



\*\*\* spare part \*\*\* SIMATIC ET 200SP, Analog input module, AI Energy Meter 480 V AC ST, suitable for BU type D0, channel diagnostics

### General information

Product type designation	AI Energy Meter 480VAC ST
Firmware version	V4.0
• FW update possible	Yes
usable BaseUnits	BU type D0
Supported power supply systems	TT, TN

### Product function

• Voltage measurement	Yes
— without voltage transformer	Yes
— with voltage transformer	Yes
• Current measurement	Yes
— without current transformer	No
— with current transformer	Yes
— With Rogowski coil	No
— With current-voltage-converter	No
• Energy measurement	Yes
• Frequency measurement	Yes
• Power measurement	Yes
• Active power measurement	Yes
• Reactive power measurement	Yes
• Power factor measurement	Yes
• Active factor measurement	No
• Reactive power compensation	No
• Line analysis	No
• 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

### Operating mode

• Cyclic measured value access	Yes
• Acyclic measured value access	Yes
• Fixed measured value sets	Yes
• Freely definable measured value sets	Yes

### CIr - Configuration in RUN

Reparameterization possible in RUN	Yes
Calibration possible in RUN	Yes

### Installation type/mounting

Mounting position	any
-------------------	-----

<b>Supply voltage</b>	
Design of the power supply	Supply via voltage measurement channel L1
Rated value (AC)	AC 100 - 277 V
permissible range, lower limit (AC)	90 V
permissible range, upper limit (AC)	293 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	
• Inputs	256 byte
• Outputs	12 byte
<b>Hardware configuration</b>	
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 D0, BU20-P12+A0+0B
<b>Time of day</b>	
Operating hours counter	
• present	Yes
<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>Cable length</b>	
• unshielded, max.	200 m
<b>Analog value generation for the inputs</b>	
Measurement principle	Sigma Delta
Sampling frequency, max.	1 024 kHz
<b>Interrupts/diagnostics/status information</b>	
<b>Alarms</b>	
• Diagnostic alarm	Yes
• Limit value alarm	Yes
• Hardware interrupt	Yes; Monitoring of up to 16 freely selectable process values (exceeding or undershooting of value)
<b>Diagnostics indication LED</b>	
• 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
<b>Integrated Functions</b>	
<b>Measuring functions</b>	
• 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	74 byte
• Bandwidth of measured value acquisition	2 kHz; Harmonics: 39 / 50 Hz, 32 / 60 Hz
<b>Measuring range</b>	
— Frequency measurement, min.	45 Hz
— Frequency measurement, max.	65 Hz
<b>Measuring inputs for voltage</b>	
— 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.	90 V
— Measurable line voltage between phase and neutral conductor, max.	293 V

— Measurable line voltage between the line conductors, min.	155 V
— Measurable line voltage between the line conductors, max.	508 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
<b>Measuring inputs for current</b>	
— measurable relative current (AC), min.	1 %; Relative to the secondary rated current 5 A
— measurable relative current (AC), max.	100 %; Relative to the secondary rated current 5 A
— Continuous current with AC, maximum permissible	5 A
— Apparent power consumption per phase for measuring range 5 A	0.6 VA
— Rated value short-time withstand current restricted to 1 s	100 A
— Input resistance measuring range 0 to 5 A	25 mΩ; At the terminal
— Surge strength	10 A; for 1 minute
— Zero point suppression	Parameterizable: 2 ... 250 mA, default 50 mA
<b>Accuracy class according to IEC 61557-12</b>	
— 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	0.5; calculated
— Measured variable phase angle	±1 °; not covered by IEC 61557-12
— Measured variable frequency	0.05
<b>Potential separation</b>	
<b>Potential separation channels</b>	
• between the channels	No
• between the channels and backplane bus	Yes; 3 700V AC (type test) CAT III
<b>Isolation</b>	
Isolation tested with	2 300V AC for 1 min. (type test)
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
• horizontal installation, min.	0 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	0 °C
• vertical installation, max.	50 °C
<b>Altitude during operation relating to sea level</b>	
• Ambient air temperature-barometric pressure-altitude	On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m
<b>Dimensions</b>	
Width	20 mm
Height	73 mm
Depth	58 mm
<b>Weights</b>	
Weight, approx.	45 g
<b>Other</b>	
<b>Data for selecting a voltage transformer</b>	
• Secondary side, max.	296 V
<b>Data for selecting a current transformer</b>	
• Burden power current transformer x/1A, min.	As a function of cable length and cross section, see device manual
• Burden power current transformer x/5A, min.	As a function of cable length and cross section, see device manual

**last modified:** 12/28/2021 

