



THE FUTURE OF SOLAR TECHNOLOGY

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Quantum leaps in technology. Innovations that have been setting benchmarks in solar technology for 30 years. The knowledge and experience of more than 600 engineers. A unique product range that offers the right PV inverter for every solar power system worldwide. And an extraordinary company culture that turns employees into business partners. That is what SMA stands for.



SUNNY MINI CENTRAL





1990

The first SMA solar inverter PV-WR is introduced to the market

- » Efficiency: 90 %
- » Designed for serial production
- » Transistor technology
- » Equipped with user display
- » Communication and visualization with PC



1995

Market launch of the first string inverter SUNNY BOY 700

- » Efficiency: 93.4 %
- » Simplified installation due to string technology
- » Reduced costs due to minimized DC cabling, easy installation and improved efficiency
- » Protection rating IP65



1998

The first transformerless inverter SUNNY BOY 1500

- » Efficiency: 96 %
- » Comprehensive safety concept such as MSD and all-pole sensitive fault current monitoring
- » Reduced weight



2002

SMA innovation for optimizing yields: the first Multi-String SUNNY BOY 5000TL

- » Efficiency: 96.2 %
- » Maximum yield due to three independent MPP trackers
- » Combines the advantages of string technology with price reduction effect of larger inverters



2004

The best of its class: market launch of the SUNNY BOY 3300

- » Efficiency up to 95.2 % sets new record for transformer devices
- » Highly efficient OptiCool ventilation system
- » Feeding-in of nominal power up to an ambient temperature of 45 °C
- » Integrated DC load disconnecting switch ESS
- » Test winner at the German Product Standards Institute Stiftung Warentest



2006

Delivers short payback time SUNNY M CENTRAL 8

- » World's highest efficiency: more than 98 %
- » Lowest space requirement
- » Shortest payback time
- » Equipped with OptiCool
- » Innovative topology



2007

The new generation:
SMA presents the
SUNNY BOY 5000TL

- » Peak efficiency 97 %
- » Wireless communication via Bluetooth® technology
- » Optimized yield due to integrated MPP tracker OptiTrac
- » Easy installation due to ergonomic design and cable connection without using tools and ESS
- » Universal, Multi-String
- » Winner of iF product design award
- » Winner of reddot design award



2009

Three-phase feeding,
high energy yield:
SUNNY TRIPOWER
17000TL

- » Peak efficiency 98 %
- » Multi-string technology with high input voltage range
- » Highly flexible system design with Optiflex
- » Multiple safety concept Optiprotect
- » Innovative DC plug system SUNCLIX
- » Bluetooth® technology for wireless communication
- » Compatible with BDEW directive



2010

New-generation
galvanically isolated
inverters:
SUNNY BOY 3000HF

- » Highest yields for transformer inverters of this power class
- » OptiTrac and OptiCool
- » Easy connection due to plug-in communication unit
- » Innovative DC plug system SUNCLIX
- » Bluetooth® technology for wireless communication



2010

For direct deployment in the field:
SUNNY CENTRAL 800CP

- » All-weather outdoor enclosure for applications out in the field
- » Lighter design without concrete station
- » Full nominal power up to 50 °C
- » Separate connection compartment for simple, safe installation
- » Comprehensive grid management functions





WHY
DON'T WE SPEAK ABOUT THE
RISKS
OF CLIMATE CHANGE?

BECAUSE
IT IS ABOUT THE
CHANCES
OF THE CHANGE IN ENERGY



The future of our energy supply lies in renewable energy. Fossil fuels are becoming increasingly scarce and hence more expensive. They are also largely responsible for the greenhouse effect that is driving climate change. It is therefore no wonder that renewable energy is currently enjoying broad political support, as can be seen in the Kyoto Protocol and similar



Growth Potential and Unlimited Energy Reserves

As one of the most promising renewable energy sources, photovoltaics, or the generation of electricity from sunlight, offers the greatest potential for growth in the global solar markets. Solar power systems are easy to install and supply electricity to the power distribution grid locally, or in other words, close to the consumer. Moreover, solar power is generated when the demand is at its highest. This way, photovoltaic power can easily be integrated into existing power grids. Even when fed in economically efficient quantities.

