Data sheet

6AG2531-7KF00-4AB0



SIPLUS S7-1500 AI 8xU/I/RTD/TC TX rail based on 6ES7531-7KF00-0AB0 with conformal coating, -40...+70 °C, OT4 with ST1/2 (+85 °C for 10 minutes), analog input module 16-bit resolution, accuracy 0.3%, 8 channels in groups of 8, 4 channels for RTD measurement, common mode voltage 10 V; diagnostics; hardware interrupts including infeed element, shielding bracket and shield terminal

Product type designation	General information	
based on 6ES7531-TKF00-0AB0 Product function I&M data Yes; I&M0 to I&M3 Isochronous mode No Prioritized startup No Scalable measured values No Adjustment of measuring range No Eggineering with STEP 7 TIA Portal configurable/integrated from version Operating mode Oversampling No SUSI CIR - Configuration in RUN Reparameterization possible in RUN Yes Calibration possible in RUN	Product type designation	AI 8xU/I/RTD/TC ST
based on 6ES7531-7KF00-0AB0 Product function I &M data Yes; I&M0 to I&M3 Sociotronous mode No Prioritzed startup No Measuring range scalable No Adjustment of measuring range No Engineering with Oversampling No MSI Yes CIR - Configuration in RUN Reparameterization possible in RUN Yes Calibration possible in RUN Yes Calibration possible in RUN Yes Rated value (DC) 24 V permissible range, lower limit (DC) 19.2 V permissible range, lower limit (DC) 28.8 V Reverse polarity protection Yes Input current Current consumption, max Encoder supply 4 V encoder supply 4 V encoder supply 6 Nort-circut protection Yes Cover available from the backplane bus Power loss Power loss, typ. 2.7 W Analog inputs Number of analog inputs For outrent measurement 8 Nor output out 4 x 10 V or 4x RTD permissible For outrent measurement 8 Nor output out 4x 10 V or 4x RTD permissible For outrent measurement 8 Nor output out 4x 10 V or 4x RTD permissible	Firmware version	
Product function • I&M data Yes; I&M0 to I&M3 • Ischronous mode • Prioritized startup No • Measuring range scalable No • Scalable measured values No • Adjustment of measuring range No Engineering with • STEP 7 TIA Portal configurable/integrated from version see entry ID: 109746275 Operating mode • Oversampling No • MSI Yes CIR - Configuration in RUN Reparameterization possible in RUN Yes Calibration possible in RUN Yes Supply voltage Rated value (DC) 24 V permissible range, lower limit (DC) 19.2 V permissible range, upper limit (DC) 28.8 V Reverse polarity protection Yes Input current Current consumption, max. 240 mA; with 24 V DC supply Encoder supply 24 V encoder supply 24 V encoder supply • Short-circuit protection Yes Coulput current, max. 20 mA; Max. 47 mA per channel for a duration < 10 s Power loss Power loss Power loss, typ. 2.7 W Analog Inputs Number of analog inputs • For voltage measurement 8	FW update possible	Yes
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Prioritized startup Measuring range scalable Scalable measured values Adjustment of measuring range No Engineering with STEP 7 TIA Portal configurable/integrated from version Operating mode Oversampling MSI SICR - Configuration in RUN Reparameterization possible in RUN Yes Calibration possible in RUN Yes Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) Reverse polarity protection Nyes Current consumption, max. 240 mA; with 24 V DC supply Encodor supply 24 V encoder supply Short-circuit protection Yes Output current Current consumption, max. 240 mA; with 24 V DC supply Encodor supply 24 V encoder supply Short-circuit protection Yes Power available from the backplane bus Power Power available from the backplane bus Power loss, typ. 2,7 W Analog inputs Number of analog inputs For current measurement For voltage measurement 8		Yes; I&M0 to I&M3
Measuring range scalable Scalable measured values Adjustment of measuring range No Adjustment of measuring range No STEP 7 TIA Portal configurable/integrated from version Operating mode Oversampling MSI Yes CIR - Configuration in RUN Reparameterization possible in RUN Yes Calibration possible in RUN Yes Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) 28.8 V Reverse polarity protection Yes Input current Current consumption, max. 240 mA; with 24 V DC supply 24 V encoder supply 24 V encoder supply 24 V encoder supply Short-circuit protection Yes Output current, max. Power Power available from the backplane bus Power loss, typ. Power loss, typ. Power loss, typ. Analog inputs For current measurement 8	 Isochronous mode 	No
Scalable measured values Adjustment of measuring range No No STEP 7 TIA Portal configurable/integrated from version Operating mode Oversampling MSI SI SI SUBJUSTICE TO TIA Portal configurable/integrated from version Operating mode Oversampling MSI SI S	 Prioritized startup 	No
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Oversampling	STEP 7 TIA Portal configurable/integrated from version	see entry ID: 109746275
NSI Yes CIR - Configuration in RUN Reparameterization possible in RUN Yes Calibration possible in RUN Yes Supply voltage Rated value (DC) 24 V permissible range, lower limit (DC) 19.2 V permissible range, upper limit (DC) 28.8 V Reverse polarity protection Yes Input current Current consumption, max. 240 mA; with 24 V DC supply Encoder supply 24 V encoder supply • Short-circuit protection Yes • Output current, max. 20 mA; Max. 47 mA per channel for a duration < 10 s Power loss Power loss Power loss, typ. 2.7 W Analog inputs • For current measurement • For voltage measurement 8	Operating mode	
CiR - Configuration in RUN Reparameterization possible in RUN Yes Calibration possible in RUN Yes Supply voltage Rated value (DC) 24 V permissible range, lower limit (DC) 19.2 V permissible range, upper limit (DC) 28.8 V Reverse polarity protection Yes Input current Current consumption, max. 240 mA; with 24 V DC supply Encoder supply 24 V encoder supply • Short-circuit protection Yes • Output current, max. 20 mA; Max. 47 mA per channel for a duration < 10 s Power Power loss Power loss Power loss, typ. 2.7 W Analog inputs • For current measurement 8 • For voltage measurement 8	 Oversampling 	No
