SIEMENS

SENTRON • SIVACON • ALPHA

Low-Voltage Power Distribution and Electrical Installation Technology

Measuring Devices and Power Monitoring

Catalog Extract LV 10

Edition 04/2019

siemens.com/lowvoltage

Related catalogs

Low-Voltage Power Distribution and Electrical Installation Technology LV 10
SENTRON • SIVACON • ALPHA
Protection, Switching, Measuring and Monitoring Devices, Switchboards and Distribution Systems

PDF (E86060-K8280-A101-A9-7600)
Print (E86060-K8280-A101-A6-7600)

Air Circuit Breakers and Molded Case Circuit Breakers with UL Certification LV 18
SENTRON

PDF (E86060-K8280-E347-A2-7600)

Industrial Controls IC 10
SIRIUS

PDF (E86060-K1010-A101-A9-7600)

Industrial Communication IK PI
SIMATIC NET

E86060-K6710-A101-B8-7600

DELTA ET D1
Switches and Socket Outlets

PDF

SITRAIN
Training for Industry

www.siemens.com/sitrain

Catalog PDF / Contact

Catalog PDF
Digital versions of the catalogs are available in the Siemens Industry Online Support.

www.siemens.com/lowvoltage/catalogs

Contact
Your personal contact can be found in our Contacts Database at:

www.siemens.com/automation-contact

Industry Mall / TIA ST / CA 01

Industry Mall
Information and Ordering Platform on the Internet:

www.siemens.com/industrymall

Siemens TIA Selection Tool
for the selection, configuration and ordering of TIA products and devices

www.siemens.com/tst

Products for Automation and Drives CA 01
Interactive Catalog
Download

www.siemens.com/ca01download

Trademarks

All product designations may be registered trademarks or product names of Siemens AG or other supplying companies. Third parties using these trademarks or product names for their own purposes may infringe upon the rights of the trademark owners. Further information about low-voltage power distribution and electrical installation technology is available on the Internet at:

www.siemens.com/lowvoltage

Technical Support

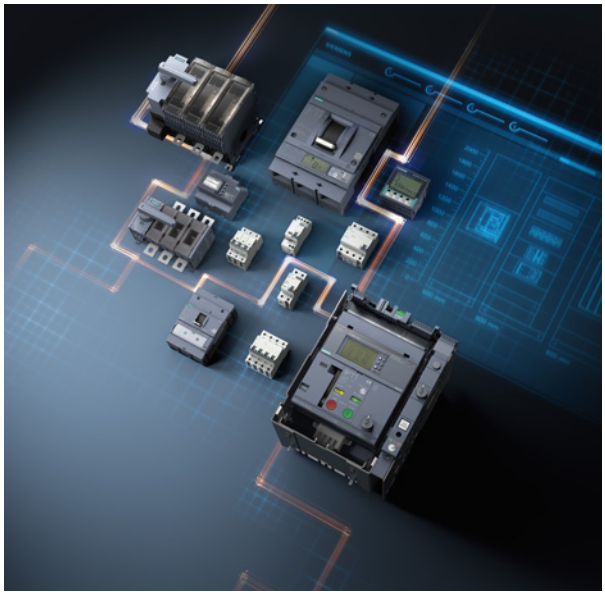
Expert advice on technical questions with a wide range of demand-optimized services for all our products and systems.

www.siemens.com/lowvoltage/support-request

Low-Voltage Power Distribution and Electrical Installation Technology

Protection, Switching, Measuring and Monitoring Devices, Switchboards and Distribution Systems

SENTRON · SIVACON · ALPHA



Catalog LV 10 · 04/2019

You can find the updated catalog valid from October 2019 in the Siemens Industry Online Support under www.siemens.com/lowvoltage/catalogs

Supersedes:
Catalog LV 10 · 10/2018

Refer to the Industry Mall for current prices:
www.siemens.com/industrymall

The products in this catalog can also be found in the Interactive Catalog CA 01:
www.siemens.com/ca01download

Please contact your local Siemens branch.

The products and systems listed in this catalog are developed and manufactured using a certified quality management system in accordance with EN ISO 9001:2008.

Opening Information

Ordering notes

Overview

Ordering special versions

When ordering products that differ from the standard versions listed in the catalog, **"–Z"** must be added to the Article No. indicated and the required features must be specified using alphanumeric order codes or plain text.

Ordering very small quantities

When very small orders are placed, the costs associated with order processing are greater than the order value. We therefore recommend that you combine several small orders. Where this is not possible, we regret that we are obliged to make a small processing charge: for orders with a net goods value of less than € 250 we charge a € 20 supplement to cover our order processing and invoicing costs.

Explanations of Selection and ordering data

Standard delivery time (SD)

► Preferred type — Preferred types are device types that can be delivered immediately ex works, i.e. they are dispatched within 24 hours.

Price units (PU)

The price unit defines the number of units, sets or meters to which the specified price applies.

Packaging size (PS)

The packaging size defines the number of units, sets or meters, for example, for outer packaging.

Only the quantity defined by the packaging size or a multiple thereof can be ordered.

Price group (PG)

Each product is allocated to a price group.

Example

5TT3400

SD: Preferred type
PG: 13C
Ordering quantity 1 unit or a multiple thereof

8US1923-5CA02

PG: 14O
Ordering quantity 10 units or a multiple thereof

8WH9000-1GA00

PG: 12X
Ordering quantity 50 units or a multiple thereof

SD d	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
►	**5TT3400**		1	1 unit	1BK
	8US1923-5CA02		1	10 units	1CU
	8WH9000-1GA00		100	50 units	1BT

Note:

The article numbers shown here and the specifications regarding selection and ordering data are examples only. When ordering, always use the selection and ordering data in the product chapters.

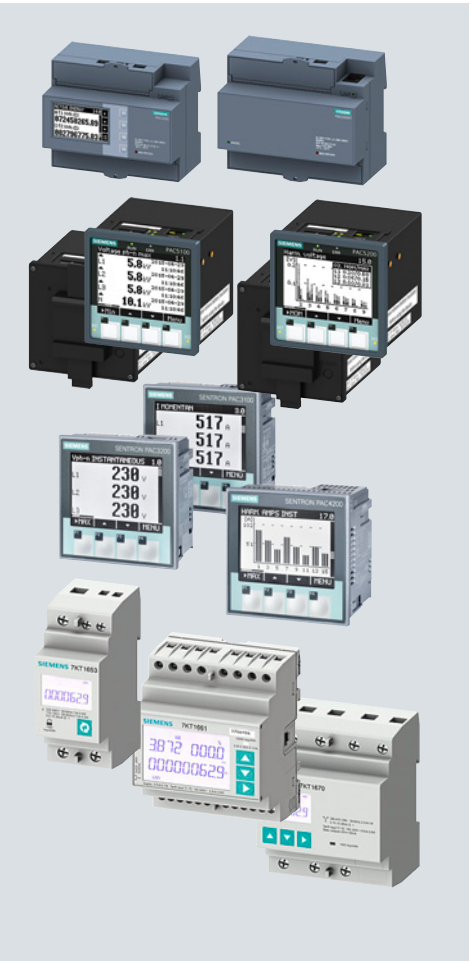
Metal surcharges/export markings

To compensate fluctuating prices of raw materials (for example silver, copper, aluminum, lead, gold, dysprosium and neodymium), surcharges are calculated on a daily basis for products containing these raw materials using the metal factor.
A surcharge for the particular raw material is added to the price of a product if the basic quotations for this raw material are exceeded.

Each product's metal factor dictates for which raw materials the metal surcharges are calculated, from which quotation and with which calculation method (weight or percentage method).

An exact explanation of the metal factor can be found at:
www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

A product's export markings/metal surcharges are updated daily at www.siemens.com/industrymall.



For further technical product information:

Configuration Manual

Measuring Devices and Power Monitoring
Article No.: 3ZW1012-7KM42-0AC1

Siemens Industry Online Support:

www.siemens.com/lowvoltage/product-support

→ Entry type:
Application example
Certificate
Characteristic
Download
FAQ
Manual
Product note
Software archive
Technical data

Overview

Power monitoring made simple

Simplified installation, a wide range of measuring devices, and easy-to-use software: the system from the SENTRON portfolio is optimally suited for small and medium-sized businesses in industry and infrastructure.

Advantages of our power monitoring system

A scalable system

The power monitoring system requires no expert knowledge for commissioning and is available in small, entry-level starter packages. Both hardware and software can be easily expanded.

Industrie 4.0 and smart buildings

It's not just large companies but SMEs as well that can benefit from digitalization and automation – without incurring high procurement costs. Our power monitoring system gathers the data.

Focus on power quality

A decreasing power quality can cause malfunctions in production facilities and terminal equipment. Our power monitoring system analyzes power quality, thus ensuring higher plant availability.

Audits and standards

Companies have to deal with laws and regulations governing energy efficiency. Our power monitoring system has been certified by the German TÜV, thus providing the basis for energy management in conformance with requirements.

12

New in our range

New additions to our comprehensive power monitoring portfolio:

The compact standard mounting rail measuring devices

- 7KM PAC3200T and
- 7KM PAC2200

for the simple and low-cost introduction to energy monitoring as well as the

- Expansion module I(N), I(Diff), analog
  For N conductors and residual current monitoring as well as the measuring of non-electrical quantities using 0/4 ... 20 mA current signals,

as well as compact standard mounting rail measuring devices

- 7KT PAC1600 (three-phase, single-phase and universal measuring device that measures both single-phase and three-phase)

New hardware components of the power monitoring system

Minimum order quantity (PS) or a multiple thereof can be ordered.

Overview

Power management is a matter for decision at the top level

Responsible use of valuable energy resources

Global climate change, scarce energy resources and the increasing demand for energy mean that there is an urgent need for action. The industrialized nations have therefore committed to continuously reduce their annual CO_2 emissions by 2020. The European Council has set a target of improving energy efficiency by 20 percent by 2020. In Germany, the aim is to reduce energy consumption compared with 2008 by 10 percent by 2020, and by 25 percent by 2050.

The international standard ISO 50001 specifies the basic conditions for establishing a corporate energy management system for improved energy efficiency and sustained reduction in a company's energy consumption. Our TÜV-certified power monitoring system from the SENTRON portfolio provides the technical foundation for this. It enables energy flows to be recorded, visualized and analyzed to derive specific measures for optimizing energy use.

A systematic approach to energy efficiency

The standard ISO 50001 supports companies with a specific process description for introducing a corporate energy management system. Standard-compliant energy management optimizes energy utilization, while continuously enhancing energy efficiency.

Defining energy policy objectives

A central management task is the formulation of an in-house energy policy. It defines relevant strategic and operational objectives. Ongoing planning will include the identification of additional optimization potential for the business areas under scrutiny, and the development of relevant improvement measures.

Introducing process optimization

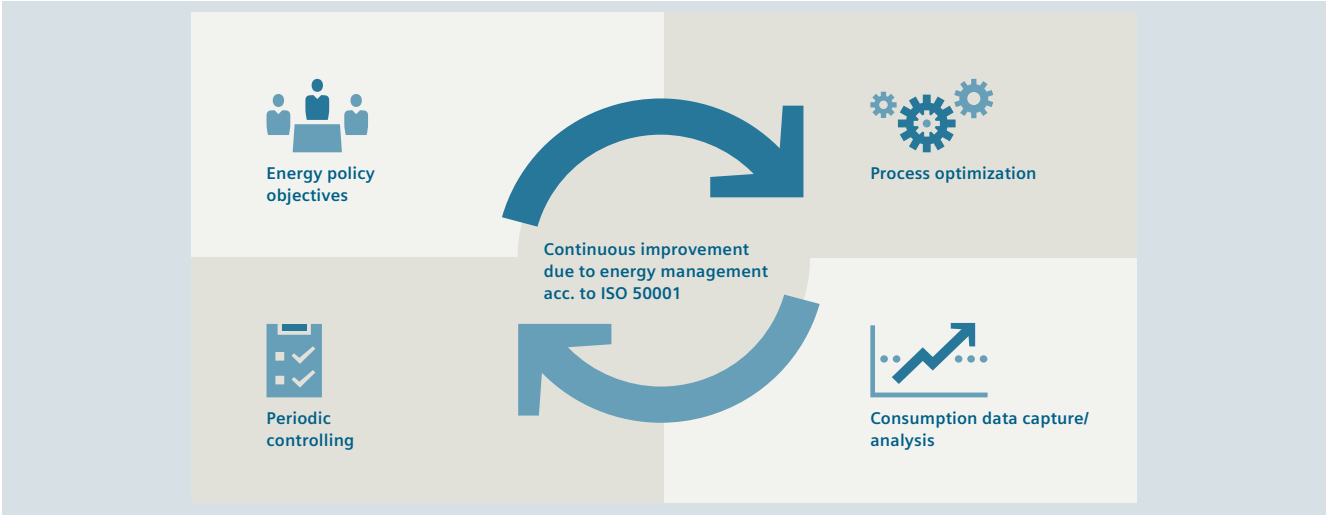
As a first step, an energy manager must be identified and nominated. He will then evaluate captured data, and derive and implement appropriate optimization measures. He will report the achieved results to corporate management.

Making energy flows transparent

As a second step, basic energy consumption and cost data, as well as information on in-house energy production must be collected and documented clearly and verifiably. This requires the development of a reliable and precise system for the capture and analysis of consumption data. The objective is to recognize sustainable savings potential, to derive appropriate measures for that potential, and to implement these measures systematically.

Periodic controlling

Periodic checks will ensure that your energy management system functions correctly, and that objectives are reached. Corrective and preventative measures can then be implemented as needed.



Introduction of a corporate energy management system in accordance with ISO 50001 for continuous improvement of energy efficiency by reducing energy consumption and costs

Energy management in accordance with ISO 50001

Providing the basis with power monitoring

The power monitoring system from the SENTRON portfolio is suitable for infrastructure, industrial applications, and buildings. The 7KT/7KM PAC measuring devices record the data of outgoing feeders or individual loads.

The 3WL/3VA/3VL circuit breakers supply measured values and important information for diagnostics, fault detection, and maintenance via standardized bus systems.

With the powermanager power monitoring software, the recorded measured values can be easily visualized, analyzed, archived, and monitored.

Recording of generated energy using MID measuring devices

Derivation of optimization measures through transparency of the energy flows

Increased availability of energy through monitoring of critical states in the power supply

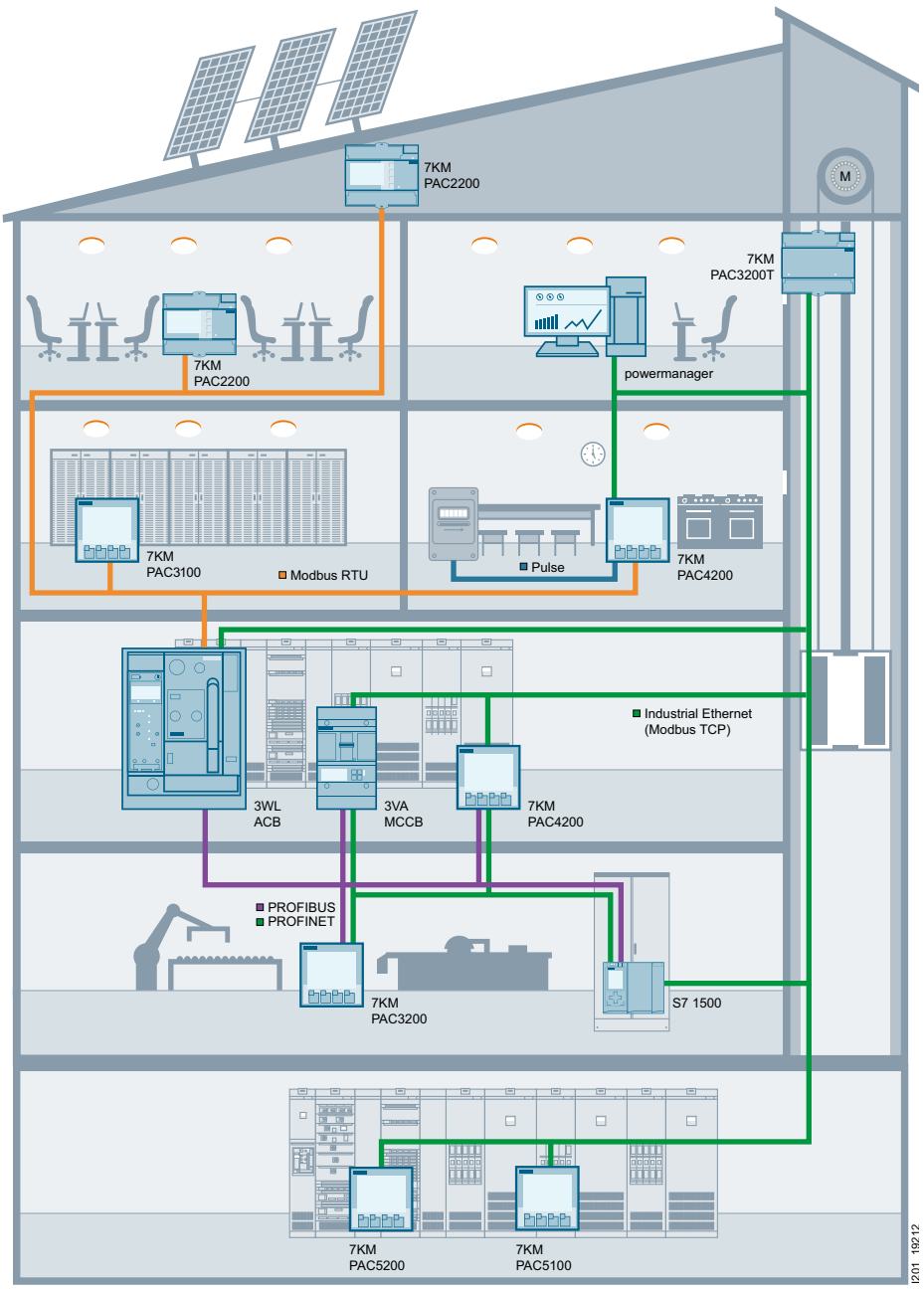
Increased system availability through continuous monitoring of breaker state and maintenance information

Transparency of energy flows

Increased system availability through continuous monitoring of switching states

Increased productivity through optimization of energy consumption and energy costs

Transparency at the infeed thanks to seamless recording of the power supply quality



12

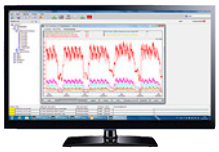
Minimum order quantity (PS) or a multiple thereof can be ordered.

Continuously increasing energy efficiency

Precise cost center accounting for consumers

- Precise allocation of energy costs to cost centers
- Benchmarking between different cost centers
- Increased energy awareness

Detection of energy guzzlers, reduction of load peaks



- Detection of energy-intensive processes and loads
- Cost savings created by amending the power supply agreement
- Tax savings by seamless documentation of application-specific consumption

Protection of sensitive areas for high plant safety

- Avoidance of equipment failures due to overload
- Protection of sensitive devices against harmonics
- Early intervention possible by means of notifications

Monitoring of protective devices for high system availability

- Increased system availability
- Optimization of maintenance
- Fast response to service call-outs

Multi-site power monitoring

- Centralized, multi-site power monitoring via standard IT networks
- Benchmarking of various corporate units increases energy awareness
- Improvement of power supply conditions by bundling supply volumes

Hardware and software components

Overview

Measuring devices and circuit breakers

	7KT PAC1200	SEM3 NEW	7KT PAC1600 NEW	7KM PAC2200	7KM PAC3100	7KM PAC3200T
						
	The flexible solution for multi-channel monitoring in the final circuit up to 63 A	The flexible solution for multichannel monitoring up to 1200 A	The entry-level solution when it comes to energy measurement	The energy meter solution for the standard mounting rail	The cost-effective solution for digital measurement	The compact solution for precise energy measurement
Measuring range/connection						
Max. input voltage L-L/L-N	400 V/230 V	480 V/277 V	400 V/230 V	480 V/277 V	480 V/276 V	480 V/277 V
Transformer connection version	x/5 A	50 ... 1200 A/0.1 A	x/5 A	x/1 A or x/5 A	x/5 A	x/1 A or x/5 A
Direct connection version	40/63 A	–	63 A/80 A	✓ (up to 65 A)	–	–
DC power supply unit with extra-low vol. version	–	–	–	–	–	–
Single-phase counter version	–	✓	✓	✓	–	–
Electrically isolated voltage inputs	–	–	–	–	–	–
Version without display (for web interface)	–	✓	–	–	–	✓
Measured quantities						
Voltage, current, frequency,	✓	✓	✓	✓	✓	✓
Power, power factor	✓	✓	✓	✓	✓	✓
Energy measurement						
• Apparent, active, reactive energy, cos phi	– I ✓ I ✓ I –	✓ I ✓ I ✓I ✓	✓I ✓ I ✓I –	✓ I ✓ I ✓I –	– I ✓ I ✓I –	✓ I ✓ I ✓I –
Extended measured quantities						
• Distortion factor THD (voltage, current)	–	–	–	–	–	✓
• Harmonics (voltage, current)	–	–	–	–	–	–
• Phase angle/phase chart	–	–	–	–	–	–
• Load profile recording	–	✓	–	–	–	–
• Flicker acc. to IEC 61000-4-15	–	–	–	–	–	–
Monitoring functions						
Operating hours counter	–	✓	✓	✓	–	✓
Limit monitoring	–	–	✓	–	–	✓
Logic functions	–	✓	–	–	–	✓
Event log	–	✓	–	–	–	–
Gateway function	–	–	–	–	–	–
Reporting acc. to EN 50160	–	–	–	–	–	–
Integrated fault recorder	–	–	–	–	–	–
System integration and communication						
Digital inputs/digital outputs	–	✓	✓	1/1	2/2	1/1
S0 interface	–	–	✓	✓	✓	✓
4DI/2DO expansion module	–	–	–	–	–	–
Communication modules or protocols:						
• BACnet IP and BACnet MSTP	–	✓	--	--	--	--
• M-Bus	–	–	Optional	✓	–	–
• Instabus KNX	–	–	--	–	–	–
• Modbus RTU	–	✓	Optional	✓	✓	–
• Ethernet with Modbus TCP	✓	✓	–	✓	–	✓
• PROFIBUS DPV1	–	–	–	–	–	–
• PROFINET IO/PROFIenergy	–	–	–	–	–	–
Expansion module I(N), I(Diff) analog	–	–	–	–	–	–
Parameterization software	powerconfig	Own web interface	powerconfig	powerconfig	powerconfig	powerconfig
Integration of power monitoring system	powermanager	powermanager	powermanager	powermanager	powermanager	powermanager
Web interface	✓	✓	–	✓	–	✓
General data						
Measuring accuracy, active/reactive energy	2	0.2 or 1.0	1 I 2	1 I 3	1 I 3	0.5 S I 2
MID version	–	–	✓	✓	–	–
Installation	Standard mounting rail	Screw mounting	Standard mounting rail	Standard mounting rail	Front mounting	Standard mounting rail
Dimensions in MW (1 MW = 18 mm) or in mm	4 MW	–	2/4 MW	6 MW	96 × 96 × 56	6 MW

1) With the exception of devices with power supply units with extra-low voltage.

