



ENERTRONICA

SANTERNO

Giving energy more value

Company Profile

Enertronica Santerno S.p.A. is a company listed on the Milan Stock Exchange, operating in the **energy and power electronics** sectors. Our mission is to create value for our stakeholders by adopting a modern and eco-sustainable approach.

The merger by incorporation made in 2019 between Enertronica S.p.A. and Elettronica Santerno S.p.A has created a new industrial entity, both versatile and vertically integrated into power electronics and renewable energy sectors:

a multinational corporation now boasting a comprehensive suite of skills acquired over **50 years** of activity.

Our Group is a leader manufacturer of motor drives and inverters for applications in the Industrial Automation and the Solar Energy industries. Our remarkable primacies include, among others, being the first Italian player with a global installed capacity of **12+ GW**.

In Enertronica Santerno we develop our own projects in a totally independent way, thanks to our proprietary patents based

on the most advanced technology, which is the result of constantly investing in research and closely collaborating with the most authoritative European scientific institutes and the most important Italian universities.

Quality and versatility are the strengths of each single activity in Enertronica Santerno, standing out as your reliable partner in delivering products and services, developing technologically innovative solutions, and always offering the highest efficiency levels.

Giving energy more value



Europe

Italy
Spain

North America

U.S.A.

Central America

Panama

South America

Brazil
Chile
Colombia

Africa

South Africa

Asia

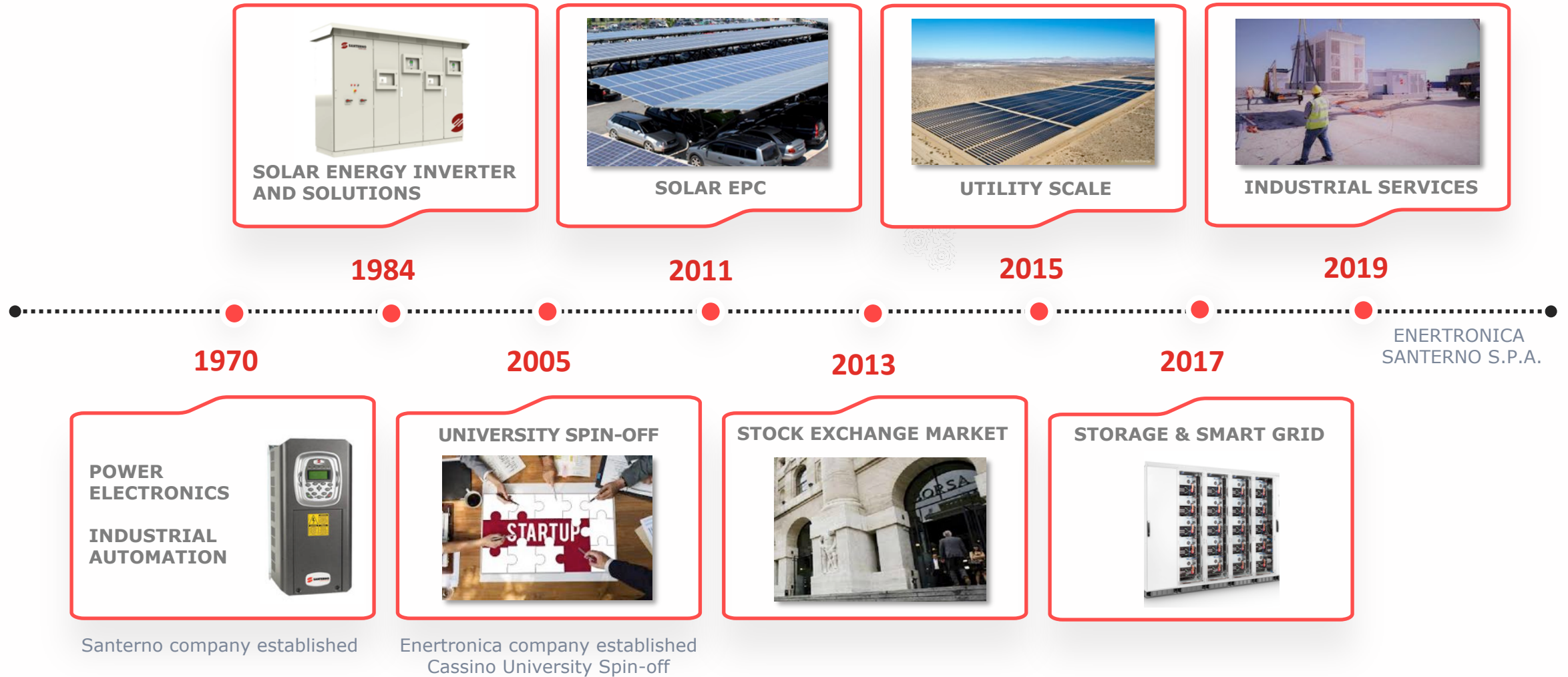
Singapore

**50 Years
of history**

**12+ GW
installed**

**150+
Countries**

The Milestones of Our Success



The Reasons of Our Success

R&D Innovation



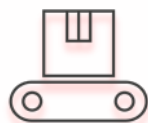
Enertronica Santerno has always paved the way to innovation by passionately investing in research and development within Power Electronics.

Our Group boasts a cutting-edge R&D lab, one of the most advanced in Italy in the Industrial Automation and Power Electronics industry.

Any solution demand can be tested in our lab.

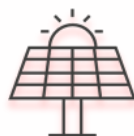
Enertronica Santerno has been founded by a university spin-off and cooperates with the most important universities in Italy and across Europe.

Products and Services



Industrial Automation

For 50 years, Santerno has been defining, designing and manufacturing motor drives and soft starters for industrial applications in 25+ sectors



