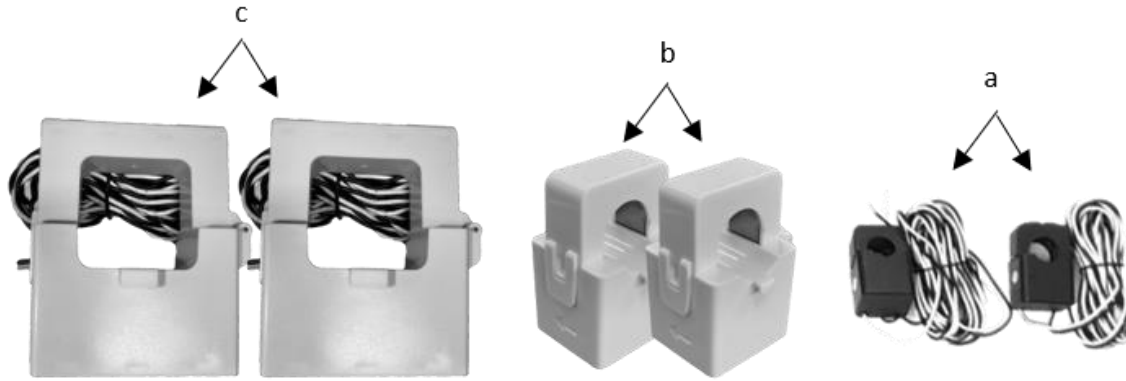


Sol-Ark CT Install Application Note

1. CT Sizes

- a. By default, each inverter is shipped with 5/8" 100A CT's (see a). Available upon request you can get 15/16" 200A CT (see b) and 2" 600A CTs (see c) that can be requested for larger applications. Note that one inverter can only read up to 80A.



Sensor Placement

- b. Under a standard Sol-Ark install the CT's are placed right above the service to the main panel. First inspect that the CT has no cracks in the enclosure. When connecting each CT ensure that the clip is closed entirely over each leg, if the sensor is excessively difficult to close you likely need to go up a size. The arrows on the CT should be pointing towards the Grid for 240V installs and away from the grid in 208V installs.



EX: 100A CT

- c. For a line-side tap the CT's should be placed between the electric meter and the line-side tap
- d. For Multisystem installs at 240V the CTs only go to the Master unit programmed to Modbus 01.
- e. For multi system three phase installs the CT's for L1 & L2 goes on first master 01 and L3 goes on the L1 CT pins on the second master system 02. See Pin Out in the Installers Manual

2. Wiring

- a. On the CT white is (+) and black is (-). On the Sol-Ark the L1 (+) & (-) are pin 3 and 4. L2 is pins 5 and 6.
- b. For three phase L3 goes to pins 5 and 6 on the second master inverter.
 - i. *In 208V 3 phase Auto Detect Home Limit is not available*
- c. For parallel stacked systems (120/240V) it is required to install CT's when grid tied to help the slaves stay in sync with the master
- d. If the CT's need to be extended, we recommend using twisted pair CAT 6 shielded cable. See Wire Guide in the Installers Manual

3. CT SW Setup

- If you have batteries and are a 240V install: First go to System Setup>Basic Setup>Advanced> Run Auto-Detect Home Limit Sensors. Afterwards go to the main screen on the unit and touch the battery icon on the screen. The CT's are correlated to HM for L1 & L2 under the Grid column. Limited to home and grid peak shaving will not function until the HM values are reading correctly.
- If you do not have batteries, are installed in 208V mode, or are using the CTs for gen peak shaving.
- The CT's if setup correctly should adjust differently under the different work modes of the inverter. Under "limited to load" the HM value should show positive values. Try turning on loads in the main panel and in the subpanel connected to the Sol-Ark and the HM values should increase accordingly.
- Under "grid sell" the HM values should show negative, or at least lower by the amount of power produced by the Sol-Ark. Sell back is the amount above the usage of the main panel.
- Under "limited to home" leave a few loads running in the main panel. HM values by default should range between 0-20 Watts as the inverter offsets the usage in the home. From the main screen go to System Setup>Grid Setup>Sell Control. You can adjust the Zero-Export Power Buffer if you want to lower or increase the range of how close the system will try to match the loads in the home. Keep in mind you could overshoot the loads in the home and can potentially sell back to the grid if your buffer is too small (we recommend keeping the default target of 20W in most cases).

Example:

CT L1/CT L2
in Grid Sell
Mode. Loads
in the MSP
larger than
PV

Solar	Grid	INV	UPS LD	Batt
1597W	-1492W 60.0Hz	1476W 60.0Hz	0W 120V	-30W 100%
L1: 262V 3.2A	124V HM: 629W	120V 5.9A	-10W 120V	54.70V -0.55A
844W	LD:-733W	723W	0W	23.1C
L2: 264V 2.9A	121V HM:3118W	120V 6.1A	Gen	TEMP
753W	LD:-759W	753W	0W	DC:64.6C AC:49.4C

4. Monitoring CT data in App and Web portal

- a. In the Web portal the HM values are under the Inverter tab for the plant. Under grid data it is called “P-grid Limiter 1/2”

Grid Data			
Status	V-grid-L1-L2	P-grid-total	P-grid-limiter-total
Grid-Sell	245.1 V	-1879.0 W	1299.0 W
I-grid-L1	V-grid-L1	P-grid-L1	P-grid-limiter1
7.6 A	121.9 V	-922.0 W	741.0 W
I-grid-L2	V-grid-L2	P-grid-L2	P-grid-limiter2
7.8 A	122.4 V	-957.0 W	558.0 W

- b. In the PowerView ES app it is referred to as “Ext_Pwr-L1” and ” Ext_Pwr-L2. You can view them under the Day and Grid chart under your plant.



5. Troubleshooting Tips

- i. Check CT for cracks. Is the CT Clipped with the cable enclosed completely
- ii. IF cables are extended check continuity and wiring
- iii. Make sure arrows point to utility
- iv. Make sure to stay consistent with which sensor is on which leg of the grid

6. FAQ

- a. Can you parallel CT's?
 - i. No, stacking CT's will not allow the inverter to 'see' higher wattages
- b. What to do with two panels?
 - i. Pick the larger panel to offset
 - ii. Place the CT sensors “upstream” of both panels if they will fit
- c. Do I need CT's for parallel systems?
 - i. CT mandatory for stacked systems (2+)
- d. What happens if I have no batteries?
 - i. The Auto-Detect Home Limit function will not function
- e. What if I am AC coupling?
 - i. Use Grid Sell and Limited Power to Home