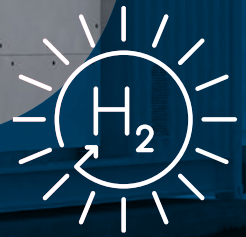




SCALE

UP



**YOUR
HYDROGEN
PROJECTS**

Scaling up

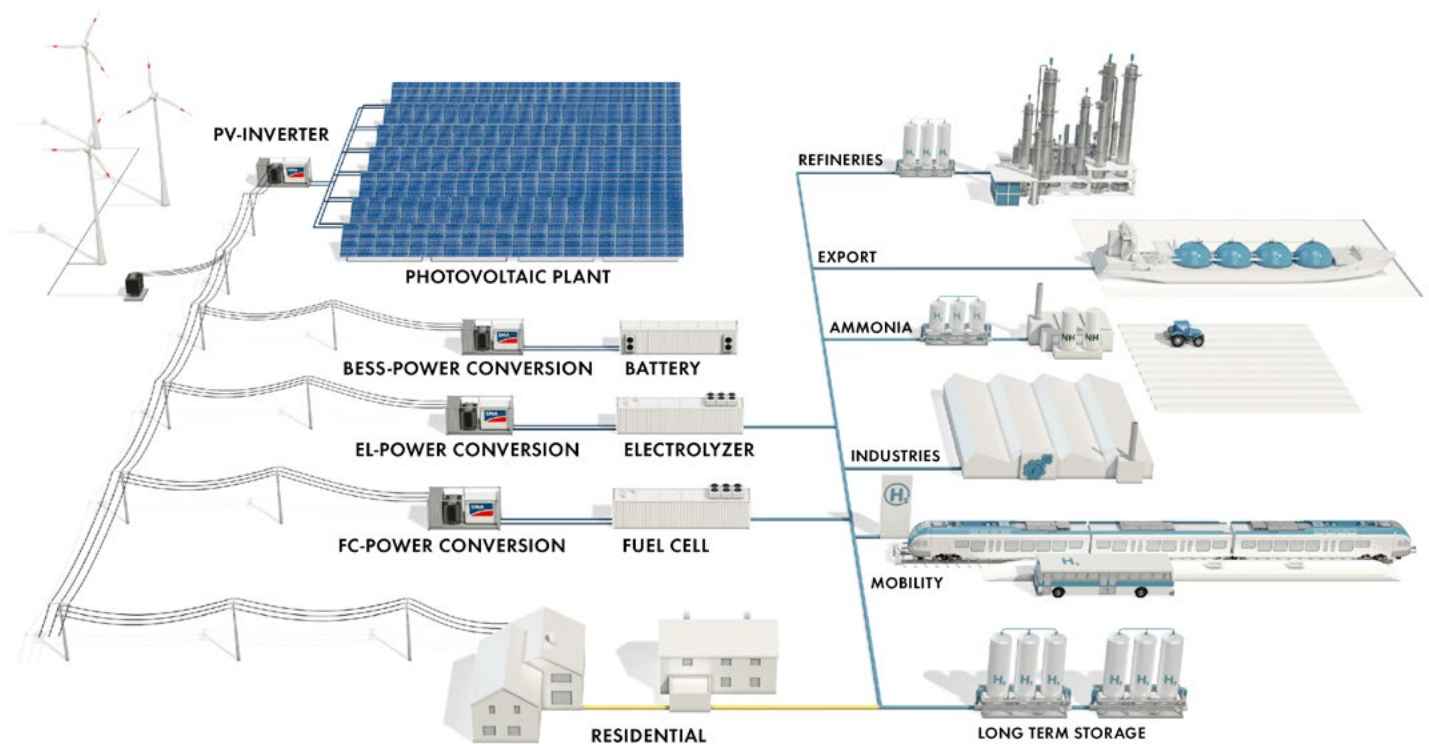
SMA Power Conversion Units (PCUs) are a proven solution for a reliable and scalable power supply of electrolyzers deploying on PEM, alkaline or SOEC technology. The innovative IGBT rectifier solution combined with carefully designed medium-voltage components and our large-scale serial manufacturing guarantees minimum project risk at maximum efficiency and quality. And that pays off: Our IGBT based solution ensures an attractive return on your investment.

