Remote Monitoring for Business

ALTA® Wireless 200 VDC Voltage Meters

General Description

ALTA® Wireless 200 VDC Voltage Meters measure DC voltage up to 200 VDC on user specified intervals.

Key Features

▸ Measures voltage up to 200 VDC
▸ Resolution: 0.1 Volts
▸ Accuracy:
  ▸ Uncalibrated: ± (0.1 Volts + 1% of reading)
  ▸ Calibrated: ± (0.05 Volts + 0.5% of reading)
▸ Configurable thresholds for critical condition monitoring

Principles of Operation

The ALTA Wireless 200 VDC Voltage Meter measures the single-ended DC voltage across its two leads based on a user-configurable time interval or Heartbeat. On every Heartbeat, the sensor converts the analog voltage signal to a digital voltage measurement. This measurement is then sent to the gateway, making the data available in iMonnit or another approved data service.

The ALTA 200 VDC Voltage Meter can be calibrated for improved accuracy. Also, remember to remove any active voltages from the measurement leads when replacing batteries or performing other maintenance.

Example Applications

▸ Machinery
▸ Electrical Motors
▸ DC Generators
▸ Batteries
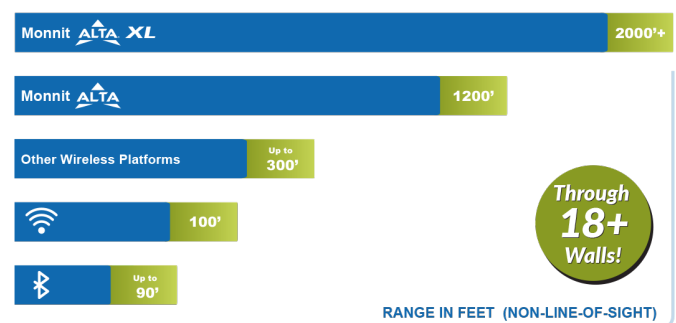▸ Transducers
▸ Additional applications

Features of Monnit ALTA Sensors

• 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
• 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 SMS 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.
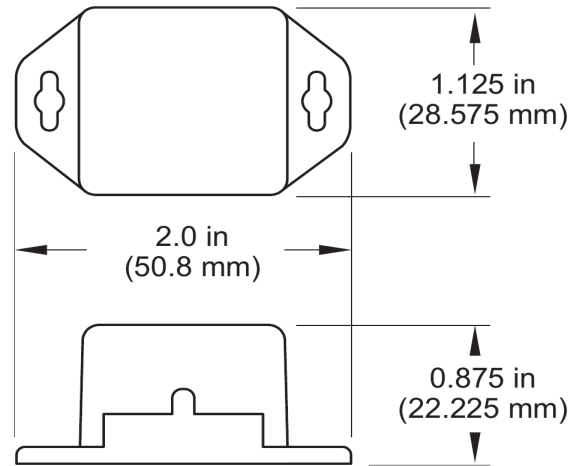
Wireless Range Comparison

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)

Technical Specification | ALTA® Wireless 200 VDC Voltage Meters		
Voltage Meter	Absolute Maximum Voltage	250 VDC
	Accurate Range	0 to 200 VDC[1]
	Accuracy	+/- (0.1V + 1% of reading)
	Calibrated Accuracy	+/- (0.05V + 0.5% of reading)
	Resolution	0.1 Volts
	Input Impedance	1.33 MOhm
	Response Time	100 ms
Lead	Cable length	Standard: 0.3 m (1 ft) Optional: 0.9 m (3 ft)
	Wire count	2-conductor (red/black)
	Wire gauge	22 AWG
	Conductor material	Stranded Copper 7/30
	Insulation	PVC, 0.010"
	Shield	No
	Jacket	PVC (black)
	Overall Diameter	4.2 mm (0.164")
	Ratings / Approvals	NEC (UL) Type CM, UL AWM Style 2464, CSA AWM FT4, RoHS/Reach Compliant
	Temperature Rating	-20°C to 85°C (-4°F to 185°F)[2]
	Voltage Rating	300 V Max
	Dielectric Strength	1500 V RMS
ALTA Wireless	Data logging	Sensor logs 2000 to 4000 readings if gateway connection is lost (non-volatile flash, persists through power cycling): 10-minute Heartbeats = ~22 days - 2-hour Heartbeats = ~266 days
	Wireless protocol	ALTA Proprietary Frequency-Hopping Spread Spectrum (FHSS)
	Wireless transmission power (EIRP)	50 mW (900MHz), 25 mW (868 MHz), 10 mW (433 MHz)
	Wireless range	2,000+ ft. through 18+ walls with the ALTA XL® Gateway
	Security	Encrypt-RF® (256-bit key exchange and AES-128 CTR)
General	Battery voltage range	2.0 to 3.8 VDC
	Operating altitude (non-pressurized environments)	-15.2 to 1,982 m (-50 to 6,500 ft)[3]
	Storage altitude (non-pressurized environments)	-15.2 to 3,048 m (-50 to 10,000 ft)[3]
	Operating humidity	5 to 85% RH (non-condensing)
	Certifications	900 MHz sensors: **FCC ID: ZTL-G2SC1** and **IC: 9794A-G2SC1**. 868 and 433 MHz sensors tested and comply with: EN 55032: 2015/A11:2020; **EN 55035**:2017/A11:2020; **ETSI EN 300 220** V3.2.1 (2018-06); **ETSI EN 301 489-3** V2.2.0. (2021-11); and **ETSI EN 303 645**. All sensors tested and comply with: **EN 61010-1** and **EN 60950** and meet **RoHS 2015/863** and **REACH 224** (June 2022), according to **IEC 63000**:2016/AMD1:2022.

