



*** spare part *** SIMATIC ET 200SP, Analog input module, AI Energy Meter 400 V AC ST, suitable for BU type D0, channel diagnostics

General information	
Product type designation	AI energy meter 400VAC ST
Firmware version	V3.0
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
Operating mode	
• cyclic measurement	Yes
• acyclic measurement	Yes
• Acyclic measured value access	Yes
• Fixed measured value sets	Yes
• Freely definable measured value sets	No
CiR - Configuration in RUN	
Reparameterization possible in RUN	Yes
Calibration possible in RUN	No
Installation type/mounting	
Mounting position	any
Supply voltage	
Design of the power supply	Supply via voltage measurement channel L1
Rated value (AC)	100 - 240 V AC
permissible range, lower limit (AC)	90 V
permissible range, upper limit (AC)	264 V
Line frequency	

<ul style="list-style-type: none"> • permissible range, lower limit 	47 Hz
<ul style="list-style-type: none"> • permissible range, upper limit 	63 Hz
Power loss	
Power loss, typ.	0.6 W
Address area	
Address space per module	
<ul style="list-style-type: none"> • Address space per module, max. 	44 byte; 32 byte input / 12 byte output
Hardware configuration	
Automatic encoding	
<ul style="list-style-type: none"> • Mechanical coding element 	Yes
<ul style="list-style-type: none"> • Type of mechanical coding element 	type C
Time of day	
Operating hours counter	
<ul style="list-style-type: none"> • present 	No
Analog inputs	
Cycle time (all channels), typ.	50 ms; Time for consistent update of all measured and calculated values (cyclic und acyclic data)
Interrupts/diagnostics/status information	
Alarms	
<ul style="list-style-type: none"> • Diagnostic alarm 	Yes
<ul style="list-style-type: none"> • Limit value alarm 	No
<ul style="list-style-type: none"> • Hardware interrupt 	No
Diagnostics indication LED	
<ul style="list-style-type: none"> • Monitoring of the supply voltage (PWR-LED) 	Yes
<ul style="list-style-type: none"> • Channel status display 	Yes; green LED
<ul style="list-style-type: none"> • for channel diagnostics 	Yes; red Fn LED
<ul style="list-style-type: none"> • for module diagnostics 	Yes; green/red DIAG LED
Integrated Functions	
Measuring functions	
<ul style="list-style-type: none"> • Measuring procedure for voltage measurement 	TRMS
<ul style="list-style-type: none"> • Measuring procedure for current measurement 	TRMS
<ul style="list-style-type: none"> • Type of measured value acquisition 	seamless
<ul style="list-style-type: none"> • Curve shape of voltage 	Sinusoidal or distorted
<ul style="list-style-type: none"> • Buffering of measured variables 	No
<ul style="list-style-type: none"> • Parameter length 	38 byte
<ul style="list-style-type: none"> • 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 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: 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. 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

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](#)

[China RoHS](#)

[Miscellaneous](#)



General Product Approval

EMV

For use in hazardous locations



[EM](#)



For use in hazardous locations

Maritime application



[CCC-Ex](#)



[NK / Nippon Kaiji Kyokai](#)



Maritime application

Environment



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



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