



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)
Constant measurement current for resistance-type transmitter, typ.	1 mA
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 $\pm 80$ mV
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	16 bit

<ul style="list-style-type: none"> <li>• Integration time, parameterizable</li> <li>• Basic conversion time (ms)</li> <li>• Integration time (ms)</li> <li>• Interference voltage suppression for interference frequency f1 in Hz</li> </ul>	Yes 8 / 23 / 25 ms 20 ms at 50 Hz (entire module incl. wire break) none/ 60 / 50 Hz
<b>Encoder</b>	
Connection of signal encoders	
<ul style="list-style-type: none"> <li>• for resistance measurement with three-wire connection</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• for resistance measurement with four-wire connection</li> </ul>	Yes
<b>Errors/accuracies</b>	
Operational error limit in overall temperature range	
<ul style="list-style-type: none"> <li>• Resistance thermometer, relative to input range, (+/- )</li> </ul>	±1 °C
Basic error limit (operational limit at 25 °C)	
<ul style="list-style-type: none"> <li>• Resistance thermometer, relative to input range, (+/- )</li> </ul>	±0,2 °C
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes; Parameterizable
Alarms	
<ul style="list-style-type: none"> <li>• Diagnostic alarm</li> </ul>	Yes; Parameterizable
<ul style="list-style-type: none"> <li>• Limit value alarm</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Hardware interrupt</li> </ul>	Yes; Parameterizable
Diagnoses	
<ul style="list-style-type: none"> <li>• Diagnostic information readable</li> </ul>	Yes; possible
<b>Potential separation</b>	
Potential separation analog inputs	
<ul style="list-style-type: none"> <li>• Potential separation analog inputs</li> </ul>	Yes; internal/external
<ul style="list-style-type: none"> <li>• between the channels</li> </ul>	No
<ul style="list-style-type: none"> <li>• between the channels and backplane bus</li> </ul>	Yes
<b>Isolation</b>	
Isolation tested with	500 V DC
<b>Dimensions</b>	
Width	25 mm
Height	290 mm
Depth	210 mm
<b>Weights</b>	
Weight, approx.	650 g
<b>last modified:</b>	12/16/2020 