

# Reliable and precise monitoring of electrical power systems

The SENTRON PAC3200 is a powerful compact power monitoring device that is suitable for use in industrial, government and commercial applications where basic metering and energy monitoring is required. The meter may be used as a stand alone device monitoring over 50 parameters or as part of an industrial control, building automation or global power monitoring system.

Metering and monitoring applications range from simple analog volt and amp meter replacements to stand-alone sub billing or cost allocation installations with multiple

tariffs. The SENTRON PAC3200 can also be used to support LEED certification and provide the needed energy metering data for federal/ local government energy reduction programs.

The SENTRON PAC3200 provides open communications using Modbus RTU/TCP and PROFIBUS-DP protocols for easy integration into any local or remote monitoring system. Simple configuration of the meter can be done from the front display or by using a PC with SENTRON powerconfig setup software, supplied with the meter.



## SETRON PAC3200

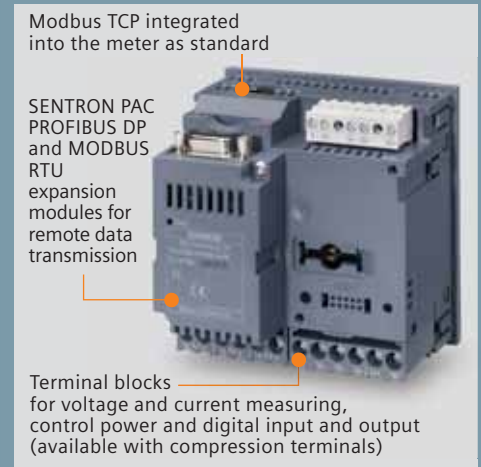


Full Graphic LCD Display to indicate:

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



**Example of operating menu:**  
 The texts can be displayed in several languages, which can be selected directly on the device.<sup>1)</sup> 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.



Modbus TCP integrated into the meter as standard

SENTRON PAC PROFIBUS DP and MODBUS RTU expansion modules for remote data transmission

Terminal blocks for voltage and current measuring, control power and digital input and output (available with compression terminals)

### When, where and how much power is consumed?

#### SENTRON PAC3200 makes consumption apparent

To accomplish a sustainable reduction of power costs, you must first analyze the electrical system's current consumption and power flows. The SENTRON PAC3200 power meter precisely and reliably delivers the required information of power values to put you on the path to reduce your power cost.

#### Applications summary

- **Replace multiple analog meters**  
 An ideal replacement for analog meters. Use it for stand-alone metering in custom panels, switchboards, switchgear, gensets, motor control center and UPS systems, PDU, RPPs, etc.
- **Basic Metering**  
 The PAC3200 offers high-accuracy power, energy and demand measurements. These revenue accurate values can be

used for bill verification, monitoring backup power on critical systems and offering cost-effective energy solutions.

#### Power management and SENTRON PAC3200

The SENTRON PAC3200 can easily be integrated into a power management system using Modbus TCP (standard), Modbus RTU (option) or PROFIBUS-DP (option). With communication, the SENTRON PAC3200 transmits measured values to the supervisory systems, where the data can be further processed for display and control.

Siemens offers the WinPM.Net power management software which can provide easy integration to the SENTRON PAC3200 meter. WinPM.Net provides standard overview displays allowing detailed analysis of the electrical power, which allows for easy allocation of power consumption and cost. Additionally, unexpected operating conditions can be detected on a timely basis.

- **Cost allocation / Energy monitoring**  
 Perfect for monitoring right down to the tool level, the meter can help monitor cost centers, identify opportunities for demand control and check energy consumption patterns.
- **Automation integration**  
 Monitor critical equipment processes and tie directly to the Siemens family of PLCs and automation networks.
- **Sub-metering**  
 Low cost, high accuracy and simple retrofit installation enables economical measurement of commercial and residential tenant space. Integrate the PAC3200 with existing energy management systems and RTUs. Reduce energy consumption by eliminating previously uncontrolled expenses.

<sup>1)</sup> Languages included as standard in the meter are English, German, French, Spanish, Italian, Portuguese, Turkish, Russian and Chinese.