2) THD indication.

Minimum order quantity (PS) or a multiple thereof can be ordered.

	7KM PAC3200	7KM PAC4200	7KM PAC5100	7KM PAC5200	3WL	3WL10/3VA27 NEW	3VA ETU8
							
	The specialist solution for precise energy measurement	The professional solution for communication and monitoring	The specialist solution for measured value acquisition	The expert solution for power supply quality	The specialist solution for protection and energy measurement	The specialist solution for protection and energy measurement	The specialist solution for protection and energy measurement
	690 V/400 V[1]	690 V/400 V[1]	690 V/400 V	690 V/400 V	690 V/400 V	690 V/400 V	690 V/400 V
	x/1 A or x/5 A	x/1 A or x/5 A	x/1 A or x/5 A	x/1 A or x/5 A	Integrated	Integrated	Integrated
	–	–	–	–	–	–	–
	22 ... 65 V	22 ... 65 V	–	–	24 V	24 V	24 V
	–	–	–	–	–	–	–
	–	–	✓	✓	–	–	–
	–	–	✓	✓	–	–	–
	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓
	✓ | ✓ | ✓ | –	✓ | ✓ | ✓ | ✓	✓ | ✓ | ✓ | ✓	✓ | ✓ | ✓ | ✓	✓ | ✓ | ✓ | ✓	✓ | ✓ | ✓ | ✓	✓ | ✓ | ✓ | ✓
	✓[2]	✓	✓	✓	✓	–	✓
	–	2 ... 64.	2. ... 40.	2. ... 40.	2 ... 29.	–	–
	–	✓	✓	✓	–	–	–
	–	✓	–	✓	✓	✓	✓
	–	–	–	✓	–	–	–
	✓	✓	–	–	✓	–	✓
	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	–	–	–
	–	> 4000 events	✓	✓	✓	✓	✓
	–	✓	–	–	–	–	–
	–	–	–	✓	–	–	–
	–	–	–	✓	–	–	–
	1/1	2/2	0/2	0/2	–	Optional	–
	✓	✓	–	–	Optional	Optional	Optional
	–	Optional	–	–	Optional	Optional	Optional
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	Optional	Optional	–	–	Optional	Optional	Optional
	✓	✓	✓	✓	Optional	Optional	✓
	Optional	Optional	–	–	Optional	–	Optional
	Optional	Optional	–	–	Optional	–	Optional
	Optional	Optional	–	–	--	--	--
	powerconfig, TIA Portal	powerconfig, TIA Portal	powerconfig	powerconfig	powerconfig	powerconfig	powerconfig, TIA Portal
	powermanager SIMATIC Energy Suite	powermanager SIMATIC Energy Suite	powermanager	powermanager	powermanager	powermanager	powermanager SIMATIC Energy Suite
	–	–	✓	✓	–	–	–
	0.5 S I 2	0.2 S I 2	0.5 S I 2	0.5 S I 2	2 S I 2[3]	2 S I 2[3]	2 S I 2[3]
	–	–	–	–	–	–	–
	Front mounting	Front mounting	Front mounting/standard rail		see Chap. 1	see Chap. 1	see Chap. 2
	96 × 96 × 56	96 × 96 × 82	96 × 96 × 100	96 × 96 × 100	96 × 96 × 82[4]	96 × 96 × 82[4]	96 × 96 × 82[4]

[3] Measuring accuracy including current transformer

[4] DSP800, see chapter "Air Circuit Breakers"

✓ Available / possible -- Not available / not possible

Minimum order quantity (PS) or a multiple thereof can be ordered.

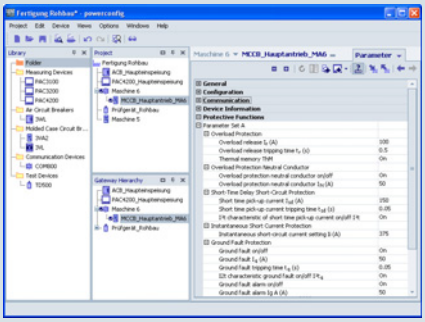
Hardware and software components

Expansion modules for 7KM PAC measuring devices

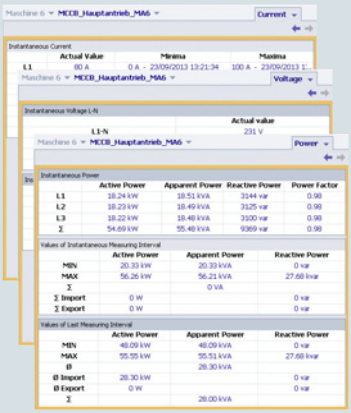
					
	Switched Ethernet For 7KM PAC3200, 7KM PAC4200 and 3VA COM100/COM800	PROFIBUS DP For 7KM PAC3200, 7KM PAC4200 and 3VA COM100/COM800	RS 485 For 7KM PAC3200, 7KM PAC4200 and 3VA COM100/COM800	4DI/2DO For 7KM PAC4200 (number of digital inputs/outputs per module 4/2)	7KM PAC I(N), I(Diff), analog For 7KM PAC4200 and 3200
Protocol	PROFINET IO PROFIenergy Modbus TCP	DPV1	Modbus RTU	--	--
Maximum number of connectable expansion modules of the same type	1	1	1	2	1

The powerconfig software for commissioning

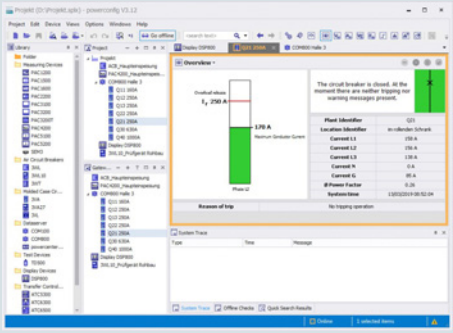
	Software tool for the efficient commissioning and diagnosis of communication-capable SENTRON components
License	Free use
Supported devices	All PAC measuring devices incl. expansion modules, 3WL/3VL/3VA circuit breakers and further communication-capable components, e.g. ATC6300
General range of functions	The PC-based tool facilitates parameterization of the devices, resulting in substantial time savings, particularly when several devices have to be set up. The device settings can be stored in the PC and printed out. The tool enables monitoring of instantaneous measured quantities, which can be saved or printed out if required. Execution of specific device functions, such as resetting of devices and setting of energy counters
Supported languages	German, English, Chinese, Spanish, Portuguese, Italian, Turkish
Service functions	Firmware updates and switching of language packs for 7KM PAC measuring devices
Functional scope with 7KM PAC4200 and 3VA	Readout of data stored in the device (events; load profile history; daily energy counters), which are saved in csv format



Setting of parameter values



Display of actual measured quantities



Display of the circuit breaker state

For more information about powerconfig, see chapter "Software"

Minimum order quantity (PS) or a multiple thereof can be ordered.

Overview

Hardware components of the PC-based power monitoring system

Software component of the power monitoring software: powermanager

Power monitoring system with SENTRON components

The TÜV-certified power monitoring system from the SENTRON portfolio consists of the 7KT/7KM PAC measuring devices, the 3WL/3VA/3VL circuit breakers, and the powermanager power monitoring software. This forms the technical basis for supporting a corporate energy management system as specified by ISO 50001.

The hardware and software components are optimally coordinated with each other. For example, special drivers for the SENTRON devices are integrated in the powermanager power monitoring software. They enable energy data to be captured without any great configuration effort and they indicate the key measured values or the status by means of predefined views.

This reduces the engineering overhead. The device functions are optimally supported in the software.

Features of the powermanager power monitoring software

The powermanager power monitoring software constitutes the optimum technical basis for supporting a corporate power monitoring system as specified by ISO 50001 and EN 16247:

- Independent power monitoring software
- Can be operated using a Windows PC, circuit breakers and measuring devices with Ethernet connection
- Easy getting started with basic license (Basic Package), can be extended with flexible licensing concept according to customer requirements
- Fully scalable, relative to number of devices and software functions
- Optimum integration of 7KT/7KM PAC measuring devices, 3WL/3VL/3VA circuit breakers, 7KM PAC5200 power quality devices and any other Modbus devices
- Support of the various device and communication interfaces (Modbus RTU, Modbus TCP)
- Status display of devices
- Available languages: German, English, Spanish, Portuguese, Italian, French, Turkish, Chinese

PC-based power monitoring system

Application

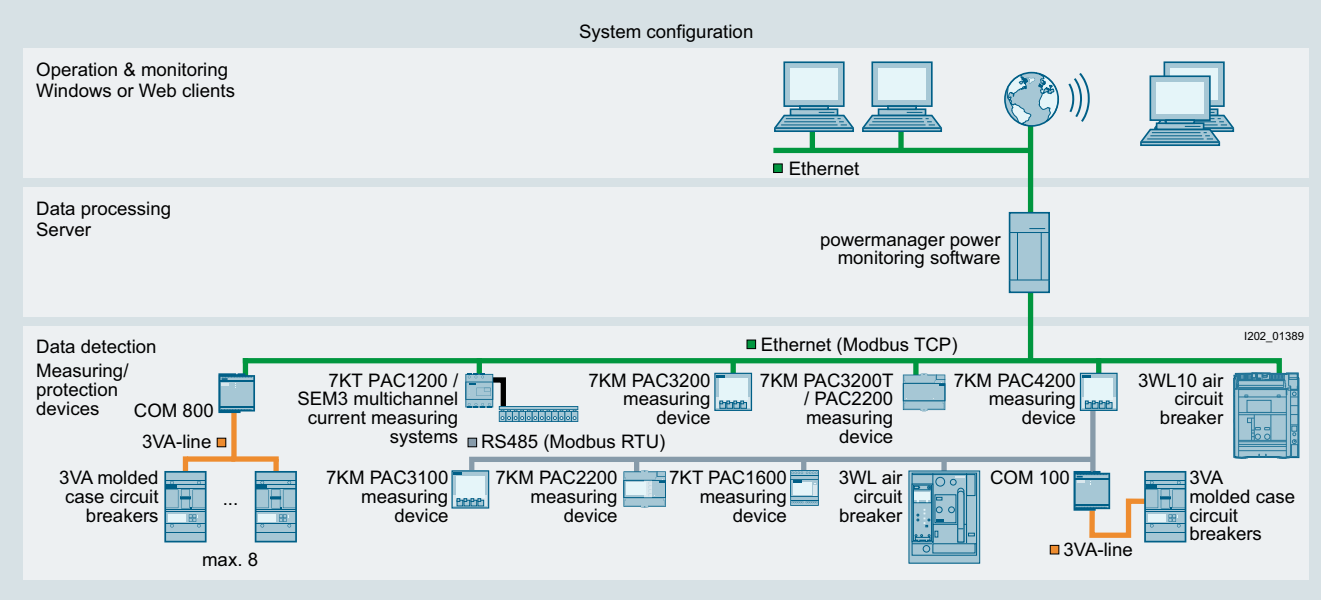
Industries

An energy-efficient production system enhances both the image and the productivity of the company, and thus its competitiveness.

Power monitoring as the technical basis for energy management for increasing a company's energy efficiency is thus of interest to all areas, from industrial applications to infrastructure, and buildings in the service sector.

System configuration

- Integration of measuring devices by means of predefined device templates for the 7KT/7KM PAC measuring devices and the 3WL/3VA/3VL circuit breakers
- Easy integration of existing modbus-capable measuring devices
- Communication through Standard Ethernet
- Integration of devices with RS 485 interface (Modbus RTU) through Modbus gateway, e.g. the 7KM PAC4200 measuring device can be used as the gateway

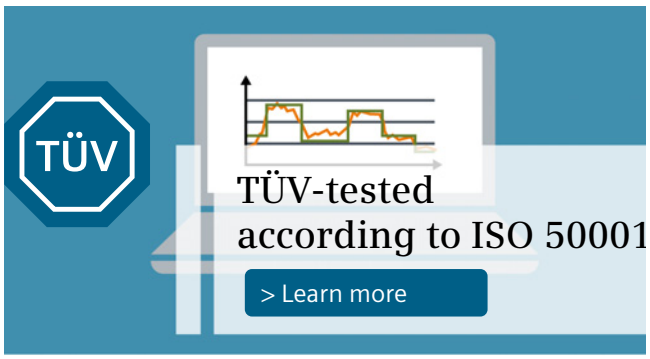


Typical topology of a power monitoring system

12

More information

TÜV certification



The TÜV certificate is available from

www.siemens.com/tuev-certificate-of-conformity

Hardware of the PC-based power monitoring system

The hardware components of the PC-based power monitoring system are

- 7KM PAC measuring devices, see this chapter
- 3WL air circuit breakers, see chapter "Air Circuit Breakers"
- 3VL molded case circuit breakers, see chapter "Molded Case Circuit Breakers"
- 3VA molded case circuit breakers, see chapter "Molded Case Circuit Breakers"

Software of the PC-based power monitoring system

The software of the PC-based power monitoring system is powermanager, see chapter "Software".

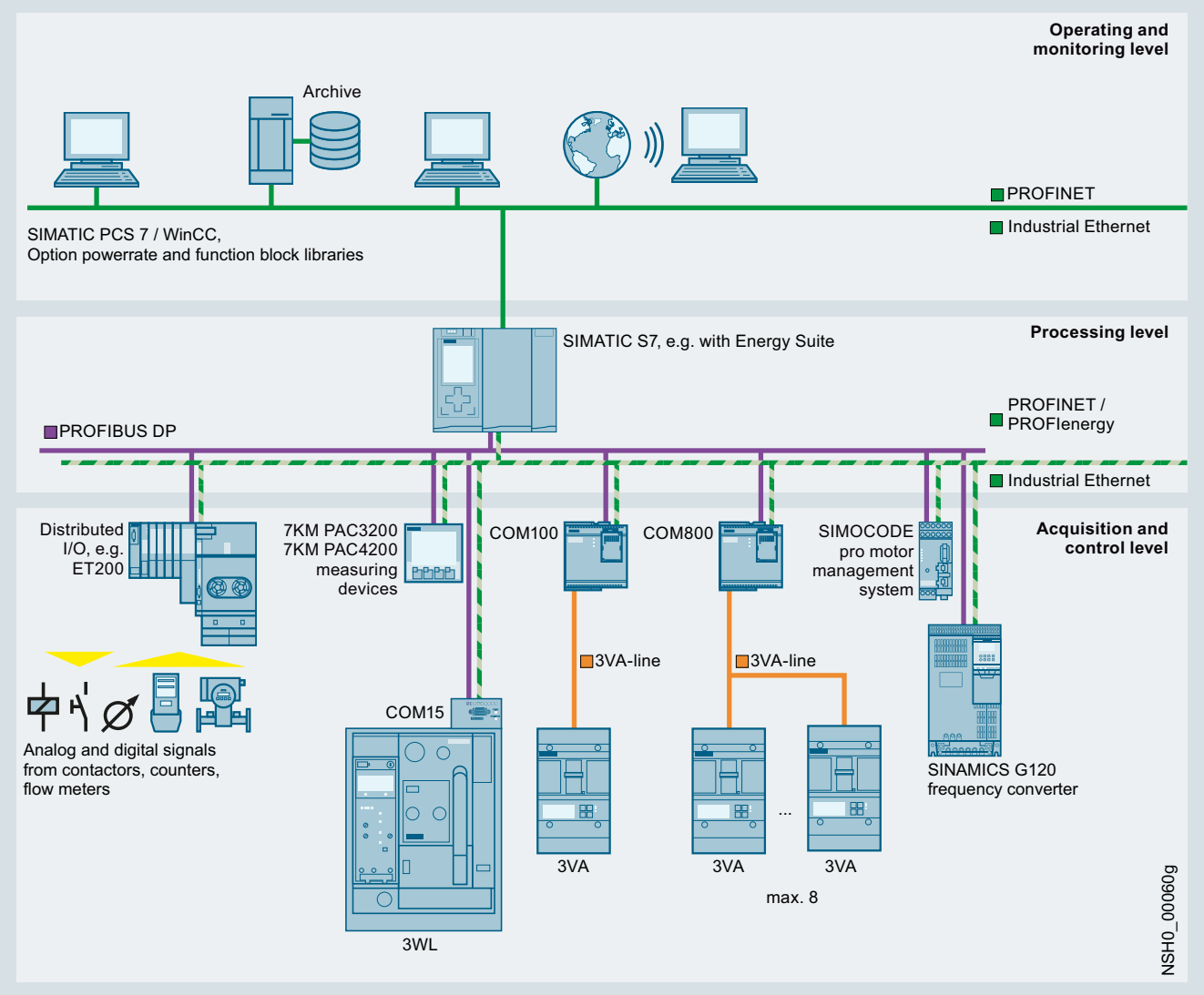
Powermanager system packages with software and hardware are an easy and low-cost way to get started with a power monitoring system, see chapter "Software".

Internet

You can find more information on the internet at:
www.siemens.com/powermonitoring

Minimum order quantity (PS) or a multiple thereof can be ordered.

Overview



SIMATIC-based solutions for the process and manufacturing industry

A key feature of the process and manufacturing industry is frequently high energy consumption. It therefore makes sense to integrate a power data management system in existing systems.

Communication via PROFIBUS DP

PROFIBUS DP enables integration of a wide range of devices:

- For the protection of distribution boards and loads: protective devices, such as circuit breakers
- For open-loop and closed-loop control: frequency converters, motor management systems and soft starters
- For detection
  - Electrical measured quantities: via the 7KM PAC3200/4200 measuring devices and 3WL/3VA circuit breakers
  - Non-electrical measured quantities: via analog/digital converters

PROFINET and PROFIenergy

An increasing number of devices in automation technology offer PROFINET. The 7KM PAC Switched Ethernet PROFINET expansion module enables the 7KM PAC3200/PAC4200 measuring devices and 3WL/3VA circuit breakers to be connected to the automation systems.

SENTRON devices in the TIA Portal

Engineering of the SENTRON devices with PROFIBUS and PROFINET communication takes place directly in the TIA Portal (from V15). This applies in particular to:

- Integration of the SIMATIC hardware configuration
- The parameter settings for 3VA ETUs 5-series and 8-series and PAC3200/PAC4200
- Integration of 3VA/PAC3200/PAC4200 with a number of other SIEMENS devices in the Energy Suite

Importing of GSD/GSDML files is no longer required.

Block library for SIMATIC PCS 7

The SENTRON PAC/3WL/3VL and 3VA devices can be integrated seamlessly into SIMATIC PCS 7 using a block library. This covers programming via CFC, integration into the control program and integration into the PCS 7 message system.

SIMATIC-based power data management system

Benefits

- Increased energy efficiency due to precise knowledge of the load profile
- Optimization of power supply agreements
- Allocation of power costs to cost centers
- Optimization of plant maintenance
- Identification of critical plant conditions
- Reliable monitoring of the power limit through automatic load management

And all of this with a minimum of engineering and integration effort thanks to direct integration in the TIA Portal.

Application

The SIMATIC-based power data management system is used in all industries in which PCS 7 or TIA Portal are used, and the transparency and monitoring of power flows is crucial.

