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Data sheet 6ES7331-7PE10-0AB0



Figure similar

spare part SIMATIC S7-300, analog input SM 331, single channel isolated 250 V AC, 6 AI thermocouples type B, E, J, K, L, N, R, S, T voltage: +/-25 MV to +/-1 V 16 bit, 50 ms, 1x 40-pole

General information	
Product function	
● Isochronous mode	No
Supply voltage	
Load voltage L+	
● Rated value (DC)	24 V
● Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	150 mA
from backplane bus 5 V DC, max.	100 mA
Power loss	
Power loss, typ.	2.2 W
Analog inputs	
Number of analog inputs	6
permissible input voltage for voltage input (destruction limit), max.	35 V; 35 V continuous, 75 V for max. 1 s (mark to space ratio 1:20)
Constant measurement current for resistance-type transmitter, typ.	0.7 mA
Input ranges	
● Voltage	Yes
● Current	No
● Thermocouple	Yes
● Resistance thermometer	No
● Resistance	No
Input ranges (rated values), voltages	
● 0 to +10 V	No
● 1 V to 5 V	No
● 1 V to 10 V	No
● -1 V to +1 V	Yes
— Input resistance (-1 V to +1 V)	10 MΩ
● -10 V to +10 V	No
● -2.5 V to +2.5 V	No
● -250 mV to +250 mV	Yes
— Input resistance (-250 mV to +250 mV)	10 MΩ
● -5 V to +5 V	No
● -50 mV to +50 mV	Yes
— Input resistance (-50 mV to +50 mV)	10 MΩ
● -500 mV to +500 mV	Yes

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— 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	No
● -10 mA to +10 mA	No
● -20 mA to +20 mA	No
● -3.2 mA to +3.2 mA	No
● 4 mA to 20 mA	No
Input ranges (rated values), thermocouples	
● type B	Yes
— Input resistance (Type B)	10 MΩ
● type C	Yes
— Input resistance (Type C)	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
● 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
● Type TXK/TXK(L) to GOST	Yes
— Input resistance (Type TXK/TXK(L) to GOST)	10 MΩ
Input ranges (rated values), resistance thermometer	
● Cu 10	No
● Ni 100	No
● Ni 1000	No
● LG-Ni 1000	No
● Ni 120	No
● Ni 200	No
● Ni 500	No
● Pt 100	No
● 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	No
● 0 to 6000 ohms	No
Thermocouple (TC)	
Temperature compensation	
— Parameterizable	Yes
— internal temperature compensation	Yes
— external temperature compensation with Pt100	Yes
— external temperature compensation with compensations socket	Yes
— for definable comparison point temperature	Yes

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Characteristic linearization	
● Parameterizable	Yes
— for thermocouples	Type B, E, J, K, L, N, R, S. T, U, C, TXK, XK(L)
— for resistance thermometer	No
Cable length	
● shielded, max.	200 m
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
● Resolution with overrange (bit including sign), max.	16 bit; Two's complement
● Integration time, parameterizable	Yes
● Basic conversion time (ms)	30 / 50 / 60 / 300 ms
● Integration time (ms)	10/ 16.67/ 20/ 100 ms
● Interference voltage suppression for interference frequency f1 in Hz	10 / 50 / 60 / 400 Hz
Encoder	
Connection of signal encoders	
● for voltage measurement	Yes
Errors/accuracies	
Operational error limit in overall temperature range	
● Voltage, relative to input range, (+/-)	Operating error at 0 ... 60 °C: ±0.12% @ ±25 mV, ±0.08% @ ±50 mV, ±0.6% @ ±80 mV, ±0.05% @ ±250 mV, ±0.05% @ 500 mV, ±0.05% @ ±1 V
● Thermocouple, relative to input range, (+/-)	See manual for details
Basic error limit (operational limit at 25 °C)	
● Voltage, relative to input range, (+/-)	See manual for details
● Thermocouple, relative to input range, (+/-)	See manual for details
Interrupts/diagnostics/status information	
Diagnostics function	Yes; Parameterizable
Alarms	
● Diagnostic alarm	Yes; channel by channel
● Limit value alarm	Yes; Parameterizable
● Hardware interrupt	Yes; Parameterizable
Diagnoses	
● Diagnostic information readable	Yes
Diagnostics indication LED	
● Group error SF (red)	Yes
Potential separation	
Potential separation analog inputs	
● between the channels	Yes
● between the channels, in groups of	1
● between the channels and backplane bus	Yes
● between the channels and the power supply of the electronics	Yes
Isolation	
Isolation tested with	2 500 V DC
Connection method	
required front connector	40-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	272 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

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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





Miscellaneous

Manufacturer Declaration



Metrological Approval

General Product Approval





China RoHS

Manufacturer Declaration

EMV





EMV



For use in hazardous locations



FM







For use in hazardous locations

Miscellaneous

CCC-Ex

Maritime application







NK / Nippon Kaiji Kyokai

Maritime application





CCS (China Classification Society)

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