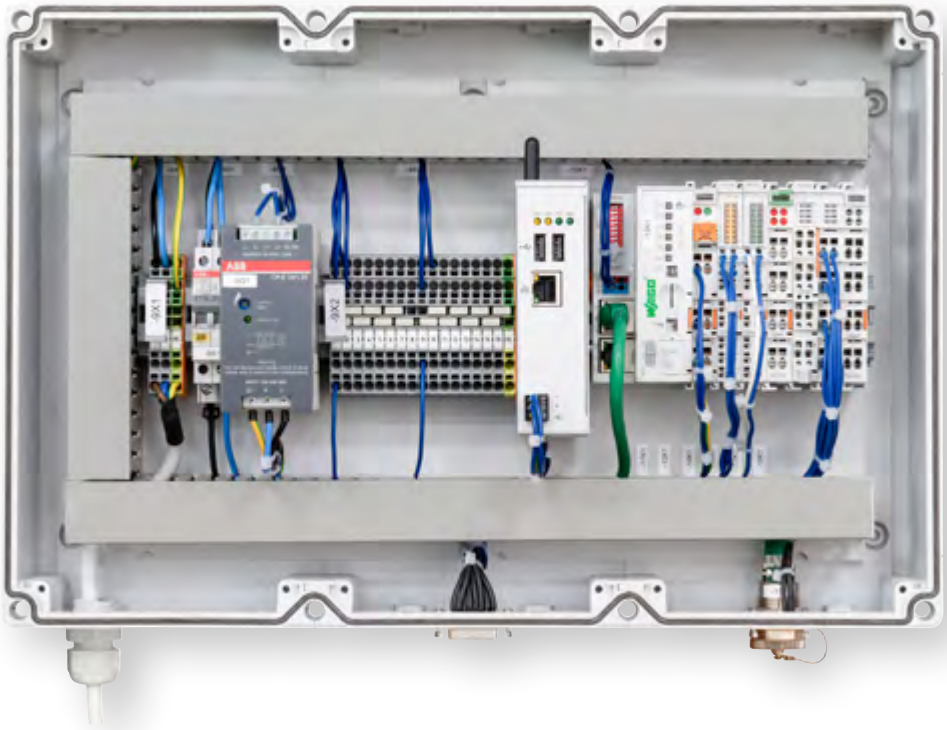


SE²OPTIMIZER

Flexibility is the new commodity of the energy economy. And jumping to the virtual power plant to significantly increase the cost-effectiveness of operating production and power plants is a business decision that you don't just make based on a gut feeling.

If you are looking for certainty in taking this step and assistance in implementing it, then we have the right solution for you.

The SE²OPTIMIZER allows you to create total cost-optimized timetables for energy production and industrial plants. You can then provide these timetables to any marketer you want for energy market trading.

The first step involves modelling the entire plant. Potential flexibilities are then identified with the plant operator in consideration of existing restrictions.

Besides energy costs, other costs such as personnel and process costs are included in the optimization. The algorithm determines the most cost-effective way forward across sectors for the specified period based on the interaction of producers, storage systems and consumers.

Before the timetable goes to marketing, the responsible party can either confirm it or generate a modified target timetable by means of a new optimization run.

Whether plant operation is optimized for self-generated power or for electricity prices, a switch that can be made at any time, the final decision always lies with the operator.

HIGHLIGHTS

- AI-based module for demand forecasts
- Operation optimized for own power and electricity prices possible
- Plant sovereignty remains with the operator at all times
- Sensitive data remains on the system at all times
- You can choose the marketer you prefer
- Modularly expandable into a complete VPP solution

COST-EFFECTIVE, HOLISTIC AND EXPANDABLE: PLANT OPTIMIZATION DIRECTLY ON SITE

For cost-cutting and revenue-increasing plant operation, the SE²OPTIMIZER is a demand side management solution that independently optimizes all the prosumers of energy generation and production plants and thus makes unused flexibilities economically viable.

The intelligent SE²OPTIMIZER is installed on-site at the plant, creates locally the target schedules based on the exchange price forecasts, and can be connected to virtually any trading platform for subsequent marketing. Total control of the plant and all critical operating data always remains with the operator thanks to the locally performed optimization process.

