SIEMENS

Data sheet

6ES7331-7PF01-0AB0



SIMATIC S7-300, Analog input SM 331, isolated, 2/3/4-wire, 8 AI, Resistor, Pt100/200/1000 NI100/120/200/500/1000, CU10, characteristics according to GOST 16 (internal 24) bit, 50ms, 1x 40-pole

Figuresir	nilar
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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	75 V; 35 V continuous, 75 V for max. 1 s (mark to space ratio 1:20)
limit), max.	
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
Input ranges (rated values), thermocouples	
• Type B	No

 Type L Type L Type L Type J Type J Type J Type K No Type TXK/TXC(L) to GOST No Yes No No Yes No No Yes No No Yes No Yes No Yes No Yes No Yes No Yes No No Yes No No No No No No Yes No No		No
Type J Type J Type K No Type K No Type R T	• Type C	No
 Type K No Type K No Type N No Type N No Type N No Type N No Type T No Type T No Type T No Type TMXTXKL I O GOST No Input magas (rated values) resistance thermometer Ou 10 Yes Ni 100 Yes Ni 120 Yes Ni 120 Yes Ni 200 Yes Pi 100 Yes Pi 100 Yes Pi 200 Yes Pi 200 Yes Pi 500 Yes Di 150 ohms Yes O b 150 ohms Yes O b 150 ohms Yes O b 160 ohms O b 160 ohms Yes O b 160 ohms O b		
 Type L No Type R No Type R No Type R No Type T No Type T No Type T No Type TO No No Type TO No <li< td=""><td>• Type J</td><td>No</td></li<>	• Type J	No
 Type N Type N Type R Type R Type T No Type T No Type T No Type TXMTXRU Io GOST No No Type TXMTXRU IO GOST No No Second State Stat	• Туре К	No
Type R Type R Type S Type T No Type T	• Type L	No
 Type S No Type T No Type TA No Type TA No Type TA No Type TA No No No No No Yes Yes No Yes Yes No No No No Yes No No	• Type N	No
 Type T No Type TXK/TXK(L10 GOST No Input ranges (rade values), resistance thermometer Cu 10 Yes Ni 100 Yes Ni 200 Yes Ni 200 Yes Yes Pi 100 Yes Characteristic lineatracion Yes Pi 100 Pi 200 Pi 200 ohms Yes Characteristic lineatracion Yes Characteristic lineatracion Person Pi 100, Pi200, Pi200, Pi100, Ni100, Ni120, Ni200, Ni100, Cu100, (standard/climate) Cable length sheleded, max. 200 m Analog value genaration for the inputs Integration and conversion time/resolution per channel Pi 201 Pi 201<td>• Type R</td><td>No</td>	• Type R	No
 Type T No Type TXK/TXK(L10 GOST No Input ranges (rade values), resistance thermometer Cu 10 Yes Ni 100 Yes Ni 200 Yes Ni 200 Yes Yes Pi 100 Yes Characteristic lineatracion Yes Pi 100 Pi 200 Pi 200 ohms Yes Characteristic lineatracion Yes Characteristic lineatracion Person Pi 100, Pi200, Pi200, Pi100, Ni100, Ni120, Ni200, Ni100, Cu100, (standard/climate) Cable length sheleded, max. 200 m Analog value genaration for the inputs Integration and conversion time/resolution per channel Pi 201 Pi 201<td>• Type S</td><td>No</td>	• Type S	No
 Type TVXTXKL to GOST Type TVXTXKL GOST No Input ranges (rated values), resistance thermometer C via 100 Yes N 100 Yes N 1000 Yes N 1000 Yes N 1000 Yes N 120 Yes Yes P 1000 Yes P 1000 Yes P 1000 Yes P 1200 Yes P 1000 P 10000 P 10000 P 10000 P 10	• Type T	No
• Type TXX/TXK(1) to GOST No Input range (rade values), resistance thermometer Yes • No 100 Yes • No 120 Yes • No 120 Yes • No 120 Yes • No 120 Yes • Pi 100 Yes • Pi 100 Yes • Pi 200 Yes • O to 500 ohms Yes • O to 500 ohms Yes • O to 600 ohms Yes • To resistance thermometer P100. P200. Pt500. Pt500. Pt1000. Ni100. Ni120. Ni20. Ni500. Ni1000. Cu100: (standard/climate) Cable length • • Shelded, max. 200 m Analog value generation for the inputs 16 bit, Two's complement • Integration and conversion time/resolution gave, maximum 16 bit, Two's complement • Connection Yes 16 bit, Two's com		
Input ranges (rated values), resistance thermometer Yes • Cu 100 Yes • Ni 100 Yes • Ni 100 Yes • Ni 100 Yes • Ni 120 Yes • Ni 500 Yes • Pi 1000 Yes • Pi 1000 Yes • D to 500 rbms Yes • 0 to 500 rbms Yes • 0 to 500 rbms Yes • Characteristic linearcation Yes • parameterizable Yes • a fold on with overrange (bit including sign), max 16 bit: Two's complement • Integration and conversion time/resolution per channel 16 bit: Two's complement • Integration dime (ms) Yes, without resistance correction • Corraction for resistance measurement with two-wire connection • Corraction of signal encoders Yes, without resistance correction • Corraction Yes • Corraction		
• Cu 10 Yes • Ni 100 Yes • Ni 1000 Yes • Lin Vi 1000 Yes • Ni 1000 Yes • Ni 120 Yes • Ni 200 Yes • Ni 200 Yes • Pi 100 Yes • Pi 100 Yes • Pi 100 Yes • Pi 100 Yes • Pi 200 Yes • Pi 500 Yes • O to 500 ohms Yes • O to 500 ohms Yes • O to 600 ohms Yes • Piston Yes • O to 600 ohms Yes • Resolution with overrange (bit including sign), max. 200 m • Integration and conversion time (rsm) 16 bit, Two's complement • Interference voltage suppression for interference Yes • Interference voltage suppression for interference Yes • Connection for resistance measurement with how-wire connection • for resistance themsourcer range Yes • For resistance themsourcer range Yes		
