



MULTIFUNKTIONAL RECORDER

# SICAM Q200

Determined, clear, precise - the analysis of your power quality

## Continuous monitoring of the quality of supply

One of the most frequent causes of unplanned downtimes and device failures is the insufficient quality of the supplied electrical energy. The acquisition and documentation of parameters relevant to supply quality is an important step to identify possible weak points and initiate appropriate measures to eliminate them.

## Application and description

The power quality analyzer for highly accurate detection and evaluation of power quality in electrical power supply grids additionally offers special algorithms and functions for energy management applications. The device ensures continuous acquisition and analysis of all relevant parameters. The results support the definition and implementation of appropriate measures to maintain the quality of supply. This increases the service life of the equipment while reducing downtime.

The SICAM Q200 is a PQ device class A according to IEC 62586-1/2 and IEC 61000-4-30 Ed. 3 beyond class A and meets the measurement accuracy class 0.1S according to IEC 62053-22.

SICAM Q200 acquires, visualizes, analyzes, and transmits alternating current characteristics such as current, voltage, frequency, performance, harmonic, etc.

The measured variables can be provided to a PC, an energy automation/SCADA system and/or shown on a display using communication interfaces.

In addition, the SICAM Q200 provides a combined recording and analysis function for measured values directly in the device. Long-term data and events can be transferred to SICAM PQS / PQ Analyzer System via IEC 61850, and flexible analyses and reports (e. g. EN 50160) can be generated.

## You benefit from these features

The SICAM Q200 is used in the single-phase grid as well as in three-wire and four-wire systems (with neutral) in power supply utilities, industries, data centers and in commerce.

- Time and cost savings through early identification of problems in the quality of supply based on comprehensive recording of network parameters
- High investment security through the use, of standards, such as:
  - Measurement procedures according to IEC 61000-4-30 Class A Ed.3 guarantee manufacturer-independent comparable measured values
  - Standard interfaces and standard protocols (IEC 61850, DNP 3i and MODBUS TCP) and data exchange formats (PQDIF, COMTRADE and CSV) - guarantee interoperability
- Wide range of applications thanks to the high measurement accuracy and the wide measurement range for high-frequency disturbances (2 to 150 kHz and transients with 1 MHz)

## **Device Characteristic**

Network analyzer class A according to IEC 62586-1/2 and IEC 61000-4-30 Ed. 3 beyond class A and meets the measurement accuracy class 0.1S according to IEC 62053-22.

### **Input Measuring Circuits**

- Each 4x alternating voltage, and alternating current

### **Binary Inputs / Outputs**

- Up to 6 inputs, 6 outputs, individually programmable

### **Memory**

- 2 GB, sufficient for PQ data according to EN 50160 of several months (expandable)

### **Measured Characteristics and Power Quality**

- Measurement compliant with IEC 61000-4-30 Class A Ed. 3, reporting and analyses compliant with EN 50160 (CBEMA)
- True RMS of voltage and current with 8192 sampled values / 10 sampling cycles (sampling rate 40 kHz @50 Hz), voltage transients with a sampling rate of 1 MHz
- Harmonics up to the 63rd harmonic
- Measurement, visualization, recording in PQDIF of frequencies in the range of 2 kHz to 9 kHz (IEC 61000-4-7) and 9 kHz to 150 kHz (IEC610000-4-30- 2015)
- Rapid voltage changes
- Power of harmonics for harmonic direction detection
- Active, reactive, and apparent power and energy
- Phase angles

### **Energy management**

- Load profile peaks and average values; time of use (TOU) with 8 tariffs
- Complies with the following standards: IEC 62053-22 accuracy class 0.1 S, ANSI C12.20 Class 0.2
- ANSI C12.20 Electricity meter, accuracy class 0.2
- 4 Quadrant Power: received and delivered / inductive and capacitive

### **Data export**

- PQDIF data compliant with IEEE 1159.3, for PQ recordings
- CSV data, e. g. for further processing in MS Excel
- COMTRADE data compliant with IEC 60255-24 / IEEE standard C37.111 for fault records

## **Communication interfaces, protocols, and periphery**

- 2 x Ethernet (IEC61850, DNPP 3i and MODBUS TCP), MODBUS gateway/master, integrated switch, SNMPv3
- MODBUS RTU master and gateway function for RS485 devices

### **Cybersecurity**

- Role-based access control (RBAC): password protection against unauthorized usage, central user management
- Secured and protected communication via IEC 61850 protocol, Web browser communication via https
- Firmware signature: only firmware signed by Siemens will be loaded
- Security log: non-volatile storage of SYSLOG events

### **Operation and display**

- Graphic display including operation via 4 function keys
- Integrated web server to interact with PC and HTML pages

### **Time synchronization**

- Ethernet: NTP-Client (Network Time Protocol)

### **Auxiliary Voltage**

- AC / DC 100 V to 230 V

### **Housing Specification**

- Dimensions: 192 mm x 96 mm x 134.6 mm (W/H/D)
- IP54 / NEMA12 option

### **Special Features**

- PQ reporting according to EN 50160 and CBEMA directly over HTML web server
- Visualization of measured Harmonic emissions from 2 kHz to 9 kHz and from 9 kHz to 150 kHz in HTML pages as heat map
- Evaluation of events directly in HTML via COMTRADE viewer/SIGRA plug-in

## **Siemens AG**

Smart Infrastructure

Digital Grid

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For all products using security features of OpenSSL, the following shall apply: This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (www.openssl.org), cryptographic software written by Eric Young (eay@cryptsoft.com) and software developed by Bodo Moeller.