

MeshScape®

6424 Wi-Controller-B

The MeshScape® 6424 Wi-Controller-B is a wireless stand alone boiler controller regulates boiler water temperature and operates the water circulation pump based solely on outside air temperature inputs, independently from the wireless network or from other devices within it.

Features at a Glance

Wi-Controller-B Features

- Determines Water Set Point based on outside air temperature
- Controls Burner ON/OFF to regulate water discharge temperature to follow set point
- Turns Water Circulation Pump on/off based on outside air temperature
- Remote water setpoint and air temperature ration adjustment.
- Setback control is independent of wireless communications
- FCC-compliant hardware modules
- RoHS-compliant

Wi-Controller-B Overview

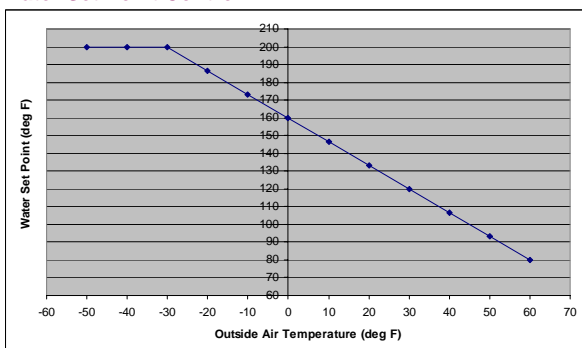
Wi-Controller-B is a stand alone Boiler controller. It operates as a mesh node in a wireless network. Wi-Controller-B regulates boiler water temperature and operates the water circulation pump based solely on outside air temperature inputs. It operates equipment controls independently from the wireless network or from other devices within it. It sends its status data to the wireless network for monitoring purposes only, but all controls and commands are being performed within the Wi-Controller-B.

Wi-Controller-B is equipped with two thermistors:

- One located outside the building for local temperature readings
- One placed on the discharge water pipe to measure water temperature

Based on their inputs and the calculation method described below, Wi-Controller-B controls the water heater and water circulation pump ON/OFF, maintaining an accurate water temperature in the system.

Water Set Point Control



Correlation between water set point and outside air is always linear. Two temperature points need to be specified. Values can be adjusted remotely depending on specific needs.

Try it for yourself

Setting up a wireless mesh network is fast and easy. The MeshScape self-forming and self-healing network is designed for rapid deployment and easy operation.

For more information, visit www.millennialnet.com

MeshScape GO Networking

The Wi-Controller-B uses the industrially-proven MeshScape GO networking system, which features:

- **Self-administrating network:** a self-forming and self-healing mesh network requires no administration
- **Robust:** a network that ensures multi-route, reliable data transmission over extensive distances
- **Responsive:** a network that quickly adapts itself to changes in topology or radio frequency (RF)
- **Power efficient:** can run for years on a single battery set
- **Scalable:** with the application, can scale to hundreds of wireless nodes with minimal overhead
- **Low latency:** very short network data delivery times

The Wi-Controller-B is designed to be part of the MeshScape system, which can be configured to provide either single-site monitoring/control via a local PC or multi-site monitoring/control via an internet web interface.



Remote Monitoring/Control Software Features

The MeshScape Wi-Controller-B is designed to interface with any Modbus® or MeshScape-compatible Remote HVAC Monitoring and Control software application. Millennial Net's Wi-EMS Remote HVAC Monitoring and Control provides a full-featured and easy-to-use 365-day occupancy scheduling calendar that reports, trends, and analyzes energy consumption.

Long Range

The Wi-Controller-B transmits at a radio power of 60-mW, allowing for communication distances of at least 750 feet clear line of sight.

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6424 Wi-Controller-B Specifications

Parameter	Value	Unit	Notes
Power			
External power supply	9 ~ 24	V, AC or DC	Through power jack or screw terminals

Opto-isolated Output Channels			
Burner start / stop control	1	channel	Start / stop control to regulate supply water temperature based on outside air temperature
Circulation pump start / stop control	1	channel	Start / stop control based on outside air temperature
Maximum voltage	50	V, AC or DC	
Maximum current	1	A	

Temperature Measurement			
Sensor type	Thermistor		10 K Ω thermal resistor, encapsulated probe immune to moisture and condensation
Number of sensors	2		Outdoor air temperature and supply water temperature measurements
Sensor wire length	8 (2.4)	feet (m)	24 AWG zipcord
Measurement range	-30 ~ +230	°F	
	-34 ~ +110	°C	
Accuracy	± 1.00 (± 0.56)	°F (°C)	
Sensitivity	± 0.18 (± 0.10)	°F (°C)	At room temperature 77 °F (25 °C)

Radio			
Operating frequency range	2405 ~ 2475	MHz	ISM band
Number of available channels	15		IEEE 802.15.4 channels 11 ~ 25
Channel spacing	5	MHz	
Maximum RF transmit power	18	dBm	
Receiver sensitivity	-95	dBm	At 10 ⁻⁵ bit error rate
RF data transmission rate	250	Kbits/sec	
Channel agility	Yes		Automatically realigns RF channel when network (MeshGate) switches to a new channel.

Environmental & Mechanical			
Operating temperature range	-10 ~ +55	°C	Applied only to radio box; -34 ~ +110 °C operating and measurement range for thermistor probes
Storage temperature range	-40 ~ +85	°C	
Dimension	146x114x51	mm	
Weight	10.5	oz	

Regulatory Compliance			
FCC & IC for unlicensed operation			

