Measuring point concept
for industrial and infrastructure applications

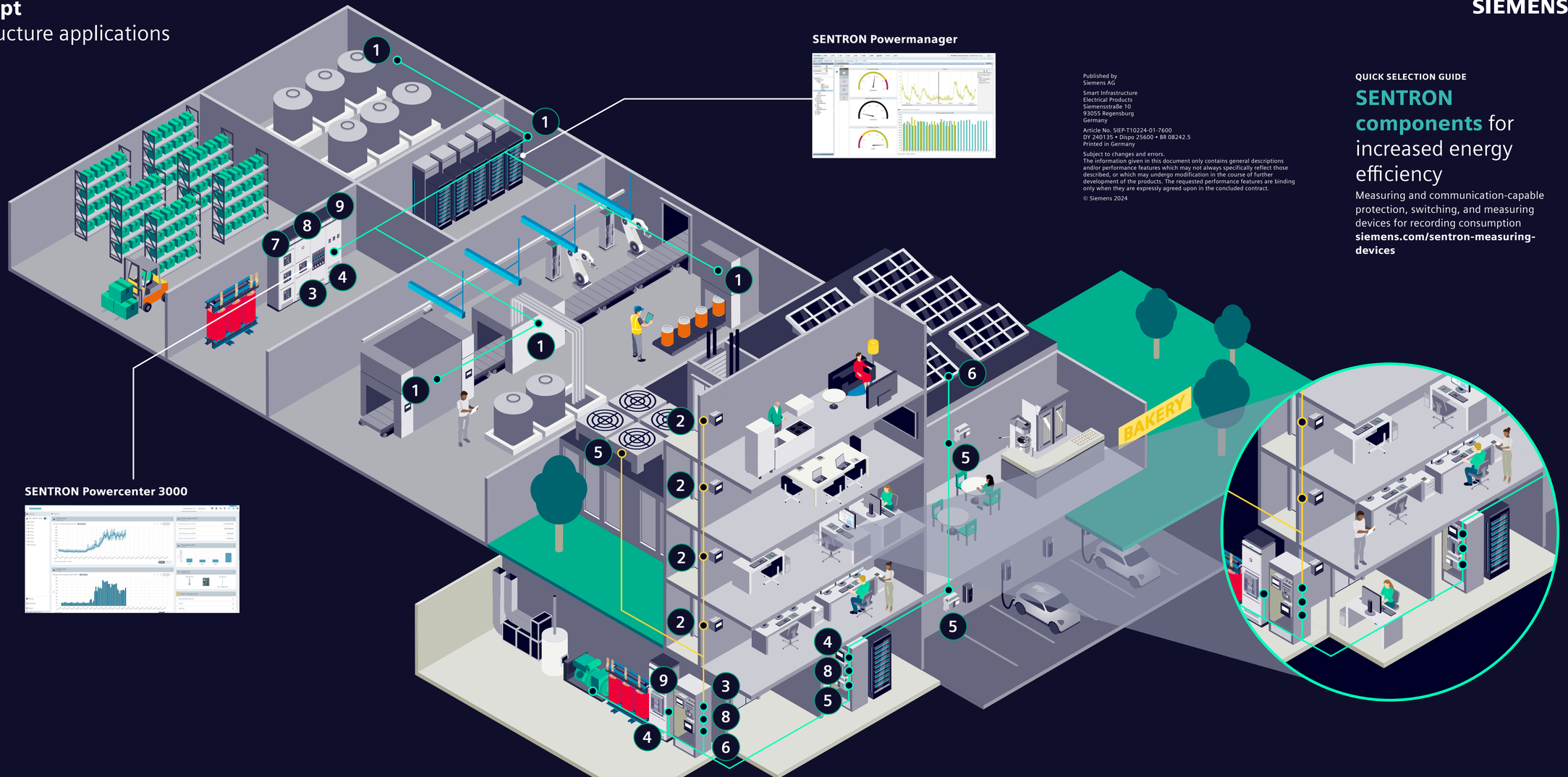
SIEMENS

What and where to measure?