Reparameterization possible in RUN Calibration possible in RUN Yes Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 240 mA; with 24 V DC supply 24 V encoder supply • Short-circuit protection • Short-circuit protection • Short-circuit protection • Output current, max. 20 mA; Max. 47 mA per channel for a duration < 10 s Power Power loss Power loss Power loss, typ. 2.7 W Analog inputs • For current measurement • For current measurement 8 • For voltage measurement 8	• MSI	Yes
Calibration possible in RUN Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 240 mA; with 24 V DC supply Encoder supply 24 V encoder supply • Short-circuit protection Yes • Output current, max. 20 mA; Max. 47 mA per channel for a duration < 10 s Power available from the backplane bus Power loss Power loss, typ. Analog inputs Number of analog inputs • For current measurement • For voltage measurement 8	CiR - Configuration in RUN	
Rated value (DC) 24 V permissible range, lower limit (DC) 19.2 V permissible range, upper limit (DC) 28.8 V Reverse polarity protection Yes Input current Current consumption, max. 240 mA; with 24 V DC supply Encoder supply 24 V encoder supply • Short-circuit protection Yes • Output current, max. 20 mA; Max. 47 mA per channel for a duration < 10 s Power Power available from the backplane bus 0.7 W Power loss Power loss, typ. 2.7 W Analog inputs Number of analog inputs 8; > +60 °C max. 2x ±20 mA or 4x ±10 V or 4x RTD permissible • For current measurement 8 • For voltage measurement 8	Reparameterization possible in RUN	Yes
Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 240 mA; with 24 V DC supply Encoder supply 24 V encoder supply • Short-circuit protection • Output current, max. 20 mA; Max. 47 mA per channel for a duration < 10 s Power Power available from the backplane bus 0.7 W Power loss Power loss, typ. 2.7 W Analog inputs Number of analog inputs • For current measurement • For voltage measurement 8	Calibration possible in RUN	Yes
permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 240 mA; with 24 V DC supply Encoder supply 4 V encoder supply • Short-circuit protection Yes • Output current, max. 20 mA; Max. 47 mA per channel for a duration < 10 s Power Power available from the backplane bus 0.7 W Power loss Power loss, typ. 2.7 W Analog inputs Number of analog inputs • For current measurement • For voltage measurement 8	Supply voltage	
permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 240 mA; with 24 V DC supply Encoder supply 24 V encoder supply • Short-circuit protection • Output current, max. 20 mA; Max. 47 mA per channel for a duration < 10 s Power Power loss Power loss, typ. 2.7 W Analog inputs Number of analog inputs • For current measurement • For voltage measurement 8	Rated value (DC)	24 V
Reverse polarity protection Percent	permissible range, lower limit (DC)	19.2 V
Input current Current consumption, max. 240 mA; with 24 V DC supply Encoder supply 24 V encoder supply • Short-circuit protection • Output current, max. 20 mA; Max. 47 mA per channel for a duration < 10 s Power Power available from the backplane bus 0.7 W Power loss Power loss, typ. 2.7 W Analog inputs Number of analog inputs • For current measurement • For voltage measurement 8	permissible range, upper limit (DC)	28.8 V
Current consumption, max. 240 mA; with 24 V DC supply Encoder supply 24 V encoder supply • Short-circuit protection • Output current, max. Power Power available from the backplane bus Power loss Power loss Power loss, typ. Analog inputs Number of analog inputs • For current measurement • For voltage measurement 8	Reverse polarity protection	Yes
Encoder supply 24 V encoder supply Short-circuit protection Output current, max. Power Power available from the backplane bus Power loss Power loss, typ. Analog inputs Number of analog inputs For current measurement For voltage measurement 8	Input current	
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 Short-circuit protection Output current, max. Power Power available from the backplane bus Power loss Power loss, typ. Analog inputs Number of analog inputs For current measurement For voltage measurement So mA; Max. 47 mA per channel for a duration < 10 s 2.7 W Analog on the second of the	Encoder supply	
● Output current, max. Power Power available from the backplane bus 0.7 W Power loss Power loss, typ. 2.7 W Analog inputs Number of analog inputs ● For current measurement ● For voltage measurement 8	24 V encoder supply	
Power available from the backplane bus Power loss Power loss, typ. 2.7 W Analog inputs Number of analog inputs For current measurement For voltage measurement 8	Short-circuit protection	Yes
Power loss Power loss Power loss, typ. 2.7 W Analog inputs Number of analog inputs For current measurement For voltage measurement 8 0.7 W 2.7 W 8; > +60 °C max. 2x ±20 mA or 4x ±10 V or 4x RTD permissible 8 8 8 8	Output current, max.	20 mA; Max. 47 mA per channel for a duration < 10 s
Power loss Power loss, typ. 2.7 W Analog inputs Number of analog inputs 8; > +60 °C max. 2x ±20 mA or 4x ±10 V or 4x RTD permissible • For current measurement 8 • For voltage measurement 8	Power	
Power loss, typ. Analog inputs Number of analog inputs For current measurement For voltage measurement 8 2.7 W 8; > +60 °C max. 2x ±20 mA or 4x ±10 V or 4x RTD permissible 8 8	Power available from the backplane bus	0.7 W
Analog inputs Number of analog inputs For current measurement For voltage measurement 8 **RTD permissible** 8 **RTD permissible** 8 **RTD permissible** 8	Power loss	
Analog inputs Number of analog inputs For current measurement For voltage measurement 8 **RTD permissible** 8 **RTD permissible** 8 **RTD permissible** 8	Power loss, typ.	2.7 W
 For current measurement For voltage measurement 8 	Analog inputs	
 For current measurement For voltage measurement 8 	Number of analog inputs	8; > +60 °C max. 2x ±20 mA or 4x ±10 V or 4x RTD permissible
		•
	For voltage measurement	8
	-	4