More information

Hardware components

The hardware components of the SIMATIC-based power data management system are

- 7KM PAC measuring devices, see this chapter
- 3WL air circuit breakers, see chapter "Air Circuit Breakers"
- 3VL molded case circuit breakers, see chapter "Molded Case Circuit Breakers"
- 3VA molded case circuit breakers, see chapter "Molded Case Circuit Breakers"

Software components

The software components of the SIMATIC-based power data management system are

- Energy Suite
- SIMATIC Modbus/TCP SENTRON PAC

For information about all the software components, see chapter "Software"

Internet

You can find more information on the internet at:
www.siemens.com/powermonitoring

Overview

Devices	Page	Application	Standards	Used in		
				Non-residential buildings	Residential buildings	Industry
7KM PAC measuring devices						
The 7KM PAC measuring devices are used to measure and display all relevant system parameters in low-voltage power distribution. They can be used for both single-phase and multi-phase measurements in 3 and 4-conductor power supply systems (TN, TT, IT). They record energy values for main distribution boards, electrical branches or individual loads precisely and reliably, and also supply key measured values for assessment of the state of the plant and the quality of the power supply.						
 **7KM PAC2200 measuring device** Screw terminals	12/15	Standard rail instrument with graphics display, one integrated digital input and output and integrated communication interfaces (Modbus TCP – 3 simultaneous connections, Modbus RTU, M-Bus) for the transmission of measured values and for configuration. Display of 30 electrical measured values and consumption values in switchboard assemblies, infeeds or outgoing feeders. Versions available with or without MID. International standards and multi-lingual displays for worldwide use.	Measurement accuracy for energy acc. to IEC 61557-12	✓	--	✓
 **7KM PAC3100 measuring device** AC/DC wide-range power supply unit, screw terminals	12/16	Control panel instrument with graphics display, integrated digital inputs and outputs and an RS 485 interface for the transmission of measured values and for configuration. Display of 30 electrical measured values and consumption values in switchboard assemblies, infeeds or outgoing feeders. International standards and multi-lingual displays for worldwide use.	Measurement accuracy for energy acc. to IEC 61557-12	✓	--	✓
 **7KM PAC3200T measuring device** Screw terminals	12/17	Standard rail instrument without graphics display with integrated web interface, one integrated digital input and output and a Modbus TCP interface for the transmission (3 simultaneous connections) of measured values and for configuration. Display of 50 electrical measured values and consumption values in switchboard assemblies, infeeds or outgoing feeders. International standards for worldwide use.	Measurement accuracy for energy acc. to IEC 61557-12	✓	--	✓
 **7KM PAC3200 measuring device** 3 versions: • AC/DC wide-range power supply unit, screw connection • DC power supply unit with extra-low voltage, screw connection • AC/DC wide-range power supply unit, ring cable lug connection	12/18	Control panel instrument with graphics display, integrated digital inputs and outputs and an integrated Ethernet interface for the transmission of measured values and for configuration. Display of over 50 electrical measured values for switchboard assemblies, infeeds or outgoing feeders. Dual-tariff measuring devices for precise energy measurement for power import and feedback. The following expansion modules are available: • 7KM PAC Switched Ethernet PROFINET • 7KM PAC RS 485 • 7KM PAC PROFIBUS DP • 7KM PAC I(N), I(Diff), analog	Measuring accuracy for energy acc. to IEC 62053-22/23 and IEC 61557-12	✓	--	✓
 **7KM PAC4200 measuring device** 3 versions: • AC/DC wide-range power supply unit, screw connection • DC power supply unit with extra-low voltage, screw connection • AC/DC wide-range power supply unit, ring cable lug connection	12/20	Control panel instrument with graphics display, user-defined displays, memory, clock and calendar function, digital inputs and outputs and an integrated Ethernet interface with gateway function to transfer measured values and for configuration. Display of over 200 electrical measured values for switchboard assemblies, infeeds or outgoing feeders. Extensive functions for precise energy measurement for power import and feedback and assessment of the system quality. The following expansion modules are available: • 7KM PAC Switched Ethernet PROFINET • 7KM PAC RS 485 • 7KM PAC PROFIBUS DP • 7KM PAC 4DI/2DO • 7KM PAC I(N), I(Diff), analog	Measuring accuracy for energy acc. to IEC 62053-22/23 and IEC 61557-12	✓	--	✓

12

Introduction

Devices		Page	Application	Standards	Used in		
					Non-residential buildings	Residential buildings	Industry
	**7KM PAC5100 measuring device** 2 versions: • Control panel instrument with graphics display • Standard rail instrument without display	12/22	Control panel instrument with graphics display and user-defined displays, or instrument for standard rail mounting in accordance with EN 60750, web interface for parameterization, visualization and data management, 2 binary outputs, electrically isolated voltage inputs, synchronization via internal RTC clock or externally via NTP, 4 freely parameterizable LEDs for device status or limit violations, as well as an integrated RJ45 Ethernet interface. Recording of more than 250 electrical measured values for switchboard assemblies, infeeds or outgoing feeders, extensive functions for precise energy measurement for power import and feedback, and for assessment of the system quality.	Measuring accuracy for energy acc. to IEC 62053-22/23 and IEC 61557-12	✓	--	✓
	**7KM PAC5200 measuring device** 2 versions: • Control panel instrument with graphics display • Standard rail instrument without display	12/23	Control panel instrument with graphics display and user-defined displays or instrument for standard rail mounting in accordance with EN 60750, web interface for parameterization, visualization and data management, 2 binary outputs, electrically isolated voltage inputs, flicker in accordance with IEC 61000-4-15, synchronization via internal RTC clock or externally via NTP, 4 freely parameterizable LEDs for device status or limit violations, 2 GB memory, integrated fault recorder, reporting in accordance with EN 50160, rms recorder, as well as an integrated RJ45 Ethernet interface. Recording of more than 250 electrical measured values for switchboard assemblies, infeeds or outgoing feeders. Extensive functions for precise energy measurement for power import and feedback and assessment of the system quality.	Measuring accuracy for energy acc. to IEC 62053-22/23 and IEC 61557-12	✓	--	✓
	**7KM PAC expansion modules**	12/26	• The 7KM PAC Switched Ethernet PROFINET expansion module is used to connect the 7KM PAC3200 and 7KM PAC4200 measuring devices and 3VA molded case circuit breakers to Switched Ethernet PROFINET (PROFIenergy). • The 7KM PAC PROFIBUS DP expansion module is used to connect the 7KM PAC3200 and 7KM PAC4200 measuring devices and 3VA molded case circuit breakers to the PROFIBUS DPV1 • The 7KM PAC RS 485 expansion module is used to connect simple devices with RS 485 interface, such as the 7KM PAC3200 and 3VA molded case circuit breaker, and supports the Modbus RTU protocol. • The 7KM PAC 4DI/2DO expansion module is used to expand the 7KM PAC4200 measuring device to up to 10 digital inputs and 6 digital outputs. • The 7KM PAC I(N), I(Diff), analog expansion module adds the following functions for 7KM PAC3200 and 7KM PAC4200 devices: - N conductor measurement - Two analog inputs with 0/4 ... 20 mA signaling to measure electrical and non-electrical quantities - Residual current measurement	IEC 61784-2 IEC 61158 RS 485 IEC 62053-31	✓	--	✓

12

Minimum order quantity (PS) or a multiple thereof can be ordered.

Overview

7KM PAC2200 measuring device

The 7KM PAC2200 measuring device is a standard rail instrument with a graphical display and integrated web interface for displaying important measured values to evaluate the plant state.

The devices are available with or without MID.

The 7KM PAC2200 measuring device has

- an integrated Ethernet interface (Modbus TCP), which enables up to three simultaneous connections or
- one integrated M-Bus interface or
- one integrated interface for RS 485 (Modbus RTU)

An expansion module is not required for this.

The 7KM PAC2200 measuring device

- is also suitable for direct measurement up to 480 V UL-L, CATIII
- is designed for current measurement via x/1 A or x/5 A transformers, or directly up to 65 A (CATIII)
- is powered by the measurement voltage

Benefits

- Simple mounting and commissioning on standard mounting rail
- Compact design, directly in the control panel
- Worldwide use
- Interface to power monitoring system
- Low mounting depth
- Free, intuitive configuration software powerconfig, see chapter "Software"
- Interface possible to powermanager power monitoring software, see chapter "Software"

Selection and ordering data

	Version	SD d	Article No. www.siemens.com/product?Article No.	PU (UNIT, SET, M)	PS	PG
 7KM2200-2EA30-1CA1	**7KM PAC2200 measuring device**		**Screw connection** ⏚			
	Standard rail instrument 6 MW Screw connections for current and voltage connection Measuring inputs U_e: max. 480/277 V 3 AC, 50/60 Hz					
	7KM PAC2200 measuring device, x/1 A or x/5 A transformer measurement, without MID					
	• With M-Bus interface		**7KM2200-2EA30-1CA1**	1	1 unit	1DD
	• With integrated RS 485 interface (Modbus RTU)		**7KM2200-2EA30-1DA1**	1	1 unit	1DD
	• With integrated Ethernet interface (Modbus TCP)		**7KM2200-2EA30-1EA1**	1	1 unit	1DD
	7KM PAC2200 measuring device, direct measurement 65 A, without MID					
	• With M-Bus interface		**7KM2200-2EA40-1CA1**	1	1 unit	1DD
	• With integrated RS 485 interface (Modbus RTU)		**7KM2200-2EA40-1DA1**	1	1 unit	1DD
	• With integrated Ethernet interface (Modbus TCP)		**7KM2200-2EA40-1EA1**	1	1 unit	1DD
	7KM PAC2200 measuring device, x/1 A or x/5 A transformer measurement, with MID NEW					
	• With M-Bus interface		**7KM2200-2EA30-1GA1**	1	1 unit	1DD
	• With integrated RS 485 interface (Modbus RTU)		**7KM2200-2EA30-1HA1**	1	1 unit	1DD
	• With integrated Ethernet interface (Modbus TCP)		**7KM2200-2EA30-1JA1**	1	1 unit	1DD
	7KM PAC2200 measuring device, direct measurement 65 A, with MID NEW					
	• With M-Bus interface		**7KM2200-2EA40-1GA1**	1	1 unit	1DD
	• With integrated RS 485 interface (Modbus RTU)		**7KM2200-2EA40-1HA1**	1	1 unit	1DD
	• With integrated Ethernet interface (Modbus TCP)		**7KM2200-2EA40-1JA1**	1	1 unit	1DD

More information

For current transformers, see page 12/50 or see chapter "Switch Disconnectors"

powerconfig is available free of charge at http://support.automation.siemens.com/WW/view/en/63452759

For more information about powerconfig and powermanager, see chapter "Software"

7KM PAC3100 measuring devices

Overview

7KM PAC3100 measuring device

The 7KM PAC3100 measuring device is a control panel instrument for acquiring important measured values to evaluate the plant state and power quality.

The 7KM PAC3100 measuring device is fitted with an integrated RS 485 interface (Modbus RTU). An expansion module is not required for this.

Benefits

- Simple mounting and commissioning
- High IP65 degree of protection (front side, when installed) permits usage in extremely dusty and wet environments
- Intuitive operation using 4 function buttons and multilingual plain text displays
- Easy adaptation to different systems using integrated and optional
  - Digital inputs and outputs
  - Communication interfaces
- Worldwide use
  - At least 8 languages
  - International approvals
  - Developed and tested to European and international standards
- Low mounting depth
- Free, intuitive configuration software powerconfig, see chapter "Software"

Selection and ordering data

	Version	SD	Article No. www.siemens.com/product?Article No.	PU (UNIT, SET, M)	PS	PG
		d				
 7KM3133-0BA00-3AA0	**7KM PAC3100 measuring device** Control panel instrument, 96 x 96 mm Screw connections for current and voltage connection AC/DC wide-voltage power supply unit U_{AUX}: 100 … 240 V AC ± 10%, 50/60 Hz 110 … 250 V DC ± 10% Measuring inputs U_e: max. 480/277 V 3 AC, 50/60 Hz I_e: /5 A		**Screw connection**  **7KM3133-0BA00-3AA0**	1	1 unit	1DD

More information

For other accessories, see page 12/25

For current transformers, see page 12/50 or see chapter "Switch Disconnectors"

powerconfig is available free of charge at http://support.automation.siemens.com/WW/view/en/63452759

For more information about powerconfig, see chapter "Software"

Minimum order quantity (PS) or a multiple thereof can be ordered.

Overview

7KM PAC3200T measuring device

The 7KM PAC3200T measuring device is a standard rail instrument without a display but with an integrated web interface for displaying important measured values to evaluate the plant state and power quality.

The 7KM PAC3200T measuring device has an integrated Ethernet interface (Modbus TCP protocol), which enables up to three simultaneous connections. An expansion module is not required for this.

The 7KM PAC3200T measuring device

- is also suitable for direct measurement up to 480 V UL-L, CATIII or via current transformer
- is for x/1A or x/5A transformer current measurement and
- meets the high requirements of IEC 61557-2

Benefits

- Simple mounting and commissioning on standard mounting rail
- Compact design, directly in the control panel
- Worldwide use
- Interface to powermanager power monitoring system, see chapter "Software"
- Low mounting depth
- Free, intuitive configuration software powerconfig, see chapter "Software"

Selection and ordering data

	Version	SD	Article No. www.siemens.com/product?Article No.	PU (UNIT, SET, M)	PS	PG
		d				
 7KM3200-0CA01-1AA0	**7KM PAC3200T measuring device** • Standard rail instrument 6 MW without display, with integrated web interface • Screw connections for current and voltage connection • AC/DC wide-voltage power supply unit U_{AUX}: 90 … 276 V AC, 50/60 Hz 110 … 275 V DC • Measuring inputs U_e: max. 480/277 V 3 AC, 50/60 Hz		**Screw connection** ⊕ **7KM3200-0CA01-1AA0**	1	1 unit	1DD

More information

For current transformers, see page 12/50 or see chapter "Switch Disconnectors"

powerconfig is available free of charge at http://support.automation.siemens.com/WW/view/en/63452759

For more information about powerconfig, see chapter "Software"

7KM PAC3200 measuring devices

Overview

7KM PAC3200 measuring device

The 7KM PAC3200 measuring device is a control panel instrument for acquiring important measured values to evaluate the plant state and power quality.

The 7KM PAC3200 measuring device is fitted with an integrated Ethernet interface (Modbus TCP protocol). An expansion module is not required for this.

Power distribution in the TIA Portal

The devices fit seamlessly, via PROFIBUS or PROFINET, into V14 or higher of TIA Portal, thus enabling parameter assignment, commissioning and automation of power distribution in the application itself.

The benefits for you:

- Engineering with one tool only
- Intuitive configuration of power distribution
- Access to measured and diagnostic data

More information

www.siemens.com/lowvoltage/tia-portal

Benefits

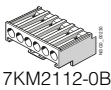
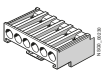
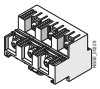
- Simple mounting and commissioning
- High IP65 degree of protection (front side, when installed) permits usage in extremely dusty and wet environments
- Intuitive operation using 4 function keys and multilingual plain text displays
- Easy adaptation to different systems using integrated and optional
  - Digital inputs and outputs
  - Communication interfaces
- Worldwide use
  - At least 8 languages
  - International approvals
  - Developed and tested to European and international standards
- Low mounting depth

Additional performance characteristics of the 7KM PAC3200:

- Precise energy measurement
- Versatile system integration
  - Integrated Ethernet interface
  - Optional communication modules:
    7KM PAC Switched Ethernet PROFINET
    7KM PAC PROFIBUS DP
    7KM PAC RS 485
    7KM PAC I(N), I(Diff), analog
  - Multifunctional digital inputs and outputs
  - Limit monitoring
- Can be connected directly to power supply systems up to 690 V AC (UL-L) and CATIII without voltage transformers (with the exception of devices with power supply units with extra-low voltage)
- User-friendly configuration software powerconfig, see chapter "Software"

Minimum order quantity (PS) or a multiple thereof can be ordered.

Selection and ordering data

	Version	SD d	Article No. www.siemens.com/product?Article No.	PU (UNIT, SET, M)	PS	PG
  7KM2112-0BA00-3AA0	**7KM PAC3200 measuring device** Control panel instrument, 96 x 96 mm Screw connections for current and voltage connection AC/DC wide-voltage power supply unit U_{AUX}: 95 … 240 V AC ± 10%, 50/60 Hz 110 … 340 V DC ± 10% Measuring inputs U_e: max. 690/400 V 3 AC, 50/60 Hz I_e: /1 A or /5 A		**Screw connection** **7KM2112-0BA00-3AA0**	1	1 unit	1DD
  7KM2111-1BA00-3AA0	**7KM PAC3200 measuring device** Control panel instrument, 96 x 96 mm Screw connections for current and voltage connection DC power supply unit with extra-low voltage U_{AUX}: 22 … 65 V DC ± 10% Measuring inputs U_e: max. 500/289 V 3 AC, 50/60 Hz I_e: /1 A or /5 A		**Screw connection** **7KM2111-1BA00-3AA0**	1	1 unit	1DD
  7KM2112-0BA00-2AA0	**7KM PAC3200 measuring device** Control panel instrument, 96 x 96 mm Ring cable lug connections for current and voltage connection AC/DC wide-voltage power supply unit U_{AUX}: 95 … 240 V AC ± 10%, 50/60 Hz 110 … 340 V DC ± 10% Measuring inputs U_e: max. 690/400 V 3 AC, 50/60 Hz I_e: /1 A or /5 A		**Ring cable lug connection** **7KM2112-0BA00-2AA0**	1	1 unit	1DD

More information

For other accessories, see page 12/25

For current transformers, see page 12/50 or see chapter "Switch Disconnectors"

powerconfig is available free of charge at
http://support.automation.siemens.com/WW/view/en/63452759

For more information about powerconfig, see chapter "Software"

7KM PAC4200 measuring devices

Overview

7KM PAC4200 measuring device

The 7KM PAC4200 measuring device is a control panel instrument for acquiring important measured values to evaluate the plant state and power quality.

The 7KM PAC4200 measuring device is fitted with an integrated Ethernet interface (Modbus TCP protocol).
An expansion module is not required for this.

Power distribution in the TIA Portal

The devices fit seamlessly, via PROFIBUS or PROFINET, into V14 or higher of TIA Portal, thus enabling parameter assignment, commissioning and automation of power distribution in the application itself.

The benefits for you:

- Engineering with one tool only
- Intuitive configuration of power distribution
- Access to measured and diagnostic data

More information:

www.siemens.com/lowvoltage/tia-portal

Benefits

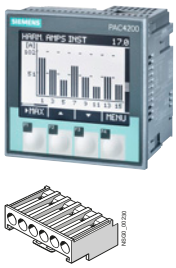
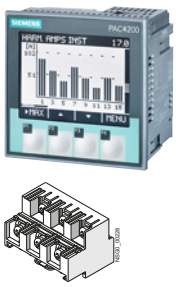
- Simple mounting and commissioning
- High IP65 degree of protection (front side, when installed) permits usage in extremely dusty and wet environments
- Intuitive operation using 4 function buttons and multilingual plain text displays
- Easy adaptation to different systems using integrated and optional
  - Digital inputs and outputs
  - Communication interfaces
- Worldwide use
  - At least 8 languages
  - International approvals
  - Developed and tested to European and international standards
- Low mounting depth

Additional performance characteristics of the 7KM PAC4200:

- Precise energy measurement
- Versatile system integration
  - Integrated Ethernet interface
  - Optional communication modules:
    7KM PAC Switched Ethernet PROFINET
    7KM PAC PROFIBUS DP
    7KM PAC RS 485
    7KM PAC 4DI/2DO
    7KM PAC I(N), I(Diff), analog
  - Multifunctional digital inputs and outputs
  - Limit monitoring
- Can be connected directly to power supply systems up to 690 V AC (UL-L) and CATIII without voltage transformers (with the exception of devices with extra-low voltage power supply units)
- User-friendly configuration software powerconfig, see chapter "Software"
- Monitoring of plant status and power supply quality
  - Basic information for evaluating the power supply quality
  - Logging of plant history in the form of operation, control and system-related events
- Recording of the power range through power averaging (load profile)
- Daily energy meters for apparent, active and reactive energy across 365 days for cut-off date assessment
- Detection of gas, water, compressed air or other energy sources via pulse counter to the digital inputs
- Can be expanded using modules to up to 10 digital inputs and 6 digital outputs
- Counters for apparent, active and reactive energy for the precise detection of the power consumption of a partial process or manufacturing process
- 10/100 Mbps Ethernet interface with gateway function for the easy connection of devices with serial RS 485 interface via 7KM PAC RS 485 expansion module to an Ethernet network
- Comprehensive user-friendly indicators, such as user-defined displays, bar and status indicators, phase diagram and list and histogram graphics
- Satisfies the accuracy requirements of class 0.1 S high-precision meters used by power supply companies according to IEC 62053-22, which are normally reserved for exacting industrial applications

Minimum order quantity (PS) or a multiple thereof can be ordered.

