MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Amikon cover with selected official Siemens pages

SENTRON PAC

7KM2112-0BA00-3AA0

POWER MONITORING DEVICE

OFFICIAL SOURCES

Siemens official product documentation. Selected pages retain their original content, color and aspect ratio.

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Data sheet 7KM2112-0BA00-3AA0



SENTRON PAC3200; LCD; 96X96MM POWER MONITORING DEVICE PANEL MOUNT TYPE FOR MEASUREMENT OF ELECTR. VALUES VAUX: 110-340VDC / 95-240VAC VIN: MAX.690/400V; 45-65HZ AMPIN: X/1A OR X/5A AC COMPRESSION TYPE TERMINALS

Model		
product brand name		SENTRON
Product designation		multimeter
Design of the product		basic
Product type designation		PAC3200
Type of measured value detection		complete
Design of the power supply		Wide-range power supply

General technical data		
Cutout width	mm	92
Cutout height	mm	92
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	ms	30
• Full-scale value	ms	500

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Voltage curve		Sinusoidal or distorted
Measurable line frequency / initial value	Hz	45
Measurable line frequency / Full-scale value	Hz	65
Measuring procedure / for voltage measurement		RMS
MTBF	y	185.8
Equipment marking / acc. to DIN 40719 extended according to IEC 204-2 / acc. to IEC 750		P

Voltage

Measurable current / 1 / at AC / Rated value	A	1
Measuring procedure / for current measurement		TRMS

Supply voltage

Supply voltage frequency / Rated value		
• minimum	Hz	65
• maximum	Hz	45
Type of voltage / of the supply voltage		AC/DC
Measuring category / for supply voltage		CATIII
Apparent power consumption		
• with expansion module / maximum	V·A	8
• without expansion module / typical	V·A	6
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

Short-time current resistance (Icw) / limited to 1 s / Rated value	A	100
Measurable current / 2 / at AC / Rated value	A	5

Suitability

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

Product function

Product function		
• reactive power measurement		Yes
• frequency measurement		Yes
• pulse measurement		Yes
• voltage measurement		Yes
• Current measurement		Yes
• active power measurement		Yes

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Display and operation		
Design of the display		LCD, graphical, monochrome
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

Communication		
Refresh time / at the interface		
• minimum	s	0.33
• maximum	s	1
Design of cable / connectable / Twisted pair		Yes
Protocol		
• at the Ethernet interface / is supported		MODBUS TCP
• is supported		SEAbus TCP / MODBUS TCP (switchable)
Transfer rate		
• minimum	kbit/s	10 000
• maximum	kbit/s	10 000

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	V	13
• at DC / Rated value	V	24
• Full-scale value for signal<0> recognition	V	8
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>	mA	7
Output current		
• at digital output / with signal <0> / maximum	mA	0.2

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• at digital output / for signal <1> / maximum	mA	27
• at the digital outputs / at DC / maximum	mA	100
Output delay / at digital output		
• for signal <0> to <1> / maximum	ms	5
• for signal <1> to <0> / maximum	ms	5
Operating voltage / as output voltage / at DC / maximum permissible	V	30
Property of the output / Short-circuit proof		Yes
Input delay time / at digital input		
• for signal <0> to <1> / maximum	ms	5
• for signal <1> to <0> / maximum	ms	5
Internal resistance / at the digital outputs	Ω	55
Measuring category / for digital signals		CATII
Switching frequency / at digital output / maximum	Hz	17
Transfer rate / 1 / for fast Ethernet	Mbit/s	10

Measuring inputs

Outer conductors and neutral conductors internal resistance / for voltage measurement	MΩ	1.05
Measurable supply voltage		
• between (PE)N and L / at AC / minimum	V	40
• between (PE)N and L / at AC / maximum	V	480
• between (PE)N and L / at AC / maximum rated value	V	400
• between the outer conductors / at AC / minimum	V	70
• between the outer conductors / at AC / maximum	V	831
• between the outer conductors / at AC / maximum rated value	V	690
Voltage measuring range extension / with external voltage transformers		Yes
Measuring category / for voltage measurement		CATIII
Supply voltage / between the outer conductors / at AC / maximum permissible	V	831
Active power consumption / for current measurement / per phase	mW	115
Continuous current / at AC / maximum permissible	A	10
Current measuring range extension / with external current transformers		Yes
Measuring category / for current measurement		CATIII
Zero-point suppression / for current measurement		0,1 ... 10 %
Relative measurable current / at AC		
• minimum	%	1
• maximum	%	120