Whether in buildings, industrial plants, or infrastructure, energy efficiency is a prerequisite for reduced carbon emissions, climate neutrality, and a distributed power supply that is successful over the long term. It starts with the measurement of energy consumption, which requires the cooperation of hardware and software with an optimally coordinated measuring point concept.

Note: All consumers that are relevant for billing energy costs to external cost centers must be measured using MID-certified meters.

1. SENTRON 7KM PAC3220
2. SENTRON 7KM PAC3120
3. SENTRON 7KM PAC4220
4. SENTRON 7KM PAC5200
5. SENTRON 7KM PAC2200
6. SENTRON 7KT PAC1600
7. SENTRON Powercenter 3000
8. SENTRON 3VA molded case circuit breaker
9. SENTRON 3WA open circuit breaker



SENTRON Powermanager

SENTRON Powercenter 3000

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QUICK SELECTION GUIDE

SENTRON components for increased energy efficiency

Measuring and communication-capable protection, switching, and measuring devices for recording consumption
siemens.com/sentron-measuring-devices

	Multichannel current measuring system 7KT PAC1200	Multichannel current measuring system SEM3	Measuring device 7KT PAC1600 / 7KT PAC1600 MID	Measuring device 7KM PAC1020	Measuring device 7KM PAC2200 (MID / CLP)	Measuring device 7KM PAC3120 / 7KM PAC3120 MID	Measuring device 7KM PAC3200T	Measuring device 7KM PAC3220 / 7KM PAC3220 MID	Measuring device 7KM PAC4220	Measuring device 7KM PAC5200	Multifunctional recorder SICAM Q100 / Q200	Modular measuring device AI Energy Meter	Molded case circuit breaker 3VA2 ETU 8-series	Air Circuit Breaker 3WA	Electronic circuit protection device ECPD 5TY1 COM	Arc fault detection device and miniature circuit breaker AFDD/LS 5SV6 COM, LS 5SL6 COM	Data transceiver SENTRON Powercenter 1000	IoT data platform SENTRON Powercenter 3000
SENTRON portfolio for power monitoring	The flexible solution for multichannel measuring in final circuits	The efficient solution for multichannel current measuring in the main distribution	The entry-level solution when it comes to energy measurement	The cost-effective entry into power measurement and transparency	The energy meter solution for DIN rail	The cost-effective solution for digital measurement	The compact solution for precise energy measurement	The specialist solution for precise energy measurement	The professional solution for communication and monitoring	The specialist solution for measured value recording and power supply quality	The class A solution for power supply quality	The integrated energy measurement in auto-mation	The specialist solution for protection and energy measurement	The incoming circuit breaker with communication	Innovation – the electronic circuit protection device	The communication-capable circuit protection devices		
U, I, P, f, λ	U[1], I, P, S, Q[1], f[1], λ[1]	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Apparent | active | reactive energy | cosφ	x | x | x | –	x | x | x | x	x | x | x | –	– | x | x | –	x | x | x | –	x | x | x | x	x | x | x | –	x | x | x | x	x | x | x | x	x | x | x | x	x | x | x | x	x | x | x | x	x | x | x | x	x | x | x | x	x* | x* | x* | x	x | x | x | –		
Maximum input voltage L-L / L-N	400 V / 230 V	480 V / 277 V	400 V / 230 V	400 V / 230 V	400 V / 230 V	690 V / 400 V	400 V / 230 V	690 V / 400 V	690 V / 400 V	690 V / 400 V galvanically separated	690 V / 400 V galvanically separated	480 V / 277 V	690 V / 400 V (integrated)	1000 V / 577 V (integrated)	– | 230 V	– | 230 V		
Current transformer connection | direct measuring	x | x (up to 63 A)	x | –	x | x (up to 63A – 1-phase, up to 80A – 3-phase)	x/1 A | x/5 A	x | x (bis 65 A)	x | –	x | –	x | –	x | –	x | –	x | –	x | –	Transformer (integrated)	Transformer (integrated)	– | x	– | x		
DI / DO	–	2 / 1	1 / 2	1 / 1	1 / 1	2 / 2	1 / 1	2 / 2 (10 / 6 with expansion module)	2 / 2 (10 / 6 with expansion module)	0 / 2	Q100: 2 / 2 Q200: 6 / 6	via ET200 / via S7-1200	EFB300 (optional)	optional	1 / 1	–		
