SIEMENS
Ingenuity for life

Optimum power supply in industry

Adequate power quality in industrial companies bares a huge financial potential. Many electrical and electronic components and automation systems in industrial production facilities are sensitive to voltage variations often caused by unexpected sources. Furthermore, they can also cause faults themselves and feed them back into the supply system.

Continuously recorded and evaluated measurements relevant to power quality help to detect disturbing issues and offer the chance to correct failures. Some of these failures do not seem so obvious at first sight.

Installation at Feed-In

For industrial processes, it makes sense to monitor the feed-in of energy and the own energy grid separately. SICAM Power Quality offers solutions for every scope of application.

The SICAM Q100 and SICAM Q200 power quality instruments are the best choice to monitor the feed-in of energy according to contract. SICAM Q100 and SICAM Q200 can both detect the direction of the fault by measured the harmonic angle. A clear conclusion of origin of the fault can now be taken.

The monitoring of the own grid depends on the type of applications.

Industry

Own energy grid

SICAM Q100

SICAM Q200

Feed-in
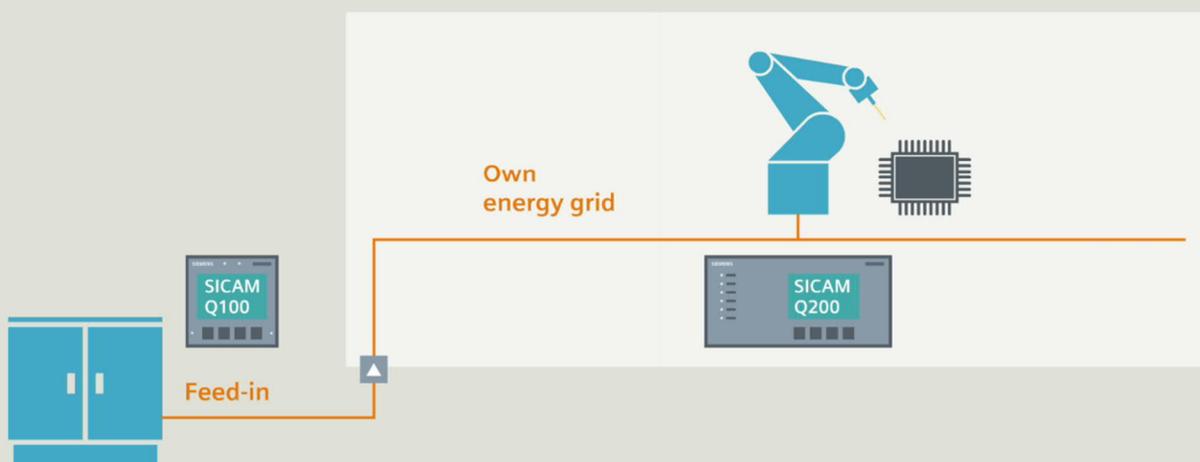
Heavy Industries, Oil & Gas Industry

Voltage Dip, Swell, and Variation (Interruption, Dip, Rapid Voltage Change - RVC)

Startup of motors and switching of heavy loads, for example, arc furnaces and welding systems, cause voltage dips, swells, and variations. This increases the motor current. The heat generated in the core of the motor can damage the insulation of the motor.

Damaged insulation reduces efficiency and service life of the motor and other electric equipment, such as transformers. Motors operate roughly and will eventually stop. An undervoltage trip causes a shutdown of the plant.

Unbalance between the generated capacity and the connected loads leads to a frequency deviation. The possible effects are that motors are running inefficiently and are overheating.

With the SICAM Q100 (Class A incl. RVC detection) or SICAM P855 (Class S) power quality instruments, you can clearly detect the cause of the disturbances.
Fault records and power quality data can be evaluated with the integrated web browser.
This information ensures fast localization of the cause of the failure.

Oil and Gas

Semiconductor Factory

Supraharmonics and transients lead to production stop

Semiconductor switching generates frequency emissions in the frequency range of 2 kHz to 150 kHz. These supraharmonics affect sensitive electronics, for example, semiconductor wafer systems, IT infrastructure, automation and communications systems. As a result, unintentional tripping of the protective devices can cause the plant to shut down.

Switching activities caused by equipment in the plant cause transients and fast voltage changes. The risk of hardware failures, data losses, and the destruction of power supply units increases seriously.

The possible impacts are: loss of time and additional non-conformance costs caused by failed electronics, production stop, and data losses.

For sensitive processes, such as semiconductor manufacturing, SICAM Q200 power quality instruments are the best choice to investigate the cause of the failures. SICAM Q200 can detect fast transients up to 1 μs/6 kV and supraharmonics in the frequency range of 2 kHz to 150 kHz. With the web browser integrated in SICAM Q200 the fault records and power quality data of the electrical power system are analyzed.
This information ensures fast localization of the cause of the failure.
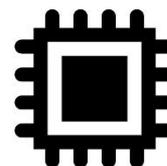
Electronics

More than
€150 bn
damage each year caused by production and IT downtimes in Europe alone can be traced back to insufficient voltage quality.*

*Quelle: J. Manson, R.Targosz, "European Power Quality Survey Report", Leonardo Energy, 2008