

APPLICATION NOTE

Solis and EPM Quick Setup Guide

Product Description



Front View EPM Plus 5G



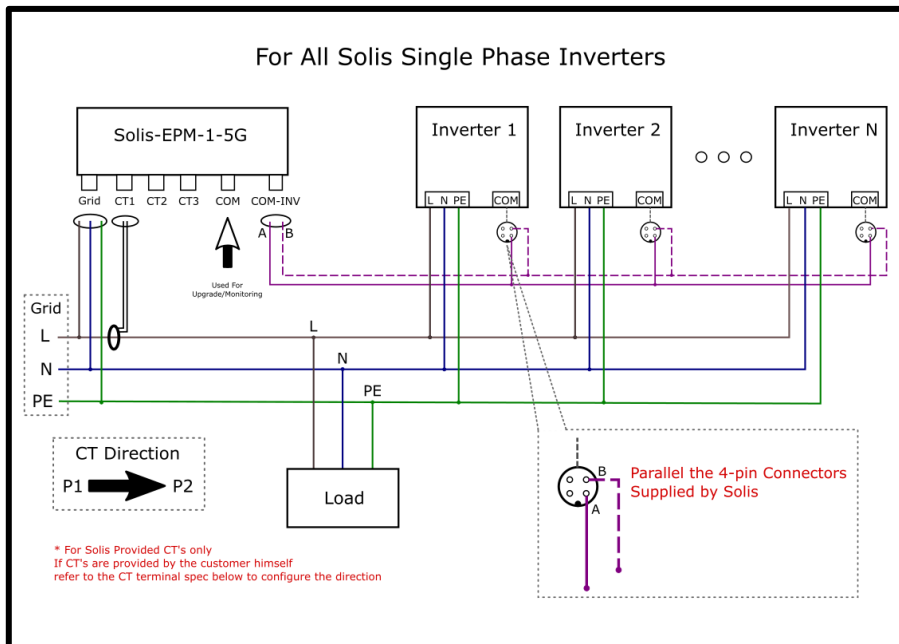
Bottom View EPM Plus 5G

The Solis EPM 5G is a device that allows you to adjust export values to satisfy local network regulatory requirements.

General Notes

- Do not place communication cables with DC and AC cables in the same conduits or trunking as this may influence the normal communications.
- Ensure that the communication wires between the inverter and EPM are properly connected as in the manual. (refer to system wiring diagram)
- The EPM should always be connected to the first inverter on the RS485 bus if multiple units are installed and the other inverters must be daisy chained.
- The secondary current for the CT should be 5A and recommended class 0.5CT for higher accuracy on the measured values.
- The load must be switched off before disconnecting CT as this will open circuit the secondary of the CT and may cause damage to CT, EPM or injury.
- Date & Time setting must be the same on the EPM and the Inverters.

System Connection Wiring Diagram



The wiring diagram is also found in the user manual and [EPM quick installation guide](#).

NB: This application note must be used in conjunction with the user manual for any further reference.

Communication

The EPM and Inverter communicates with Modbus protocol via RS485 2 wire. UTP/FTP Twisted pair cable should always be used. It is recommended a single twisted pair, with overall screen is used

Important Settings for Inverter and EPM

For the EPM to work, the settings and parameters to be adjusted are done separately on the Inverter and the EPM 5G device.

Inverter Settings

- Ensure correct date and time setting matches that of the EPM unit date and time.
- Check “set address” and ensure Modbus Address is set to 01 (default address is 01).
- Under Advanced Settings, Select -External EPM Set → .Select EPM-5G.
- Ensure Failsafe is set to RUN/ON.
- **** If EPM-5G is not available to select- Inverter requires Firmware update.

EPM Settings

Once the EPM is wired correctly and powered on, the unit needs to be configured.

Note: When configuring the EPM unit, switch inverters to grid stop → Advanced Setting → Grid ON/OFF → Grid OFF, inverters will not produce power in this mode.

On power on the default screen displays your active power (- consuming,+ means exporting or may mean the CTs have been reversely installed if power is supposed to be consumed).

Note this is the overall power and it is important to ensure that the CTs are checked for correct polarity on the individual phases. CT P1 direction towards the Grid – CT P2 towards the Load- See Wiring diagram.

The image below shows the EPM landing page.



Advanced Settings

Access the menu by pressing the Enter key and navigate to Advanced settings using the down arrow.



Press Enter on the advanced settings and password screen will pop up.

- Enter password 0010 by using the up-arrow key on the desired digit.
- Once you input the correct password, press enter to access the advanced settings menu.

Setting: Inverter Qty. Set



This must be selected to match the number of inverters connected to the EPM on site. This setting allows the inverter to know how many inverters to look for on the MODBUS network

Setting: Backflow Power



This value shows the maximum power that can be pushed back into the local grid. Export values must be checked with the local municipalities and must be followed. Note that only surplus power is exported i.e. if solar generation is more than consumption and if surplus power exceeds max export value, the generation will be throttled to the set value.

NB: For zero export plants, it is important to note that in case of a large sudden drop in load there will be a momentary export of power if there is no buffer. So, for plants where prepaid meters may experience nuisance trips because of this scenario, set this value to i.e. - 1000W etc. for the inverters to start throttling sooner before the actual zero mark. The plant size must be used to decide the buffer size.

Setting: PELD



This switch enables the EPM to switch ON the export limitation mode. It comes ON by default and it is good practice to confirm that it is ON, because if the setting is OFF the EPM Export Limitation function will not be active.

Setting 3: Set Meter CT



The CT ratio is set according to the installed CTs. Because all the CTs used for the EPM must have a secondary 5A current, the ratio is obtained by dividing the Primary Current/Secondary Current e.g., a 200:5 CT will be 0040:1

Setting: FailSafe



Must be set to run. This is a safety feature that stops inverter production should the EPM, MODBUS network or CT's fail for any reason.

Setting: Set EPM Regulator



This is to set the capacity of the generation plant, so the value will be the total of all inverters added up together. (AC output capacity i.e- 4 x 50kw inverters- Setting to 200000w)

Setting: Backflow Work Mode



Mode 2 is always recommended for unbalanced loads. (for detailed explanation refer to the user manual.

After adjusting the settings successfully, check on the advanced info menu option for the following.

Inverter Power: This will display the power of each inverter as measured by the EPM.

CT Connect Status: This must show OK, otherwise if CT_NG is displayed it means that the CT is open circuit or current passing through is extremely low – If Amperage values can be seen in the Information screen running message- CT's are fine, current may just be low.

Checking your CT polarity

The physical check is to make sure that P1 always faces the grid and P2 always faces the load.

If in doubt about the direction of the CT, please follow these steps to double check.

On your inverter menu, navigate to Advanced Settings and on the Grid ON/OFF select off.



Off state stops the inverter from producing power. (Must remember to switch Grid back on after check)

Navigate to the Advanced info and check the power of the individual phases. Note at this stage only your grid is available and the loads will be consuming power.

The individual phases: Active_APwr, Active_BPower & Active_CPower will show -(negative) Watts showing that you are buying power from the grid, once all 3 phases are verified, navigate back to Advanced Settings and switch grid on.

Ginlong Monitoring Platform.

After successful setup of the EPM and inverter settings, please refer to the [SolisCloud Monitoring Installer Guide](#) for details on how to connect the plant to the internet for remote monitoring and creating an account for cloud monitoring

NB: Remote monitoring data is not real time; Data points are logged after every 5 minutes so on first setup wait for about 10 minutes to get data points. This is because the data points go through the Solis server to round-trip time +- 5 minutes.

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