# Monnit Industrial
## Wireless AC Current Meter

**Technical Overview**

### General Description

The industrial wireless AC Current Meter measures the RMS current of an alternating current (AC) system using a current transformer (CT) that wraps around the “hot” wire of a two wire (hot, common, ground(optional)) power system. The sensor reports Minimum RMS current, maximum RMS current, average RMS current, and amp hours to the iMonnit system. The iMonnit system is capable of generating watt hour or kilowatt hour readings as well.

### Features

- Measures amp hours, max RMS current, min RMS current, and average RMS current.
- Two different current ranges available:
  - Low Current: 0-20 Amp
  - High Current: 0-150 Amp
- Capable of generating Watt Hour or Kilowatt Hour readings using iMonnit.
- Data logging for accumulated amp hour readings.
- Can notify based on current levels or changes in current levels.
- Simple and safe installation of current/power measurement hardware, no rewiring required.
- 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

To measure current in the AC system clip the CT around only a single wire of the AC system (clipping around a hot and neutral wire at the same time will result in 0 current readings). After the sensor powers on and connects to the gateway it will begin taking measurements based on the averaging interval (5 seconds default). It will report data to iMonnit every heartbeat or if the current goes outside of the aware thresholds set in iMonnit. The sensor reports amp hours, max RMS current, min RMS current, and average RMS current. iMonnit can also generate watt hour or kilowatt hour readings if a default RMS voltage is set in iMonnit.

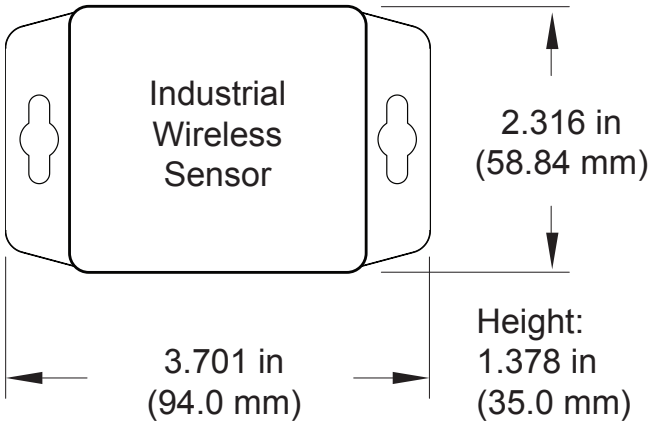
### Applications

- Current Monitoring
- Current Usage
- Amperage Monitoring
- Amp Hour Meter

### Monnit Industrial Sensor Electronics Specifications

- Power: replaceable 3.6V battery (included)
- Communication: RF 900, 920, 868 and 433 MHz
- Dimensions: 3.7” x 2.23” x 1.38”
- Antenna: 3dBi RP SMA antenna
- Operating Temperature: -40° to 85°C (-40° to 185°F)
- Transmission Range: 300 - 350 ft. non-line-of-sight*
- Battery Life: at 1 hour heartbeat setting, battery will last ~ 4-5 years.**

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




### Solar Power Option

Monnit Industrial Sensors are powered by a replaceable 3.6 V battery (included).

An optional solar powered version is also available. The solar powered sensor uses a Lithium Iron Phosphate rechargeable battery in conjunction with a solar power cell, extending the life of the battery.

| 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 Batteries) | -40°C to 85°C (-40°F to 185°F)** |
| Optimal Battery Temperature Range | +10°C to +60°C ( +50°F to +140°F ) |
| Enclosure Rating | NEMA 1, 2, 4, 4x, 12 and 13 rated, weather proof. |
| Certifications | Industry Canada<br>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). |
| **0-20 Amp Model** | |
| Absolute Max CT Current | 50 Amps RMS (Arms) |
| Maximum Accurate CT Current | 20 Arms |
| Frequency Range | 50 – 100 Hz |
| Accuracy | +/- 2% @ 2 to 20 Arms, +/- .07 Arms @ < 2 Arms*** |
| Calibrated Accuracy with Appropriate Offset | +/- 1% @ 2 to 20 Arms, +/- .035 Arms @ < 2 Arms*** |
| Offset Limits | -1.27 to + 1.27 Arms (default set to +.1 Arms) **** |
| Measurement Resolution | ~.01 Arms |
| Current Transducer Dimensions | 40 mm x 25 mm x 26 mm (10 mm inner diameter) |
| **0-150 Amp Model** | |
| Absolute Max CT Current | 200 Amps RMS (Arms) |
| Maximum Accurate CT Current | 150 Arms |
| Frequency Range | 50 – 100 Hz |
| Accuracy | +/- 2% @ 2 to 150 Arms, +/- .4 Arms @ < 15 Arms*** |
| Calibrated Accuracy with Appropriate Offset | +/- 1% @ 2 to 150 Arms, +/- .2 Arms @ < 2 Arms*** |
| Offset Limits | -1.27 to + 1.27 Arms (default set to +.3 Arms) **** |
| Measurement Resolution | ~.1 Arms |
| Current Transducer Dimensions | 67 mm x 49 mm x 42 mm (24 mm inner diameter) |

* 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.
*** CTs are inherently less accurate at or below 10% of max range. For best calibration results calibrate at a current between 30% and 90% of max accurate range.
**** Offset is used to overcome a diode voltage drop inherent to the hardware. To accurately account for this drop a default offset is used. To best identify the optimal value of this offset make a series of measurements at .2 to 2 Arms and find the current (Arms) difference between your measurement standard and the Monnit sensor.

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).

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®

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