Photovoltaic

Santerno boasts 35-year leadership in power conversion systems producing solar energy, with 6 GW installed capacity



Energy Storage & Smart Grid

Santerno delivers best-in-class innovation technology offering reliable integrated solutions via tailor-made Smart Grid systems



Industrial Services

Santerno offers industrial services for solar plants as a Full EPC and offers comprehensive Operation & Maintenance service



Monitoring & Cloud

Santerno provides teams, technologies, big data analysis and 24/7 services ensuring comprehensive management of the Customer's plants via advanced cloud-based services

INDUSTRIAL AUTOMATION

Enertronica Santerno has cooperated with its customers in the field of Industrial Automation for 50 years. The solutions offered to a global market provide an exhaustive range of power electronics converters – versatile, innovative and reliable products applied in 25+ industrial sectors.

LV and MV applications can benefit from Santerno's soft starters; motor drives and AC motor drives; converters coming in a full range of power ratings with different performance levels to meet the most demanding requirements. All these solutions have been developed keeping in mind high performance and high energy efficiency.

Santerno has always paid close attention to eco-sustainability, offering products designed for regenerative applications, where the energy generated during the braking stage is re-injected into the supply line. The protection of the environment, for the sake of present and future generations, is indeed a key element of Santerno's business value. This leads to strong commitment in developing the most enhanced technologies focussing on energy saving and higher efficiency, thus minimizing environmental impact. The optimization of Santerno products specifications and their control modes ensure energy saving benefits as well as economic advantages.

Counting on an international network of customer service representatives based on reliable and skilled partners, Santerno ensures prompt responsiveness and quick solutions to critical situations that may arise in complex applications.

PHOTOVOLTAIC

35-year leadership in conversion systems producing solar energy, with 6 GW installed capacity. Enertronica Santerno offers a wide range of solutions meeting any requirements: from single-phase equipment for small-sized plants, up to 45 kW, to 3-phase equipment for medium-sized plants from 10 kW to 500 kW, to modular integrated Sunway Conversion Units for utility-scale plants. Junction boxes of the Sunway String Box series are also available to complete the product range.