1. If application exceeds 200 VDC, the sensor will return a maximum reading of 200 V.
2. Temperatures colder than the rating are acceptable if the cable is not moving or vibrating.
3. Operating and storage altitude without DC power supply is -30.48 to 9144 m (-100 to 30000 ft).
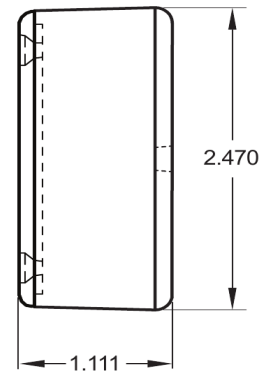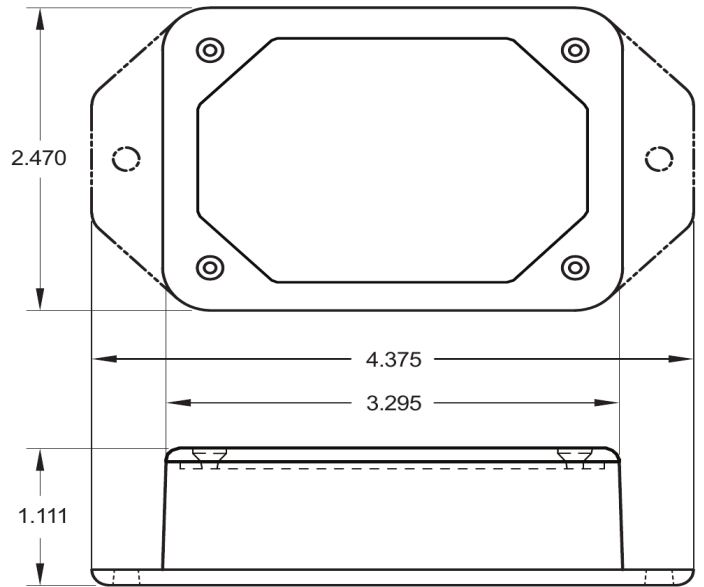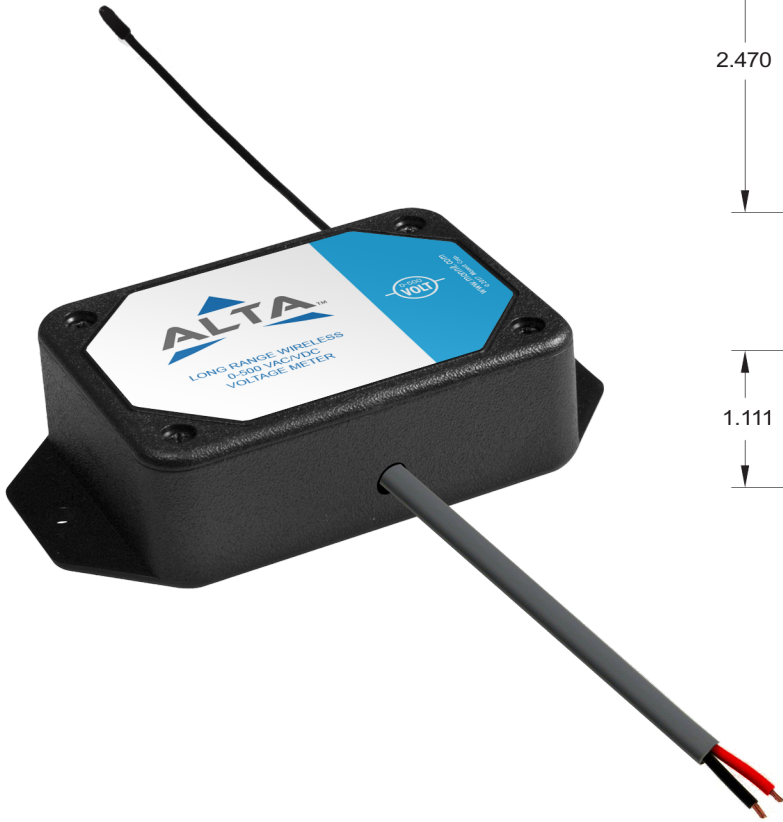
The sensor reports the DC Voltage up to 200 VDC.

