ALTA® by MONNIT

The Leading Enterprise Internet of Things Solution

0-500 VOLT

VOLTAGE METER

Wireless 500 VAC Voltage Meters

General Description

The Wireless 500 VAC Voltage Meter is an analog measuring device that reports the measured VACrms on user specified intervals.

- Wireless interface for measuring voltage
- Measures voltage up to 500 VACrms



Free iMonnit basic online wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email

Principle of Operation

By connecting the leads on the Monnit Wireless 500 VAC Voltage Meter to the hot (black) and neutral (white) terminals of an AC power system, the sensor can measure the voltage and send data to the iMonnit Online Sensor Monitoring and Notification System. The data is stored in the online system and can be reviewed and exported as a data sheet or graph. Notifications can be set up through the online system to alert the user when certain thresholds have been met or exceeded.

Example Applications

- Power Lines
- Machinery
- Electrical Motors
- Generators
- Many additional applications

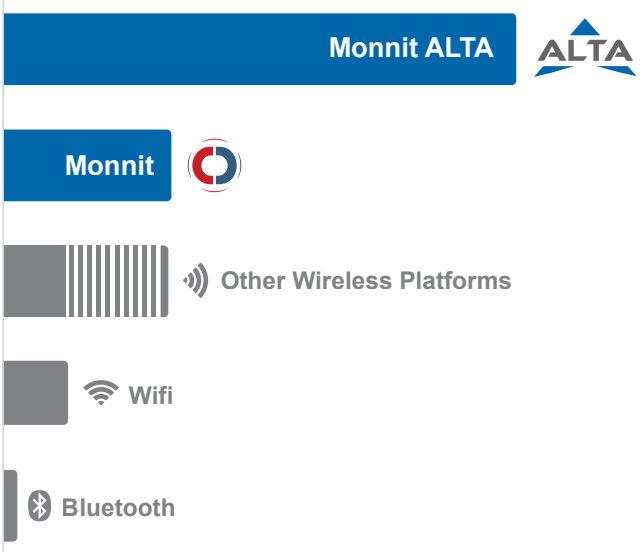
Features of Monnit ALTA Sensors

- Wireless range of 1,200+ feet through 12+ walls *
- Frequency-Hopping Spread Spectrum (FHSS)
- Improved interference immunity
- Improved power management for longer battery life ** (12+ years on AA batteries)
- Encrypt-RF® Security (Diffie-Hellman Key Exchange + AES-128 CBC for sensor data messages)
- All ALTA sensors now have up to 3200 readings:
  - 10-minute heartbeats = 22 days
  - 2-hour heartbeats = 266 days
- Over-the-air updates (future proof)
- Free iMonnit basic online wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email

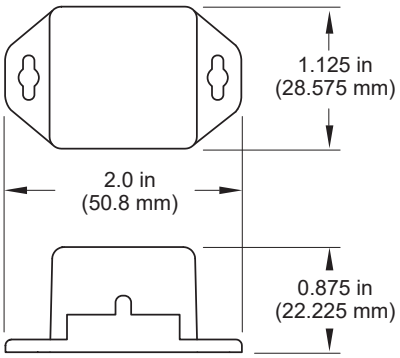
* Actual range may vary depending on environment.

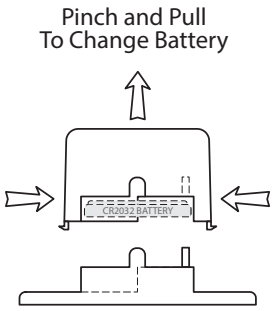
** Battery life is determined by sensor reporting frequency and other variables. Other power options are also available.

Wireless Range Comparison





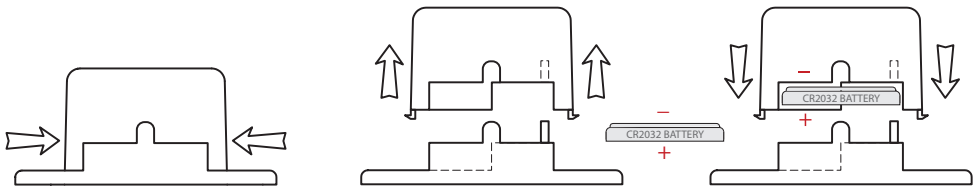




Wireless 500 VAC Voltage Meter (Coin Cell) | Technical Specifications	
Supply voltage	2.0–3.6 VDC *
Current consumption	0.2 µA (sleep mode), 0.7 µA (RTC sleep), 570 µA (MCU idle), 2.5 mA (MCU active), 5.5 mA (radio RX mode), 22.6 mA (radio TX mode)
Operating temperature range (board circuitry and coin cell)	-7°C to +60°C (20°F to +140°F)
Optimal battery temperature range (coin cell)	+10°C to +50°C (+50°F to +122°F)
Accurate Range	0–500 VACrms
Absolute Maximum Input Voltage	600 VACrms
Accuracy	+/- (1 Volt +2% of reading)
Calibrated Accuracy	+/- (.5 Volt +1% reading)
Resolution	.1 VACrms
Input Impedance	2 MOhm
Response Time	~ 1 Second
Leaded Wire Specification	2 Wires, 1 ft (12 in), Black (Hot), White (Neutral), 18 AWG (Custom lengths available upon request.
Integrated Memory	Up to 3200 sensor messages
Wireless range	1,200+ ft non-line-of-sight
Security	Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Weight	1.0 oz.
Certifications FC CE Industry Canada	900 MHz product; FCC ID: ZTL-G2SC1 and IC: 9794A-G2SC1. 868 and 433 MHz product tested and found to comply with: EN 300 220-2 V3.1.1 (2017-02), EN 300 220-2 V3.1.1 (2017-02) and EN 60950

