SIEMENS

Data sheet 7KM2112-0BA00-3AA0

SENTRON, measuring device, 7KM PAC3200, LCD, L-L: 690 V, L-N: 400 V, 5 A, 3-phase, Modbus TCP, optional Modbus RTU / PROFINET / PROFIBUS, apparent/ active/reactive energy, class 0.5 acc. to IEC61557-12 or class 0.5s acc. to IEC62053-22, wide-range pwr sup. unit AC/DC, screw terminals

Model	
Product brand name	SENTRON
Product designation	7KM PAC3200
Design of the product	basic
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	RMS
MTBF	185.8 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	65 Hz
• maximum	45 Hz
Type of voltage / of the supply voltage	AC/DC
Measuring category / for supply voltage	CATIII
Apparent power consumption	
• with expansion module / maximum	8 V·A
• without expansion module / typical	6 V·A
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	
• reactive power measurement	Yes
• frequency measurement	Yes
• pulse measurement	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, chi
Horizontal image resolution	128
Vertical screen resolution	96
Refresh time / on display	
• minimum	0.33 s
• maximum	3 s

Communication

Refresh time / at the interface	
• minimum	0.33 s
• maximum	1 s
Number of interfaces / acc. to Fast Ethernet	1
Design of cable / connectable / Twisted pair	Yes
Protocol	
• at the Ethernet interface / is supported	MODBUS TCP
• is supported	Modbus TCP
Transfer rate	
• minimum	10 000 kbit/s
• maximum	10 000 kbit/s

Fault limits

Reference condition / for metering accuracy	Acc. to IEC62053-22 and IEC62053-23
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	+/- 0,5 %
• for measured variable voltage	+/- 0,3 %
• for measured variable current	+/- 0,2 %
• for measured variable active energy	Cl. 0.5 acc. to... IEC62053-22

Inputs Outputs

Input voltage / at digital input	
• initial value for signal<1>-recognition	13 V
• at DC / rated value	24 V
• Full-scale value for signal<0> recognition	8 V
Number of digital outputs	1
Number of digital inputs	1
Digital output version	switching or pulse output function
Input current / at digital input	
• for signal <1>	7 mA
Output current	
• at digital output / with signal <0> / maximum	0.2 mA
• at digital output / for signal <1> / maximum	27 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 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	CATII
Switching frequency / at digital output / maximum	17 Hz
Transfer rate	
• 1 / for fast Ethernet	10 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	40 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	70 V
• between the outer conductors / at AC / maximum	831 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
Consumed active power / for current measurement / per phase	115 mW
Continuous current / at AC / maximum permissible	10 A
Measuring category / for current measurement	CATIII
Zero-point suppression / for current measurement	0,1 ... 10 %
Relative measurable current / at AC	
• minimum	1 %
• maximum	120 %

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	2x 24 ... 18
• 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	2x 24 ... 18
• 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 inputs for supply voltage / finely stranded / with core end processing	1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 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 measurement inputs for voltage	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	56 mm
Mounting position	vertical
Installation depth	51 mm
Mounting type / panel mounting	Yes
Net weight	451 g

Environmental conditions	
Installation altitude / at height above sea level / maximum	2 000 m
Standard	
• for EMC for industrial sector	IEC 61000-6-2 respectively IEC 61326-1:2005, table 2
• for EMC against unloading	IEC 61000-4-2: 2001-04
• for EMC against high frequency fields	IEC 61000-4-3: 2006-02
• for EMC against conducted LF disturbance variables (industry)	IEC 61000-6-4, Group 1 Klasse A / CISPR11 Gruppe 1 Klasse A FCC Part 15 Subpart B Class A
• for EMC against conducted disturbance variables via HF fields	IEC 61000-4-6: 2001-12
• for EMC against magnetic fields with power engineering frequencies	IEC 61000-4-8: 2001-03
• for EMC against quick, transient electrical disturbances	IEC 61000-4-4: 2005-07
• for EMC against voltage drops and interruptions	IEC 61000-4-11: 2004-03
• for EMC against surge voltages	IEC 61000-4-5: 2001-12
• for free fall	IEC 60068-2-32: 1975
• 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
Reference code / acc. to DIN EN 61346-2	P

General Product Approval	Declaration of Conformity	other	
UL	EG-Konf.	Confirmation	Metrological Approval

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=7KM2112-0BA00-3AA0

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/7KM2112-0BA00-3AA0

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)
http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=7KM2112-0BA00-3AA0

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

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