SIEMENS

Data sheet 7KM4211-1BA00-3AA0

SENTRON PAC4200, LCD, 96X96MM POWER MONITORING DEVICE PANEL MOUNT TYPE FOR MEASUREMENT OF ELECTR. VALUES VAUX: 22-65VDC VIN: MAX.500/289V, 45-65HZ AMPIN: X/1A OR X/5A AC COMPRESSION TYPE TERMINALS

Model		
product brand name		SENTRON
Product designation		multimeter
Design of the product		compact
Product type designation		PAC4200
Type of measured value detection		complete
Design of the power supply		Extra-low voltage power supply unit

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
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		TRMS
MTBF	y	169.7
Equipment marking / acc. to DIN 40719 extended according to IEC 204-2 / acc. to IEC 750		P

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

Supply voltage		
Type of voltage / of the supply voltage		DC
Measuring category / for supply voltage		CATIII
Active power consumption		
• with expansion module / typical	W	11
• without expansion module / typical	W	5.5
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 / with 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		
• 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, 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, rus, chi, pol

Product function / Display can be inverted (positive <=> negative mode)		Yes
Horizontal image resolution		128
Vertical screen resolution		96

Communication

Refresh time / at the interface		
• for instantaneous values / typical	ms	200
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		
• 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	kbit/s	10 000
• maximum	kbit/s	100 000
• 1 / for Ethernet	Mbit/s	10
• 2 / for Ethernet	Mbit/s	100

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	V	19
• for DC / Rated value	V	24
• for DC / maximum	V	30
• Full-scale value for signal<0> recognition	V	10

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 outputs		screw-type terminals
Type of electrical connection / at the digital inputs		screw-type terminals
Input current / at digital input		
• for signal <1>	mA	4
Output current		
• at digital output / with signal <0> / maximum	mA	0.2
• at digital output / for signal <1> / maximum	mA	27
• at digital output / for signal <1> / minimum	mA	10
• at the digital outputs / for DC / limited to 100 ms / maximum	mA	300
• at the digital outputs / for 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 conditions for digital inputs / external voltage supply		Yes
Operating voltage / as output voltage / for 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		CATI
Switching frequency / at digital output / maximum	Hz	20
Transfer rate / 1 / for fast Ethernet	Mbit/s	100

Measuring inputs

Outer conductors and neutral conductors internal resistance / for voltage measurement	MΩ	1.05
Measurable supply voltage		
• between (PE)N and L / with AC / minimum	V	11.5
• between (PE)N and L / with AC / maximum	V	346
• between (PE)N and L / with AC / maximum rated value	V	289
• between the outer conductors / with AC / minimum	V	20
• between the outer conductors / with AC / maximum	V	600

• between the outer conductors / with AC / maximum rated value	V	500
Voltage measuring range extension / with external voltage transformers		Yes
Measuring category / for voltage measurement		CATIII
Supply voltage / between the outer conductors / with AC / maximum permissible	V	600
Continuous current / with 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 ... 10 %
Relative measurable current / with AC		
• minimum	%	1
• maximum	%	120
Apparent power consumption / for current measurement		
• with measuring range 1 A / per phase	mVA	4
• with measuring range 5 A / per phase	mVA	115

Connections

• Type of connectable conductor cross-section / at the digital inputs		
— for AWG conductors / solid		1x 24 ... 12
— 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		1x 24 ... 12
— 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		
• 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	mm	96
Height / of the display	mm	54
Width	mm	96
Width		
• of the display	mm	72
Depth	mm	82
mounting position		vertical
Installation depth	mm	77
Installation depth / with expansion module / maximum	mm	99
Mounting type / panel mounting		Yes
Material thickness / of the control panel		
• maximum	mm	4

Environmental conditions

Degree of pollution		2
Installation altitude / at height above sea level / maximum	m	2 000
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	°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
• Approval Australia		Yes
• Approval Russia		Yes
Equipment marking / acc. to DIN EN 61346-2		P

General Product Approval	EMC	Declaration of Conformity	other
CB UL EAC C-TICK EG-Konf.			Confirmation

other		
other	Profibus	PROFINET-Certification

Further information

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

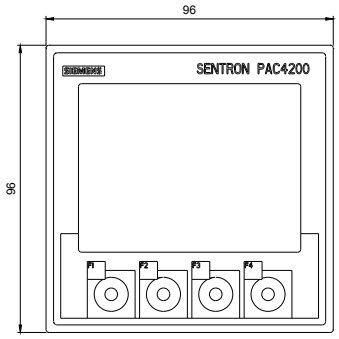
Industry Mall (Online ordering system)
https://eb.automation.siemens.com/mall/en/WW/Catalog/Product/7KM42111BA003AA0

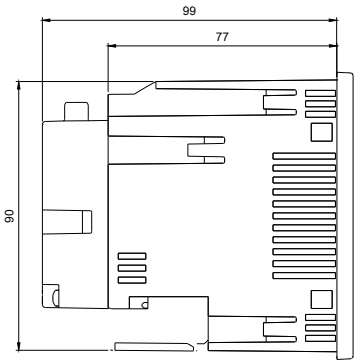
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
http://support.automation.siemens.com/WW/view/en/7KM42111BA003AA0/all

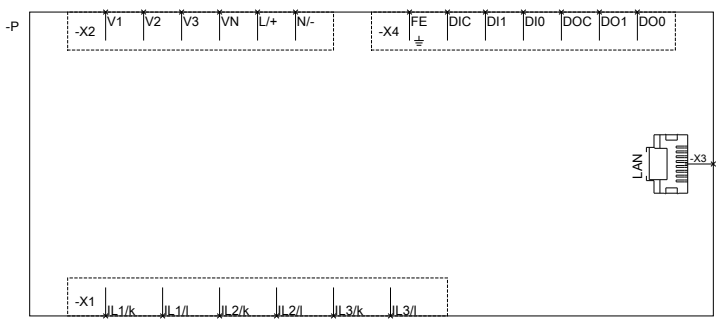
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)
http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=7KM42111BA003AA0

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

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







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