After all, the sun provides us with unlimited energy reserves: the amount of irradiation it produces exceeds the world's primary energy needs by a factor of more than 10,000.

Much more than just a number – because SMA's PV inverters are essential when it comes to turning sunlight into electrical energy.





WHY ARE WE THE
GLOBAL
MARKET LEADER?

BECAUSE NOBODY
UNDERSTANDS
INVERTERS BETTER THAN WE DO.

With a current worldwide production capacity of around eleven gigawatts, we are the world's largest manufacturer of PV inverters. The rule that we live by: identify market demands early and set the trends in solar technology. This includes solutions to integrate electricity from PV plants into the grid as well as continuous cost reduction. Our success proves us right. We have been shaping inverter technology for 30 years now and are frequently awarded prizes for our services and products. No other solar technology company possesses a comparable degree of competence in development or has done more to shape the success of photovoltaics than SMA.

The Right Inverter for any Solar Power System

A PV inverter does not only convert the direct current generated by modules into grid-compliant alternating current. It is also the heart of the entire solar power plant. The inverter is a highly intelligent system manager, which is responsible for controlling the generator, monitoring the yield and regulating the grid. SMA PV inverters are more efficient, user-friendly and long-lasting than any other product on the market and they are available to our customers in an unparalleled product variety. We are the only manufacturer who can

offer the right inverter for any customer requirement: whether for grid connection or stand-alone power supply. From kilowatts to megawatts. For all module types. Worldwide.

We are a highly flexible company with a keen focus on the market. That is why the innovations in inverter technology come from SMA.





THE
FUTURE
OF
SOLAR
TECHNOLOGY

WHY IS OUR
SOLAR INVERTER FACTORY
A REAL

BECAUSE IT IS ABLE
TO RECONCILE ARCHITECTURE WITH
TECHNOLOGY AND

FLAGSHIP PROJECT? **EFFICIENCY.**



Technology meets aesthetics - our PV inverter factory is a production facility of the highest standards. In every respect: carbon-neutral thanks to the innovative energy concept. Efficient and highly flexible production on a space of 18,000 m² according to the SMArt flow principle. And a peak capacity of four gigawatts. "Solar Factory 1" is therefore the world's largest carbon neutral factory for PV inverters. A flagship project that sets new standards for industrial manufacturing. And a building with compelling aesthetic design and modern architecture. Even more: Thanks to our highly flexible manufacturing concept, delivery times for our inverters are kept short and product innovations can be realized more quickly.



Climate Neutral Production – Saving Resources

By their very nature as the primary component of every solar power system, SMA solar inverters already actively promote climate protection efforts. Our contribution towards protecting the environment and the climate begins much earlier; however, by building the world's largest solar inverter company, we have realized a groundbreaking concept that allows us to manufacture our products with a zero carbon footprint; the building shell meets the standard for low energy houses. Different energy sources are combined in an

intelligent manner in order to provide heating, cooling, compressed air and electricity for the production process. The use of renewable energies like photovoltaics or biogas further reduces CO₂ emissions.

State of the art industrial production can already be climate neutral today. Our PV inverter factory is the best example.





WHY ARE
WE
FASTER
THAN OUR COMPETITORS?

SO WE WILL HAVE MORE
TIME TO BE
BETTER
THAN THEM.

We launch up to six new products every single year, offer the shortest product innovation cycle by far on the market and are the driving force of the solar technology sector: more than 600 engineers at SMA are developing inverter concepts for the future and products with a high customer benefit. Our invention of string technology, for instance, greatly simplified the installation of solar power systems. A decisive cornerstone for the successful development of the entire solar technology sector. The latest generation of Sunny Boy inverters is a further proof of our strength in innovation. Its intelligent installation concept, tool-free wiring, wireless *Bluetooth* communication and award-winning design speak for themselves. For the Sunny Tripower, our first three-phase PV inverter, we received the innovation award at the 25th Symposium for Photovoltaic Solar Energy in Bad Staffelstein, Germany in 2010.

