

# Monnit

## Wireless Voltage Meter (0-5 VDC)



### Technical Overview

#### General Description

The Monnit Wireless Voltage Meter measures the voltage between two electrical points. It can be connected to the power and ground of any voltage source and measure within stated accuracy up to 5 VDC. It can be connected to any kind of variable voltage device, such as a transducer or sensor that outputs voltage. If the device to be measured is passive, the user must supply their own excitation voltage to the device.

#### Features

- Accurate to  $\pm 3.0\%$  full scale (FS) of voltage range.
- Accurate to  $\pm 0.5\%$  FS with user calibration.
- Interfaces with any variable voltage device.
- 3 mV Resolution.
- 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:

Monnit Wireless Voltage Meters read the voltage difference between two electrical points and reports back the measured voltage. It is programmed to sleep for a user-given time interval (heartbeat) and then wake up, convert the analog data, mathematically compute the voltage, and transmit the data to the gateway, where it is then logged into a cloud service. The user can configure defined thresholds and have the system alert on threshold breaches.

#### Power Options

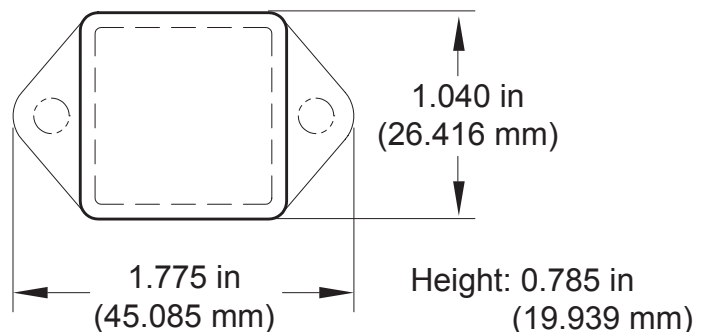
Sensors are powered by a replaceable 3.0 V coin cell battery. Optional AA battery powered sensors are available. The AA version of these sensors are larger in size (3" [L] x 2.1" [W] x 1.2" [H] ) and include two long-life AA batteries.

It is recommended that unless you are using the AA battery solution, you set heartbeat to no faster than one hour to preserve battery life. Battery power cannot be supplied off the device to power the transducer or sensor.

#### Monnit Sensor Core Specifications

- Power: Replaceable 3.0 V coin cell battery
- Communication: RF 900, 920, 868 and 433 MHz
- Dimensions: 1.775" x 1.040" x 0.785"
- Antenna: 4" wire antenna
- Operating Temperature:  $-7^{\circ}$  to  $60^{\circ}\text{C}$  ( $20^{\circ}$  to  $140^{\circ}\text{F}$ )
- Device Range: 250 - 300 ft. non-line-of-sight\*
- Battery Life: At 1 hour heartbeat setting, coin cell battery will last ~ 1-2 years.\*\*


\* Actual range may vary depending on environment.  
\*\* Battery life is determined by sensor reporting frequency and other variables.



#### Example Interfacing

- Battery Health
- Voltage Measurement
- Transducer Measurement
- Machinery
- Electrical Motors
- And many more...

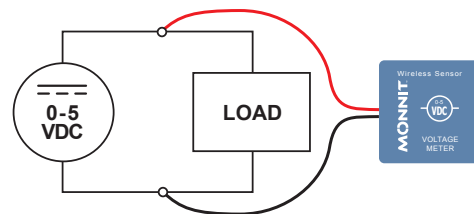
**The Leader in Low Cost Wireless Sensors**

Technical Specifications	
Supply Voltage	2.0 - 3.6 VDC *
Current Consumption	0.7 $\mu$ A (sleep mode) 2 mA (radio idle/off mode) 2 mA (measurement mode) 25 mA (radio RX mode) 35 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 )
Voltage Range	0 – 5 Volts DC***
Resolution	~3 mV
Accuracy	+/- 3.0% FS
User Calibrated Accuracy	+/- 0.5% FS ****
Open Circuit Voltage	~0.00 Volts
Max Rated Input	10 Volts
Lead Wire Length	2 Wires, 1 ft. ( 12 in.), Red (+), Black (-), 18 AWG (Custom lengths available upon request)
Certifications	 900 MHz product; FCC ID: ZTL- RFSC1 and IC: 9794A-RFSC1. 920 MHz product; ARIB STD-T108 R210-103733. 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).

- \* Hardware cannot withstand negative voltage. Please take care when connecting a power device.
- \*\* At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.
- \*\*\* The sensor is capable of measuring above 5 volts but may not meet the specified accuracy above this value.
- \*\*\*\* For best results calibrate at a voltage between 50% and 90% of the voltage range.

### 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.



### Caution/Notice:

This product is designed for application in an ordinary environment (normal room temperature, humidity and atmospheric pressure). Do not use this sensor under the following conditions as these factors can deteriorate the product characteristics and cause failures and burn-out.; 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, under low or high pressure, 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 this product within the specified temperature range. Higher temperature may cause deterioration of the characteristics or the material quality of this product.

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](http://www.monnit.com).

**MONNIT**®

Monnit Corporation  
4403 South 500 West  
Murray, UT 84123  
801-561-5555  
[www.monnit.com](http://www.monnit.com)