1.125 in
(28.575 mm)

2.0 in
(50.8 mm)

0.875 in
(22.225 mm)

PinchPower™ Enclosures

Pinch
(press in on the sides)

Pull
(sensor away from base)

CR2032 BATTERY

Press
(sensor back into base)
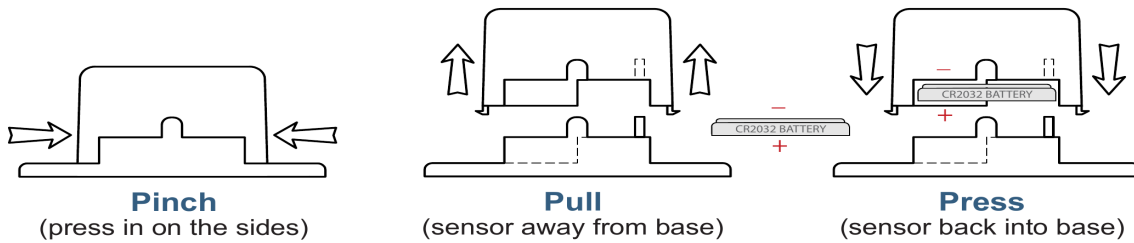
CR2032 BATTERY

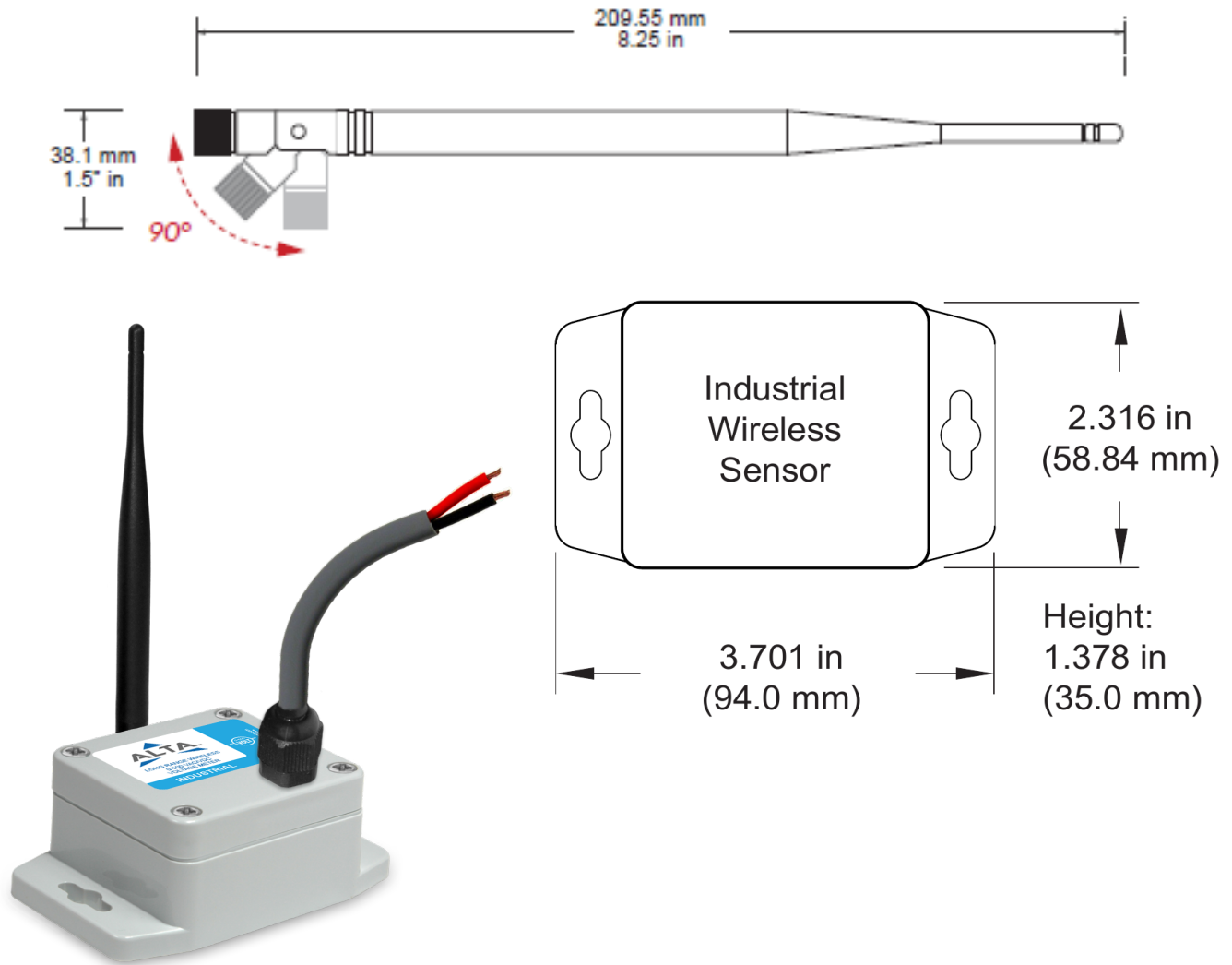| Technical Specifications | ALTA® Commercial 200 VDC Voltage Meter	
Battery[1]	1x 3.0V CR2032 Button Cell, 100 mAh
Battery Life	2+ years expected
Operating temperature range (non-leaded measurement range)	10°C to 50°C (50°F to 122°F)
Wireless antenna type	1/4-wave, 20 gauge wire whip, 3.5" (900/868MHz), 7" (433MHz)
Weight	1.0 oz. 28.35 g)

