



SIMATIC ET 200SP, analog input module, AI Energy Meter RC HF, for Rogowski coils or current/voltage transformer 333 mV, with network analysis functions, suitable for BU type U0, channel diagnostics

General information

| | |
|--|-----------------------|
| Product type designation | AI Energy Meter RC HF |
| Firmware version | V8.0 |
| • FW update possible | Yes |
| usable BaseUnits | BU type U0 |
| Color code for module-specific color-coded label | CC20 |
| Supported power supply systems | TT, TN, IT |

Product function

| | |
|--|-----------------------|
| • Voltage measurement | Yes |
| — without voltage transformer | Yes |
| — with voltage transformer | Yes |
| • Current measurement | Yes; Max. 4 |
| — without current transformer | No |
| — with current transformer | No |
| — With Rogowski coil | Yes |
| — With current-voltage-converter | Yes; 333 mV interface |
| • Energy measurement | Yes |
| • Frequency measurement | Yes |
| • Power measurement | Yes |
| • Active power measurement | Yes |
| • Reactive power measurement | Yes |
| • Power factor measurement | Yes |
| • Active factor measurement | Yes |
| • Reactive power compensation | Yes |
| • Line analysis | Yes |
| — Monitoring of instantaneous and half-wave values | Yes |
| — THD measurement for current and voltage | Yes |
| — Harmonics for current and voltage | Yes |
| — Voltage dip (DIP) | Yes |
| — Voltage swell | Yes |
| • I&M data | Yes; I&M0 to I&M3 |
| • Isochronous mode | No |

Engineering with

| | |
|--|--|
| • STEP 7 TIA Portal configurable/integrated from version | STEP 7 V16 or higher with HSP |
| • STEP 7 configurable/integrated from version | V5.5 SP3 or higher |
| • PROFIBUS from GSD version/GSD revision | One GSD file each, Revision 3 and 5 and higher |

| | |
|--|---|
| • PROFINET from GSD version/GSD revision | V2.3 |
| Operating mode | |
| • Switching between operating modes in RUN | Yes; For module version 32 I/20 Q, it is possible to dynamically switch between 25 user data variants, 23 of which are pre-defined and 2 of which can be defined by the specific user |
| • Cyclic measured value access | Yes |
| • Acyclic measured value access | Yes |
| • Fixed measured value sets | Yes |
| • Freely definable measured value sets | Yes; For cyclic and acyclic measured value access |
| CiR - Configuration in RUN | |
| Reparameterization possible in RUN | Yes |
| Calibration possible in RUN | Yes |
| Installation type/mounting | |
| Mounting position | any |
| Supply voltage | |
| Rated value (DC) | 24 V |
| permissible range, lower limit (DC) | 19.2 V |
| permissible range, upper limit (DC) | 28.8 V |
| Input current | |
| Current consumption (rated value) | 12.5 mA |
| Current consumption, max. | 17 mA |
| Power loss | |
| Power loss, typ. | 400 mW; 3x 230 V AC |
| Address area | |
| Address space per module | |
| • Inputs | 256 byte |
| • Outputs | 20 byte |
| Hardware configuration | |
| Automatic encoding | Yes |
| • Mechanical coding element | Yes |
| • Type of mechanical coding element | type C |
| Selection of BaseUnit for connection variants | |
| • 2-wire connection | BU type U0 |
| Time of day | |
| Operating hours counter | |
| • present | Yes |
| Analog inputs | |
| Cycle time (all channels), typ. | 50 ms; Time for consistent update of all measured and calculated values (cyclic und acyclic data) |
| Cable length | |
| • shielded, max. | 200 m |
| • unshielded, max. | 200 m |
| Analog value generation for the inputs | |
| Sampling frequency, max. | 2 048 kHz |
| Interrupts/diagnostics/status information | |
| Alarms | |
| • Diagnostic alarm | Yes |
| • Limit value alarm | Yes |
| • Hardware interrupt | Yes; Monitoring of up to 16 freely selectable process values (exceeding or undershooting of value) |
| Diagnoses | |
| • Line quality | Yes |
| • Supply voltage | Yes |
| • Hardware interrupt lost | Yes |
| • Parameter assignment error | Yes |
| • Module fault | Yes |
| • Channel not available | Yes |
| • Overflow/underflow | Yes |
| • Overload current | Yes |

