



SENTRON, measuring instrument, 7KM PAC4200, LCD, L-L: 690 V, L-N: 400 V, MODBUS TCP, optional Modbus RTU / PROFINET / PROFIBUS / DI/DO, apparent / active / reactive energy / cos phi, harmonics: 3rd - 31st, THD, Cl. 0.2 acc. to IEC61557- 12 or Cl. 0.2S acc. to IEC62053-22, Wide-voltage power supply unit, AC/DC, screw connection

Model	
Product brand name	SENTRON
Product designation	7KM PAC4200
Design of the product	compact
Product type designation	Measuring instrument
Type of measured value detection	complete
Design of the power supply	Wide-range power supply
General technical data	
Cutout width	92 mm
Cutout height	92 mm
Size of Power Monitoring Device / company-specific	size 96
Operating mode for measured value detection	
<ul style="list-style-type: none"> <li>• automatic line frequency detection</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• set at 50 Hz</li> </ul>	No
<ul style="list-style-type: none"> <li>• set to 60 Hz</li> </ul>	No
Pulse duration	
<ul style="list-style-type: none"> <li>• initial value</li> </ul>	30 ms
<ul style="list-style-type: none"> <li>• Full-scale value</li> </ul>	500 ms

Voltage curve	Sinusoidal or distorted
Measurable line frequency / initial value	45 Hz
Measurable line frequency / Full-scale value	65 Hz
Measuring procedure / for voltage measurement	TRMS
MTBF	169.7 y
Equipment marking / acc. to DIN 40719 extended according to IEC 204-2 / acc. to IEC 750	P

### Supply voltage

<b>Supply voltage frequency / rated value</b>	
<ul style="list-style-type: none"> <li>• minimum</li> <li>• maximum</li> </ul>	 45 Hz 65 Hz
Type of voltage / of the supply voltage	AC/DC
Measuring category / for supply voltage	CATIII
<b>Apparent power consumption</b>	
<ul style="list-style-type: none"> <li>• with expansion module / maximum</li> <li>• without expansion module / typical</li> </ul>	 32 V·A 11 V·A
<b>Consumed active power</b>	
<ul style="list-style-type: none"> <li>• with expansion module / typical</li> <li>• without expansion module / typical</li> </ul>	 11 W 5.5 W
Relative symmetrical tolerance / of the supply voltage	10 %

### Protection class

<b>Protection class IP</b>	
<ul style="list-style-type: none"> <li>• on the front</li> <li>• Rear side</li> </ul>	 IP65 IP20
Operating resource protection class / when installed	II

### Electricity

Measurable current / 2 / at AC / Rated value	5 A
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### Suitability

<b>Suitability for operation</b>	Installation in stationary control panels in closed rooms
<b>Adjustable time period / minimum</b>	10 ms

### Product function

<b>Product function</b>	
<ul style="list-style-type: none"> <li>• Illuminance of display backlighting adjustable</li> <li>• Time-controlled reduction of the illuminance of display backlighting possible</li> <li>• reactive power measurement</li> <li>• frequency measurement</li> <li>• pulse measurement</li> <li>• Display contrast adjustable</li> <li>• voltage measurement</li> <li>• Current measurement</li> </ul>	 Yes Yes Yes Yes Yes Yes Yes Yes

- active power measurement

Yes

### Display and operation

Design of the display	LCD
Number of keys	4
Color / of the background of the display	white
National language / on the display screen / is supported	ger, en, fr, spa, ita, por, tur, rus, chi, pol
Product function / Display can be inverted (positive <=> negative mode)	Yes
Horizontal image resolution	128
Vertical screen resolution	96

### Communication

Number of active connections / at the Ethernet interface	3
Number of logical ports / at the Ethernet interface / is supported	2
Design of cable / connectable / Twisted pair	Yes
Product function / at the Ethernet interface	
<ul style="list-style-type: none"> <li>• auto-MDI(X)</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Autonegotiation</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• serial gateway</li> </ul>	Yes
Protocol	
<ul style="list-style-type: none"> <li>• at the Ethernet interface / is supported</li> </ul>	MODBUS TCP
<ul style="list-style-type: none"> <li>• is supported</li> </ul>	Modbus TCP
Transfer rate	
<ul style="list-style-type: none"> <li>• minimum</li> </ul>	10 000 kbit/s
<ul style="list-style-type: none"> <li>• maximum</li> </ul>	100 000 kbit/s
<ul style="list-style-type: none"> <li>• 1 / for Ethernet</li> </ul>	10 Mbit/s
<ul style="list-style-type: none"> <li>• 2 / for Ethernet</li> </ul>	100 Mbit/s