Thanks to its established know-how, Santerno internally defines and designs power electronics, mechanical components, embedded software and control algorithms for its products. Modular design is adopted for maximum flexibility when implementing custom solutions. Each individual Santerno solution is compliant with local and regional regulations for exploitation on a global level.

Backed by the experience acquired in the field of industrial automation, Santerno solar inverters ensure high uptime, top efficiency and service costs reduced to a minimum. The key to Santerno's success is the proven reliability of its products, which are oriented to maximum robustness by design, along with best-in-class components and full quality controls across the production chain, meeting the strictest international requirements.

A global network and comprehensive support for pre-sales and after-sales services ensure the best assistance to our Clients. Real-time plant data and insights are made available to the users, who can check the status and productivity of their assets at any time, even for each individual string.

INDUSTRIAL SERVICES

Enertronica Santerno operates as an EPC for industrial services for the execution of solar power plants producing electric energy. It also provides special structures for solar panels – i.e. fixed structures and monoaxial-tracker structures. Santerno offers comprehensive Operation & Maintenance services as well as Project Management and Engineering services for the design and installation of utility-scale plants. The adopted technologies ensure excellent results and the highest efficiency, proven in real world applications over several years of activity. Established as a company designing, manufacturing and installing conversion systems (inverters), with an installed capacity of 6+ GW inverters and Power Conversion Units worldwide, Santerno is also a cutting-edge company in the Renewable and Smart Grid industries.

Santerno Customer Service and Full O&M are now based on a model of proactive maintenance: the traditional scheduled maintenance and on-call maintenance services have been replaced with a new maintenance model aiming at detecting potential issues beforehand and taking the corrective actions required to avoid reduced performance. All the above come in conjunction with detailed plans, continuous inspections of the plant components, full availability of spare parts and qualified technicians available 24/7.

Enertronica Santerno's strengths are the following:

- ✓ true industrial reality;
- ✓ deep knowledge of the working processes of the core of the plants;
- ✓ Italian company with offices in Bologna and Frosinone but internationally represented in 8 Countries worldwide;
- ✓ real-time servicing and guaranteed results;
- ✓ R&D Dept. constantly learning to offer the most innovative solutions.

ENERGY STORAGE & SMART GRID

Santerno delivers best-in-class innovation technology offering reliable integrated solutions via tailor-made Smart Grid systems.

When Santerno was founded in 1970, the world of Industrial Automation was experiencing a transitional stage, based on power electronics, that led to the emergence of innovative products, such as motor drives. Santerno paved the way for this.

Today we are about to live a new revolution in power electronics – the origin of Smart Grids and Energy Storage. Santerno paved the way for this as well. Santerno boasts application primacies in the Industrial Automation and Energy industries.

The integration of different sources of renewable energy, such as wind and solar energy, in a prosumer environment, is challenging energy systems at a global level. Grid activities shall be managed to tackle extremely unstable energy generation as well as multi-directional energy flows.

Enertronica Santerno makes energy smart by integrating energy intelligence into the supply chain and by shaping energy delivery, which is managed by smart systems regulating efficiency and costs. In that way, it can ensure that grids are not only flexible and reliable, but also safe and tailored to customers' needs.

MONITORING & CLOUD

Enertronica Santerno provides teams, technologies, big data analysis and 24/7 services ensuring comprehensive management of the Customer's plants via advanced cloud-based services.

Santerno logs data to its own dataloggers from devices and sensors of any kind connected via RS485 serial link, Ethernet and Wi-Fi as well as standard protocols such as Modbus TCP, Modbus RTU and MQTT. Data acquired is stored and may be easily monitored by selecting target variables from a user interface available from the integrated web server. Data can also be exchanged with external systems for seamless integration into existing networks and control platforms.

Santerno develops and designs smart systems to get accurate and uninterrupted flows of information from each plant. Modular data logging is provided to obtain custom solutions based on an exhaustive range of interactive components that can be easily integrated with each other. Data logged is organized in powerful dashboards for easy plotting and analysis of all operating indicators.