Selection and ordering data

	Version	SD d	Article No. www.siemens.com/product?Article No.	PU (UNIT, SET, M)	PS	PG
 7KM4212-0BA00-3AA0	**7KM PAC4200 measuring device** Control panel instrument, 96 x 96 mm Screw connections for current and voltage connection AC/DC wide-voltage power supply unit U_{AUX}: 95 … 240 V AC ± 10%, 50/60 Hz 110 … 340 V DC ± 10% Measuring inputs U_e: max. 690/400 V 3 AC, 50/60 Hz I_e: /1 A or /5 A		**Screw connection** **7KM4212-0BA00-3AA0**	1	1 unit	1DD
 7KM4211-1BA00-3AA0	**7KM PAC4200 measuring device** Control panel instrument, 96 x 96 mm Screw connections for current and voltage connection DC power supply unit with extra-low voltage U_{AUX}: 22 … 65 V DC ± 10% Measuring inputs U_e: max. 500/289 V 3 AC, 50/60 Hz I_e: /1 A or /5 A		**Screw connection** **7KM4211-1BA00-3AA0**	1	1 unit	1DD
 7KM4212-0BA00-2AA0	**7KM PAC4200 measuring device** Control panel instrument, 96 x 96 mm Ring cable lug connections for current and voltage connection AC/DC wide-voltage power supply unit U_{AUX}: 95 … 240 V AC ± 10%, 50/60 Hz 110 … 340 V DC ± 10% Measuring inputs U_e: max. 690/400 V 3 AC, 50/60 Hz I_e: /1 A or /5 A		**Ring cable lug connection** **7KM4212-0BA00-2AA0**	1	1 unit	1DD

More information

For other accessories, see page 12/25

For current transformers, see page 12/50 or
see chapter "Switch Disconnectors"

powerconfig is available free of charge at
http://support.automation.siemens.com/WW/view/en/63452759

For more information about powerconfig,
see chapter "Software"

7KM PAC5100 measuring devices

Overview

7KM PAC5100 measuring device

The 7KM PAC5100 measuring device is a control panel instrument for acquiring important measured values to evaluate the plant state and power quality.

The 7KM PAC5100 measuring device has an integrated Ethernet interface (Modbus TCP protocol) and a web interface for parameterization, visualization and data management.

Benefits

- Simple mounting and commissioning
- Intuitive operation via 4 function keys
- Integrated web server for parameterization, display and evaluation
- 4 parameterizable LEDs
- Worldwide use
  - International approvals
  - Developed and tested to European and international standards
- Low mounting depth
- Precise energy measurement
- Versatile system integration
  - Integrated Ethernet interface
  - Multifunctional digital outputs
  - Limit monitoring
- Can be directly connected to power supply networks up to 690 V AC (UL-L), CATIII without voltage transformer
- Electrically isolated voltage inputs
- Monitoring of plant status and power supply quality
  - Basic information for evaluating the power supply quality
  - Logging of plant history in the form of operation, control and system-related events
- Energy counters for apparent energy, active energy, reactive energy, as well as import, supply, inductive and capacitive
- Comprehensive user-friendly indicators, such as user-defined displays, bar and status indicators
- Measurement up to the 40th individual harmonic of current and voltage

Selection and ordering data

	Version	SD d	Article No. www.siemens.com/product?Article No.	PU (UNIT, SET, M)	PS	PG
 7KM5212-6BA00-1EA2	**7KM PAC5100 measuring device** Control panel instrument, 96 x 96 mm Screw connections for current and voltage connection AC/DC wide-voltage power supply unit U_{AUX}: 110 … 230 V AC ± 10%, 50/60 Hz 24 … 250 V DC ± 10% Measuring inputs U_e: max. 690/400 V 3 AC, 50/60 Hz I_e: /1 A or /5 A		**Screw connection** **7KM5212-6BA00-1EA2**	1	1 unit	1DD
 7KM5212-6CA00-1EA8	**7KM PAC5100 measuring device** Standard rail instrument without display Screw connections for current and voltage connection AC/DC wide-voltage power supply unit U_{AUX}: 110 … 230 V AC ± 10%, 50/60 Hz 24 … 250 V DC ± 10% Measuring inputs U_e: max. 690/400 V 3 AC, 50/60 Hz I_e: /1 A or /5 A		**Screw connection** **7KM5212-6CA00-1EA8**	1	1 unit	1DD

More information

For current transformers, see page 12/50 or see chapter "Switch Disconnectors"

Minimum order quantity (PS) or a multiple thereof can be ordered.

Overview

7KM PAC5200 measuring device

The 7KM PAC5200 power quality measuring device is

- a control panel instrument
- or a standard rail instrument without display

for acquiring important measured values to evaluate the plant state and power quality.

It has an integrated Ethernet interface (Modbus TCP protocol) and a web interface for parameterization, visualization and data management.

Benefits

- Simple mounting and commissioning
- Intuitive operation via 4 function keys
- 4 parameterizable LEDs
- Integrated web server for parameterization, display and evaluation
- Worldwide use
  - International approvals
  - Developed and tested to European and international standards
- Low mounting depth
- Precise energy measurement
- Versatile system integration
  - Integrated Ethernet interface
  - Multifunctional digital outputs
  - Limit monitoring
- Can be directly connected to power supply networks up to 690 V AC (UL-L), CATIII without voltage transformer
- Electrically isolated voltage inputs
- Monitoring the plant status and the power supply quality:
  - Basic information for evaluating the power supply quality
  - Logging of plant history in the form of operation, control and system-related events
  - Flicker acc. to IEC 61000-4-15
- Energy counters for apparent energy, active energy, reactive energy, as well as import, supply, inductive and capacitive
- Comprehensive user-friendly indicators, such as user-defined displays, bar and status indicators
- Measurement up to the 40th individual harmonic of current and voltage
- Integrated 2 GB SD card for recorder functions
- Flexible recorder:
  - Measured value recorder
  - Trend recorder
  - Event recorder
  - Fault recorder
- Integrated PQ recording and reporting in accordance with EN 50160
- Data export:
  - COMTRADE
  - PQDif
- Classification of events
- ITIC /CBEMA evaluation in the device

Selection and ordering data

	Version	SD d	Article No. www.siemens.com/product?Article No.	PU (UNIT, SET, M)	PS	PG
 7KM5412-6BA00-1EA2	**7KM PAC5200 measuring device** Control panel instrument, 96 x 96 mm Screw connections for current and voltage connection AC/DC wide-voltage power supply unit U_{AUX}: 110 … 230 V AC ± 10%, 50/60 Hz 24 … 250 V DC ± 10% Measuring inputs U_e: max. 690/400 V 3 AC, 50/60 Hz I_e: /1 A or /5 A		**Screw connection** **7KM5412-6BA00-1EA2**	1	1 unit	1DD
 7KM5412-6CA00-1EA8	**7KM PAC5200 measuring device** Standard rail instrument without display Screw connections for current and voltage connection AC/DC wide-voltage power supply unit U_{AUX}: 110 … 230 V AC ± 10%, 50/60 Hz 24 … 250 V DC ± 10% Measuring inputs U_e: max. 690/400 V 3 AC, 50/60 Hz I_e: /1 A or /5 A		**Screw connection** **7KM5412-6CA00-1EA8**	1	1 unit	1DD

More information

For current transformers, see page 12/50 or see chapter "Switch Disconnectors"

Minimum order quantity (PS) or a multiple thereof can be ordered.

Selection and ordering data

For 7KM PAC3100/3200/4200

	Version	SD d	Article No. www.siemens.com/product?Article No.	PU (UNIT, SET, M)	PS	PG
 7KM9900-0XA00-0AA0	**7KM PAC TMP2 standard mounting rail adapter** Two-tier adapter for mounting a measuring device on a standard mounting rail • Front display • For manual intervention		**7KM9900-0XA00-0AA0**	1	1 unit	1DD
 7KM9900-0YA00-0AA0	**7KM PAC TMP mounting plate** Adapter for mounting a measuring device on standard mounting rail • Display faces backwards towards standard mounting rail • Readout and evaluation of measurements solely via mains operation		**7KM9900-0YA00-0AA0**	1	1 unit	1DD
 7KM9900-0GA00-0AA0	**Compact holder** Device holder for 7KM PAC3100/3200/4200: • 10 holders for 5 PAC devices • For seamless side-by-side mounting of the devices (without spaces)		**7KM9900-0GA00-0AA0**	1	1 unit	1DD
 7KM9900-0SA00-0AA0	**7KM PAC spare parts** Spare parts comprising: • Device holders for panel mounting (2X) • Screw terminal for connection of voltage inputs • Screw terminal for connection of current inputs • Terminal block inputs/outputs for 7KM PAC3100/4200 • Terminal block inputs/outputs for 7KM PAC3200 • RS 485 terminal block for 7KM PAC3100		**7KM9900-0SA00-0AA0**	1	1 unit	1DD

More information

Current transformers

For current transformers, see page 12/50 or see chapter "Switch Disconnectors"

Software components

For more information about the software components, see chapter "Software" and on the internet at www.siemens.com/lowvoltage/powermonitoring

More information

More information is available on the internet at www.siemens.com/lowvoltage/powermonitoring

7KM PAC expansion modules

Overview

Expansion modules are used as communication interfaces and for expanding the digital inputs/outputs and analog measuring inputs for the 7KM PAC3200/4200 measuring devices and partly for 3VA COM100/COM800.

The expansion modules are mounted on the front of the devices. The device identifies the module automatically and presents the relevant parameters for this module for selection in the parameterization menu.

Versions

The following expansion modules are available (shown from left to right in the figure on the left):

- 7KM PAC Switched Ethernet PROFINET expansion module
- 7KM PAC PROFIBUS DP expansion module
- 7KM PAC RS 485 expansion module
- 7KM PAC 4DI/2DO expansion module
- 7KM PAC I(N), I(Diff), analog expansion module

Connection for 3VA molded case circuit breakers

The following expansion modules can also be mounted on the front of the COM800/COM100 breaker data servers of the 3VA molded case circuit breaker:

- 7KM PAC Switched Ethernet PROFINET and
- 7KM PAC PROFIBUS DP
- 7KM PAC RS 485

For further details, see chapter "Molded Case Circuit Breakers" or in the manual at http://support.automation.siemens.com/WW/view/en/90318775

More information

For more information about the software components, see chapter "Software" and on the internet at www.siemens.com/lowvoltage/powermonitoring

Version	Use in 7KM PAC							3VA
	PAC2200	PAC3100	PAC3200T	PAC3200	PAC4200	PAC5100	PAC5200	COM800/ COM100
7KM PAC expansion modules								
 **7KM PAC Switched Ethernet PROFINET expansion module**	--	--	--	✓	✓	--	--	✓

The 7KM PAC Switched Ethernet PROFINET expansion module is a plug-in communication module for 7KM PAC3200 and 7KM PAC4200 measuring devices and 3VA molded case circuit breakers.

It provides the following features:

- Standardized PROFIenergy interface to the measured quantities
- The measured quantities can be individually selected via the TIA Portal or using a GSDML file. This permits use of cost-effective S7 CPUs
- Easy parameter assignment using the device display, powerconfig or TIA Portal
- Integrated Ethernet switching allows networking with short cables without additional switches
- Direct integration in production machine networks using IRT (IRT = Isochronous-Real-Time)
- Full support of PROFINET IO (DHC, DNS, SNMP, SNTP)
- Device replacement without PG in the PROFINET assembly using LLDP
- Deterministic reversing time through ring redundancy (MRP)
- Modbus TCP communication with up to 3 connections
- Communication with powermanager or powerconfig
- 2 x Ethernet (RJ45) sockets
- Transmission rates 10 and 100 Mbps
- Protocols PROFINET IO, PROFIenergy and Modbus TCP
- No external auxiliary power necessary
- Additional display via the device display and via LEDs on the module

All measured variables from 7KM PAC3200 and 7KM PAC4200 can be individually selected and cyclically transmitted by means of the GSDML file. This enables optimum use of the process image of the PROFINET controller, e.g. CPU 315-2 PN/DP of SIMATIC S7.

The measured quantities can be read out in acyclic mode using PROFIenergy, a PNO protocol profile. Thanks to PROFIenergy, it is possible to assemble a power monitoring system with devices from various manufacturers using PROFINET.

Use of the Switched Ethernet PROFINET expansion module also enables integration in the TIA Portal.

Minimum order quantity (PS) or a multiple thereof can be ordered.

Version		Use in 7KM PAC							3VA
		PAC2200	PAC3100	PAC3200T	PAC3200	PAC4200	PAC5100	PAC5200	COM800/ COM100
	**7KM PAC PROFIBUS DP expansion module** The 7KM PAC PROFIBUS DP expansion module is a plug-in communication module for 7KM PAC3200 and 7KM PAC4200 measuring devices and 3VA molded case circuit breakers. The 7KM PAC PROFIBUS DP expansion module has the following features: • Plug-in communication module for measuring devices for connection to PROFIBUS DPV1 • For 7KM PAC3200 and 7KM PAC4200 • Easy parameter assignment using the device display or powerconfig or TIA Portal • Data can be transferred both cyclically and acyclically via PROFIBUS DPV1 • Easy integration via device master data (GSD file) for other programming systems • Optimum use of process image of a control system for selection of individual measured quantities for cyclical transfer • Supports all baud rates from 9.6 kbps up to 12 Mbps • Connection through 9-pole Sub-D connector according to IEC 61158 • No external auxiliary power necessary • Additional display via the device display and via LEDs on the module • Use of the PROFIBUS DP expansion module also enables integration in the TIA Portal.	--	--	--	✓	✓	--	--	✓
	**7KM PAC RS 485 expansion module** The 7KM PAC RS 485 expansion module has the following features: • Plug-in 7KM PAC RS 485 expansion module for 7KM PAC3200 and 7KM PAC4200 measuring devices and 3VA molded case circuit breakers • Easy parameter assignment using the device display or powerconfig • Support for the Modbus RTU protocol • Plug-and-play • Supports transmission rates of 4.8/9.6/19.2 and 38.4 kbps • Connection by means of 6-pole screw terminals • No external auxiliary power necessary • Status indication by LED on the module • The 7KM PAC RS 485 expansion module is required for the gateway function of the 7KM PAC4200 for communication with simple devices with RS 485 interface, such as the 7KM PAC3100, via Ethernet (Modbus TCP).	--	--	--	✓	✓	--	--	✓
	**7KM PAC 4DI/2DO expansion module** The 7KM PAC 4DI/2DO expansion module is used to expand the 7KM PAC4200 measuring device to up to 10 digital inputs and 6 digital outputs and offers the following features: • Up to two 7KM PAC 4DI/2DO modules can be plugged onto a 7KM PAC4200. • The 7KM PAC 4DI/2DO expansion modules mean that the internal digital inputs and outputs can be expanded by up to 8 inputs and 4 outputs. • Easy parameter assignment using the device display or powerconfig • The digital inputs can be used without the need for an external power supply as they are self-powered. This is particularly useful for the integration of non-electric measuring devices, such as water or compressed-air counters • All functions of the integrated multifunctional inputs/outputs on the 7KM PAC4200 are also available in the 7KM PAC 4DI/2DO expansion module • Inputs and outputs can be used as an S0 interface conforming to IEC 62053-31 • The connection is made via a 9-pole screw terminal • No external auxiliary power supply is required	--	--	--	--	✓	--	--	--
	**7KM PAC I(N), I(Diff), analog expansion module** The 7KM PAC I(N), I(Diff), analog expansion module adds the following features for 7KM PAC4200 and 7KM PAC3200 devices: • N conductor measurement (IN), Class 1, in accordance with IEC 61557-12 via x/5A standard current transformers • Two analog inputs: The analog inputs can be used without an external voltage source via imposed direct currents from 0/4 to 20 mA. This is especially advantageous for measuring non-electrical quantities such as temperature, water or air pressure. • Residual current measurement: One of the two analog inputs can be used for residual current measurement via Type A or Type B summation current transformers. • Easy parameter assignment using the device display or powerconfig • The connection is made via a 6-pole screw terminal • One 7KM PAC I(N), I(Diff), analog module can be plugged onto a 7KM PAC4200 or 7KM PAC3200. • No external auxiliary power supply is required	--	--	--	✓	✓	--	--	--

7KM PAC expansion modules

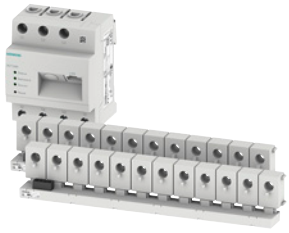
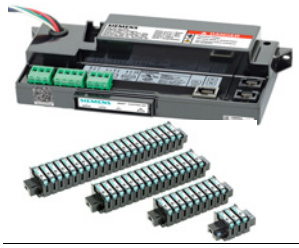
Selection and ordering data

	Version	SD	Article No. www.siemens.com/product?Article No.	PU (UNIT, SET, M)	PS	PG
		d				
 7KM9300-0AE01-0AA0	**7KM PAC Switched Ethernet PROFINET expansion module** Expansion module for 7KM PAC3200, 7KM PAC4200 and COM100/800 (3VA) breaker data server		**7KM9300-0AE01-0AA0**	1	1 unit	1DD
 7KM9300-0AB01-0AA0	**7KM PAC PROFIBUS DP expansion module** Expansion module for 7KM PAC3200 and 7KM PAC4200 (PROFIBUS DPV1) and COM100/800 (3VA) breaker data server		**7KM9300-0AB01-0AA0**	1	1 unit	1DD
 7KM9300-0AM00-0AA0	**7KM PAC RS 485 expansion module** Expansion module for 7KM PAC3200 and 7KM PAC4200 (Modbus RTU) and COM100/800 (3VA) breaker data server		**7KM9300-0AM00-0AA0**	1	1 unit	1DD
 7KM9200-0AB00-0AA0	**7KM PAC 4DI/2DO expansion module** Expansion module for 7KM PAC4200		**7KM9200-0AB00-0AA0**	1	1 unit	1DD
 7KM9200-0AD00-0AA0	**7KM PAC I(N), I(Diff), analog expansion module** Expansion module for 7KM PAC3200 and 7KM PAC4200 to add the following functions to the measuring inputs: • N conductor measurement • Two analog inputs, also for measuring non-electrical quantities such as temperature, water or air pressure • Residual current measurement via Type A or Type B summation current transformers, see chapter "Monitoring Devices"		**7KM9200-0AD00-0AA0**	1	1 unit	1DD

12

Minimum order quantity (PS) or a multiple thereof can be ordered.

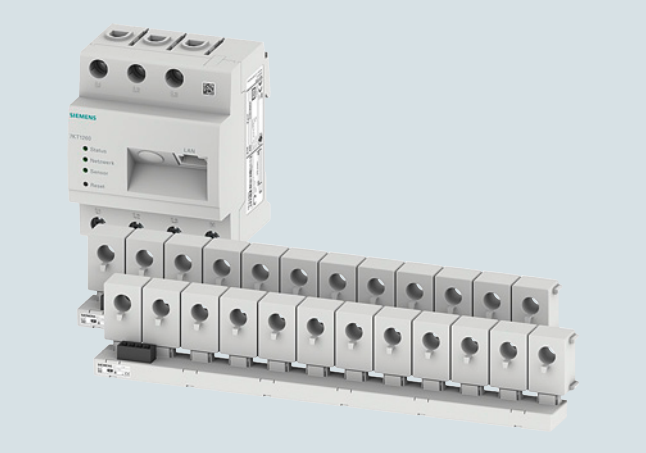
Overview

Devices		Page	Application	Standards	Used in		
					Non-residential buildings	Residential buildings	Industry
7KT PAC measuring devices							
	**7KT PAC1200 multichannel current measuring system** 7KT12	12/30	Measurement of individual feeders – thus direct comparison of consumers Detection of current peaks – thus avoidance of high energy costs Web interface and app representation – thus plug-and-play visualization of measured values and consumption values Up to 63 A Up to 96 sensors		✓	✓	✓
	**SEM3 multichannel current measuring system** NEW US2:SEM3 See "Other Measuring Devices"	12/40	Measurement of individual feeders – thus direct comparison of consumers Detection of current peaks – thus avoidance of high energy costs Web interface and app representation – thus plug-and-play visualization of measured values and consumption values From 50 to 1200 A, depending on transformer type Up to 45 x 1/21 x 2/15 x 3 measuring circuits (depending on number of phases)	IEC 62052-11; IEC 62053-22; UL 61010-1 (IEC 61010-1) Test and Measurement Equipment	✓	✓	✓
	**7KT PAC1600 measuring device Single-phase/three-phase** NEW 7KT165., 7KT166.	12/35	Measurement of consumption data in three-phase systems of plant sections, infrastructure or buildings. Versions with or without MID With Modbus RTU, M-Bus or S0 interface With transformer connection or direct-measuring up to 80 A (three-phase) or 63 A (single-phase)	EN 50470-3 EN 62053-21, EN 62053-22	✓	✓	--
	**7KT PAC1600 universal measuring device Single-phase/three-phase** NEW 7KT168.	12/38	Universal measuring device for measuring a wide range of variables and for connection to all standard voltage supplies. With Modbus RTU or S0 interface	EN 62053-21, EN 62053-22	✓	✓	✓

12

7KT PAC1200 multichannel current measuring system

Overview



7KT PAC1200 multichannel current measuring system

The multichannel current measuring system for the 7KT PAC1200 sub-distribution board is used for the transparent representation of energy consumption. The current values themselves are measured by means of sensors that are fitted above the miniature circuit breakers. The simple cost center allocation enables maximum transparency over the entire application.

