

SIMATIC S7-400, ANALOG INPUT SM 431, 8AI; 16 BIT
RESOLUTION, RESIST./PT100/NI100 OPTIC. ISOLATED,
DIAGNOSTIC, ALARM, 20 MS MODULE UPDATE



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 • Input resistance (Ni 100) • Ni 1000 • Input resistance (Ni 1000) • Pt 100 • Input resistance (Pt 100) • Pt 1000 • Input resistance (Pt 1000) • Pt 200 • Input resistance (Pt 200) • Pt 500 • Input resistance (Pt 500)	Yes > 10 000 ohms Yes; Different characteristics selectable: Europe/U.S. > 10 000 ohms Yes > 10 000 ohms Yes > 10 000 ohms Yes > 10 000 ohms Yes > 10 000 ohms
Characteristic linearization	
• parameterizable — for resistance thermometer	Yes 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. • Integration time, parameterizable • Basic conversion time (ms) • Integration time (ms) • Basic conversion time, including integration time (ms) — additional conversion time for wire-break monitoring — additional conversion time for wire-break monitoring and resistance measurement • Interference voltage suppression for interference frequency f1 in Hz	16 bit Yes 8 / 23 / 25 ms 20 ms at 50 Hz (entire module incl. wire break) 110 ms / 4 ms none none/ 60 / 50 Hz
Encoder	
Connection of signal encoders	
• for resistance measurement with three-wire connection • for resistance measurement with four-wire connection	Yes 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:	08/29/2017