

# Panoramic Power Sensor Accuracy – FAQ

## What are the Panoramic Power Wireless Sensors?

The Panoramic sensors measure the current flow through an electric wire in units of Ampere. The current measurement is used for various energy and operational efficiency applications such as off-hours energy consumption identification, anomaly detection, measurement and verification of savings, etc. The advantage of using the sensors is their low-cost non-invasive, maintenance-free and easy installation, that enables quickly collecting real-time energy consumption data at the individual device level.

## What is the measurement accuracy of the PAN-10/12 sensors?

The typical measurement accuracy for the PAN-10/12 sensors is 2% for current. For PAN-10 it is defined for currents ranging between 3A and 63A and for PAN12 it is for currents ranging between 10A and 225A. Accuracy is not defined beyond these ranges. For more information please refer to the sensor datasheet.

## What is the measurement accuracy of the PAN-14 sensor?

PAN-14 uses a standard 5A-output current transformer (CT) to measure current, and so the primary current range is determined by the CT rating. The typical accuracy for PAN-14 is 2%, at the current range of 0.1A to to 5A at the CT's output (2%-100% of the full current range). For example, if a 100A:5A CT is used, the PAN-14 sensor's accuracy is defined as 2% for a primary current of 2A to 100A

## Do the sensors measure true RMS current?

Yes, the sensors measure true RMS current, so the measurement is accurate even if the current waveform is distorted.

## How do you guarantee the accuracy of the sensor?

Each sensor is calibrated in the factory prior to shipment using high-accuracy equipment, to meet the specified accuracy levels. The calibration parameters are stored in the cloud and are used by the Panoramic Power software platform to display the readings. When working with the Bridge via Modbus TCP, the calibration parameters are stored inside the Bridge.

## Do I need to calibrate my sensors periodically?

No. There is no need to re-calibrate the sensors.

## How are power and energy calculated from the sensors' data?

Power is estimated by the software platform using fixed voltage and power factor values provided by the user during sensor deployment. Power is then aggregated over time to obtain the consumed energy value.

## Can I certify the sensors for submetering accuracy?

The current sensors do not provide submetering accuracy because they only measure current (and not voltage or power factor).

## OK... But can I use the sensors for submetering applications?

In environments where power factor and voltage are stable, the overall accuracy of energy (kWh) measurements over time is expected to vary between 2%-8%. Many of our customers choose to use our current sensors in such cases, due to the ease of installation and low-cost vs standard submetering.

## What about PAN-42?

PAN-42 is a true power meter, and provides current, voltage, power and energy (kWh) measurement accuracy of 1%.

## Is PAN-42 a utility/revenue-grade meter?

PAN-42 was tested by a 3rd party lab for 1% accuracy according to ANSI C12.1 class 1. This accuracy is sufficient for many billing-level applications, such as M&V, submetering, etc.

Despite its tested accuracy, PAN-42 is not officially certified as utility grade. This is due to some utility meter requirements (such as an outdoor enclosure and an LCD screen) which it does not have