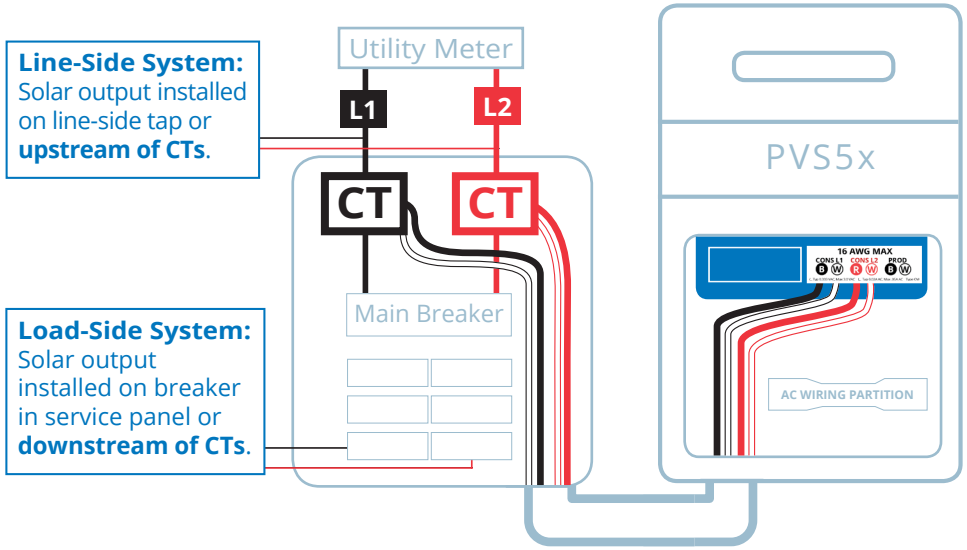
# Consumption Meter CT Installation Instructions

To monitor the customer's energy consumption with the PVSx onboard meter, you must follow these instructions to install the SunPower-provided split-core current transformers (CTs) for consumption metering. **See to the *PVS5x Installation Guide (#522351)* for the complete PVS5x installation instructions.**

To see training videos or enroll in training webinars: go to www.sunpowerpartnerconnect.com, select **SunPower University**, and search for *Consumption Monitoring*.




***Danger!* Hazardous voltages!** Accessing the system involves possible contact with potentially lethal voltages and currents. No attempt to access, install, adjust, repair, or test the system should be made by anyone who is not qualified to work on such equipment.

**The SunPower-provided CTs are suitable for use on 200 A conductors. CTs may be labeled "100 A" but this is a calibration reference rating only. You may install CTs in parallel or bundled configurations.**

1. Turn off all power to the main service panel in which you are installing CTs.
2. Place the CTs in the main service panel, around incoming service conductors, with the side labeled **THIS SIDE TOWARD SOURCE** *toward the utility meter* and *away from the loads.* Never install in the section designated for the utility in the service panel.
   - Place **L1 CT** (black and white wires) around incoming Line 1 service conductor
   - Place **L2 CT** (red and white wires) around incoming Line 2 service conductor

   **Note:** If CTs do not fit in this location, refer to *Alternate CT Installation Configurations* on other side.
3. Align the steel core pieces and snap the CTs closed.
4. Route CT wires through conduit to the PVS5x.
   - **Running CT wires:** You may run CT and AC wiring in the same conduit. Do not run CT wiring and internet communication cables in the same conduit.
   - **Extending CT leads:** Use Class 1 (300V rated minimum, 16 AWG maximum) twisted-pair instrument cable and appropriate connectors; SunPower recommends the use of silicone-filled insulation displacement connectors (IDC) or telecom crimps; do not use power cables (for example, THWN or Romex) to extend the CT leads.
     **Note:** See *Continental Control Systems: Current Transformer (CT) Wire Extension* guide at: https://ctlsys.com/current_transformer_wire_extension for suggested wire types and sourcing.
5. Land **L1 CT** and **L2 CT** wires in corresponding **CONS L1** and **CONS L2** in the J16 terminals on the bottom, right terminals of the PVS5x board (refer to the diagram above). Tighten to 0.5–0.6 N-m (4.4–5.3 in-lb). If you shorten the leads, strip no more than 6mm (1/4"). ***Caution!*** Do not overtighten terminals.
6. Verify CT voltage phases:
   a. Turn on power to the PVS5x.
   b. Use a voltmeter to measure voltage between the PVS5x L1 terminal and the L1 incoming service conductor in the main service panel with the L1 CT in place.
   c. If the voltmeter reads:
      - 0V the phases are correctly aligned.
      - 240V the phases are incorrectly aligned. Move the CT to the other incoming service conductor and retest to verify 0V.
   d. Repeat Steps 6.b and 6.c for L2.
7. When commissioning the system with the PVS Management App, set the CT rated current on the configure meter screen to **100 Amps** (the sum of CT values per phase).
   **Note:** If you installed CTs in an alternate configuration, refer to *Alternate CT Installation Configurations* on other side for CT rated current settings.

# Alternate CT Installation Configurations

Below are examples of parallel (multiple conductors) and bundled (inaccessible conductors) configurations. Not all possible configurations are represented.

