Remote Monitoring for Business

ALTA® Wireless MultiStage Thermostat

General Description

The Monnit ALTA® MultiStage Thermostat controls conventional, heat pump, and dual fuel HVAC systems with up to three heating and two cooling stages. It features an integrated motion sensor to auto-detect the occupancy of an area or room. When unoccupied, the thermostat enters a configurable energy-saving mode.

The thermostat is intrinsically tamper-proof since you can only control it via our password-protected iMonnit cloud-based platform. This prevents adjustments by unauthorized parties. The simple front panel interface provides mode and status information via multi-color LEDs. Learn more about the LED colors and behaviors in the configuration and installation guide.

Features

- Compatible with most common HVAC systems.
- Allows for remote setting and monitoring of HVAC systems.
- Detects motion for occupied/unoccupied status.
- Prevents unauthorized adjustments or tampering.
- Configuration lockout jumper prevents changes at the hardware level.
- Full functionality and startup without a gateway—only required to configure and monitor the device in iMonnit.

Example Applications

- Office Buildings
- Schools and Churches
- Stores and Restaurants
- Sports and Concert Venues
- Remote Buildings
- Additional applications

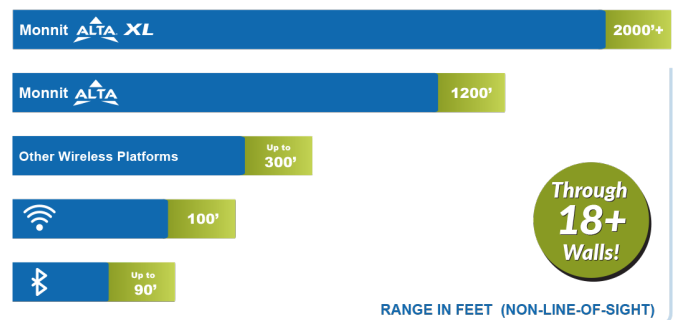## Features of Monnit ALTA Sensors and Devices

- Wireless range of 2,000+ feet through 18+ walls[1]
- Frequency-Hopping Spread Spectrum (FHSS)
- Best-in-class interference immunity
- Best-in-class power management for longer battery life[2]
- Encrypt-RF® Security (Diffie-Hellman Key Exchange + Advanced Encryption Standard (AES)-128 Cipher Block Chaining (CBC) for sensor data messages)
- Sensor logs 2000 to 4000 readings if the gateway connection is lost (non-volatile flash, persists through power cycling):
    - 10-minute Heartbeats = ~ 22 days
    - 2-hour Heartbeats = ~ 266 days
- ALTA MultiStage Thermostat powered by HVAC system
- Automatic over-the-air updates to sensor firmware (future-proof)
- Free iMonnit Basic Online Wireless Sensor Monitoring and Notification System to configure sensors, view data, and send alerts via text, email, and voice call

1 Actual range may vary depending on the environment and gateway.

2 Battery life is determined by the sensor reporting frequency and other variables. Other power options are also available.

Wireless Range Comparison

Monnit ALTA XL	2000'+
Monnit ALTA	1200'
Other Wireless Platforms	Up to 300'
(wifi)	100'
(bluetooth)	Up to 90'

Through 18+ Walls!

RANGE IN FEET (NON-LINE-OF-SIGHT)

ALTA Wireless MultiStage Thermostat Specifications

Measurement	
Temperature Reading Accuracy	± 1°C
Temperature Reading Range	-40°C to 85°C (-40°F to 185°F)
Temperature Reading Resolution	0.1° C
Motion Sensor Detection Range	Up to 16.4 ft (5 m)
Control	
AC Switches	Six AC Switches
Pass-through Current Rating AC Switches	Continuous: 1 A RMS Surge: 8.5 A Peak
Peak Voltage on AC Switches	+/- 800 Volts
Temperature Control Range	10°C to 37°C (50°F to 98.6°F)
General	
Supply Voltage	12 VAC - 24 VAC (powered via HVAC system)
Indicator Lights	Six Status/Mode Multi-Color LED Indicators (See LED indicator map below for more information)
Operating Temperature Range	-40°C to 85°C (-40°F to 185°F)[1]
Operating Humidity Range	Non-Condensing
Dimensions	5.5 x 3.355 x 1.25 in. (139.7 x 85.217 x 31.75 mm)
Wireless Range	Up to 2,000+ ft. non-line-of-sight
Security	Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Certifications	900 MHz product; FCC ID: ZTL- RFSC1 and IC: 9794A-RFSC1. 868 and 433 MHz product tested and found to comply with: CISPR 22:2008-09 / EN 55022:2010 - Class B and ETSI EN 300 220-2 V2.4.1 (2012-05).

1. At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

Note: The thermostat features a physical configuration lockout jumper which can be set to prevent changes to any settings, even through iMonnit. This prevents any hacking or remote tampering of any kind. If used, the physical jumper will need to be removed to change settings.

