



**SIEMENS**

*Ingenuity for life*

## Power monitoring made simple

Easy, reliable, cost-efficient

[siemens.com/powermonitoring](https://www.siemens.com/powermonitoring)

# Identifying energy flows – cutting costs and saving resources

In an era of increased awareness with regard to costs as well as environmental issues, power monitoring is becoming an important component for success. You can save up to 30 percent of your energy costs and easily create the technical foundation for your energy management system in accordance with ISO 50001 with TÜV-certified hardware and software components from the SENTRON portfolio.

## Power monitoring with components from the SENTRON portfolio

### Scalable and flexible



In terms of scope and equipment, you can precisely tailor your power monitoring system to your requirements – from a small entry-level starter package to a complex system. No expert knowledge is needed to commission the hardware and software.

### Standards-compliant and audit-proof



The TÜV-tested power monitoring system from the SENTRON portfolio gives you the optimal technical foundation for managing your company's energy needs according to ISO 50001.

### For Industrie 4.0 and smart buildings



Power monitoring primarily helps small and medium-sized companies (SME) to benefit from digitalization and automation. You can make the move into Industrie 4.0 and smart buildings without incurring high procurement costs. And the transparency in energy flows helps you to identify savings potential and make it easier to manage costs.

### Improved power quality



Our power quality measuring devices, integrated into our power monitoring system, analyze your network and offer continuous monitoring. This increases and ensures system availability by avoiding malfunctions in production and terminal equipment.



## Now is the time to decide – for the perfect start

### Scalable, flexible solutions

All you need to get started with power monitoring is a simple basic license, which you can gradually and flexibly expand, based on your requirements. Our power-manager power monitoring software runs on Windows and is intuitive and user-friendly. It grows with your tasks, enabling you to subsequently add more measuring devices (such as gas and water meters via S<sub>0</sub> interface) or subordinate Modbus devices (via Modbus TCP, Modbus RTU) and other components. The engineering required for commissioning is simple and straightforward because the most important energy measurements are visualized with predefined views while preconfigured reports make documentation easier.

### Investment protection included

Low initial investments, long service life for your components, and free updates over

a longer period for purchased measuring devices and licenses: The power monitoring system from the SENTRON portfolio usually pays for itself within two years through the achieved energy cost savings – while also offering you optimal investment protection.

### Long-lasting process benefits

The power monitoring system continuously records and documents numerous measured values in the power distribution: Graphic illustrations in the form of load curves show load peaks as well as energy-intensive processes and inefficient consumers. This reveals savings potentials from which you can derive concrete energy-saving measures. At the same time, you can optimize your energy supply costs by implementing measures such as capping load peaks, using fast energy storage systems, and intelligently controlling thermal consumers.





Comprehensive power monitoring portfolio – new additions: the compact 7KM PAC3200T and 7KM PAC2200 DIN rail measuring devices make it easy and cost-effective to get started with power monitoring as well as the expansion module I(N), I(Diff), analog.



## Benefit now – from Industrie 4.0 and smart buildings



### Integration in TIA Portal

Thanks to the integration of our product portfolio into TIA Portal V14, all engineering data is available in a central automation environment. This enables you to optimally align your electrical power distribution to automated operations, machine processes, and other processes and to ensure a consistently reliable and flexible power supply.

### The future is digital

Digitalization is one of the most fundamental revolutions of our time. In the future, no company will be able to forego the benefits of digitalization – simply because these benefits help to reduce costs over the long term. In this regard, an energy management system is the logical step to take into the future. By recording the energy flows and the key cost flows in your company, you will benefit from the data analysis – through low energy costs and competitive prices for your products. Our power monitoring system helps you to establish an operational energy management in accordance with ISO 50001 – for infrastructure, industrial applications, and buildings.

### Intelligently recorded data

State-of-the-art measuring devices such as 7KT/7KM PAC accurately and reliably record as many as 800 measured values and trans-

fer that information to higher-level energy management and automation systems for further processing. Via standardized bus systems, these management and automation systems receive additional data for diagnostics, fault detection, maintenance, and power monitoring from the power distribution itself, such as from intelligent and communication-capable components like the 3WL air circuit breakers or the 3VA molded case circuit breakers.