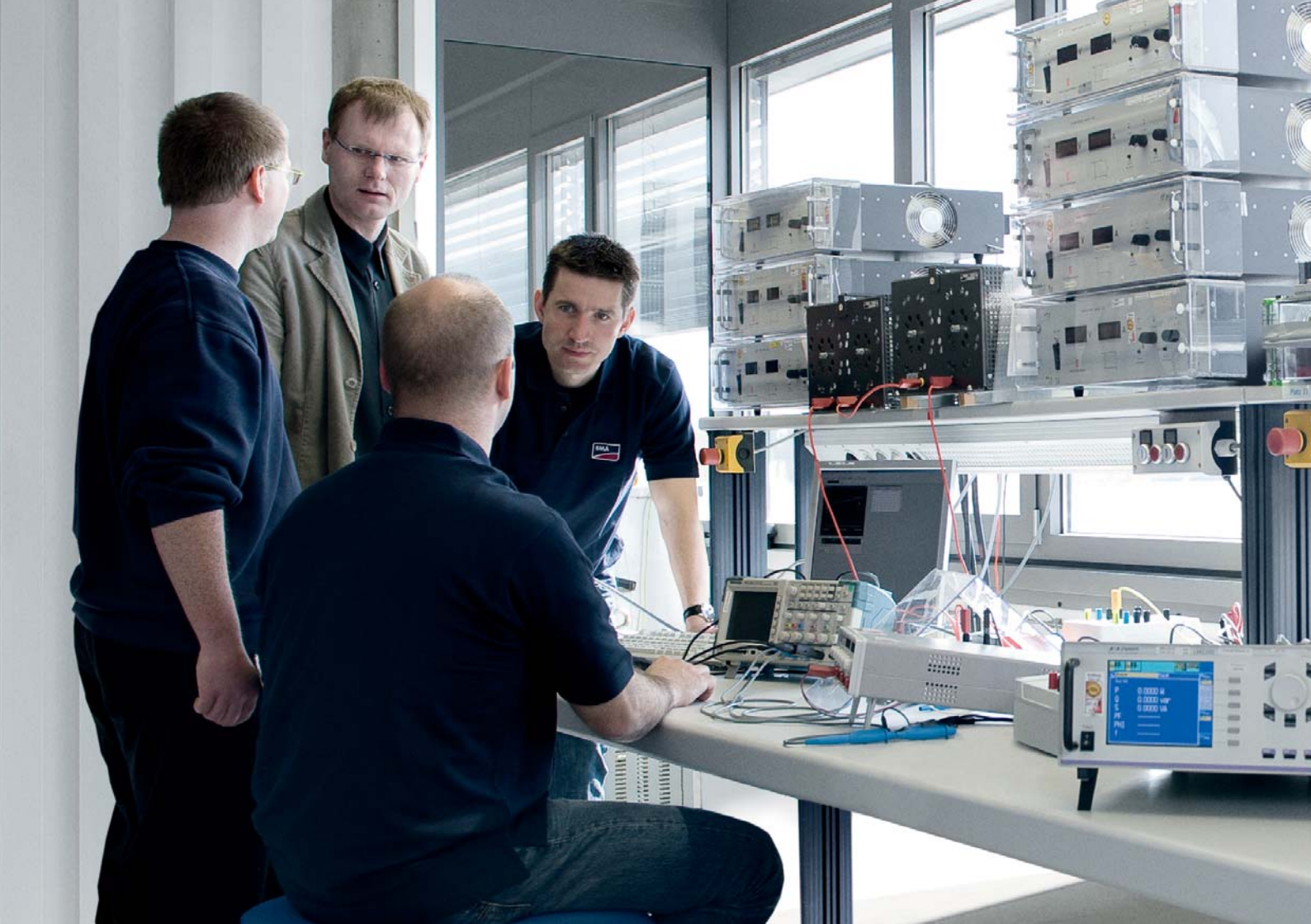


Future Technology with High Quality Standards

In the future, our powerful microprocessor-controlled PV inverters will not only ensure smooth system operation but efficient grid power control as well. With this in mind, SMA has already developed a process that allows a high level of grid integration for decentralized solar power plants. From the very beginning, our quality standards have served as a consistent guideline for all processes. To guarantee the long-lasting reliability and service life of our PV inverters, even under extreme environmental conditions, we have invested

into a variety of projects, such as our own automated testing center. Here, we subject the devices to extensive endurance testing and developing new quality standards for solar technology.

