



SENTRON, measuring device, 7KM PAC4200, LCD, L-L: 500 V, L-N: 289 V, 5 A, 3-phase, Modbus TCP, optional Modbus RTU / PROFINET / PROFIBUS / DI/DO, apparent/active/reactive energy / cos phi, harmonics: 3.-31., THD, class 0.2 acc. to IEC61557-12 or cl. 0.2S acc. to IEC62053-22, ext-low volt. pwr sup. unit DC, screw terminals

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	Extra-low voltage power supply unit
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"> • automatic line frequency detection 	Yes
<ul style="list-style-type: none"> • set at 50 Hz 	No
<ul style="list-style-type: none"> • set to 60 Hz 	No
Pulse duration	
<ul style="list-style-type: none"> • initial value 	30 ms
<ul style="list-style-type: none"> • Full-scale value 	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
Reference code / acc. to DIN 40719 extended according to IEC 204-2 / acc. to IEC 750	P

Supply voltage

Type of voltage / of the supply voltage	DC
Measuring category / for supply voltage	CATIII
Consumed active power	
• with expansion module / typical	11 W
• without expansion module / typical	5.5 W
Relative symmetrical tolerance / of the supply voltage	10 %

Protection class

• protection class IP / on the front	IP65
• Protection class IP / Rear side	IP20
Operating resource protection class / when installed	II

Current

Measurable current	
• 1 / at AC / Rated value	1 A
• 2 / at AC / Rated value	5 A

Suitability

Suitability for operation	Installation in stationary control panels in closed rooms
adjustable time period / minimum	10 ms

Product function

• Product function / illuminance of display backlighting adjustable	Yes
• Product function / Time-controlled reduction of the illuminance of display backlighting possible	Yes
• product function / reactive power measurement	Yes
• product function / frequency measurement	Yes
• product function / pulse measurement	Yes
• Product function / display contrast adjustable	Yes
• product function / voltage measurement	Yes
• product function / current measurement	Yes
• product function / 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
Refresh time / on display	
• minimum	0.33 s
• maximum	3 s

Communication

Number of active connections / at the Ethernet interface	3
Number of logical ports / at the Ethernet interface / is supported	2
Number of interfaces / acc. to Fast Ethernet	1
Design of cable / connectable / Twisted pair	Yes
• Product function / at the Ethernet interface / auto-MDI(X)	Yes
• product function / at the Ethernet interface / Autonegotiation	Yes
• Product function / at the Ethernet interface / serial gateway	Yes
Protocol	
• at the Ethernet interface / is supported	MODBUS TCP
• is supported	Modbus TCP
Transfer rate	
• minimum	10 000 kbit/s
• maximum	100 000 kbit/s
• 1 / for Ethernet	10 Mbit/s
• 2 / for Ethernet	100 Mbit/s

Fault limits

Reference condition / for metering accuracy	Acc. to IEC61557-12
• Formula for relative total measurement inaccuracy / for measured variable reactive energy	Class 2 according to IEC61557-12 and/or IEC62053-23
• Formula for relative total measurement inaccuracy / for measured variable output	+/- 0,5 %
• Formula for relative total measurement inaccuracy / for measured variable output factor	+/- 2 %
• Formula for relative total measurement inaccuracy / for measured variable voltage	+/- 0,2 %

- Formula for relative total measurement inaccuracy / for measured variable current
- Formula for relative total measurement inaccuracy / for measured variable THD
- Formula for relative total measurement inaccuracy / for measured variable active energy

+/- 0,2 %

+/- 2 %

Class 0.2 according to IEC61557-12 and/or class 0.2S according to IEC62053-22

Inputs Outputs

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

- 1 / for fast Ethernet

100 Mbit/s

Measuring inputs

Outer conductors and neutral conductors internal resistance / for voltage measurement	1.05 MΩ
Measurable supply voltage	
<ul style="list-style-type: none"> • between (PE)N and L / at AC / minimum 	11.5 V
<ul style="list-style-type: none"> • between (PE)N and L / at AC / maximum 	346 V
<ul style="list-style-type: none"> • between (PE)N and L / at AC / maximum rated value 	289 V
<ul style="list-style-type: none"> • between the outer conductors / at AC / minimum 	20 V
<ul style="list-style-type: none"> • between the outer conductors / at AC / maximum 	600 V
<ul style="list-style-type: none"> • between the outer conductors / at AC / maximum rated value 	500 V
Voltage measuring range extension / with external voltage transformers	Yes
Current measuring range extension / with external current transformers	Yes
Measuring category / for voltage measurement	CATIII
Supply voltage / between the outer conductors / at AC / maximum permissible	600 V
Continuous current / at AC / maximum permissible	10 A
Measuring category / for current measurement	CATIII
Zero-point suppression / for current measurement	0 ... 10 %
Relative measurable current / at AC	
<ul style="list-style-type: none"> • minimum 	1 %
<ul style="list-style-type: none"> • maximum 	120 %
<ul style="list-style-type: none"> • Apparent power consumption / for current measurement / with measuring range 1 A / per phase 	4 mVA
<ul style="list-style-type: none"> • apparent power consumption / for current measurement / with measuring range 5 A / per phase 	0.115 V·A
Measuring procedure / for current measurement	TRMS

