Three Phase Inverters for 3-wire Grids (Europe & APAC)

Version History

- Version 1.3 - December 2018
  - Modified Designer related sentence and image - new GUI
- Version 1.2 - January 2018:
  - Added reference to the Extended Power Commercial inverter
  - added 220/230 L-L - In some countries, the SolarEdge three phase inverters can be connected to 220/230 L-L 3-wire grids
- Version 1.1 - Nov. 2017:As2009698
  - CPU version V3.2171 and above is required for 3-wire grid settings
  - Note about inverters with 3-wire ratings on their label
  - Addition of option to create/ verify the PV system design using the Site Designer tool
- Version 1.0 - April 2017 - Initial release

Introduction

In some countries, the SolarEdge three phase inverters can be connected to 220/230 L-L 3-wire grids (inverter CPU version V3.2171 and above is required).

NOTE

If the 3-wire ratings need to appear on the inverter certification label, use inverters with Belgian part numbers: SExxK-**BE**xxxxxxx.

Prior to system installation, refer to the Supported Countries application note to confirm compatibility: http://www.solaredge.com/sites/default/files/se_inverters_supported_countries.pdf; installing without confirmation may void the inverter warranty.

SolarEdge three phase inverters are equipped with two fuse holders and a fuse; the Three Phase Inverter with synergy technology has two fuse holders and a fuse in each of its units.

The position of the fuse configures the AC grid connection: 4-wire (3 Lines/PE/N) or 3-wire (3 Lines/ PE) grid connection. By default, the fuse is located in the 4-wire fuse holder of the inverter, and in the 3-wire fuse holder there is a plastic dummy fuse.

To set the inverter for 3-wire grid connection, you must move the fuse from the 4-wire fuse holder, marked as Y GRID, to the 3-wire fuse holder, marked as **Δ** GRID (see *Figure 2*).

NOTE

For the Three Phase Inverter with synergy technology move the fuse in all inverter units, as explained in *Setting the Inverter to Support 3-wire Grids* on page 1.

CAUTION!

The only supported 3-wire grids are the 3 Lines / PE. Corner grounding is not supported. Connecting the inverter to other 3-wire grids may damage the inverter and will void the warranty.

Design Rules

Inverters connected to the 3-wire grid will operate with reduced AC power rating, due to the lower grid voltage; for full specifications refer to the inverter datasheets:

- SE6K-SE12.5K
- SE15K-SE27.6K
- SE50K,SE55K,SE82.8K

The following table details PV system design for 3-wire grids.

	SE6K-SE12.5K	SE15K		SE16K-SE27.6K SE50K,SE55K, SE82.8K		
Compatible Power Optimizers	P300-P500	P300-P500	P600	P300-P500	P600-P700	P800
Minimum String Length (Power Optimizers / Modules)	10 / 10	10 / 10	8 / 16	10 / 10	8 / 16	8 / 16
Maximum String Length (Power Optimizers / Modules)	25 / 25	25 / 25	30 / 60	25 / 25	30 / 60	30 / 60
Maximum Power per String	6000					7200

You can create and/ or verify your PV system design using the Designer tool, by selecting the Delta Grid option in the project info page:

