 100 Nodes are needed, another W-BACnet gateway are required. Set it up in the same way as before.
- If the Wireless Network Status indicates bad wireless network (red LED) make sure the distance between W-BACnet units are within the requirements or add an extra W-BACnet in between to get better wireless coverage
- If the Communication LED indicates no communication (red LED) check if the RS485 cable is correctly installed and make sure the Baud rate, Stop bit and Parity settings are correct.
- All Nodes are connected during commissioning (all LEDs flashes green) but not all Nodes rebooted to the secure network when the Gateway was set to secure network. Make sure only one unit is set to Gateway mode during commissioning. It is only possible to install one network at a time.

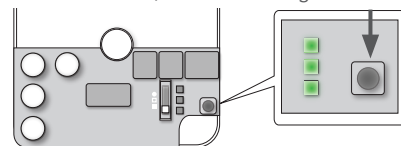
For more information, FAQ and the latest version of the W-BACnet Manual visit www.lumenradio.com or scan the QR code.

SYSTEM MODE AND STATUS



PUSH BUTTON

The push button enables the LEDs, uncommissioning and firmware updates.



PUSH BUTTON		
Push	Turn ON LEDs	All LEDs turn on (turns OFF after 30 min)
Hold 10 s	Uncommissioning	mid LED indicates blue
Hold 20 s	Firmware update mode*	mid LED indicates red

*Scan the QR code on the front page to find FW update instructions