

## Data sheet

## 6ES7331-7PF01-0AB0



Figure similar

\*\*\*spare part\*\*\* SIMATIC S7-300, analog input SM 331, isolated, 2/3/4-wire, 8 AI, resistor, Pt100/200/1000 NI100/120/200/500/1000, CU10, characteristic curves according to GOST 16 (internal 24) bit, 50 ms, 1x 40-pole

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.	4.6 W
Analog inputs	
Number of analog inputs	8
• For resistance measurement	8
permissible input voltage for voltage input (destruction limit), max.	75 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), 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	No
• Type C	No
• Type E	No
• Type J	No
• Type K	No
• Type L	No
• Type N	No
• Type R	No
• Type S	No
• Type T	No
• Type U	No
• Type TXK/TXK(L) to GOST	No
<b>Input ranges (rated values), resistance thermometer</b>	
• Cu 10	Yes
• Ni 100	Yes
• Ni 1000	Yes
• LG-Ni 1000	Yes
• Ni 120	Yes
• Ni 200	Yes
• Ni 500	Yes
• Pt 100	Yes
• Pt 1000	Yes
• Pt 200	Yes
• Pt 500	Yes
<b>Input ranges (rated values), resistors</b>	
• 0 to 150 ohms	Yes
• 0 to 300 ohms	Yes
• 0 to 600 ohms	Yes
<b>Characteristic linearization</b>	
• parameterizable — for resistance thermometer	Yes Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10; (standard/climate)
<b>Cable length</b>	
• shielded, max.	200 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, over 5 channels: 190 ms per module, 8 channels: 80 ms
• Interference voltage suppression for interference frequency $f_1$ in Hz	400 / 60 / 50 Hz
<b>Encoder</b>	
<b>Connection of signal encoders</b>	
• for resistance measurement with two-wire connection	Yes; without resistance correction
• for resistance measurement with three-wire connection	Yes
• for resistance measurement with four-wire connection	Yes
<b>Errors/accuracies</b>	
<b>Operational error limit in overall temperature range</b>	
• Resistance, relative to input range, (+/-)	0.1 %
• Resistance thermometer, relative to input range, (+/-)	±1 K
<b>Basic error limit (operational limit at 25 °C)</b>	
• Resistance, relative to input range, (+/-)	0.05 %
• Resistance thermometer, relative to input range, (+/-)	±0.5 K
<b>Interrupts/diagnostics/status information</b>	
• Diagnostics function	Yes; Parameterizable
<b>Alarms</b>	
• Diagnostic alarm	Yes; Parameterizable per group
• Limit value alarm	Yes; Parameterizable

• Hardware interrupt	Yes; Parameterizable, channels 0 to 7
<b>Diagnoses</b>	
• Diagnostic information readable	Yes
<b>Diagnostics indication LED</b>	
• Group error SF (red)	Yes
<b>Potential separation</b>	
<b>Potential separation analog inputs</b>	
• between the channels	Yes
• between the channels, in groups of	2
• between the channels and backplane bus	Yes
• between the channels and the power supply of the electronics	Yes
<b>Isolation</b>	
Isolation tested with	500 V DC
<b>Connection method</b>	
required front connector	40-pin
<b>Dimensions</b>	
Width	40 mm
Height	125 mm
Depth	120 mm
<b>Weights</b>	
Weight, approx.	272 g

<b>Classifications</b>			
		<b>Version</b>	<b>Classification</b>
	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](#)

[China RoHS](#)



General Product Approval	EMV	For use in hazardous locations
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[Metrological Approval](#)



For use in hazardous locations	Maritime application
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[EM](#)



[Miscellaneous](#)

[CCC-Ex](#)



Maritime application



[NK / Nippon Kaiji Kyokai](#)



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

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