Our developers are given an incredible amount of creative freedom, for they are the ones who transform current market demands into modern technology.



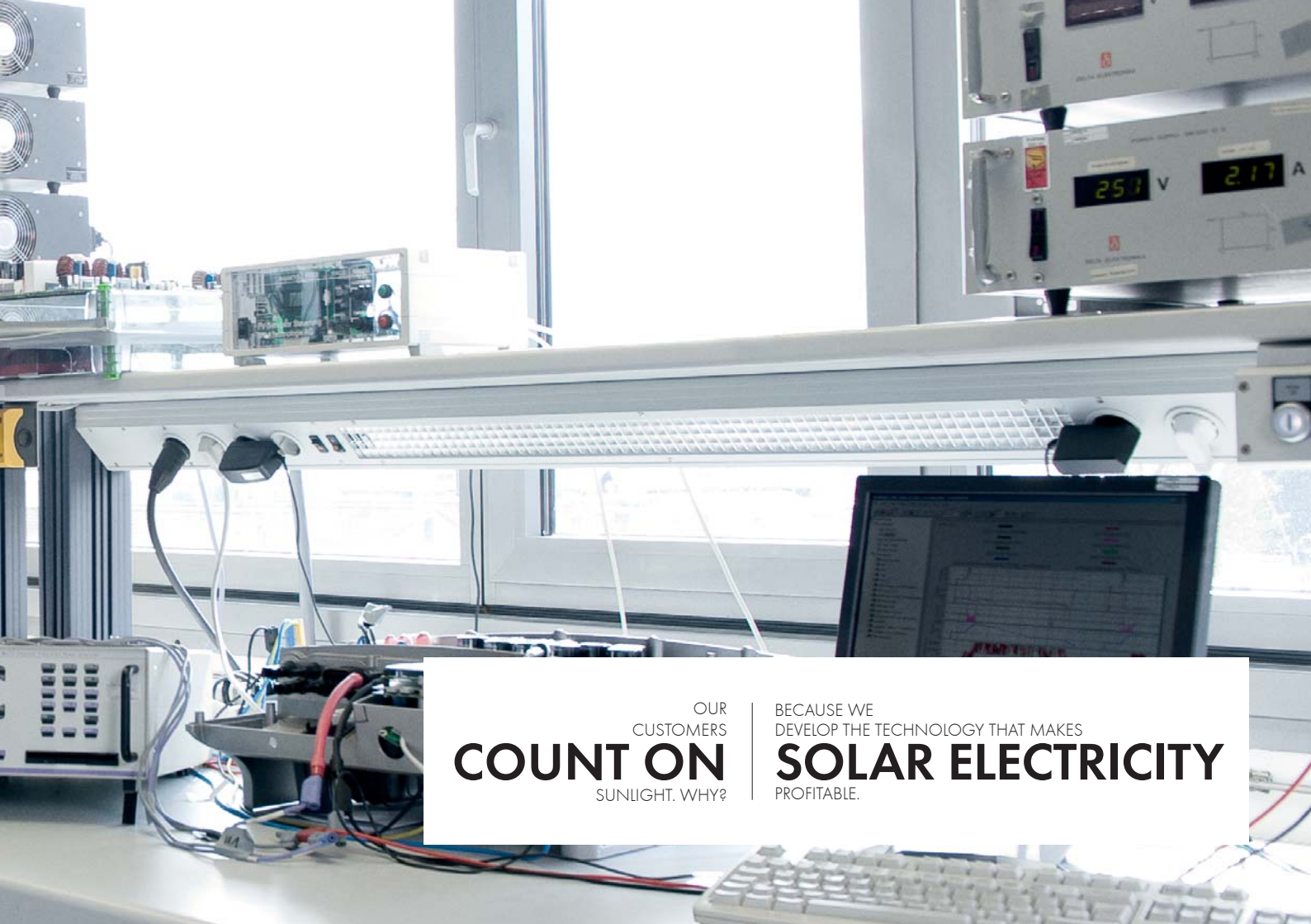
Man 1 (left): A man with short brown hair, wearing glasses and a dark blue long-sleeved shirt, standing and looking towards the workstation.