* Circuit cannot withstand negative voltage. Please take care when installing batteries.

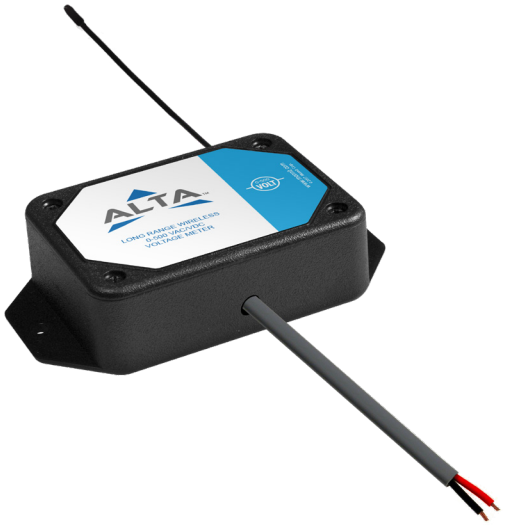
PinchPower™ Enclosure

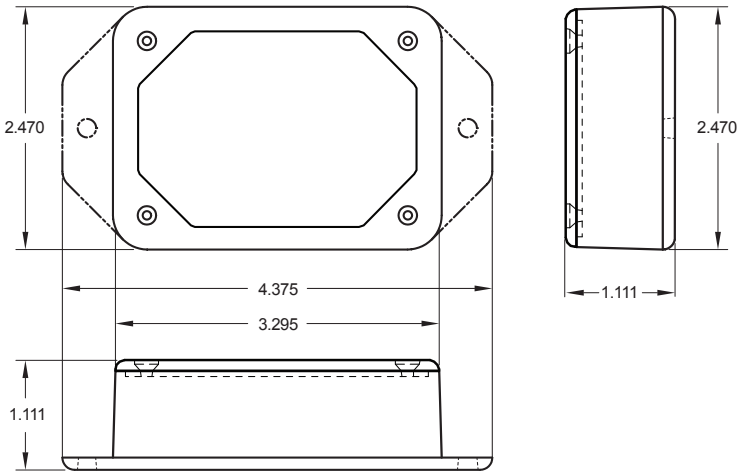


Pinch
(press in on the sides)

Pull
(sensor away from base)

Press
(sensor back into base)





ALTA Wireless 500 VAC Voltage Meter (AA) | Technical Specifications	
Supply voltage	2.0–3.6 VDC (3.0–3.6 VDC using power supply) *
Current consumption	0.2 µA (sleep mode), 0.7 µA (RTC sleep), 570 µA (MCU idle), 2.5 mA (MCU active), 5.5 mA (radio RX mode), 22.6 mA (radio TX mode)
Operating temperature range (board circuitry and batteries)	-18°C to 55°C (0°F to 130°F) using alkaline -40°C to 85°C (-40°F to 185°F) using lithium
Optimal battery temperature range (AA)	+10°C to +50°C (+50°F to +122°F)
Accurate Range	0–500 VACrms
Absolute Maximum Input Voltage	600 VACrms
Accuracy	+/- (1 Volt + 2% of reading)
Calibrated Accuracy	+/- (.5 Volt + 1% of reading)
Resolution	.1 VACrms
Input Impedance	2 MOhm
Response Time	~1 Second
Leaded Wire Specification	2 Wires, 1 ft (12 in), Black (Hot), White (Neutral), 18 AWG (Custom lengths available upon request.)
Integrated Memory	Up to 3200 sensor messages
Wireless range	1,200+ ft non-line-of-sight
Security	Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Weight	4.0 oz.
Certifications FC CE Industry Canada	900 MHz product; FCC ID: ZTL-G2SC1 and IC: 9794A-G2SC1. 868 and 433 MHz product tested and found to comply with: EN 300 220-2 V3.1.1 (2017-02), EN 300 220-2 V3.1.1 (2017-02) and EN 60950

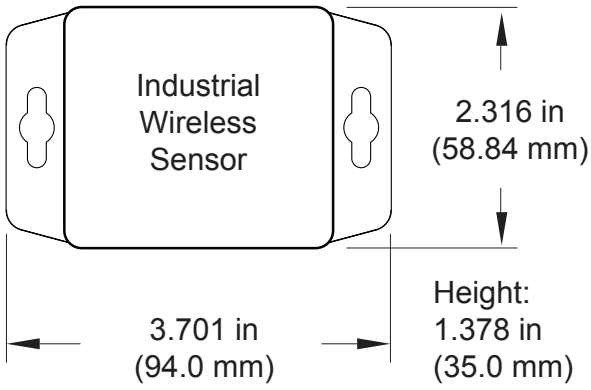
* Circuit cannot withstand negative voltage. Please take care when installing batteries.