For thermocouple measurement	8
permissible input voltage for voltage input (destruction limit),	28.8 V
max.	40 6
permissible input current for current input (destruction limit), max.	40 mA
Technical unit for temperature measurement adjustable	Yes; °C/°F/K
Input ranges (rated values), voltages	
• 0 to +5 V	No
• 0 to +10 V	No
• 1 V to 5 V	Yes
— Input resistance (1 V to 5 V)	100 kΩ
• -1 V to +1 V	Yes
— Input resistance (-1 V to +1 V)	10 ΜΩ
• -10 V to +10 V	Yes
— Input resistance (-10 V to +10 V)	100 kΩ
• -2.5 V to +2.5 V	Yes
— Input resistance (-2.5 V to +2.5 V)	10 ΜΩ
• -25 mV to +25 mV	No
• -250 mV to +250 mV	Yes
— Input resistance (-250 mV to +250 mV)	10 ΜΩ
• -5 V to +5 V	Yes
— Input resistance (-5 V to +5 V)	100 kΩ
• -50 mV to +50 mV	Yes
 Input resistance (-50 mV to +50 mV) -500 mV to +500 mV 	10 MΩ Yes
	Yes 10 MΩ
— Input resistance (-500 mV to +500 mV)• -80 mV to +80 mV	Yes
- Input resistance (-80 mV to +80 mV)	10 ΜΩ
Input ranges (rated values), currents	10 MI22
• 0 to 20 mA	Yes
— Input resistance (0 to 20 mA)	25Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
• -20 mA to +20 mA	Yes
— Input resistance (-20 mA to +20 mA)	25Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
• 4 mA to 20 mA	Yes
— Input resistance (4 mA to 20 mA)	25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC
Input ranges (rated values), thermocouples	
• Type B	Yes
— Input resistance (Type B)	10 ΜΩ
• Type C	No
• Type E	Yes
— Input resistance (Type E)	10 ΜΩ
• Type J	Yes
— Input resistance (type J)	10 ΜΩ
Type K	Yes
— Input resistance (Type K)	10 ΜΩ
• Type L	No
• Type N	Yes
— Input resistance (Type N)	10 ΜΩ
• Type R	Yes
— Input resistance (Type R)	10 ΜΩ
• Type S	Yes
— Input resistance (Type S)	10 ΜΩ
• Type T	Yes
— Input resistance (Type T)	10 ΜΩ
Type TXK/TXK(L) to GOST Input ranges (rated values), resistance thermometer.	No
Input ranges (rated values), resistance thermometer	No
• Cu 10	No No
Cu 10 according to GOST Cu 50	No No
Cu 50Cu 50 according to GOST	No No
• Cu 100	No
₩ Ou 100	110