Counting on a Control Room constantly on and available, Santerno is able to directly monitor the Customer's plants in a proactive way. The qualified and skilled team devoted to remote monitoring operates to ensure prompt and vigilant supervision, thus maximizing energy output and minimizing service time in the event of failure.

Our Control Room provides O&M enabling our Customers to keep track and store on-site servicing activities to detailed reports including performance analytics, service history and service plans for the upcoming months.



● Motor Drives and Soft Starters

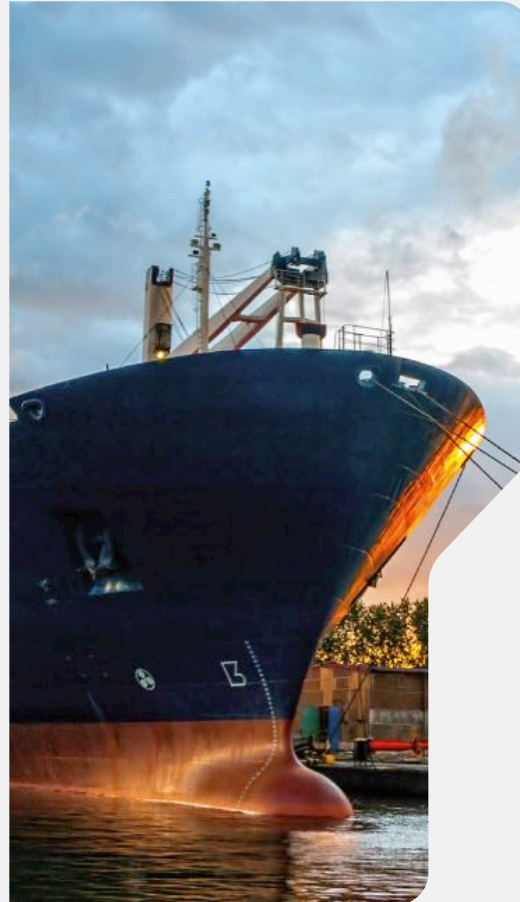
15 Product lines certified in compliance with the main industry standards

500,000+ Inverters sold worldwide

6.8 GW Installed

Industrial Sectors

Pre-sales engineering support and after-sales technical support in **80 applications** in **25+** industrial sectors



Marine Industry

Solutions for **marine** applications: docking, ship on-board applications, offshore platforms