N 100 Yes N 1000 Yes N 1000 Yes N 120 Yes N 120 Yes N 120 Yes N 120 Yes N 1500 Yes P 1000 Yes P 1000 Yes P 1000 Yes P 1200 Yes O 10 50 ohms Yes O 10 500 ohms Yes O 10 500 ohms Yes O 10 500 ohms Yes Characteristic linearzation Yes - for resistance thermometer P100, P1200, P1500, P1100, N1100, N1120, N1200, N1500, N11000, Clic (standard/climate) Cable length 200 m Analog value generation for the inputs 16 bit; Two's complement Yes Yes Integration and conversion time/resolution per channel Yes Integration time, parameterizable Yes • Interference voltage suppression for interference frequency 11 in H2 Yes Connection Ves • for resistance measurement with two-wire connection 400 / 60 / 50 H2 • for resistance measurement with three-wire connection Yes • for resistance measurement with three-wire connection 0.1 % • for resistance measurement with four-wire connection		Yes
N 1000 Yes • LG-Ni 1000 Yes • N 120 Yes • N 120 Yes • N 120 Yes • N 1000 Yes • N 1000 Yes • P 100 Yes • O 10 500 ohms Yes • O 10 500 ohms Yes • O 10 600 ohms Yes • O 10 600 ohms Yes • O 10 600 ohms Yes • Characteristic linearzation - • parameterizable Yes • or resistance thermometer P100, P200, P500, P1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10', (standard/climate) Cable length - • shelded, max. 200 m Analog value generation for the Inputs 11 Integration and conversion time/resolution per channel Yes • Interference voltage suppression for interference tracture ange. 16 bit; Two's complement • Interference voltage suppression for interference tracture ange. Yes, without resistance correction		
I.G.M i 100 Yes N 120 Yes N 120 Yes N 120 Yes N 1500 Yes P 1000 Yes P 1000 Yes P 1200 Yes P 1200 Yes P 1200 Yes P 1200 Yes O to 150 ohms Yes • 0 to 500 ohms Yes • 0 to resistance thermometer Characteristic linearizable • oher resistance thermometer Yes • oher resistance thermometer 15 bit; Two's complement • Integration sine, parameterizable Yes • Interference voltage suppression for interference frequency f1 in H2 Encoder Connection of signal encoders • for resistance measurement with two-wire connection Yes without resistance correction • for resistance measurement with four-wire connection Yes • for resistanc		
• Ni 120 Yes • Ni 200 Yes • Ni 200 Yes • Pi 100 Yes • Pi 100 Yes • Pi 200 Yes • Pi 200 Yes • Pi 200 Yes • Pi 200 Yes • Di 50 0hms Yes • Olo 50 0hms Yes • Olo 500 0hms Yes • Olo 500 0hms Yes • Olo 600 0hms Yes • Characteristic linearization Yes • parameterizable Yes • olo 6300 0hms 200 m Cable length 200 m • shelded, max. 200 m Analog value generation for the inputs Integration and conversion time/resolution per channel • Integration and conversion time/resolution per channel 15 bit. Tro?s complement • Integration of the inputs 14 bit. Tro?s complement • Integration of signal encoders Yes • Interference voltage suppression for interference Yes • for resistance measurement with two-wire connection Yes • for resistance measurement with two-wire connection Yes • for resistance measurement with two-wire connection Yes • for resistance measurement with four-wire connection Yes <		
 Ni 200 Yes Pi 100 Yes Pi 100 Yes Pi 100 Yes Pi 100 Yes Pi 200 Yes Pi 500 Yes O to 500 chms Yes Pi100, P200, PI500, PI1000, Ni120, Ni200, Ni500, Ni1000, Cu10: (standard/climate) Cable length o to stop generation for the inputs Integration and conversion time/resolution per channel Integration time, parametrizable Pitodo P200, PI500, PI1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10: (standard/climate) Cable length Integration time, parametrizable Yes U to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, over 6 channels: 10 ms per m		
 Ni 600 Yes Pi 1000 Yes Pi 1000 Yes Pi 1000 Yes Pi 200 Yes Pi 200 Yes Pi 500 Yes Input ranges (rated values), resistors Ves O to 150 ohms Yes O to 300 ohms Yes O to 300 ohms Yes Characteristic linearization parameterizable Prison <li< td=""><td></td><td></td></li<>		
 P1 100 P2 100 P2 1000 Yes P1 100 Yes P1 100 Yes P1 100 Yes P1 500 Yes O to 150 ohms O to 150 ohms Yes O to 300 ohms Yes O to 600 ohms Yes Parameterizable Prometerizable Presistance hermoneter,		