Scalability

The 7KT PAC1200 multichannel current measuring system monitors and displays the energy consumption of up to 96 outgoing feeders. A maximum of eight sensor bars can be configured. Up to eight different, selectable consumption sources can be compared with each other. The system can be scaled to individual needs and application scenarios. The individual sensors can be named individually and compared with each other. The system can be configured flexibly as the number of sensor bars can be varied.

Consumption statistics

The statistics shows the overall consumption of selected sensors. The consumption can be shown both in euros and in kWh. The results can be displayed in the form of a pie chart or a bar chart, depending on selection. The periods that can be selected are as follows:

- Days
- Weeks
- Months
- Year

Both the overall consumption and the individual consumption of a sensor can be displayed.
It is also possible to generate a history so that any deviations can be investigated. To do this, select a date using the button below the chart.

Representation of the current values

Under the navigation item "Current values" you can see how high the consumption at a particular moment in time is. The value behind "Current" indicates this consumption. "Min/Max" indicates the minimum and maximum consumption. The kW values consumed at a certain time are shown in a curve diagram. Here also, either the overall consumption or the consumption of an individual sensor can be displayed. It is also possible to switch between various modes in this view.

- History
- Current values: for individual sensors
  - Current
  - Voltage
  - Power factor of the individual phases
- Counter reading

Installation in an ALPHA power distribution board, for example

7KT PAC1200 multichannel current measuring system installed

Benefits

- Measurement of individual feeders – thus direct comparison of consumers
- Detection of current peaks – thus avoidance of high energy costs
- Web interface and app representation – thus plug-and-play visualization of measured values and consumption values
- Scalability – thus number of measuring points can be adjusted to size of the power distribution system
- 1 GB internal memory – thus long-time data recording over one year possible

Minimum order quantity (PS) or a multiple thereof can be ordered.

Application

Use cases

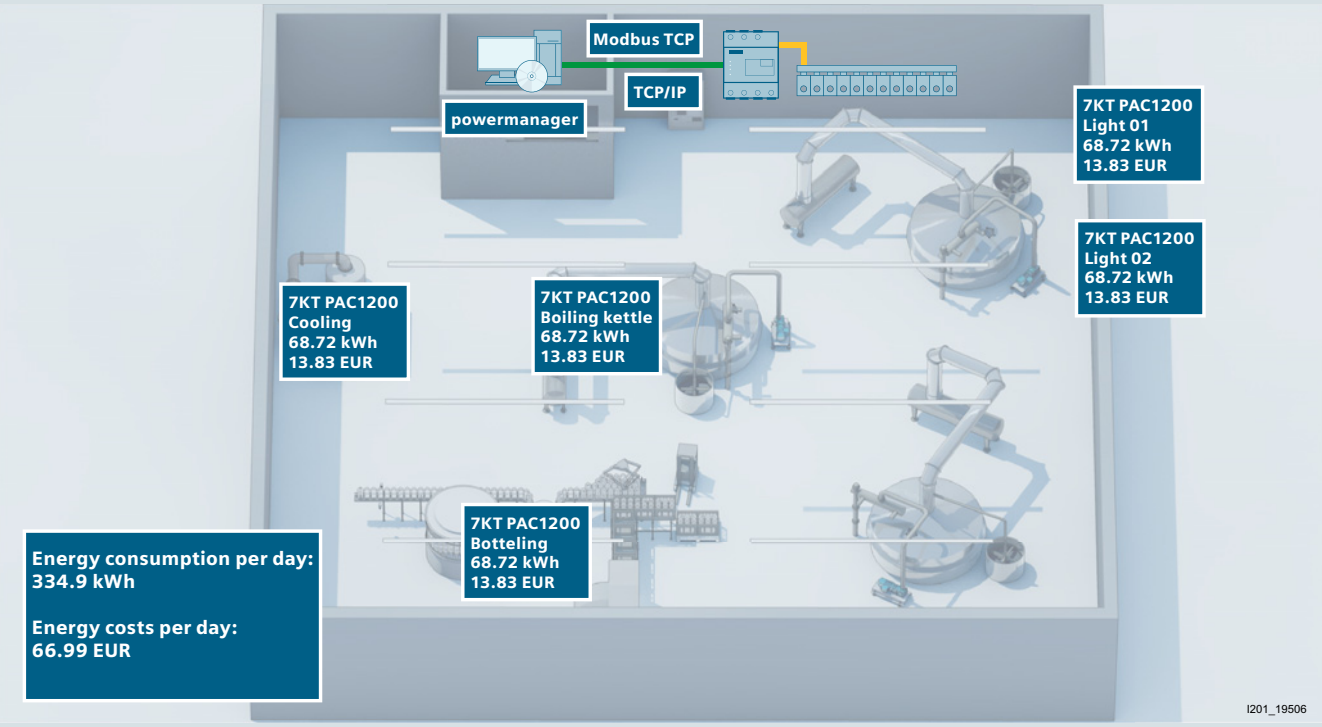
Energy measurement on

- Strip lighting
- Production machines
- Motors

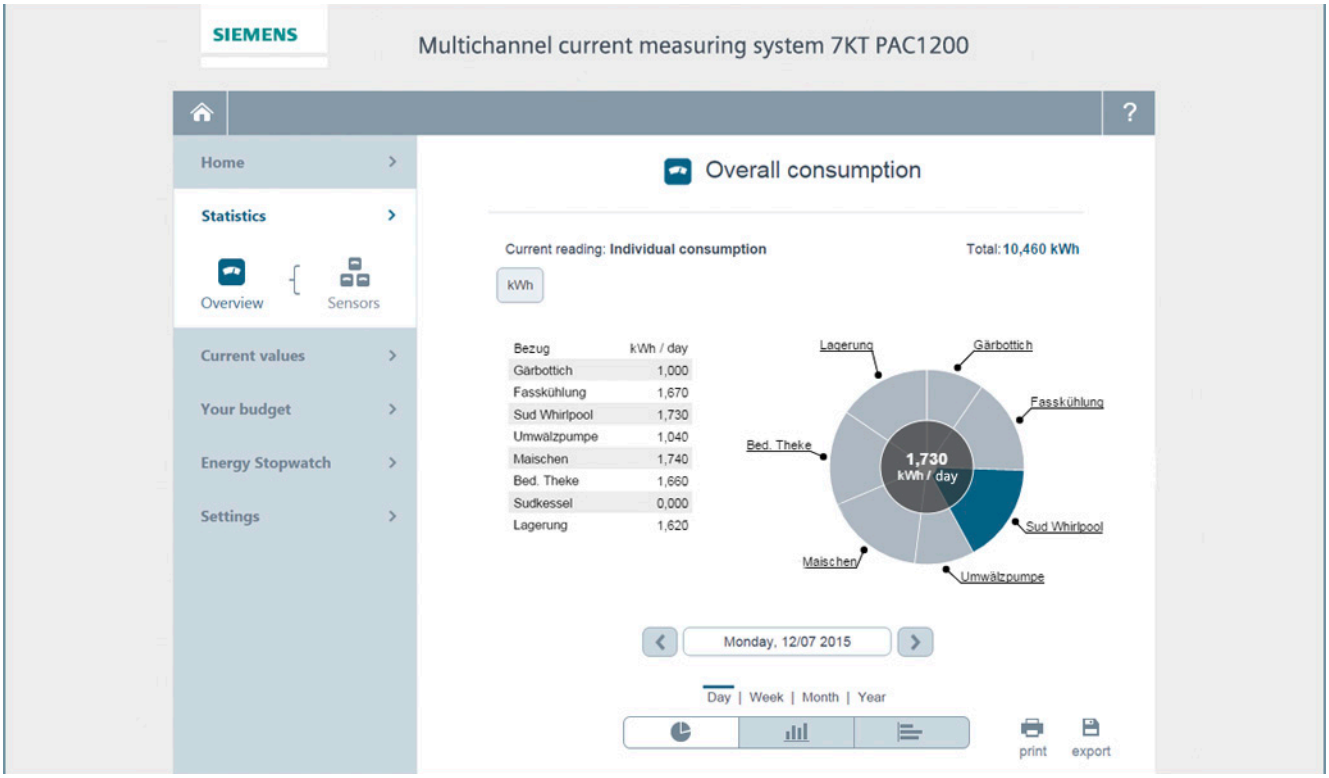
Application areas

- Carpenters' and joiners' workshops, locksmiths' shops
- Large bakeries, breweries, slaughterhouses
- Municipal utilities
- Banks, etc.

Application example



Result: For example, display of overall energy consumption (from application example above)



Minimum order quantity (PS) or a multiple thereof can be ordered.

7KT PAC1200 multichannel current measuring system

Technical specifications

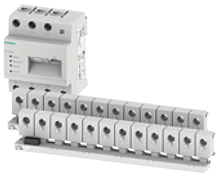
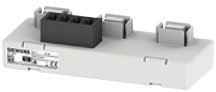
7KT PAC 1200 multichannel current measuring system		7KT1222 1 x 18 bundle	7KT1223 1 x 24 bundle	7KT1260 Data manager	7KT123./4. Sensor bar	7KT125. Sensor
Product designation		Starter kit	Starter kit	Data manager	Sensor bar	Sensor
Version		2x9 with system, 40 A	2x12 with system, 40 A		3/6/9/12-bar	40 A/63 A
Measuring input						
• Connection type		--	--	Direct/transformer 5 A	--	--
• Current I_e	A	--	--	63	--	40/63
Measuring accuracy		Total accuracy +/- 2% (of full-scale value/class 2)				
Measurable line frequency	Hz	50/60 +/- 5%	50/60 +/- 5%	50/60 +/- 5%	--	--
Communication						
• Sensor bar connection to data manager		RS 485				--
• Data manager connection to web browser		Ethernet via RJ45, Modbus TCP protocol (10/100 Mbps)			--	--
Dimensions						
• Height	mm			85	3-bar: 54.5 6-bar: 105.5 9-bar: 159.5 12-bar: 212.4	32
• Width	mm			70	21	17.7
• Data manager width	MW[1)]	4	4	4	--	--
• Depth	mm			32.7	14.8	13

[1)] 1 MW = 1 modular width = 18 mm

12

Minimum order quantity (PS) or a multiple thereof can be ordered.

Selection and ordering data

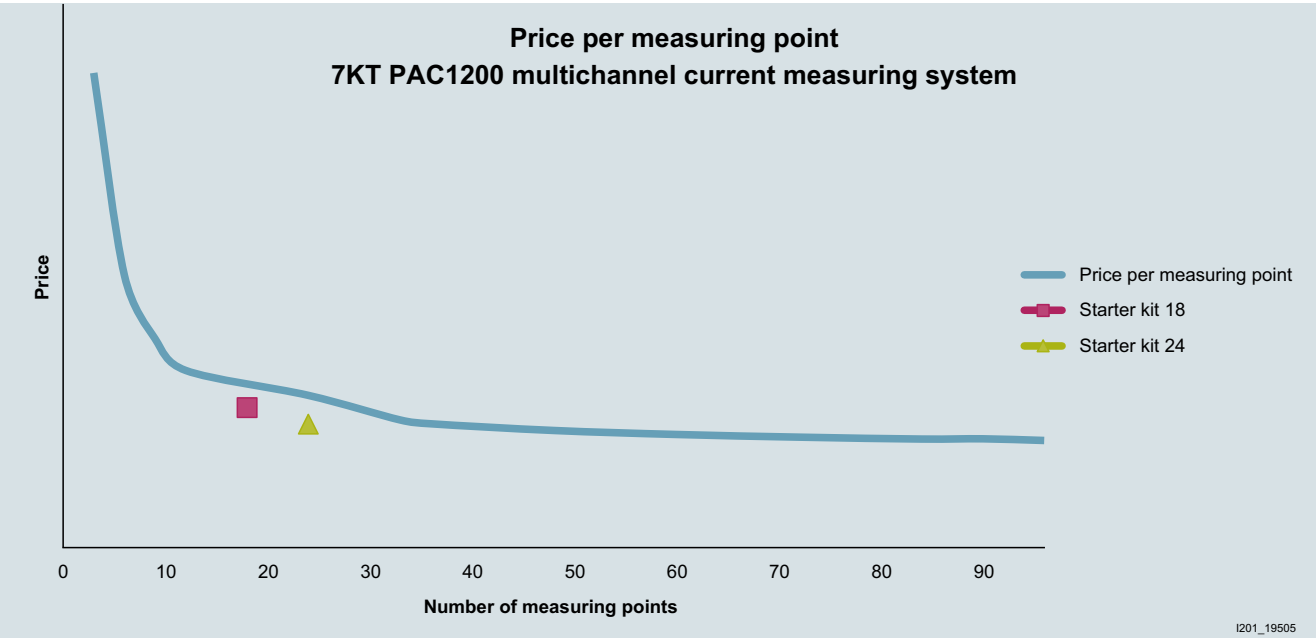
		SD d	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
	**7KT PAC1200 multichannel current measuring system** Multichannel current measuring system for locating high consumption values and cost center allocation 1 x 18 bundle, containing: • 2 x 9-sensor bar 7KT1238 • 1 x data manager 7KT1260 • 18 x sensors 40 A, 7KT1254		**7KT1222**		1	1 unit	1BK
	**7KT PAC1200 multichannel current measuring system** Multichannel current measuring system for locating high consumption values and cost center allocation 1 x 24 bundle, containing: • 2 x 12-sensor bar 7KT1242 • 1 x data manager 7KT1260 • 24 x sensors 40 A, 7KT1254		**7KT1223**		1	1 unit	1BK
	**7KT PAC1200 data manager** Fully integrated smart meter, containing • 3-phase active power and reactive power energy measurement • Measurement of energy as balancing counter • Direct connection up to 63 A • Optional use with external measuring transformer for extending the measuring range (e.g. 100 ... 600 A) • Standard rail mounting (4 MW) • Operator input/configuration: Web interface • Support of up to 96 sensors for single-phase measurement		**7KT1260**		1	1 unit	1BK
	7KT PAC1200 sensor bars						
	• 3-sensor bar		**7KT1233**		1	1 unit	1BK
	• 6-sensor bar		**7KT1236**		1	1 unit	1BK
	• 9-sensor bar		**7KT1238**		1	1 unit	1BK
	• 12-sensor bar		**7KT1242**		1	1 unit	1BK
	Sensors						
	• Sensor 40 A		**7KT1254**		1	3 units	1BK
	• Sensor 63 A		**7KT1255**		1	3 units	1BK

12

Minimum order quantity (PS) or a multiple thereof can be ordered.

More information

Procurement costs: The more measuring points (sensors) the lower the costs



Internet

You can find more information on the internet at www.siemens.com/powermonitoring.

Apple iOS

Download on the App Store

7KT PAC1200 App iOS

Android

GET IT ON Google Play

7KT PAC1200 App ANDROID

12

Minimum order quantity (PS) or a multiple thereof can be ordered.

Overview

Links: 7KT PAC1600 measuring device, three-phase, transformer connection up to 5 A
Right: 7KT PAC1600 measuring device, three-phase, direct connection up to 80 A

The measuring devices (power meters) are used to record the amount of electrical energy and power exported and imported. Siemens compact measuring devices are designed as modular devices for alternating current and can be mounted on standard mounting rails.

The MID devices comply with the metering equipment standard EN 50470 (Part 3) and come with an LCD.

The three-phase measuring devices for direct connection are available up to 80 A and in versions with transformer connections (x/5 A).

The measuring devices store active and reactive energy and all comply with accuracy class 1 (for active energy).

The single-phase measuring devices are designed for direct connection up to 63 A.

Depending on the version, the measuring devices have an S0 or M-Bus or Modbus RTU interface. This enables them to be integrated in a range of other systems, such as power monitoring systems.

Technical specifications

Electrical and mechanical parameters according to article numbers

	Current input	Modbus RTU	M-Bus	S0/digital output	MID	Tariff input	Accuracy[1)]	Weight
	A		--	Number	--	--	--	g
PAC1600, single-phase								
7KT1651	63	✓	--	--	--	--	Class 1	148
7KT1652	63	✓	--	--	✓	--	Class B	148
7KT1653	63	--	✓	--	--	--	Class 1	148
7KT1654	63	--	✓	--	✓	--	Class B	148
7KT1655	63	--	--	1	--	--	Class 1	148
7KT1656	63	--	--	1	✓	--	Class B	148
PAC1600, three-phase								
7KT1661	5	✓	--	--	--	✓	Class 0.5 s	332
7KT1662	5	✓	--	--	✓	✓	Class B	332
7KT1663	5	--	✓	--	--	✓	Class 0.5 s	332
7KT1664	5	--	✓	--	✓	✓	Class B	332
7KT1665	80	✓	--	--	--	✓	Class 0.5 s	360
7KT1666	80	✓	--	--	✓	✓	Class B	360
7KT1667	80	--	✓	--	--	✓	Class 1	360
7KT1668	80	--	✓	--	✓	✓	Class B	360
7KT1670	80	--	--	2	--	✓	Class 1	360
7KT1671	80	--	--	2	✓	✓	Class B	271
7KT1672	5	--	--	2	--	✓	Class 0.5 s	332
7KT1673	5	--	--	2	✓	✓	Class B	332

[1)] Accuracy of active energy:
Versions without MID approval according to IEC/EN 62053-21/22)
Versions with MID approval according to EN 50470-3

✓ Available / possible -- Not available / not possible

7KT PAC1600 measuring devices NEW

Electrical parameters and technical specifications according to device type

Input voltage	
• Rated voltage	Single-phase devices 230 V AC Three-phase devices 230 V AC/400 V AC L-L
• Operating voltage range	Single-phase devices 187 ... 264 V AC L-N Three-phase devices 187 ... 264 V AC L-N; 323 ... 456 V AC L-L
• Rated frequency of MID devices	50 Hz
• Rated frequency of non-MID devices	50/60 Hz
• Operating frequency range	45 … 66 Hz
Input current	
• Minimum current (I_{min})	0.5 A (at 63/80 A); 0.05 A (at 5 A)
• Max. current (I_{max}) 63 A devices	63 A
• Max. current (I_{max}) 80 A devices	80 A
• Max. current (I_{max}) 5 A devices	6 A
• Starting current (I_{st}) 63 and 80 A devices	40 mA
• Starting current (I_{st}) 5 A devices	10 mA
Ambient conditions	
• Mounting	For indoor use only
• Operating temperature	-25 … +55 °C
• Storage temperature	-25 … +70 °C
• Relative humidity (IEC/EN 60068-2-78)	< 80% no condensation
• Max. pollution degree	2
• Overvoltage category	III
• Altitude	≤ 2000 m
• Mechanical environment	Class M1
• Electromagnetic environment	Class E1
Insulation voltage	
• Rated insulation voltage L-N	250 V AC
• Rated impulse withstand voltage U_{imp}	6 kV
• Alternating voltage withstand voltage	4 kV
Enclosure	
• PAC1600, single-phase	2 MW (DIN 43880)
• PAC1600, three-phase	4 MW (DIN 43880)
• Mounting	35-mm standard mounting rail (EN 60715) or by screw-fitting with extractable clips
• Material	Polyamide RAL 7035
• Degree of protection	Front IP40, terminals IP20
Certifications	
• Certification	EAC, CE
Devices with tariff input	
• Rated voltage U_n	100 ... 240 V AC
• Operating voltage range	85 ... 264 V AC
• Rated frequency	50/60 Hz
Devices with S0 interface or digital output	
• Programmable number of pulses, for PAC1600 single-phase	1-10-100 pulses/kWh
• Programmable number of pulses, for PAC1600 three-phase, 80 A	1-10-100-1000 pulses/kWh
• Programmable number of pulses, for PAC1600 three-phase, 5 A	0.1-1-10-100 pulses/kWh
• Pulse length	60 ms for 1000 pulses/kWh, 100 ms for all other values
• External voltage	10 ... 30 V DC
• Maximum current	50 mA
Devices with RS 485 interface	
• Speed programmable for 63 A and 80 A devices	1200 ... 38400 bps
• Speed programmable for 5 A devices	1200 ... 115200 bps
Devices with M-Bus (slave)	
• Bus length	According to M-Bus specification
• Speed	300 ... 38400 baud, programmable
• Typical power consumption	≤ 3 mA (2 load units)

Minimum order quantity (PS) or a multiple thereof can be ordered.