Integrated communication	Modbus TCP	BACnet IP, MSTP, SNMP, NTP, SMT, Modbus TCP, Modbus RTU	Modbus RTU, M-Bus, S0	Modbus RTU	Modbus TCP, Modbus RTU, M-Bus	Modbus RTU	Modbus TCP	Modbus TCP	Modbus TCP	Modbus TCP	Modbus TCP, IEC 61850	PROFINET PROFIBUS	–	–	Wireless	Wireless		
Communication via expansion module	–	–	–	–	PROFINET via SENTRON PROFINET Proxy SPP2000	–	PROFINET via SENTRON PROFINET Proxy SPP2000	Modbus RTU PROFINET PROFIBUS	Modbus RTU PROFINET PROFIBUS	–	Q100: 1 x Modbus TCP + IEC 61850 Q200: 2 x Modbus TCP + IEC 61850	Modbus TCP via CPU	Modbus TCP Modbus RTU PROFINET PROFIBUS	Modbus TCP PROFINET	Modbus TCP via SENTRON Powercenter 1000	Modbus TCP via SENTRON Powercenter 1000		
I(N), I(Diff)	–	–	–	–	–	–	–	with expansion module	with expansion module	–	x	–	x	x	x	Optional RCM		
Analog input	–	–	–	–	–	–	–	with expansion module	with expansion module	–	–	via ET200 / via S7-1200	–	–	–	–		
Load profile record	x	x	–	–	x (PAC2200 CLP)	–	–	–	x	x	x	in S7 CPU	x	x	–	–		
Software interfaces	Webinterface, App (iOS & Android), SENTRON Powerconfig SENTRON Powermanager	Webinterface, SENTRON Powermanager	SENTRON Powerconfig, SENTRON Powermanager	SENTRON Powerconfig, SENTRON Powermanager	Webinterface, SENTRON Powerconfig, SENTRON Powermanager	SENTRON Powerconfig, SENTRON Powermanager	Webinterface, SENTRON Powerconfig, SENTRON Powermanager	Webinterface, SIMATIC Energy Suite, SIMATIC Energy Manager PRO, SENTRON Powerconfig, SENTRON Powermanager	Webinterface, SIMATIC Energy Suite, SIMATIC Energy Manager PRO, SENTRON Powerconfig, SENTRON Powermanager	Webinterface, SENTRON Powerconfig, SENTRON Powermanager	Webinterface / SICAM PQS / PQA, SENTRON Powermanager (real-time values)	SIMATIC / SIMATIC Energy Suite	SIMATIC Energy Suite, SIMATIC Energy Manager PRO, SENTRON Powerconfig, SENTRON Powermanager	SIMATIC Energy Suite, SIMATIC Energy Manager PRO, SENTRON Powerconfig, SENTRON Powermanager	via SENTRON Powercenter 1000: SENTRON Powerconfig, SENTRON Powermanager	via SENTRON Powercenter 1000: SENTRON Powerconfig, SENTRON Powermanager		
THD | Flicker, fault recorder, EN 50160 reporting	– | –	– | –	– | –	– | –	– | –	x | –	x | –	x | –	x | –	x | x	x | x Transient recording up to 1 µs (Q200)	x | x	x | –	x | –	– | –	– | –		
Harmonics	–	–	1. … 15.[2]	–	–	–	–	–	1. … 64.	2. … 40.	Q100: 2–50 kHz Q200: 2–63 kHz, 2–9 kHz, 9–150 kHz Harmonic Direction	2. … 40.	1. … 19.	2. … 31.	–	–		
Accuracy class active energy | reactive energy	1[1] | 1[1] 2 | –	0.2 | 1	1 | 2	1 | 2	1 | 1	0.5 | 2	0.5 | 1	0.5 | 2	0.2 | 2	0.5 | 2	0.2 S | 2	0.5 | 1	2 S | 2 (incl. transformer)	2 S | 2 (incl. transformer)	Class 1[6]	Class 1[6]		
Standard measuring devices	IEC 62053-21	IEC 62052-11, IEC 62053-23, IEC 61010-1, UL 61010-1	IEC 50470-3, IEC 62053-21, IEC 62053-23	IEC 62053-21[3], IEC 62053-233)	IEC 62053-22, IEC 62053-23, IEC 61557-12	IEC 62053-22, IEC 62053-23, IEC 61557-12, UL 61010-1	IEC 62053-22, IEC 62053-23, IEC 61557-12	IEC 62053-22, IEC 62053-23, IEC 61557-12, UL 61010-1	IEC 62053-22, IEC 62053-23, IEC 61557-12, UL 61010-1	IEC 62053-22, IEC 62053-23, IEC 61557-12, IEC 61000-4-30	IEC 62586-1, IEC 61000-4-30, IEC 61000-4-7, IEC 61000-4-15	IEC 61557-12	IEC 61557-12	IEC 61557-12	IEC 61557-12, IEC 62053-22, IEC 62053-23[3]	IEC 61557-12, IEC 62053-22, IEC 62053-23[6]		
MID certified	–	–	x[5]	–	x[4]	x[5]	–	x[5]	–	–	–	–	–	–	–	–		
PMD class according to IEC60364-8-1	PMD 1	PMD 2	PMD 2	PMD 1	PMD 2	PMD 3	PMD 3	PMD 3	PMD 3	PMD 3	PMD 3	PMD 3	PMD 3	PMD 1-3	PMD 2	PMD 2		
Order information	**siemens.com/ product?7KT12**	**siemens.com/ product?US2:SEM3**	**siemens.com/ product?7KT16**	**siemens.com/ product?7KM1020**	**siemens.com/ product?7KM22**	**siemens.com/ product?7KM31**	**siemens.com/ product?7KM32**	**siemens.com/ product?7KM32**	**siemens.com/ product?7KM42**	**siemens.com/ product?7KM5**	**siemens.com/ product?7KG9**	**siemens.com/ product?6ES7**	**siemens.com/ product?3VA2**	**siemens.com/ product?3WA**	**www.siemens.com/ product?5TY1**	**siemens.com/ product?Messfunk-tion%2C%20 kommunikation**	**siemens.com/product?7KN**	**siemens.com/product?7KN**

