



Figure similar

\*\*\*spare part\*\*\* SIMATIC S7-300, analog input SM 331, isolated, 8 AI thermocouples type B, E, J, K, L, N, R, S, T TXK/TXK (L) according to GOST 16 bit, 50 ms, 1x 40-pole

General information	
Product function	
• Isochronous mode	No
Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V
• Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	240 mA
from backplane bus 5 V DC, max.	100 mA
Power loss	
Power loss, typ.	3 W
Analog inputs	
Number of analog inputs	8
permissible input voltage for voltage input (destruction limit), max.	75 V; 20 V DC permanent, 75 V DC for max. 1 s (duty factor 1:20)
Constant measurement current for resistance-type transmitter, typ.	0.7 mA
Input ranges	
• Voltage	No
• Current	No
• Thermocouple	Yes
• Resistance thermometer	No
• Resistance	No
Input ranges (rated values), voltages	
• 0 to +10 V	No
• 1 V to 5 V	No
• 1 V to 10 V	No
• -1 V to +1 V	No
• -10 V to +10 V	No
• -2.5 V to +2.5 V	No
• -250 mV to +250 mV	No
• -5 V to +5 V	No
• -50 mV to +50 mV	No
• -500 mV to +500 mV	No
• -80 mV to +80 mV	No
Input ranges (rated values), currents	
• 0 to 20 mA	No

• -10 mA to +10 mA	No
• -20 mA to +20 mA	No
• -3.2 mA to +3.2 mA	No
• 4 mA to 20 mA	No
<b>Input ranges (rated values), thermocouples</b>	
• Type B	Yes
• Type C	Yes
• Type E	Yes
• Type J	Yes
• Type K	Yes
• Type L	Yes
• Type N	Yes
• Type R	Yes
• Type S	Yes
• Type T	Yes
• Type U	Yes
• Type TXK/TXK(L) to GOST	Yes
<b>Input ranges (rated values), resistance thermometer</b>	
• Cu 10	No
• Ni 100	No
• Ni 1000	No
• LG-Ni 1000	No
• Ni 120	No
• Ni 200	No
• Ni 500	No
• Pt 100	No
• Pt 1000	No
• Pt 200	No
• Pt 500	No
<b>Input ranges (rated values), resistors</b>	
• 0 to 150 ohms	No
• 0 to 300 ohms	No
• 0 to 600 ohms	No
• 0 to 6000 ohms	No
<b>Thermocouple (TC)</b>	
<b>Temperature compensation</b>	
— parameterizable	Yes
— internal temperature compensation	Yes
— external temperature compensation with Pt100	Yes
— external temperature compensation with compensations socket	Yes
— for definable comparison point temperature	Yes
<b>Characteristic linearization</b>	
• parameterizable	Yes
— for thermocouples	Type B, E, J, K, L, N, R, S, T, U, C
<b>Cable length</b>	
• shielded, max.	100 m
<b>Analog value generation for the inputs</b>	
<b>Integration and conversion time/resolution per channel</b>	
• Resolution with overrange (bit including sign), max.	16 bit; Two's complement
• Integration time, parameterizable	Yes
• Basic conversion time (ms)	Up to 4 channels: 10 ms per module, 5 channels upwards: 190 ms per module
• Interference voltage suppression for interference frequency $f_1$ in Hz	400 / 60 / 50 Hz
<b>Errors/accuracies</b>	
<b>Operational error limit in overall temperature range</b>	
• Voltage, relative to input range, (+/-)	±1 K
• Thermocouple, relative to input range, (+/-)	Type T: ±0.18%, Type U: ±0.15%, Type E: ±0.12%, Type J: ±0.12%, Type L: ±0.17%, Type K: ±0.15%, Type N: ±0.17%, Type R: ±0.08%, Type S: ±0.10%, Type B: ±0.13%, Type C: ±0.10%, TXK/XK(L): ±1.00% accuracy in the lower

	range of the characteristic curve
Basic error limit (operational limit at 25 °C)	
<ul style="list-style-type: none"> <li>Thermocouple, relative to input range, (+/-)</li> </ul>	Type T: ±0.13%, Type U: ±0.08%, Type E: ±0.05%, Type J: ±0.04%, Type L: ±0.06%, Type K: ±0.04%, Type N: ±0.04%, Type R: ±0.03%, Type S: ±0.03%, Type B: ±0.05%, Type C: ±0.02%, TXK/XK(L): ±0.67 % accuracy in the lower range of the characteristic curve

### Interrupts/diagnostics/status information

Diagnostics function	Yes; Parameterizable
Alarms	
<ul style="list-style-type: none"> <li>Diagnostic alarm</li> <li>Limit value alarm</li> <li>Hardware interrupt</li> </ul>	Yes; Parameterizable per group Yes; Parameterizable Yes; Parameterizable, channels 0 to 7

### Diagnoses

<ul style="list-style-type: none"> <li>Diagnostic information readable</li> </ul>	Yes
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### Diagnostics indication LED

<ul style="list-style-type: none"> <li>Group error SF (red)</li> </ul>	Yes
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### Potential separation

Potential separation analog inputs	
<ul style="list-style-type: none"> <li>between the channels</li> <li>between the channels, in groups of</li> <li>between the channels and backplane bus</li> <li>between the channels and the power supply of the electronics</li> </ul>	Yes 2 Yes Yes

### Isolation

Isolation tested with	500 V DC
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### Connection method

required front connector	40-pin
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### Dimensions

Width	40 mm
Height	125 mm
Depth	120 mm

### Weights

Weight, approx.	272 g
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### Classifications

	Version	Classification
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

[Miscellaneous](#)

[Manufacturer Declaration](#)



[Declaration of Conformity](#)



General Product Approval	EMV
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[Metrological Approval](#)



[China RoHS](#)

[Manufacturer Declaration](#)



EMV For use in hazardous locations



[EM](#)



For use in hazardous locations Maritime application

[Miscellaneous](#)

[CCC-Ex](#)



[NK / Nippon Kaiji Kyokai](#)

Maritime application



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

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