 Cu 100 according to GOST 	No
• Ni 10	No
 Ni 10 according to GOST 	No
• Ni 100	Yes; Standard/climate
— Input resistance (Ni 100)	10 ΜΩ
 Ni 100 according to GOST 	No
• Ni 1000	Yes; Standard/climate
— Input resistance (Ni 1000)	10 ΜΩ
 Ni 1000 according to GOST 	No
• LG-Ni 1000	Yes; Standard/climate
— Input resistance (LG-Ni 1000)	10 ΜΩ
• Ni 120	No
Ni 120 according to GOST	No
Ni 200 according to GOST	No
• Ni 500	No
Ni 500 according to GOST	No
• Pt 10	No
 Pt 10 according to GOST 	No
• Pt 50	No
Pt 50 according to GOST	No
• Pt 100	Yes; Standard/climate
— Input resistance (Pt 100)	10 ΜΩ
Pt 100 according to GOST	No
• Pt 1000	Yes; Standard/climate
— Input resistance (Pt 1000)	10 ΜΩ
Pt 1000 according to GOST	No
• Pt 200	Yes; Standard/climate
— Input resistance (Pt 200)	10 M Ω
Pt 200 according to GOST	No
• Pt 500	Yes; Standard/climate
— Input resistance (Pt 500)	10 MΩ
Pt 500 according to GOST	No
Input ranges (rated values), resistors	
• 0 to 150 ohms	Yes
— Input resistance (0 to 150 ohms)	10 ΜΩ
• 0 to 300 ohms	Yes
— Input resistance (0 to 300 ohms)	10 ΜΩ
• 0 to 600 ohms	Yes
— Input resistance (0 to 600 ohms)	10 ΜΩ
• 0 to 3000 ohms	No
• 0 to 6000 ohms	Yes
— Input resistance (0 to 6000 ohms)	10 ΜΩ
• PTC	Yes
— Input resistance (PTC)	10 ΜΩ
Thermocouple (TC)	10 19132
Temperature compensation	
— parameterizable	Yes
internal temperature compensation	Yes
— internal temperature compensation — external temperature compensation via RTD	Yes
— external temperature compensation via RTD — Compensation for 0 °C reference point temperature	Yes; fixed value can be set
Reference channel of the module	Yes
Cable length	100
• shielded, max.	800 m; for U/I, 200 m for R/RTD, 50 m for TC
Analog value generation for the inputs	000 m, for 0/1, 200 m for 101.1D, 50 m for 10
Integration and conversion time/resolution per channel	16 bit
 Resolution with overrange (bit including sign), max. 	
- Intrarction time personal size	
Integration time, parameterizable Integration time (ma)	Yes
• Integration time (ms)	Yes 2,5 / 16,67 / 20 / 100 ms
Integration time (ms)Basic conversion time, including integration time (ms)	Yes 2,5 / 16,67 / 20 / 100 ms 9 / 23 / 27 / 107 ms
• Integration time (ms)	Yes 2,5 / 16,67 / 20 / 100 ms