The heart of the PCU is the Electrolyzer Converter (EC-UP) which converts AC power from the grid to DC power for the electrolyzer using a similar platform as our PV and storage converters. As a fully integrated package, which is easy to transport, install and commission, the PCU substantially reduces project costs and cuts construction time. Tested and installed in numerous countries

and climates, we ensure industry-leading availability and robustness and offer a global service network that provides optimum support along plant lifetime.

Our IGBT based Power Conversion Units allow a smooth grid connection and reactive power management. They provide exceptionally low harmonic distortion and make additional filters or compensators obsolete.

SMA PCUs are fully type-tested with an excellent track record of more than 10,000 installations in over 45 countries. Our high-volume production capacity of 21 GW (2023) and 40 GW (2024) ensures your individual project needs will be covered even for large-scale projects.



SIMPLICITY

- Fully integrated, containerized solution
- No need of harmonic filtering or power factor correction units due to IGBT technology



ROBUSTNESS

- 25 years lifetime
- Global proven track record
- Deployable under harsh conditions
- Integrated solution up to medium voltage



COMPATIBILITY

- Compatible with PEM, Alkaline and SOEC
- Compatible with most grid codes, renewables and batteries
- International IEC and IEEE standards



SCALABILITY

- Modular design for solution from 2 MW to 1 GW
- Standardized serial production with a high production capacity

Power Conversion

quality – versatility – turn-key

SMA's PCU has a wide DC operation window which enables to work with nearly all types of electrolyzers. The medium-voltage solution is designed for large-scale projects with the following features:

Smooth start-up

Enables a smooth and healthy start-up for the electrolyzer stacks.

Outdoor solution

The PCU is designed for outdoor operation. Optional environmental packages allow the climate conditions under harsh or extreme temperature conditions.

Step-Down Transformer

Optimum high efficient connection to nearly all power grid levels up to 34.5 kV.

Aux-Transformer

PCU can provide power for auxiliary supply up to 130 kVA.

Discharge function

Provides an important safety function ensuring electrical discharge of the cell-stack upon request to allow safe conduct of maintenance activities.

Communication

High speed Ethernet communication to smoothly connect to Plant Control or SCADA system.

Auxiliary Contacts

SIL2/SIL3 safety integrity levels for maximum operational plant safety.

Harmonics

Ultralow grid interference with our low harmonics IGBT technology.



40 foot container with two units

IGBT technology enables
high grid compliance
and a lean plant design
without additional filters or
compensation units



20 foot container with one unit



Advantages

- **Low implementation costs**
due to containerized plug-and-play solution
- **No additional filters necessary**
due to IGBT technology
- **Smooth grid integration**
due to additional grid services
- **No external cooling necessary**
due to intelligent air-cooling system
- **Fast project ramp-up**
due to large-scale serial production

Services

- **Feasibility and grid studies**
- **Commissioning**
- **After Sales Service and O&M**
- **Engineering and design support**

Technical Data

	20' PCU	40' PCU
Power	4.6 MW	6.2 MW
Max DC voltage	1500 V	1500 V
Max DC current	3.200 A (3.400 A _{max})	6.400 A (6.800 A _{max})
IP rating	Rectifier IP54, Station IP23D	
Max converter efficiency	98.7%	
Temperature range	Standard -25 to +55 °C, optional -35 to +45 °C	
Transformer	6 kV to 36 kV, KNAF, efficiency: > 99% KNAN, efficiency > 99% (Optional Dry Type for selected sizes)	
MV switchgear	Ring Main Unit with 1 x circuit breaker transformer feeder	
Standards	IEEE C37.100.1, IEEE C57.12, C37.20.9, CSC Certificate, IEC 60076, IEC 62271-200, IEC 62271-202	