Selection and ordering data

		I_{max}	Interface	MID	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		A AC			d					
 7KT165.	**7KT PAC1600 measuring device, single-phase**									
	• For direct connection	63	Modbus RTU	--		**7KT1651**		1	1 unit	1DD
	• For direct connection	63	Modbus RTU	Yes		**7KT1652**		1	1 unit	1DD
	• For direct connection	63	M-Bus	--		**7KT1653**		1	1 unit	1DD
	• For direct connection	63	M-Bus	Yes		**7KT1654**		1	1 unit	1DD
	• For direct connection	63	S0	--		**7KT1655**		1	1 unit	1DD
	• For direct connection	63	S0	Yes		**7KT1656**		1	1 unit	1DD
 7KT166. for transformer connection	**7KT PAC1600 measuring device, three-phase**									
	• For transformer connection	5	Modbus RTU	--		**7KT1661**		1	1 unit	1DD
	• For transformer connection	5	Modbus RTU	Yes		**7KT1662**		1	1 unit	1DD
	• For transformer connection	5	M-Bus	--		**7KT1663**		1	1 unit	1DD
	• For transformer connection	5	M-Bus	Yes		**7KT1664**		1	1 unit	1DD
	• For direct connection	80	Modbus RTU	--		**7KT1665**		1	1 unit	1DD
	• For direct connection	80	Modbus RTU	Yes		**7KT1666**		1	1 unit	1DD
	• For direct connection	80	M-Bus	--		**7KT1667**		1	1 unit	1DD
	• For direct connection	80	M-Bus	Yes		**7KT1668**		1	1 unit	1DD
	• For direct connection	80	S0	--		**7KT1670**		1	1 unit	1DD
	• For direct connection	80	S0	Yes		**7KT1671**		1	1 unit	1DD
	• For transformer connection	5	S0	--		**7KT1672**		1	1 unit	1DD
	• For transformer connection	5	S0	Yes		**7KT1673**		1	1 unit	1DD
 7KT166. for direct connection										

12

Minimum order quantity (PS) or a multiple thereof can be ordered.

7KT PAC1600 universal measuring device NEW

Overview

7KT PAC1600 universal measuring device

The 7KT PAC1600 universal measuring devices are designed in such a way that they combine maximum ease of operation with a host of extended functions. Despite this, the dimensions of the modular housing (4 MW) are very small.

The device measures all relevant variables of an alternating current system and can be used both for single-phase and three-phase measurements.

The backlit LC display allows for a clear and intuitive user interface. The 7KT1682 also has an insulated RS 485 communication interface with Modbus protocol.

Technical specifications

Auxiliary power	
• Rated voltage	100 ... 240 V AC; 110 ... 250 V DC
• Operating voltage range	90 ... 264 V AC; 93.5 ... 300 V DC
• Rated frequency range	45 ... 66 Hz
• Power consumption/power loss	7KT1681: 0.5 ...1.5 VA; 7KT1682: 0.8 ... 2.2 VA
• Recommended fuses	1 A quick-response
Input voltage	
• Rated voltage	600 V AC L-L (346 V AC L-N)
• Voltage range	50 ... 720 V AC L-L (415 V AC L-N)
• Frequency ranges	45 … 65 Hz
• Type of measurement	True root-mean-square (TRMS)
• Input impedance of the measurement	L-N or L-L > 8 MΩ
• Connection type	Single-phase, two-phase, three-phase with or without neutral conductor, or three-phase with same load
• Recommended fuses	1 A quick-response
Input current	
• Rated current	1 A AC or 5 A AC
• Measuring range	For 5 A: 0.025 ... 6 A AC For 1 A: 0.025 ... 1.2 A AC
• Input	Max. 5 A secondary current transformer, nominal range
• Type of measurement	True root-mean-square (TRMS)
• Overload capability	20%
• Peak overload	50 A for 1 second
• Load (per phase)	≤ 0.6 VA
Measuring accuracy	
• Reference conditions: Temperatures	+23 ±2 °C
• Voltage phase to N	± 0.5% (50 …480 V) ±0.5 digit
• Voltage phase to phase	± 0.5% (80 …830 V~) ±0.5 digit
• Current (.../5 A)	± 0.5% (0.1…1.2 x I_n) ±0.5 digit
• Active energy	Class 1 (IEC/EN 62053-21)
• Reactive energy	Class 2 (IEC/EN 62053-23)
Additional faults	
• Temperatures	0.05%/°K for V, A, W

Minimum order quantity (PS) or a multiple thereof can be ordered.

Technical specifications (continued)

Ambient conditions	
• Mounting	For indoor use only
• Operating temperature	-20 … +60 °C
• Storage temperature	-30 … +80 °C
• Relative humidity (IEC/EN 60068-2-78)	< 80% no condensation
• Max. pollution degree	2
• Overvoltage category	3
• Measuring category	III
• Climatic sequence	Z/ABDM (IEC/EN 60068-2-61)
• Shock resistance	15 g (IEC/EN 60068-2-27)
• Vibration resistance	0.7 g (IEC/EN 60068-2-6)
Insulation voltage	
• Rated insulation voltage L-N	600 V AC
• Rated impulse withstand voltage U_{imp}	9.5 kV
• Alternating voltage withstand voltage	5.2 kV
Enclosure	
• Width	4 MW (DIN 43880)
• Mounting	35-mm standard mounting rail (EN 60715) or by screw-fitting with extractable clips
• Material	Polyamide RAL 7035
• Degree of protection	Front: IP40; terminals: IP20
• Weight	300 g
Certifications	
• Certification	EAC, CE
Devices with RS 485 interface (Modbus RTU)	
• Speed programmable	1200 ... 115200 bps

Selection and ordering data

		I_n	Interface (protocol)	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		A AC		MW	d					
	**7KT PAC1600 universal measuring devices**									
	Single-phase/three-phase									
	• For transformer connection	x/1 or x/5	None	4		**7KT1681**		1	1 unit	1DD
	• For transformer connection	x/1 or x/5	RS 485 (Modbus RTU)	4		**7KT1682**		1	1 unit	1DD

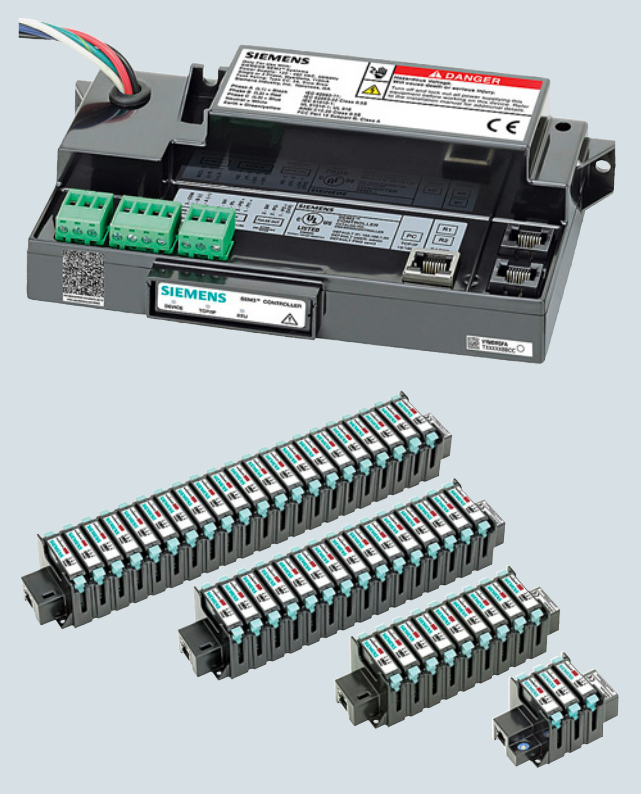
7KT1682

12

Minimum order quantity (PS) or a multiple thereof can be ordered.

SEM3 multichannel current measuring system NEW

Overview



SEM3 multichannel current measuring system: Data manager and metering modules

SEM3 (Siemens Embedded Micro Metering Module) is a multichannel current measuring system for the main distribution board.

It is a complete system consisting of current transformers, metering modules and a central controller that can record up to 45 measuring points. The measured values can easily be displayed in the web interface or in powermanager.

SEM3 is ideally suited to integration into a system of SENTRON measuring devices and powermanager and fulfills all the requirements for certification in accordance with ISO 50001.

Thus SEM3 enables multiple metering channels to be recorded at a low cost in just one system.

Measurements

Possible metering circuits:
- 45 x single-phase or
- 21 x two-phase or
- 15 x three-phase or
- any combination of single-, two-, or three-phase

Measuring methods
- Single-phase, two-phase or three-phase measurement
- Direct measurement up to 480 V UL-L, CATIII or via voltage transformer
- Current measurement using current transformer x/100 mA

Measuring accuracy:
- Standard 1.0% or
- 0.2% with more accurate metering modules

Measured quantities:
- Multiple energy counters: apparent, active, reactive energy
- Voltage (UL-L)/UL-N) average values L1, L2, L3
- Current (IL), (IN) average values L1, L2, L3
- Active and reactive power for import and export
- Power factor and frequency
- Maximum values

Additional functions:
- Email, alarm configuration, trends, event and data recording

Connection

- Mounting option: Standard screw mounting
- Supply: Power supply from measuring voltage

Benefits

- Measurement of individual feeders – thus direct comparison of consumers
- Detection of current peaks – thus avoidance of high energy costs
- Web interface and app representation – thus plug-and-play visualization of measured values and consumption values
- Scalability – thus number of measuring points can be adjusted to size of the power distribution system
- 2 GB internal memory – thus long-time data recording over one year possible

Minimum order quantity (PS) or a multiple thereof can be ordered.

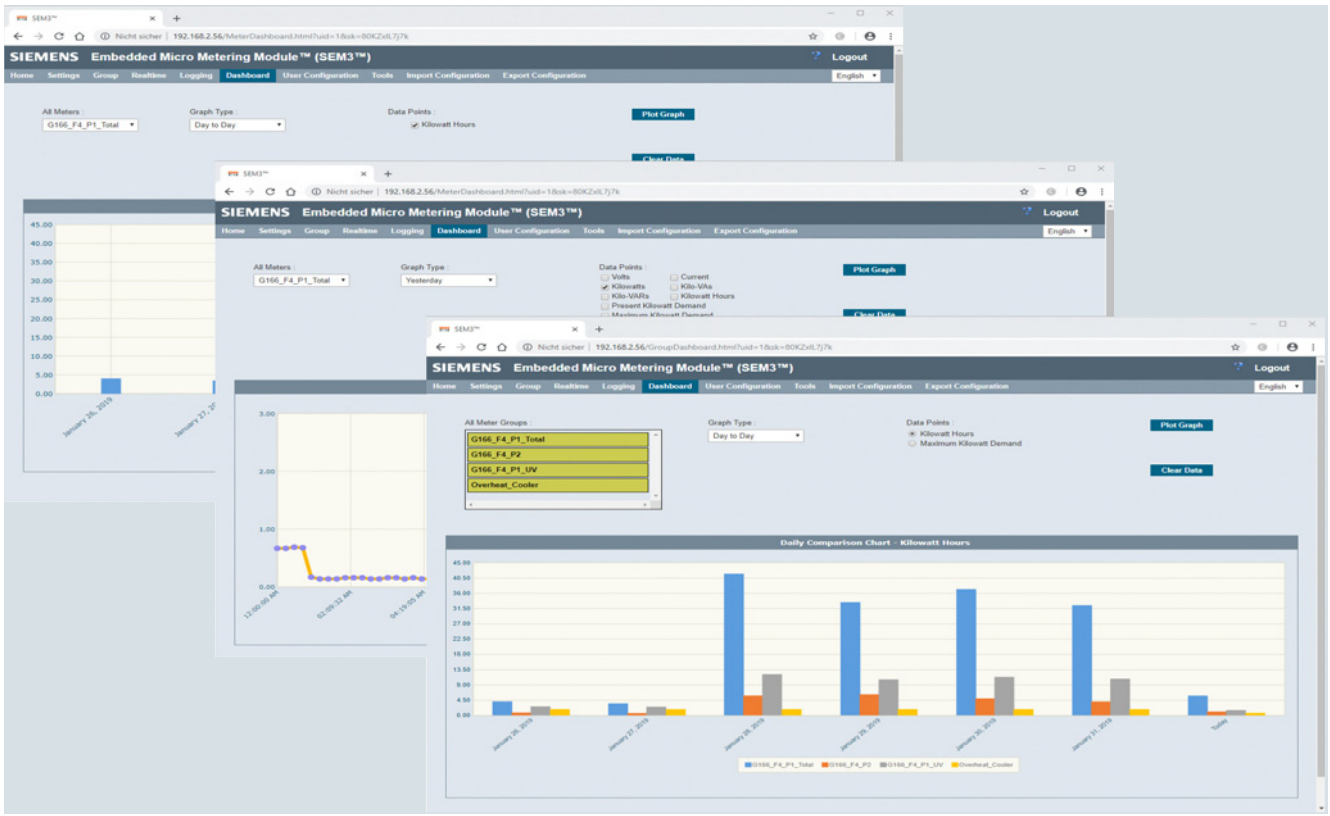
Application

Application areas

SEM3 can be used in the following areas:

- Industrial applications such as automotive industry, production workshops, process monitoring, chemical industry, industrial bakeries, locksmiths' shops, breweries, etc.
- Infrastructure such as data centers, office buildings, radio towers, high-rise buildings, libraries, airports, etc.
- Commerce/trade such as supermarket, shopping malls, commercial enterprises, etc.
- Banks, etc.

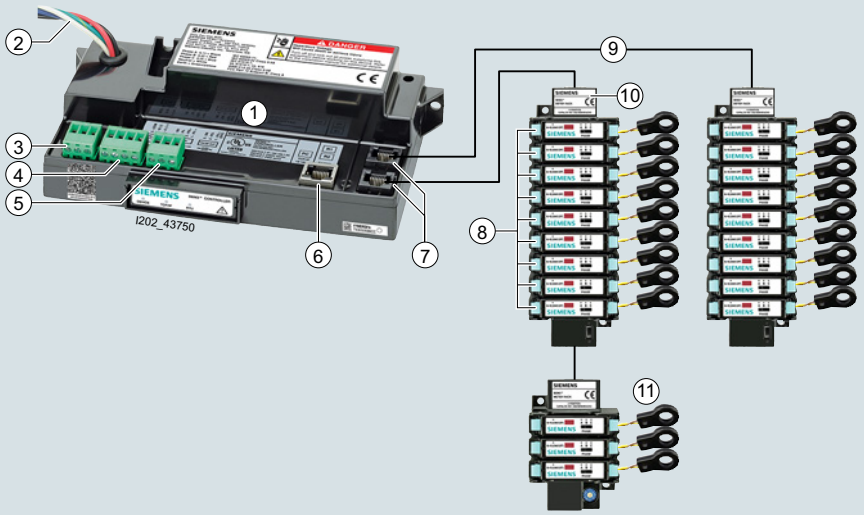
Tabular or graphical representations in the web interface



Tabular or graphical representations in the web interface
Note: more features available in powermanager

SEM3 multichannel current measuring system NEW

Design



1 Data manager
2 3 x L, 1 x N, 1 x ground
3 RS 485 (Modbus RTU slave or BACnet MSTP)
4 2 digital inputs
5 Digital output
6 Modbus TCP/IP, web server, email, SNMP, SMTP NTP, BACnet IP
7 Connection for 2 meter racks
8 Metering modules
9 600 V insulated connecting cable
10 Meter rack for metering modules
11 Current transformer

SEM3 multichannel current measuring system: Components and interfaces

Components

The SEM3 multichannel current measuring system is a complete system of hardware and software components and consists of the following hardware components:

- Data manager ①: The data manager is the core of the SEM3.
- Metering modules ⑧: The metering modules are used to record the measured values.
- Meter rack for metering modules ⑩: Holder for the metering modules, can hold up to 45 metering modules.
  Note: Only the 3-position meter rack can be used for expansion purposes.
- Current transformer ⑪: The current transformers for absorbing higher currents are available as straight-through transformers x/0.1 A for max. 1200 A.
- Connecting cable ⑨: Special cable with insulation voltage of 600 V for connecting meter racks to the data manager.

Interfaces

Open connection, e.g. to SIMATIC S7-1200 via Modbus TCP

Communication

- Modbus TCP – 3 simultaneous connections,
  1 web interface in the languages EN, DE, FR, ES
- BACnet IP, SNMP, NTP, SMT
- Modbus RTU or BACnet MSTP

Digital inputs

SEM3 provides two self-powered digital inputs for status recording and pulse measurement (water and gas).

Digital output

SEM3 provides one output for energy pulse or for remote switching via software.

Minimum order quantity (PS) or a multiple thereof can be ordered.

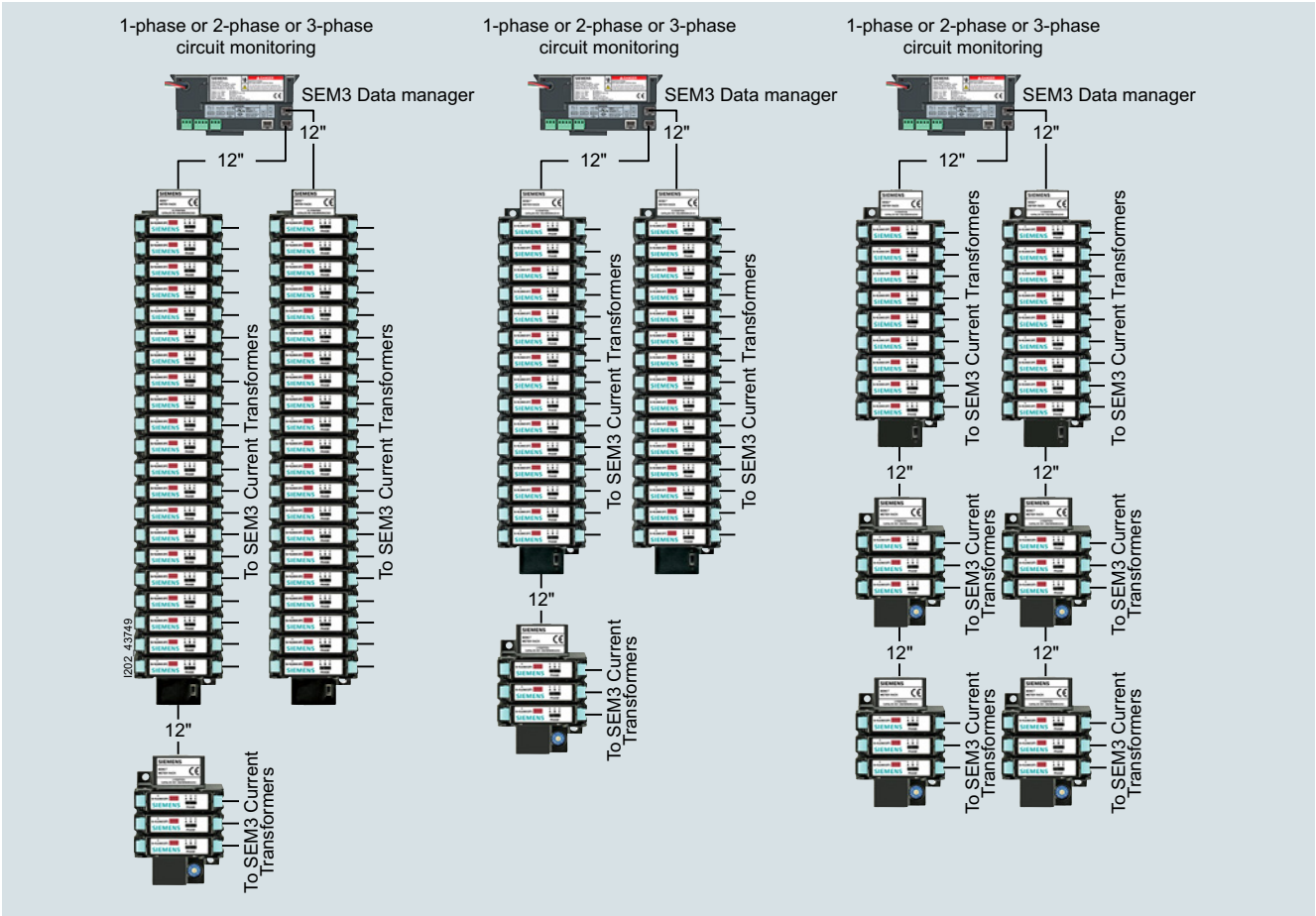
Configuration

Installing

Installation rules

The following rules must be observed during installation:

- A data manager supports max. 45 metering modules.
- Up to 2 metering lines can be connected to the data manager. This can then be incorporated in powermanager via Modbus TCP.
- Only the meter rack for 3 metering modules can be used as an expansion rack for the other meter racks.
- The phase assignment can be set on every metering module.