Comprehensive data acquisition from communi-cation and measuring capable circuit protection devices

- High degree of transparency in the branch circuit
- Easy derivation of measures

Connection of up to 24 end devices and caching of selected data

- Comprehensive data availability

Integrated bluetooth interface

- Mobile data readout on-site via the SENTRON Powerconfig mobile app

Integrated MODBUS TCP interface

- Enables connection to SENTRON Powerconfig configuration software and SENTRON Powermanager power monito-ring software for easy visualiza-tion and evaluation of data
- Connection to cloud solutions (Insights Hub) for data analysis with SENTRON Powercenter 3000 or with other cloud gateways

Compact design

- Low space requirements in the distribution board (1 MW)

The plug & operate solution for efficient power and condition monitoring

- Central interface into the switchboard
- Data collection and analysis for up to 32 lower-level devices as the default, expandable to max. 212 devices
- Connectivity function to cloud/ Insights Hub
- Integrated, user-definable web interface
- Parameterization via SENTRON Powerconfig

Your benefits:

- Quick and easy commissioning
- Minimization of security efforts
- Early detection and prevention of downtimes
- Reduction of error frequency and duration
- Easy digitalization of brownfield projects
- Basis for energy management according to ISO 50001

[1] Measured in data manager

[2] 7KT PAC1600 Multimeter

[3] Uncertainty limit acc. to these standards

[4] CLP version additionally certified acc. to PTB A50.7

[5] Versions available with or without MID

[*] Apparent | active | reactive power

[6] Values correspond to the standards/classes