measurement	Pt1000, Ni1000, LG-Ni1000, PTC: 4 ms
 Interference voltage suppression for interference frequency f1 in Hz 	400 / 60 / 50 / 10 Hz
 Time for offset calibration (per module) 	Basic conversion time of the slowest channel
Smoothing of measured values	
parameterizable	Yes
Step: None	Yes
Step: low	Yes
Step: Medium	Yes
Step: High	Yes
Encoder	
Connection of signal encoders	
for voltage measurement	Yes
for current measurement as 2-wire transducer	Yes
 Burden of 2-wire transmitter, max. 	820 Ω
for current measurement as 4-wire transducer	Yes
for resistance measurement with two-wire connection	Yes: Only for PTC
• for resistance measurement with three-wire connection	Yes; All measuring ranges except PTC; internal compensation of the cable resistances
for resistance measurement with four-wire connection	Yes; All measuring ranges except PTC
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.02 %
Temperature error (relative to input range), (+/-)	0.005 %/K; With TC type T 0.02 ± % / K
Crosstalk between the inputs, max.	-80 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.02 %
Temperature error of internal compensation	±6 °C
Operational error limit in overall temperature range	
Voltage, relative to input range, (+/-)	0.5 %
Current, relative to input range, (+/-)	0.5 %
Resistance, relative to input range, (+/-)	0.5 %
Resistance thermometer, relative to input range, (+/-)	Ptxxx standard: ±1.5 K, Ptxxx climate: ±0.5 K, Nixxx standard: ±0.5 K, Nixxx climate: ±0.3 K
• Thermocouple, relative to input range, (+/-)	Type B: > 600 °C ±4.6 K, type E: > -200 °C ±1.5 K, type J: > -210 °C ±1.9 K, type K: > -200 °C ±2.4 K, type N: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.6 K, type T: > -200 °C ±2.4 K
Basic error limit (operational limit at 25 °C)	0. 0 0 11.0 K, typo 1. 1 200 0 12.1 K
Voltage, relative to input range, (+/-)	0.1 %
Current, relative to input range, (+/-)	0.1 %
Resistance, relative to input range, (+/-)	0.1 %
Resistance thermometer, relative to input range, (+/-)	Ptxxx standard: ±0.7 K, Ptxxx climate: ±0.2 K, Nixxx standard: ±0.3 K, Nixxx climate: ±0.15 K
• Thermocouple, relative to input range, (+/-)	Type B: > 600 °C ±1.7 K, type E: > -200 °C ±0.7 K, type J: > -210 °C ±0.8 K, type K: > -200 °C ±1.2 K, type N: > -200 °C ±1.2 K, type R: > 0 °C ±1.9 K, type S: > 0 °C ±1.9 K, type T: > -200 °C ±0.8 K
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference	erence frequency
Series mode interference (peak value of interference < rated value of input range), min.	40 dB
Common mode voltage, max.	10 V
Common mode interference, min.	60 dB
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
Diagnostic alarm	Yes
Limit value alarm	Yes; two upper and two lower limit values in each case
Diagnoses	
Monitoring the supply voltage	Yes
Wire-break	Yes; Only for 1 to 5 V, 4 to 20 mA, TC, R, and RTD
Overflow/underflow	Yes
Diagnostics indication LED	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
Monitoring of the supply voltage (PWR-LED)	Yes; green LED
Channel status display	Yes: green LED
Orianno diapiay	TOO, GIVEN LED

for channel diagnostics	Yes; red LED
for module diagnostics	Yes; red LED
Potential separation	
Potential separation channels	
between the channels	No
between the channels, in groups of	8
between the channels and backplane bus	Yes
between the channels and the power supply of the	Yes
electronics	
Permissible potential difference	
between the inputs (UCM)	20 V DC
Between the inputs and MANA (UCM)	10 V DC
Isolation	
Isolation tested with	750 V DC (type test) and according to EN 50155 (routine test)
Standards, approvals, certificates	
Ecological footprint	
environmental product declaration	Yes
Global warming potential	00.0 km
— global warming potential, (total) [CO2 eq]	38.6 kg
 — global warming potential, (during production) [CO2 eq] 	14.4 kg
— global warming potential, (during operation) [CO2 eq]	24.6 kg
— global warming potential, (after end of life cycle) [CO2 eq]	-0.44 kg
Railway application	
• EN 50121-3-2	Yes; EMC for rail vehicles
• EN 50121-4	Yes; EMC for signal and telecommunications systems
• EN 50121-5	Yes; EMC for fixed installations and railway power supply equipment
• EN 50124-1	Yes; Railway applications - overvoltage category OV2; pollution degree PD2; rated surge voltage UNi = 0.5 kV; UNm = 24 V DC
● 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.	40 °C; = Tmax
Altitude during operation relating to sea level	0.000
Installation altitude above sea level, max. Architect distance posture become atticular procesure altitude.	2 000 m
Ambient air temperature-barometric pressure-altitude Polotive hymidit	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 may	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
2-38, max. Resistance	HOHZOHQI IIISIQIIQUOII
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 land craft, rail vehicles and special-purpose vehicles	
200 or land oran, fair formation and openial purpose formation	

 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; *
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	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	310 g
Other	
Note:	for use in railway applications, also observe the product information "SIPLUS extreme RAIL" A5E37661960A, Online Support article 109736776

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