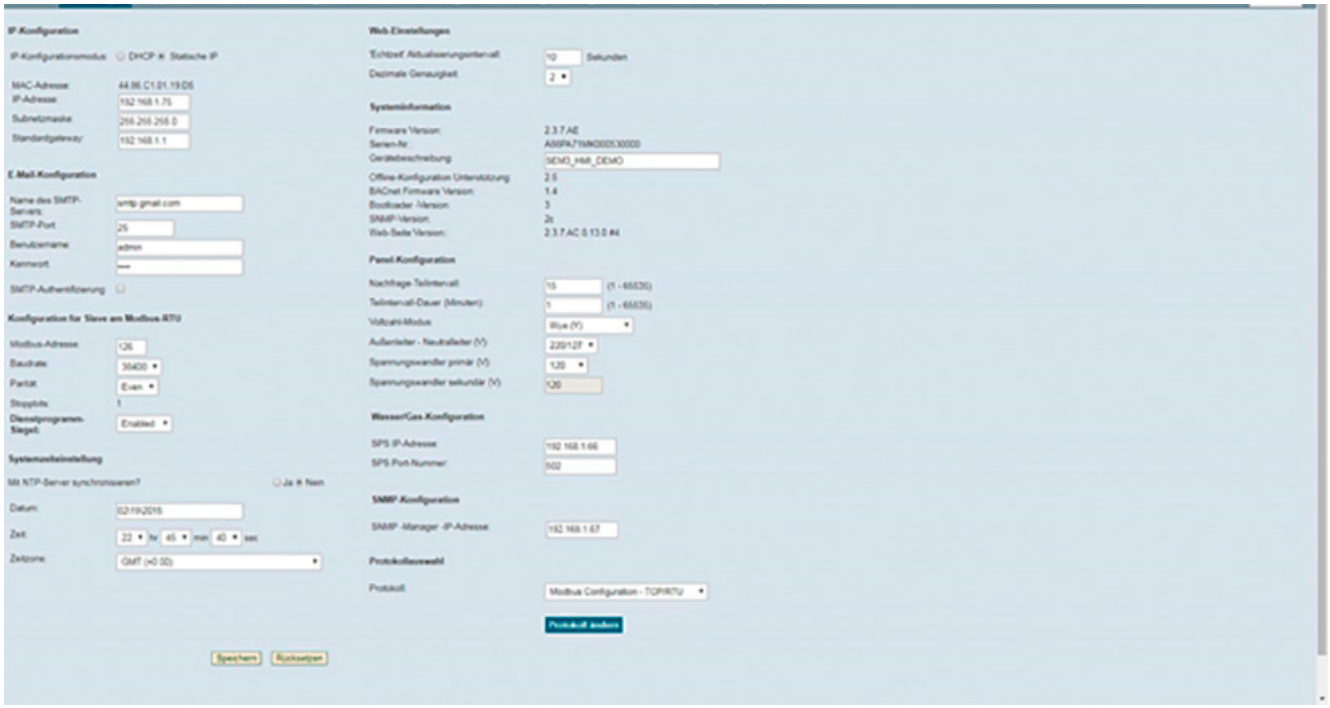
SEM3 multichannel current measuring system: 3 examples of how meter racks for metering modules can be used with SEM3

SEM3 multichannel current measuring system NEW

Configuring

The multichannel current measuring system can be configured simply via the web interface

- DHCP or statically, time setting
- Modbus TCP communication
- Email configuration
- Backup and restoration of settings
- Manual firmware update
- Reset of system settings/restart
- Language/date/password/CT ratio
- Designation, phase assignment, selection for comparison and instantaneous values



Web interface of the SEM3 multichannel current measuring system: Serial number, FW version, LAN address, selection of configuration

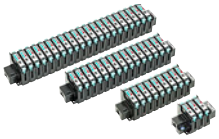
12

Technical specifications

SEM3 multichannel measuring system		Data manager	Metering module	Current transformer	Meter racks
Version			Metering module 0.2 or 1.0%	50, 125, 250, 400, 600, 800, 1200 A	3-pos./9-pos./15-pos./ 21-pos. rack
Measuring input					
• Connection type		Voltage: max. 480 V direct or voltage transformer	--	--	--
• Current I_e	A	--	--	Up to 1200	--
Measuring accuracy		Total accuracy +/- 0.2% or 1% (of full-scale value) depending on the metering module			--
Measurable line frequency	Hz	45 ... 64			
Operating temperature	°C	-10 ... 65			
Communication					
• Data manager connection to web browser		Ethernet via RJ45, Modbus TCP Protocol (10/100 Mbps)	--	--	--
Dimensions					
• Width	mm	86	12.4	See manual in Siemens Service and Support Portal, search term "SEM3"	61.3
• Height	mm	56	40		46.4
• Length	mm	187	55		3-position rack: 90 9-position rack: 180 15-position rack: 270 21-position rack: 360

Minimum order quantity (PS) or a multiple thereof can be ordered.

Selection and ordering data

		SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		d					
	**Data manager** Central recording and management unit, containing the following: • Connection: 3 phases, N and PE • Modbus TCP, Modbus RTU and RS 485 interface • Digital inputs/outputs • Connection of max. 2 connecting cables to meter rack for metering modules • DI/DO expansion with SIMATIC S7-1200 possible • Up to 480V input voltage or voltage transformer		**US2:SEM3CONTROLLER**		1	1 unit	1US
	**Metering module** • For recording measured values, providing the following features: - Accuracy of 0.2% or 1% for the entire measurement including current transformer - Simple setting of phase configuration by means of slide switch - Connection of a current transformer for measuring a phase - Pulse output for energy measurement - Metering module is plugged into meter rack						
	• Measuring accuracy 0.2%		**US2:SEM3PHAMETER**		1	1 unit	1US
	• Measuring accuracy 1%		**US2:SEM3PLAMETER**		1	1 unit	1US
	**Meter racks**						
	• For 3 metering modules		**US2:SEM3RACK3**		1	1 unit	1US
	• For 9 metering modules		**US2:SEM3RACK9**		1	1 unit	1US
	• For 15 metering modules		**US2:SEM3RACK15**		1	1 unit	1US
	• For 21 metering modules		**US2:SEM3RACK21**		1	1 unit	1US
	**Connecting cable** 600 V insulated special cable for connecting meter racks to the data manager						
	• Length 0.3 m		**US2:SEM3CAB12INCH**		1	1 unit	1US
	• Length 0.6 m		**US2:SEM3CAB24INCH**		1	1 unit	1US
	• Length 0.9 m		**US2:SEM3CAB36INCH**		1	1 unit	1US
	**Current transformer** Standard power cable brown and yellow, 1.82 m long. Can be extended up to 100 m while still maintaining accuracy Transformer configuration is carried out in the data manager. Current transformers have an output signal of 100 mA.						
	• CT ratio 50:0.1		**US2:SEM3SCCT50**		1	1 unit	1US
	• CT ratio 125:0.1		**US2:SEM3SCCT125**		1	1 unit	1US
	• CT ratio 250:0.1		**US2:SEM3SCCT250**		1	1 unit	1US
	• CT ratio 400:0.1		**US2:SEM3SCCT400**		1	1 unit	1US
	• CT ratio 600:0.1		**US2:SEM3SCCT600**		1	1 unit	1US
	• CT ratio 800:0.1		**US2:SEM3SCCT800**		1	1 unit	1US
	• CT ratio 1200:0.1		**US2:SEM3SCCT1200**		1	1 unit	1US

Time and pulse counters for standard rail mounting

Overview

Time counters: Left: Electromechanical, right: Electronic

Time and pulse counters are used for the reliable monitoring of production and service times, which enables the exact planning and monitoring of production sequences, maintenance cycles and warranty times.
As well as the proven electromechanical time and pulse counters for mounting in distribution boards, we also supply digital time and pulse counters.
The fields of application for both counter types are very diverse, such as the recording of operating hours of machines, systems or building management systems, as well as pulse counting for general volume flow counting, registration of starting frequencies, starting cycles or production quantities in systems and machines.

Benefits

- Time and pulse counters help to plan maintenance intervals, which safeguard and ensure high plant availability
- Versions without zero position and with electric or manual zero position for all applications
- Flexible application of the digital counters for power supplies of 12 V to 150 V DC and 24 V to 240 V AC in a single device

Technical specifications

			7KT5801	7KT5802	7KT5803	7KT5804	7KT5806	7KT5807
Standards **Approvals**			DIN VDE 0435-110; EN 60255-6; UL 863 UL 863, UL File No. E300537, CSA C22.2 No. 6 and 55					
Rated control supply voltage U_c		V AC V DC	-- 12 ... 24	24 --	115	230	115	230
Primary operating range	At 50/60 Hz	× U_c	0.9 ... 1.1					
Rated frequency		Hz	--	50			60	
Rated power loss P_v		VA	< 1		< 2			
Method of operation	Counting of		Hours					
Display	Drum-type register	h	00000.00					
Terminals	±screw (Phillips)		1					
Conductor cross-sections	Rigid Flexible, with end sleeve, min.	mm^2 mm^2	1.5 0.75					
Permissible ambient temperature		°C	-10 ... +70					
Degree of protection	Acc. to EN 60529		IP20, with connected conductors					
Safety class	Acc. to EN 61140/VDE 0140-1		II					
Permissible humidity		%	< 80					

			7KT5811	7KT5812	7KT5814	7KT5821	7KT5822	7KT5823	7KT5833
Standards **Approvals**			DIN VDE 0435-110; EN 60255-6; UL 863 UL 863, UL File No. E300537, CSA C22.2 No. 6 and 55						
Rated control supply voltage U_c		V AC V DC	-- 12 ... 24	24 --	230 --	24 ... 240 12 ... 150			
Primary operating range	At 50/60 Hz	× U_c	0.9 ... 1.1						
Rated frequency		Hz	--	50/60					
Rated power loss P_v		VA	< 1		< 2	< 1			
Method of operation	Counting of		Pulses			Hours			Pulses
Display	Drum-type register		0000000			--			--
	LCD	h	--			000000.0			--
			--			--			0000000
Counting frequency		Hz	10			--			10
Pulse duration		ms	50			--			50
Resetting	Electrical		--				Yes		
	Mechanical		--					Yes	
Terminals	±screw (Phillips)		1						
Conductor cross-sections	Rigid Flexible, with end sleeve, min.	mm^2 mm^2	1.5 0.75						
Permissible ambient temperature		°C	-10 ... +70						
Degree of protection	Acc. to EN 60529		IP20, with connected conductors						
Safety class	Acc. to EN 61140/VDE 0140-1		II						
Permissible humidity		%	< 80						

Minimum order quantity (PS) or a multiple thereof can be ordered.

Selection and ordering data

		U_c	Frequency	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		V	Hz	MW	d					
	**Time counter**									
	Mechanical counting mechanism, display 00000.00 h without resetting									
		12 ... 24 DC	--	2		**7KT5801**		1	1 unit	1BK
		24 AC	50			**7KT5802**		1	1 unit	1BK
		115 AC				**7KT5803**		1	1 unit	1BK
		230 AC				**7KT5804**		1	1 unit	1BK
		115 AC	60			**7KT5806**		1	1 unit	1BK
		230 AC				**7KT5807**		1	1 unit	1BK
	Pulse counter									
	Mechanical counting mechanism, display 0000000 ⎍ without resetting									
		12 ... 24 DC	--	2		**7KT5811**		1	1 unit	1BK
		24 AC	50/60			**7KT5812**		1	1 unit	1BK
		230 AC				**7KT5814**		1	1 unit	1BK
	**Electronic time counter**									
	LCD 000000.0 h without resetting									
		12 ... 150 DC, 24 ... 240 AC	-- 50/60	2		**7KT5821**		1	1 unit	1BK
	With electrical resetting									
		12 ... 150 DC, 24 ... 240 AC	-- 50/60			**7KT5822**		1	1 unit	1BK
	With electrical and mechanical resetting									
		12 ... 150 DC, 24 ... 240 AC	-- 50/60			**7KT5823**		1	1 unit	1BK
	Electronic pulse counter									
	LCD 0000000 ⎍									
	With electrical and mechanical resetting									
		12 ... 150 DC, 24 ... 240 AC	-- 50/60	2		**7KT5833**		1	1 unit	1BK

More information

Time counters count the time in hours with an accuracy of two decimal places (hundredths of hours). The pulse counter adds the number of pulses, e.g. the making operations of devices.

A power supply is required at terminals 1 and 2 of the electronic counters so that the device can constantly display the measured values. Once terminal 3 is supplied with voltage (for DC "+"), the counting procedure starts. If terminal 4 is supplied for a short time with voltage (for DC "+"), the counter is reset.

In the case of electronic counters, the counting result is saved indefinitely in the event of a power failure (EEPROM). On recovery of the power, the counting is continued from the saved value. As well as a modern design, the electronic counter has a 7-digit LCD, which can be reset electrically or manually.

Time counters for front-panel mounting

Overview

Time counters: Left: Counting mechanism, right: Counting mechanism with front frame

Time and pulse counters for control cabinets, control systems and mechanical engineering are used, e.g. in boilers, machine tools or compressors. The pulse counters count the starting frequencies. This supports planning for preventative maintenance.

In-time and regular maintenance is the best protection against unexpected shutdowns.

Benefits

- Time and pulse counters help to plan maintenance intervals, which safeguard and ensure high plant availability

Technical specifications

			7KT5500	7KT5501	7KT5502	7KT5503	7KT5504	7KT5505
Standards			DIN VDE 0435-110; EN 60255-6					
Rated control supply voltage U_c		V AC V DC	-- 10 ... 80	115 --	230	115	230	24
Rated frequency		Hz	--	50		60		50
Front-panel mounting • Without masking frame 55 × 55 mm • With masking frame 55 × 55 mm	Switchboard cutout	mm × mm Ø mm	$45.2 \times 45.2^{+0.3}$ $50.2^{+0.3}$					

			7KT5600	7KT5601	7KT5602	7KT5603	7KT5604
Standards			DIN VDE 0435-110; EN 60255-6				
Rated control supply voltage U_c		V AC V DC	-- 10 ... 50	115 --	230	115	230
Rated frequency		Hz	--	50		60	
Front-panel mounting	Switchboard cutout	mm × mm	$68^{+0.5} \times 68^{+0.5}$				

12

Selection and ordering data

		U_c	Frequency	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		V	Hz	MW	d					
	**Time counter** Mechanical counting mechanism, display 00000.00 h, for front-panel mounting, front frame 48 × 48 mm									
		10 ... 80 DC	–			**7KT5500**		1	1 unit	1BK
		24 AC	50			**7KT5505**		1	1 unit	1BK
		115 AC				**7KT5501**		1	1 unit	1BK
		230 AC				**7KT5502**		1	1 unit	1BK
		115 AC	60			**7KT5503**		1	1 unit	1BK
		230 AC				**7KT5504**		1	1 unit	1BK
	For front-panel mounting, front frame 72 × 72 mm, with narrow frame according to DIN 43700									
		10 ... 50 DC	–	2		**7KT5600**		1	1 unit	1BK
		115 AC	50			**7KT5601**		1	1 unit	1BK
		230 AC				**7KT5602**		1	1 unit	1BK
		115 AC	60			**7KT5603**		1	1 unit	1BK
		230 AC				**7KT5604**		1	1 unit	1BK
	Cover for 7KT55 time counters									
	55 × 55 mm					**7KT9020**		1	1 unit	1BK
	Sealing rings for 7KT9020 covers									
	IP43 installation in switchboards with smooth surfaces (1 set = 5 units)					**7KT9000**		1	1 set	1BK
	Terminal covers for 7KT56 time counters									
	Degree of protection IP20, with connected conductors					**7KT9021**		1	1 unit	1BK

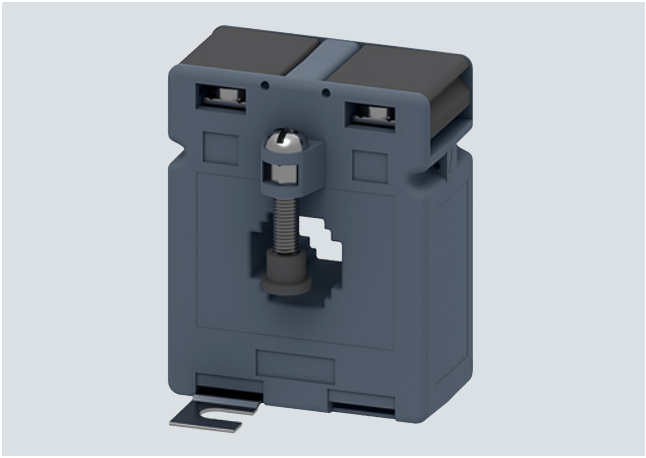
Minimum order quantity (PS) or a multiple thereof can be ordered.

Overview

Devices		Page	Application	Standards	Used in		
					Non-residential buildings	Residential buildings	Industry
Accessories							
	**4NC current transformers**	12/50	Window-type/pin-wound current transformers	EN 61869-1 EN 61869-2 VDE 0414-9-2	✓	--	✓
	**7KT12 current transformers**	12/54	Straight-through transformers for installation in distribution boards and non-contact measuring of primary currents. Ideal for combination with switch disconnectors, measuring devices and counters.	IEC 60044-1, EN 60044-1 (VDE 0414 T 44-1)	✓	--	✓

12

Overview



4NC current transformers

Technical specifications

4NC current transformers for measuring purposes

Standards	EN 61869-1, EN 61869-2, VDE 0414-9-2
Window-type current transformers	The conductor to be measured (busbar or cable) is passed through the window opening and constitutes the primary circuit of the window-type current transformer. Pin-wound transformers: An economical solution especially for small primary currents of 5 ... 75 A are window-type current transformers when the conductor to be measured is pin-wound several times.
Rated primary current I_{pr}	Current transformers can be continuously loaded with 1.3 times the rated primary current (I_{pn}).
Rated secondary current I_{sr}	
1 A	Particularly suitable for longer measuring leads. Cable losses of only 4% in contrast to 5 A current transformers.
5 A	5 A current transformers generate 25 times the power losses on measuring leads as compared with 1 A current transformers. These stray losses result in higher power in the case of long cables. Only recommended for use with short measuring leads.
Accuracy class	
Class 0.2s	Operation measurement, internal metering, current error ±0.2% at 1 x I_{pr} and 1.2 x I_{pr}
Class 0.5	Operation measurement, internal metering, current error ±0.5% at 1 x I_{pr} and 1.2 x I_{pr}
Class 1	Operation measurement, internal metering, current error ±1% at 1 x I_{pr} and 1.2 x I_{pr}
Rated power P_n	The rated power of transformers is specified in VA. The actual load rating should be similar to the rated power; a lower actual load rating (underburden) increases the overcurrent factor and measuring devices are not sufficiently protected in case of a short-circuit, a higher actual load rating (overburden) has a negative effect on the accuracy. With a frequency of 60 Hz the rated power increases by a factor of 1.2. At $16^2/_3$ Hz the output power decreases to $^1/_3$ of the rated power.
Maximum voltage for equipment U_m	This is the rms value of the maximum voltage between the conductors of a system. For this voltage the insulation must be rated at normal operating conditions. 4NC5 current transformers are suitable for 720 V.
Overcurrent limiting factor *FS*	The overcurrent limiting factor is expressed using the characters FS and a factor, e.g. FS5 or FS10. When a short-circuit current flows through the primary winding of a current transformer, the stress on the measuring devices connected to the current transformer is the lower the smaller the overcurrent limiting factor is.
Rated short-time thermal current I_{th}	The rated short-time thermal current I_{th} is the rms value of the primary current with a duration of one second, whose heat effect the current transformer can resist without being damaged in the event of a short-circuited secondary winding.
Rated impulse current I_{dyn}	The rated impulse current I_{dyn} is the highest instantaneous value of the current after a short-circuit whose force the current transformer can resist without being damaged. The rated impulse current is specified as peak value.

Minimum order quantity (PS) or a multiple thereof can be ordered.

Selection and ordering data

4NC51 window-type current transformers, used as pin-wound transformers, class 1 from 5 A to 150 A

Pin-winding increases the primary current of the current transformer. Consequently, window-type current transformers can also be used for low primary currents.

4NC51 used as pin-wound transformer

Basic type -->		**4NC5112**	**4NC5113**	**4NC5115**	**4NC5117**	**4NC5121**
Rated primary current I_{pr} (without pin-winding)	A	50	60	75	100	150
Rated power P_n						
• For transformers with rated secondary current I_{sr} = 1 A	VA	2.5	2.5	2.5	2.5	2.5
• For transformers with rated secondary current I_{sr} = 5 A	VA	1.2	1.2	2.5	2.5	2.5
Primary current to be measured		Number of required pin windings				
• I_{pr} = 5 A		10	--	--	--	--
• I_{pr} = 10 A		5	6	--	10	--
• I_{pr} = 15 A		--	4	5	--	10
• I_{pr} = 20 A		--	3	--	5	--
• I_{pr} = 25 A		2	--	3	4	6
• I_{pr} = 30 A		--	2	--	--	5
• I_{pr} = 40 A		--	--	--	--	--
• I_{pr} = 50 A		--	--	--	2	3
• I_{pr} = 75 A		--	--	--	--	2

4NC current transformers for measuring purposes, rated secondary current I_{sr} = 5 A

	Accuracy class	Size	Rated primary current I_{pr}	Rated power P_n	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			A	VA	d					
	**Class 0.2s**	1	150	1.0		**4NC5121-2FA21**		1	1 unit	1CL
			200	2.5		**4NC5122-2FC21**		1	1 unit	1CL
			250	2.5		**4NC5123-2FC21**		1	1 unit	1CL
			300	5		**4NC5124-2FE21**		1	1 unit	1CL
			400	5		**4NC5125-2FE21**		1	1 unit	1CL
			500	5		**4NC5126-2FE21**		1	1 unit	1CL
		5	600	5		**4NC5227-2FE21**		1	1 unit	1CL
			700	5		**4NC5228-2FE21**		1	1 unit	1CL
			800	5		**4NC5231-2FE21**		1	1 unit	1CL
			1000	5		**4NC5232-2FE21**		1	1 unit	1CL
	**Class 0.5**	1	100	1		**4NC5117-2DA21**		1	1 unit	1CL
			150	2.5		**4NC5121-2DC21**		1	1 unit	1CL
			200	5		**4NC5122-2DE21**		1	1 unit	1CL
			250	5		**4NC5123-2DE21**		1	1 unit	1CL
		2	200	5		**4NC5222-2DE21**		1	1 unit	1CL
			250	5		**4NC5223-2DE21**		1	1 unit	1CL
			300	5		**4NC5224-2DE21**		1	1 unit	1CL
			400	5		**4NC5225-2DE21**		1	1 unit	1CL
		3	400	5		**4NC5325-2DE21**		1	1 unit	1CL
			500	5		**4NC5326-2DE21**		1	1 unit	1CL
			600	5		**4NC5327-2DE21**		1	1 unit	1CL
			750	5		**4NC5330-2DE21**		1	1 unit	1CL
			800	5		**4NC5331-2DE21**		1	1 unit	1CL
		4	800	10		**4NC5431-2DH21**		1	1 unit	1CL
			1000	10		**4NC5432-2DH21**		1	1 unit	1CL
			1200	10		**4NC5433-2DH21**		1	1 unit	1CL
			1500	10		**4NC5435-2DH21**		1	1 unit	1CL
			1600	15		**4NC5436-2DK21**		1	1 unit	1CL
			2000	20		**4NC5438-2DL21**		1	1 unit	1CL
			2500	25		**4NC5440-2DM21**		1	1 unit	1CL
			3000	30		**4NC5441-2DN21**		1	1 unit	1CL

Minimum order quantity (PS) or a multiple thereof can be ordered.