### Fault limits

Reference condition / for metering accuracy	Acc. to IEC61557-12
Formula for relative total measurement inaccuracy	
<ul style="list-style-type: none"> <li>• for measured variable reactive energy</li> </ul>	Class 2 according to IEC61557-12 and/or IEC62053-23
<ul style="list-style-type: none"> <li>• for measured variable output</li> </ul>	+/- 0,5 %
<ul style="list-style-type: none"> <li>• for measured variable output factor</li> </ul>	+/- 2 %
<ul style="list-style-type: none"> <li>• for measured variable voltage</li> </ul>	+/- 0,2 %
<ul style="list-style-type: none"> <li>• for measured variable current</li> </ul>	+/- 0,2 %
<ul style="list-style-type: none"> <li>• for measured variable THD</li> </ul>	+/- 2 %
<ul style="list-style-type: none"> <li>• for measured variable active energy</li> </ul>	Class 0.2 according to IEC61557-12 and/or class 0.2S according to IEC62053-22

### Inputs Outputs

<b>Input voltage / at digital input</b>	
<ul style="list-style-type: none"> <li>initial value for signal&lt;1&gt;-recognition</li> </ul>	19 V
<ul style="list-style-type: none"> <li>at DC / rated value</li> </ul>	24 V
<ul style="list-style-type: none"> <li>at DC / maximum</li> </ul>	30 V
<ul style="list-style-type: none"> <li>Full-scale value for signal&lt;0&gt; recognition</li> </ul>	10 V
<b>Number of digital outputs</b>	2
<b>Number of digital inputs</b>	2
<b>Digital output version</b>	switching or pulse output function
<b>Type of switching output</b>	solid state
<b>Type of electrical connection / at the digital outputs</b>	screw-type terminals
<b>Type of electrical connection / at the digital inputs</b>	screw-type terminals
<b>Input current / at digital input</b>	
<ul style="list-style-type: none"> <li>for signal &lt;1&gt;</li> </ul>	4 mA
<b>Output current</b>	
<ul style="list-style-type: none"> <li>at digital output / with signal &lt;0&gt; / maximum</li> </ul>	0.2 mA
<ul style="list-style-type: none"> <li>at digital output / for signal &lt;1&gt; / maximum</li> </ul>	27 mA
<ul style="list-style-type: none"> <li>at digital output / for signal &lt;1&gt; / minimum</li> </ul>	10 mA
<ul style="list-style-type: none"> <li>at the digital outputs / at DC / limited to 100 ms / maximum</li> </ul>	300 mA
<ul style="list-style-type: none"> <li>at the digital outputs / at DC / maximum</li> </ul>	100 mA
<b>Output delay / at digital output</b>	
<ul style="list-style-type: none"> <li>for signal &lt;0&gt; to &lt;1&gt; / maximum</li> </ul>	5 ms
<ul style="list-style-type: none"> <li>for signal &lt;1&gt; to &lt;0&gt; / maximum</li> </ul>	5 ms
<b>Operating conditions for digital inputs / external voltage supply</b>	Yes
<b>Operating voltage / as output voltage / at DC / maximum permissible</b>	30 V
<b>Property of the output / Short-circuit proof</b>	Yes
<b>Input delay time / at digital input</b>	
<ul style="list-style-type: none"> <li>for signal &lt;0&gt; to &lt;1&gt; / maximum</li> </ul>	5 ms
<ul style="list-style-type: none"> <li>for signal &lt;1&gt; to &lt;0&gt; / maximum</li> </ul>	5 ms
<b>Internal resistance / at the digital outputs</b>	55 Ω
<b>Measuring category / for digital signals</b>	CATI
<b>Switching frequency / at digital output / maximum</b>	20 Hz
<b>Transfer rate / 1 / for fast Ethernet</b>	100 Mbit/s

### Measuring inputs

<b>Outer conductors and neutral conductors internal resistance / for voltage measurement</b>	1.05 MΩ
<b>Measurable supply voltage</b>	
<ul style="list-style-type: none"> <li>between (PE)N and L / at AC / minimum</li> </ul>	11.5 V
<ul style="list-style-type: none"> <li>between (PE)N and L / at AC / maximum</li> </ul>	480 V
<ul style="list-style-type: none"> <li>between (PE)N and L / at AC / maximum rated value</li> </ul>	400 V

