SIEMENS

Data sheet 6ES7331-7SF00-0AB0



********** spare part ********* SIMATIC S7, analog input SM 331, isolated, 8 AI thermocouples/4 AI Pt100, for signals from the hazardous area, diagnostics-capable, PTB tested, 1 x 20-pole

Supply voltage	
Load voltage L+	
● Rated value (DC)	24 V
Input current	
from backplane bus 5 V DC, max.	120 mA
Power loss	
Power loss, typ.	0.6 W
Analog inputs	
Number of analog inputs	8; 8x thermocouples; 4x RTD thermoresistors
Input ranges	
● Voltage	Yes
● Current	No
● Thermocouple	Yes
● Resistance thermometer	Yes
● Resistance	Yes
Input ranges (rated values), voltages	
● -1 V to +1 V	Yes
— Input resistance (-1 V to +1 V)	10 MΩ
● -25 mV to +25 mV	Yes
— Input resistance (-25 mV to +25 mV)	10 MΩ
● -250 mV to +250 mV	Yes
— Input resistance (-250 mV to +250 mV)	10 MΩ
● -50 mV to +50 mV	Yes
— Input resistance (-50 mV to +50 mV)	10 MΩ
● -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), thermocouples	
● type B	Yes
— Input resistance (Type B)	10 MΩ
● 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	Yes
— Input resistance (Type L)	10 MΩ

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● Type N	Yes
— Input resistance (Type N)	10 MΩ
● Type R	Yes
— Input resistance (Type R)	10 MΩ
● Type S	Yes
— Input resistance (Type S)	10 MΩ
● Type T	Yes
— Input resistance (Type T)	10 MΩ
● Type U	Yes
— Input resistance (Type U)	10 MΩ
Input ranges (rated values), resistance thermometer	
● Ni 100	Yes
— Input resistance (Ni 100)	10 MΩ
● Pt 100	Yes
— Input resistance (Pt 100)	10 MΩ
● Pt 200	Yes
— Input resistance (Pt 200)	10 MΩ
Cable length	
● shielded, max.	200 m; TC: 50 m
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
● Resolution with overrange (bit including sign), max.	16 bit; 10 bit to 15 bit + sign
● Integration time, parameterizable	Yes; 2.5 to 100 ms
● Interference voltage suppression for interference frequency f1 in Hz	10 to 400 Hz
Encoder	
Connection of signal encoders	
● for current measurement as 2-wire transducer	Yes
● for current measurement as 4-wire transducer	Yes
Errors/accuracies	
Operational error limit in overall temperature range	
● Resistance thermometer, relative to input range, (+/-)	0.04 %; 0.09 to 0.04%
Basic error limit (operational limit at 25 °C)	
● Resistance thermometer, relative to input range, (+/-)	0.008 %; 0.018 ... 0.008%
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Diagnoses	
● Diagnostic information readable	Yes
● Overrange	Yes
● Wire-break in signal transmitter cable	Yes
● Short-circuit of the signal encoder cable	Yes
Diagnostics indication LED	
● Group error SF (red)	Yes
● Channel fault indicator F (red)	Yes
Ex(i) characteristics	
Module for Ex(i) protection	Yes
maximum values for connecting terminals for gas group IIC	
● Uo (no-load voltage), max.	5.9 V
● Io (short-circuit current), max.	28.8 mA
● Po (power output), max.	41.4 mW
● Co (permissible external capacity), max.	43 µF
● Lo (permissible external inductivity), max.	40 mH
Potential separation	
Potential separation analog inputs	
● between the channels	No
● between the channels and backplane bus	Yes
Standards, approvals, certificates	
Use in hazardous areas	
● ATEX marking	ATEX II 3 G (2) GD Ex nA [ib Gb] [ib IIIC Db] IIC T4 Gc

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● FM marking	Class I, Division 2, Group A, B, C, D T4
● Test number PTB	Ex-96.D.2108X
Ambient conditions	
Ambient temperature during operation	
● max.	60 °C
Connection method	
required front connector	20-pin
Weights	
Weight, approx.	210 g

Classifications

	Version	Classification
eClass	16	27-24-22-01
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

Manufacturer Declaration | Miscellaneous | Declaration of Conformity

General Product Approval | **For use in hazardous locations**

Metrological Approval | China RoHS | Manufacturer Declaration | Miscellaneous

For use in hazardous locations

FM | CCC-Ex

Maritime application

NK / Nippon Kaiji Kyokai

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