4NC current transformers

4NC current transformers for measuring purposes, rated secondary current I_{sr} = 5 A (continued)

Accuracy class	Size	Rated primary current I_{pr}	Rated power P_n	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		A	VA	d					
Class 1.0	1	50	1.2		**4NC5112-2CB21**		1	1 unit	1CL
		60	1.2		**4NC5113-2CB21**		1	1 unit	1CL
		75	2.5		**4NC5115-2CC21**		1	1 unit	1CL
		100	2.5		**4NC5117-2CC21**		1	1 unit	1CL
		150	2.5		**4NC5121-2CC21**		1	1 unit	1CL
		200	5		**4NC5122-2CE21**		1	1 unit	1CL
		250	5		**4NC5123-2CE21**		1	1 unit	1CL
	2	200	5		**4NC5222-2CE21**		1	1 unit	1CL
		250	5		**4NC5223-2CE21**		1	1 unit	1CL
		300	5		**4NC5224-2CE21**		1	1 unit	1CL
		400	5		**4NC5225-2CE21**		1	1 unit	1CL
	3	400	5		**4NC5325-2CE21**		1	1 unit	1CL
		500	5		**4NC5326-2CE21**		1	1 unit	1CL
		600	5		**4NC5327-2CE21**		1	1 unit	1CL
		750	5		**4NC5330-2CE21**		1	1 unit	1CL
	4	800	10		**4NC5431-2CH21**		1	1 unit	1CL
		1000	10		**4NC5432-2CH21**		1	1 unit	1CL
		1250	10		**4NC5434-2CH21**		1	1 unit	1CL
		1500	10		**4NC5435-2CH21**		1	1 unit	1CL
		2000	12.5		**4NC5438-2CJ21**		1	1 unit	1CL
		2500	12.5		**4NC5440-2CJ21**		1	1 unit	1CL
		3000	30		**4NC5441-2CN21**		1	1 unit	1CL

Minimum order quantity (PS) or a multiple thereof can be ordered.

4NC current transformers for measuring purposes, rated secondary current I_{sr} = 1 A

	Accuracy class	Size	Rated primary current I_{pr}	Rated power P_n	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			A	VA	d					
	**Class 0.5**	1	100	1		**4NC5117-0DA21**		1	1 unit	1CL
			150	2.5		**4NC5121-0DC21**		1	1 unit	1CL
			200	5		**4NC5122-0DE21**		1	1 unit	1CL
			250	5		**4NC5123-0DE21**		1	1 unit	1CL
		2	200	5		**4NC5222-0DE21**		1	1 unit	1CL
			250	5		**4NC5223-0DE21**		1	1 unit	1CL
			300	5		**4NC5224-0DE21**		1	1 unit	1CL
			400	5		**4NC5225-0DE21**		1	1 unit	1CL
		3	400	5		**4NC5325-0DE21**		1	1 unit	1CL
			500	5		**4NC5326-0DE21**		1	1 unit	1CL
			600	5		**4NC5327-0DE21**		1	1 unit	1CL
			750	5		**4NC5330-0DE21**		1	1 unit	1CL
		4	800	10		**4NC5431-0DH21**		1	1 unit	1CL
			1000	10		**4NC5432-0DH21**		1	1 unit	1CL
			1200	10		**4NC5433-0DH21**		1	1 unit	1CL
			1500	10		**4NC5435-0DH21**		1	1 unit	1CL
	**Class 1.0**	1	50	1.2		**4NC5112-0CB21**		1	1 unit	1CL
			60	1.2		**4NC5113-0CB21**		1	1 unit	1CL
			75	2.5		**4NC5115-0CC21**		1	1 unit	1CL
			100	2.5		**4NC5117-0CC21**		1	1 unit	1CL
			150	2.5		**4NC5121-0CC21**		1	1 unit	1CL
			200	5		**4NC5122-0CE21**		1	1 unit	1CL
			250	5		**4NC5123-0CE21**		1	1 unit	1CL
		2	200	5		**4NC5222-0CE21**		1	1 unit	1CL
			250	5		**4NC5223-0CE21**		1	1 unit	1CL
			300	5		**4NC5224-0CE21**		1	1 unit	1CL
			400	5		**4NC5225-0CE21**		1	1 unit	1CL
		3	400	5		**4NC5325-0CE21**		1	1 unit	1CL
			500	5		**4NC5326-0CE21**		1	1 unit	1CL
			600	5		**4NC5327-0CE21**		1	1 unit	1CL
			750	5		**4NC5330-0CE21**		1	1 unit	1CL
		4	800	10		**4NC5431-0CH21**		1	1 unit	1CL
			1000	10		**4NC5432-0CH21**		1	1 unit	1CL
			1250	10		**4NC5434-0CH21**		1	1 unit	1CL
			1500	10		**4NC5435-0CH21**		1	1 unit	1CL
			2000	12.5		**4NC5438-0CJ21**		1	1 unit	1CL
			2500	12.5		**4NC5440-0CJ21**		1	1 unit	1CL

Accessories

	For transformer size	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		d					
Standard rail mounting							
	1, 5		**4NC5923-5LT21**		1	1 unit	1CL
	2		**4NC5925-5LT21**		1	1 unit	1CL
	3		**4NC5930-5LT21**		1	1 unit	1CL
	4		**4NC5940-5LT21**		1	1 unit	1CL

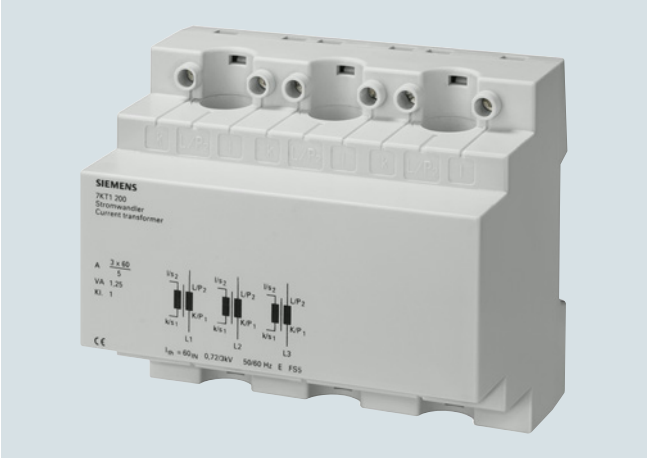
More information

Other current transformers for measuring purposes,
see chapter "Switch Disconnectors"
and summation current transformers,
see chapter "Monitoring Devices"

Minimum order quantity (PS) or a multiple thereof can be ordered.

7KT12 current transformers

Overview



7KT12 current transformer

The three-phase 7KT12 current transformer can be used in distribution boards according to DIN 43880. The measuring leads are routed vertically through to the standard mounting rail.

This type of current transformer is suitable for infeeds or outgoing lines in connection with the installation of a 5TE8 switch or a 5TE1 disconnector, as the primary connecting leads do not have to be interrupted.

The current transformer is designed for cables of up to 13 mm in diameter, e.g. H07V-R with 50 mm^2 conductor cross-section.

Benefits

- The current transformer has accuracy class 1 in accordance with EN 60044-1.
- The versions designed for a transformer ratio of 60/5 A, 100/5 A and 150/5 A enable an even broader range of applications.

Technical specifications

			7KT1200	7KT1201	7KT1202
Standards			EN 60044-1		
Secondary rated current strength		A	5		
Accuracy class		Cl.	1		
Rated power		VA	1.25	2.5	3.75
Rated frequency f_n		Hz	50/60		
Thermal current limit I_{th}	Short-time	A	60 × I_e		
Thermal continuous current		A	1 × I_e		
Overcurrent limit factor		FS	5		
Rated impulse withstand voltage U_{imp}		kV	> 3		
Creepage distances and clearances		mm	> 3		
Rated operational voltage U_e		V AC	720		
Rated operational current I_e		A AC	3 × 60	3 × 100	3 × 150
Terminals	±screw (Pozidriv)		PZ 1		
Conductor cross-sections					
- Rigid		mm^2	0.5 ... 4		
- Flexible, with end sleeve		mm^2	0.5 ... 2.5		
Permissible ambient temperature		°C	-5 ... +60		
Resistance to climate	Acc. to EN 60068-1		20/60/4		

Selection and ordering data

		U_e	I_e	I_{sec}	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		V AC	A AC	A AC	MW	d					
	**Current transformer**										
		720	3 × 60	5	6		**7KT1200**		1	1 unit	1BK
			3 × 100				**7KT1201**		1	1 unit	1BK
			3 × 150				**7KT1202**		1	1 unit	1BK

More information

Other current transformers for measuring purposes,
see chapter "Switch Disconnectors"
and summation current transformers,
see chapter "Switch Disconnectors"

Minimum order quantity (PS) or a multiple thereof can be ordered.

1. General standards

By using this catalog you can acquire hardware and software products described therein from Siemens AG subject to these conditions of sale and delivery (hereinafter: CSD). Please note: the scope, the quality and the conditions for supplies and services, including software products, by any Siemens group or Regional Company having a registered office outside of Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. These CSD apply exclusively for orders placed with Siemens AG, Germany.

1.1 For customers with a seat or registered office in Germany

For customers with a seat or registered office in Germany, the following shall be subordinate to these CSD

- for installation, the "Standard Terms and Conditions for Installation –Germany" and
- for Plant Analytics Services the "Standard Terms and Conditions for Plant Analytics Services – for Customers in Germany"[1)] and
- for standalone software products and software products that are part of another product or project, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or Registered Office in Germany"[1)] and
- for other supplies and services, the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1)].
  In the event that such other supplies and services include open-source software, the conditions of which override the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1)], the product will be supplied with a notice detailing the special conditions that apply for the relevant open-source software. This applies accordingly in the case of a reference to other third-party software components.

1.2 For customers with a seat or registered office outside of Germany

For customers with a seat or registered office outside of Germany, the following shall be subordinate to these CSD

- for Plant Analytics Services the "Standard Terms and Conditions for Plant Analytics Services"[1)] (only available in English) and
- for services, the "International Terms & Conditions for Services"[1)] supplemented by the "Software Licensing Conditions"[1)] and
- for the supply of other hardware and software the "International Terms & Conditions for Products"[1)] supplemented by the "Software Licensing Conditions"[1)].

1.3 For customers with framework agreements

To the extent that our products and services are covered by an existing framework agreement, the conditions there apply instead of this CSD.

2. Prices

The prices are in € (euros) ex works, excluding packaging.

The sales tax (value added tax) is not included in the prices. It shall be debited separately at the respective rate according to the applicable legal regulations.

Prices are subject to change without prior notice. We will debit the prices valid at the time of delivery.

To compensate fluctuating prices of raw materials (for example silver, copper, aluminum, lead, gold, dysprosium and neodymium), surcharges are calculated on a daily basis for products containing these raw materials using the metal factor. A surcharge for the particular raw material is added to the price of a product if the basic quotations for this raw material are exceeded.

Each product's metal factor dictates for which raw materials the metal surcharges are calculated, from which quotation and with which calculation method (weight or percentage method).

An exact explanation of the metal factor can be found at: www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

The surcharge will be calculated (except in the case of dysprosium and neodymium) on the basis of the official price on the day prior to receipt of the order or prior to the release order for calculation of the surcharge.

In the event of placement of an order, the relevant three-month average price from the quarter prior to order receipt or the release order shall be used with a one-month buffer to calculate the dysprosium and neodymium surcharge ("rare earths") (you will find details in the aforementioned explanation of the metal factor).

3. Additional terms and conditions

All dimensions are in mm. In Germany, according to the German law on units in metrology, data in inches only apply to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the corresponding pages of this catalog - especially with regard to data, dimensions and weights given - these are subject to change without prior notice.

[1)] You can download the text of the Siemens AG terms and conditions of trade at www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

4. Export regulations

We shall not be obligated to fulfill this agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes or other sanctions.

Exporting may be subject to authorization. In delivery information, we label authorization obligations according to German, European and US export lists.

Our products are controlled by the U.S. authorities (goods labeled with "ECCN" not equal to "N") and may only be supplied to the stated country of the end user for sole use by the end user. Without U.S. government approval or other approval under U.S. law, the products may not be sold, transferred or otherwise forwarded to other countries or to other persons other than the specified end user, either in their original form or after further processing into other goods. Goods labeled with an "AL" not equal to "N" are subject European/national export authorization requirements.

Please note that you can also preview the export designations in the respective product description via our "Industry Mall" online catalog system. The deciding factors, however, are the AL or ECCN export designations indicated on order confirmations, delivery notes and invoices.

Unmarked items or items marked "AL:N" / "ECCN:N" or "AL:9X9999" / "ECCN: 9X9999" may require authorization based on their intended use or ultimate destination.

If you transfer goods (hardware and/or software and/or technology as well as corresponding documentation, regardless of the mode of provision) delivered by us or works and services (including all kinds of technical support) performed by us to a third party worldwide, you shall comply with all applicable national and international (re-) export control regulations.

If required to conduct export control checks, you, at our request, shall promptly provide us with all information pertaining to particular end customers, destination and intended use of goods, works and services provided by us, as well as any relevant export control restrictions.

The products listed in this catalog may be subject to European/German and/or US export regulations. Therefore, any export requiring a license is subject to approval by the competent authorities.

Errors excepted and subject to change without prior notice.

Catalogs
Smart Infrastructure and Digital Industries

Further information can be obtained from our branch offices listed at www.siemens.com/lowvoltage/contact

Interactive Catalog	*Catalog*
Products for Automation and Drives	**CA 01**

Building Control	
GAMMA Building Control	ET G1

Drive Systems	
SINAMICS G130 Drive Converter Chassis Units SINAMICS G150 Drive Converter Cabinet Units	D 11
Digital: SINAMICS PERFECT HARMONY GH180 Medium-Voltage Air-Cooled Drives (Germany Edition)	*D 15.1*
SINAMICS G180 Converters – Compact Units, Cabinet Systems, Cabinet Units Air-Cooled and Liquid-Cooled	D 18.1
SINAMICS S120 Chassis Format Converter Units SINAMICS S120 Cabinet Modules SINAMICS S150 Converter Cabinet Units	D 21.3
SINAMICS S120 and SIMOTICS	D 21.4
SINAMICS DCM DC Converter, Control Module	D 23.1
SINAMICS Inverters for Single-Axis Drives · Built-In Units	D 31.1
SINAMICS Inverters for Single-Axis Drives · Distributed Inverters	D 31.2
Digital: SINAMICS Converters for Single-Axis Drives · SINAMICS G120X	*D 31.5*
Digital: SINAMICS S210 Servo Drive System	*D 32*
Digital: SINAMICS V90 Basic Servo Drive System	*D 33*
Digital: SINAMICS G120P and SINAMICS G120P Cabinet pump, fan, compressor converters	*D 35*
LOHER VARIO High Voltage Motors Flameproof, Type Series 1PS4, 1PS5, 1MV4 and 1MV5 Frame Size 355 to 1000, Power Range 80 to 7100 kW	D 83.2
Digital: Three-Phase Induction Motors SIMOTICS HV, SIMOTICS TN	*D 84.1*
Digital: Three-Phase Induction Motors SIMOTICS HV	*D 84.3*
High Voltage Three-phase Induction Motors SIMOTICS HV Series A-compact PLUS	D 84.9
Digital: Modular Industrial Generators SIGENTICS M	*D 85.1*
Synchronous Motors with Permanent-Magnet Technology, HT-direct	D 86.2
DC Motors	DA 12
SIMOVERT PM Modular Converter Systems	DA 45
MICROMASTER 420/430/440 Inverters	DA 51.2
MICROMASTER 411/COMBIMASTER 411	DA 51.3
Low-Voltage Three-Phase-Motors	
SIMOTOCS S-1FG1 Servo geared motors	D 41
SIMOTICS Low-Voltage Motors	D 81.1
SIMOTICS FD Low-Voltage Motors	D 81.8
LOHER Low-Voltage Motors	D 83.1
Digital: MOTOX Geared Motors	*D 87.1*
SIMOGEAR Geared Motors	MD 50.1
SIMOGEAR Electric-monorail geared motors Light-load and heavy-load applications	MD 50.8
SIMOGEAR Gearboxes with adapter	MD 50.11
Mechanical Driving Machines	
FLENDER Standard Couplings	MD 10.1
FLENDER High Performance Couplings	MD 10.2
FLENDER Backlash-free Couplings	MD 10.3
FLENDER SIP Standard industrial planetary gear units	MD 31.1

Motion Control	
SINUMERIK 840 Equipment for Machine Tools	NC 62
SINUMERIK 808 Equipment for Machine Tools	NC 81.1
SINUMERIK 828 Equipment for Machine Tools	NC 82
SIMOTION Equipment for Production Machines	PM 21
Digital: Drive and Control Components for Cranes	*CR 1*

Process Instrumentation and Analytics	*Catalog*
Digital: Field Instruments for Process Automation	*FI 01*
Digital: Display Recorders SIREC D	*MP 20*
Digital: SIPART Controllers and Software	*MP 31*
Products for Weighing Technology	WT 10
Digital: Process Analytical Instruments	*AP 01*
Digital: Process Analytics, Components for Continuous Emission Monitoring	*AP 11*

Low-Voltage Power Distribution and Electrical Installation Technology	
SENTRON · SIVACON · ALPHA Protection, Switching, Measuring and Monitoring Devices, Switchboards and Distribution Systems	LV 10
Electrical Components for the Railway Industry	LV 12
Power Monitoring Made Simple	LV 14
Components for Industrial Control Panels according to UL Standards	LV 16
Digital: Air circuit breakers and molded case circuit breakers with UL certification	*LV 18*
3WT Air Circuit Breakers up to 4000 A	LV 35
3VT Molded Case Circuit Breakers up to 1600 A	LV 36
Digital: SIVACON System Cubicles, System Lighting and System Air-Conditioning	*LV 50*
Digital: ALPHA Distribution Systems	*LV 51*
ALPHA FIX Terminal Blocks	LV 52
SIVACON S4 Power Distribution Boards	LV 56
SIVACON 8PS Busbar Trunking Systems	LV 70
Digital: DELTA Switches and Socket Outlets	*ET D1*
Vacuum Switching Technology and Components for Medium Voltage	HG 11.01

Power Supply	
SITOP Power supply	KT 10.1

Safety Integrated	
Safety Technology for Factory Automation	SI 10

SIMATIC HMI / PC-based Automation	
Human Machine Interface Systems/ PC-based Automation	ST 80/ ST PC

SIMATIC Ident	
Industrial Identification Systems	ID 10

SIMATIC Industrial Automation Systems	
Products for Totally Integrated Automation	ST 70
SIMATIC PCS 7 Process Control System System components	ST PCS 7
SIMATIC PCS 7 Process Control System Technology components	ST PCS 7 T
Add-ons for the SIMATIC PCS 7 Process Control System	ST PCS 7 AO
SIMATIC S7-400 advanced controller	ST 400

SIMATIC NET	
Industrial Communication	IK PI

SIRIUS Industrial Controls	
Digital: SIRIUS Industrial Controls	*IC 10*

Digital: These catalogs are only available as a PDF.

Siemens Industry Online Support

Digital versions of the catalogs are available on the Internet at:
www.siemens.com/lowvoltage/catalogs

Get more information

www.siemens.com/lowvoltage

Siemens AG
Energy Management
Low Voltage & Products
Postfach 10 09 53
93009 Regensburg
Germany

PDF (Extract from E86060-K8280-A101-A9-7600)
KG 0619 1802 En
Produced in Germany

Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit **http://www.siemens.com/industrialsecurity**.

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under **http://www.siemens.com/industrialsecurity**.