 Pf 1000 Yes Pf 200 Yes Pf 200 Yes Pf 500 Yes Toto transpec (rated values), resistors Yes O to 500 ohms Yes O to 500 ohms Yes O to 500 ohms Yes Characteristic linearzation For resistance thermometer Pition, Pt200, Pt500, Pt1000, Ni120, Ni200, Ni500, Ni1000, Cu100 (standard/climate) Cable length e shielded, max. 200 m Analog value generation for the inputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time (ms) Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders For resistance measurement with two-wire connection or resistance measurement with two-wire connection or resistance measurement with four-wire versistance correction connection or resistance measurement with four-wire versistance correction connection or resistance thermometer relative to input range, (+/-) resistance transmeter, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Dispositic situation information Yes; Parameterizable Diagnostic clairm Yes; Parameterizable Jingonstic clairm Yes; Parameterizable Jingonstic clairm Yes; Parameterizable 	• Ni 500	
 P1 200 Yes P1 500 Yes P1 500 Yes P1 500 Yes P1 500 Ohms Yes O to 150 ohms Yes O to 300 ohms Yes O to 600 to 700 HZ to 7000, N100, N	• Pt 100	Yes
• Pt 500 Yes Input ranges (rated values), resistors • • 10 to 300 ohms Yes • 10 to 300 ohms Yes • 10 to 300 ohms Yes • Characteristic linearization Yes • parameterizable Yes - for resistance thermometer Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10: (standard/climate) Cable length - • shielded, max. 200 m Analog value generation for the inputs - Integration and conversion time/resolution per channel - • Resolution with overrange (bit including sign), max. 16 bit; Two's complement • Integration sine, parameterizable Yes • Interference voltage suppression for interference frequency f1 in Hz Encoder - Connection of signal encoders Yes, without resistance correction connection • for resistance measurement with two-wire connection Yes • for resistance measurement with four-wire connection Yes • for resistance measurement with four-wire connection Yes • for resistance relative to input range, (+/-) 0.1 % • Resistance thermometer, relative to input range,	• Pt 1000	Yes
Input ranges (rated values), resistors Yes • to 150 ohms Yes • 0 to 500 ohms Yes • 0 to 600 ohms Yes Characteristic linearization Yes • parameterizable Yes - for resistance thermometer P100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10: (standard/climate) Cable length shielded, max. • shielded, max. 200 m Analog value generation for the Inputs 16 bit; Two's complement Integration ime, parameterizable Yes • Basic conversion time (ms) 16 bit; Two's complement • Interference voltage suppression for interference frequency f1 in Hz Yes Encoder Yes; without resistance correction • for resistance measurement with two-wire connection Yes; without resistance correction • for resistance measurement with four-wire connection Yes • for resistance measurement with four-wire connection Yes • for resistance measurement with four-wire connection 0.1 % • Resistance, relative to input range, (+/-) 0.1 % • Resistance, relative to input range, (+/-) 0.5 % • Resistance, relative to input range, (+/-) 0.5 % • Resistance thermometer, relative to input range, (+/-) 0.5 % • Resistance thermometer, relative to input r	• Pt 200	Yes
• 0 to 150 ohms Yes • 0 to 300 ohms Yes • 0 to 600 ohms Yes Characteristic linearization Yes • parameterizable Yes — for resistance thermometer P100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10; (standard/climate) Cable length - • shielded, max. 200 m Analog value generation for the inputs - Integration and conversion time/resolution per channel - • Resolution with overrange (bit including sign), max. 16 bit; Two's complement • Integration time, parameterizable yes • Interference voltage suppression for interference frequency 11 in hz 400 / 60 / 50 Hz Connection of signal encoders - • for resistance measurement with two-wire connection Yes • for resistance measurement with two-wire connection Yes • for resistance measurement with four-wire connection Yes • for resistance measurement with two-wire connection Yes • for resistance measurement with tou-wire connection Yes • for resistance measurement with tou-wire connection Yes • for	• Pt 500	Yes
• 0 to 300 ohms Yes • 0 to 600 ohms Yes Characteristic linearization * • parameterizable Yes - for resistance thermometer P100, P1200, P1500, P11000, Ni100, Ni120, Ni200, Ni1000, Cu10; (standard/climate) Cable length * • shielded, max. 200 m Analog value generation for the inputs * Integration and conversion time/resolution per channel * • Resolution with overrange (bt including sign), max. * • Basic conversion time/resolution per channel * • 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 400 / 60 / 50 Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection Yes • or resistance measurement with four-wire connection Yes • or resistance measurement with four-wire connection Yes • Resistance, relative to input range, (+/-) 0.1 % • Resistance, relative to input range, (+/-) 0.1 % • Resistance, relative to input range, (+/-) 0.5 % • Resistance, relative to input range, (+/-) 0.5 % • Resistance, relative to input range,	Input ranges (rated values), resistors	
