

Reliable and precise control over electrical systems and power

SENTRON PAC3200 power monitoring device



power management

When, where and how much power is consumed?

SENTRON PAC3200 makes consumption transparent

A sustainable reduction of power costs first requires an analysis of the electrical system's current consumption and power flows. Our SENTRON PAC3200 multimeter provides you with the required information as it precisely and reliably detects the power values of electrical feeders and individual consumers. It paves the path for reducing your power costs.

The SENTRON PAC3200 power monitoring device can be employed in both industrial applications and functional buildings, wherever electric power is consumed. The compact and powerful device detects all consumption data in a very precise and reliable manner and makes the power flows of an electrical system transparent.

To further measure data processing, the SENTRON PAC3200 can be easily connected to superior automation and power management systems – including to our modular SIMATIC powercontrol power management software.

Power measuring with SENTRON PAC3200

The SENTRON PAC3200 power monitoring device detects the values for active, reactive and apparent power per phase and overall system, both in high and low tariff. It measures ratings and power values via the four quadrants, i.e. power import and export are measured separately.

The SENTRON PAC3200 also allows for the determination of the power demand per measuring period, which can be set in a range from 1 to 60 minutes. Typically, the power consumption over the previous 15-minute time frame is continuously measured here.



Precise measuring with SENTRON PAC3200

The multimeter detects more than 50 electrical measurements such as voltages, currents, ratings, power values, frequency, power factor, symmetry and THD. In addition to the current measured value, the minimum and maximum values are detected for the measurements (non-return pointer function). The SENTRON PAC3200 is dimensioned for measuring applications in single- or multi-phase networks – with and without neutral conductor. A particularity of this device is that it supports the direct measuring of phase voltages up to 830 V. The SENTRON PAC3200 can thus be employed in 690 V networks without any problems. Furthermore, measuring via voltage transformers is possible with the transformation ratio respectively adjustable. The current inputs are dimensioned for measuring on /1 A or /5 A current transformers.

The measuring accuracy amounts to 0.5% for active power and ratings and to 0.2% for voltages and currents. Such accuracy is unrivaled in this device class.

The SENTRON PAC3200 was designed as a panel-mounting device for a cutout of 92 x 92 mm. The installation depth merely amounts to space-saving 51 mm.

The measuring device is already equipped with one multifunctional digital input and output each as a standard. The input can, for example, be used for pulse counting or for switchover between high and low tariff detection. The output can be used as pulse, alarm or switching output. The device allows for the monitoring of up to six measurements for an upper or lower limit value. Via the integrated logic, the six measured value monitoring functions can be linked and signaled using the digital output.

Full graphic LCD display to indicate:

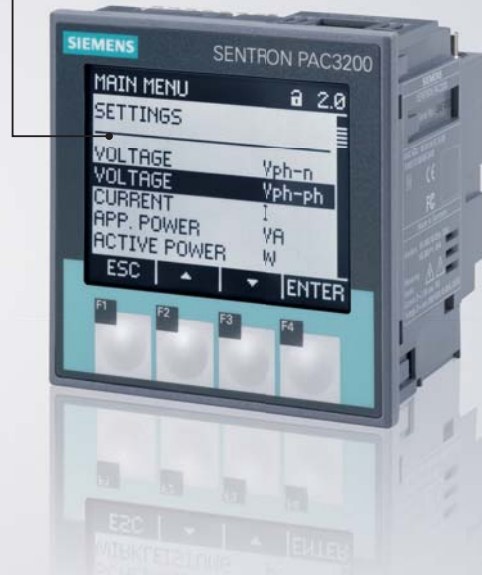
- Display title or designation of the displayed measurements
- Phase
- Measured value
- Unit
- Labeling of function keys

4 function keys for device operation

with context-sensitive key description on the display

Example of operating menu with texts and codes:

The texts can be displayed in several languages, which can be selected directly on the device. The large graphic LCD display facilitates reading even from a distance. For optimum visibility even in poor light conditions the SENTRON PAC3200 comes with a gradually adjustable background illumination.



Power management and SENTRON PAC3200

The SENTRON PAC3200 can easily be integrated in any power management system or PROFIBUS-based automation system with the best available PROFIBUS DP expansion module. With communication, the SENTRON PAC3200 transmits measured values to the superior systems, where the data can be further processed for display or control tasks.

Siemens offers the SIMATIC powercontrol power management software, to which the SENTRON PAC3200 can easily be connected. SIMATIC powercontrol facilitates a transparent and structured overview of the power flows, which allows for a cost-by-cause allocation of power consumptions and costs. Furthermore, atypical operating states can be detected on a timely basis.

