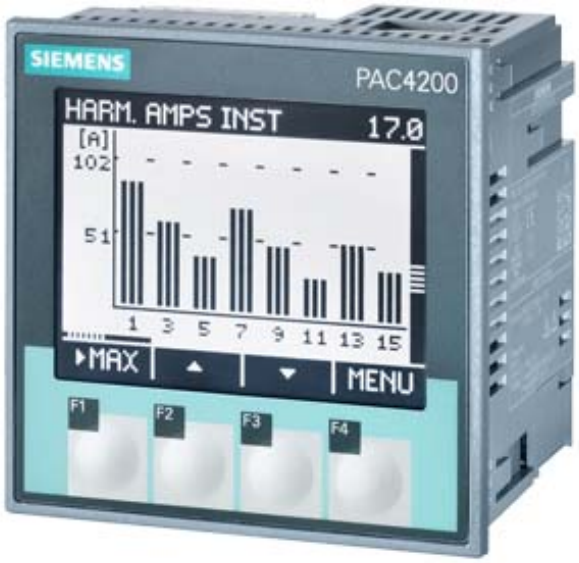
SIEMENS

Data sheet 7KM4212-0BA00-3AA0



SENTRON, measuring device, 7KM PAC4200, LCD, L-L: 690 V, L-N: 400 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, wide-range pwr sup. unit AC/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	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	
• automatic line frequency detection	Yes
• set at 50 Hz	No
• set to 60 Hz	No
Pulse duration	
• initial value	30 ms
• 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

Supply voltage frequency / rated value	
• minimum	45 Hz
• maximum	65 Hz
Type of voltage / of the supply voltage	AC/DC
Measuring category / for supply voltage	CATIII
Apparent power consumption	
• with expansion module / maximum	32 V·A
• without expansion module / typical	11 V·A
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
• Rear side	IP20
Operating resource protection class / when installed	II

Electricity

Measurable current / 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
• Time-controlled reduction of the illuminance of display backlighting possible	Yes
• reactive power measurement	Yes
• frequency measurement	Yes
• pulse measurement	Yes
• Display contrast adjustable	Yes
• voltage measurement	Yes
• Current measurement	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
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
• Autonegotiation	Yes
• 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
• for measured variable output	+/- 0,5 %
• for measured variable output factor	+/- 2 %
• for measured variable voltage	+/- 0,2 %
• for measured variable current	+/- 0,2 %
• for measured variable THD	+/- 2 %

• for measured variable active energy	Class 0.2 according to IEC61557-12 and/or class 0.2S according to IEC62053-22

Inputs Outputs

Input voltage / at digital input	
• initial value for signal<1>-recognition	19 V
• at DC / rated value	24 V
• at DC / maximum	30 V
• Full-scale value for signal<0> recognition	10 V
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	
• at the digital inputs	screw-type terminals
• at the digital outputs	screw-type terminals
Input current / at digital input	
• for signal <1>	4 mA
Output current	
• at digital output / with signal <0> / maximum	0.2 mA
• at digital output / for signal <1> / minimum	10 mA
• at digital output / for signal <1> / maximum	27 mA
• at the digital outputs / at DC / limited to 100 ms / maximum	300 mA
• at the digital outputs / at DC / maximum	100 mA
Output delay / at digital output	
• for signal <0> to <1> / maximum	5 ms
• for signal <1> to <0> / maximum	5 ms
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	
• for signal <0> to <1> / maximum	5 ms
• for signal <1> to <0> / maximum	5 ms
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	
• between (PE)N and L / at AC / minimum	11.5 V
• between (PE)N and L / at AC / maximum	480 V
• between (PE)N and L / at AC / maximum rated value	400 V
• between the outer conductors / at AC / minimum	20 V
• between the outer conductors / at AC / maximum	828 V
• between the outer conductors / at AC / maximum rated value	690 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	831 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	
• minimum	1 %
• maximum	120 %
Apparent power consumption / for current measurement	
• with measuring range 1 A / per phase	4 mVA
• with measuring range 5 A / per phase	0.115 V·A
Measuring procedure / for current measurement	TRMS
Measurable current / 1 / at AC / Rated value	1 A

Connections

Type of connectable conductor cross-sections	
• at the digital inputs / at AWG conductors / solid	1x 24 ... 12
• at the digital inputs / solid	1x (0.2 ... 2.5 mm²), 2x (0.2 ... 1.0 mm²)
• at the digital inputs / finely stranded / with core end processing	1x (0.25 ... 2.5 mm²), 2x (0.25 ... 1.0 mm²)
• at the digital outputs / at AWG conductors / solid	1x 24 ... 12
• at the digital outputs / solid	1x (0.2 ... 2.5 mm²), 2x (0.2 ... 1.0 mm²)
• at the digital outputs / finely stranded / with core end processing	1x (0.25 ... 2.5 mm²), 2x (0.25 ... 1.0 mm²)

• at the inputs for supply voltage / at AWG conductors / solid	2x 20 to 14
• at the inputs for supply voltage / solid	1x (0.5 ... 4 mm²), 2x (0.5 ... 2.5 mm²)
• at the measurement inputs for voltage / at AWG conductors / solid	2x 20 to 14
• at the measurement inputs for voltage / solid	1x (0.5 ... 4 mm²), 2x (0.5 ... 2.5 mm²)
• at the measurement inputs for voltage / finely stranded / with core end processing	1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²)
• at the measurement inputs for current / at AWG conductors / solid	2x 20 to 14
• at the measurement inputs for current / solid	1x (0.5 ... 4 mm²), 2x (0.5 ... 2.5 mm²)
• at the measurement inputs for current / finely stranded / with core end processing	1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²)
Type of electrical connection	
• at the inputs for supply voltage	screw-type terminals
• at the measurement inputs for voltage	screw-type terminals
• at the measurement inputs for current	screw-type terminals
• of the fast Ethernet interface	RJ45 (8P8C)

Mechanical Design	
Height	96 mm
Height / of the display	54 mm
Width	96 mm
Width	
• of the display	72 mm
Depth	82 mm
Mounting position	vertical
Installation depth	77 mm
Installation depth / with expansion module / maximum	99 mm
Mounting type / panel mounting	Yes
Material thickness / of the control panel	
• maximum	4 mm
Net weight	543 g

Environmental conditions	
Degree of pollution	2
Installation altitude / at height above sea level / maximum	2 000 m
Standard	
• 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
Relative humidity / at 25 °C / without condensation / during operation	
• minimum	5 %
• maximum	95 %
Ambient temperature	
• during operation / minimum	-10 °C
• during operation / maximum	55 °C
• during storage / minimum	-25 °C
• during storage / maximum	70 °C

Certificates

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"
• as approval for Canada	UL 61010-1, 2nd Ed. CAN/CSA-C22.2 NO. 61010-1-04
• as approval for USA	UL 61010-1, 2nd Ed. CAN/CSA-C22.2 NO. 61010-1-04
• Approval Australia	Yes
• Approval Russia	Yes
Reference code / acc. to DIN EN 61346-2	P

General Product Approval	Declaration of Conformity	other
UL	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

CAx-Online-Generator
http://www.siemens.com/cax

Tender specifications
http://www.siemens.com/specifications