• 0 to 600 ohms Yes Characteristic linearization • • parameterizable Yes - for resistance thermometer P100, P1200, P1500, P11000, N1120, N1200, N1500, N11000, Cu10; (standard/climate) Cable length • • shielded, max. 200 m Analog value generation for the Inputs • Integration and conversion time/resolution per channel • • Resolution with overrange (bit including sign), max. • • Integration time, parameterizable Yes • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection oon /0 / 50 Hz • or resistance measurement with four-wire connection Yes • or resistance measurement with four-wire connection Yes • or resistance measurement with four-wire connection Yes • Provision of signal encoders Yes • Prove measurement with four-wire connection Yes • Provision of resistance measurement with four-wire connection Yes • Provision of the part range Yes • Provision of the provis	• 0 to 150 ohms	Yes
• 0 to 600 ohms Yes Characteristic linearization • • parameterizable Yes - for resistance thermometer P100, P1200, P1500, P11000, N1120, N1200, N1500, N11000, Cu10; (standard/climate) Cable length • • shielded, max. 200 m Analog value generation for the Inputs • Integration and conversion time/resolution per channel • • Resolution with overrange (bit including sign), max. • • Integration time, parameterizable Yes • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection oon /0 / 50 Hz • or resistance measurement with four-wire connection Yes • or resistance measurement with four-wire connection Yes • or resistance measurement with four-wire connection Yes • Provision of signal encoders Yes • Prove measurement with four-wire connection Yes • Provision of resistance measurement with four-wire connection Yes • Provision of the part range Yes • Provision of the provis	• 0 to 300 ohms	Yes
Characteristic linearization Yes • parameterizable Yes • of resistance thermometer Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10; (standard/climate) Cable length • shielded, max. 200 m Analog value generation for the Inputs Integration and conversion time/resolution per channel • Resolution with overrage (bit including sign), max. 16 bit; Two's complement • Integration ine, parameterizable Yes • Basic conversion time (ms) up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, over 5 channels: 190 ms per module, over 5 channels: 190 ms per module, de channels: 80 ms • Interference voltage suppression for interference frequency f1 in Hz Yes; without resistance correction • for resistance measurement with two-wire connection Yes; without resistance correction • for resistance measurement with four-wire connection Yes • for resistance measurement with four-wire connection Yes • for resistance measurement with four-wire connection Yes • Resistance, relative to input range, (+/-) 0.1 % • Resistance thermometer, relative to input range, (+/-) 0.1 % • Resistance, relative to input range, (+/-) 0.05 % • Resistance, thermometer, relative to input range, (+/-)		
• parameterizable Yes — for resistance thermometer Pr100, Pt200, Pt500, Pt1000, Ni120, Ni200, Ni500, Ni1000, Cu10; (standard/climate) Cable length • Shielded, max. 200 m Analog value generation for the inputs Integration and conversion time/resolution per channel Integration and conversion time/resolution per channel 16 bit; Two's complement • Resolution with overrange (bit including sign), max. 16 bit; Two's complement • Integration time, parameterizable Yes • Interference voltage suppression for interference frequency 11 in Hz 10 / 60 / 50 Hz Encodor 200 / 60 / 50 Hz Connection of signal encoders Yes; without resistance correction • for resistance measurement with two-wire connection Yes • for resistance measurement with four-wire connection 9.1 % • for resistance measurement with four-wire connection 0.1 % • Resistance, relative to input range, (+/-) 0.1 % • Resistance, relative to input range, (+/-) 0.05 % • Resistance, relative to input range, (+/-) 0.05 % • Resistance thermometer, relative to input range, (+/-) 0.05 % • Resistance thermometer, relative to input range, (+/-)		100
