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## PRODUITS OU MACHINES

### **Thyro-Family – Made for glass**

Advanced Energy presents the new Thyro-Family, featuring the Thyro-S, Thyro-A, Thyro-AX and Thyro-P digital power controllers. As an important component within the application process they impress through quality, reproducibility, communications capability and high availability. Advanced Energy' thyristor power controllers switch or regulate electrical energy in worldwide use in practically every area of industry, starting from simple systems and ranging all the way to complex applications for high-end controllers. By virtue of their precision and reliability, Advanced Energy' power controllers offer certainty for all application processes in which melting, heating, drying and molding are required. These also include in particular glass applications (e.g. TFT glass or float glass).

Advanced Energy provides with the Thyro-Family a very comprehensive model range of power controllers with currents up to 2,900A and voltages up to 690V that is completely digital and bus compatible, e.g. PROFINET, EtherNet/IP, Modbus TCP, PROFIBUS, DeviceNet or CANopen.

### **Thyro-P**

#### **High-precision thyristor power controllers for all industrial applications**

The Thyro-P is the result of concerted implementation of over 40 years of experience in the field of thyristor power controllers.

The Thyro-P range of power controllers can be used wherever voltage, current or output levels have to be precisely and reliably regulated. With a wideband power supply, an optional mains load optimization module, the patented ASM procedure and a user-friendly interface, it is ideal for use in many areas, such as thermo-processing technology or the glass industry in general.

Numerous operating and control modes, good connection options to process and automation systems, high levels of control precision thanks to use of a 32-bit RISC processor and simple handling make the Thyro-P a forward-looking controller, including for new applications. Thyro-P can operate as a stand-alone unit or in combination with process controls, PLC, or with automation systems. Parameters can be adjusted via menus, while set points and actual process values can be processed via analogue outputs or, as an option, via bus systems. By virtue of using high-quality network thyristors the Thyro-P range includes power controllers with rated currents of up to 2,900 A and

voltages of up to 690 V.

Application-specific solutions with significantly higher currents and voltages are also available.

### **Thyro-AX Thyristor power controllers with touch display**

In introducing the new Thyro-AX, Advanced Energy is extending its proven family of Thyro-products through the addition of a new generation of digital thyristor power controllers. With numerous new features the Thyro-AX is setting new standards.

Supporting voltages of 24 to 600 V, the Thyro-AX range offers what is probably a unique array of products from 16 to 1,500 A, available as single, dual or three-phase units. The flexible connection technology allows the controllers to be connected completely freely from below and/or above. Making its debut, the touchscreen display with full graphic capability is used in a power controller and enables highly intuitive operation. In relation to using the power controller, especially for visualization and setting parameters, whole new possibilities are thus created. Set points, actual values and operating status details get displayed in plain text. The standard interfaces include both Ethernet and USB2.0. Further communication systems are available, e.g. for DeviceNet, Modbus RTU, PROFIBUS or CANopen, plus others for TCP/IP-based communication using PROFINET, Modbus TCP or EtherNet/IP.

Another of the new generation's important and defining features is the use of intelligent technologies to reduce circuit feedback, plus the mains load optimization function to reduce costs. As with all power controllers in the Thyro-range, it goes without saying that the Thyro-AX also features high levels of efficiency for saving power in live operation.

### **Thyro-A 16 A – 1,500 A thyristor power controllers**

Through its powerful digital technology the communication enabled Thyro-A thyristor power controller enables a precisely regulated feed of power with a high level of availability.

Its great flexibility in relation to connection on the load and power supply side extends its area of use considerably. For standard processes there are setting options available on the controller that enable it to be easily operated and quickly commissioned. Optional connection at the automation level makes it possible to use a multitude of further functions. All measurements, status levels and set points can be processed by PLC or process computer. Naturally, stand-alone operation or direct combination with process controllers is still possible. Thyro-A power controllers are thus excellently suited to numerous areas of use in the entire process technology field. A special version of the device is the Thyro-A...C02 which is designed for two-step, primary sequence control, known as VSC – Voltage Sequence Control Power Controller.

### **Thyro-S Thyristor switches – reliable, quick, economical and communication enabled**

The digital Thyro-S thyristor switch is equipped with lots of useful functions for a wide area of use and supports the user's system requirements.

As a connection-ready thyristor switch with secure operational behavior and load monitoring, it switches currents, voltages and power sources. It can be used in bus systems, in stand-alone operations or in combination with all standard 2-point process controllers, PLC systems or computer systems.

## HISTOIRE DE L'ENTREPRISE

### IN TUNE WITH INDUSTRY NEEDS

Switching, Controlling, Regulating. From simply applications to highly complex processes, Advanced Energy products are used every day as power controllers (SCR) of choice over the world.

In the field of glass production, greater demands are constantly being made of ever-thinner glass, as they are made for precision glass too. The manufacturers therefore need highly precise production environments in order to be able to offer products of top quality. Accurate control of the temperature during the heating up and cooling down processes has an impact on the quality and reliability of the finished glass. That applies to all stages at the 'hot end' of the production process, from melting to the final annealing. Extreme reliability and precision is the key for any successful production plant, while a breakdown at any of the individual production stages would bring the entire production process to a standstill.

Advanced Energy's Thyro-Family offers reliable and innovative power supply solutions with high quality standards for optimized applications, e.g.

- Heating
- Melting
- Drying
- Forming

Whether in traditional areas or in special applications such as Direct Heated Melting, Float Glass, Cooling Channels, Container Glass or Glass Bending and Printed Glass Drying, our products have been tried and tested for years. Even for newer applications such as TFT Glass, or for future-orientated technologies that are still in the experimental stage, customers trust the solutions and the experience of our Thyro-Family.

### OUR LEADING GLOBAL ROLE CONFIRMS THE MERIT OF OUR APPROACH

Our clientele range from traditional power generators and companies in the oil, gas and petrochemical sector all the way to polysilicon producers and pioneers of power generation from renewable forms of energy. Issues such as quality, know-how, service and reliability are very much a part of our everyday internal discussions. Our longstanding relationships with our customers confirm that the standards we set ourselves are measured against these criteria of outstanding performance. It is for this reason that Advanced Energy is one of the world's leading manufacturers of electronic systems and solutions for industrial power supply and offers one of the most comprehensive portfolios of products and services for power conversion and control.

Through our expertise in renewable energy and our knowledge of the global power supply infrastructure, we are able to intelligently combine electricity supply and consumption. Together with our customers we thus create innovative energy management systems that facilitate 'intelligent' control appropriate to demand.

### RELY ON THE EXPERTS

Our customers' requirements are ultimately always very individual. That calls for not only a broad spectrum of products and possible ways to use them, but also requires direct and individual support. In order to be able to react to new market development as flexibly as we can and to support our customers as quickly and continuously as possible, our subsidiaries provide the appropriate service with the required proximity to our customers all around the globe.

The multitude of new ideas, products and possibilities always brings with it new demands. Creative technicians,

engineers and scientists work day in, day out for Advanced Energy on new products that, for instance, provide protection from power cuts and the associated loss of data and costly downtime. With our engineers, technicians and project managers, Advanced Energy performs pioneering work in R&D and application engineering.

Company Profile of **Advanced Energy Industries GmbH**

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