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Connections		
• Type of connectable conductor cross-section / at the digital inputs		
— for AWG conductors / solid		2x 24 ... 18
— solid		1x (0.2 ... 2.5 mm2), 2x (0.2 ... 1.0 mm2)
— finely stranded / with core end processing		1x (0.25 ... 2.5 mm2), 2x (0.25 ... 1.0 mm2)
• Type of connectable conductor cross-section / at the digital outputs		
— for AWG conductors / solid		2x 24 ... 18
— solid		1x (0.2 ... 2.5 mm2), 2x (0.2 ... 1.0 mm2)
— finely stranded / with core end processing		1x (0.25 ... 2.5 mm2), 2x (0.25 ... 1.0 mm2)
• Type of connectable conductor cross-section / at the inputs for supply voltage		
— for AWG conductors / solid		2x 20 to 14
— solid		1x (0.5 ... 4 mm2), 2x (0.5 ... 2.5 mm2)
— finely stranded / with core end processing		1x (0.5 ... 2.5 mm2), 2 (0.5 ... 1.5 mm2)
• Type of connectable conductor cross-section		
— at the measurement inputs for voltage		
— for AWG conductors / solid		2x 20 to 14
— solid		1x (0.5 ... 4 mm²), 2x (0.5 ... 2.5 mm²)
— finely stranded / with core end processing		1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²)
— at the measurement inputs for current		
— for AWG conductors / solid		2x 20 to 14
— solid		1x (0.5 ... 4 mm2), 2x (0.5 ... 2.5 mm2)
— finely stranded / with core end processing		1x (0.5 ... 2.5 mm2), 2x (0.5 ... 1.5 mm2)
Type of electrical connection		
• of the fast Ethernet interface		RJ45 (8P8C)

Mechanical Design		
Height	mm	96
Height / of the display	mm	54
Width	mm	96
Width		
• of the display	mm	72
Depth	mm	56
mounting position		vertical
Installation depth	mm	51
Mounting type / panel mounting		Yes

Environmental conditions		
Installation altitude / at height above sea level / maximum	m	2 000

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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	°C	-10
• during operation / maximum	°C	55
• during storage / minimum	°C	-25
• during storage / maximum	°C	70

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
Equipment marking / acc. to DIN EN 61346-2		P

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General Product Approval			Declaration of Conformity	other	
CB CB	UL UL	EAC	CE EG-Konf.	Bestätigungen	PROFIBUS Profibus

other	
PROFINET-Zertifizierung	Metrologische Zulassung

Further information

Information- and Downloadcenter (Catalogs, Brochures,…)
http://www.siemens.com/lowvoltage/catalogs

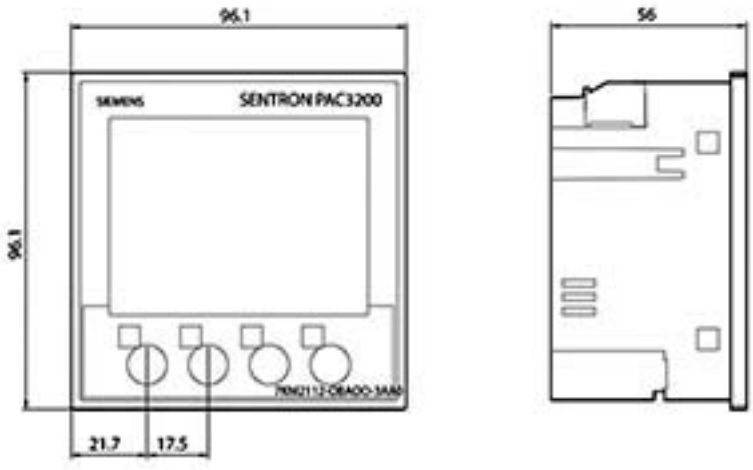
Industry Mall (Online ordering system)
https://eb.automation.siemens.com/mall/en/WW/Catalog/Product/7KM21120BA003AA0

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
http://support.automation.siemens.com/WW/view/en/7KM21120BA003AA0/all

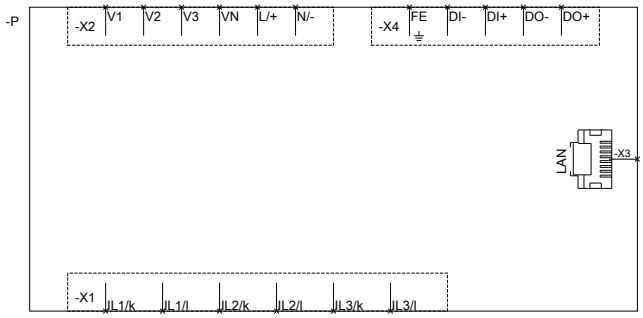
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)
http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=7KM21120BA003AA0

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

Tender specifications
http://ausschreibungstexte.siemens.com/tiplv



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