### Intelligent analysis of data

The powermanager power monitoring software makes analysis, archiving, and monitoring a snap. Generate reports with predefined templates or tailor them to your own requirements – displayed as a chart or as a table. The powermanager software provides you with a solid decision-making foundation.

# Rely on greater power quality – for optimal reliability

## Being better prepared

Two developments have converged when it comes to power quality: increasing automation and mechanization in production along with the changes in power generation. The latter is leading to fluctuations in voltage and frequency that are becoming ever greater. Switching pulses from major consumers in your network can trigger similar problems. According to the European Power Quality Survey Report, 30 to 40 percent of all unscheduled plant downtimes can currently be attributed to inadequate power quality.<sup>1)</sup>

## Consistent analysis

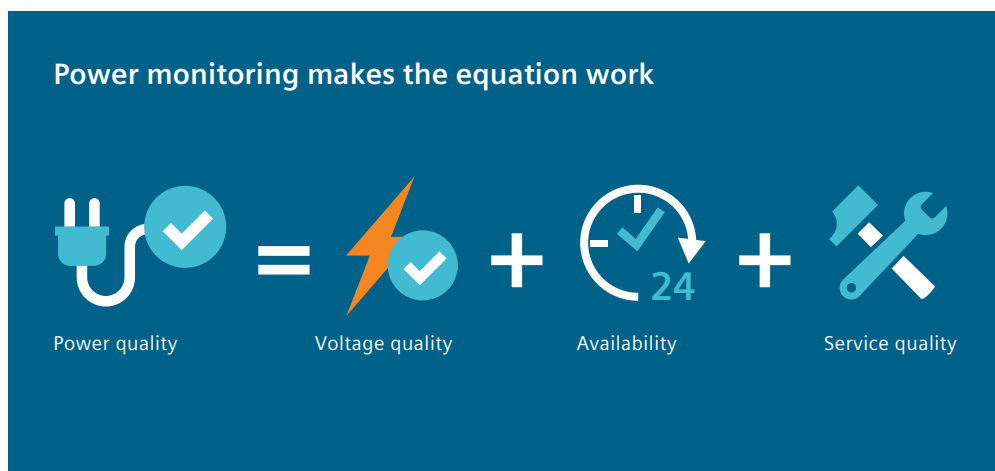
It's important to view network quality as a cross-sectional topic. The use of devices, machines, and plants has an impact on the production process, operations, and the lifetime of your equipment that extends beyond the installation location. If mains-supplied motors are replaced by speed-regulated motors, for example, the network quality can suffer if details regarding network compatibility are overlooked. Ensure that the exchange of information between planners, plant operators, and energy

managers becomes anchored in daily operations. Your power monitoring system from the SENTRON portfolio supplies the necessary database.

## Informed decision-making

The power monitoring system shows you the energy flows in your company. The power monitoring software makes it easier for you to compare different measuring points and to narrow down the causes of malfunctions. Once the measured values are recorded, conclusions can be drawn regarding the source of the malfunction in the system and the related cause. This can normally be found in one of the following three groups: grid operators (EVU), plant operators, device manufacturers.

Although surrounding households and small businesses may also affect network quality, devices with an inadequate design are frequently the cause of the failure. If it is not possible to retrofit these devices, you can initiate measures for harmonic compensation by using active or passive filters. This will enable you to avoid system failures and unplanned downtimes and the associated costs.



Measuring devices from Siemens provide a solid technical basis for assessing your power quality.

1) Source: J. Manson, R. Targosz, "European Power Quality Survey Report", Leonardo Energy, 2008

# Plan your success – systematic power monitoring



## Achieving goals while complying with standards

The ISO 50001 standard defines key functions of an operational energy management system and helps your company with the implementation. Rely on concrete process descriptions that you can tailor to meet your individual requirements. It is crucial that you define clear goals from the beginning: What do you want to achieve with energy management? What are the concrete goals you want to achieve and in which areas of your company?

## Future-proof investment

Energy management is about more than electricity costs; in many cases it is also about legal issues. Make energy management into a management issue. Give your energy managers the responsibility they need – along with the right tools: Our TÜV-certified power monitoring system, for example, complies with the stringent requirements of Germany's Federal Office of Economics and Export Control (BAFA) in terms of providing documentation for possible tax refunds.