ENERGY SUPPLIERS AND PRODUCERS

To balance the power grid, grid operators and energy suppliers rely heavily on flexible storage options, load management and power reserves. A more targeted approach to operation contributes to a better balance between electricity consumption and generation. Especially with respect to heat supply, it makes sense to combine power-consuming units with power generators to a virtual power storage system. Just like in forecast-based generation and load management, the units are then optimized based on spot market prices. This is particularly suitable for district heating grids and properties with year-round heating requirements such as indoor swimming baths or hospitals.

INDUSTRIAL PLANTS

The flexibility of the SE²OPTIMIZER is also demonstrated in the integrability of various plant types: whether thermal processes (heaters, furnaces, etc.), mechanical processes with storages or warehouses (mills, injection molding machines, etc.) or industrial processes (chemical conversion processes, fermentation plants, etc.). A wide range of interfaces (I/O, Modbus, Profibus, etc.) can be used for system control depending on the desired degree of automation. Many plants, even existing ones, can therefore be used in a time flexible manner with very little effort and can easily be utilized for energy cost efficiency - the production goals always remain the priority.

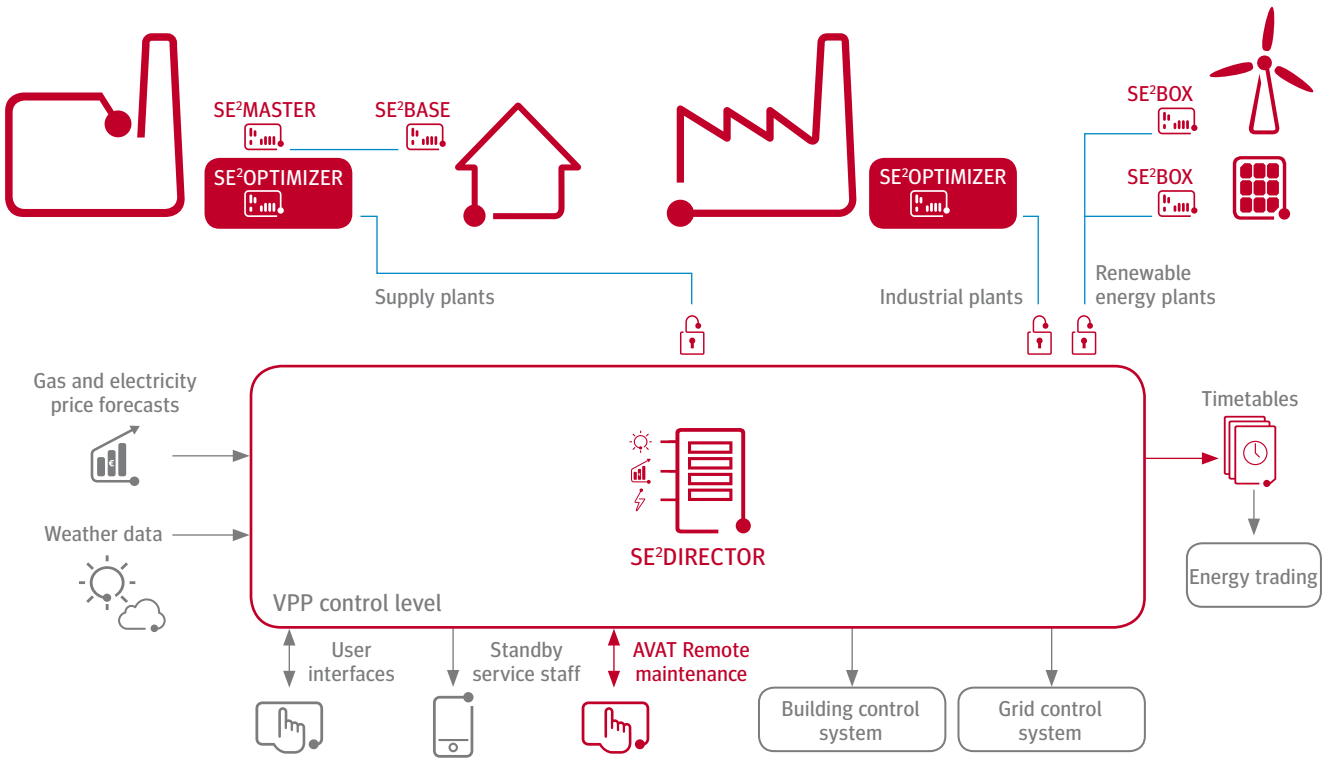
FIRST OPTIMIZE - THEN PROFIT

Plant optimization is actually a simple task. With surpluses, you can achieve either additional revenues when electricity prices are high and lower consumption costs when electricity prices are low. Actually. But when is the right time for either of these two actions? When can plants do this without neglecting actual tasks? And how do you adjust the timetable to your plant in advance? The solution lies in intelligent optimization for long-term benefits.

