SIEMENS

Data sheet 6AG1331-1KF02-7AB0

Figure similar

spare part SIPLUS S7-300 SM 331 8 AI based on 6ES7331-1KF02-0AB0 with conformal coating, -25…+70 °C, isolated 8 AI, resolution 13 bit U/I/resistance/Pt100, NI100, NI1000, LG-NI1000, PTC/KTY, 66 ms conversion time; 1x 40-pole

General information	
based on	6ES7331-1KF02-0AB0
Product function	
● Isochronous mode	No
Input current	
from backplane bus 5 V DC, max.	90 mA
Power loss	
Power loss, typ.	0.4 W
Analog inputs	
Number of analog inputs	8
● For resistance measurement	8
permissible input voltage for voltage input (destruction limit), max.	30 V; 12 V continuous, 30 V for max. 1 s
permissible input current for current input (destruction limit), max.	40 mA
Input ranges	
● Voltage	Yes
● Current	Yes
● Thermocouple	No
● Resistance thermometer	Yes
● Resistance	Yes
Input ranges (rated values), voltages	
● 0 to +10 V	Yes
— Input resistance (0 to 10 V)	100 kΩ
● 1 V to 5 V	Yes
— Input resistance (1 V to 5 V)	100 kΩ
● 1 V to 10 V	No
● -1 V to +1 V	Yes
— Input resistance (-1 V to +1 V)	100 kΩ
● -10 V to +10 V	Yes
— Input resistance (-10 V to +10 V)	100 kΩ
● -2.5 V to +2.5 V	No
● -250 mV to +250 mV	No
● -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)	100 kΩ
● -500 mV to +500 mV	Yes

— Input resistance (-500 mV to +500 mV)	100 kΩ
● -80 mV to +80 mV	No
Input ranges (rated values), currents	
● 0 to 20 mA	Yes
— Input resistance (0 to 20 mA)	100 Ω
● -10 mA to +10 mA	No
● -20 mA to +20 mA	Yes
— Input resistance (-20 mA to +20 mA)	100 Ω
● -3.2 mA to +3.2 mA	No
● 4 mA to 20 mA	Yes
— Input resistance (4 mA to 20 mA)	100 Ω
Input ranges (rated values), thermocouples	
● type B	No
● type C	No
● Type E	No
● Type J	No
● Type K	No
● Type L	No
● Type N	No
● Type R	No
● Type S	No
● Type T	No
● Type U	No
● Type TXK/TXK(L) to GOST	No
Input ranges (rated values), resistance thermometer	
● Cu 10	No
● Ni 100	Yes; Standard/climate
— Input resistance (Ni 100)	100 MΩ
● Ni 1000	Yes
— Input resistance (Ni 1000)	100 MΩ
● LG-Ni 1000	Yes; Standard/climate
— Input resistance (LG-Ni 1000)	100 MΩ
● Ni 120	No
● Ni 200	No
● Ni 500	No
● Pt 100	Yes; Standard/climate
— Input resistance (Pt 100)	100 MΩ
● Pt 1000	No
● Pt 200	No
● Pt 500	No
Input ranges (rated values), resistors	
● 0 to 150 ohms	No
● 0 to 300 ohms	No
● 0 to 600 ohms	Yes
— Input resistance (0 to 600 ohms)	100 MΩ
● 0 to 6000 ohms	Yes
— Input resistance (0 to 6000 ohms)	100 MΩ
Characteristic linearization	
● Parameterizable	Yes
— for resistance thermometer	yes; Pt100 standard/air con.; Ni100 standard/air con.; Ni1000 standard/air con.; LG-Ni1000 standard/air con.
Cable length	
● shielded, max.	200 m; max. 50 m at 50 mV
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
● Resolution with overrange (bit including sign), max.	13 bit
● Integration time, parameterizable	Yes; 60 / 50 ms
● Basic conversion time (ms)	66 / 55 ms
● Interference voltage suppression for interference	50 / 60 Hz