Man 2 (back): A man with short brown hair and glasses, wearing a tan jacket over a dark shirt, standing and looking towards the workstation.

Man 3 (front): A man with a shaved head, wearing a dark blue polo shirt, sitting on a blue stool and looking at the computer monitor.

Man 4 (right): A man with short dark hair, wearing a dark blue polo shirt with a small logo on the chest, leaning over the workstation and looking at the monitor.

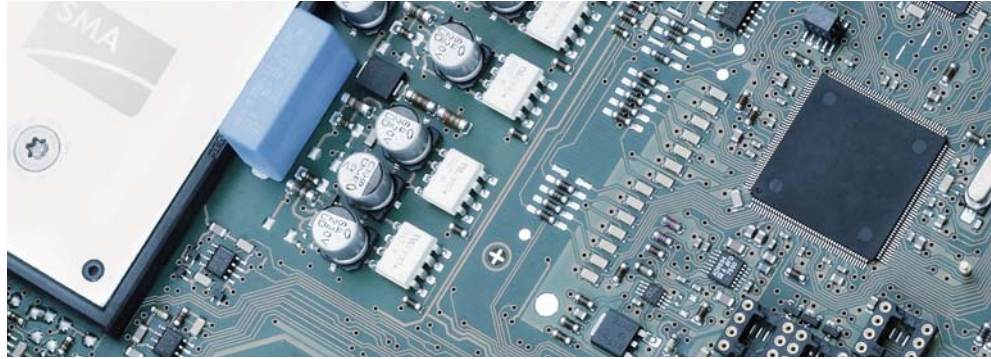
Equipment: The workstation is equipped with a computer monitor, a keyboard, a mouse, a power supply unit, a multimeter, and various cables. In the background, there are shelves filled with stacked electronic modules, including power supplies and control units.



OUR
CUSTOMERS
COUNT ON
SUNLIGHT. WHY?

BECAUSE WE
DEVELOP THE TECHNOLOGY THAT MAKES
SOLAR ELECTRICITY
PROFITABLE.

We do not regard economy and ecology as a contradiction. That is because solar electricity is both profitable and conserves the environment. Provided, of course, that the technology works. A solar power system is only as good as its inverter: higher inverter efficiency means a shorter payback period for the entire system. SMA is the only manufacturer with the system knowledge required to make quantum leaps in technology. By developing completely new technologies such as the H5 topology, we have been able to significantly optimize how electricity is fed into the grid. SMA PV inverters set a new world record by achieving a peak efficiency of 98 percent. Our Sunny Backup system represents a further innovation; this modularly-designed backup solution can provide solar electricity even in the event of grid failure.



Cost Reductions Through Modern Technologies and Processes

Our goal is to make photovoltaics competitive. To achieve this goal, we always strive to lower costs by developing modular inverter concepts for increased system availability and by producing intelligently-designed products in mass quantities. Our unique CO₂-neutral inverter factory features a production capacity of about four gigawatts and serves as an optimal basis for highly flexible serial production that meets the latest manufacturing standards. At the same time, we also focus on simplifying installation and service. System

operators can thus take advantage of short payback times and high investment security.

We keep our customers satisfied by offering them new technologies and ongoing cost reductions. For us, these are critical building blocks for long-lasting partnerships.



