SIEMENS

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	
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	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 | China RoHS | KC

General Product Approval	EMV		For use in hazardous locations	
Metrological Approval	RCM	RCM	RCM	ATEX	IECEx

For use in hazardous locations				Maritime application
FM	CCC	IECEx	Type Examination Certificate	ATEX	ABS

Maritime application					
BUREAU VERITAS	DNV	LRS	NK / Nippon Kaiji Kyokai	PRS	RINA

Maritime application	
RMRS	CCS (China Classification Society)

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