SENTRON PAC PROFIBUS DP expansion module for data transmission via PROFIBUS DP with transmission rates of up to 12 Mbit/sec.

Terminal blocks for voltage measuring, current measuring, auxiliary voltage and digital input and output.

Rapid device mounting without tools due to latching retainers. The device is provided with a sealing rubber as a standard. With screw mounting, IP54 is attained on the front.



Highlights at a glance

- **Broad application range**
Due to numerous functions and options,
e.g. direct connection to networks up to 690 V,
measuring with 50 and 60 Hz,
measuring on voltage transformers
- **Minimum space requirements**
Due to compact design: 96x96x56 mm (WxHxD);
installation depth: 51 mm or 73 mm with
expansion module
- **Accurate cost allocation**
Due to high power measuring accuracy:
Class 0.5S in acc. with IEC 62053-22 for active power
- **Sound readability also with poor light conditions**
Due to large, illuminated graphic LCD display
- **Easy operation**
Due to intuitive user guidance with multi-lingual
plain text displays
- **Rapid mounting**
Due to easily latching retainers, also
mounting without tools possible
- **Comprehensive consumption detection**
Due to 10 power counters for active, reactive and
apparent power, high and low tariff, import and export



Functional features

Instantaneous effective values		
Voltage	Phase-phase/phase-neutral	✓
Currents	Per phase	✓
Apparent, active and reactive power	Per phase and total	✓
Power factor	Per phase and total	✓
Network frequency		✓
THD for voltage and current	Per phase	✓
Min./max. values	Non-return pointer function	✓
Average values	Over all phases	✓
Power detection via counters		
Active power	Import/recovery; high/low tariff	✓ / ✓
Reactive power	Positive/negative; high/low tariff	✓ / ✓
Apparent power	High/low tariff	✓
Power demand per measuring period	Average rating for active and reactive power	✓
Measuring period selectable		1 to 60 min.
Min./max. rating values within the measuring period		✓
Hours counter	Consumer runtime	✓
Universal counter	E.g. detecting power pulses of external counters, etc.	✓
Fault limits		
Voltages and currents		±0.2%
Ratings		±0.5%
Active power		Class 0.5S in acc. with IEC 62053-22
Reactive power		Class 2 in acc. with IEC 62053-23
Monitoring functions		
Limit value monitoring		Up to 6 limit values
Simple logic functions for linkage of limit value		✓
Phase asymmetry	Voltage and current	✓
Communication		
Ethernet	Integrated	10 Mbit/sec: for future use
PROFIBUS DP	Optional expansion module <ul style="list-style-type: none"> • Parameterization via device front • Selection of measurements transmission via device database file • Support of all baud rates from 9.6 Kbit/sec to 12 Mbit/sec 	✓

Inputs/outputs		
Digital input	Multifunctional	1
Digital output	Multifunctional	1
General		
Password protection		✓
Technical data		
Two-quadrant (import) / four-quadrant (import and recovery) measuring		4Q
Measuring in single-/multi-phase networks		1ph, 2ph or 3ph
Applicable for network type		TN, TT, IT
Signal detection		Consistent
Voltage inputs	Direct connection up to max. delta/star without transformer	690 V / 400 V (CAT III)
Current inputs	Settable on device	x/1 A or x/5 A
Auxiliary voltage	AC DC	95...240 V AC (±10%) 140...340 V DC (±10%)
Dimensions	LxWxD in mm Installation depth without module (mm) Installation depth with module (mm)	96 x 96 x 56 51 73
Degree of protection	Front Rear	IP54 IP20
Operating temperature	°C	-5...+55
Display	Type Resolution (pixels)	Background-illuminated graphic LCD 128 x 96
Text displays		Multilingual

Order information

Product	U_c	I_e	U_e	Frequency	Order No.
SENTRON PAC3200 power monitoring device	95...240 V AC 50/60 Hz ±10% 140...340 V DC ±10%	x/1 A or x/5 A	max. 3 ~ 690/400 V	45...65 Hz	7KM2112-0BA00-3AA0
SENTRON PAC PROFIBUS DP expansion module	---	---	---	---	7KM9300-0AB00-0AA0

Fax order +49 911 978-3321 – CD/Z1356

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	<hr/>
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SWITCHING, PROTECTING & MEASURING	<hr/>
	<input type="checkbox"/> SENTRON circuit breakers <input type="checkbox"/> SENTRON switch disconnectors <input type="checkbox"/> SENTRON power monitoring device
	<hr/>
POWER DISTRIBUTION SOFTWARE	<input type="checkbox"/> Dimensioning with SIMARIS design <input type="checkbox"/> Power management with SIMATIC powercontrol
	<hr/>
	<input type="checkbox"/> Totally Integrated Power

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