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Data sheet 6ES7431-0HH00-0AB0



Figure similar

SIMATIC S7-400, analog input SM 431, non-isolated 16 AI, resolution 13 bit, +/-10 V, +/-20 mA, 4 - 20 mA 20 ms conversion time

Supply voltage	
Load voltage L+	
● Rated value (DC)	24 V; Only required for supplying 2-wire transmitters
● Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	400 mA; for 16 connected, fully controlled 2-wire transmitters
from backplane bus 5 V DC, max.	100 mA
Power loss	
Power loss, typ.	2 W
Analog inputs	
Number of analog inputs	16
● For voltage/current measurement	16
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
Constant measurement current for resistance-type transmitter, typ.	1.67 mA
Input ranges	
● Voltage	Yes
● Current	Yes
● Thermocouple	No
● Resistance thermometer	No
● Resistance	No
Input ranges (rated values), voltages	
● 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
Input ranges (rated values), currents	
● -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	

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Integration and conversion time/resolution per channel	
● Resolution with overrange (bit including sign), max.	13 bit
● Integration time, parameterizable	Yes
● Basic conversion time (ms)	55 / 65 ms
● Integration time (ms)	50 / 60 ms
● Interference voltage suppression for interference frequency f1 in Hz	50 / 60 Hz
● Basic execution time of the module (all channels released)	1 040 ms; 880 / 1 040 ms
Encoder	
Connection of signal encoders	
● for voltage measurement	Yes; possible
● for current measurement as 4-wire transducer	Yes
Errors/accuracies	
Temperature error (relative to input range), (+/-)	0.01 %/K
Operational error limit in overall temperature range	
● Voltage, relative to input range, (+/-)	0.65 %; 1.0 % at 1 to 5 V; 0.65 % at ±1 V, ±10 V
● Current, relative to input range, (+/-)	0.65 %
Basic error limit (operational limit at 25 °C)	
● Voltage, relative to input range, (+/-)	0.25 %; 0.5% at 1 to 5 V; 0.25% at ±1 V, ±10 V
● Current, relative to input range, (+/-)	0.25 %; at ±20 mA, 4 to 20 mA
Interrupts/diagnostics/status information	
Diagnostics function	No
Potential separation	
Potential separation analog inputs	
● Potential separation analog inputs	No
● between the channels	No
● between the channels and backplane bus	No
● Between the channels and load voltage L+	No
Isolation	
Isolation tested with	500 V AC/707 V DC, type test
Dimensions	
Width	25 mm
Height	290 mm
Depth	210 mm
Weights	
Weight, approx.	500 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

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Miscellaneous

Metrological Approval

General Product Approval

China RoHS

Miscellaneous

Manufacturer Declaration

EMV

For use in hazardous locations

FM

Type Examination Certificate

For use in hazardous locations

Maritime application

NK / Nippon Kaiji Kyokai

Maritime application

CCS (China Classification Society)

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