SIEMENS

Data sheet 6ES7431-7KF10-0AB0

SIMATIC S7-400, analog input SM 431, 8 AI, resolution 16 bit, resistor/PT100/NI100 isolated, diagnostics alarm, 20 ms conversion time

Figure similar

Input current	
from backplane bus 5 V DC, max.	650 mA
Power loss	
Power loss, typ.	3.3 W
Analog inputs	
Number of analog inputs	8
• For resistance 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)
Input ranges	
• Voltage	No
• Current	No
• Thermocouple	No
• Resistance thermometer	Yes
• Resistance	Yes
Input ranges (rated values), resistance thermometer	

• Ni 100	Yes
• Input resistance (Ni 100)	> 10 000 ohms
• Ni 1000	Yes; Different characteristics selectable: Europe/U.S.
• Input resistance (Ni 1000)	> 10 000 ohms
• Pt 100	Yes
• Input resistance (Pt 100)	> 10 000 ohms
• Pt 1000	Yes
• Input resistance (Pt 1000)	> 10 000 ohms
• Pt 200	Yes
• Input resistance (Pt 200)	> 10 000 ohms
• Pt 500	Yes
• Input resistance (Pt 500)	> 10 000 ohms
Characteristic linearization	
• parameterizable	Yes
— for resistance thermometer	Pt100, Pt200, Pt500, Pt1000, Ni100, Ni1000; different characteristics selectable (Europe/U.S.)
Cable length	
• shielded, max.	200 m; 50 m with thermocouples and input ranges ±80 mV

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)	8 / 23 / 25 ms
• Integration time (ms)	20 ms at 50 Hz (entire module incl. wire break)
• Basic conversion time, including integration time (ms)	
— additional conversion time for wire-break monitoring	110 ms / 4 ms
— additional conversion time for wire-break monitoring and resistance measurement	none
• Interference voltage suppression for interference frequency f1 in Hz	none/ 60 / 50 Hz

Encoder

Connection of signal encoders	
• for resistance measurement with three-wire connection	Yes
• for resistance measurement with four-wire connection	Yes

Errors/accuracies

Operational error limit in overall temperature range	

• Resistance thermometer, relative to input range, (+/-)	±1 °C
Basic error limit (operational limit at 25 °C)	
• Resistance thermometer, relative to input range, (+/-)	±0,2 °C
Interrupts/diagnostics/status information	
Alarms	
• Diagnostic alarm	Yes; Parameterizable
• Limit value alarm	Yes
Potential separation	
Potential separation analog inputs	
• Potential separation analog inputs	Yes; internal/external
• between the channels	No
Isolation	
Isolation tested with	1500 V DC
Dimensions	
Width	25 mm
Height	290 mm
Depth	210 mm
Weights	
Weight, approx.	650 g

last modified: 12/24/2018