



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
<ul style="list-style-type: none"> <li>For resistance measurement</li> </ul>	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	
<ul style="list-style-type: none"> <li>Voltage</li> <li>Current</li> <li>Thermocouple</li> <li>Resistance thermometer</li> <li>Resistance</li> </ul>	No No No Yes Yes
Input ranges (rated values), resistance thermometer	
<ul style="list-style-type: none"> <li>Ni 100               <ul style="list-style-type: none"> <li>Input resistance (Ni 100)</li> </ul> </li> <li>Ni 1000               <ul style="list-style-type: none"> <li>Input resistance (Ni 1000)</li> </ul> </li> <li>Pt 100               <ul style="list-style-type: none"> <li>Input resistance (Pt 100)</li> </ul> </li> <li>Pt 1000               <ul style="list-style-type: none"> <li>Input resistance (Pt 1000)</li> </ul> </li> <li>Pt 200               <ul style="list-style-type: none"> <li>Input resistance (Pt 200)</li> </ul> </li> <li>Pt 500               <ul style="list-style-type: none"> <li>Input resistance (Pt 500)</li> </ul> </li> </ul>	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	
<ul style="list-style-type: none"> <li>Parameterizable               <ul style="list-style-type: none"> <li>for resistance thermometer</li> </ul> </li> </ul>	Yes Pt100, Pt200, Pt500, Pt1000, Ni100, Ni1000; different characteristics selectable (Europe/U.S.)
Cable length	
<ul style="list-style-type: none"> <li>shielded, max.</li> </ul>	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	
<ul style="list-style-type: none"> <li>Resolution with overrange (bit including sign), max.</li> </ul>	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
• Basic execution time of the module (all channels released)	8 ms; 8 / 23 / 25 ms

**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
Diagnoses	
• 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	500 V DC
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**Dimensions**

Width	25 mm
Height	290 mm
Depth	210 mm

**Weights**

Weight, approx.	650 g
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**Classifications**

	Version	Classification
eClass	16	27-24-22-01
eClass	14	27-24-22-01
eClass	12	27-24-22-01
eClass	9.1	27-24-22-01
eClass	9	27-24-22-01
eClass	8	27-24-22-01
eClass	7.1	27-24-22-01
eClass	6	27-24-22-01
ETIM	10	EC001420
ETIM	9	EC001420
ETIM	8	EC001420
ETIM	7	EC001420
IDEA	4	3562
UNSPSC	15	32-15-17-05

**Approvals / Certificates**

General Product Approval
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[Manufacturer Declaration](#)

[Miscellaneous](#)



[Metrological Approval](#)

General Product Approval

EMV



[China RoHS](#)

[Miscellaneous](#)

[Manufacturer Declaration](#)



EMV

For use in hazardous locations



[FM](#)



For use in hazardous locations

Maritime application

[Type Examination Certificate](#)



Maritime application

[NK / Nippon Kaiji Kyokai](#)



[CCS \(China Classification Society\)](#)

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