

SENTRON, measuring device, 7KM PAC3200, LCD, L-L: 500 V, L-N: 289 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, ext-low volt. pwr sup. unit 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                         | 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        |                                     |
| • 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

|  |        |
|--|--------|
| Type of voltage / of the supply voltage                | DC     |
| Measuring category / for supply voltage                | CATIII |
| <b>Apparent power consumption</b>                      |        |
| • 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> / minimum  | 10 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   | 346 V        |
| • between (PE)N and L / at AC / maximum rated value                                   | 289 V        |
| • between the outer conductors / at AC / minimum                                      | 70 V         |
| • between the outer conductors / at AC / maximum                                      | 600 V        |
| • between the outer conductors / at AC / maximum rated value                          | 500 V        |
| 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        |
| 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

|   |              |
|---|--------------|
| <b>Type of connectable conductor cross-sections</b> |              |
| • at the digital inputs / at AWG conductors / solid | 2x 24 ... 18 |

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• at the digital inputs / solid</li> </ul>  | 1x (0.2 ... 2.5 mm <sup>2</sup> ), 2x (0.2 ... 1.0 mm <sup>2</sup> )   |
| <ul style="list-style-type: none"> <li>• at the digital inputs / finely stranded / with core end processing</li> </ul>                 | 1x (0.25 ... 2.5 mm <sup>2</sup> ), 2x (0.25 ... 1.0 mm <sup>2</sup> ) |
| <ul style="list-style-type: none"> <li>• at the digital outputs / at AWG conductors / solid</li> </ul>                                 | 2x 24 ... 18   |
| <ul style="list-style-type: none"> <li>• at the digital outputs / solid</li> </ul>   | 1x (0.2 ... 2.5 mm <sup>2</sup> ), 2x (0.2 ... 1.0 mm <sup>2</sup> )   |
| <ul style="list-style-type: none"> <li>• at the digital outputs / finely stranded / with core end processing</li> </ul>                | 1x (0.25 ... 2.5 mm <sup>2</sup> ), 2x (0.25 ... 1.0 mm <sup>2</sup> ) |
| <ul style="list-style-type: none"> <li>• at the inputs for supply voltage / at AWG conductors / solid</li> </ul>                       | 2x 20 to 14  |
| <ul style="list-style-type: none"> <li>• at the inputs for supply voltage / solid</li> </ul>   | 1x (0.5 ... 4 mm <sup>2</sup> ), 2x (0.5 ... 2.5 mm <sup>2</sup> )     |
| <ul style="list-style-type: none"> <li>• at the inputs for supply voltage / finely stranded / with core end processing</li> </ul>      | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )   |
| <ul style="list-style-type: none"> <li>• at the measurement inputs for voltage / at AWG conductors / solid</li> </ul>                  | 2x 20 to 14  |
| <ul style="list-style-type: none"> <li>• at the measurement inputs for voltage / solid</li> </ul>                                      | 1x (0.5 ... 4 mm <sup>2</sup> ), 2x (0.5 ... 2.5 mm <sup>2</sup> )     |
| <ul style="list-style-type: none"> <li>• at the measurement inputs for voltage / finely stranded / with core end processing</li> </ul> | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )   |
| <ul style="list-style-type: none"> <li>• at the measurement inputs for current / at AWG conductors / solid</li> </ul>                  | 2x 20 to 14  |
| <ul style="list-style-type: none"> <li>• at the measurement inputs for current / solid</li> </ul>                                      | 1x (0.5 ... 4 mm <sup>2</sup> ), 2x (0.5 ... 2.5 mm <sup>2</sup> )     |
| <ul style="list-style-type: none"> <li>• at the measurement inputs for current / finely stranded / with core end processing</li> </ul> | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )   |
| <b>Type of electrical connection</b>   |  |
| <ul style="list-style-type: none"> <li>• at the measurement inputs for voltage</li> </ul>  | screw-type terminals   |

