SIEMENS

Data sheet 6ES7431-7KF00-0AB0



Figure similar

SIMATIC S7-400, analog input SM 431, 8 AI, resolution 16 bit, U/I/Thermocouple, isolated with single rooting, diagnostics, alarm, 20 ms conversion time

Input current	
from backplane bus 5 V DC, max.	1 200 mA
Power loss	
Power loss, typ.	4.6 W
Analog inputs	
Number of analog inputs	8
● For voltage/current measurement	8
permissible input voltage for voltage input (destruction limit), max.	35 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.	32 mA
Input ranges	
● Voltage	Yes
● Current	Yes
● Thermocouple	Yes
● Resistance thermometer	No
● Resistance	No
Input ranges (rated values), voltages	
● 1 V to 5 V	Yes
— Input resistance (1 V to 5 V)	> 2 000 ohms
● -1 V to +1 V	Yes
● -10 V to +10 V	Yes
● -100 mV to +100 mV	Yes
● -2.5 V to +2.5 V	Yes
● -20 mV to +20 mV	Yes
● -250 mV to +250 mV	Yes
● -5 V to +5 V	Yes
● -50 mV to +50 mV	Yes
● -500 mV to +500 mV	Yes
● -80 mV to +80 mV	Yes
Input ranges (rated values), currents	
● 0 to 20 mA	Yes
● -10 mA to +10 mA	Yes
● -20 mA to +20 mA	Yes
● -3.2 mA to +3.2 mA	Yes
● 4 mA to 20 mA	Yes
— Input resistance (4 mA to 20 mA)	50 Ω
● -5 mA to +5 mA	Yes
Input ranges (rated values), thermocouples	

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● type B	Yes
— Input resistance (Type B)	> 2 000 ohms
● Type E	Yes
● Type J	Yes
● Type K	Yes
● Type L	Yes
● Type N	Yes
— Input resistance (Type N)	> 2 000 ohms
● Type R	Yes
● Type S	Yes
● Type T	Yes
● Type U	Yes
Thermocouple (TC)	
Temperature compensation	
— connection for compensating the cold junction	6ES7431-7KF00-6AA0
— Parameterizable	Yes
— internal temperature compensation	Yes
— external temperature compensation with compensations socket	Yes
— dynamic reference temperature value	Yes
Characteristic linearization	
● Parameterizable	Yes
— for thermocouples	Type B, E, J, K, L, N, R, S, T, U
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
● Integration time, parameterizable	Yes
● Basic conversion time (ms)	10 / 16,7 / 20 / 100
● Integration time (ms)	2,5 / 16,7 / 20 / 100
● Interference voltage suppression for interference frequency f1 in Hz	400 / 60 / 50 / 10 Hz
Encoder	
Connection of signal encoders	
● for voltage measurement	Yes; possible
● for current measurement as 4-wire transducer	Yes
● for resistance measurement with four-wire connection	Yes
Errors/accuracies	
Operational error limit in overall temperature range	
● Voltage, relative to input range, (+/-)	0.3 %
● Current, relative to input range, (+/-)	0.5 %
Basic error limit (operational limit at 25 °C)	
● Voltage, relative to input range, (+/-)	0.1 %
● Current, relative to input range, (+/-)	0.17 %
Interrupts/diagnostics/status information	
Diagnostics function	Yes; Parameterizable
Alarms	
● Diagnostic alarm	Yes; Parameterizable
● Limit value alarm	Yes
● Hardware interrupt	Yes; Parameterizable
Diagnoses	
● Diagnostic information readable	Yes; possible
Potential separation	
Potential separation analog inputs	
● Potential separation analog inputs	Yes; internal/external
● between the channels	Yes
● between the channels and backplane bus	Yes
Isolation	

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Isolation tested with	1 500 V DC
Dimensions	
Width	25 mm
Height	290 mm
Depth	210 mm
Weights	
Weight, approx.	650 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

CE EG-Konf. | Manufacturer Declaration | Miscellaneous | UKCA | UL | Metrological Approval

General Product Approval | **EMV**

KC | RCM | China RoHS | Miscellaneous | Manufacturer Declaration | RCM

EMV | **For use in hazardous locations**

RCM | ATEX | FM | CCC | UL | IECEx

For use in hazardous locations | **Maritime application**

Type Examination Certificate | ATEX | ABS | BUREAU VERITAS | DNV | LRS

Maritime application

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CCS (China Classification Society)

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