IoT Management Group

The Leader in Low-Cost, Remote Monitoring Solutions

0-50 VOLT METER

# Wireless 0-50 VDC Voltage Meter

## General Description

The GEN 3 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 50 VDC. Perfect for measuring battery voltage at specified intervals where sensor data will be wirelessly sent to iMonnit, the online sensor monitoring system.

- Wireless interface for measuring voltage.
- Available in multiple voltage ranges. Measures voltage up to 50 VDC

Free 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 Wireless Voltage Meter to the positive and ground terminals of a battery, users can measure battery voltage through the Online Sensor Monitoring and Notification System. Notifications can be set up through the online system to alert the user when battery levels reach a certain point. The data is also stored in the online system and can be reviewed and exported as a data sheet or graph.

## Example Applications

- Car Battery Monitoring
- Boat and Marine Battery Monitoring
- RV Battery Monitoring
- ATV / Motorcycle Battery Monitoring
- Lawn Mowers and Utility Vehicle Battery Monitoring

And many more...

## GEN 3 Sensor Core Speci ications

- Wireless Range: 250 - 300 ft. (non line-of-sight / indoors / through walls, ceilings & floors) *
- Communication: RF 900, 920, 868 and 433 MHz
- Power: Replaceable batteries (optimized for long battery life) - Line-power (AA version) and solar (Industrial version) options available
- Battery Life (at 1 hour heartbeat setting) **

| | |
|---|---|
| AA battery > | 4-8 years |
| Coin Cell > | 2-3 years. |
| Industrial > | 4-8 years |

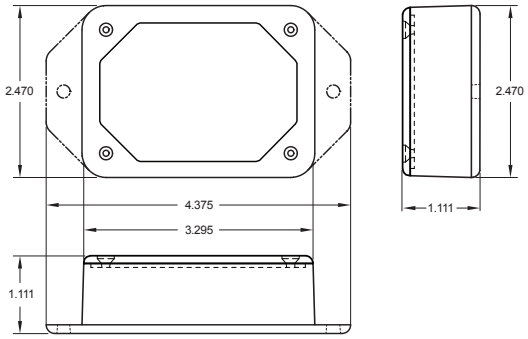
* Actual range may vary depending on environment.
** Battery life is determined by sensor reporting frequency and other variables.

## Sensor Types & Options

Wireless 0-50 VDC Voltage Meter (AA)

Wireless 0-50 VDC Voltage Meter (Industrial)

## Wireless 0-50 VDC Voltage Meter (AA)




| Technical Specifications | |
|---|---|
| Supply Voltage | 2.0 - 3.6 VDC (3.0 - 3.6 VDC Using Power Supply) * |
| Current Consumption | 0.7 µA (sleep mode)<br>2 mA (radio idle/off mode)<br>2 mA (measurement mode)<br>25 mA (radio RX mode)<br>35 mA (radio TX mode) |
| Operating Temperature Range (Board Circuitry and Batteries) | -18°C to 55°C (0°F to 130°F) using alkaline<br>-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 ) |
| Full Scale Voltage | 0 - 50 VDC *** |
| Absolute Maximum Voltage | 75 VDC *** |
| Sensor Resolution | 0.025 VDC |
| Conversion Time | 228 µs |
| Accuracy | +/- 3% FS**** |
| User Calibrated Accuracy | +/- 1% FS ***** |
| Weight | 4.0 oz. |
| Wireless Range | 250 - 300 ft. (Indoors / Through walls, ceilings & floors)<br>Range may vary according to environmental variables. |
| Certifications<br>Industry Canada | 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.

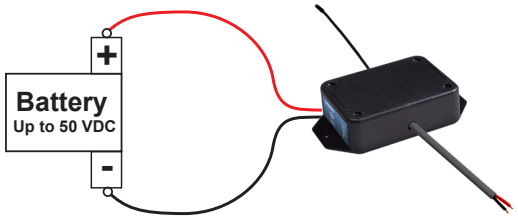
*** The sensor is capable of measuring above 50 volts but may not meet the specified accuracy above this value.

**** Due to diode reverse voltage protection the sensor typically has a -.3 volt offset between 0 and 5 volts.

***** For best results calibrate at a voltage between 50% and 90 % of the voltage range. If the max application voltage is below 50% of the voltage range (25V) calibrate to the max application voltage instead. It is not recommended to calibrate the sensor below 6 volts.

### Proper Installation

IIf 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.

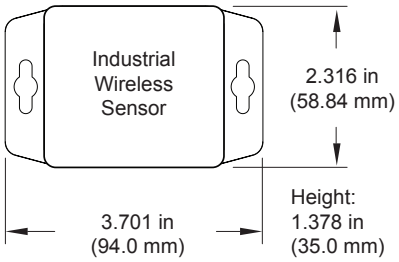



### Power Options

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 utilize 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.

# Wireless 0-50 VDC Voltage Meter (Industrial)




| Technical Specifications | | |
|---|---|---|
| Supply Voltage | | 2.0 - 3.6 VDC * |
| Current Consumption | | 0.7 µA (sleep mode)<br>2 mA (radio idle/off mode)<br>2 mA (measurement mode)<br>25 mA (radio RX mode)<br>35 mA (radio TX mode) |
| Operating Temperature Range (Board Circuitry and Battery) | | |
| Included Battery | Max Temperature Range: | -40°C to +85°C ( -40°F to +185°F ) ** |
| | Capacity: | 1800 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<br>(80% of initial capacity) |
| Full Scale Voltage | | 0 - 50 VDC *** |
| Absolute Maximum Voltage | | 75 VDC **** |
| Sensor Resolution | | 0.025 VDC |
| Conversion Time | | 228 µs |
| Enclosure Rating | | NEMA 1, 2, 4, 4x, 12 and 13 rated, sealed & weather proof |
| UL Rating | | UL Listed to UL508-4x specifications (File E194432) |
| Weight | | 5.0 oz. |
| Wireless Range | | 250 - 300 ft. (Indoors / Through walls, ceilings & floors)<br>Range may vary according to environmental variables. |
| Certifications<br>FC CE Industry Canada | | 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.

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*** The sensor is capable of measuring above 50 volts but may not meet the specified accuracy above this value.

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## Proper Installation

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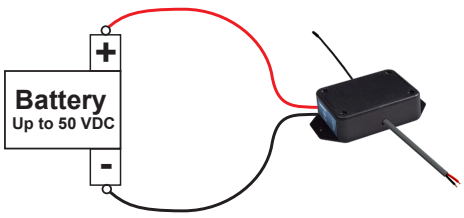

## Notes

### Commercial Grade Sen

IOT's 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 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 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

IOT'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

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