1.   Hardware cannot withstand negative voltage. Please take care when inserting and removing battery.

Technical Specifications | ALTA® Enterprise 200 VDC Voltage Meter

Technical Specifications	ALTA® Enterprise 200 VDC Voltage Meter
Battery[1]	2x 1.5V AA Alkaline, 1500 mAh, (standard) 2x 1.5V AA Lithium, 3000 mAh, (optional)
Battery Life	10+ years expected
External line-power option[2]	Input voltage: 5.0-12.0 V Power jack: 2.1 x 5.5 mm barrel, center positive
Operating temperature range (non-leaded measurement range)[3]	-18°C to 55°C (0°F to 130°F) - AA Alkaline Batteries -25°C to 60°C (-13°F to 140°F) - AA Lithium L91 Batteries 0°C to 40°C (32°F to 104°F) - US 5V Power Supply 10°C to 40°C (50°F to 104°F) - International 5V Power Supply
Wireless antenna type	1/4-wave, 20 gauge wire whip, 3.5" (900/868MHz), 7" (433MHz)
Weight	4 oz. (113.39 g)

1. Hardware cannot withstand negative voltage. Please take care when inserting and removing batteries.
2. Batteries will provide backup power in the case the external power is removed.
3. Operating below 0°C (-32°F) degrees will reduce battery life.

Technical Specifications | ALTA® Industrial 200 VDC Voltage Meter	
Battery	1x 3.6V AA Lithium Thionyl Chloride, 1500mAh, pre-installed
Battery Life	10+ years expected
Operating temperature range (non-leaded measurement range)[1]	-40°C to 85°C (-40°F to 185°F)
Wireless antenna type	1/2-wave waterproof dipole with RP-SMA connector and swivel neck; dBi of 3.0 (900/868MHz) or 2.5 (433 MHz); length of 8.27" (210mm) (900/868MHz) or 7.68" (195mm) (433 MHz); diameter at thickest point of 0.55" (14mm)
Weight	4.7 oz. (133 g)
Enclosure rating	IP-65 (dust-proof and waterproof but not submersible) NEMA 1, 2, 4, 4x, 12, and 13 rated, sealed, and weatherproof UL Listed to UL508-4x specifications (File E194432)

1. Operating below 0°C (-32°F) degrees will reduce battery life.

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 oxide 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 temperatures 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 indoor and outdoor use and protect the sensor circuitry against the ingress of solid foreign objects like dust and the damaging effects of 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

MONNIT®

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