

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



Input current	
from load voltage L+ (without load), max.	400 mA
from backplane bus 5 V DC, max.	650 mA
Power losses	
Power loss, typ.	3.3 W
Hardware configuration	
Slots	
• Required slots	1
Analog inputs	
Number of analog inputs	8
Number of analog inputs 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 — for resistance thermometer	Yes Pt100, Pt200, Pt500, Pt1000, Ni100, Ni1000; different characteristics selectable (Europe/U.S.)
Cable length	
• Cable length, shielded, max.	200 m; 50 m with thermocouples and input ranges +/-80 mV
Analog value creation	
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 limit in overall temperature range	

- Resistance thermometer, relative to input area, (+/-) $\pm 1\text{ }^{\circ}\text{C}$

Basic error limit (operational limit at 25 °C)

- Resistance thermometer, relative to input area, (+/-) $\pm 0,2\text{ }^{\circ}\text{C}$

Interrupts/diagnostics/status information

Alarms

- Diagnostic alarm Yes; Parameterizable
- Limit value alarm Yes

Diagnostic messages

- Diagnostics Yes

Galvanic isolation

Galvanic isolation analog inputs

- Galvanic isolation analog inputs Yes; internal/external
- between the channels No

Permissible potential difference

between the inputs (UCM) none

Isolation

Isolation checked with 1500 V DC

Dimensions

Width 25 mm
 Height 290 mm
 Depth 210 mm

Weights

Weight, approx. 650 g
last modified: 14.10.2014