### Mechanical Design

|  |          |
|--|----------|
| Height   | 96 mm    |
| Height / of the display  | 54 mm    |
| Width  | 96 mm    |
| Width <ul style="list-style-type: none"> <li>• of the display</li> </ul> | 72 mm    |
| Depth  | 56 mm    |
| Mounting position  | vertical |
| Installation depth   | 51 mm    |
| Mounting type / panel mounting   | Yes      |
| Net weight   | 459 g    |

### Environmental conditions

|   |  |
|---|--|
| Installation altitude / at height above sea level / maximum                               | 2 000 m  |
| <b>Standard</b>   |  |
| <ul style="list-style-type: none"> <li>• for EMC for industrial sector</li> </ul>         | IEC 61000-6-2 respectively IEC 61326-1:2005, table 2 |
| <ul style="list-style-type: none"> <li>• for EMC against unloading</li> </ul>             | IEC 61000-4-2: 2001-04                               |
| <ul style="list-style-type: none"> <li>• for EMC against high frequency fields</li> </ul> | IEC 61000-4-3: 2006-02                               |

|  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• for EMC against conducted LF disturbance variables (industry)</li> <li>• for EMC against conducted disturbance variables via HF fields</li> <li>• for EMC against magnetic fields with power engineering frequencies</li> <li>• for EMC against quick, transient electrical disturbances</li> <li>• for EMC against voltage drops and interruptions</li> <li>• for EMC against surge voltages</li> <li>• for free fall</li> <li>• for pulse emitter</li> <li>• for cyclic, environmental damp heat check</li> <li>• for environmental coldness check</li> <li>• for environmental dry heat check</li> </ul> | <p>IEC 61000-6-4, Group 1 Klasse A / CISPR11 Gruppe 1 Klasse A<br/>FCC Part 15 Subpart B Class A</p> <p>IEC 61000-4-6: 2001-12</p> <p>IEC 61000-4-8: 2001-03</p> <p>IEC 61000-4-4: 2005-07</p> <p>IEC 61000-4-11: 2004-03</p> <p>IEC 61000-4-5: 2001-12</p> <p>IEC 60068-2-32: 1975</p> <p>according to IEC62053-31</p> <p>IEC 60068-2-30</p> <p>IEC 60068-2-1</p> <p>IEC 60068-2-2</p> |
| <p>Relative humidity / at 25 °C / without condensation / during operation</p> <ul style="list-style-type: none"> <li>• minimum</li> <li>• maximum</li> </ul>   | <p>5 %</p> <p>95 %</p>  |
| <p>Ambient temperature</p> <ul style="list-style-type: none"> <li>• during operation / minimum</li> <li>• during operation / maximum</li> <li>• during storage / minimum</li> <li>• during storage / maximum</li> </ul>  | <p>-10 °C</p> <p>55 °C</p> <p>-25 °C</p> <p>70 °C</p>   |

### Certificates

|  |   |
|--|---|
| <p>Certificate of suitability</p> <ul style="list-style-type: none"> <li>• as EC declaration of conformity</li> <li>• as approval for Canada</li> <li>• as approval for USA</li> </ul> | <p>IEC 61010-1: 2001 (2nd Ed.) with Corr. 1, EN 61010-1: 2001 (2nd Ed.) and DIN EN 61010-1:2002 with "Berichtigung 1"</p> <p>UL 61010-1, 2nd Ed. CAN/CSA-C22.2 NO. 61010-1-04</p> <p>UL 61010-1, 2nd Ed. CAN/CSA-C22.2 NO. 61010-1-04</p> |
| <p>Reference code / acc. to DIN EN 61346-2</p>   | <p>P</p>  |

|                                 |                                  |              |
|---------------------------------|----------------------------------|--------------|
| <b>General Product Approval</b> | <b>Declaration of Conformity</b> | <b>other</b> |
|---------------------------------|----------------------------------|--------------|



[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=7KM2111-1BA00-3AA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/7KM2111-1BA00-3AA0>

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

[http://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=7KM2111-1BA00-3AA0](http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=7KM2111-1BA00-3AA0)

**CAX-Online-Generator**

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

**Tender specifications**

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



