

Application Note – Alternate Current Transformer Selection, Europe, South Africa and APAC

Version history

- Version 1.1, April 2018 - product name change from "SolarEdge Modbus Meter" to "Energy Meter with Modbus Connection"
- Version 1.0, January 2018 – first version

Introduction

The Energy Meter with Modbus Connection (refer to https://www.solaredge.com/sites/default/files/solaredge_wnd_modbus_meter.pdf) is used with 50A, 70A, 100A, 250A or 1000A 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 with Modbus Connection. 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 with Modbus Connection. 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

Continental Control Systems, LLC

- CTS Series Split-Core Current Transformers: https://ctlsys.com/cts_series_split-core_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/>