- Any combination of energy storage (e.g. gas storage, heat storage, material storage, elevated water tank, battery, etc.) with producers and consumers (e.g. CHP, boilers, heat pumps, PV, mills, pumps, blowers, cooling machines, etc.)
- Alternating operation optimized for self-produced power or the exchange price regardless of the medium (electricity, gas, heat, cold etc.)
- Can be used independently through parameterization and monitoring via a cross-platform user interface and local database

SCALABLE IN ALL DIRECTIONS AT ANY TIME

The homogeneous communication infrastructure, coordinated interfaces and an uniform control concept ensure highly efficient and cost-effective operation in energy networks. The SE²OPTIMIZER as well as the SE²DIRECTOR and SE²BOX work together seamlessly. Thanks to the easily configurable interfaces, plants can also be modernized at any time.



SE²DIRECTOR

Do you want to bundle and flexibly control multiple plants? Then you can use our higher-level control technology for virtual power plants. As the communication interface, SE²DIRECTOR aggregates all of the systems and creates a secure channel to the direct marketer.

- A decentralized control system for pooling multiple plants
- Cost & revenue optimization with grid-beneficial operation

SE²BOX

The simple solution for establishing a communication link to energy producers without flexibilities or centralized optimization approach. Available in three variants (EEG, MulitDeviceGateway, VHPready), the SE²Box is precisely configured and ready for immediate use.

- Direct access to RE plants (wind, PV, biogas plants, etc.)
- Interface for direct marketing

TECHNICAL DATA & OPTIONS

DESIGNATION	SE²OPTIMIZER
Item number	2 000 480
Scope of delivery	• Technical documentation / operating manual / circuit diagram (EPLAN) • Pre-configured for installation in the existing cabinet or including a new switch cabinet • Connection cable and plug connections for the power supply
BASIC PACKAGE	
Dimensions	105 x 35 x 140 mm (L x W x H)
Weight	400 g
Protection degree	IP 20
Housing	Metal, DIN rail mounting
Power supply	19.2 V to 28 V DC, 3-pin 3.5 mm terminal
Power consumption	max 9 W (USBs with 1 A)
Temperatures	-20°C to +60°C in operation, -40°C to +85°C in storage
Ethernet	Standard 1 x RJ45, 10/100 Mbit/s
Interfaces	2 x USB 2.0 A (max. 1 A)
Real time clock	Capacitor buffered, 7-day emergency supply
Approvals	CE, FCC, IC
EMC	EN 55011:2009, IEC 61000-6-2:2005, EN 61131-2
OPTIONS	
Software	AI-based demand forecasts of loads in energy stations for all energy sources (electricity, gas, heat, cooling, etc.)
	Intraday trading on the power exchange
	Visualization of optimized timetables and intervention by operator
Hardware	Secure communication connection via AVAT VPN ROUTER using broadband or LTE

Subject to technical changes

THE ENERGY ENGINEERING COMPANY

Energy is flow and movement. And energy economy is anything but rigid and static. Producers and consumers are added or taken away, infrastructures grow, the energy mix shifts along with price trends and regulations. And you too will hardly be affected by this. But the longer you work with one of our solutions, the more you will benefit from our principles.

PRINCIPLE 1: CONTINUOUS

From CHP gas engines and energy stations to grid control technology in conjunction with our energy management system and connection to virtual power plants: everything communicates with each other in the same way and our control concepts are uniform.

PRINCIPLE 2: MODULAR

An integrated system plus a multitude of interfaces are the best conditions for ensuring that your solution does not come “off the shelf”, but rather is combined with modules individually tailored to your needs. That applies the same for hardware and software.

PRINCIPLE 3: EXPANDABLE

Growth for our solutions is not an incision, but organic, unbroken development. As the responsible party, you react precisely when the larger capacities are actually needed. But then it goes very fast.

PRINCIPLE 4: CONFIGURABLE

Doesn’t sound so special? But it is: Project-specific adjustments on the software level normally requires programming work. With us, however, only a simple, quick and secure configuration is needed.