## Functional features

Instantaneous values		
Voltage	Phase-phase / phase-neutral	✓
Currents	Per phase	✓
Apparent, active and reactive power	Per phase and total	✓
Power factor	Per phase and total	✓
Frequency	45...64 Hz	✓
THD for voltage and current	Per phase	✓
Min. / max. values	Voltage - phase-phase, phase-neutral Current / Power / Power factor / THD per phase Frequency Three phase average voltage and current	✓
Average values	Voltage - phase-phase, phase-neutral Voltage min. / max. for phase-phase-phase-neutral Current Current min. / max.	✓
Energy measurement		
Active energy	Import / export; high / low tariff	✓ / ✓
Reactive energy	Positive / negative; high / low tariff	✓ / ✓
Apparent energy	High / low tariff	✓
Energy demand per measuring period	Three phase average rating for active and reactive power	1 to 60 min.
Min. / max. rating values within the measuring period		✓
Meter running counter	Uptime in hours	✓
Universal counter	Pulse counting of external devices like water, gas, etc.	✓
Measurement accuracy		
Voltages		±0.3
Currents		±0.2
Power factor and power		±0.5%
Active energy		Class 0.5S in acc. with IEC 62053-22 / ANSI 12.20 class 0.5
Reactive energy		Class 2 in acc. with IEC 62053-23
Monitoring functions		
Set point monitoring	V, I, power, VAR, VA, Freq. THD, PF	Up to 6 values
Simple logic functions for alarming	Alarm via digital	output or software
Phase unbalance	Voltage and / or >< current	✓
Communication		
Ethernet	Integrated	10 Base-T (10 Mbit/sec)
Modbus TCP	Integrated RJ45 port	10 Base-T (10 Mbit/sec)
PROFIBUS DP expansion module	Optional <ul style="list-style-type: none"> <li>Parameterization via device front or with SENTRON powerconfig software</li> <li>Transition of data via GSD file</li> </ul>	<ul style="list-style-type: none"> <li>Support of all baud rates from 9600 BPS to 12 MBPS (9.6 Kbit/sec to 12 Mbit/sec)</li> </ul>
Modbus RTU expansion module	Optional <ul style="list-style-type: none"> <li>Parameterization via device front or with SENTRON powerconfig software</li> <li>Transition of data via MODBUS register based points</li> </ul>	<ul style="list-style-type: none"> <li>Support of all baud rates of 4800, 9600, 19.2K and 38.4K BPS (4.8 / 9.6 / 19.2 and 38.4 kB/sec)</li> </ul>

## Functional features (continued)

Standard inputs / outputs		
Integrated digital input	24 Vdc / 7 mA	1, dry contact, requires external power
Integrated digital output	30 Vdc max. / 10-27 mA; 100 mA max.	1
General		
Password protection		✓
Technical data		
Two-quadrant (import) / four-quadrant (import and export) measuring		4Q
Measurement types		1 ph, 2 ph or 3 ph
Applicable for network type		TN, TT, IT
Sampling rate	64 samples / cycle at 60Hz	
Measured voltage	Direct connection up to max. delta/wye without transformer	690 V / 400 V (CAT III)
Current inputs	Settable on device	1A or 5A nominal
Power supply	AC/DC	95...240V AC (±10%) / 110...340V DC (±10%)
	DC only	22...65V DC (±10%)
Dimensions	L x W x D in mm	96 x 96
	Installation depth without module (mm)	51 mm / 2.0 in.
	Installation depth with module (mm)	73 mm / 2.875 in.
Degree of protection	Front	IP65 - NEMA 12
	Rear	IP20 - NEMA 1
Operating temperature	°C / °F	-5...+55 / +23...+131
Display	Type	Background-illuminated graphic LCD
	Resolution (pixels)	128 x 96
Text displays		Multilingual
Optional ports	1	One port is available for optional modules

## Certifications

UL61010-1, 2nd Ed. Safety of Electrical Equipment for Measurement, Control and Laboratory Use Part 1:

General Requirements

CAN/CSA-C22.2 NO. 61010-1-04, 2nd Ed. Safety for Electrical Equipment for Measurement, Control and Laboratory Use

CE IEC 61010-1 2nd Ed. Safety for Electrical Equipment for Measurement, Control and Laboratory Use Part 1:

General Requirements

## Order information

Product	Order No. <sup>1)</sup>
SENTRON PAC3200 compression terminals not suitable for use with ring tongue terminals, AC/DC	7KM2112-0BA00-3AA0
SENTRON PAC3200 compression terminals not suitable for use with ring tongue terminals, DC only	7KM2111-1BA00-3AA0
SENTRON PAC PROFIBUS DP expansion module	7KM9300-0AB00-0AA0
SENTRON PAC MODBUS RTU expansion module	7KM9300-0AM00-0AA0
Connector block suitable for use with ring tongue terminals	Consult Siemens Sales
SENTRON Adapter Plate for 4700/4720 meter cutout	93-47ADAPTER
SITOP Power Supply AC 99-264VAC, 24 VDC, 0.5A	6EP1331-2BA10
SENTRON PAC3200/4200 Meter DIN Rail adapter – Meter display will not be seen	7KM9900-0YA00-0AA0

1) Omit dashes from part numbers when ordering except on 93-47ADAPTER.

Siemens Industry, Inc.  
Building Technologies Division  
5400 Triangle Parkway  
Norcross, GA 30092  
1-800-964-4114

info.us@siemens.com

[www.usa.siemens.com/access](http://www.usa.siemens.com/access)

Subject to change without prior notice.  
Order No: PCPM-P3200-0510  
All rights reserved  
Printed in USA  
©2010 Siemens Industry, Inc.

The information provided in this brochure contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.