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Data sheet 6ES7331-7HF01-0AB0

spare part SIMATIC S7-300, analog input SM 331, isolated, 8 AI, resolution 14 bit, 0.052 ms/channel current, voltage alarm, diagnostics, 1x 20-pole, suitable for isochronous mode improved bus cycle time for isochronous mode

General information	
Product function	
● Isochronous mode	Yes
Supply voltage	
Load voltage L+	
● Rated value (DC)	24 V
● Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	50 mA
from backplane bus 5 V DC, max.	100 mA
Power loss	
Power loss, typ.	1.5 W
Analog inputs	
Number of analog inputs	8
permissible input voltage for voltage input (destruction limit), max.	20 V; 20 V DC permanent, 75 V DC for max. 1 s (duty factor 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)	100 kΩ
● -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
● -5 V to +5 V	Yes
— Input resistance (-5 V to +5 V)	100 kΩ
● -500 mV to +500 mV	Yes
● -80 mV to +80 mV	Yes
Input ranges (rated values), currents	
● 0 to 20 mA	Yes
— Input resistance (0 to 20 mA)	50 Ω
● -20 mA to +20 mA	Yes
— Input resistance (-20 mA to +20 mA)	50 Ω
● 4 mA to 20 mA	Yes
— Input resistance (4 mA to 20 mA)	50 Ω
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.	14 bit; Unipolar: 14 bit; bipolar: 13 bit + sign
● Integration time, parameterizable	Yes

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● Basic conversion time (ms)	52 µs per channel
● Interference voltage suppression for interference frequency f1 in Hz	none / 400 / 60 / 50 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	
● Voltage, relative to input range, (+/-)	0.4 %
● Current, relative to input range, (+/-)	0.3 %
Basic error limit (operational limit at 25 °C)	
● Voltage, relative to input range, (+/-)	0.25 %
● Current, relative to input range, (+/-)	0.2 %
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
● Diagnostic alarm	Yes; Parameterizable
● Limit value alarm	Yes; Parameterizable, channels 0 and 2
Diagnoses	
● Diagnostic information readable	Yes
Diagnostics indication LED	
● Group error SF (red)	Yes
Potential separation	
Potential separation analog inputs	
● between the channels	No
● 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	20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	117 mm
Weights	
Weight, approx.	230 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

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General Product Approval




Miscellaneous | Manufacturer Declaration


Metrological Approval

General Product Approval | **EMV**




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)

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