



SIMATIC ET 200SP, analog input module, AI Energy Meter CT HF, for 1A or 5A current transformer, with network analysis functions, suitable for BU type U0, channel diagnostics

### General information

Product type designation	AI Energy Meter CT HF
Firmware version	V8.0
• FW update possible	Yes
usable BaseUnits	BU type U0
Color code for module-specific color identification plate	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	Yes; 1 A or 5 A current transformer
— 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	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
<b>Operating mode</b>	
• 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
<b>CiR - Configuration in RUN</b>	
Reparameterization possible in RUN	Yes
Calibration possible in RUN	Yes
<b>Installation type/mounting</b>	
Mounting position	any
<b>Supply voltage</b>	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
<b>Input current</b>	
Current consumption (rated value)	12.5 mA
Current consumption, max.	17 mA
<b>Power loss</b>	
Power loss, typ.	1.4 W; 4x 6 A input current, 3x 230 V AC
<b>Address area</b>	
Address space per module	
• Inputs	256 byte
• Outputs	20 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 U0
<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)
Cable length	
• shielded, max.	200 m
• unshielded, max.	200 m
<b>Analog value generation for the inputs</b>	
Sampling frequency, max.	2 048 kHz
<b>Interrupts/diagnostics/status information</b>	
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

<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	128 byte
• Bandwidth of measured value acquisition	3.2 kHz; Harmonics: 63 / 50 Hz, 52 / 60 Hz
<b>Measuring range</b>	
— Frequency measurement, min.	40 Hz
— Frequency measurement, max.	70 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.	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
— Measurement category for voltage measurement in accordance with IEC 61010-2-030	CAT II
<b>Measuring inputs for current</b>	
— measurable relative current (AC), min.	1 %; Relative to measuring range; 1 A, 5 A
— measurable relative current (AC), max.	120 %; Relative to the secondary rated current 5 A
— Continuous current with AC, maximum permissible	5 A; 6 A permanent thermal overload
— 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	0 ... 20%, referred to the nominal current
<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	0,2
— 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					
<b>Potential separation</b>						
Potential separation channels						
• between the channels	No					
• between the channels and backplane bus	Yes					
• Between the channels and load voltage L+	Yes; Including FE					
<b>Isolation</b>						
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					
<b>Standards, approvals, certificates</b>						
Ecological footprint						
• environmental product declaration	Yes					
Global warming potential						
— global warming potential, (total) [CO <sub>2</sub> eq]	9.32 kg					
— global warming potential, (during production) [CO <sub>2</sub> eq]	4.97 kg					
— global warming potential, (during operation) [CO <sub>2</sub> eq]	4.79 kg					
— global warming potential, (after end of life cycle) [CO <sub>2</sub> eq]	-0.449 kg					
<b>Ambient conditions</b>						
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					
<b>Dimensions</b>						
Width	20 mm					
Height	73 mm					
Depth	58 mm					
<b>Weights</b>						
Weight, approx.	45 g					
<b>Other</b>						
Data for selecting a voltage transformer						
• Secondary side, max.	300 V					
Data for selecting a current transformer						
• 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					
<b>Classifications</b>						
		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

[KC](#)



[EM](#)



### For use in hazardous locations

### Maritime application



[NK / Nippon Kaiji Kyokai](#)



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

### Maritime application



[Siemens EcoTech](#)



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