SUNNY PRO Club
Making Strong Partners Stronger



Sunlab
10587 Berlin

Peter Mertens

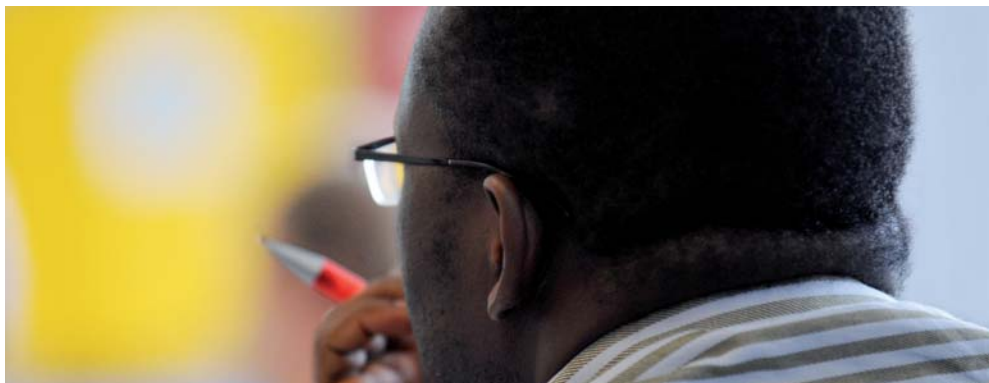
Membership Number SPC1236547



WHY
ARE
WE
VALUED AS A PARTNER THROUGHOUT THE WORLD?

BECAUSE
WE OFFER
THE BEST
INVERTERS AS WELL AS THE BEST SERVICE.

Faster, more comprehensive and more flexible – the modular SMA service concept. When needed, our customers can rely on an extensive warranty program, the SMA Service Line and our on-site service options. The efforts of our highly qualified service technicians play a decisive role in improving system availability. Based on outstanding expertise and short response times, we can create added value for our customers starting with the planning phase. We are a reliable service partner – for private roof systems, commercial PV systems, or large solar power plants. The service range is topped off by the SMA Solar Academy seminars: in practice-oriented training courses we provide expert knowledge regarding the optimal use of our inverters and communication products.



Globally Connected with our Partners

With our Sunny PRO Club, the SMA partner program for solar installer professionals, members have access to professional marketing and sales support. Whether a trade fair display, brochure material or a listing on our end-customer portal www.solar-is-future.de: club members benefit from a more visible local profile and increased recognition with the result of winning new customers. The Sunny PRO Club has already been launched successfully in Italy, France and in the USA. The SMA training program is also

available to our customers across the globe - and we offer qualified training seminars on site when required.

For us, service is not a question of location, but one of global proximity to our customers.



SMA America

SMA Canada

SMA UK

SMA France

SMA Benelux

SMA Solar Technology AG

SMA Czech Republic

Niestetal Services,
Unipessoal Lda Portugal

SMA Hellas

SMA Ibérica

SMA Italia

SMA Middle East



WHY
ARE WE
TODAY
ALREADY REPRESENTED GLOBALLY?

BECAUSE WE KNOW
THAT THE SUCCESS STORY OF
PHOTOVOLTAICS
IS A GLOBAL ONE.

As a market and technology leader, we are a major driving force in one of the global growth markets of the 21st century. We are currently represented by 17 foreign subsidiaries on four continents. This means SMA customers not only benefit from our internationally oriented processes, but also from our many years of experience in dealing with country-specific certification and grid compliance regulations. SMA is also one of the few companies in the industry with a global service infrastructure. Our customers have access to expert telephone support in their own language and qualified on-site service. In addition, we offer our customers advanced solutions for easy remote diagnosis and maintenance for home installations or entire solar power plants.



A Universal Device for International Use

Of course the first “universal device” is also an SMA inverter: the new Sunny Boy generation can be used almost anywhere in the world without modifications - and dealers can take advantage of drastically reduced storage and transport costs. The Sunny Central inverter by SMA is also used to implement large-scale international projects around the world. And thanks to our Sunny Island battery inverter, we have the right technology for building stand-alone systems far away from any public power grids. Our extensive product range

plays a significant role in our successful internationalization and export strategy.

SMA systems technology is in great demand all over the world. And our new training facility, which is self-sufficient in terms of energy, is a perfect example of how well this technology works, even in our latitudes.





WHY IS A VISIT TO
THE SMA SOLAR ACADEMY
A PARTICULARLY MEMORABLE

EXPERIENCE?

BECAUSE IT PROVES THAT A SELF-SUFFICIENT
POWER SUPPLY WORKS EXTREMELY
WELL THANKS TO SMA

TECHNOLOGY.