Power Options

Two replaceable 1.5V AA sized batteries are included with the standard model. A line-power version with battery backup is also available—allowing it to be powered by a standard 3.0–3.6V power supply and use the internal batteries if there is a power interruption.

Power options must be selected at time of purchase as the internal hardware of the sensor must be changed to support the selected power requirements.





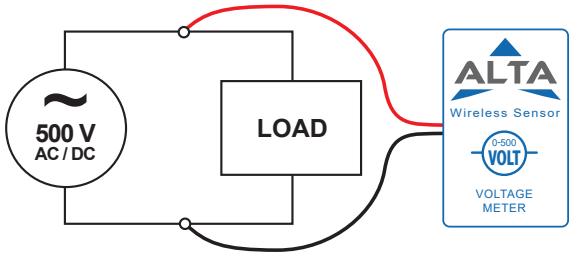
ALTA Industrial Wireless 500 VAC Voltage Meter | Technical Specifications		
Supply voltage		2.0–3.8 VDC (3.0–3.8 VDC using power supply) *
Current consumption		0.2 µA (sleep mode), 0.7 µA (RTC sleep), 570 µA (MCU idle), 2.5 mA (MCU active), 5.5 mA (radio RX mode), 22.6 mA (radio TX mode)
Operating temperature range (board circuitry and battery)		-40°C to +85°C (-40°F to +185°F)
Included battery	Max temperature range	-40° to +85°C (-40° to +185°F)
	Capacity	1500 mAh
Optional solar feature	Solar panel	5VDC/30mA (53mm x 30mm)
	Charging temperature range	0° to 45°C (32° to 113°F)
	Max temperature range	-20° to 60°C (-4° to 140°F)
	Included rechargeable battery	600 mAh/>2000 charge cycles (80% of initial capacity)
	Solar efficiency	Optimized for high and low-light operation **
Accurate Range		0–500 VACrms
Absolute Maximum Input Voltage		600 VACrms
Accuracy		+/- (1 Volt + 2% of reading)
Calibrated Accuracy		+/- (.5 Volt + 1% of reading)
Resolution		.1 VACrms
Input Impedance		2 MOhm
Response Time		~ 1 Second
Leaded Wire Specification		2 Wires, 1 ft (12 in), Black (Hot), White (Neutral), 18 AWG (Custom lengths available upon request.)
Integrated memory		Up to 3200 sensor messages
Wireless range		1,200+ ft non-line-of-sight
Security		Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Weight		4.7 ounces
Enclosure rating		NEMA 1, 2, 4, 4x, 12 and 13 rated, sealed and weather proof
UL rating		UL Listed to UL508-4x specifications (File E194432)
Certifications FC CE Industry Canada		900 MHz product; FCC ID: ZTL-G2SC1 and IC: 9794A-G2SC1. 868 and 433 MHz product tested and found to comply with: EN 300 220-2 V3.1.1 (2017-02), EN 300 220-2 V3.1.1 (2017-02) and EN 60950

* Circuit cannot withstand negative voltage. Please take care when installing batteries.

** Light present 25% of day yields 125% of operating power to support 10-minute heartbeat.

Proper Installation

If the sensor is not connected to the power source properly, it will appear that the sensor is broken. Please follow this wiring diagram to ensure proper performance and detection.



Note: The color red has been used in the diagram to subsitute for the white wire.

Commercial Grade Sensors

Monnit commercial grade sensors are designed for applications in ordinary environments (normal room temperature, humidity and atmospheric pressure). Do not use these sensors 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 oxides gas, etc.
- Volatile or flammable gas
- Dusty conditions
- Low-pressure 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.

Industrial Grade Sensors | Type 1, 2, 4, 4X, 12 and 13 NEMA Rated Enclosure

Monnit's Industrial sensors are enclosed in reliable, weatherproof NEMA-rated enclosures. Our NEMA-rated enclosures are constructed for both indoor or outdoor use and protect the sensor circuitry against the ingress of solid foreign objects like dust as well as the damaging effects of water (rain, sleet, snow, splashing water, and hose-directed water).

- Safe from falling dirt
- Protects against wind-blown dust
- Protects against rain, sleet, snow, splashing water, and hose-directed water
- Increased level of corrosion resistance
- Will remain undamaged by ice formation on the enclosure

For more information about our products or to place an order, please contact our sales department at 801-561-5555.

Visit us on the web at www.monnit.com.

Monnit Corporation
3400 South West Temple
Salt Lake City, UT 84115
801-561-5555
www.monnit.com

Monnit, iMonnit, ALTA, PinchPower, Encrypt-RF and all other trademarks are property of Monnit, Corp.
© 2019 Monnit Corp. All Rights Reserved.