

\*\*\*Spare part\*\*\* SIMATIC ET 200SP, Analog input module, AI energy meter ST, suitable for BU type D0, channel diagnostics



General information	
Product type designation	AI energy meter 400VAC ST
Firmware version	V2.0
usable BaseUnits	BU type D0
Product function	
• Voltage measurement	Yes
— with voltage transformer	No
• Current measurement	Yes
— without current transformer	No
— with current transformer	Yes
• Energy measurement	Yes
• Frequency measurement	Yes
• Power measurement	Yes
• Active power measurement	Yes
• Reactive power measurement	Yes
• I&M data	Yes; I&M0 to I&M3
• Isochronous mode	No
Engineering with	

• STEP 7 TIA Portal configurable/integrated from version	V13 SP1
• STEP 7 configurable/integrated from version	V5.5 SP4 and higher
• PROFIBUS from GSD version/GSD revision	GSD Revision 5
• PROFINET from GSD version/GSD revision	V2.3
<b>Operating mode</b>	
• cyclic measurement	Yes
• acyclic measurement	Yes
• Acyclic measured value access	Yes
• Fixed measured value sets	Yes
• Freely definable measured value sets	No
<b>CiR - Configuration in RUN</b>	
Reparameterization possible in RUN	Yes
Calibration possible in RUN	No
<b>Installation type/mounting</b>	
Mounting position	any
<b>Supply voltage</b>	
Design of the power supply	Supply via voltage measurement channel L1
Type of supply voltage	100 - 240 V AC
permissible range, lower limit (AC)	90 V
permissible range, upper limit (AC)	264 V
<b>Line frequency</b>	
• permissible range, lower limit	47 Hz
• permissible range, upper limit	63 Hz
<b>Power loss</b>	
Power loss, typ.	0.6 W
<b>Address area</b>	
Address space per module	
• Address space per module, max.	44 byte; 32 byte input / 12 byte output
<b>Hardware configuration</b>	
Automatic encoding	
• Mechanical coding element	Yes
<b>Time of day</b>	
Operating hours counter	
• present	No
<b>Analog inputs</b>	
Cycle time (all channels), typ.	50 ms; Time for consistent update of all measured and calculated values (cyclic und acyclic data)
<b>Interrupts/diagnostics/status information</b>	

Alarms	
• Diagnostic alarm	Yes
• Limit value alarm	No
• Hardware interrupt	No
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	No
• Parameter length	38 byte
• Bandwidth of measured value acquisition	2 kHz; Harmonics: 39 / 50 Hz, 32 / 60 Hz
Measuring range	
— Frequency measurement, min.	45 Hz
— Frequency measurement, max.	65 Hz
Measuring inputs for voltage	
— Measurable line voltage between phase and neutral conductor	230 V
— Measurable line voltage between the line conductors	400 V
— Measurable line voltage between phase and neutral conductor, min.	90 V
— Measurable line voltage between phase and neutral conductor, max.	264 V
— Measurable line voltage between the line conductors, min.	155 V
— Measurable line voltage between the line conductors, max.	460 V
— Internal resistance line conductor and neutral conductor	3.4 MΩ
— Power consumption per phase	20 mW
— Impulse voltage resistance 1,2/50μs	1 kV
— Measurement category for voltage measurement in accordance with IEC 61010-2-030	CAT II; CAT III in case of guaranteed protection level of 1.5 kV
Measuring inputs for current	

— measurable relative current (AC), min.	5 %; Relative to the secondary rated current; 1 A, 5 A
— measurable relative current (AC), max.	100 %; Relative to the secondary rated current; 1 A, 5 A
— Continuous current with AC, maximum permissible	5 A
— Apparent power consumption per phase for measuring range 5 A	0.6 V·A
— Rated value short-time withstand current restricted to 1 s	100 A
— Input resistance measuring range 0 to 5 A	25 mΩ
— Surge strength	10 A; for 1 minute
— Zero point suppression	Parameterizable: 20 ... 250 mA, default 50 mA

#### Accuracy class according to IEC 61557-12

— Measured variable voltage	0.5
— Measured variable current	0.5
— Measured variable apparent power	1
— Measured variable active power	1
— Measured variable reactive power	1
— Measured variable power factor	0.5
— Measured variable active energy	1
— Measured variable reactive energy	2
— Measured variable phase angle	±1 °; not covered by IEC 61557-12
— Measured variable frequency	0.05

#### Potential separation

##### Potential separation channels

- between the channels and backplane bus Yes; 3 700V AC (type test) CAT III

#### Isolation

Isolation tested with 2 300V AC for 1 min. (type test)

#### Ambient conditions

##### Ambient temperature during operation

- horizontal installation, min. 0 °C
- horizontal installation, max. 60 °C
- vertical installation, min. 0 °C
- vertical installation, max. 50 °C

#### Dimensions

Width	20 mm
Height	73 mm
Depth	58 mm

#### Weights

Weight, approx. 45 g

#### Other

Data for selecting a current transformer

- Burden power current transformer  $x/1A$ , min.
- Burden power current transformer  $x/5A$ , min.

As a function of cable length and cross section, see device manual

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**last modified:**

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