Connections

Type of connectable conductor cross-sections / at the digital inputs	
<ul style="list-style-type: none"> • at AWG conductors / solid 	1x 24 ... 12
<ul style="list-style-type: none"> • solid 	1x (0.2 ... 2.5 mm ²), 2x (0.2 ... 1.0 mm ²)
<ul style="list-style-type: none"> • finely stranded / with core end processing 	1x (0.25 ... 2.5 mm ²), 2x (0.25 ... 1.0 mm ²)
Type of connectable conductor cross-sections / at the digital outputs	
<ul style="list-style-type: none"> • at AWG conductors / solid 	1x 24 ... 12

<ul style="list-style-type: none"> • solid • finely stranded / with core end processing 	<p>1x (0.2 ... 2.5 mm²), 2x (0.2 ... 1.0 mm²)</p> <p>1x (0.25 ... 2.5 mm²), 2x (0.25 ... 1.0 mm²)</p>
Type of connectable conductor cross-sections / at the inputs for supply voltage	
<ul style="list-style-type: none"> • at AWG conductors / solid • solid • finely stranded / with core end processing 	<p>2x 20 to 14</p> <p>1x (0.5 ... 4 mm²), 2x (0.5 ... 2.5 mm²)</p> <p>1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²)</p>
Type of connectable conductor cross-sections	
<ul style="list-style-type: none"> • at the measurement inputs for voltage / at AWG conductors / solid • at the measurement inputs for voltage / solid • at the measurement inputs for voltage / finely stranded / with core end processing • at the measurement inputs for current / at AWG conductors / solid • at the measurement inputs for current / solid • at the measurement inputs for current / finely stranded / with core end processing 	<p>2x 20 to 14</p> <p>1x (0.5 ... 4 mm²), 2x (0.5 ... 2.5 mm²)</p> <p>1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²)</p> <p>2x 20 to 14</p> <p>1x (0.5 ... 4 mm²), 2x (0.5 ... 2.5 mm²)</p> <p>1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²)</p>
Type of electrical connection	
<ul style="list-style-type: none"> • at the inputs for supply voltage • at the measurement inputs for voltage • at the measurement inputs for current • of the fast Ethernet interface 	<p>screw-type terminals</p> <p>screw-type terminals</p> <p>screw-type terminals</p> <p>RJ45 (8P8C)</p>

Mechanical Design



Height	96 mm
Height / of the display	54 mm
Width	96 mm
<ul style="list-style-type: none"> • Width / of the display 	72 mm
Depth	82 mm
installation depth	77 mm
Installation depth / with expansion module / maximum	99 mm
Mounting type / panel mounting	Yes
mounting position	vertical
Material thickness / of the control panel	
<ul style="list-style-type: none"> • maximum 	4 mm
net weight	537 g

Environmental conditions

Installation altitude / at height above sea level / maximum	2 000 m
Standard	
<ul style="list-style-type: none"> • for EMC for industrial sector 	IEC 61000-6-2

<ul style="list-style-type: none"> • for EMC against unloading 	IEC 61000-4-2
<ul style="list-style-type: none"> • for EMC against high frequency fields 	IEC 61000-4-3
<ul style="list-style-type: none"> • for EMC against conducted LF disturbance variables (industry) 	IEC 61000-6-4
<ul style="list-style-type: none"> • for EMC against conducted disturbance variables via HF fields 	IEC 61000-4-6
<ul style="list-style-type: none"> • for EMC against magnetic fields with power engineering frequencies 	IEC 61000-4-8
<ul style="list-style-type: none"> • for EMC against quick, transient electrical disturbances 	IEC 61000-4-4
<ul style="list-style-type: none"> • for EMC against voltage drops and interruptions 	IEC 61000-4-11
<ul style="list-style-type: none"> • for EMC against surge voltages 	IEC 61000-4-5
<ul style="list-style-type: none"> • for free fall 	IEC 60068-2-32
<ul style="list-style-type: none"> • for pulse emitter 	according to IEC62053-31
<ul style="list-style-type: none"> • for cyclic, environmental damp heat check 	IEC 60068-2-30
<ul style="list-style-type: none"> • for environmental coldness check 	IEC 60068-2-1
<ul style="list-style-type: none"> • for environmental dry heat check 	IEC 60068-2-2
Relative humidity / at 25 °C / without condensation / during operation	
<ul style="list-style-type: none"> • minimum 	5 %
<ul style="list-style-type: none"> • maximum 	95 %
Ambient temperature / during operation	
<ul style="list-style-type: none"> • minimum 	-10 °C
<ul style="list-style-type: none"> • maximum 	55 °C
Ambient temperature / during storage	
<ul style="list-style-type: none"> • minimum 	-25 °C
<ul style="list-style-type: none"> • maximum 	70 °C

