SIEMENS

Data sheet 6ES7331-7NF10-0AB0



Figure similar

spare part SIMATIC S7-300, analog input SM 331, isolated, 8 AI; +/-5/10V, 1-5 V, +/-20 mA, 0/4 to 20 mA, 16 bit, single-point grounding (60 V common), 4-channel operation: 10 ms, 8-channel operation: 23-95 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.	200 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; 35 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	No
● Resistance thermometer	No
● Resistance	No
Input ranges (rated values), voltages	
● 0 to +10 V	No
● 1 V to 5 V	Yes
— Input resistance (1 V to 5 V)	10 MΩ
● 1 V to 10 V	No
● -1 V to +1 V	No
● -10 V to +10 V	Yes
— Input resistance (-10 V to +10 V)	10 MΩ
● -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)	10 MΩ
● -50 mV to +50 mV	No
● -500 mV to +500 mV	No

© Copyright Siemes

● -80 mV to +80 mV	No
Input ranges (rated values), currents	
● 0 to 20 mA	Yes
— Input resistance (0 to 20 mA)	250 Ω
● -10 mA to +10 mA	No
● -20 mA to +20 mA	Yes
— Input resistance (-20 mA to +20 mA)	250 Ω
● -3.2 mA to +3.2 mA	No
● 4 mA to 20 mA	Yes
— Input resistance (4 mA to 20 mA)	250 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	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
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; Unipolar: 15/15/15/15 bit; bipolar: 15 bit + sign/15 bit + sign/15 bit + sign/15 bit + sign
● Integration time, parameterizable	Yes; 23 / 72 / 83 / 95 ms
● Basic conversion time (ms)	10 ms (4-channel mode); 95/83/72/23 ms (8-channel mode)
● Interference voltage suppression for interference frequency f1 in Hz	400 / 60 / 50 Hz, combinations of 400, 60, 50 Hz
Encoder	
Connection of signal encoders	
● for voltage measurement	Yes
● for current measurement as 2-wire transducer	Yes; with external transmitter, current supply; possible with separate supply for transmitter
● for current measurement as 4-wire transducer	Yes
Errors/accuracies	
Operational error limit in overall temperature range	
● Voltage, relative to input range, (+/-)	0.1 %
● Current, relative to input range, (+/-)	0.1 %

© Copyright Siemes

Basic error limit (operational limit at 25 °C)	
● Voltage, relative to input range, (+/-)	0.05 %
● Current, relative to input range, (+/-)	0.05 %
Interrupts/diagnostics/status information	
Diagnostics function	Yes; Parameterizable
Alarms	
● Diagnostic alarm	Yes; Parameterizable
● Limit value alarm	Yes; Parameterizable all channels (end of cycle interrupt is also supported across modules)
● Hardware interrupt	Yes; Parameterizable, channels 0 to 7 (on exceeding limit value), at end of cycle
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 AC
Connection method	
required front connector	40-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	117 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
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	EMV

© Copyright Siemens

China RoHS | Manufacturer Declaration

EMV	For use in hazardous locations

FM | Miscellaneous

For use in hazardous locations	Maritime application

CCC-Ex | NK / Nippon Kaiji Kyokai

Maritime application

CCS (China Classification Society)

last modified: 4/7/2025

© Copyright Siemes