SIEMENS

Product data sheet 6AG1331-7KF02-2AB0

SIPLUS S7-300 SM331 20-POLE -25 ... +70 DGR C WITH CONFORMAL COATING CONFORMITY WITH EN50155 T1 KAT 1 KL A/B BASED ON 6ES7331-7KF02-0AB0 . ANALOG INPUT GALVANICALLY ISOLATED 8 AI, AUFL. 9/12/14 BIT, U/I/THERMOEL./RESISTOR, ALARM, DIAGNOSTICS, 1 X 20-POLE, REMOVE/INSERT W.ACT. BACKPLANE BUS

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Supply voltage	
Load voltage L+	
Rated value (DC)	24 V
Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	200 mA
from backplane bus 5 V DC, max.	50 mA
Power losses	
Power loss, typ.	1 W
Analog inputs	
Number of analog inputs	8
Number of analog inputs for resistance measurement	4
permissible input voltage for voltage input (destruction limit), max.	20 V ; continuous; 75 V for max. 1 s (mark to space ratio 1:20)
permissible input current for current input (destruction limit), max.	40 mA
Input ranges	
Voltage	Yes
Current	Yes
Thermocouple	Yes
Resistance thermometer	Yes

Resistance	Yes
Input ranges (rated values), voltages	
0 to +10 V	No
1 to 5 V	Yes
Input resistance (1 to 5 V)	100 kΩ
1 to 10 V	No
-1 V to +1 V	Yes
Input resistance (-1 V to +1 V)	10 MΩ
-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)	100 kΩ
-250 mV to +250 mV	Yes
Input resistance (-250 mV to +250 mV)	10 MΩ
-5 V to +5 V	Yes
Input resistance (-5 V to +5 V)	100 kΩ
-50 mV to +50 mV	No
-500 mV to +500 mV	Yes
Input resistance (-500 mV to +500 mV)	10 MΩ
-80 mV to +80 mV	Yes
Input resistance (-80 mV to +80 mV)	10 MΩ
Input ranges (rated values), currents	
0 to 20 mA	Yes
Input resistance (0 to 20 mA)	25 Ω
-10 to +10 mA	Yes
Input resistance (-10 to +10 mA)	25 Ω
-20 to +20 mA	Yes
Input resistance (-20 to +20 mA)	25 Ω
-3.2 to +3.2 mA	Yes
Input resistance (-3.2 to +3.2 mA)	25 Ω
4 to 20 mA	Yes
Input resistance (4 to 20 mA)	25 Ω
Input ranges (rated values), thermoelements	
Type B	No
Type E	Yes
Input resistance (Type E)	10 MΩ
Type J	Yes
Input resistance (type J)	10 MΩ
Type K	Yes

Input resistance (Type K)	10 MΩ
Type L	No
Type N	Yes
Input resistance (Type N)	10 MΩ
Type R	No
Type S	No
Type T	No
Type U	No
Type TXK/TXK(L) to GOST	No
Input ranges (rated values), resistance thermometers	
Cu 10	No
Ni 100	Yes ; Standard
Input resistance (Ni 100)	10 MΩ
Ni 1000	No
LG-Ni 1000	No
Ni 120	No
Ni 200	No
Ni 500	No
Pt 100	Yes ; Standard
Input resistance (Pt 100)	10 MΩ
Pt 1000	No
Pt 200	No
Pt 500	No
Input ranges (rated values), resistors	
0 to 150 ohms	Yes
Input resistance (0 to 150 ohms)	10 MΩ
0 to 300 ohms	Yes
Input resistance (0 to 300 ohms)	10 MΩ
0 to 600 ohms	Yes
Input resistance (0 to 600 ohms)	10 MΩ
0 to 6000 ohms	No
Thermocouple (TC)	
Characteristic linearization	
for thermocouples	Type E, J, K, L, N
Temperature compensation	
Parameterizable	Yes
internal temperature compensation	Yes
external temperature compensation with compensations socket	Yes

