SIEMENS

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
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)
• 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

Diagnostics function	Yes; Parameterizable
Alarms	

• Diagnostic alarm	Yes; Parameterizable	
• Limit value alarm	Yes	
• Hardware interrupt	Yes; Parameterizable	
Diagnostic messages		
• Diagnostic information readable	Yes; possible	

Potential separation	
Potential separation analog inputs	
• Potential separation analog inputs	Yes; internal/external
• between the channels	No
• between the channels and backplane bus	Yes

Isolation	
Isolation tested with	1500 V DC

Dimensions	
Width	25 mm
Height	290 mm
Depth	210 mm

Weights	
Weight, approx.	650 g

last modified:	06/09/2020