Thermostat Connections

8 7   6   5   4   3   2   1
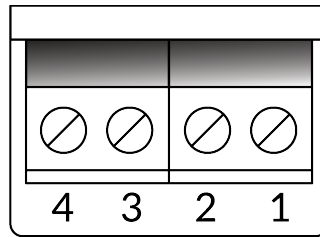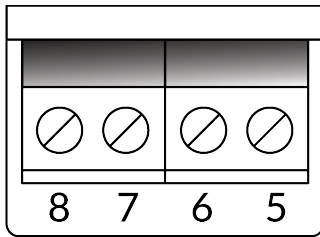
Note: Please see the configuration and installation guide for more wiring options based upon your HVAC system.

Wiring Table			
Pin	**Description**	**Color**	**Identifier**
1	Common	Blue	C
2	Line	Red	R, Rc
3	Cool1 or	Yellow	Y1
4	Heat1	White	W1
5	Fan	Green	G
6	Heat3	Black	W3
	HeatPump2	Grey	Y2
	Emergency Heat	Black	E
7	Heat2 or Aux	Brown	W2 or Aux
8	Cool2	Grey	Y2
	ReversingValve	Orange	OB

Data	
Temperature	xxx.xx C or F
Heat1	On or Off
Heat2	On or Off
Heat3	On or Off
Cool1	On or Off
Cool2	On or Off
Fan1	On or Off
HeatPump1	On or Off
HeatPump2	On or Off
Reversing Valve	RV Mode - Undefined, Cooling, or Heating Power State - Energized or Deenergized
Emergency Heat	On or Off
AuxHeat	On or Off
Occupancy State	Occupied or Unoccupied
Fan Override Mode	Forced On or not displayed
Occupied Override	Forced On or not displayed
Unoccupied Override	Forced On or not displayed

Note: Only items present on the configured system will be displayed. For example, if the configured system only has one heating stage, Heat2 and Heat3 will not be displayed in the data.

Thermostat Dimensions
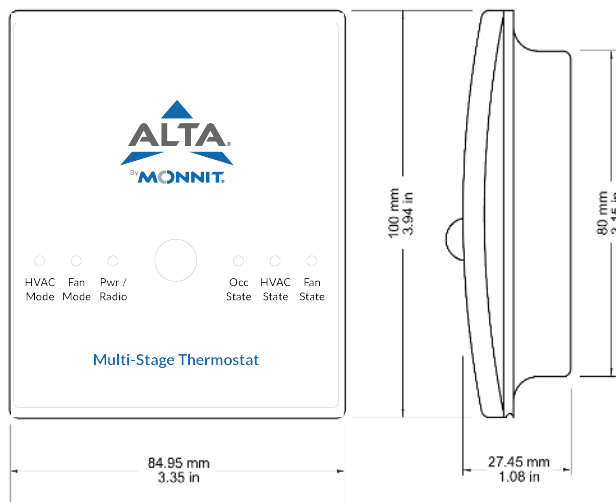
Motion Sensor Specifications
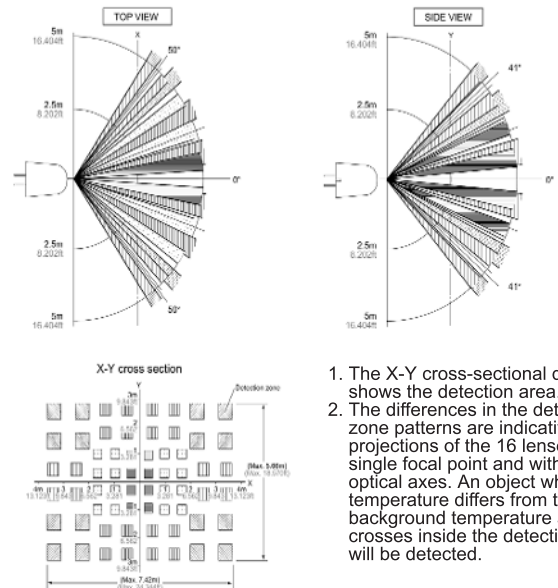
1. The X-Y cross-sectional diagram shows the detection area.
2. The differences in the detection zone patterns are indicative of the projections of the 16 lenses with single focal point and with five optical axes. An object whose temperature differs from the background temperature and which crosses inside the detection zone will be detected.

Caution/Notice:

Monnit commercial-grade products are designed for applications in ordinary environments (normal room temperature, humidity, and atmospheric pressure). Do not use his device under the following conditions as these factors can deteriorate the product characteristics and cause failures and burnout.

- Corrosive gas or deoxidizing gas: chlorine gas, hydrogen sulfide gas, ammonia gas, sulfuric acid gas, nitric oxide gas, etc.
- Volatile or flammable gas
- Dusty conditions
- Low- or high-pressure environments
- Wet or excessively humid locations
- Places with salt water, oils chemical liquids, or organic solvents
- Where there are excessively strong vibrations
- Other places where similar hazardous conditions exist

Use these products within the specified temperature range. Higher temperature may cause deterioration of the characteristics or the material quality.

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