

Application Note – Alternate Current Transformer Selection, North America

Version history

- Version 1.2, April 2018 – product name change from "SolarEdge Electricity Meter" to "Energy Meter"
- Version 1.1, January 2018 – clarified CT compatibility requirements and added CT options
- Version 1, October 2017 – initial version

Introduction

The Energy Meter (refer to https://www.solaredge.com/sites/default/files/se_electricity_meter_na.pdf) is used with 200A or 400A current transformers (CTs) available from SolarEdge. These CTs meet the high accuracy standards of IEEE C57.13 and IEC 60044-1 over full temperature range and down to below 1% of rated current. They have outstanding linearity and exceptionally low phase angle error which is essential for highly accurate power and energy measurement.

While these are superior products in their class, some physical constraints in home installations make installing these CTs particularly difficult. This document lists alternative CT vendors whose CTs can be used with the Energy Meter. However, it is important to note that some of these alternate CTs may not carry the same accuracy guarantees as are provided with the SolarEdge CT products. This should be taken into consideration when designing systems with export limitation or maximize self-consumption, where high accuracy may be required (this is especially true of the Rogowski Coil option).

Alternate Products

The following list includes some examples of alternate CTs from approved vendors which can be used with the Energy Meter. To ensure compatibility the following CT attributes should be verified:

- Output voltage at rated Amps should measure 0.333 Vac
- Current rating should meet the installation size
- Line frequency should match that of the grid (50/60 Hz)
- Over voltage protection according to IEC 61010-1 CAT III 600V

Instructions for meter configuration are available in the "SolarEdge Device Configuration" chapter of the Energy Meter Installation Guide: http://www.solaredge.com/sites/default/files/electricity_meter_installation_guide_na.pdf

Continental Control Systems, LLC

- CTS Series Split-Core Current Transformers: https://ctlsys.com/cts_series_split-core_current_transformers/
- Rogowski Coils Flexible Style Rope CTs (requires external 12V power supply): https://ctlsys.com/ctrc_series_rogowski_coil_current_transformers/
- CTT Series Solid-Core Current Transformers: <https://ctlsys.com/product/ctt-solid-core-ct/>

MagneLab

- AC Current Sensor SCT-1250 - <http://www.magnelab.com/products/current-sensor-sct-1250/>
- AC Solid-Core Current Transformer UCT-1250 - <http://www.magnelab.com/products/ac-split-core-current-transformer-uct-1250/>