



## > Components & Solutions for Renewable Energy Technology

### **Application Areas**

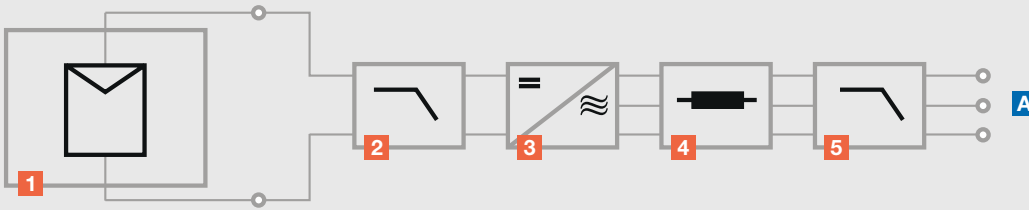
Uninterrupted electricity supply represents a key challenge in the 21st century. Photovoltaics (PV) and fuel cells in particular are of special importance because of their sustainability and environmentally friendly energy technology. In contrast to water and wind power, however, these sources produce DC voltage which, in order to be used commercially, must first be transformed into AC voltage at the appropriate line frequency.

### **Tasks**

Irrespective of the technology used, an alternating current voltage of superior quality is a fundamental requirement. This task is achieved by means of inverters, which “chop up” the direct current voltage into energy packets of varying sizes, reassembling it in the form of a sine wave with the appropriate line frequency (50 or 60 Hz) and amplitude (250 or 380 VAC). This transformation process, however, causes unwanted radiated interference, which may make it difficult to meet the statutory requirements for power grid quality. Remedial measures are therefore crucial. This is where SCHURTER’s various products come into play.  
(see circuit diagram, next page)

**Simplified circuit diagram  
of a photovoltaic installation  
equipped for grid feeding**

- 1 | Solar module generating DC voltage
- 2 | DC filter reducing interference radiation of the supply lines
- 3 | Frequency inverter transforming DC into AC voltage
- 4 | Commutation choke eliminating interference spectra caused by the circuits
- 5 | AC filter ensuring compliance with statutory EMC requirements
- A | Power grid



**Solution Approaches**

Various suppliers of frequency inverters have begun specializing in solar inverters. Solar inverters (frequency inverters for PV installations) differ from conventional industrial inverters in that they require only standard designs. Unlike the latter, however, they don't have to meet individual demands in terms of the physical proximity requirements between the power consumer and the controls.

Solar inverters are built using varying components, depending on their power rating. Small, autonomous solar inverters rated at only a few kW have to meet different requirements, in terms of electrical and mechanical engineering, than large-scale grid-feeding installations rated at several MW. What all systems have in common, though, are the standards with which they have to comply and, due to their exposure to sunlight, their increased thermal stability.

**SCHURTER Products**

SCHURTER has more than 30 years of experience in developing and manufacturing electromagnetically compatible solutions for AC power supplies and, hence, a broad range of suitable products and solutions to offer. In addition, we are constantly working on new concepts for DC filtering and the transformation of AC into DC voltage, in response to the growing needs of power electronics. That is why today we are already proven experts in this field, providing our customers with cost-efficient solutions for use in PV systems.

The standard products shown are specially designed for the tasks described above and bear all the country-specific rating labels:

- AC/DC filters for single-phase and 3-phase systems
- Current-compensated chokes, linear and storage chokes
- Pulse transformers and driver modules
- High-current chokes and sinusoidal filters

EMC products: [www.schurter.com/emc](http://www.schurter.com/emc)

New products: [www.schurter.com/emc\\_news](http://www.schurter.com/emc_news)

Approvals overview: [www.schurter.com/approvals](http://www.schurter.com/approvals)

**Individual Solutions**

We are standing by to assist you in designing PV installations, including consultancy on how to use the various components, EMC measurements as well as the supply of functional models and the corresponding documentation.

**Contact**

Please don't hesitate to contact us! We will gladly make your needs our task, in order to provide you with the optimal solution.

Contact: [www.schurter.com/kontakt](http://www.schurter.com/kontakt)