| | |
|---|--|
| Diagnostics indication LED | |
| • Monitoring of the supply voltage (PWR-LED) | Yes |
| • Channel status display | Yes; green LED |
| • for channel diagnostics | Yes; red Fn LED |
| • for module diagnostics | Yes; green/red DIAG LED |
| Integrated Functions | |
| Measuring functions | |
| • Measuring procedure for voltage measurement | TRMS |
| • Measuring procedure for current measurement | TRMS |
| • Type of measured value acquisition | seamless |
| • Curve shape of voltage | Sinusoidal or distorted |
| • Buffering of measured variables | Yes |
| • Parameter length | 128 byte |
| • Bandwidth of measured value acquisition | 3.2 kHz; Harmonics: 63 / 50 Hz, 52 / 60 Hz |
| Measuring range | |
| — Frequency measurement, min. | 40 Hz |
| — Frequency measurement, max. | 70 Hz |
| Measuring inputs for voltage | |
| — Measurable line voltage between phase and neutral conductor | 277 V |
| — Measurable line voltage between the line conductors | 480 V |
| — Measurable line voltage between phase and neutral conductor, min. | 3 V |
| — Measurable line voltage between phase and neutral conductor, max. | 300 V |
| — Measurable line voltage between the line conductors, min. | 6 V |
| — Measurable line voltage between the line conductors, max. | 519 V |
| — Internal resistance line conductor and neutral conductor | 1.5 MΩ |
| — Power consumption per phase | 60 mW; 300 V AC |
| — Impulse voltage resistance 1,2/50μs | 2.5 kV |
| — Overvoltage category | CAT II according to IEC 61010 Part 1 |
| Measuring inputs for current (Rog. or I/U converter) | |
| — Measurable current at AC, max. | 424 mV |
| — Continuous voltage, maximum permissible | 2 V |
| — Rated value, short-time withstand voltage restricted to 1 s | 30 V |
| — Input resistance | 120 kΩ |
| — Zero point suppression | Yes; 0 ... 20%, referred to the nominal current |
| Accuracy class according to IEC 61557-12 | |
| — Measured variable voltage | 0,2 |
| — Measured variable current | 0,2 |
| — Measured variable apparent power | 0,5 |
| — Measured variable active power | 0,5 |
| — Measured variable reactive power | 1 |
| — Measured variable power factor | 0,5 |
| — Measured variable active energy | 0,5 |
| — Measured variable reactive energy | 1 |
| — Measured variable neutral current | 0,2 |
| — Measured variable phase angle | ±0,5 °; not covered by IEC 61557-12 |
| — Measured variable frequency | 0,05; only valid for the permissible voltage measuring range |
| — Measured variable harmonic | 1 |
| — Measured variable THDU | 1 |
| — Measured variable THDI | 1 |
| Accuracy class line analysis acc. to IEC 61000-4-30 | |
| — Measured variable voltage | Class S |
| — Measured variable current | Class S |
| — Measured variable frequency | Class S |

| — Measured variable voltage interruption | Class S | | |
|--|--|----------------|-------------|
| — Measured variable voltage dip and swell | Class S | | |
| — Measured variable harmonic voltage | Class S | | |
| — Measured variable harmonic current | Class S | | |
| Potential separation | | | |
| Potential separation channels | | | |
| • between the channels | No | | |
| • between the channels and backplane bus | Yes | | |
| • Between the channels and load voltage L+ | Yes; Including FE | | |
| Isolation | | | |
| Isolation tested with | Between channels and backplane bus, 24 V supply: Routine test, 1 920 V AC, 2 s; between backplane bus and 24 V supply: Type test, 707 V DC | | |
| Standards, approvals, certificates | | | |
| Ecological footprint | | | |
| • environmental product declaration | Yes | | |
| Global warming potential | | | |
| — global warming potential, (total) [CO ₂ eq] | 9.32 kg | | |
| — global warming potential, (during production) [CO ₂ eq] | 4.97 kg | | |
| — global warming potential, (during operation) [CO ₂ eq] | 4.79 kg | | |
| — global warming potential, (after end of life cycle) [CO ₂ eq] | -0.449 kg | | |
| Ambient conditions | | | |
| Ambient temperature during operation | | | |
| • horizontal installation, min. | -30 °C | | |
| • horizontal installation, max. | 60 °C | | |
| • vertical installation, min. | -30 °C | | |
| • vertical installation, max. | 50 °C | | |
| Altitude during operation relating to sea level | | | |
| • Installation altitude above sea level, max. | 3 000 m; Restrictions for installation altitudes > 2 000 m, see manual | | |
| Dimensions | | | |
| Width | 20 mm | | |
| Height | 73 mm | | |
| Depth | 58 mm | | |
| Weights | | | |
| Weight, approx. | 45 g | | |
| Other | | | |
| Data for selecting a voltage transformer | | | |
| • Secondary side, max. | 300 V | | |
| Classifications | | | |
| | Version | Classification | |
| | eClass | 14 | 27-24-26-01 |
| | eClass | 12 | 27-24-26-01 |
| | eClass | 9.1 | 27-24-26-01 |
| | eClass | 9 | 27-24-26-01 |
| | eClass | 8 | 27-24-26-01 |
| | eClass | 7.1 | 27-24-26-01 |
| | eClass | 6 | 27-24-26-01 |
| | ETIM | 10 | EC001596 |
| | ETIM | 9 | EC001596 |
| | ETIM | 8 | EC001596 |
| | ETIM | 7 | EC001596 |
| | IDEA | 4 | 3562 |
| | UNSPSC | 15 | 32-15-17-05 |
| Approvals / Certificates | | | |
| General Product Approval | | | |



[Manufacturer Declaration](#)

[Miscellaneous](#)

[China RoHS](#)



General Product Approval

For use in hazardous locations

Maritime application



[FM](#)



Maritime application



[NK / Nippon Kaiji Kyokai](#)



[CCS \(China Classification Society\)](#)

Maritime application

Environment



Siemens
EcoTech



last modified:

9/19/2025