

SIPLUS ET 200SP AI EMETER 480VAC ST -40...+70°C with conformal coating BasedOn: 6ES7134-6PA20-0BD0 . Analog Input MODULE, AI ENERGY METER 480VAC ST, fits to BU-TYPE D0, CHANNEL DIAGNOSIS

General information

Product type designation	230 RCE
usable BaseUnits	BU type D0, BU20-P12+A0+0B

Product function

• Voltage measurement	Yes
— with voltage transformer	Yes
• 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

Operating mode

• cyclic measurement	Yes
• acyclic measurement	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
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Supply voltage

Design of the power supply	Supply via voltage measurement channel L1
Type of supply voltage	AC/DC
permissible range, lower limit (DC)	100 V
permissible range, upper limit (DC)	253 V
permissible range, lower limit (AC)	85 V

permissible range, upper limit (AC)	265 V
Line frequency	
• permissible range, lower limit	47 Hz
• permissible range, upper limit	63 Hz
Input current	
Current consumption, max.	40 mA
Address area	
Address space per module	
• Address space per module, max.	268 byte; 256 byte input / 12 byte output
Hardware configuration	
Automatic encoding	
• Mechanical coding element	Yes
Time of day	
Operating hours counter	
• present	Yes
Analog inputs	
Number of analog inputs	0
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	
• Diagnostic alarm	Yes
• Limit value alarm	Yes
• Hardware interrupt	Yes; Monitoring of up to 16 freely selectable process values (exceeding or undershooting of value)
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	Yes
• Parameter length	74 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	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
— 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 M Ω
— Power consumption per phase	20 mW
— Impulse voltage resistance 1,2/50 μ s	1 kV
Measuring inputs for current	
— 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; at > +60 °C max. permissible current 1 A per phase
— 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 m Ω ; At the terminal
— Zero point suppression	Parameterizable: 2 ... 250 mA, default 50 mA
— Surge strength	10 A; for 1 minute
Accuracy class according to IEC 61557-12	
— 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

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. -40 °C; = Tmin; < -25 °C min. permissible supply voltage 110 V AC
- horizontal installation, max. 70 °C; = Tmax; > +60 °C max. permissible current 1 A per phase
- vertical installation, min. -40 °C; = Tmin
- vertical installation, max. 50 °C; = Tmax

Altitude during operation relating to sea level

- Installation altitude above sea level, max. 3 000 m
- Ambient air temperature-barometric pressure-altitude Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... Tmax -5K) at 795 hPa ... 701 hPa (+2 000 m ... +3 000 m)

Relative humidity

- With condensation, tested in accordance with IEC 60068-2-38, max. 100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation

Resistance

Coolants and lubricants

- Resistant to commercially available coolants and lubricants Yes; Incl. diesel and oil droplets in the air

Use in stationary industrial systems

- to biologically active substances according to EN 60721-3-3 Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3 Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3 Yes; Class 3S4 incl. sand, dust, *

Use on ships/at sea

- to biologically active substances according to EN 60721-3-6 Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6 Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6 Yes; Class 6S3 incl. sand, dust; *

from supply voltage 1L+

— Note regarding classification of environmental conditions acc. to EN 60721

* The supplied plug covers must remain in place over the unused interfaces during operation!

Dimensions

Width	71.5 mm
Height	90 mm
Depth	60 mm

Weights

Weight (without packaging)	45 g
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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

last modified: 05/17/2018