Technical specifications 10

10.1 Technical specifications

Technical specifications of the AI Energy Meter 400VAC ST

Article number	6ES7134-6PA01-0BD0
General information	
Product type designation	ET 200SP, AI Energy Meter 400 V AC ST, PU 1
Firmware version	V3.0
usable BaseUnits	BU type D0, BU20-P12+A0+0B
Product function	
• Voltage measurement	Yes
• Voltage measurement with voltage transformers	No
• Current measurement	Yes
• Phase current measurement without current transformers	No
• Phase current measurement with current transformers	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 as of version	V13 SP1
• STEP 7 configurable/integrated as of version	V5.5 SP4 and higher
• PROFIBUS as of GSD version/GSD revision	GSD Revision 5
• PROFINET as of GSD version/GSD revision	V2.3

Article number	6ES7134-6PA01-0BD0
Operating mode	
• cyclic measurement	Yes
• acyclic measurement	Yes
• Acyclic measured value access	Yes
• Fixed measured value sets	Yes
• Freely definable measured value sets	No
Configuration control	
via dataset	Yes
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
Line frequency	
• permissible range, lower limit	47 Hz
• permissible range, upper limit	63 Hz
Power loss	
Power loss, typ.	0.6 W
Address area	
Address space per module	
• Address space per module, max.	44 byte; 32 byte input / 12 byte output
Hardware configuration	
Automatic encoding	
• Mechanical coding element	Yes
Time of day	
Operating hours counter	
• 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)

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Interrupts/diagnostics/status information	
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
Operating mode for measured value acquisition	
– automatic detection of line frequency	No; Parameterizable
Measuring range	
– Frequency measurement, min.	45 Hz
– Frequency measurement, max.	65 Hz

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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
– 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
– Internal resistance line conductor and neutral conductor	3.4 MΩ
– Power consumption per phase	20 mW
– Impulse voltage resistance 1,2/50µs	1 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; At the terminal
– Zero point suppression	Parameterizable: 20 ... 250 mA, default 50 mA
– Surge strength	10 A; for 1 minute

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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 (without packaging)	45 g
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

ATEX approval

In accordance with EN 60079-15 (Electrical apparatus for potentially explosive atmospheres; Type of protection "n") and EN 60079-0 (Electrical apparatus for potentially explosive gas atmospheres - Part 0: General Requirements)

II 3 G Ex nA IIC Tx Gc
DEKRA 12ATEX0038X

Dimension drawing

See ET 200SP BaseUnits (http://support.automation.siemens.com/WW/view/en/59753521) manual