SIEMENS

Data sheet 6ES7331-7PF11-0AB0

Figure similar

spare part SIMATIC S7-300, analog input SM 331, isolated, 8 AI thermocouples type B, E, J, K, L, N, R, S, T TXK/TXK (L) according to GOST 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.	240 mA
from backplane bus 5 V DC, max.	100 mA
Power loss	
Power loss, typ.	3 W
Analog inputs	
Number of analog inputs	8
permissible input voltage for voltage input (destruction limit), max.	75 V; 20 V DC permanent, 75 V DC for max. 1 s (duty factor 1:20)
Constant measurement current for resistance-type transmitter, typ.	0.7 mA
Input ranges	
● Voltage	No
● 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	No
● -10 V to +10 V	No
● -2.5 V to +2.5 V	No
● -250 mV to +250 mV	No
● -5 V to +5 V	No
● -50 mV to +50 mV	No
● -500 mV to +500 mV	No
● -80 mV to +80 mV	No
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
● type C	Yes
● Type E	Yes
● Type J	Yes
● Type K	Yes
● Type L	Yes
● Type N	Yes
● Type R	Yes
● Type S	Yes
● Type T	Yes
● Type U	Yes
● Type TXK/TXK(L) to GOST	Yes
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
Characteristic linearization	
● Parameterizable	Yes
— for thermocouples	Type B, E, J, K, L, N, R, S. T, U, C
Cable length	
● shielded, max.	100 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)	Up to 4 channels: 10 ms per module, 5 channels upwards: 190 ms per module
● Interference voltage suppression for interference frequency f1 in Hz	400 / 60 / 50 Hz
Errors/accuracies	
Operational error limit in overall temperature range	
● Voltage, relative to input range, (+/-)	±1 K
● Thermocouple, relative to input range, (+/-)	Type T: ±0.18%, Type U: ±0.15%, Type E: ±0.12%, Type J: ±0.12%, Type L: ±0.17%, Type K: ±0.15%, Type N: ±0.17%, Type R: ±0.08%, Type S: ±0.10%, Type B: ±0.13%, Type C: ±0.10%, TXK/XK(L): ±1.00% accuracy in the lower

	range of the characteristic curve
Basic error limit (operational limit at 25 °C)	
● Thermocouple, relative to input range, (+/-)	Type T: ±0.13%, Type U: ±0.08%, Type E: ±0.05%, Type J: ±0.04%, Type L: ±0.06%, Type K: ±0.04%, Type N: ±0.04%, Type R: ±0.03%, Type S: ±0.03%, Type B: ±0.05%, Type C: ±0.02%, TXK/XK(L): ±0.67 % accuracy in the lower range of the characteristic curve
Interrupts/diagnostics/status information	
Diagnostics function	Yes; Parameterizable
Alarms	
● Diagnostic alarm	Yes; Parameterizable per group
● Limit value alarm	Yes; Parameterizable
● Hardware interrupt	Yes; Parameterizable, channels 0 to 7
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	2
● between the channels and backplane bus	Yes
● between the channels and the power supply of the electronics	Yes
Isolation	
Isolation tested with	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	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

Miscellaneous | Manufacturer Declaration | CE EG-Konf. | UKCA | Declaration of Conformity | UL

General Product Approval	EMV

Metrological Approval

China RoHS

Manufacturer Declaration

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)

last modified: 4/7/2025