

Optimum power supply in industrial businesses

Quality of supply for process reliability and energy efficiency

Many companies underestimate the financial consequences of inadequate power quality. A state-of-the-art industrial production facility contains a large number of electronic devices and automation systems. Not only are these sensitive to voltage fluctuations in the power supply system, but they can also cause faults themselves, and feed them back into the supply system.

The Copper Development Association estimates the costs of preventive measures for industry and trade at less than five percent of the costs incurred by inadequate power quality. Studies show that the return on investment for damage limitation measures is achieved in less than two years on average.

Measurements relevant to power quality are continually recorded and evaluated to help detect and correct failures early on.

This is exactly what energy monitoring with SICAM Power Quality does in just three steps, for every industry

1. Define measurement points in the electricity supply network: a distinction is made here between the local utility company's delivery point and important measurement points within the industrial network itself.

The goal is to assure the quality of the power obtained from the utility company and to monitor power quality in the industrial network.

2. Identify the measuring instruments: Class A devices like SICAM Q100 and SICAM Q200 are used by preference for measurements at delivery points and for power supply contracts.

Class S devices are normally used to continuously record power quality and identify sources of faults in the industrial network. The Siemens SICAM P855 multifunction measuring device fits the bill here.

Using these devices in combination makes it possible to monitor every part of the power network, industrial processes and loads.

3. The devices store and evaluate all the measured data. This ensures that information about harmonics and voltage events, as dips and interruptions, and also flicker, is traced and documented.

Inadequate power quality leads to

- Annual losses of €150 billion through downtimes in production and IT in Europe
- Annual revenue losses of ten percent for some companies

Source: J. Manson, R. Targosz: European Power Quality Survey Report, Leonardo Energy



SICAM P855

Device to record, display and analyze electrical variables in accordance with IEC 61000-4-30: **Class S**, EN 50160



SICAM Q100

Device to record, display and analyze electrical variables in accordance with IEC 61000-4-30: **Class A**, EN 50160



SICAM Q200

Device to record, display and analyze electrical variables in accordance with IEC 61000-4-30: **Class A**, EN 50160, recording and evaluation of high-frequency disruptions (2–150 kHz) and high-resolution transients

SICAM PQS / SICAM PQ Analyzer

Software to evaluate archived PQ variables and fault records – makes the job of rectifying power network faults easier and faster

Power Quality Monitoring with Siemens: how you benefit

Power availability, reliability and quality – all the time

- Continuous monitoring, recording and documentation of the parameters that are relevant to quality of supply, to identify potential weak points and take the right steps to rectify them.
- End-to-end documentation of all relevant parameters is essential when clarifying claims against energy utilities.

Improved energy efficiency

- You get transparency about power flows and identify potentials for savings.
- The PQ devices supply valuable information for power management systems that comply with ISO 50001/ EN 16247-1 and the energy efficiency standard IEC 60364-8-1.

- Reduced power losses and device ageing. (Part 8-1 of the IEC 60364-8-1 standard explains the many different influences of power quality on energy efficiency.)

Simple monitoring of the power network and quality of supply

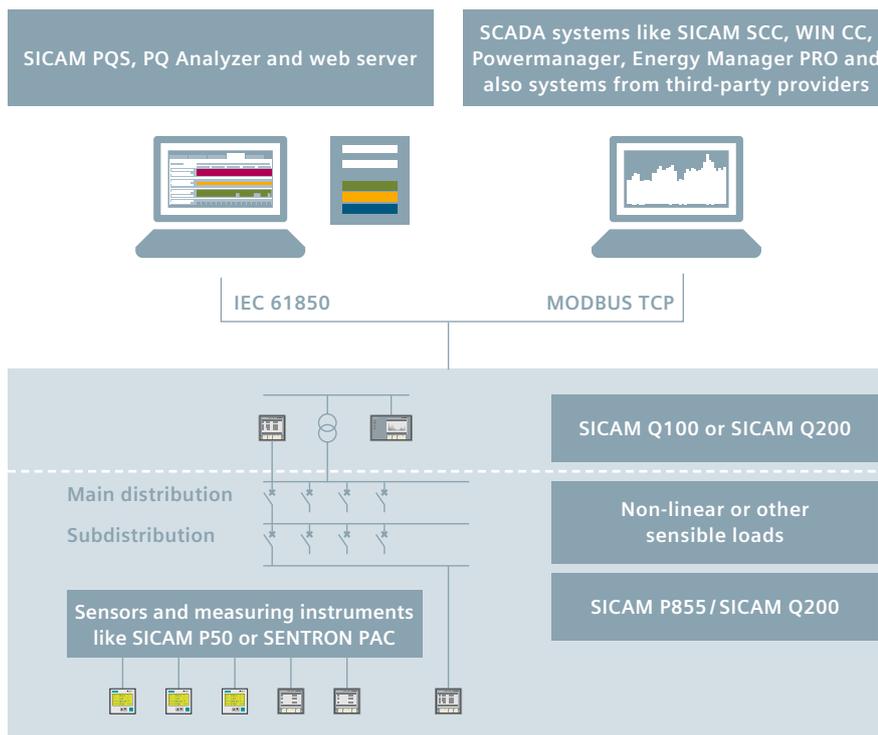
- Our PQ systems satisfy the following international PQ standards:
 - IEC 61000-4-30 defines the measurement processes, accuracy and interpretation of network quality parameters for Class A and Class S devices.
 - IEC 62586-2 defines functional testing and uncertainty requirements for Power Quality Instruments (PQI).
 - EN 50160 sets forth how the measured variables must be evaluated.

- IEC 61850 sets forth how data and information must be forwarded.
- The data formats are standardized for fault records in the form of IEEE 1159 (PQDif) and COMTRADE.

To efficiently process measured values, evaluate them and generate reports automatically, the SICAM PQS/PQ Analyzer software offers perfect support when it comes to drawing the necessary conclusions from the measured PQ data and records.

Siemens offers comprehensive advice on questions of quality of supply – from PQ measurement campaigns in existing networks, and design and calculations for future networks, to suggestions for steps that can be taken to ensure problem-free system operation.

Siemens lets you comprehensively analyze both supply and power quality in industrial businesses



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