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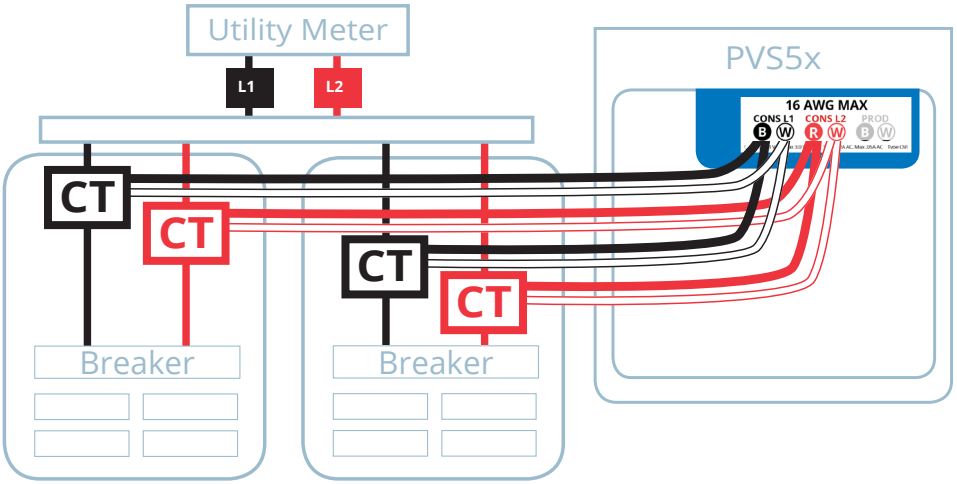
## Parallel Sets of CTs

To capture multiple conductors, install parallel sets of same size CTs:

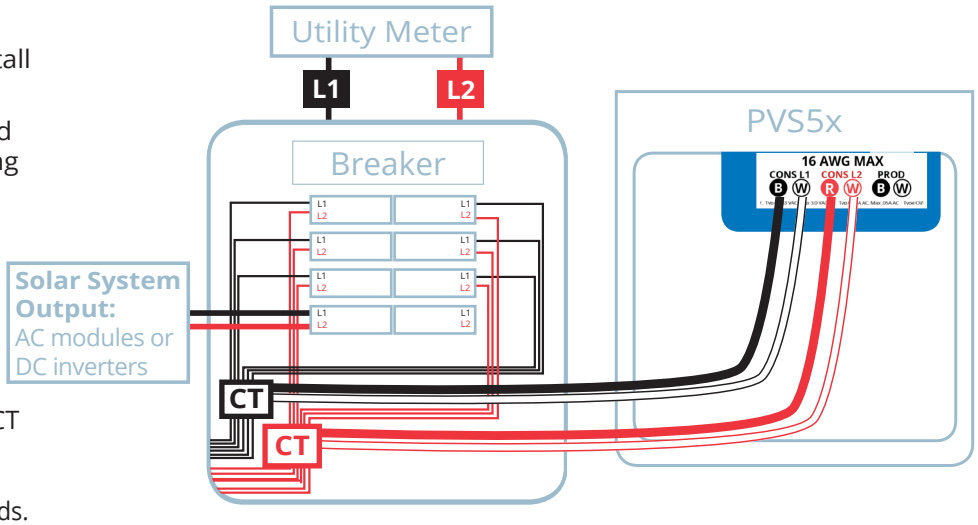
1. Land both sets of **L1 CTs** and **L2 CTs** wires in corresponding **CONS L1** and **CONS L2** PVS5x terminals.
2. Either twist each set and land together in the terminal block or splice onto to a single conductor.
3. Verify that both sets of **L1 CTs** are on **L1** conductors and **L2 CTs** are on **L2** conductors.
4. Verify CT voltage phases by completing Step 6 on the other side.
5. When configuring meters during commissioning, set the *CT rated current* to **200 Amps** (the sum of CT values per phase).




## Bundeled, Single Set of CTs

If the service conductors are inaccessible, install the CTs on bundled, individual load circuits:

1. Separate individual load circuits into **L1** and **L2** groups and route through corresponding **L1 CTs** and **L2 CTs**. **Do not route solar system output circuits through CTs.**
2. Verify that the side labeled THIS SIDE TOWARD SOURCE *is toward the utility meter* and *away from the loads.*
3. When configuring meters during commissioning, set the:
   - *CT rated current* to **100 Amps** (the sum of CT values per phase).
   - *Onboard Consumption Meter* to **Line-Side Solar System** for systems with bundled loads.




## Bundeled, Parallel Sets of CTs

To install parallel sets of same size CTs on bundled, individual load circuits:

1. Separate individual load circuits into **L1** and **L2** groups and route through corresponding **L1 CTs** and **L2 CTs**. **Do not route solar system output circuits through CTs.**
2. Verify that the side labeled THIS SIDE TOWARD SOURCE *is toward the utility meter* and *away from the loads.*
3. Either twist each set and together or splice onto to a single conductor and land **L1** and **L2** groups in the corresponding **CONS L1** and **CONS L2** PVS5x terminals.
4. Verify that **L1 CTs** are on **L1** conductors and **L2 CTs** are on **L2** conductors.
5. When configuring meters during commissioning, set the:
   - *CT rated current* to **200 Amps** (the sum of CT values per phase).
   - *Onboard Consumption Meter* to **Line-Side Solar System** for systems with bundled loads.