



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	
<ul style="list-style-type: none"> <li>• Voltage measurement                             <ul style="list-style-type: none"> <li>— with voltage transformer</li> </ul> </li> <li>• Current measurement                             <ul style="list-style-type: none"> <li>— without current transformer</li> <li>— with current transformer</li> </ul> </li> <li>• Energy measurement</li> <li>• Frequency measurement</li> <li>• Power measurement</li> <li>• Active power measurement</li> <li>• Reactive power measurement</li> <li>• I&amp;M data</li> <li>• Isochronous mode</li> </ul>	Yes No Yes No Yes Yes Yes Yes Yes Yes Yes; I&M0 to I&M3 No
Engineering with	
<ul style="list-style-type: none"> <li>• STEP 7 TIA Portal configurable/integrated from version</li> <li>• STEP 7 configurable/integrated from version</li> <li>• PROFIBUS from GSD version/GSD revision</li> <li>• PROFINET from GSD version/GSD revision</li> </ul>	V13 SP1 V5.5 SP4 and higher GSD Revision 5 V2.3
Operating mode	
<ul style="list-style-type: none"> <li>• cyclic measurement</li> <li>• acyclic measurement</li> <li>• Acyclic measured value access</li> <li>• Fixed measured value sets</li> <li>• Freely definable measured value sets</li> </ul>	Yes Yes Yes Yes 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
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
<b>Integrated Functions</b>	
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

<b>Measuring inputs for current</b>	
— 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; At the terminal
— Surge strength	10 A; for 1 minute
— Zero point suppression	Parameterizable: 20 ... 250 mA, default 50 mA
<b>Accuracy class according to IEC 61557-12</b>	
— 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
<b>Potential separation</b>	
Potential separation channels	
• 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>	
Ambient temperature during operation	
• horizontal installation, min.	0 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	0 °C
• vertical installation, max.	50 °C
<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 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>last modified:</b>	1/16/2021 