<ul style="list-style-type: none"> <li>• between the outer conductors / at AC / minimum</li> </ul>	20 V
<ul style="list-style-type: none"> <li>• between the outer conductors / at AC / maximum</li> </ul>	828 V
<ul style="list-style-type: none"> <li>• between the outer conductors / at AC / maximum rated value</li> </ul>	690 V
<b>Voltage measuring range extension / with external voltage transformers</b>	Yes
<b>Measuring category / for voltage measurement</b>	CATIII
<b>Supply voltage / between the outer conductors / at AC / maximum permissible</b>	831 V
<b>Continuous current / at AC / maximum permissible</b>	10 A
<b>Current measuring range extension / with external current transformers</b>	Yes
<b>Measuring category / for current measurement</b>	CATIII
<b>Zero-point suppression / for current measurement</b>	0 ... 10 %
<b>Relative measurable current / at AC</b>	
<ul style="list-style-type: none"> <li>• minimum</li> </ul>	1 %
<ul style="list-style-type: none"> <li>• maximum</li> </ul>	120 %
<b>Apparent power consumption / for current measurement</b>	
<ul style="list-style-type: none"> <li>• with measuring range 1 A / per phase</li> </ul>	4 mVA
<ul style="list-style-type: none"> <li>• with measuring range 5 A / per phase</li> </ul>	0.115 V·A
<b>Measuring procedure / for current measurement</b>	TRMS
<b>Measurable current / 1 / at AC / Rated value</b>	1 A
<b>Short-time current resistance (I<sub>cw</sub>) / limited to 1 s / rated value</b>	100 A

## Connections

<b>Type of electrical connection</b>	
<ul style="list-style-type: none"> <li>• at the inputs for supply voltage</li> </ul>	screw-type terminals
<ul style="list-style-type: none"> <li>• at the measurement inputs for voltage</li> </ul>	screw-type terminals
<ul style="list-style-type: none"> <li>• at the measurement inputs for current</li> </ul>	screw-type terminals
<ul style="list-style-type: none"> <li>• of the fast Ethernet interface</li> </ul>	RJ45 (8P8C)

## Mechanical Design

<b>Height</b>	96 mm
Height / of the display	54 mm
<b>Width</b>	96 mm
<b>Width</b>	
<ul style="list-style-type: none"> <li>• of the display</li> </ul>	72 mm
<b>Depth</b>	82 mm
<b>Mounting position</b>	vertical
<b>Installation depth</b>	77 mm

<b>Installation depth / with expansion module / maximum</b>	99 mm
<b>Mounting type / panel mounting</b>	Yes
<b>Material thickness / of the control panel</b>	
• maximum	4 mm
<b>Net weight</b>	543 g

### Environmental conditions

<b>Degree of pollution</b>	2
<b>Installation altitude / at height above sea level / maximum</b>	2 000 m
<b>Standard</b>	
• for EMC for industrial sector	IEC 61000-6-2
• for EMC against unloading	IEC 61000-4-2
• for EMC against high frequency fields	IEC 61000-4-3
• for EMC against conducted LF disturbance variables (industry)	IEC 61000-6-4
• for EMC against conducted disturbance variables via HF fields	IEC 61000-4-6
• for EMC against magnetic fields with power engineering frequencies	IEC 61000-4-8
• for EMC against quick, transient electrical disturbances	IEC 61000-4-4
• for EMC against voltage drops and interruptions	IEC 61000-4-11
• for EMC against surge voltages	IEC 61000-4-5
• for free fall	IEC 60068-2-32
• for pulse emitter	according to IEC62053-31
• for cyclic, environmental damp heat check	IEC 60068-2-30
• for environmental coldness check	IEC 60068-2-1
• for environmental dry heat check	IEC 60068-2-2
<b>Relative humidity / at 25 °C / without condensation / during operation</b>	
• minimum	5 %
• maximum	95 %
<b>Ambient temperature</b>	
• during operation / minimum	-10 °C
• during operation / maximum	55 °C
• during storage / minimum	-25 °C
• during storage / maximum	70 °C

### Certificates

<b>Certificate of suitability</b>	
• as EC declaration of conformity	IEC 61010-1: 2001 (2nd Ed.) with Corr. 1, EN 61010-1: 2001 (2nd Ed.) and DIN EN 61010-1:2002 with "Berichtigung 1"

- as approval for Canada
- as approval for USA
- Approval Australia
- Approval Russia

UL 61010-1, 2nd Ed. CAN/CSA-C22.2 NO. 61010-1-04  
 UL 61010-1, 2nd Ed. CAN/CSA-C22.2 NO. 61010-1-04  
 Yes  
 Yes

Equipment marking / acc. to DIN EN 61346-2

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General Product Approval	Declaration of Conformity	other
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**CB**

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EG-Konf.

[Confirmation](#)

### Further information

**Information- and Downloadcenter (Catalogs, Brochures,...)**

<http://www.siemens.com/lowvoltage/catalogs>

**Industry Mall (Online ordering system)**

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=7KM4212-0BA00-3AA0>

**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**

<https://support.industry.siemens.com/cs/ww/en/ps/7KM4212-0BA00-3AA0>

**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)**

[http://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=7KM4212-0BA00-3AA0](http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=7KM4212-0BA00-3AA0)

**CAX-Online-Generator**

<http://www.siemens.com/cax>

**Tender specifications**

<http://www.siemens.com/specifications>