In addition, with the introduction of the new ISO 50003 standard starting in October 2017, the certification of energy management systems will also depend upon a proven

increase in energy efficiency. Benefit from the know-how of our experts during your audit preparations.

## Consistent process optimization

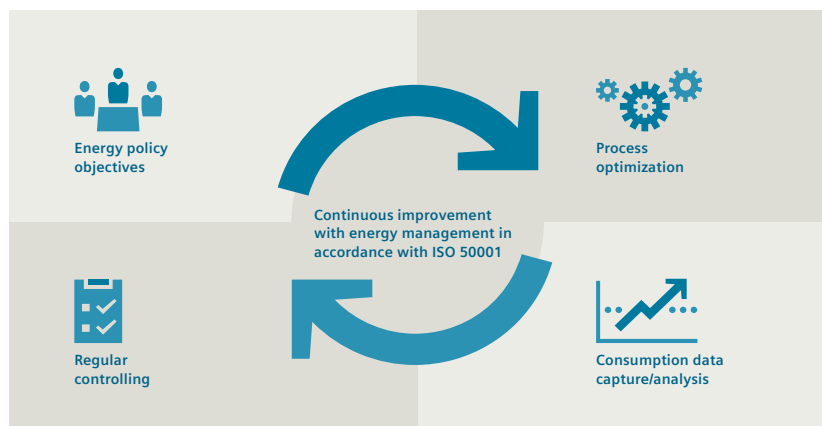
The more you know about your energy requirements, the better you can tailor your processes to them – and the more successful your energy management will be. This is another reason why your energy manager should report directly to management. It is equally as important to ensure that all employees are aware of the significance of energy efficiency. The data from the power monitoring system and your evaluations will form the foundation for this. Visualize the current data and compare it to benchmarks: This reveals savings potentials and helps you to derive and systematically implement corresponding measures.

## Continuous improvement of energy management

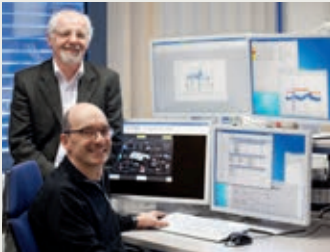
You should check, at regular intervals, whether your energy management system is functioning optimally. Regular audits will help you to determine whether you have achieved your goals, whether those goals need to be corrected, or whether you need to define entirely new goals for the future orientation of your energy management.

### Energy management in accordance with ISO 50001

The power monitoring system from the SENTRON portfolio enables you to implement an energy management system in accordance with ISO 50001 and sustainably reduce the energy costs in your company.



# What our customers say



*“The powermanager software is a high-performance, scalable system, which gives us an excellent starting point for further research activities.”*

**Dr.-Ing. Richard Öchsner**, group manager of Energy Technologies at Fraunhofer IISB, uses a power monitoring system from the SENTRON portfolio to research how energy can be used more efficiently in industrial facilities and how it can be sustainably generated and stored in industrial environments.



*“Thanks to power monitoring from Siemens, we were able to decrease our energy procurement by about three percent in the first year alone.”*

**Claus Böckl** has commercial responsibility for the project at Ziegler Holzindustrie KG in Plössberg, Germany, one of Europe’s largest sawmills.

## Do you still have questions about power monitoring?

**Our support team is always available to help you.**

We are there for you at all times – from the planning and commissioning to operations.

			
Information	Planning/Ordering	Operation/Service	Training
<ul style="list-style-type: none"> <li>• Website</li> <li>• Catalogs and brochures</li> <li>• Newsletters</li> <li>• Image database</li> </ul>	<ul style="list-style-type: none"> <li>• Industry Mall</li> <li>• Configuration</li> <li>• SIMARIS planning tools</li> <li>• CAx Download Manager</li> </ul>	<ul style="list-style-type: none"> <li>• Siemens Industry Online Support (SIOS)</li> <li>• My Documentation Manager</li> <li>• Technical support</li> <li>• Support request</li> </ul>	<ul style="list-style-type: none"> <li>• SITRAIN portal</li> <li>• Siemens Power Academy</li> <li>• BT Academy</li> </ul>

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