- for resistance thermometer Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10; (standard/climate) Cable length • shielded, max. 200 m Anadog value generation for the inputs 1 Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. 16 bit; Two's complement • Integration time, parameterizable Yes 16 bit; Two's complement • Integration disparation of signal encoders 16 bit; Two's complement • Interference voltage suppression for interference 400 / 60 / 50 Hz Encoder 200 m Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with thoe-wire connection Yes; without resistance correction • for resistance measurement with four-wire connection Yes • for resistance measurement with four-wire connection Yes • for resistance measurement with four-wire connection Yes • for resistance relative to input range, (+/-) 0.1 % • Resistance, relative to input range, (+/-) 0.1 % • Resistance thermometer, relative to input range, (+/- ±0.5 K • Resistance thermometer, relative to input range, (+/- ±0.5 K • Diagnostics function Yes; Parameterizable Alarms Yes; Parameterizable		Vec
Cu10; (standard/climate) Cable length • shielded, max. 200 m Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency ff in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with four-wire connection • Resistance thermometer, relative to input range, (+/-) • Resistance thermometer, relative to inpu		
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• shielded, max. 200 m Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection • for resistance measurement with two-wire connection • for resistance measurement with four-wire connection • Resistance, relative to input range, (+/-) • Resistance, relative to input rang	Cable length	
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Resolution with overrange (bit including sign), max. Integration time, parameterizable Basic conversion time (ms) Interference voltage suppression for interference frequency f1 in Hz Connection of signal encoders for resistance measurement with two-wire connection for resistance measurement with three-wire connection for resistance measurement with four-wire consection for resistance measurement with transe, (+/-) for esistance, relative to input range, (+/-) for esistance thermometer, relative to inpu		
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 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 ff in Hz Encoder Connection of signal encoders for resistance measurement with two-wire connection for resistance measurement with three-wire connection for resistance measurement with four-wire Yes for resistance temporation overall temperature range Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) So So S	Analog value generation for the inputs Integration and conversion time/resolution per channel	
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frequency f1 in Hz Frequency f1 in Hz Encoder Connection of signal encoders • 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 • for resistance, relative to input range, (+/-) 0.1 % • Resistance, relative to input range, (+/-) 1 % • Resistance, relative to input range, (+/-) 0.05 % • Resistance thermometer, relative to input range, (+/-) ±0.5 K) Interrupts/diagnostics/status information Diagnostics function Yes; Parameterizable Alarms Oiagnostic alarm Yes; Parameterizable per group • Limit value alarm Yes; Parameterizable	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per
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Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection Yes Deperational error limit in overall temperature range • Resistance, relative to input range, (+/-) 0.1 % • Resistance thermometer, relative to input range, (+/-) 1 K Basic error limit (operational limit at 25 °C) 0.05 % • Resistance thermometer, relative to input range, (+/-) 0.05 % • Resistance thermometer, relative to input range, (+/-) 10.5 K) Diagnostics/status information Diagnostics function Yes; Parameterizable Alarms Oiagnostic alarm Yes; Parameterizable per group • Limit value alarm Yes; Parameterizable	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms
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connection • for resistance measurement with three-wire connection Yes • for resistance measurement with four-wire connection Yes • for resistance measurement with four-wire connection Yes Errors/accuracies Operational error limit in overall temperature range • Resistance, relative to input range, (+/-) 0.1 % • Resistance thermometer, relative to input range, (+/-) 0.1 % • Resistance, relative to input range, (+/-) 0.05 % • Resistance, relative to input range, (+/-) 0.05 % • Resistance, relative to input range, (+/-) 0.05 % • Resistance thermometer, relative to input range, (+/-) ±0.5 K) Interrupts//diagnostics/status information Diagnostics function Yes; Parameterizable Alarms - • Diagnostic alarm Yes; Parameterizable per group • Limit value alarm Yes; Parameterizable	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms
 for resistance measurement with three-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection Frrors/accuracies Operational error limit in overall temperature range Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Resistance, relative to input range, (+/-) Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Resistanc	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz
connection • for resistance measurement with four-wire connectionYesErrors/accuraciesOperational error limit in overall temperature range • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • SKInterrupts/diagnostics/status informationDiagnostics function • Diagnostic alarm • Limit value alarmYes; Parameterizable per group • Limit value alarm	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz
 for resistance measurement with four-wire connection Frrors/accuracies Operational error limit in overall temperature range Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Basic error limit (operational limit at 25 °C) Resistance, relative to input range, (+/-) Resistance, relative to input range, (+/-) Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Status information Interrupts/diagnostics/status information Diagnostics function Yes; Parameterizable Alarms Diagnostic alarm Ves; Parameterizable per group Limit value alarm Yes; Parameterizable	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction
connection Errors/accuracies Operational error limit in overall temperature range • Resistance, relative to input range, (+/-) 0.1 % • Resistance thermometer, relative to input range, (+/-) ±1 K) ±1 K Basic error limit (operational limit at 25 °C) 0.05 % • Resistance thermometer, relative to input range, (+/-) 0.05 % • Resistance thermometer, relative to input range, (+/-) 10.5 K Interrupts/diagnostics/status information ±0.5 K Diagnostics function Yes; Parameterizable Alarms Yes; Parameterizable per group • Limit value alarm Yes; Parameterizable	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction
Errors/accuracies Operational error limit in overall temperature range Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Basic error limit (operational limit at 25 °C) Resistance, relative to input range, (+/-) 0.05 % Resistance thermometer, relative to input range, (+/-) Basic error limit (operational limit at 25 °C) Interrupts/diagnostics/status information Interrupts/diagnostics/status information Diagnostic function Yes; Parameterizable Alarms Diagnostic alarm Limit value alarm Yes; Parameterizable 	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire connection	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes
Operational error limit in overall temperature range • Resistance, relative to input range, (+/-) 0.1 % • Resistance thermometer, relative to input range, (+/-) ±1 K > Basic error limit (operational limit at 25 °C) • Resistance, relative to input range, (+/-) 0.05 % • Resistance thermometer, relative to input range, (+/-) ±0.5 K > Interrupts/diagnostics/status information Diagnostics function Yes; Parameterizable Alarms Yes; Parameterizable per group • Limit value alarm Yes; Parameterizable	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes
 Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Basic error limit (operational limit at 25 °C) Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Interrupts/diagnostics/status information Diagnostics function Yes; Parameterizable Alarms Diagnostic alarm Limit value alarm Yes; Parameterizable 	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes
 Resistance thermometer, relative to input range, (+/-) Basic error limit (operational limit at 25 °C) Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Interrupts/diagnostics/status information Diagnostics function Yes; Parameterizable Alarms Diagnostic alarm Yes; Parameterizable per group Limit value alarm Yes; Parameterizable 	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection • for resistance measurement with four-wire connection	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes
) Basic error limit (operational limit at 25 °C) • Resistance, relative to input range, (+/-) 0.05 % • Resistance thermometer, relative to input range, (+/-) ±0.5 K) Interrupts/diagnostics/status information Diagnostics function Yes; Parameterizable Alarms • Diagnostic alarm • Limit value alarm Yes; Parameterizable per group Yes; Parameterizable Yes; Parameterizable	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes Yes
 Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) ±0.5 K Interrupts/diagnostics/status information Diagnostics function Yes; Parameterizable Alarms Diagnostic alarm Limit value alarm Yes; Parameterizable Yes; Parameterizable 	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes Yes
 Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) ±0.5 K Interrupts/diagnostics/status information Diagnostics function Yes; Parameterizable Alarms Diagnostic alarm Limit value alarm Yes; Parameterizable Yes; Parameterizable 	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes Yes
 Resistance thermometer, relative to input range, (+/-) Interrupts/diagnostics/status information Diagnostics function Yes; Parameterizable Alarms Diagnostic alarm Yes; Parameterizable per group Limit value alarm Yes; Parameterizable 	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection • for resistance measurement with four-wire connection • Resistance thermometer, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-)	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes Yes
) Interrupts/diagnostics/status information Diagnostics function Yes; Parameterizable Alarms Diagnostic alarm Yes; Parameterizable per group Limit value alarm Yes; Parameterizable	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection • for resistance measurement with four-wire connection • Resistance, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Basic error limit (operational limit at 25 °C)	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes Yes 0.1 % ±1 K
Diagnostics function Yes; Parameterizable Alarms • Diagnostic alarm Yes; Parameterizable per group • Limit value alarm Yes; Parameterizable	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with four-wire connection • Resistance, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Basic error limit (operational limit at 25 °C) • Resistance, relative to input range, (+/-)	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes Yes 0.1 % ±1 K
Diagnostics function Yes; Parameterizable Alarms • Diagnostic alarm Yes; Parameterizable per group • Limit value alarm Yes; Parameterizable	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with four-wire connection • Resistance, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Basic error limit (operational limit at 25 °C) • Resistance, relative to input range, (+/-)	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes Yes 0.1 % ±1 K
Alarms • Diagnostic alarm Yes; Parameterizable per group • Limit value alarm Yes; Parameterizable	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with four-wire connection • Resistance, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resistance thermome	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes Yes 0.1 % ±1 K
Diagnostic alarm Yes; Parameterizable per group Limit value alarm Yes; Parameterizable	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with four-wire connection • Basic error limit in overall temperature range • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-)	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes Yes 0.1 % ±1 K 0.05 % ±0.5 K
Limit value alarm Yes; Parameterizable	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with four-wire connection • Resistance, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resistanc	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes Yes 0.1 % ±1 K 0.05 % ±0.5 K
	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection • Resistance, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer,	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes 0.1 % ±1 K 0.05 % ±0.5 K Yes; Parameterizable
Hardware interrupt Yes; Parameterizable, channels 0 to 7	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection • Resistance, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resist	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes Yes Yes 0.1 % ±1 K 0.05 % ±0.5 K
	Analog value generation for the inputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz Encoder Connection of signal encoders • for resistance measurement with two-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection Errors/accuracies Operational error limit in overall temperature range • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to i	16 bit; Two's complement Yes up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms 400 / 60 / 50 Hz Yes; without resistance correction Yes Yes 0.1 % ±1 K 0.05 % ±0.5 K Yes; Parameterizable Yes; Parameterizable per group Yes; Parameterizable

Diagnoses	
 Diagnostic information readable 	Yes
Diagnostics indication LED	
 Group error SF (red) 	Yes
Potential separation	
Potential separation analog inputs	
 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
Isolation	
Isolation tested with	500 V DC
connection method / header	
required front connector	40-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	272 g
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last modified:

1/16/2021 🖸