

# Accuracy of the SolarEdge Monitoring System, Technical Note

## Data Sent to the SolarEdge Monitoring Server

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The SolarEdge monitoring system has two main data sources:

**The SolarEdge power optimizers** – each power optimizer measures the parameters of the module(s) connected to it - voltage, current and temperature - and transmits them to the SolarEdge inverter via a proprietary Powerline Communication Interface. The transmission is not continuous, therefore the power optimizers also locally record the cumulative energy produced from the module and transmit that data as well.

**The SolarEdge inverter** – The inverter measures input and output parameters such as voltage, current and grid. The inverter also records the cumulative amount of energy it produced. The parameters measured by the inverter and those measured by the power optimizers and transmitted to the inverter are sent to the SolarEdge monitoring server.

## Measurement Accuracy

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All measuring devices inside the SolarEdge hardware have a  $\pm 2.5\%$  accuracy. This means that each direct measurement (i.e. voltage or current) may have a deviation of up to 2.5% from the actual value.

Values like energy, which aren't measured directly but calculated from several direct measurements, have a  $\pm 5\%$  accuracy.

These accuracies are within the requirements of EU and US regulations for PV monitoring applications which are not used for revenue calculation (equipment used for revenue calculation (i.e. energy meters) typically have a  $\pm 2\%$  or  $\pm 0.5\%$  accuracy).

If a meter is installed at the site, it records energy with certain accuracy. The difference between the value displayed in the monitoring portal and the value displayed on the meter depends on the SolarEdge accuracy and the meter accuracy, and may be greater than the SolarEdge accuracy.

### Example:

An inverter produces 10000kWh. A meter is installed at the site, and has an accuracy of  $\pm 2\%$ .

In the worst-case scenario the monitoring portal will display  $1.05 \times 10000\text{kWh} = 10500\text{kWh}$ , and the meter will display  $0.98 \times 10000\text{kWh} = 9800\text{kWh}$ . This will result in a difference of 7.1% between the two measurements.