Certificates	
<ul style="list-style-type: none"> • Certificate of suitability / 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"
<ul style="list-style-type: none"> • Certificate of suitability / as approval for Canada 	UL 61010-1, 2nd Ed. CAN/CSA-C22.2 NO. 61010-1-04
<ul style="list-style-type: none"> • Certificate of suitability / as approval for USA 	UL 61010-1, 2nd Ed. CAN/CSA-C22.2 NO. 61010-1-04
<ul style="list-style-type: none"> • Certificate of suitability / Approval Australia 	Yes
<ul style="list-style-type: none"> • Certificate of suitability / Approval Russia 	Yes
<ul style="list-style-type: none"> • reference code / acc. to DIN EN 61346-2 	P

General Product Approval	Declaration of Conformity	other
 <p>UL</p>	 <p>EG-Konf.</p>	<p>Confirmation</p> <p>Manufacturer Declaration</p>

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=7KM4211-1BA00-3AA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/7KM4211-1BA00-3AA0>

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

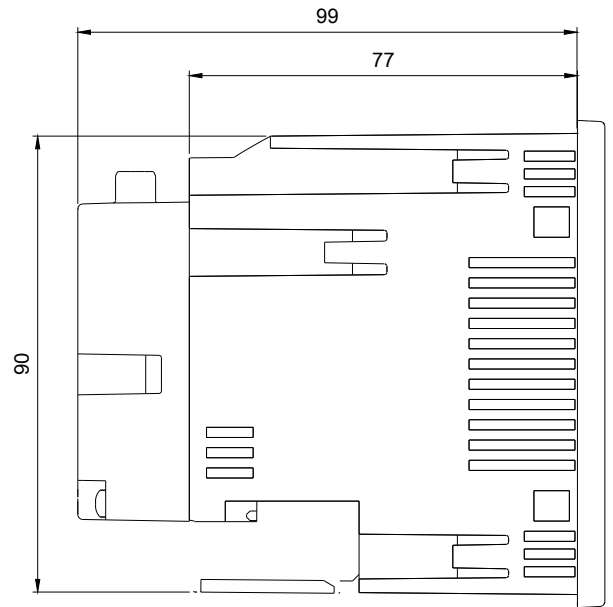
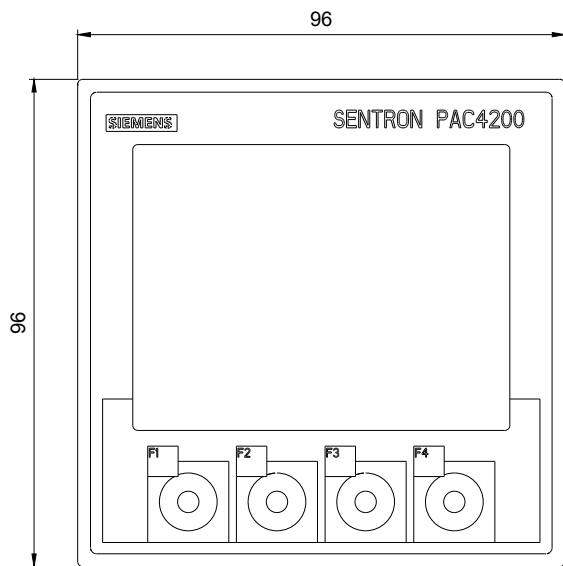
http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=7KM4211-1BA00-3AA0

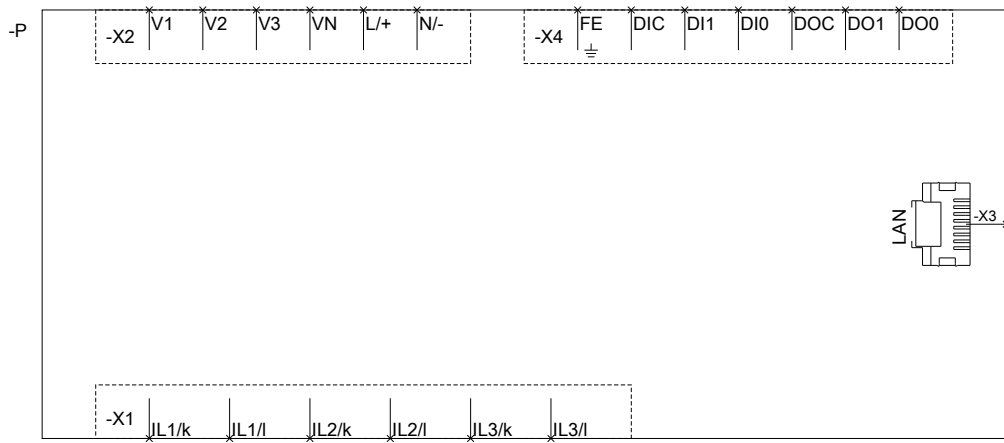
CAX-Online-Generator

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

Tender specifications

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





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