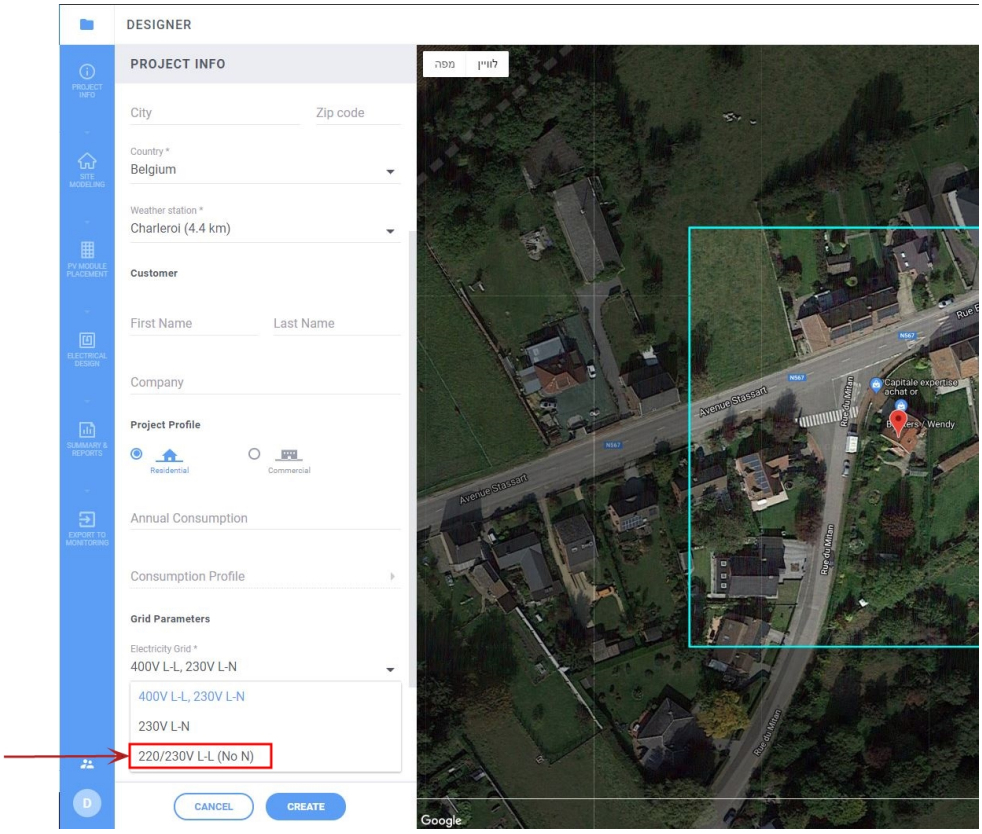

Figure 1: Selecting the 3-wire Grid option in the Designer

Setting the Inverter to Support 3-wire Grids

To set the inverter for 3-wire grid connection:

NOTE

Perform this procedure for all inverter units.

NOTE

Perform this procedure before connecting the inverter to the AC grid.

1. Remove the inverter cover: Open the inverter cover's six Allen screws and carefully pull the cover horizontally before lowering it.
2. Identify the fuse locations and the markings as described in *Figure 2*.

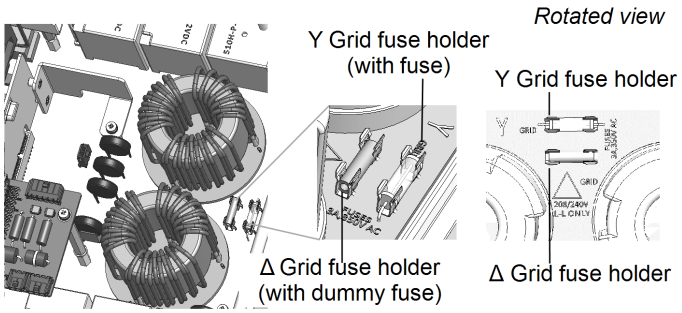

Figure 2: Fuse locations and markings

3. Remove the dummy fuse from the 3-wire grid fuse holder and set it aside.
4. Move the fuse from the 4-wire grid fuse holder to the 3-wire grid fuse holder.
5. Place the dummy fuse in the 4-wire grid fuse holder.
6. During system setup, set the country to the appropriate 3-wire grid option. Using the non-3-wire setting may result in incorrect system operation.

CAUTION!

If the fuse was moved to support one of the grid types, do not connect the inverter to the other grid type without switching the fuse back to the correct holder. Connecting the inverter to grids when the fuse is incorrectly located may damage the inverter and void the warranty.