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Data sheet 6AG2134-6PA20-4BD0



Figure similar

SIPLUS ET 200SP AI Energy Meter 480VAC TX rail based on 6ES7134-6PA20-0BD0 with conformal coating, -40…+70 °C, OT4 with ST1/2 (+85 °C for 10 minutes), analog input module, suitable for BU type D0, channel diagnostics

General information	
Product type designation	AI Energy Meter 480VAC ST
based on	6ES7134-6PA20-0BD0
usable BaseUnits	BU type D0
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
Engineering with	
● STEP 7 TIA Portal configurable/integrated from version	see entry ID: 109746275
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
Supply voltage	
Design of the power supply	Supply via voltage measurement channel L1
Rated value (AC)	AC 100 - 277 V
permissible range, lower limit (AC)	90 V; At < -25 °C min. permissible supply voltage 110 V AC
permissible range, upper limit (AC)	293 V
Line frequency	
● permissible range, lower limit	47 Hz
● permissible range, upper limit	63 Hz

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Power loss	
Power loss, typ.	0.6 W
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	
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
— 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.	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

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— 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: 2 ... 250 mA, default 50 mA
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	2 545 V DC (type test) and according to EN 50155 (routine test)
Standards, approvals, certificates	
Railway application	
● EN 50121-3-2	Yes; EMC for rail vehicles
● EN 50121-4	Yes; EMC for signal and telecommunications systems
● EN 50124-1	Yes; Railway applications - overvoltage category OV3; pollution degree PD2; UNm = 277/480 V AC
● EN 50125-1	Yes; Rail vehicles - see ambient conditions
● EN 50125-2	Yes; Stationary electrical equipment - see ambient conditions
● EN 50125-3	Yes; Signal and telecommunications systems - see ambient conditions; vibrations and shocks: Application point outside of tracks (1 m to 3 m away from track)
● EN 50155	Yes; Rail vehicles - temperature class OT4, ST1/ST2, horizontal mounting position
● EN 61373	Yes; Rail vehicles - vibrations and shocks: Category 1 Class A/B
● Fire protection acc. to EN 45545-2	Yes; For proof of conformity, see Service & Support
Ambient conditions	
Ambient temperature during operation	
● horizontal installation, min.	-40 °C; = Tmin (incl. condensation/frost)
● horizontal installation, max.	70 °C; = Tmax; +85 °C for 10 min (OT4, ST1/ST2 acc. to EN 50155)
● 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.	2 000 m
● Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 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, *
— Against mechanical environmental conditions acc. to EN 60721-3-3	Yes; Class 3M8 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0)

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Use on land craft, rail vehicles and special-purpose vehicles	
— to biologically active substances according to EN 60721-3-5	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request
— to chemically active substances according to EN 60721-3-5	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-5	Yes; Class 5S3 incl. sand, dust; *
— Against mechanical environmental conditions acc. to EN 60721-3-5	Yes; Class 5M2 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0)
— against mechanical environmental conditions in agriculture acc. to ISO 15003	Yes; level 1 (Location LE) using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0)
Usage in industrial process technology	
— Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
— Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
● Coatings for printed circuit board assemblies acc. to EN 61086	Yes; Class 2 for high reliability
● Protection against fouling acc. to EN 60664-3	Yes; Type 1 protection
● Electronic equipment on rolling stock acc. to EN 50155	Yes; Class PC2 protective coating acc. to EN 50155:2017
● Military testing according to MIL-I-46058C, Amendment 7	Yes; Discoloration of coating possible during service life
● Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A	Yes; Conformal coating, Class A
Dimensions	
Width	20 mm
Height	73 mm
Depth	58 mm
Weights	
Weight, approx.	45 g
Other	
Note:	for use in railway applications, also observe the product information "SIPLUS extreme RAIL" A5E37661960A, Online Support article 109736776
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	16	27-24-26-01
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

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Manufacturer Declaration

China RoHS

General Product Approval	EMV	Railway
China RoHS		Confirmation

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