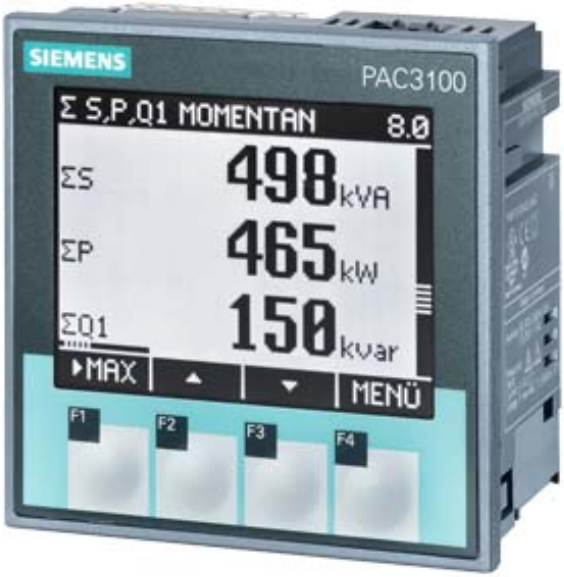
SIEMENS

## Data sheet 7KM3133-0BA00-3AA0




SENTRON, measuring instrument, 7KM PAC3100, LCD, L-L: 480 V, L-N: 277 V, MODBUS RTU, active / reactive energy, Cl. 1 acc. to IEC 61557-12 and IEC62053- 21, Wide-voltage power supply unit, AC/DC, screw connection

| Model | |
|---|---|
| **Product brand name** | SENTRON |
| **Product designation** | 7KM PAC3100 |
| **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** | TRMS |
| **Equipment marking / 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** | |
| • without expansion module / typical | 10 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 |

## 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 | No |
| • Time-controlled reduction of the illuminance of display backlighting possible | Yes |
| • reactive power measurement | Yes |
| • frequency measurement | Yes |
| • pulse measurement | No |
| • 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, chi |

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

## Communication

| | |
|---|---|
| **Protocol** | |
| • is supported | Modbus RTU |
| **Transfer rate** | |
| • minimum | 4.8 kbit/s |
| • maximum | 38.4 kbit/s |

## Fault limits

| | |
|---|---|
| **Reference condition / for metering accuracy** | according to IEC61557-12 (K55) |
| **Formula for relative total measurement inaccuracy** | |
| • for measured variable reactive energy | Class 3 according to IEC61557-12 and IEC62053-23 |
| • for measured variable reactive power | +/- 3 % |
| • for measured variable output | +/- 1.0 % |
| • for measured variable output factor | +/- 1 % |
| • for measured variable voltage | +/- 1.0 % |
| • for measured variable current | +/- 1.0 % |
| • for measured variable active energy | Class 1 according to IEC 61557-12 and IEC62053-21 |
| • for measured variable active power | +/- 1 % |

## Inputs Outputs

| | |
|---|---|
| **Input voltage / at digital input** | |
| • at DC / maximum | 30 V |
| **Number of digital outputs** | 2 |
| **Number of digital inputs** | 2 |
| **Digital output version** | switching or pulse output function |
| **Type of switching output** | bidirectional |
| **Design of the switching input** | Self-supplied |
| **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** | |
| • initial value for signal<1>-recognition | 2.5 mA |
| • Full-scale value for signal<0> recognition | 0.5 mA |
| • for signal <1> / minimum | 2.5 mA |
| **Output current** | |
| • at digital output / with signal <0> / maximum | 0.2 mA |
| • at digital output / for signal <1> / maximum | 27 mA |
| • at digital output / for signal <1> / minimum | 10 mA |
| • at the digital outputs / at DC / limited to 100 ms / maximum | 130 mA |

| | |
|---|---|
| • at the digital outputs / at DC / maximum | 30 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** | No |
| **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 | 30 ms |
| • for signal <1> to <0> / maximum | 30 ms |
| **Internal resistance / at the digital outputs** | 55 Ω |
| **Load resistance / at digital input** | |
| • initial value for signal<0>-recognition | 100 000 Ω |
| • Full-scale value for signal<1> recognition | 1 000 Ω |
| **Measuring category / for digital signals** | CATI |
| **Switching frequency / at digital output / maximum** | 17 Hz |

## Measuring inputs

| | |
|---|---|
| **Outer conductors and neutral conductors internal resistance / for voltage measurement** | 0.84 MΩ |
| **Measurable supply voltage** | |
| • between (PE)N and L / at AC / minimum | 11.5 V |
| • between (PE)N and L / at AC / maximum | 277 V |
| • between (PE)N and L / at AC / maximum rated value | 277 V |
| • between the outer conductors / at AC / minimum | 20 V |
| • between the outer conductors / at AC / maximum | 480 V |
| • between the outer conductors / at AC / maximum rated value | 480 V |
| **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** | 576 V |
| **Consumed active power / for current measurement / per phase** | 500 mW |
| **Continuous current / at AC / maximum permissible** | 10 A |
| **Current measuring range extension / with external current transformers** | Yes |
| **Measuring category / for current measurement** | CATIII |
| **Zero-point suppression / for current measurement** | 10 mA |

| | |
|---|---|
| • for neutral conductor current | 45 mA |
| **Relative measurable current / at AC** | |
| • minimum | 0.2 % |
| • maximum | 120 % |
| **Apparent power consumption / for current measurement** | |
| • with measuring range 5 A / per phase | 0.5 V·A |
| **Measuring procedure / for current measurement** | TRMS |
| **Measurable current / 1 / at AC / Rated value** | 5 A |
| **Short-time current resistance (Icw) / limited to 1 s / rated value** | 100 A |

## Connections

| | |
|---|---|
| **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 |

## 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 |
| **Material thickness / of the control panel** | |
| • maximum | 4 mm |
| **Net weight** | 469 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 respectively IEC 61326-1:2005, table 2 |
| • for EMC against unloading | IEC 61000-4-2 |
| • for EMC against high frequency fields | IEC 61000-4-3 |
| • 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 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 |
| Equipment marking / acc. to DIN EN 61346-2 | P |

| General Product Approval | | EMC | Declaration of Conformity | other |
|---|---|---|---|---|
| CB | UL | C-Tick | 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=7KM3133-0BA00-3AA0

**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**
https://support.industry.siemens.com/cs/ww/en/ps/7KM3133-0BA00-3AA0

**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)**
http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=7KM3133-0BA00-3AA0

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