DNV-GL certified

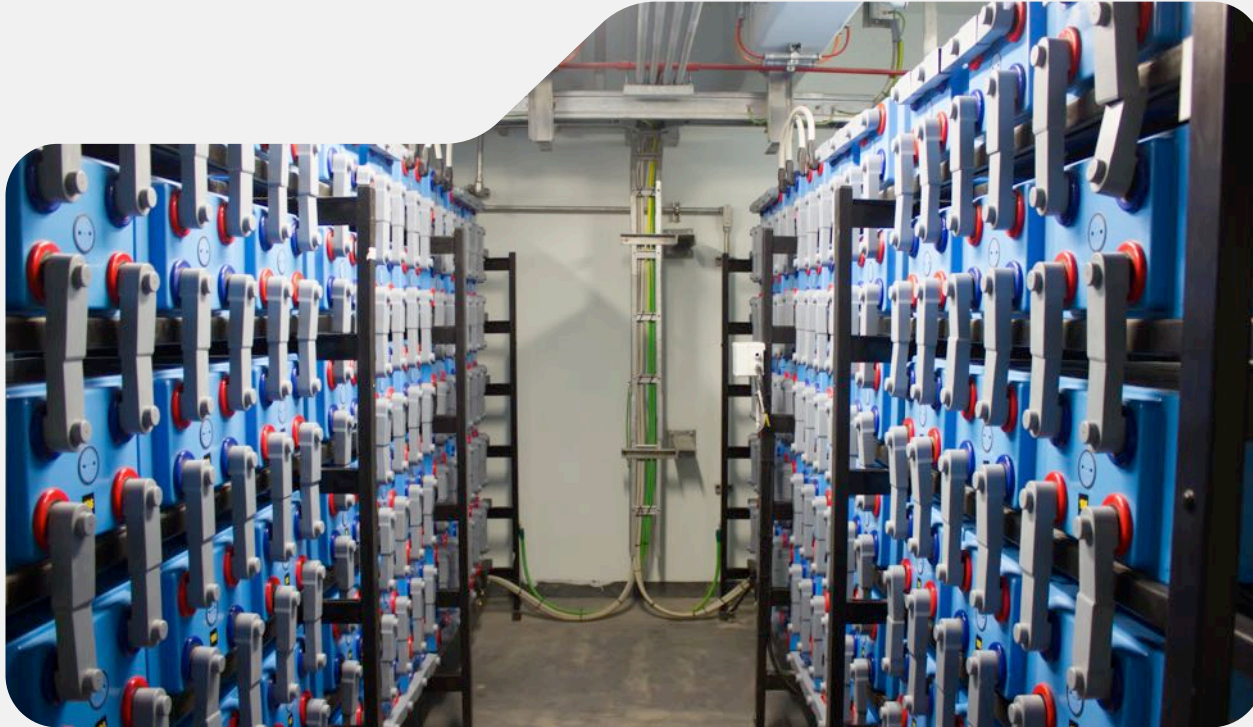
Photovoltaic

6 GW Inverters and
Power Conversion
Unit supplied and
installed in **50+**
Countries worldwide



Industrial Services

384 MW solar power
plants in **Full EPC**
and **300 MW** Fixed
Structures and
Monoaxial-Tracker
Structures



● Energy Storage & Smart Grid

5.2 MWh Stabilization Grid Storage **Middle East**

9 MWh Off-grid Solar Energy & Storage **East Africa**

200 kWh Solar Pumping **North Africa**

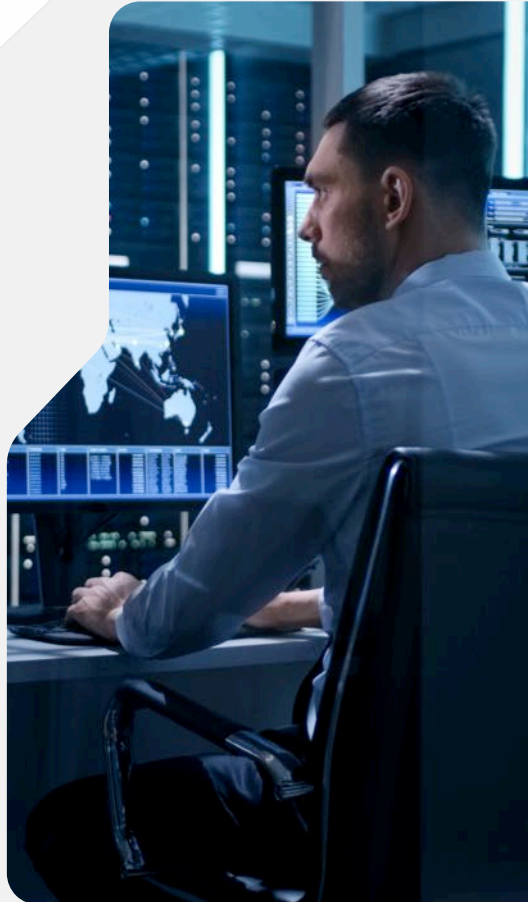
180 kWh EV Smart-grid Storage **Italy**

16 MWh Storage

Monitoring & Cloud

434 Remote-controlled plants for a total of **1.5 GW**

IoT Services for all Industrial Automation products



Service After-Sales

Qualified and skilled technicians offering online and on-site support based on **50+ Service Centers** worldwide





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