

Application Note:

Setting Up Large External Current Transformers for Sol-Ark 48V Split Phase Inverters

Important: Carefully read and follow all local code, manufacturer's instructions, and safety guidelines. Sol-Ark disclaims all liability for any personal injury, property damage, or other damage that may result from mis-applying the information in this document.

Introduction

This application note explains the selection and programming of larger compatible Current Transformers (CTs) for Sol-Ark residential inverters, particularly the 8K, 12K, 15K, and 18K models. While these inverters come with CTs, it may be necessary to purchase larger CTs for larger service sizes such as 400A. See Table 1 for characteristics of these current transformers.

Table 1: Current Transformers Included with Sol-Ark Residential Inverters

Inverter Model	Input : Output	Programed CT Ratio	Window Diameter
8K-2P-N; 12K-2PN	100A:50mA	2000:1	16mm (0.63")
15K-2P-N; 18K-2P-N	300A:150mA	2000:1	35mm (1.38")

Recommended Hardware

Table 2 lists CT models that have been tested and deemed compatible with PCS operation of the Sol-Ark 5K-48-ST, Sol-Ark 8K-48-ST, Sol-Ark 12K-2P, Limitless 15K-LV, and Limitless 18K-2P-LV inverters.

Table 2: Determine the CT Ratio

Note: The installer is responsible for choosing the correct CT for the intended application.

Manufacturer	Model	Input:Output	Programmed CT Ratio	Window Size	Website
AccuEnergy	AcuCT-200R	400A:100mA	4000:1	51.0mm x 51.0mm (2.00" x 2.00")	Brochure
		600A:100mA	6000:1		
		800A:100mA	8000:1		
AccuEnergy	AcuCT-4161R	600A:100mA	6000:1	105.0mm x 155.0mm (4.10" x 6.10")	Brochure
		800A:100mA	8000:1		

Connection and Installation

The AccuEnergy CT sensor should be used on sensor pinouts **3, 4, 5, and 6**.

- Connect CT1 of line L1 to pins 3 (white) & 4 (black)
- Connect CT2 of line L2 to pins 5 (white) & 6 (black)
- Keep the wires twisted (white-black) throughout the connection

If the wires need to be extended, use a CAT 6 (shielded) cable to make an extension.

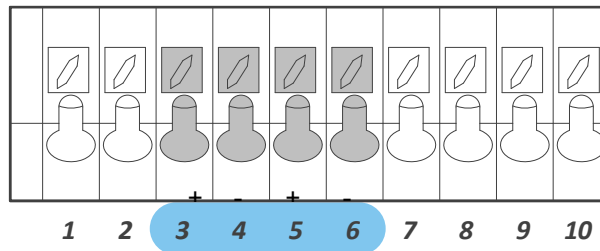


Figure 1: Inverter CT Wiring Area

For accurate measurements, point the CT sensor's direction arrows as follows:

- **For 240V services:** point direction arrows to the utility meter
- **For 208V services,** point direction arrows to the inverter

Combining Multiple Current Transformers

- When paralleling the secondary output of multiple CTs, make sure that the **combined output ratings do not exceed 300mA** or damage to the inverter may occur.
- For installations with multiple Sol-Arks combined in parallel, connect any CTs to only the master inverter.

Note on 3 Phase applications: For 3 Phase multi-inverter systems, see the inverter installation manual for instructions on how to install the current transformers.

Programming Steps

1. In the field highlighted below, program the CT setting for your inverter, according to the ratio shown in Table 2.

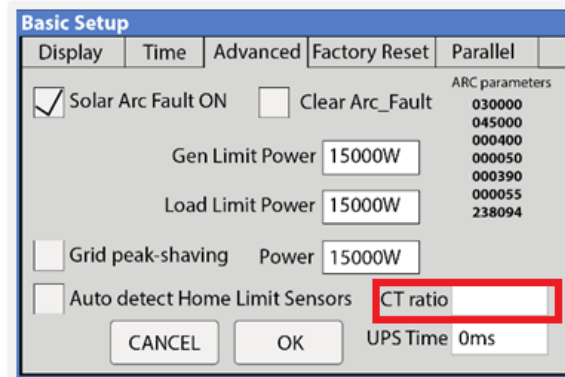


Figure 1: Programmable Screen Setting on the inverter for modifying CT Ratio.

2. Enable the **Limited Power to Home** function for the inverter to consider CT current readings.

Note: These CTs are compatible with Sol-Ark Residential products only. DO NOT USE Sol-Ark Commercial products.

For more information: Contact Sol-Ark Technical Support at (972) 575-8875 ext. 2 or support@sol-ark.com

Document Revision History

Rev.	Date	Author	Description of Changes
01	2024	Pooya Afifian	First Release
02	October 20, 2025	Pooya Afifian	Added “Combining Multiple Transformers” instructions