Is it possible to build a modern, training center, which is self-sufficient in terms of power supply, without making any compromises when it comes to comfort and design? It is. With the SMA Solar Academy, we have constructed a building that is operated exclusively by energy from renewable resources on a completely carbon neutral basis without being connected to the power distribution grid. And the building is truly impressive when it comes to its architecture, comfort, and practical benefits.



We Bring Solar Technology to Life

Hands-on experience of solar technology: With the SMA Solar Academy, our vision of a reliable, decentralized, self-sufficient supply of energy from renewable resources has become a reality. The intelligent combination of different energy resources with state-of-the-art SMA systems technology makes it possible: PV plants, a combined heat and power plant, and a well work together to provide electricity as well as heating and cooling – all year long.

But the Academy offers much more – it

is our forum for sharing experience related to solar technology and renewable energies. Here, we share knowledge – cooperatively, competently, and clearly. Together with the seminar’s participants, we want to advance the field of electricity generation with photovoltaics. Could there be any better place for this than the Solar Academy? In a building that proves without a doubt: An independent and reliable supply of electricity from renewable energy resources is easily possible today – thanks to SMA systems technology.





WHY HAVE
WE MADE A
GLOBAL
COMMITMENT?

BECAUSE WE BELIEVE IN HELPING THE
TWO BILLION PEOPLE LIVING WITHOUT
ELECTRICITY
TODAY.

In addition to the worldwide expansion of grid-connected photovoltaics, we at SMA also have another vision: to supply power to the more than two billion people who are still living without electricity today. Electricity is the foundation which prosperity and social development is built upon. To this end, we are working with regional and international knowledge networks, organizations, associations and institutions. We also support global action programs that promote the supply of solar power to remote, off-grid regions. The technology required to build a modular stand-alone system is already available – the SMA Sunny Island.



Electrical Power Means Prosperity

Our Corporate Social Responsibility projects are assisting the reconstruction efforts in global crisis and third-world regions such as Uganda and Sri Lanka. In these projects, we provide all required system components for free, as well as the expertise of our engineers. In their free time, they assist in the planning process, train installers on-site and thus play an active role in helping the people of these regions learn how to help themselves. All these activities are part of our main goal: to create economic prosperity without wasting

resources or polluting the environment. SMA employees are committed because they identify with our values and goals. And because they are part of a special corporate culture.



WHY
IS
OUR
STAFF FLUCTUATION RATE ALMOST ZERO?

BECAUSE
WE EMBRACE CORE
VALUES
REGARDLESS OF HOW FAST WE GROW.



Our corporate culture is a remarkable balancing act: growing rapidly while preserving and handing down established values. Open communication, transparent decision-making processes and staff participation in company profits – this has been our model for success from the very beginning. Today, we are recognized as one of the five best workplaces in Europe by the Great Place to Work Institute and give our employees the opportunity to buy company shares as investors. In so doing, we are not only strengthening the level of independent initiative and company identification among our employees, but also fostering a sense of pride in all we have achieved so far.



Learning Organization and a “Great Place to Work”

The knowledge of our employees is the basis for our global competitiveness. After all, our extremely fast rate of innovation and expansion is only possible if our employees are highly motivated and ready for change. This is why we invest an above-average amount in training and qualifying our staff and in a systematic knowledge management. As a learning organization, SMA is known for its exceptional competence management: initiatives such as the SMA University, an international exchange program for Man-

agement Potentials, are also winning independent praise: our “Life-long Learning” program won several special awards in the Great Place to Work competition.

Let us be realistic and try the impossible. For us, more than just a mission statement.

REFERENCES

**A unique product range
that offers the right PV inverter for every solar power system.**

Solarpark Almeria realized with „Arge Sol del Sur“, a partnership of Alpine-Energie Deutschland GmbH, Kraftwerk Sonne GmbH and Sinosal AG.



Solar energy for 6,000 households using SMA Sunny Central inverters: Solarpark Almeria, Spain



Sufficient electricity for a small city thanks to SMA systems technology
Europe's largest solar power plant (as of 2010) in Montalto Di Castro, Italy





gy:
aly



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