Resistance thermometer (RTD)	
Characteristic linearization	
for resistance thermometer	Pt100 (standard, climatic range), Ni100 (standard, climatic range)
Characteristic linearization	
Parameterizable	Yes
Cable length	
Cable length, shielded, max.	200 m ; 50 m at 80 mV and thermocouples
Analog value creation	
Measurement principle	integrating
Integrations and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	15 bit ; Unipolar: 9/12/12/14 bits; bipolar: 9 bits + sign/12 bits + sign/12 bits + sign/14 bits + sign
Integration time, parameterizable	Yes ; 2,5 / 16,67 / 20 / 100 ms
Interference voltage suppression for interference frequency f1 in Hz	400 / 60 / 50 / 10 Hz
Encoder	
Connection of signal encoders	
for current measurement as 2-wire transducer	Yes
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 limit in overall temperature range	
Voltage, relative to input area, (+/-)	1 % ; +/-1% (80 mV); +/-0.6% (250 to 1000 mV); +/-0.8% (2.5 to 10 V) @ 0 ... +60 °C; +/-1.3% (80 mV); +/-0.8% (250 to 1000 mV); +/-1% (2.5 to 10 V) -25 ... +70 °C
Current, relative to input area, (+/-)	0.7 % ; @ 0 ... +60 °C; +/-0.9% @ -25 ... +70 °C; from 3.2 to 20 mA;
Resistance, relative to input area, (+/-)	0.7 % ; @ 0 ... +60 °C; +/- 0.9% @ -25 ... +70 °C; 150, 300, 600 ohm
Resistance thermometer, relative to input area, (+/-)	0.7 % ; ±0.7 % (Pt100 / Ni100); ±0.8 % (Pt100 climate) @ 0 ... +60 °C; ±0.9 % (Pt100 / Ni100); ±1 % (Pt100 climate) @ -25 ... +70 °C
Basic error limit (operational limit at 25 °C)	
Voltage, relative to input area, (+/-)	0.6 % ; +/-0.4% (250 to 1000 mV); +/-0.6 % (2.5 to 10 mV); +/-0.7 % (80 mV)
Current, relative to input area, (+/-)	0.5 % ; 3.2 to 20 mA
Resistance, relative to input area, (+/-)	0.5 % ; 150, 300, 600 Ohm
Resistance thermometer, relative to input area, (+/-)	0.6 % ; +/-0.5% (Pt100/ Ni100); +/-0.6% (Pt100 climate)
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No
Interrupts/diagnostics/status information	

Alarms	
Diagnostic alarm	Yes ; Parameterizable, channels 0 and 2
Limit value alarm	Yes ; Parameterizable
Diagnostic messages	
Diagnostic functions	Yes ; Parameterizable
Diagnostic information readable	Yes
Diagnostics	Yes
Diagnostics indication LED	
Group error SF (red)	Yes
Galvanic isolation	
Galvanic isolation analog inputs	
between the channels	No
between the channels and the backplane bus	Yes
Isolation	
Isolation checked with	500 V DC
Standards, approvals, certificates	
CE mark	Yes
KC approval	Yes
UL approval	Yes ; File E239877
RCM (former C-TICK)	Yes
FM approval	Yes ; CofC 3028431
EAC (former Gost-R)	Yes
EN 50155	Yes ; T1 Cat. 1 Cl. A/B horizontal mounting position
EN 50121-4	No
Ambient conditions	
Operating temperature	
Min.	-25 °C ; = Tmin
max.	70 °C ; = Tmax; for use on railway vehicles according to EN50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/ULhaz/ATEX/FM use applies
Extended ambient conditions	
Relative humidity	
with condensation, maximum	100 % ; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
to biologically active substances/conformity with EN 60721-3-3	Yes ; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!
to chemically active substances/conformity with EN 60721-3-3	Yes ; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!

to mechanically active substances/conformity with EN 60721 -3-3	Yes ; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!
Connection method	
required front connector	20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	250 g
Status	Jun 16, 2014