frequency f1 in Hz	
Encoder	
Connection of signal encoders	
● for voltage measurement	Yes
● for current measurement as 2-wire transducer	Yes; with external supply
● for current measurement as 4-wire transducer	Yes
● for resistance measurement with two-wire connection	Yes
● for resistance measurement with three-wire connection	Yes
● for resistance measurement with four-wire connection	Yes
Errors/accuracies	
Operational error limit in overall temperature range	
● Voltage, relative to input range, (+/-)	0.6 %; ±0.6 % (±5 V, 10 V, 1 to 5 V, 0 to 10 V); ±0.5 % (±50 mV, 500 mV, 1 V) @ 0 ... +60 °C; ±0.7 % (±5 V, 10 V, 1 to 5 V, 0 to 10 V); ±0.6 % (±50 mV, 500 mV, 1 V) @ -25 ... +70 °C
● Current, relative to input range, (+/-)	0.5 %; @ 0 ... +60 °C; ±0.6% @ -25 ... +70 °C; ±20 mA, 0 to 20 mA, 4 to 20 mA
● Resistance, relative to input range, (+/-)	0.5 %; @ 0 ... +60 °C; 0.6% @ -25 ... +70 °C; 0 to 6 kohm, 0 to 600 kohm
● Resistance thermometer, relative to input range, (+/-)	1 Kelvin (Pt100, Ni100, climate; Ni1000, LG-Ni1000, standard; Ni1000, LG-Ni1000, climate); 1.2 Kelvin (Pt100, Ni100, standard) @ 0 ... +60 °C; 1.2 Kelvin (Pt100, Ni100, climate; Ni1000, LG-Ni1000, standard; Ni1000, LG-Ni1000, climate); 1.4 Kelvin (Pt100, Ni100, standard) @ -25 ... +70 °C
Basic error limit (operational limit at 25 °C)	
● Voltage, relative to input range, (+/-)	0.4 %; 0.4% (±5 V, 10 V, 1 to 5 V, 0 to 10 V); 0.3% (±50 mV, 500 mV, 1 V)
● Current, relative to input range, (+/-)	0.3 %; ±20 mA, 0 to 20 mA, 4 to 20 mA
● Resistance, relative to input range, (+/-)	0.3 %; 0 to 6 kohms, 0 to 600 kohms
● Resistance thermometer, relative to input range, (+/-)	1 Kelvin (Pt100, Ni100, standard); 0.8 Kelvin (Pt100, Ni100, climatic; Ni1000, LG-Ni1000, standard; Ni1000, LG-Ni1000, climatic)
Interrupts/diagnostics/status information	
Diagnostics function	No
Alarms	
● Diagnostic alarm	No
● Limit value alarm	No
Diagnoses	
● Diagnostic information readable	No
Diagnostics indication LED	
● Group error SF (red)	No
Potential separation	
Potential separation analog inputs	
● between the channels	No
● between the channels and backplane bus	Yes
Isolation	
Isolation tested with	500 V DC
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes; File E239877
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
Railway application	
● EN 50121-4	No
● EN 50155	No
Ambient conditions	
Ambient temperature during operation	
● min.	-25 °C
● max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Altitude during operation relating to sea level	
● Installation altitude above sea level, max.	5 000 m
● Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
● With condensation, tested in accordance with IEC 60068-	100 %; RH incl. condensation/frost (no commissioning under condensation

2-38, max.	conditions)
Resistance	
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; *
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!
Connection method	
required front connector	40-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	117 mm
Weights	
Weight, approx.	250 g

Classifications

	Version	Classification
eClass	14	27-24-22-01
eClass	12	27-24-22-01
eClass	9.1	27-24-22-01
eClass	9	27-24-22-01
eClass	8	27-24-22-01
eClass	7.1	27-24-22-01
eClass	6	27-24-22-01
ETIM	10	EC001420
ETIM	9	EC001420
ETIM	8	EC001420
ETIM	7	EC001420
IDEA	4	3562
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

CE EG-Konf. | Manufacturer Declaration | UKCA | China RoHS | UL | EAC

EMV	For use in hazardous locations

CCC-Ex

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