Green hydrogen

New market meets proven technology

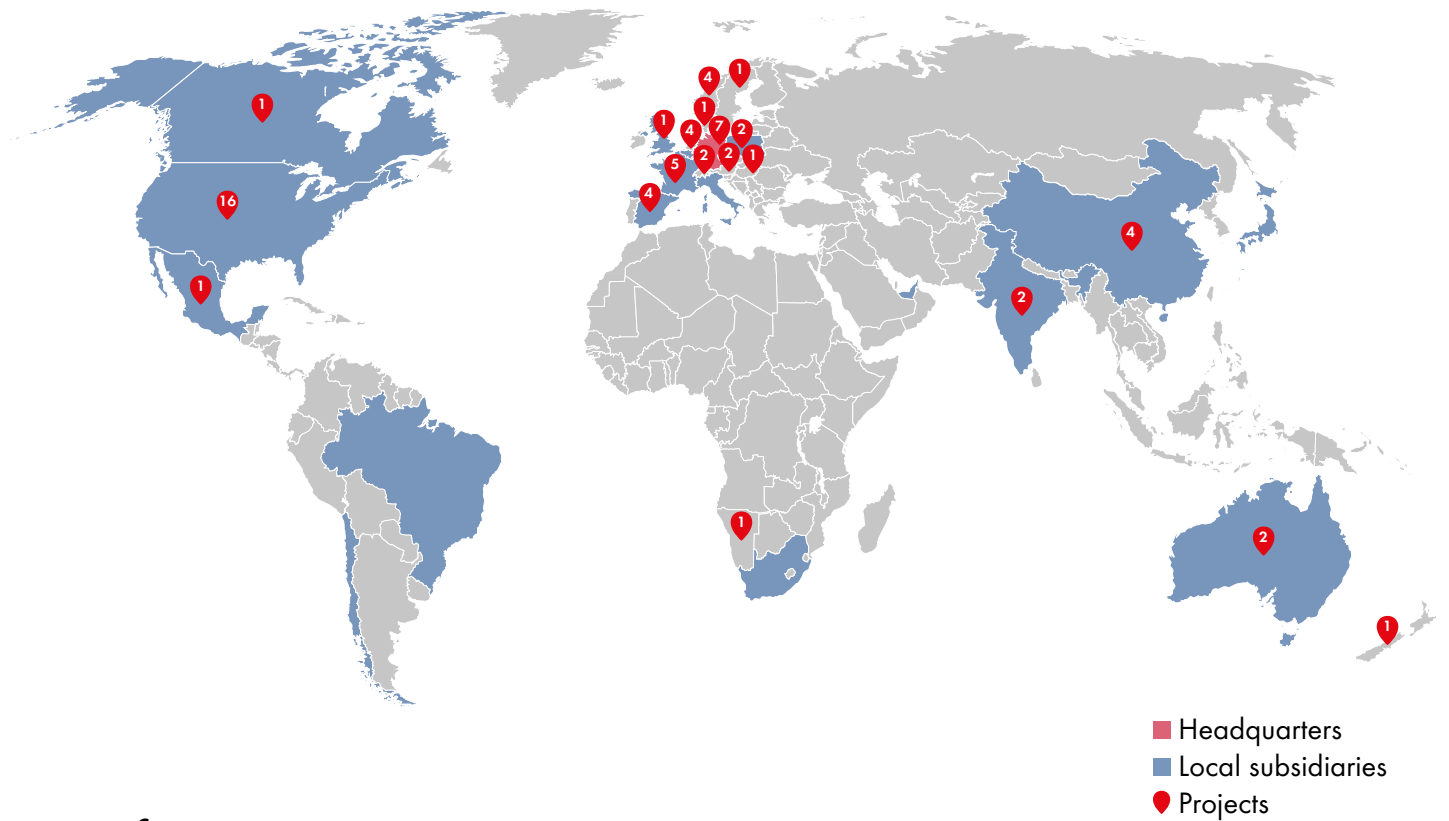
SMA Solar Technology AG is one of the leading solar and battery inverter manufacturers worldwide. The company is well known for its innovative system design, high-quality products, and German engineering. For its customers SMA has already installed over 130 GW of converter power over the past 40 years.

SMA Altenso GmbH is a 100% affiliated subsidiary of SMA Solar Technology AG. The company is engaged in the engineering, procurement, operation and maintenance of innovative energy systems based on SMA products with a strong focus on hydrogen applications.



Best practices

in over 70 hydrogen references worldwide



Key facts

>40
years of experience

20 subsidiaries
with strong service capabilities
and access to all channels

70 projects
in the hydrogen business
(mostly with PEM) already
realized

50 GW
installed capacity with
same product platform
as Electrolyzer Converters

>130 GW
installed base



Contact us

hydrogen@SMA.de
SMA-Altensio.com

